

**Drainage Review: SR 29 from SR 78 to US 27**  
**Financial Project ID: 1939572-2-52-01**  
**Reviewer: H. Dan Thomas (PBSJ)**  
**Date: April 8, 2004**

Parsons Brinckerhoff Quade & Douglas, Inc. reviewed the existing drainage structures for this segment of SR 29 and made recommendations to increase the size of the four pipe cross drains along this segment of road. The southern most cross drain between bridges 050035 and 050033 has experienced flooding of the southbound lane on a somewhat regular basis (twice during summer of 2003) during the wet season of the year.

In addition to water on the roadway, the pipes have experienced joint leakage, and settlement of the roadway has to be periodically repaired by maintenance forces. Mr. Shone Phillips, LaBelle Maintenance Engineer, advises that it has been approximately two years since Maintenance has performed this work, and that it is not a significant problem as maintenance has to patch the road on a regular basis.

The discharge and stages in the Parson's report are suspect as there is significant storage upstream from the structures between bridges 05035 (Lone Pine Creek) and 050033 (Chaparral Slough) which was not accounted for in the stormwater model run.

It is agreed that the existing structures do not meet the existing design criteria, and that the structures should probably be increased in size. There are problems associated with increasing the size of the existing structures in that wetland encroachment and impacts to downstream property owners are involved. To increase the size of the existing structures would probably require mitigation of the wetland areas filled and the possible purchase of flood rights from downstream property owners.

An alternative recommendation of raising the pavement elevation in conjunction with enlarging the structures with weirs and metering devices to replicate the existing condition is also expensive and also impacts wetlands.

In order to adequately assess the size and number of structures needed to bring the highway up to current standards, an extensive amount of survey information will be needed. It is suspected that the drainage basin for Chaparral Slough is overtopping and entering into the Lone Pine Creek Basin. Survey data will also be necessary to determine the reason for the high tailwater being observed at the Chaparral Slough and Lone Pine Creek bridges and is assumed to be caused by downstream obstructions. Lone Pine Creek drains into a wetland area downstream of SR 29 prior to draining into Deadmans Branch and into the Caloosahatchee River.

The flooding of the southbound SR 29 lane in the vicinity of the triple 30 inch cross drains generally occurs during the rainy season and after approximately 3 to 4 inches of rain within a one day period. Mr. Shone Phillips advises that it takes approximately one to two days after the rainfall for the lane to flood, and then approximately one day for the water to recede from the pavement if no additional rain occurs. The two 72 inch diameter side drain pipes recommended in Mr. Larry Gaddy's (PBS&J) October 1999, analysis of Drainage Inventory No. 05090-1 have been installed by the Department's maintenance forces. While the side drain pipes have not

prevented the stormwater runoff from encroaching onto the southbound lane, they are allowing a quantity of stormwater to bypass the triple 30 inch cross drain and flow through the Lone Pine Creek bridge.

## RECOMMENDATION

The flooding area at the triple 30 inch cross drain is located within a low area in the pavement grade between the Lone Pine Creek (Bridge 050035) and Chaparral Slough (Bridge 050033) bridges. It is not cost effective to either raise all of the SR 29 grade or to replace the existing cross drains within the limits of this project in order to bring the highway up to current design standards, and the Department has proceeded with its resurfacing contract on SR 29 without replacing the existing cross drain structures. It is recommended that the grade in the vicinity of the existing triple 30 inch cross drain at station 356+15 be raised to an elevation of 35.7 feet (USGS '29 Datum). The result of raising the grade from sta. 336+00 to sta. 372+00 will force more of the stormwater runoff to the southwest to Lone Pine Creek and minimize the frequency of the flooding of the southbound SR 29 lane.

It is further recommended that the Department's Pavement Design and Geotechnical Engineers evaluate the roadway pavement between stations 336+00 and 372+00 to determine if the pavement can be overlaid without constructing a crack relief layer.

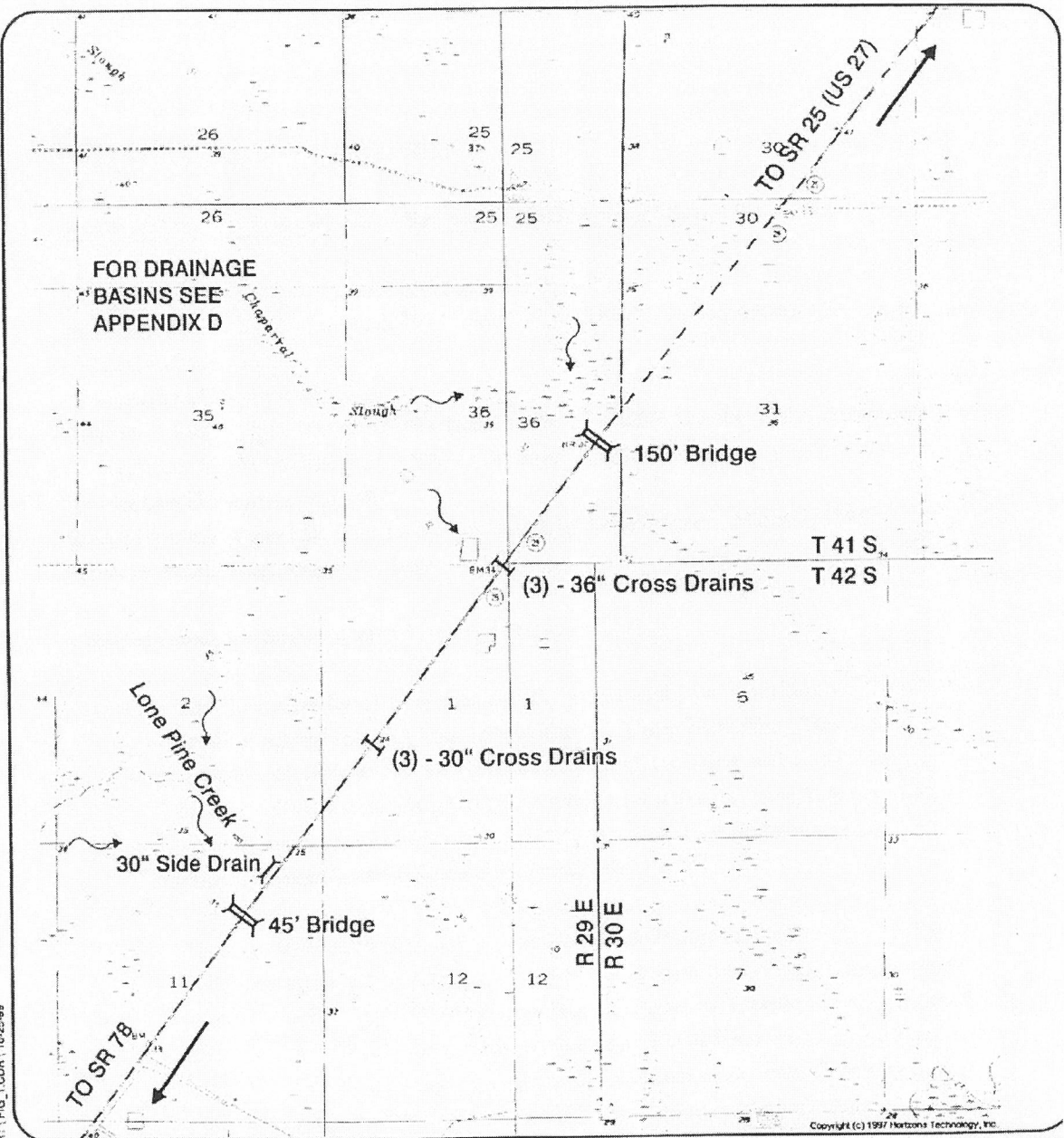
The following costs are estimated for raising the pavement grade in conjunction with the proposed resurfacing project with and without milling.

### PROPOSED COST OF OVERLAY WITH MILLING

Superpave AC	1,578 Tons	\$50.00/Ton	\$78,900.
Embankment	1,883 CY	\$ 4.70/CY	\$ 8,850.
<hr/>			
TOTAL			\$87,750.

### PROPOSED COST OF OVERLAY WITHOUT MILLING

Superpave AC	226 Tons	\$50.00/Ton	\$11,300.
Embankment	1,883 CY	\$ 4.70/CY	\$ 8,850.
<hr/>			
TOTAL			\$20,150.



CORELL, DRAINAGE, SR 29 GLADES COUNTY, REPORT, FIG. 1, ODR, 10-25-99

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**LEGEND**

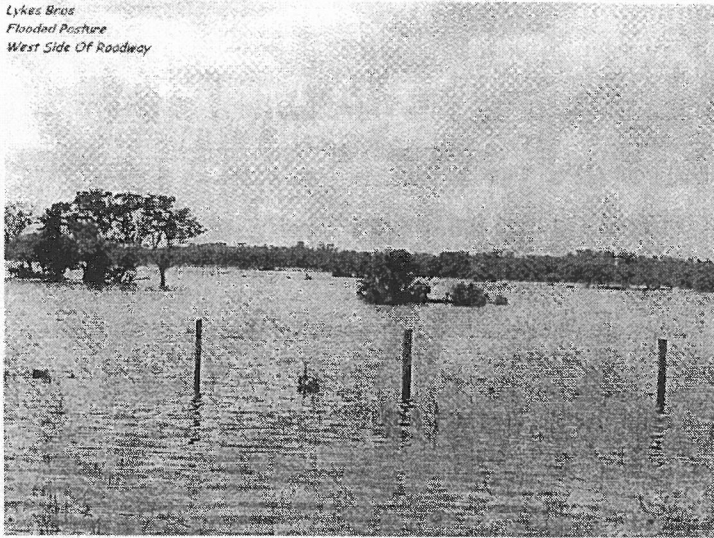
FLORIDA DEPARTMENT OF TRANSPORTATION

**S.R. 29  
STUDY**  
West of Chaparral Slough  
Glades County, Florida

**EXISTING DRAINAGE PATTERNS**

FIGURE

*Lykes Bros  
Flooded Pasture  
West Side Of Roadway*



*Flooded Travel Lane  
Going South*





SR 29 GLADES CO.

193957-2-52-01

REFERENCE	STATION	EXIST. C.L. ELEV. (FT)	NEW C.L. ELEV (FT)	RAISE GRADE (FT)	TONS WITH MILLING	TONS W/O MILLING
	312+00					
1	313+50	35.57				
2	315+00	35.56				
3	318+00	35.51				
4	321+00	35.57				
5	324+00	35.60				
6	327+00	35.51				
7	330+00	35.56				
8	333+00	35.54				
9	336+00	35.65	35.70	0.05		
10	339+00	35.51	35.70	0.19	63.36	
11	342+00	35.52	35.70	0.18	97.68	
12	345+00	35.52	35.70	0.18	95.04	
13	348+00	35.38	35.70	0.32	132.00	0.00
14	351+00	35.42	35.70	0.28	158.40	26.40
15	354+00	35.45	35.70	0.25	139.92	7.92
16	356+15	35.25	35.70	0.45	132.44	37.84
17	357+00	35.25	35.70	0.45	67.32	29.92
18	360+00	35.44	35.70	0.26	187.44	55.44
19	363+00	35.37	35.70	0.33	155.76	23.76
20	366+00	35.38	35.70	0.32	171.60	39.60
21	369+00	35.50	35.70	0.20	137.28	5.28
22	372+00	35.75	35.70	(0.05)	39.60	
23	375+00	35.81				
24	378+00	35.89		0.24	1,577.84	TONS 226.16
25	381+00	35.87				
26	384+00	36.04				
27	387+00	36.16				
28	390+00	36.17				
29	393+00	36.16				
30	395+22	36.30				
31	396+00	36.30				
32	399+00	36.23				
33	402+00	36.17				
34	405+00	36.44				
35	408+00	36.47				
36	411+00	36.69				
37	414+00	36.51				
38	417+00	36.56				
39	420+00	36.70				
40	423+00	36.69				
41	426+00	36.61				
	426+27	36.61				

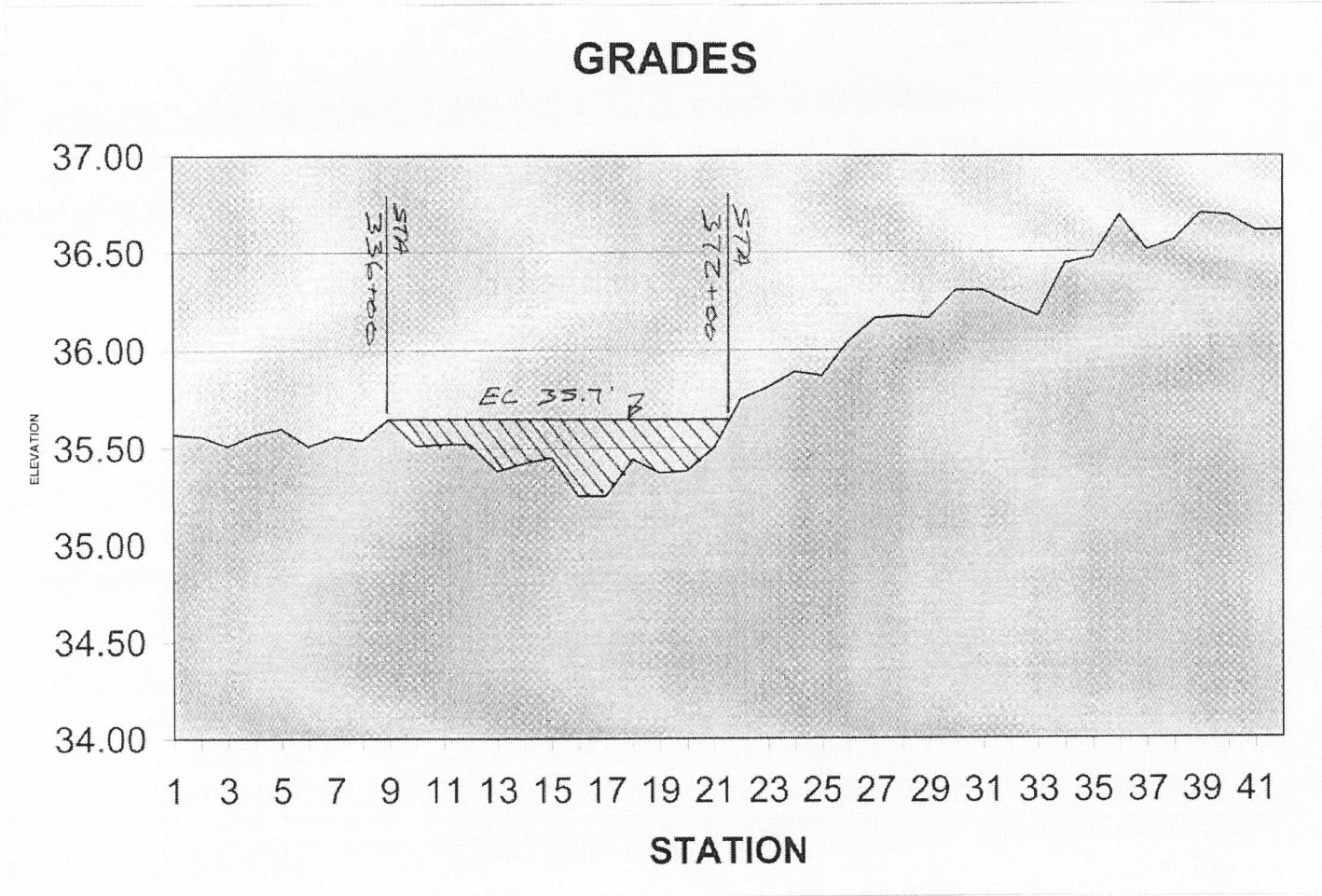
BR# 35

3-30" RCP

3-36" RCP

EARTHWORK: (2\*3600\*28.25\*0.25)/27  
1,883 CY

BR# 33





Subject: .....		
Comp by: .....	Date: .....	Sheet Number: .....
Check by: .....	Job Number: .....	

### Horse Creek Bridge

- The road has a history of flooding and is expected to flood occasionally. If raised significantly, a relief bridge must be provided to carry the water now carried by overtopping.
- The larger Horse Creek bridge recently constructed would have allowed the road to be raised to elev. 8.66(m) but the project didn't include this work (see p. 1 & 2 in report).

Karina,

I reviewed the BHR and can discuss it with you. I will be in Tampa on Tuesday (Oct 13) and out of state for a week. I can come to Bartow at end of next week - Thursday or Friday.

## Della Sera, Karina

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**From:** Gaddy, Larry J [LJGaddy@pbsj.com]  
**Sent:** Tuesday, October 13, 2009 8:40 AM  
**To:** Della Sera, Karina  
**Subject:** Larry's schedule

I will be out of state until end of next week and will be in your office on October 23. Hopefully we will have SWFWMD maps of Wauchula flooding area and the remainder of the calculations and review comments (can we get into my old computer files?).

I worked 3 hours yesterday and placed two items on your chair- Horse Creek BHR and SR 29 Flooding Report.

Horse Creek: The BHR addressed road flooding and raising the profile. The project was a bridge replacement only. Raising the roadway to clear infrequent flood elevations would have required a large relief bridge. As I recall, the traffic didn't warrant the expense. When traffic has reached a level that requires four lanes, the road can be raised and the additional bridge added. The current bridge is longer than the old bridge because of a need to locate the abutments at particular points. A secondary benefit to this added length is the added capacity that would allow raising the roadway a small amount. This is explained in the report. I don't know if FDOT chose to take advantage of that option as part of the bridge project.

SR 29: PBSJ provided a drainage study of this problem several years ago (10 years or more). The study went into greater depth than the recent study and identified a multi-step approach, the first of which was to replace an undersized side drain at a drive. The original plans included a large R/W ditch intended to intercept large sheet flows from the north and carry them to a bridge. As I recall, the existing sidedrain pipe was a 30". We recommended replacing with multiple large pipes. If this didn't provide a satisfactory improvement, other steps were outlined. A complication that must be addressed is the fact that the large flooded area north of SR 29 represents attenuating storage for property south of SR 29 and the cross drains are control structures. We can't simply enlarge them without consideration of the downstream impacts. The current report recommends enlarging the triple 36" cross drains to triple 48". This will provide little benefit. I recommend you retrieve the previous report from archives and we can discuss when I return.



## 12 Estimating the Magnitude and Frequency of Floods for Streams in West-Central Florida, 2001

**Table 7.** Comparison of Bulletin 17B (U.S. Water Resources Council, 1982) flood-discharge estimates from this study with Bulletin 17 (U.S. Water Resources Council, 1976) or Bulletin 17A (U.S. Water Resources Council, 1977) estimates from previous studies.

[N, number of years of record used in the analysis]

Investigator	N	Flood discharge (cubic feet per second)							
		Recurrence interval (years)							
		2	5	10	25	50	100	200	500
<b>02300000 Manatee River near Bradenton, Florida (site 37)</b>									
This study (2005)	27	2,420	4,530	6,240	8,770	10,900	13,200	15,800	19,500
Bridges (1982)	27	2,410	4,520	6,260	8,840	11,000	13,400	16,100	20,100
Seijo and others (1979)	27	2,360	4,490	6,340	9,230	11,800	14,800	18,200	23,500
<b>02297310 Horse Creek near Arcadia, Florida (site 27)</b>									
This study (2005)	52	2,030	3,860	5,470	8,010	10,300	13,000	16,000	20,900
Bridges (1982)	28	2,230	3,580	4,580	5,930	7,000	11,300	13,500	16,600
Seijo and others (1979)	26	2,110	4,020	5,690	8,300	10,600	13,300	16,400	21,200
<b>02303400 Cypress Creek near San Antonio, Florida (site 61)</b>									
This study (2005)	39	120	331	543	898	1,230	1,610	2,050	2,720
Bridges (1982)	15	146	307	450	676	877	1,110	1,370	1,770
Seijo and others (1979)	13	193	497	827	1,440	2,080	2,900	3,950	5,770

**Table 8.** Comparison of regression flood-discharge estimates from this study with regression estimates from previous studies.

[N, number of years of record used in the analysis]

Investigator	N	Flood discharge (cubic feet per second)							
		Recurrence interval (years)							
		2	5	10	25	50	100	200	500
<b>02300000 Manatee River near Bradenton, Florida (site 37)</b>									
This study (2005)	27	1,720	3,330	4,760	7,010	8,950	11,200	13,700	17,400
Bridges (1982)	27	1,640	2,990	4,060	5,610	6,890	8,280	9,740	11,900
Seijo and others (1979)	27	1,810	3,360	4,690	6,760	8,600	10,700	13,100	16,900
<b>02297310 Horse Creek near Arcadia, Florida (site 27)</b>									
This study (2005)	52	2,400	4,710	6,790	10,100	13,000	16,300	20,100	25,800
Bridges (1982)	28	2,890	5,130	6,910	9,480	11,600	13,900	16,400	20,100
Seijo and others (1979)	26	3,340	6,160	8,560	12,300	15,500	19,300	23,600	30,200
<b>02303400 Cypress Creek near San Antonio, Florida (site 61)</b>									
This study (2005)	39	402	767	1,070	1,520	1,900	2,330	2,780	3,460
Bridges (1982)	15	505	978	1,370	1,940	2,420	2,950	3,490	4,320
Seijo and others (1979)	13	405	757	1,060	1,540	1,960	2,440	3,000	3,860

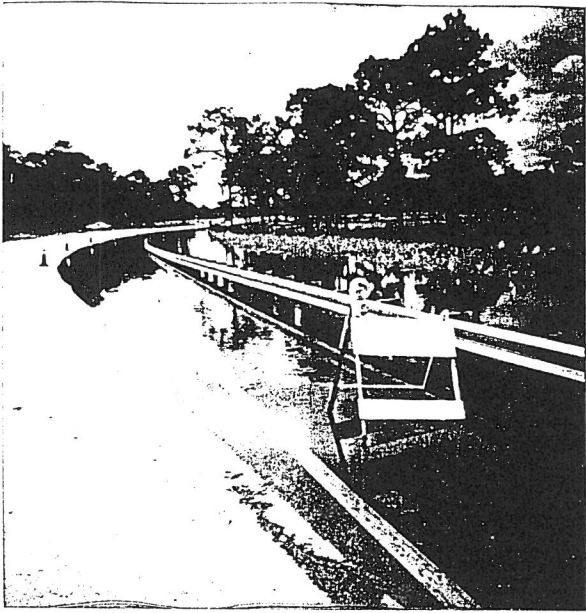
FLOODING/HIGH WATER REPORT

IN FLOODING  
inv.

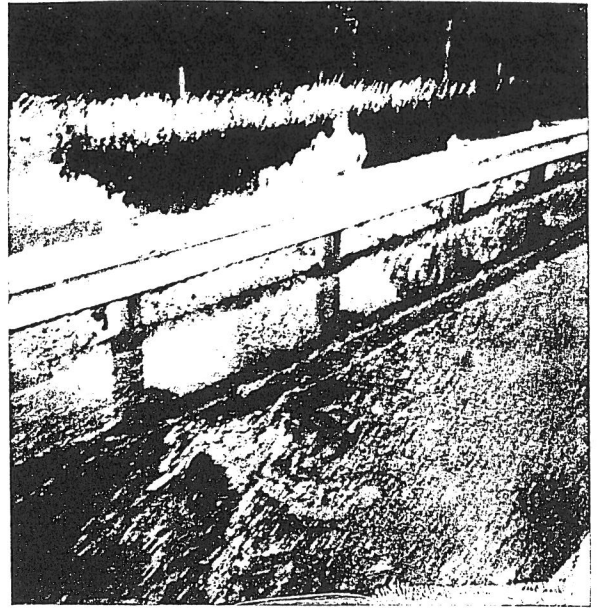
1. Person(s) Observing: Jimmy Davis
2. Date(s) Observed: 9/14 - 16 / 2001
3. Section No.: 04060 State Road: 72 SLD MP: 4.5+1-
4. Section: ~~04060~~ Township: 36S Range: 23E
5. Physical Tie: Horse Creek
6. If the water is over the road, what is the depth in inches on the centerline at the deepest point? 2 inches / 10 inches ON Edge LINE
7. What is the approximate length, in feet, of the roadway under water? 250 ft
8. If the location is at a bridge or culvert, describe the water elevation in relation to the components of the structure (i.e. top of deck, top of cap, top of endwall, box culvert, etc.)
9. Duration Flooding/High Water condition existed, if known, hours 3 days.
10. Are photographs available? yes no  
Are they attached? yes no
11. Additional Information/Remarks:

T.S. Gabrielle

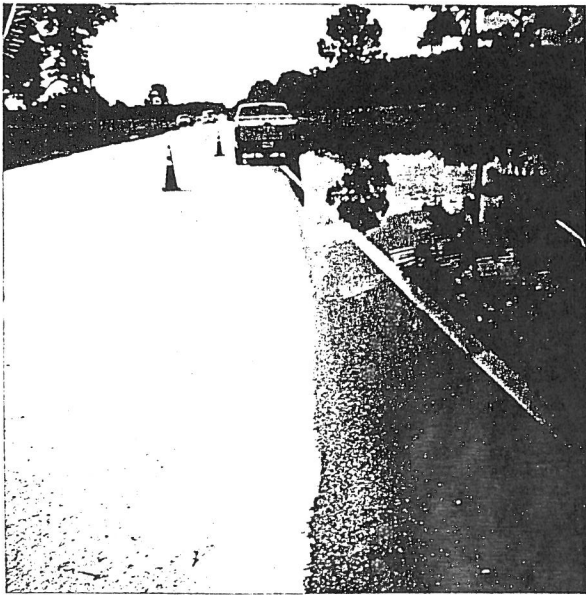
\*Use additional sheets for information if necessary.



SR 72 Horse Creek



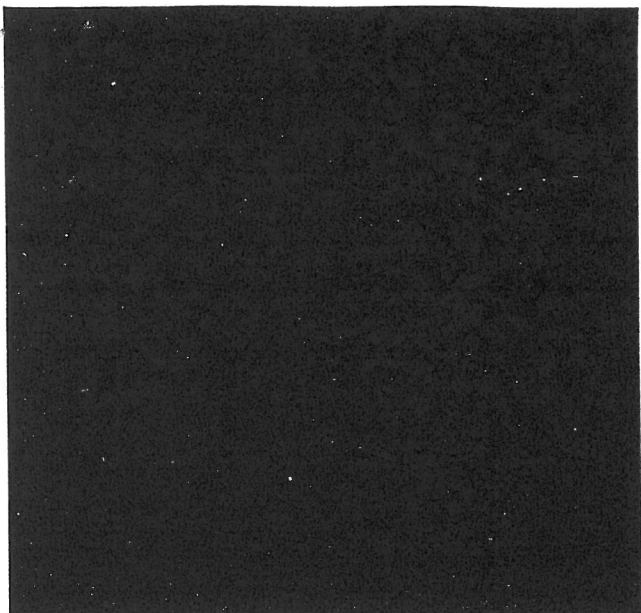
SR 72 Horse Creek



SR 72 Horse Creek

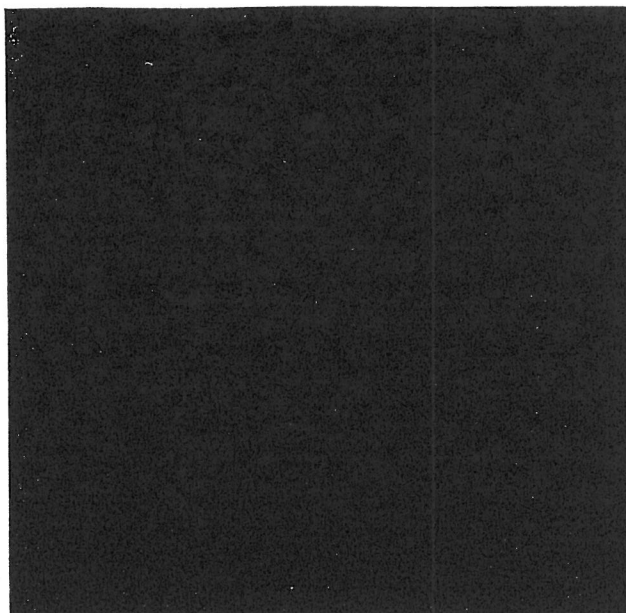


SR 72 Horse Creek



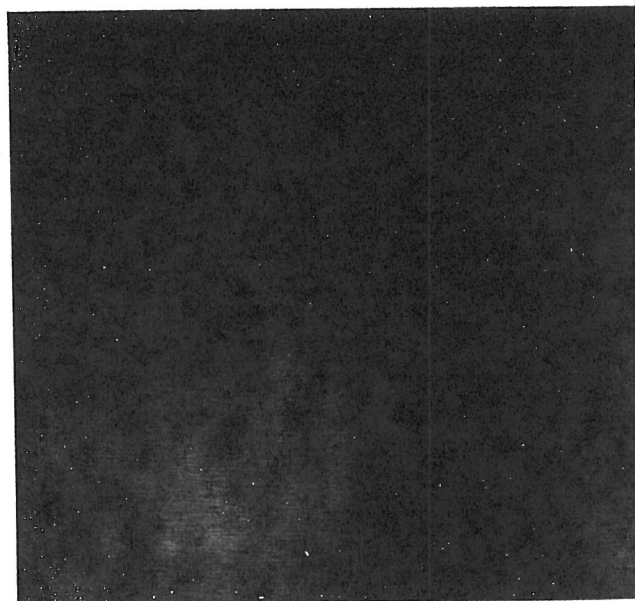
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POLAROID 032



03133059108

POLAROID 032



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POLAROID 032

R 72 Horse Creek





## MEMORANDUM

**Date:** December 10, 1997

**To:** District Environmental Management Office  
Rhett Harper, Project Manager

**From:** Michael D. Finch, P.E., District Drainage Engineer *MDF*

**References:** 1. Final Analysis of Drainage Structures SR72  
2. Bridge Hydraulics Report, SR 72 at Horse Creek

**Subject:** Location Hydraulics Report Memorandum  
SR 72 from the Sarasota County Line to SR 70  
State Project No. 04067-1507  
W.P.I. No. 1110453  
DeSoto County

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The Florida Department of Transportation proposes to improve SR 72 from the Sarasota County Line to SR 70 in DeSoto County. The improvements include widening the 3m travel lanes to 3.6m, adding 1.5m paved shoulders, moving side drains out to meet 3R standards, adjusting front slopes to meet 3R standards, roadway realignment in the vicinity of Horse Creek, and replacement of the bridge at Horse Creek.

The referenced reports and this memorandum have been prepared according to the requirements set forth in Executive Order 11988, Floodplain Management and Federal-Aid Policy Guide 23CFR650A.

The project involves both modification to and replacement of drainage structures, and will result in an insignificant change in their capacity to carry floodwater. The structures proposed for replacement will perform hydraulically in a manner equal to or greater than the existing structures, and the backwater surface elevations are not expected to increase. These changes will cause minimal increases in flood heights and limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There will not be a significant change in the potential for interruption or

termination of emergency service or emergency evacuation. Therefore, it has been determined that this encroachment is not significant.

Floodplain impacts were determined based on 100-year frequency floodplains as mapped by FEMA and the proposed Roadway Plans. Elevations for the 100-year flood have been determined by FEMA for Horse Creek and the Peace River, but not for the other floodplains adjacent to SR 72. Horse Creek, in the vicinity of SR 72, is not a regulated floodway as defined by the Flood Insurance Study for DeSoto County, no FEMA regulated floodways are identified within the project limits. Elevations for those floodplains not studied in detail by FEMA were estimated using two procedures, an approximation based on terrain controls or, where drainage structures controlled, an analysis of the structure. No flooding problems due to FDOT drainage facilities within this project have been reported. Floodplain impacts will be kept to a minimum by using the existing alignment and right of way to the extent possible.

Runoff from the project between approximately Station 4+00 and Station 22+50 discharges into the Big Slough Watershed. Runoff from the project between approximately Station 22+50 and Station 121+06 discharges to the Horse Creek Watershed. Runoff from the project between approximately Station 121+06 and Station 180+50 discharges to the Peace River Watershed.

I hereby certify that I am a registered professional engineer in the state of Florida practicing with the Florida Department of Transportation and that I approve of the evaluation, findings, opinions, conclusions, or technical advice hereby reported for the subject project.

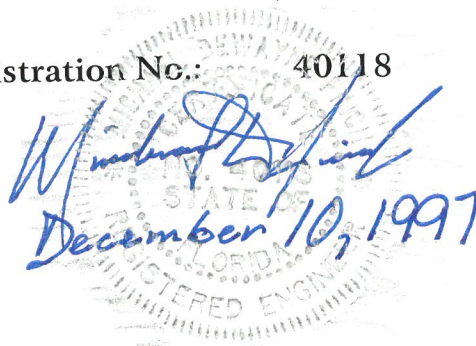
I acknowledge that the procedures and references used to develop the results contained in the attached Final Analysis of Drainage Structures and Bridge Hydraulics Reports are standards to the professional practice of transportation engineering and planning as applied through professional judgement and experience.

Name: Michael D. Finch, P.E.

Florida Registration No.: 40118

Signature:

Date:



The image shows a circular professional engineer seal for the State of Florida. The seal contains the text "STATE OF FLORIDA" at the top and "REGISTERED ENGINEER" at the bottom. Overlaid on the seal is a blue ink signature that reads "Michael D. Finch" and a date "December 10, 1997".



## MEMORANDUM

**Date:** December 10, 1997

**To:** District Environmental Management Office  
Rhett Harper, Project Manager

**From:** Michael D. Finch, P.E., District Drainage Engineer *MDF*

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DeSoto County

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Floodplain impacts were determined based on 100-year frequency floodplains as mapped by FEMA and the proposed Roadway Plans. Elevations for the 100-year flood have been determined by FEMA for Horse Creek and the Peace River, but not for the other floodplains adjacent to SR 72. Horse Creek, in the vicinity of SR 72, is not a regulated floodway as defined by the Flood Insurance Study for DeSoto County, no FEMA regulated floodways are identified within the project limits. Elevations for those floodplains not studied in detail by FEMA were estimated using two procedures, an approximation based on terrain controls or, where drainage structures controlled, an analysis of the structure. No flooding problems due to FDOT drainage facilities within this project have been reported. Floodplain impacts will be kept to a minimum by using the existing alignment and right of way to the extent possible.

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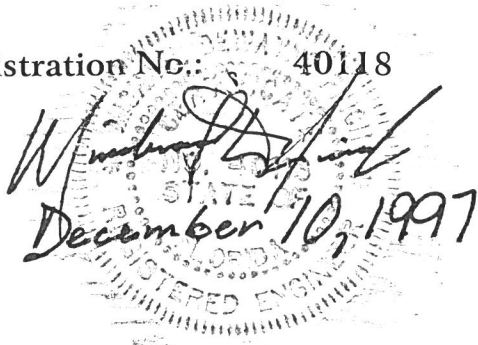
I hereby certify that I am a registered professional engineer in the state of Florida practicing with the Florida Department of Transportation and that I approve of the evaluation, findings, opinions, conclusions, or technical advice hereby reported for the subject project.

I acknowledge that the procedures and references used to develop the results contained in the attached Final Analysis of Drainage Structures and Bridge Hydraulics Reports are standards to the professional practice of transportation engineering and planning as applied through professional judgement and experience.

Name: Michael D. Finch, P.E.

Florida Registration No.: 40118

Signature:



December 10, 1997

Date:



M E M O R A N D U M  
F l o r i d a      D e p a r t m e n t      o f      T r a n s p o r t a t i o n

Date: January 28, 1997

To: Nicole Hoffarth, Project Manager

From: Michael D. Finch, P.E., District Drainage Engineer *2272* *MDF*

Copies: Terry Puckett, P.E., District Geotechnical Engineer  
John Previte, P.E., District Structures Engineer  
Larry Gaddy, P.E., PBS&J  
S. W. Ragan, Drainage — *2271*

Subject: **BRIDGE HYDRAULICS REPORT CONCURRENCE**  
Horse Creek at S.R. 72, Bridge No. 040038  
State Project No.: 04060-1507  
WPI No.: 1111267  
De Soto County

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I have reviewed the above Bridge Hydraulic Report (BHR), dated January 1997. It appears that all previous comments have been addressed and that the BHR meets FDOT and FHWA criteria. Therefore, I concur with its recommendation.

Please ensure that the Geotechnical and Structures Departments and the project file receive sufficient copies of the BHR. If there are any questions, please contact me.

The review comments are not intended to be inclusive of all errors and omissions. The consultant is responsible for the technical accuracy, project decisions, engineering judgement, and quality of the project. These comments are not intended to change the scope of work, specify direction for the project, or to be contrary to FHWA or FDOT design criteria or good engineering judgement. The intent is to identify some apparent inconsistencies, and to further clarify design documentation and design decisions made by the consultant.

MDF/swr

**Table 4-2. Notable Peak Flows and Stages in the Peace River Watershed 1960-Present**

Gage Station	Date	Peak Discharge (cfs)	Peak Stage (ft. NGVD)	Approx. Frequency (years) <sup>a</sup>
Gages with a long-term record (most reliable flood frequency relationships).				
Peace River @ Bartow	Sept 13, 1960	3,470	98.6	50
	Sept 23, 1962	598	94.9	<2
	July 30, 1974	784	95.2	<2
	Sept 29, 1982	1,640	95.8	2
	Sept 14, 1988	1,150	96.0	2
	Aug 19, 1992	872	95.5	<2
Peace River @ Zolfo Springs	Sept 12, 1960	17,000	53.8	50
	Sept 23, 1962	6,270	48.3	2.33-5
	July 7, 1974	4,870	47.3	2.33
	June 20, 1982	6,370	49.6	5
	Sept 9, 1988	6,490	49.7	5
	Aug 12, 1992	3,020	45.2	<2
Peace River @ Arcadia	Sept 15, 1960	21,000	24.1	10-25
	Sept 24, 1962	11,200	21.1	2.33-5
	July 8, 1974	11,800	21.9	5
	June 23, 1982	17,000	23.8	10
	Sept 12, 1988	11,700	22.0	5
	June 29, 1992	5,440	18.7	<2
Charlie Creek near Gardner	Aug 1, 1960	8,160	40.4	50
	Sept 22, 1962	5,900	38.8	10
	July 7, 1974	5,770	39.1	10-25
	June 21, 1982	7,910	39.4	10-25
	Sept 10, 1988	3,960	37.6	5
	June 30, 1992	1,280	32.8	<2
Joshua Creek @ Nocatee	Sept 11, 1960	4,160	20.4	10
	Sept 22, 1962	8,220	23.0	25-50
	July 7, 1974	3,100	20.5	10
	June 19, 1982	4,340	21.9	10-25
	Sept 8, 1988	3,540	21.3	10-25
	June 27, 1992	3,630	21.5	10-25
Horse Creek near Arcadia	Aug 1, 1960	11,700	28.9	50
	Sept 21, 1962	6,690	27.7	10
	July 7, 1974	3,910	26.3	5
	June 18, 1982	6,260	28.3	25
	Sept 9, 1988	5,430	27.6	10
	June 27, 1992	8,960	28.7	50
Gages with a shorter-term record (flood frequency relationships are less reliable than those with a long-term record). Discharge is based on regional analysis or rainfall/runoff methods.				
Peace Creek near Alturas	Sept 12, 1960	1,620	110.5	25
	Sept 21, 1962	328	104.8	<2
	Sept 11, 1974	N/A	106.0	2
Peace Creek near Wahneta (new gage approximately 1.2 miles downstream)	Aug 16, 1992	475	105.1	2.33-5

USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK FLOW.PRT.txt

1  
 Program PeakFq U. S. GEOLOGICAL SURVEY Seq.000.000  
 Ver. 5.2 Annual peak flow frequency analysis Run Date / Time  
 11/01/2007 following Bulletin 17-B Guidelines 07/16/2009 13:45

--- PROCESSING OPTIONS ---

Plot option = None  
 Basin char output = None  
 Print option = Yes  
 Debug print = No  
 Input peaks listing = Long  
 Input peaks format = WATSTORE peak file

Input files used:  
 peaks (ascii) - C:\PROGRAM FILES\PKFQWIN\TEST\DATA\_IN\USGS  
 02297310 HORSE CREEK NEAR ARCADIA FL  
 specifications - PKFQWPSF.TMP

Output file(s):  
 main - C:\PROGRAM FILES\PKFQWIN\TEST\DATA\_IN\USGS 02297310  
 HORSE CREEK NEAR ARCADIA FL

1

Program PeakFq U. S. GEOLOGICAL SURVEY Seq.001.001  
 Ver. 5.2 Annual peak flow frequency analysis Run Date / Time  
 11/01/2007 following Bulletin 17-B Guidelines 07/16/2009 13:45

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

I N P U T D A T A S U M M A R Y

Number of peaks in record	=	59
Peaks not used in analysis	=	0
Systematic peaks in analysis	=	59
Historic peaks in analysis	=	0
Years of historic record	=	0
Generalized skew	=	-0.053
Standard error	=	0.550
Mean Square error	=	0.303
Skew option	=	WEIGHTED
Gage base discharge	=	0.0
User supplied high outlier threshold	=	--
User supplied low outlier criterion	=	--
Plotting position parameter	=	0.00

\*\*\*\*\* NOTICE -- Preliminary machine computations. \*\*\*\*\*  
 \*\*\*\*\* User responsible for assessment and interpretation. \*\*\*\*\*

WCF134I-NO SYSTEMATIC PEAKS WERE BELOW GAGE BASE.	0.0
WCF195I-NO LOW OUTLIERS WERE DETECTED BELOW CRITERION.	188.4
WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE.	21266.2

1

Program PeakFq U. S. GEOLOGICAL SURVEY Seq.001.002  
 Ver. 5.2 Annual peak flow frequency analysis Run Date / Time  
 11/01/2007 following Bulletin 17-B Guidelines 07/16/2009 13:45

Page 1

USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK FLOW.PRT.txt

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

ANNUAL FREQUENCY CURVE PARAMETERS -- LOG-PEARSON TYPE III

	FLOOD BASE		LOGARITHMIC		
	DISCHARGE	EXCEEDANCE PROBABILITY	MEAN	STANDARD DEVIATION	SKEW
SYSTEMATIC RECORD	0.0	1.0000	3.3013	0.3625	-0.041
BULL.17B ESTIMATE	0.0	1.0000	3.3013	0.3625	-0.044

ANNUAL FREQUENCY CURVE -- DISCHARGES AT SELECTED EXCEEDANCE PROBABILITIES

ANNUAL EXCEEDANCE PROBABILITY	BULL.17B ESTIMATE	SYSTEMATIC RECORD	'EXPECTED PROBABILITY' ESTIMATE	95-PCT CONFIDENCE LIMITS FOR BULL. 17B ESTIMATES	
				LOWER	UPPER
	0.9950	225.2	225.7	204.7	314.7
	0.9900	279.5	279.9	259.3	381.1
	0.9500	501.8	502.2	484.5	643.7
1.1	0.9000	684.0	684.2	669.1	853.4
1.25	0.8000	993.2	993.1	982.1	1207.0
1.5	0.6667	1404.0	1404.0	1398.0	1682.0
2	0.5000	2014.0	2013.0	2014.0	2413.0
2.23	0.4292	2337.0	2336.0	2340.0	2815.0
5	0.2000	4048.0	4047.0	4092.0	5088.0
10 yr	0.1000	5811.0	5812.0	5935.0	7623.0
25	0.0400	8522.0	8529.0	8852.0	11790.0
50	0.0200	10900.0	10910.0	11490.0	15640.0
100	0.0100	13590.0	13610.0	14570.0	20180.0
200	0.0050	16610.0	16640.0	18150.0	25470.0
500	0.0020	21170.0	21220.0	23770.0	33770.0

Program PeakFq  
Ver. 5.2  
11/01/2007

U. S. GEOLOGICAL SURVEY  
Annual peak flow frequency analysis  
following Bulletin 17-B Guidelines

Seq.001.003  
Run Date / Time  
07/16/2009 13:45

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

INPUT DATA LISTING

WATER YEAR	DISCHARGE	CODES	WATER YEAR	DISCHARGE	CODES
1950	2830.0		1980	1880.0	
1951	810.0		1981	1420.0	
1952	6680.0		1982	6260.0	
1953	4790.0		1983	1960.0	
1954	4960.0		1984	1100.0	
1955	1870.0		1985	614.0	
1956	442.0		1986	970.0	
1957	1910.0		1987	2060.0	
1958	2540.0		1988	5430.0	
1959	3870.0		1989	217.0	
1960	11700.0		1990	742.0	



USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK FLOW.PRT.txt

1961	2100.0	1991	1940.0
1962	6690.0	1992	8960.0
1963	1090.0	1993	1250.0
1964	970.0	1994	4180.0
1965	1960.0	1995	2260.0
1966	1680.0	1996	2790.0
1967	2240.0	1997	2520.0
1968	3080.0	1998	5870.0
1969	1930.0	1999	1100.0
1970	1570.0	2000	1230.0
1971	1420.0	2001	6710.0
1972	1540.0	2002	2500.0
1973	1440.0	2003	11000.0
1974	3910.0	2004	4940.0
1975	828.0	2005	1950.0
1976	693.0	2006	928.0
1977	1430.0	2007	376.0
1978	2350.0	2008	767.0
1979	1780.0		

Explanation of peak discharge qualification codes

PeakFQ CODE	NWIS CODE	DEFINITION
D	3	Dam failure, non-recurrent flow anomaly
G	8	Discharge greater than stated value
X	3+8	Both of the above
L	4	Discharge less than stated value
K	6 OR C	Known effect of regulation or urbanization
H	7	Historic peak

- Minus-flagged discharge -- Not used in computation  
 -8888.0 -- No discharge value given  
 - Minus-flagged water year -- Historic peak used in computation

1

Program PeakFq U. S. GEOLOGICAL SURVEY Seq.001.004  
 Ver. 5.2 Annual peak flow frequency analysis Run Date / Time  
 11/01/2007 following Bulletin 17-B Guidelines 07/16/2009 13:45

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER YEAR	RANKED DISCHARGE	SYSTEMATIC RECORD	BULL.17B ESTIMATE
1960	11700.0	0.0167	0.0167
2003	11000.0	0.0333	0.0333
1992	8960.0	0.0500	0.0500
2001	6710.0	0.0667	0.0667
1962	6690.0	0.0833	0.0833
1952	6680.0	0.1000	0.1000
1982	6260.0	0.1167	0.1167
1998	5870.0	0.1333	0.1333
1988	5430.0	0.1500	0.1500

USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK FLOW.PRT.txt

1954	4960.0	0.1667	0.1667
2004	4940.0	0.1833	0.1833
1953	4790.0	0.2000	0.2000
1994	4180.0	0.2167	0.2167
1974	3910.0	0.2333	0.2333
1959	3870.0	0.2500	0.2500
1968	3080.0	0.2667	0.2667
1950	2830.0	0.2833	0.2833
1996	2790.0	0.3000	0.3000
1958	2540.0	0.3167	0.3167
1997	2520.0	0.3333	0.3333
2002	2500.0	0.3500	0.3500
1978	2350.0	0.3667	0.3667
1995	2260.0	0.3833	0.3833
1967	2240.0	0.4000	0.4000
1961	2100.0	0.4167	0.4167
1987	2060.0	0.4333	0.4333
1965	1960.0	0.4500	0.4500
1983	1960.0	0.4667	0.4667
2005	1950.0	0.4833	0.4833
1991	1940.0	0.5000	0.5000
1969	1930.0	0.5167	0.5167
1957	1910.0	0.5333	0.5333
1980	1880.0	0.5500	0.5500
1955	1870.0	0.5667	0.5667
1979	1780.0	0.5833	0.5833
1966	1680.0	0.6000	0.6000
1970	1570.0	0.6167	0.6167
1972	1540.0	0.6333	0.6333
1973	1440.0	0.6500	0.6500
1977	1430.0	0.6667	0.6667
1971	1420.0	0.6833	0.6833
1981	1420.0	0.7000	0.7000
1993	1250.0	0.7167	0.7167
2000	1230.0	0.7333	0.7333
1984	1100.0	0.7500	0.7500
1999	1100.0	0.7667	0.7667
1963	1090.0	0.7833	0.7833
1964	970.0	0.8000	0.8000
1986	970.0	0.8167	0.8167
2006	928.0	0.8333	0.8333
1975	828.0	0.8500	0.8500
1951	810.0	0.8667	0.8667
2008	767.0	0.8833	0.8833
1990	742.0	0.9000	0.9000
1976	693.0	0.9167	0.9167
1985	614.0	0.9333	0.9333
1956	442.0	0.9500	0.9500
2007	376.0	0.9667	0.9667
1989	217.0	0.9833	0.9833

1

End PeakFQ analysis.

Stations processed : 1  
 Number of errors : 0  
 Stations skipped : 0  
 Station years : 59

Data records may have been ignored for the stations listed below.  
 (Card type must be Y, Z, N, H, I, 2, 3, 4, or \*.)

USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK FLOW.PRT.txt  
(2, 4, and \* records are ignored.)

For the station below, the following records were ignored:

FINISHED PROCESSING STATION: 02297310 USGS HORSE CREEK NEAR ARCADIA FL

For the station below, the following records were ignored:

FINISHED PROCESSING STATION:

WP01 D Display Item\_Comm Phases Group  
Seg\_Comm Location Change\_Hist Status\_Hist Phase\_Est Phase\_Sum Items Rel\_Item

FDOT - Work Program Administration 07-16-2009  
Item/Segment Definition 10:46:28  
More:

Item: 193894 Segment: 1 Item Managing District: 01 Box Item: N (y/N)  
Geo District: 01 County: 04 DESOTO Project Mgr: RWC-BCP- • !  
Trans System: 05 NON-INTRASTATE STATE HIGHWAY Contract Type: 5  
Work Mix . : 0421 REPLACE LOW LEVEL BRIDGE Measure Type : E  
Status . . : 100 LINE ITEM COMPLETED As of: 11-12-1991  
Box Code . : E EMRG: \_\_\_\_\_ Related Items: N Old Item Number: 1110462  
Description : (Version: Displayed - AD ADOPTED Requested - AD )  
SR72 AT BR # 040038 HORSE CREEK  
Work Length: 0.271 Project Length: 0.271 MI  
Type (1=xdesc, 2=misc)  
Item Segment Comments  
WORK TO BE DONE ON ITEM # 1110453 SR70.4 1  
PEC/W.K. DAUGHERTY 1

Successfully displayed. No more data to display.  
F1=Help F3=Exit F7=Bkwd F8=Frwd F15=Logoff

WPI: 1110453

Proj: 04060.3507

Br #: 040038

USGS SITE: 02297310



DAN  
2758  
DAN  
F.I

Drainage Complaint - Inventory Data Sheet

SECTION I. LOCATION

Location - MP 4.400 *TSR # 040056*

Road Description - Two lane rural

County- Desoto

State Road- SR 72

Map Reference Number- 04060-1

Section/Township/Range- S2, T38S, R23E

SECTION II. PROBLEM DESCRIPTION

Problem Description- Roadway flooded 3" deep for approximately 100' for 2 days around 3/19/98.

How frequently does problem occur? Flooding has occurred approximately 3 to 4 times this past year.

Estimated High Water- N/A

Nearest wetland, lake or pond- N/A

History of Problem- Flooding occurs approximately once a year on average.

Outfall description- Horse Creek

Persons Interviewed- Robert Strickland - FDOT

*8/13 - 12004  
BOBBY CARROLL 1' DEEP  
CLOSED ROAD  
AFTER CHARLIE*

SECTION III. PROBLEM ANALYSIS

What is the cause of the flooding? Roadway profile is too low with respect to downstream water elevations.

Who is responsible for maintenance of the outfall? N/A

What efforts have been made to fix the problem? N/A

What damages or harm results from the flooding? Flooding impedes traffic and poses a safety hazard

*Aug 18 '97  
04060-3507  
1110453*

SECTION IV. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

Mark water elevations in the ditches, on the bridge, and along the sides of the roadway where flooding occurs.  
Photograph flooding as soon as possible.

Program PeakFq

U. S. GEOLOGICAL SURVEY

5-1.000.000

Ver. 5.2

Annual peak flow frequency analysis

Run Date / Time

11/01/2007

following Bulletin 17-B Guidelines

07/16/2009 14:12

--- PROCESSING OPTIONS ---

Plot option = Graphics device

Basin char output = WATSTORE

Print option = Yes

Debug print = Yes

Input peaks listing = Long

Input peaks format = WATSTORE peak file

Input files used:

peaks (ascii) - C:\PROGRAM  
FILES\PKFQWIN\TEST\DATA\_IN\USGS 02297310 HORSE CREEK NEAR ARCADIA FL

specifications - PKFQWPSF.TMP

Output file(s):

main - C:\PROGRAM FILES\PKFQWIN\TEST\DATA\_IN\USGS  
02297310 HORSE CREEK NEAR ARCADIA FL

bcd - USGS 02297310 HORSE CREEK NEAR ARCADIA FL PEAK  
FLOW.BCD



1870.0	442.0	1910.0	2540.0	3870.0
11700.0	2100.0	6690.0	1090.0	970.0
1960.0	1680.0	2240.0	3080.0	1930.0
1570.0	1420.0	1540.0	1440.0	3910.0
828.0	693.0	1430.0	2350.0	1780.0
1880.0	1420.0	6260.0	1960.0	1100.0
614.0	970.0	2060.0	5430.0	217.0
742.0	1940.0	8960.0	1250.0	4180.0
2260.0	2790.0	2520.0	5870.0	1100.0
1230.0	6710.0	2500.0	11000.0	4940.0
1950.0	928.0	376.0	767.0	

WCF134I-NO SYSTEMATIC PEAKS WERE BELOW GAGE BASE. 0.0

WCF203J-PLOTTING POSITIONS OF TOP TEN PEAKS. SYS

0.0167 0.0333 0.0500 0.0667 0.0833 0.1000 0.1167 0.1333 0.1500 0.1667

WCF217L-FREQUENCY CURVE PARAMS -- SYS 1.0000 3.3013 0.3625 -0.0410

3.3013 0.3625 -0.0410

WCF219J-FREQ CURVE ORDINATES SYS 2-YR (.50) 10-YR (.10) 100-YR (.01)

2013.0 5812.2 13608.2

WCF195I-NO LOW OUTLIERS WERE DETECTED BELOW CRITERION. 188.4

WCF163I-NO HIGH OUTLIERS OR HISTORIC PEAKS EXCEEDED HHBASE. 21266.2

WCF203J-PLOTTING POSITIONS OF TOP TEN PEAKS. 17B

0.0167 0.0333 0.0500 0.0667 0.0833 0.1000 0.1167 0.1333 0.1500 0.1667

WCF217L-FREQUENCY CURVE PARAMS -- 17B 1.0000 3.3013 0.3625 -0.0437

3.3013 0.3625 -0.0410

WCF219J-FREQ CURVE ORDINATES 17B 2-YR (.50) 10-YR (.10) 100-YR (.01)

2013.7 5810.8 13586.0

WCF238J-FREQ CURVE 17B-EXPECT-PROB. 2013.7 5935.3 14569.5

WCF239J-FREQ CURVE CONF LIMS B17B 95.0 2413.4 7623.2 20180.9

1680.7 4660.7 10022.8



Program PeakFq                    U. S. GEOLOGICAL SURVEY                    Seq.001.002  
 Ver. 5.2                            Annual peak flow frequency analysis                    Run Date / Time  
 11/01/2007                        following Bulletin 17-B Guidelines                    07/16/2009 14:12

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

ANNUAL FREQUENCY CURVE PARAMETERS -- LOG-PEARSON TYPE III

	FLOOD BASE		LOGARITHMIC		
	DISCHARGE	PROBABILITY	MEAN	STANDARD DEVIATION	SKEW
SYSTEMATIC PKS					
ABOVE BASE	---	---	3.3013	0.3625	-0.041
BULL.17B-ADJ PKS					
ABOVE BASE	---	---	3.3013	0.3625	-0.041
SYSTEMATIC RECORD	0.0	1.0000	3.3013	0.3625	-0.041
BULL.17B ESTIMATE	0.0	1.0000	3.3013	0.3625	-0.044

ANNUAL FREQUENCY CURVE -- DISCHARGES AT SELECTED EXCEEDANCE PROBABILITIES

ANNUAL EXCEEDANCE PROBABILITY	BULL. 17B ESTIMATE	SYSTEMATIC RECORD	'EXPECTED	95-PCT CONFIDENCE LIMITS	
			PROBABILITY'	FOR BULL. 17B ESTIMATES	
			ESTIMATE	LOWER	UPPER
0.9950	225.2	225.7	204.7	145.2	314.7
0.9900	279.5	279.9	259.3	186.6	381.1
0.9500	501.8	502.2	484.5	366.2	643.7
0.9000	684.0	684.2	669.1	520.9	853.4
0.8000	993.2	993.1	982.1	790.5	1207.0
0.6667	1404.0	1404.0	1398.0	1152.0	1682.0
0.5000	2014.0	2013.0	2014.0	1681.0	2413.0
0.4292	2337.0	2336.0	2340.0	1954.0	2815.0
0.2000	4048.0	4047.0	4092.0	3331.0	5088.0
0.1000	5811.0	5812.0	5935.0	4661.0	7623.0
0.0400	8522.0	8529.0	8852.0	6602.0	11790.0
0.0200	10900.0	10910.0	11490.0	8234.0	15640.0
0.0100	13590.0	13610.0	14570.0	10020.0	20180.0
0.0050	16610.0	16640.0	18150.0	11980.0	25470.0
0.0020	21170.0	21220.0	23770.0	14850.0	33770.0

Program PeakFq

U. S. GEOLOGICAL SURVEY

Seq.001.003

Ver. 5.2

Annual peak flow frequency analysis

Run Date / Time

11/01/2007

following Bulletin 17-B Guidelines

07/16/2009 14:12

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

I N P U T   D A T A   L I S T I N G

WATER YEAR	DISCHARGE	CODES	WATER YEAR	DISCHARGE	CODES
1950	2830.0		1980	1880.0	
1951	810.0		1981	1420.0	
1952	6680.0		1982	6260.0	
1953	4790.0		1983	1960.0	
1954	4960.0		1984	1100.0	
1955	1870.0		1985	614.0	
1956	442.0		1986	970.0	
1957	1910.0		1987	2060.0	
1958	2540.0		1988	5430.0	
1959	3870.0		1989	217.0	
1960	11700.0		1990	742.0	
1961	2100.0		1991	1940.0	
1962	6690.0		1992	8960.0	
1963	1090.0		1993	1250.0	
1964	970.0		1994	4180.0	
1965	1960.0		1995	2260.0	
1966	1680.0		1996	2790.0	
1967	2240.0		1997	2520.0	
1968	3080.0		1998	5870.0	
1969	1930.0		1999	1100.0	
1970	1570.0		2000	1230.0	
1971	1420.0		2001	6710.0	
1972	1540.0		2002	2500.0	

1973	1440.0	2003	11000.0
1974	3910.0	2004	4940.0
1975	828.0	2005	1950.0
1976	693.0	2006	928.0
1977	1430.0	2007	376.0
1978	2350.0	2008	767.0
1979	1780.0		

Explanation of peak discharge qualification codes

PeakFQ      NWIS

CODE      CODE      DEFINITION

D            3      Dam failure, non-recurrent flow anomaly

G            8      Discharge greater than stated value

X            3+8    Both of the above

L            4      Discharge less than stated value

K            6 OR C    Known effect of regulation or urbanization

H            7      Historic peak

-    Minus-flagged discharge -- Not used in computation

     -8888.0 -- No discharge value given

-    Minus-flagged water year -- Historic peak used in computation



Program PeakFq

U. S. GEOLOGICAL SURVEY

Seq.001.004

Ver. 5.2

Annual peak flow frequency analysis

Run Date / Time

11/01/2007

following Bulletin 17-B Guidelines

07/16/2009 14:12

Station - 02297310 HORSE CREEK NEAR ARCADIA FL

EMPIRICAL FREQUENCY CURVES -- WEIBULL PLOTTING POSITIONS

WATER	RANKED	SYSTEMATIC	BULL.17B
YEAR	DISCHARGE	RECORD	ESTIMATE
1960	11700.0	0.0167	0.0167
2003	11000.0	0.0333	0.0333
1992	8960.0	0.0500	0.0500
2001	6710.0	0.0667	0.0667
1962	6690.0	0.0833	0.0833
1952	6680.0	0.1000	0.1000
1982	6260.0	0.1167	0.1167
1998	5870.0	0.1333	0.1333
1988	5430.0	0.1500	0.1500
1954	4960.0	0.1667	0.1667
2004	4940.0	0.1833	0.1833
1953	4790.0	0.2000	0.2000
1994	4180.0	0.2167	0.2167
1974	3910.0	0.2333	0.2333
1959	3870.0	0.2500	0.2500
1968	3080.0	0.2667	0.2667
1950	2830.0	0.2833	0.2833
1996	2790.0	0.3000	0.3000
1958	2540.0	0.3167	0.3167
1997	2520.0	0.3333	0.3333
2002	2500.0	0.3500	0.3500
1978	2350.0	0.3667	0.3667

1995	2260.0	0.3833	0.3833
1967	2240.0	0.4000	0.4000
1961	2100.0	0.4167	0.4167
1987	2060.0	0.4333	0.4333
1965	1960.0	0.4500	0.4500
1983	1960.0	0.4667	0.4667
2005	1950.0	0.4833	0.4833
1991	1940.0	0.5000	0.5000
1969	1930.0	0.5167	0.5167
1957	1910.0	0.5333	0.5333
1980	1880.0	0.5500	0.5500
1955	1870.0	0.5667	0.5667
1979	1780.0	0.5833	0.5833
1966	1680.0	0.6000	0.6000
1970	1570.0	0.6167	0.6167
1972	1540.0	0.6333	0.6333
1973	1440.0	0.6500	0.6500
1977	1430.0	0.6667	0.6667
1971	1420.0	0.6833	0.6833
1981	1420.0	0.7000	0.7000
1993	1250.0	0.7167	0.7167
2000	1230.0	0.7333	0.7333
1984	1100.0	0.7500	0.7500
1999	1100.0	0.7667	0.7667
1963	1090.0	0.7833	0.7833
1964	970.0	0.8000	0.8000
1986	970.0	0.8167	0.8167
2006	928.0	0.8333	0.8333
1975	828.0	0.8500	0.8500
1951	810.0	0.8667	0.8667

2008	767.0	0.8833	0.8833
1990	742.0	0.9000	0.9000
1976	693.0	0.9167	0.9167
1985	614.0	0.9333	0.9333
1956	442.0	0.9500	0.9500
2007	376.0	0.9667	0.9667
1989	217.0	0.9833	0.9833

End PeakFQ analysis.

Stations processed :	1
Number of errors :	0
Stations skipped :	0
Station years :	59

Data records may have been ignored for the stations listed below.

(Card type must be Y, Z, N, H, I, 2, 3, 4, or \*.)

(2, 4, and \* records are ignored.)

For the station below, the following records were ignored:

FINISHED PROCESSING STATION: 02297310                    USGS HORSE CREEK NEAR ARCADIA FL

For the station below, the following records were ignored:

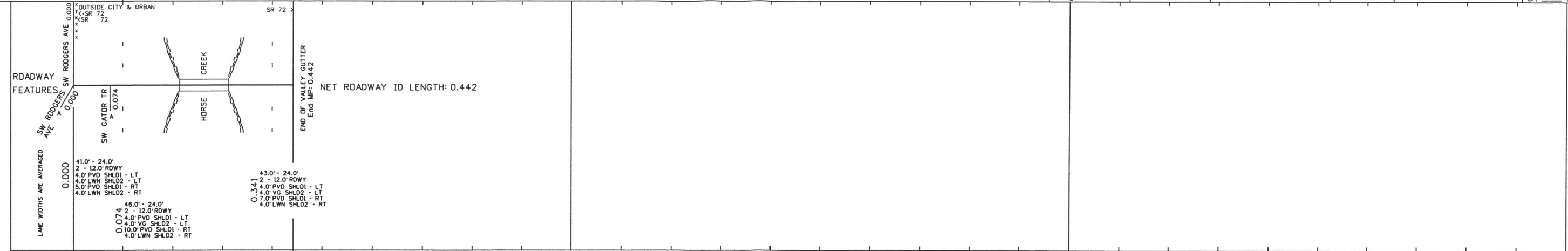
FINISHED PROCESSING STATION:



5 YR INV		SLD REV		INTERIM REVISIONS	
DATE	BY	FTE	RWG	BMP	EMP
03/02/09					

**STRAIGHT LINE DIAGRAM OF ROAD INVENTORY**  
 FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT ONE MAINTENANCE STATISTICS OFFICE

INT. or US ROUTE NO. 2	STATE ROAD NO. SR 72	COUNTY DESOTO	DISTRICT 1	ROADWAY ID 04060101	SHEET NO. 1 OF 3
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ROADWAY COMPOSITION	28/FC-4
HORIZONTAL ALIGNMENT	$\Delta=29^{\circ} 00'00''$ $D=3^{\circ} 11'00'' 00$ CURVE DATA IS NOT FIELD VERIFIED $\Delta=5^{\circ} 00'00''$ $PC=0.000$ $PI=0.091$ $PT=0.173$ $B=N89^{\circ} 08'00''E$ $PI=0.381$ $B=N84^{\circ} 00'00''E$
STRUCTURE DESCRIPTION	
DISTRICT USE	
SIS	
FUN CLASS	RURAL MINDR ARTERIAL

