Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

HYDROLOGIC ANALYSES

FLOODLAIN DELINEATION

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

BLACK & VEATCH
PROGRESS BY DESIGN

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

Project No. 17676

May 1994

CVL No. 1197-02

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 6.1: HEC-2 Models & Cross Section Plots for East Area Wash
CALAMITY WASH (Wash b)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1197\02\ADMIN\119702RP.063

May 1994

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1994*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash B: Cobwebby Wash
(One form for each flooding source)

Project Name /Identifier: WICKENBURG ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

- ☒ Approximate study stream (Zone A)
- ☐ Detailed study stream (briefly explain methodology)_____

2. REASON FOR NEW HYDROLOGIC ANALYSIS

- ☐ No existing analysis
- ☐ Improved data *(see data revision on page 3)*
- ☐ Changed physical conditions of watershed *(explain)* _____
- ☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*
- ☐ Evaluation of proposed conditions (CLOMRs only) (explain)_____
- ☒ Other No existing analysis or analysis being updated to reflect existing conditions

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

- ☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
  Attach evidence of approval.
- ☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: Wash B: Calumet Wash

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs):	Revised (cfs):
Hassayampa R. Confluence	4.23	—	3093

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability*	☐ Yes ☐ No
11. Comparison of results with other analyses	☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:

NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

	FIS:		Revised:	
5. Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6 Percent of watershed urbanization	_____		_____	
7. Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8. Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		VER 3.0
	Date:		02 AUG 88
2.	Source of rainfall depth:		NOAA ATLAS 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 HOURS
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-GRAPH
7.	Loss rate method:		GREEN-AMPT
	Source of soils information:		SCS
	Source of land use information		Town of WICKENBURG
8.	Channel routing method:		NORMAL DEPTH
9.	Reservoir routing:	☐ Yes ☐ No	☐ Yes ☐ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11.	Snowmelt considerations:	☐ Yes ☐ No	☐ Yes ☒ No
12.	Model calibration:	☐ Yes ☐ No	☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE VS DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

ream: NA – NO FLOW RECORDS

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

ttach Confidence Limits Analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

ic reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash B: Calamity Wash
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.106

Upstream limit: Station 2.206

2. EFFECTIVE FIS

☐ Not studied

☒ Studied by approximate methods

Downstream limit of study: Hassayampa River

Upstream limit of study: ~ Station 0.6

☐ Studied by detailed methods

Downstream limit of study: _____

Upstream limit of study: _____

☐ Floodway delineated

Downstream limit of Floodway: _____

Upstream limit of Floodway: _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☒ Not studied in FIS

☒ Improved hydrologic data/analysis. Explain: Hydrologic Analysis procedures standardized by the Flood Control District of Maricopa County

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model *(e.g. duplicate effective model to corrected effective model)*. Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model
(Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	3,098	3,098
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevation determined by the Slope-Area Method

3. Give range of friction loss coefficients (*Manning's "N"*) Channel 0.030-0.035

Overbanks 0.045-0.050

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised
NA		

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Data points for cross sections are based on the photogrammetric models for the topographic maps

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (from model used to revise 100-year water surface elevations)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ..... ☐ Yes ☒ No

b. Supercritical depth? ..... ☐ Yes ☒ No

c. Critical depth? ..... ☐ Yes ☐ No

d. Other unique situations ..... ☐ Yes ☐ No

(If yes, Special Problem Report attached)

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? ..... 27.26 ft

Specify location ..... SECT 2.111

3. What is the distance between the cross-sections in 2 above? ..... 500 ft

Specify location ..... 2.016 - 2.111

4. What is the maximum distance between cross-sections? 544

Specify location ..... .708 - .811

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? ..... 1 foot

b. What is the maximum surcharge for the revised conditions? ..... 0.5 foot

Specify location 0.436

c. What is the maximum velocity? ..... 14.7 fps

Specify location 1.933

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☒ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

NA- New Model

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section NA within _____ feet and upstream of the project at cross section _____ within _____ feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section NA within _____ feet and upstream of the project at cross section _____ within NA feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County/ Town of Wickenburg	Wash B: Calamity Wash	Wickenburg ADMS FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS: New Model - See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet 1 of 1

FLOODWAY DATA, WASH B: CALAMITY WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.106	170.	401.	7.7	2022.4	2022.4	.0
.125	82.	297.	10.4	2026.9	2026.9	.0
.135	90.	388.	8.0	2029.2	2029.2	.0
.153	129.	583.	5.3	2030.3	2030.3	.0
.248	83.	304.	10.2	2041.4	2041.3	.1
.335	75.	293.	10.6	2052.9	2052.9	.0
.436	168.	443.	7.0	2065.6	2065.1	.5
.537	78.	306.	10.1	2079.6	2079.5	.1
.625	111.	345.	9.0	2091.2	2091.2	.0
.708	96.	334.	9.3	2102.9	2102.9	.0
.811	115.	395.	7.8	2117.1	2117.1	.0
.898	95.	335.	9.2	2130.6	2130.6	.0
.992	280.	526.	5.9	2141.1	2141.1	.0
1.092	98.	333.	9.3	2153.1	2153.1	.0
1.187	48.	261.	11.9	2171.8	2171.8	.0
1.281	60.	274.	11.3	2180.1	2180.1	.0
1.376	148.	392.	7.9	2189.6	2189.6	.0
1.456	83.	308.	10.1	2200.0	2200.0	.0
1.554	244.	431.	7.2	2209.6	2209.6	.0
1.649	195.	416.	7.4	2221.8	2221.8	.0
1.744	269.	458.	6.8	2233.2	2233.2	.0
1.838	107.	340.	9.1	2245.7	2245.7	.0
1.933	27.	211.	14.7	2263.0	2263.0	.0
2.016	26.	208.	14.9	2283.6	2283.6	.0
2.111	59.	283.	10.9	2312.5	2312.5	.0
2.206	64.	308.	10.1	2331.7	2331.7	.0

Wickenburg ADMS FCD 89-79

EXPLANATORY NOTES FOR
FORM 4 SECTION 5 PARAGRAPH 1.C

This watercourse islocated in a mountainous area. It is common for this watercourse to flow in subcritical, supercritical, and transitional flow regimes. The subcritical profile has been used to delineate the 100 year floodplain and prepare maps, tables, etc.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE/COASTAL MAPPING FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

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Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Calamity Wash: Wash B

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☐ Yes	☒ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☒ Yes	☐ No	☐ N/A
C.	Revised 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☐ Yes	☐ No	☒ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
I.	The requestor's property boundaries and community easements	☐ Yes	☐ No	☒ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: No Zone A, 500-year, or coastal zones revised or delineated. Revised 100-year floodplains tie into effective Hassayampa River floodplain.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? Photo: Jan. 1991 (E), Oct 1990 (W); Maps 1992

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS unknown scale unknown Contour interval
   b. Revision Request 1" = 200' scale _____ Contour interval

NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

Revised detailed 100-year floodplain replaces effective zone A floodplain.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☒ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase? _____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

7. If a V-zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

NA

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed ☒ N/A

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☒ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☒ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

   If yes, justify steeper slopes_____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

   If no, describe erosion protection provided_____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☒ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash B: Calamity Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: U.S. Hwy 60-89
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.125 to Station 0.135
3. This revision reflects *(check one of the following)*:
   - ☒ New bridge/culvert not modeled in the FIS
   - ☐ Modified bridge/culvert previously modeled in the FIS
   - ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

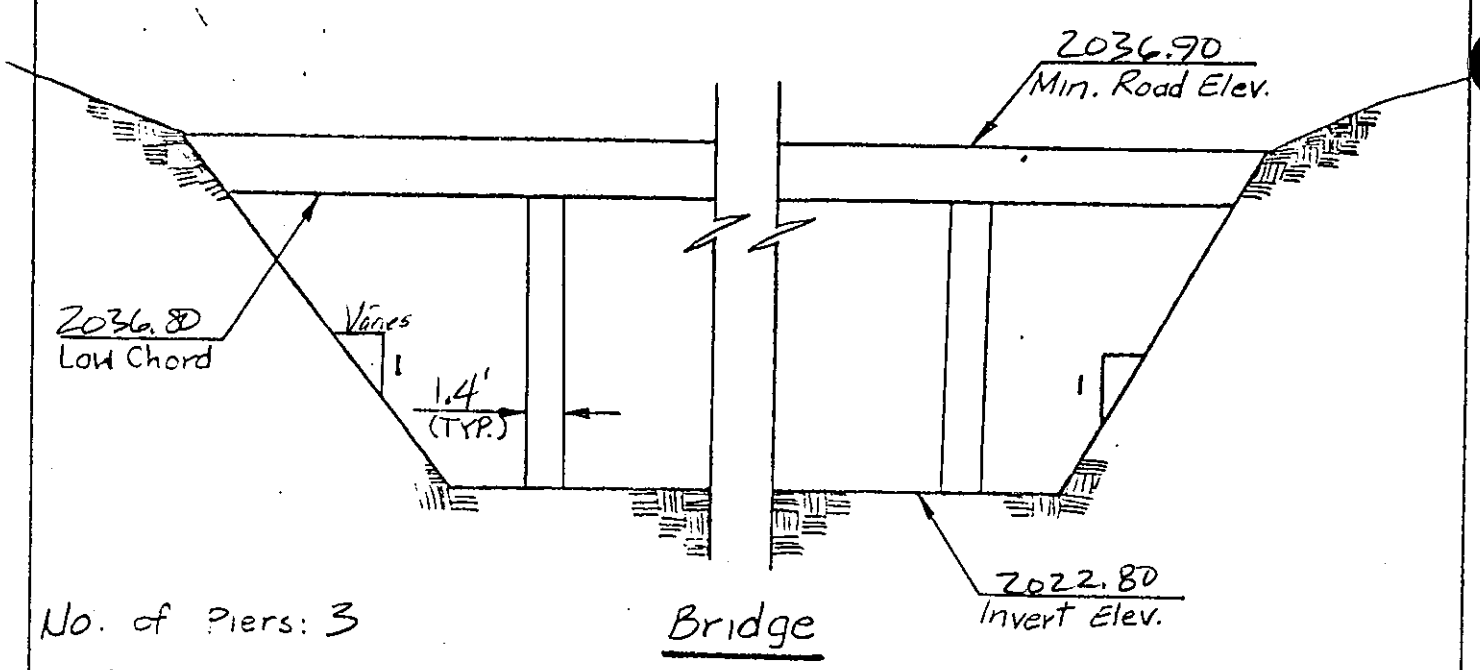
Provide the following information about the structure:

1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Four 30-ft span bridge w/steel columns and concrete wall fill
2. Entrance geometry of culvert/type of bridge opening (e.g. 30°-75° wing walls with square top edge, sloping embankments and vertical abutments) Sloping embankments w/gabion basket lining
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with special bridge routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

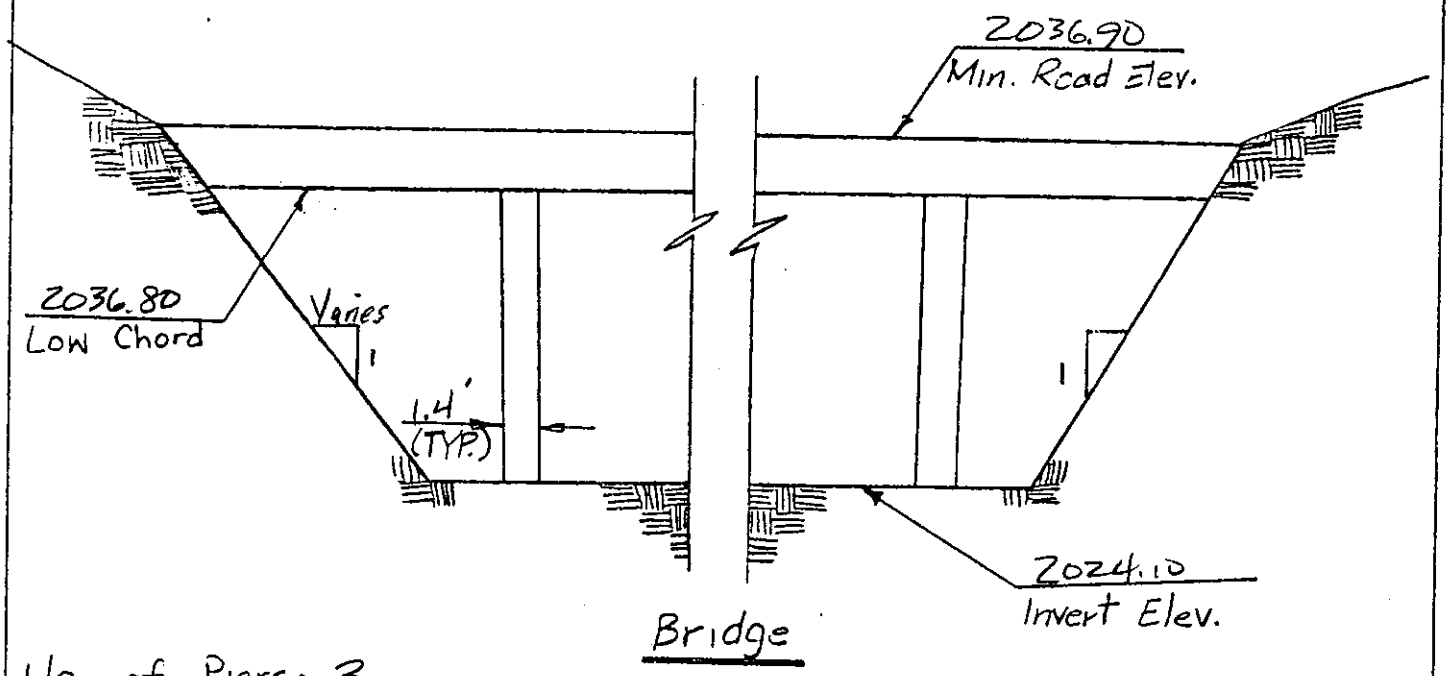


No. of Piers: 3

Total Width of Piers: 5.2

See Cross Section #0.125

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

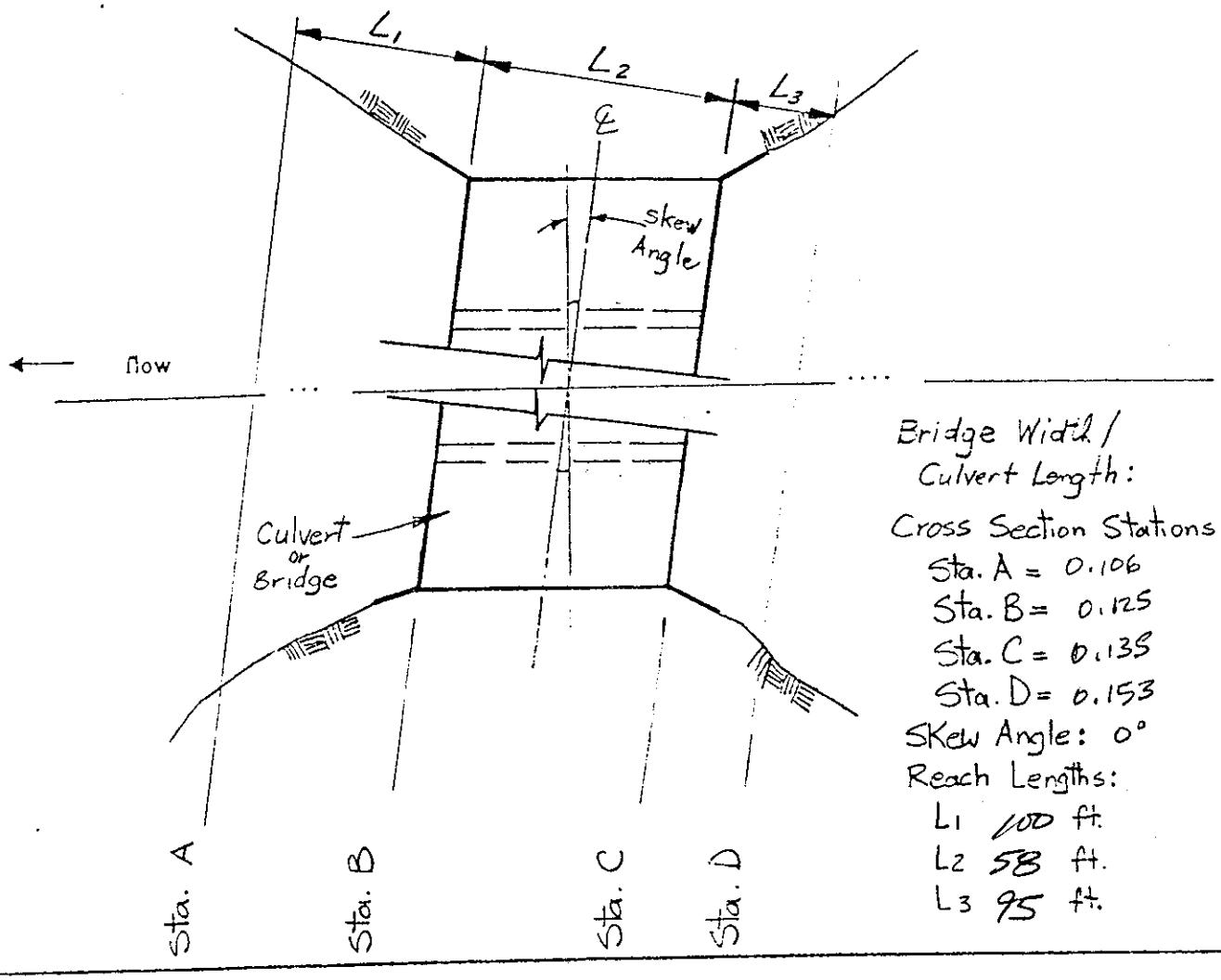


No. of Piers: 3

Total Width of Piers: 5.2

See Cross Section #0.135

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length:

Cross Section Stations
Sta. A = 0.106
Sta. B = 0.125
Sta. C = 0.135
Sta. D = 0.153

Skew Angle: 0°

Reach Lengths:
L1 100 ft.
L2 58 ft.
L3 95 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	130'
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	~~169~~ 237
Total culvert/bridge area (ft²)	1169

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	2036.90	2036.90
Downstream face	2036.90	2036.90

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	2036.90	2036.90
Downstream face	2036.90	2036.90

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	2029.19	2030.35
Downstream face	2026.90	2028.80

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	3098	—	—	3098

The maximum depth of flow over the roadway/railroad (ft.) ..... —

Weir length (ft.) ..... —

Top Widths

	Floodplain	Floodway
Upstream face	89.63	89.63
Downstream face	82.36	82.36

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	—	—
Downstream face		—

Loss Coefficients

Entrance loss coefficient	—
Manning's "n" value assigned to the structure(s)	.03 channel - .045 overbank
Friction loss coefficient through structure (s)	1.83
Other loss coefficients (e.g., bend manhole, etc.)	—
Total loss coefficient	—
Weir coefficient	—
Pier coefficient	—
Contraction loss coefficient	0.30
Expansion loss coefficient	0.50

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) NONE

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    30APR92    TIME    11:52:28 *
*******************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED 30APR92 11:52:29

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1      WICKENBURG ADMS - CONTRACT FCD 89-79
T2      B&V PN 17676   CVL JN 1197-02
T3      WASH B: CALAMITY WASH        (FILE WASHB.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0        0        0   2022.42       0

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                -1                                     -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

     .050      .050      .035       .3        .5
QT      2     3098      3098
ET             9.1       9.1                                                          885       1055
            CONFLUENCE OF WASH B: CALAMITY WASH
            AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
                 UN (HASSAYAMPA RIVER MILE 50.46)
                 UO (HASSAYAMPA RIVER MILE 50.56)
            CROSS-SECTION DESIGNATION FROM:
                 HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
                 STUDY, MARICOPA COUNTY, ARIZONA AND
                 UNINCORPORATED AREAS.  FEDERAL EMERGENCY
                 MANAGEMENT AGENCY, EFFECTIVE DATE
                 SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
                 ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

            NOTE:  ENCROACHMENTS SET AT STATIONS 885 AND 1055
                   BASED ON A 4 TO 1 EXPANSION OF FLOW FROM
                   DOWNSTREAM FACE OF R.C. CONT. SLAB BRIDGE

X1    0.106       13      976     1040        0        0        0
GR   2024.3     839.   2021.4     859.   2020.5     895.   2021.0     932.   2019.8     961.
GR   2019.6     976.   2019.6    1000.   2019.6    1004.   2019.6    1040.   2019.7    1060.
GR   2021.2    1082.   2031.5    1154.   2032.7    1180.

    0.045     0.045     0.030      0.3       0.5
              9.1       9.1                                                          935       1065
```

```
                DOWNSTREAM FACE:  4 SPAN R.C. CONT. SLAB BRIDGE

                NOTE: HWY CENTERLINE SECTION WAS USED
                      TO CREATE THE DS AND US FACE SECTION
X1    0.125       16      968.7    1031.3      100       100       100
X3       10
GR   2050.3      504.    2047.0      631.   2041.7      781.    2039.3      927.   2039.23    934.99
GR   2036.8      935.    2022.8    968.7   2022.8      997.    2022.8     1000.    2022.8    1031.3
GR   2036.8     1065.    2036.9  1065.01   2035.6     1114.    2035.0     1236.    2034.1     1387.
GR   2033.3     1442.

SB     .90      1.83       2.8        0     62.6      4.20    1169.7      2.65    2024.1    2022.8
ET              9.1        9.1                                                      935      1065
                UPSTREAM FACE:  4 SPAN R.C. CONT. SLAB BRIDGE

                NOTE: HWY CENTERLINE SECTION WAS USED
                      TO CREATE THE DS AND US FACE SECTION
X1    0.135       16      968.7    1031.3       58        58        58
X2        0        0          1    2036.8   2036.9
X3       10
BT      -16      504     2050.3    2050.3      631    2047.0    2047.0      781    2041.7    2041.7
BT               927     2039.3    2039.3   934.99   2039.23   2039.23      935   2039.23    2036.8
BT             968.7     2038.9    2036.8      997    2038.7    2036.8     1000    2038.6    2036.8
BT            1031.3    2037.78    2036.8     1065    2036.9    2036.8  1065.01    2036.9    2036.9
BT              1114     2035.6    2035.6     1236      2035      2035     1387    2034.1    2034.1
BT              1442     2033.3    2033.3
GR   2050.3      504.    2047.0      631.   2041.7      781.    2039.3      927.   2039.23    934.99
GR   2036.8      935.    2024.1    968.7   2024.1      997.    2024.1     1000.    2024.1    1031.3
GR   2036.8     1065.    2036.9  1065.01   2035.6     1114.    2035.0     1236.    2034.1     1387.
GR   2033.3     1442.

NC    0.050    0.050     0.035       0.3       0.5
ET                        9.1                                                    940.41   1069.50
X1    0.153       25       955      1041       160       120        95
GR   2045.0      595.    2043.7      638.   2041.0      650.    2040.6      708.   2040.7      754.
GR   2039.9      818.    2041.1      835.   2040.9      850.    2040.1      890.   2038.8      916.
GR   2035.1      927.    2025.1      955.   2024.6      992.    2024.6     1000.   2024.7     1003.
GR   2024.8     1041.    2028.6     1057.   2031.2     1076.    2033.8     1103.   2034.2     1119.
GR   2033.2     1147.    2035.0     1182.   2036.6     1201.    2045.9     1219.   2044.0     1236.

NC    0.050    0.050     0.035        .1        .3
ET                        9.1                                                    986.01   1068.96
X1    0.248       22      1000      1057       460       480       500
GR   2048.0      815.    2046.5      820.   2046.3      847.    2044.6      857.   2043.4      896.
GR   2042.2      915.    2045.1      929.   2045.8      944.    2044.7      963.   2043.2      980.
GR   2036.8     1000.    2037.0     1032.   2037.1     1037.    2037.2     1057.   2044.7     1079.
GR   2044.7     1097.    2045.0     1175.   2043.2     1232.    2042.1     1298.   2042.5     1332.
GR   2042.7     1357.    2048.0     1375.
```

			9.1						948.	1023.43
X1	0.335	9	962	1015	500	490	459			
GR	2064.1	859.	2053.4	879.	2053.2	921.	2052.7	948.	2048.5	962.
GR	2048.2	1000.	2048.4	1011.	2048.4	1015.	2060.1	1037.		
ET			9.1						850.	1018.24
X1	0.436	14	980	1004	440	540	533			
GR	2080.0	667.	2067.2	695.	2065.2	747.	2064.0	774.	2062.4	816.
GR	2063.1	845.	2063.5	894.	2064.6	939.	2062.6	968.	2060.9	980.
GR	2060.8	1000.	2060.8	1004.	2061.9	1016.	2094.6	1039.		
ET			9.1						971.61	1050.
X1	0.537	9	980	1000	520	500	533			
GR	2089.2	964.	2076.5	974.	2074.9	980.	2074.9	1000.	2075.6	1027.
GR	2078.0	1050.	2078.1	1125.	2079.6	1143.	2088.5	1158.		
ET			9.1						947.31	1058.61
X1	0.625	10	1000	1019	560	480	465			
GR	2101.7	898.	2093.8	913.	2092.1	939.	2089.6	963.	2087.7	977.
GR	2086.6	1000.	2086.6	1019.	2088.2	1043.	2091.7	1061.	2100.6	1076.
ET			9.1						946.46	1042.93
X1	0.708	12	990	1010	440	440	438			
GR	2112.4	908.	2105.2	928.	2102.6	949.	2099.7	966.	2098.5	975.
GR	2097.5	990.	2096.9	1000.	2097.8	1010.	2098.7	1020.	2102.5	1035.
	2104.8	1079.	2114.2	1091.						
ET			9.1						973.77	1088.85
X1	0.811	11	984	1000	460	600	544			
GR	2120.7	969.	2109.5	984.	2109.6	1000.	2112.2	1011.	2114.2	1024.
GR	2114.8	1033.	2115.4	1044.	2115.2	1058.	2115.8	1063.	2115.8	1088.
GR	2140.9	1104.								
ET			9.1						926.97	1021.95
X1	0.898	10	993	1013	500	400	459			
GR	2148.2	900.	2139.3	910.	2128.0	932.	2127.8	965.	2125.9	983.
GR	2125.4	993.	2125.1	1000.	2126.8	1013.	2127.8	1020.	2152.1	1037.
ET			9.1						739.42	1018.93
X1	0.992	15	987	1002	520	500	470			
GR	2152.3	699.	2146.6	716.	2140.3	743.	2140.4	769.	2140.5	815.
GR	2140.4	849.	2139.8	880.	2139.4	925.	2138.0	951.	2136.6	977.
GR	2136.3	987.	2135.9	1000.	2136.1	1002.	2137.1	1013.	2154.1	1038.
ET			9.1						938.16	1036.42
X1	1.092	8	1000	1030	540	530	528			
GR	2164.2	908.	2156.7	921.	2152.1	943.	2149.6	968.	2148.7	1000.
GR	2148.7	1002.	2148.7	1030.	2164.5	1053.				

			9.1						976.45	1024.74
X1	1.187	7	980	1000	500	460	500			
GR	2201.8	961.	2164.9	980.	2164.9	1000.	2166.6	1013.	2175.9	1034.
GR	2189.9	1066.	2200.3	1091.						
ET			9.1						960.87	1021.01
X1	1.281	6	995	1014	510	500	496			
GR	2200.5	944.	2175.1	965.	2175.1	995.	2175.1	1000.	2175.1	1014.
GR	2211.5	1065.								
ET			9.1						884.92	1033.18
X1	1.376	11	984	1003	520	480	500			
GR	2200.4	868.	2189.5	885.	2188.6	909.	2188.4	935.	2186.9	942.
GR	2186.2	972.	2184.8	984.	2184.6	1000.	2184.6	1003.	2186.8	1030.
GR	2201.5	1047.								
ET			9.1						947.31	1030.75
X1	1.456	11	985	1015	400	420	422			
GR	2208.7	927.	2202.0	939.	2195.9	964.	2195.78	985.	2195.7	1000.
GR	2195.7	1003.	2195.97	1015.	2196.3	1030.	2210.9	1033.	2213.7	1048.0
GR	2221.0	1054.								
ET			9.1						851.30	1094.99
X1	1.554	17	973	1004	520	540	517			
GR	2224.2	810.	2218.0	823.	2208.8	854.	2207.2	881.	2206.9	905.
[illegible]	2206.9	932.	2207.6	973.	2207.5	1000.	2207.6	1004.	2208.5	1026.
[illegible]	2209.3	1046.	2208.6	1075.	2207.4	1084.	2209.0	1094.	2216.9	1107.
GR	2220.8	1124.	2224.5	1138.						
ET			9.1						849.82	1045.28
X1	1.649	12	984	1004	600	480	500			
GR	2228.8	803.	2225.4	824.	2221.5	852.	2219.7	868.	2219.4	919.
GR	2219.6	942.	2219.3	984.	2218.7	1000.	2218.9	1004.	2219.7	1015.
GR	2220.5	1039.	2228.8	1079.						
ET			9.1						887.13	1156.36
X1	1.744	15	1000	1034	500	550	500			
GR	2260.2	848.	2233.3	886.	2232.1	903.	2231.9	945.	2230.6	1000.
GR	2230.6	1034.	2230.5	1036.	2230.4	1061.	2230.3	1071.	2230.8	1097.
GR	2232.2	1104.	2233.2	1128.	2233.0	1154.	2234.4	1169.	2249.2	1210.
ET			9.1						927.25	1034.03
X1	1.838	11	990	1010	500	500	496			
GR	2260.2	923.	2243.2	928.	2242.5	966.	2241.96	990.	2241.8	997.
GR	2241.8	1000.	2241.8	1004.	2242.08	1010.	2242.7	1023.	2244.2	1033.
GR	2281.8	1058.								
ET			9.1						986.27	1013.15
X1	1.933	8	990	1008	480	520	500			
GR	2268.7	984.	2253.6	990.	2253.5	999.	2253.5	1000.	2253.8	1008.
[illegible]	2266.3	1015.	2267.0	1027.	2268.3	1037.				

			9.1						991.95	1018.35
X1	2.016	7	999	1003	460	440	438			
GR	2284	991	2280.9	998.	2272.65	999.	2264.4	1000.	2267.4	1003.
GR	2283.0	1018.	2284	1018.6						
ET			9.1						964.17	1023.29
X1	2.111	7	987	1000	560	500	500			
GR	2321.1	949.	2309.7	969.	2306.1	987.	2305.9	997.	2305.8	1000.
GR	2307.6	1016.	2320.9	1036.						
ET			9.1						954.90	1018.90
X1	2.206	7	994	1013	470	520	500			
GR	2340.6	937.	2331.2	956.	2324.2	994.	2323.9	1000.	2323.9	1002.
GR	2326.0	1013.	2340.6	1028.						

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .300 CEHV= .500
*SECNO .106

3470 ENCROACHMENT STATIONS= 885.0 1055.0 TYPE= 1 TARGET= 170.000
CONFLUENCE OF WASH B: CALAMITY WASH
AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
UN (HASSAYAMPA RIVER MILE 50.46)
UO (HASSAYAMPA RIVER MILE 50.56)
CROSS-SECTION DESIGNATION FROM:
HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
STUDY, MARICOPA COUNTY, ARIZONA AND
UNINCORPORATED AREAS. FEDERAL EMERGENCY
MANAGEMENT AGENCY, EFFECTIVE DATE
SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

NOTE: ENCROACHMENTS SET AT STATIONS 885 AND 1055
BASED ON A 4 TO 1 EXPANSION OF FLOW FROM
DOWNSTREAM FACE OF R.C. CONT. SLAB BRIDGE

.106	2.82	2022.42	2022.42	.00	2023.57	1.15	.00	.00	2019.60
3098.0	1008.3	1827.6	262.1	179.1	180.5	41.7	.0	.0	2019.60
.00	5.63	10.13	6.28	.050	.035	.050	.000	2019.60	885.00
.014276	0.	0.	0.	0	4	0	.00	170.00	1055.00

FLOW DISTRIBUTION FOR SECNO= .11 CWSEL= 2022.42

STA=	885.	895.	932.	961.	976.	1040.	1055.
PER Q=	2.7	10.0	10.7	9.1	59.0	8.5	
AREA=	18.0	61.8	58.6	40.8	180.5	41.7	
VEL=	4.7	5.0	5.7	6.9	10.1	6.3	
DEPTH=	1.8	1.7	2.0	2.7	2.8	2.8	

CCHV= .300 CEHV= .500
*SECNO .125

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 935.0 1065.0 TYPE= 1 TARGET= 130.000
DOWNSTREAM FACE: 4 SPAN R.C. CONT. SLAB BRIDGE

NOTE: HWY CENTERLINE SECTION WAS USED
TO CREATE THE DS AND US FACE SECTION

.125	4.10	2026.90	2026.90	.00	2028.80	1.90	1.05	.37	2022.80
3098.0	91.6	2914.8	91.6	20.3	256.9	20.3	.8	.3	2022.80
.00	4.52	11.35	4.52	.045	.030	.045	.000	2022.80	958.82
.007984	100.	100.	100.	0	11	0	.00	82.36	1041.18

FLOW DISTRIBUTION FOR SECNO= .13 CWSEL= 2026.90

STA=	959.	969.	1031.	1041.
Q=	3.0	94.1	3.0	
AREA=	20.3	256.9	20.3	
VEL=	4.5	11.3	4.5	
DEPTH=	2.1	4.1	2.1	

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 2026.17 , NOT 2026.90 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.83	2.80	.00	62.60	4.20	1169.70	2.65	2024.10	2022.80

*SECNO .135

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

CLASS B LOW FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3420 BRIDGE W.S.= 2027.60 BRIDGE VELOCITY= 10.75 CALCULATED CHANNEL AREA= 237.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2030.35	.00	0.	3098.	1170.	1169.	2036.80	2036.90	0.

3470 ENCROACHMENT STATIONS= 935.0 1065.0 TYPE= 1 TARGET= 130.000
UPSTREAM FACE: 4 SPAN R.C. CONT. SLAB BRIDGE

NOTE: HWY CENTERLINE SECTION WAS USED
TO CREATE THE DS AND US FACE SECTION

.135	5.09	2029.19	.00	.00	2030.35	1.16	1.55	.00	2024.10
3098.0	123.6	2850.7	123.6	34.4	318.8	34.4	1.3	.4	2024.10
.00	3.59	8.94	3.59	.045	.030	.045	.000	2024.10	955.19
.003718	58.	58.	58.	0	0	0	.00	89.63	1044.81

FLOW DISTRIBUTION FOR SECNO= .14 CWSEL= 2029.19

STA=	955.	969.	1031.	1045.
PER Q=	4.0	92.0	4.0	
AREA=	34.4	318.8	34.4	
VEL=	3.6	8.9	3.6	
DEPTH=	2.5	5.1	2.5	

CCHV= .300 CEHV= .500
*SECNO .153

3301 HV CHANGED MORE THAN HVINS

.153	5.70	2030.30	2028.11	.00	2030.81	.50	.26	.20	2025.10
3098.0	91.6	2817.0	189.4	38.0	476.0	68.5	2.4	.7	2024.80
.01	2.41	5.92	2.77	.050	.035	.050	.000	2024.60	940.41
.001984	160.	95.	120.	2	19	0	.00	129.09	1069.50

FLOW DISTRIBUTION FOR SECNO= .15 CWSEL= 2030.30

STA=	940.	955.	1041.	1057.	1070.
PER Q=	3.0	90.9	5.7	.4	
AREA=	38.0	476.0	57.8	10.7	
VEL=	2.4	5.9	3.1	1.2	
DEPTH=	2.6	5.5	3.6	.9	

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .100 CEHV=     .300
*SECNO  .248

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .248      4.48   2041.28   2041.28       .00   2043.21      1.93      1.93       .43   2036.80
    3098.0     159.6    2822.1     116.3      31.3     243.8      24.4       7.4       1.9   2037.20
       .02      5.09     11.58      4.77      .050      .035      .050      .000   2036.80    986.01
   .010706      460.      500.      480.         0        15         0       .00     82.96   1068.96


FLOW DISTRIBUTION FOR SECNO=       .25          CWSEL=   2041.28

STA=     986.    1000.    1057.    1069.
  PER Q=      5.2     91.1      3.8
   AREA=     31.3    243.8     24.4
    VEL=      5.1     11.6      4.8
  DEPTH=      2.2      4.3      2.0

*SECNO  .335
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .335      4.68   2052.88   2052.88       .00   2054.91      2.02      4.85       .03   2048.50
    3098.0     163.2    2844.9      89.9      32.9     240.7      18.9      10.6       2.8   2048.40
       .03      4.96     11.82      4.76      .050      .035      .050      .000   2048.20    938.05
   .010308      500.      459.      490.         0         8         0       .00     85.39   1023.43


FLOW DISTRIBUTION FOR SECNO=       .34          CWSEL=   2052.88

STA=     938.     948.     962.    1015.    1023.
  PER Q=       .0      5.2     91.8      2.9
   AREA=       .9     32.0    240.7     18.9
    VEL=       .6      5.1     11.8      4.8
  DEPTH=       .1      2.3      4.5      2.2

*SECNO  .436
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.436	4.29	2065.09	2065.09	.00	2065.98	.89	5.03	.11	2060.90
3098.0	1663.8	1110.9	323.4	378.3	102.0	48.5	15.2	4.7	2060.80
.05	4.40	10.90	6.67	.050	.035	.050	.000	2060.80	749.48
.009573	440.	533.	540.	0	15	0	.00	268.76	1018.24

FLOW DISTRIBUTION FOR SECNO= .44 CWSEL= 2065.09

STA=	749.	774.	816.	845.	894.	939.	968.	980.	1004.	1016.	1018.
PER Q=	.8	11.4	11.2	12.1	4.5	5.3	8.3	35.9	10.1	.3	
AREA=	13.4	79.4	67.8	87.7	46.8	43.2	40.1	102.0	44.9	3.6	
VEL=	1.9	4.4	5.1	4.3	3.0	3.8	6.5	10.9	7.0	2.7	
DEPTH=	.5	1.9	2.3	1.8	1.0	1.5	3.3	4.2	3.7	1.6	

*SECNO .537
MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

.537	4.63	2079.53	2079.53	.00	2080.73	1.20	5.24	.09	2074.90
3098.0	179.9	1131.1	1787.0	26.6	92.6	301.5	20.8	7.3	2074.90
.07	6.76	12.22	5.93	.050	.035	.050	.000	2074.90	971.61
.010730	520.	533.	500.	0	8	0	.00	170.54	1142.15

FLOW DISTRIBUTION FOR SECNO= .54 CWSEL= 2079.53

STA=	972.	974.	980.	1000.	1027.	1050.	1125.	1142.
PER Q=	.3	5.5	36.5	30.3	12.1	14.3	1.0	
AREA=	3.6	23.0	92.6	115.5	62.8	110.9	12.3	
VEL=	2.9	7.4	12.2	8.1	6.0	4.0	2.5	
DEPTH=	1.5	3.8	4.6	4.3	2.7	1.5	.7	

*SECNO .625
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.625	4.63	2091.23	2091.23	.00	2092.81	1.58	5.72	.11	2086.60
3098.0	1068.3	1171.8	857.9	143.0	88.1	115.7	25.1	8.9	2086.60
.08	7.47	13.31	7.41	.050	.035	.050	.000	2086.60	947.31
.012710	560.	465.	480.	0	5	0	.00	111.30	1058.61

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .63 CWSEL= 2091.23

STA=	947.	963.	977.	1000.	1019.	1043.	1059.
PER Q=	1.2	7.3	25.9	37.8	24.4	3.3	
AREA=	12.8	36.2	94.0	88.1	92.0	23.7	
VEL=	2.9	6.3	8.6	13.3	8.2	4.4	
DEPTH=	.8	2.6	4.1	4.6	3.8	1.5	

*SECNO .708
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.708	6.01	2102.91	2102.91	.00	2104.70	1.78	4.95	.06	2097.50
3098.0	1012.5	1519.2	566.3	138.4	112.8	83.0	28.6	9.9	2097.80
.10	7.31	13.47	6.82	.050	.035	.050	.000	2096.90	946.46
.010063	440.	438.	440.	0	11	0	.00	96.47	1042.93

FLOW DISTRIBUTION FOR SECNO= .71 CWSEL= 2102.91

STA=	946.	949.	966.	975.	990.	1010.	1020.	1035.	1043.
Q=	.0	4.2	8.0	20.5	49.0	12.5	5.7	.1	
EA=	.4	30.0	34.3	73.7	112.8	46.6	34.7	1.6	
VEL=	.9	4.3	7.2	8.6	13.5	8.3	5.1	1.0	
DEPTH=	.2	1.8	3.8	4.9	5.6	4.7	2.3	.2	

*SECNO .811
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.811	7.64	2117.14	2117.14	.00	2118.81	1.67	4.40	.01	2109.50
3098.0	199.4	1622.0	1276.5	39.1	121.4	233.9	33.1	11.3	2109.60
.11	5.11	13.36	5.46	.050	.035	.050	.000	2109.50	973.77
.006641	460.	544.	600.	0	11	0	.00	115.08	1088.85

FLOW DISTRIBUTION FOR SECNO= .81 CWSEL= 2117.14

STA=	974.	984.	1000.	1011.	1024.	1033.	1044.	1058.	1063.	1088.	1089.
PER Q=	6.4	52.4	17.9	9.9	3.5	2.8	3.0	.9	3.2	.0	
AREA=	39.1	121.4	68.6	51.2	23.7	22.4	25.7	8.2	33.4	.6	
VEL=	5.1	13.4	8.1	6.0	4.6	3.9	3.6	3.3	2.9	1.2	
DEPTH=	3.8	7.6	6.2	3.9	2.6	2.0	1.8	1.6	1.3	.7	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .898
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.898	5.48	2130.58	2130.58	.00	2132.30	1.72	4.05	.02	2125.40
3098.0	1598.8	1324.2	175.0	211.7	97.6	25.7	36.9	12.3	2126.80
.13	7.55	13.57	6.81	.050	.035	.050	.000	2125.10	926.97
.012435	500.	459.	400.	0	19	0	.00	94.98	1021.95

FLOW DISTRIBUTION FOR SECNO= .90 CWSEL= 2130.58

STA=	927.	932.	965.	983.	993.	1013.	1020.	1022.
PER Q=	.8	18.3	17.2	15.3	42.7	5.4	.2	
AREA=	6.5	88.6	67.2	49.3	97.6	23.0	2.7	
VEL=	3.6	6.4	7.9	9.6	13.6	7.3	2.9	
DEPTH=	1.3	2.7	3.7	4.9	4.9	3.3	1.4	

*SECNO .992

3301 HV CHANGED MORE THAN HVINS

MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.992	5.24	2141.14	2141.14	.00	2141.99	.85	5.02	.09	2136.30
3098.0	1824.7	859.6	413.8	387.9	75.7	61.9	41.9	14.6	2136.10
.15	4.70	11.35	6.69	.050	.035	.050	.000	2135.90	739.42
.008262	520.	470.	500.	0	10	0	.00	279.51	1018.93

FLOW DISTRIBUTION FOR SECNO= .99 CWSEL= 2141.14

STA=	739.	743.	769.	815.	849.	880.	925.	951.	977.	987.	1002.	1013.	1019.
PER Q=	.1	1.5	2.1	1.6	2.9	8.0	10.0	21.3	11.4	27.7	11.9	1.5	
AREA=	1.5	20.4	31.5	23.3	32.1	69.1	63.3	99.7	46.9	75.7	49.9	12.0	
VEL=	1.5	2.3	2.1	2.1	2.8	3.6	4.9	6.6	7.6	11.3	7.4	3.8	
DEPTH=	.4	.8	.7	.7	1.0	1.5	2.4	3.8	4.7	5.0	4.5	2.0	

*SECNO 1.092

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.092	4.41	2153.11	2153.11	.00	2154.81	1.70	5.30	.25	2148.70
3098.0	1362.7	1666.2	69.1	185.8	132.4	14.2	47.2	16.9	2148.70
.16	7.34	12.59	4.88	.050	.035	.050	.000	2148.70	938.16
.012148	540.	528.	530.	0	15	0	.00	98.26	1036.42

FLOW DISTRIBUTION FOR SECNO= 1.09 CWSEL= 2153.11

STA=	938.	943.	968.	1000.	1030.	1036.
PER Q=	.2	10.3	33.6	53.8	2.2	
AREA=	2.4	56.5	126.8	132.4	14.2	
VEL=	2.1	5.6	8.2	12.6	4.9	
DEPTH=	.5	2.3	4.0	4.4	2.2	

*SECNO 1.187

3301 HV CHANGED MORE THAN HVINS

MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

1.187	6.90	2171.80	2171.80	.00	2174.64	2.84	5.41	.34	2164.90
3098.0	49.3	2117.9	930.8	12.3	138.0	109.2	50.6	17.7	2164.90
.17	4.02	15.35	8.52	.050	.035	.050	.000	2164.90	976.45
.009942	500.	500.	460.	0	14	0	.00	48.30	1024.74

FLOW DISTRIBUTION FOR SECNO= 1.19 CWSEL= 2171.80

STA=	976.	980.	1000.	1013.	1025.
PER Q=	1.6	68.4	24.8	5.2	
AREA=	12.3	138.0	78.7	30.5	
VEL=	4.0	15.3	9.8	5.3	
DEPTH=	3.5	6.9	6.1	2.6	

*SECNO 1.281

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

1.281	5.00	2180.10	2180.10	.00	2182.44	2.34	5.88	.05	2175.10
3098.0	1598.0	1400.7	99.3	160.4	95.0	17.5	53.6	18.3	2175.10
.18	9.96	14.74	5.67	.050	.035	.050	.000	2175.10	960.87
.014096	510.	496.	500.	0	15	0	.00	60.14	1021.01

FLOW DISTRIBUTION FOR SECNO= 1.28 CWSEL= 2180.10

STA=	961.	965.	995.	1014.	1021.
PER Q=	1.6	50.0	45.2	3.2	
AREA=	10.3	150.0	95.0	17.5	
VEL=	4.8	10.3	14.7	5.7	
DEPTH=	2.5	5.0	5.0	2.5	

*SECNO 1.376

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

1.376	4.95	2189.55	2189.55	.00	2190.90	1.35	6.19	.10	2184.80
3098.0	1129.4	1169.1	799.5	191.5	92.5	108.4	57.5	19.6	2184.60
.20	5.90	12.64	7.37	.050	.035	.050	.000	2184.60	884.92
.010735	520.	500.	480.	0	5	0	.00	148.27	1033.18

FLOW DISTRIBUTION FOR SECNO= 1.38 CWSEL= 2189.55

STA=	885.	909.	935.	942.	972.	984.	1003.	1030.	1033.
PER Q=	.8	2.8	2.0	18.6	12.2	37.7	25.4	.4	
AREA=	12.1	27.4	13.3	90.1	48.6	92.5	104.0	4.4	
VEL=	1.9	3.2	4.7	6.4	7.8	12.6	7.6	3.2	
DEPTH=	.5	1.1	1.9	3.0	4.1	4.9	3.9	1.4	

*SECNO 1.456

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.456	4.27	2199.97	2199.97	.00	2201.84	1.87	5.02	.16	2195.78
3098.0	967.5	1635.3	495.2	120.8	126.0	59.0	60.8	20.6	2195.97
.21	8.01	12.98	8.40	.050	.035	.050	.000	2195.70	947.31
.013799	400.	422.	420.	0	11	0	.00	83.45	1030.75

FLOW DISTRIBUTION FOR SECNO= 1.46 CWSEL= 2199.97

STA=	947.	964.	985.	1015.	1030.	1031.
PER Q=	6.0	25.2	52.8	15.9	.1	
AREA=	34.0	86.8	126.0	57.6	1.4	
VEL=	5.5	9.0	13.0	8.6	1.8	
DEPTH=	2.0	4.1	4.2	3.8	1.8	

*SECNO 1.554

3301 HV CHANGED MORE THAN HVINS

1.554	2.70	2209.60	2209.59	.00	2210.50	.89	8.56	.10	2207.60
3098.0	2032.4	613.4	452.2	274.9	63.6	95.8	65.2	22.6	2207.60
.23	7.39	9.64	4.72	.050	.035	.050	.000	2206.90	851.30
019797	520.	517.	540.	2	14	0	.00	243.69	1094.99

FLOW DISTRIBUTION FOR SECNO= 1.55 CWSEL= 2209.60

STA=	851.	854.	881.	905.	932.	973.	1004.	1026.	1046.	1075.	1084.	1094.	1095.
PER Q=	.1	8.0	15.4	19.1	23.0	19.8	6.2	1.5	1.9	2.6	2.3	.0	
AREA=	1.1	43.2	61.2	72.9	96.4	63.6	34.1	14.0	18.9	14.4	14.0	.3	
VEL=	2.2	5.7	7.8	8.1	7.4	9.6	5.6	3.3	3.1	5.7	5.2	1.7	
DEPTH=	.4	1.6	2.6	2.7	2.4	2.1	1.6	.7	.7	1.6	1.4	.3	

*SECNO 1.649

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

1.649	3.10	2221.80	2221.80	.00	2222.82	1.02	10.82	.04	2219.30
3098.0	1979.4	663.0	455.6	286.3	56.9	72.5	70.7	25.4	2218.90
.25	6.91	11.66	6.28	.050	.035	.050	.000	2218.70	849.82
.018739	600.	500.	480.	0	8	0	.00	195.46	1045.28

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 1.65 CWSEL= 2221.80

STA=	850.	852.	868.	919.	942.	984.	1004.	1015.	1039.	1045.
PER Q=	.0	2.8	25.9	12.1	23.0	21.4	6.7	7.7	.4	
AREA=	.3	19.3	114.9	53.0	98.8	56.9	27.5	40.9	4.1	
VEL=	1.1	4.6	7.0	7.1	7.2	11.7	7.5	5.8	3.0	
DEPTH=	.2	1.2	2.3	2.3	2.4	2.8	2.5	1.7	.7	

*SECNO 1.744
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.744	2.92	2233.22	2233.22	.00	2234.08	.86	8.71	.02	2230.60
3098.0	864.9	890.9	1342.2	168.5	89.1	200.6	75.9	28.2	2230.60
.27	5.13	10.00	6.69	.050	.035	.050	.000	2230.30	887.13
.015359	500.	500.	550.	0	11	0	.00	269.23	1156.36

FLOW DISTRIBUTION FOR SECNO= 1.74 CWSEL= 2233.22

STA=	887.	903.	945.	1000.	1034.	1036.	1061.	1071.	1097.	1104.	1128.	1154.	1156.
Q=	.7	7.0	20.2	28.8	1.2	16.2	6.9	15.9	2.0	1.0	.1	.0	
EA=	8.9	51.2	108.4	89.1	5.3	69.3	28.7	69.4	12.0	12.5	3.1	.3	
VEL=	2.5	4.2	5.8	10.0	7.1	7.3	7.4	7.1	5.2	2.4	.9	.8	
DEPTH=	.6	1.2	2.0	2.6	2.7	2.8	2.9	2.7	1.7	.5	.1	.1	

*SECNO 1.838

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.838	3.94	2245.74	2245.74	.00	2247.28	1.54	7.77	.20	2241.96
3098.0	1564.1	1019.6	514.3	195.3	77.5	67.3	80.5	30.3	2242.08
.28	8.01	13.16	7.64	.050	.035	.050	.000	2241.80	927.25
.015796	500.	496.	500.	0	11	0	.00	106.78	1034.03

FLOW DISTRIBUTION FOR SECNO= 1.84 CWSEL= 2245.74

STA=	927.	928.	966.	990.	1010.	1023.	1033.	1034.
PER Q=	.1	26.9	23.5	32.9	11.8	4.8	.1	
AREA=	1.0	110.0	84.3	77.5	43.6	22.9	.8	
VEL=	1.9	7.6	8.6	13.2	8.4	6.4	2.1	
DEPTH=	1.3	2.9	3.5	3.9	3.4	2.3	.8	

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.933

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.933	9.50	2263.00	2263.00	.00	2267.36	4.37	5.55	.85	2253.60
3098.0	68.6	2919.3	110.1	17.5	169.3	23.7	83.6	31.1	2253.80
.29	3.91	17.25	4.65	.050	.035	.050	.000	2253.50	986.27
.008315	480.	500.	520.	0	17	0	.00	26.88	1013.15

FLOW DISTRIBUTION FOR SECNO= 1.93 CWSEL= 2263.00

STA=	986.	990.	1008.	1013.
PER Q=	2.2	94.2	3.6	
AREA=	17.5	169.3	23.7	
VEL=	3.9	17.2	4.6	
DEPTH=	4.7	9.4	4.6	

D 2.016
MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.016	19.18	2283.58	2283.58	.00	2287.58	4.00	5.49	.04	2272.65
3098.0	65.4	1289.2	1743.5	14.9	68.1	125.8	85.7	31.3	2267.40
.30	4.39	18.93	13.86	.050	.035	.050	.000	2264.40	991.95
.020860	460.	438.	440.	0	17	0	.00	26.40	1018.35

FLOW DISTRIBUTION FOR SECNO= 2.02 CWSEL= 2283.58

STA=	992.	998.	999.	1003.	1018.	1018.
PER Q=	1.3	.8	41.6	56.3	.0	
AREA=	8.1	6.8	68.1	125.7	.1	
VEL=	4.9	3.8	18.9	13.9	1.2	
DEPTH=	1.3	6.8	17.0	8.4	.3	

*SECNO 2.111

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.111	6.65	2312.45	2312.45	.00	2314.84	2.39	7.71	.16	2306.10
3098.0	732.5	1336.7	1028.9	88.5	84.3	109.7	88.6	31.9	2305.80
.31	8.27	15.85	9.38	.050	.035	.050	.000	2305.80	964.17
.011534	560.	500.	500.	0	22	0	.00	59.12	1023.29

FLOW DISTRIBUTION FOR SECNO= 2.11 CWSEL= 2312.45

STA=	964.	969.	987.	1000.	1016.	1023.
PER Q=	.8	22.9	43.1	30.3	2.9	
AREA=	6.6	81.9	84.3	92.0	17.7	
VEL=	3.6	8.7	15.9	10.2	5.1	
DEPTH=	1.4	4.6	6.5	5.8	2.4	

*SECNO 2.206
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.206	7.84	2331.74	2331.74	.00	2334.05	2.31	4.85	.01	2324.20
098.0	1053.2	1970.0	74.8	153.9	136.6	16.9	92.0	32.6	2326.00
.32	6.84	14.43	4.42	.050	.035	.050	.000	2323.90	954.90
.008442	470.	500.	520.	0	11	0	.00	64.00	1018.90

FLOW DISTRIBUTION FOR SECNO= 2.21 CWSEL= 2331.74

STA=	955.	956.	994.	1013.	1019.
PER Q=	.0	34.0	63.6	2.4	
AREA=	.3	153.6	136.6	16.9	
VEL=	1.1	6.9	14.4	4.4	
DEPTH=	.3	4.0	7.2	2.9	

FLOODWAY DETERMINATION
1.0 FT TARGET INCREASE
T3 WASH B: CALAMITY WASH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							2022.42	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1				-1			

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 ECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
          QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .300 CEHV=     .500
*SECNO  .106

3470 ENCROACHMENT STATIONS=      885.0    1055.0  TYPE=      1  TARGET=      170.000
            CONFLUENCE OF WASH B: CALAMITY WASH
            AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
                 UN (HASSAYAMPA RIVER MILE 50.46)
                 UO (HASSAYAMPA RIVER MILE 50.56)
            CROSS-SECTION DESIGNATION FROM:
                 HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
                 STUDY, MARICOPA COUNTY, ARIZONA AND
                 UNINCORPORATED AREAS.  FEDERAL EMERGENCY
                 MANAGEMENT AGENCY, EFFECTIVE DATE
                 SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
                 ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

            NOTE:  ENCROACHMENTS SET AT STATIONS 885 AND 1055
                   BASED ON A 4 TO 1 EXPANSION OF FLOW FROM
                   DOWNSTREAM FACE OF R.C. CONT. SLAB BRIDGE

     .106      2.82   2022.42   2022.42   2022.42   2023.57      1.15       .00       .00   2019.60
   3098.0    1008.3    1827.6     262.1     179.1     180.5      41.7        .0        .0   2019.60
     .00      5.63     10.13      6.28      .050      .035      .050      .000   2019.60    885.00
  .014276       0.        0.        0.         0         4         0       .00    170.00   1055.00


CCHV=     .300 CEHV=     .500
*SECNO  .125

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      935.0    1065.0  TYPE=      1  TARGET=      130.000
            DOWNSTREAM FACE:  4 SPAN R.C. CONT. SLAB BRIDGE

            NOTE: HWY CENTERLINE SECTION WAS USED
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TO CREATE THE DS AND US FACE SECTION

.125	4.10	2026.90	2026.90	2026.90	2028.80	1.90	1.05	.37	2022.80
3098.0	91.6	2914.8	91.6	20.3	256.9	20.3	.8	.3	2022.80
.00	4.52	11.35	4.52	.045	.030	.045	.000	2022.80	958.82
.007984	100.	100.	100.	0	11	0	.00	82.36	1041.18

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 2026.17 , NOT 2026.90 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.83	2.80	.00	62.60	4.20	1169.70	2.65	2024.10	2022.80

*SECNO .135

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

CLASS B LOW FLOW

3420 BRIDGE W.S.= 2027.60 BRIDGE VELOCITY= 10.75 CALCULATED CHANNEL AREA= 237.

S	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	2030.35	.00	0.	3098.	1170.	1169.	2036.80	2036.90	0.

3470 ENCROACHMENT STATIONS= 935.0 1065.0 TYPE= 1 TARGET= 130.000

UPSTREAM FACE: 4 SPAN R.C. CONT. SLAB BRIDGE

NOTE: HWY CENTERLINE SECTION WAS USED
TO CREATE THE DS AND US FACE SECTION

.135	5.09	2029.19	.00	2029.19	2030.35	1.16	1.55	.00	2024.10
3098.0	123.6	2850.7	123.6	34.4	318.8	34.4	1.3	.4	2024.10
.00	3.59	8.94	3.59	.045	.030	.045	.000	2024.10	955.19
.003718	58.	58.	58.	0	0	0	.00	89.63	1044.81

CCHV= .300 CEHV= .500
*SECNO .153

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 940.4 1069.5 TYPE= 1 TARGET= 129.090

.153	5.70	2030.30	2028.11	2030.30	2030.81	.50	.26	.20	2025.10
3098.0	91.6	2817.0	189.4	38.0	476.0	68.5	2.4	.7	2024.80
.01	2.41	5.92	2.77	.050	.035	.050	.000	2024.60	940.41
.001984	160.	95.	120.	2	19	0	.00	129.09	1069.50

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
*SECNO .248

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 986.0 1069.0 TYPE= 1 TARGET= 82.950

.248	4.53	2041.33	2041.33	2041.28	2043.21	1.87	1.90	.41	2036.80
3098.0	162.0	2817.6	118.4	32.1	246.9	25.0	7.4	1.9	2037.20
.02	5.05	11.41	4.73	.050	.035	.050	.000	2036.80	986.01
.010236	460.	500.	480.	0	15	0	.00	82.95	1068.96

*SECNO .335
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 948.0 1023.4 TYPE= 1 TARGET= 75.430

.335	4.71	2052.91	2052.91	2052.88	2054.91	2.00	4.71	.04	2048.50
3098.0	162.4	2845.0	90.5	32.3	241.8	19.1	10.6	2.7	2048.40
.03	5.03	11.76	4.74	.050	.035	.050	.000	2048.20	948.00
.010145	500.	459.	490.	0	8	0	.00	75.43	1023.43

*SECNO .436

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 850.0 1018.2 TYPE= 1 TARGET= 168.240

.436	4.79	2065.59	2065.59	2065.09	2066.80	1.21	5.05	.08	2060.90
3098.0	1351.9	1343.4	402.7	273.4	114.1	55.6	14.8	4.1	2060.80
.05	4.94	11.78	7.24	.050	.035	.050	.000	2060.80	850.00
.009634	440.	533.	540.	0	8	0	.00	168.24	1018.24

*SECNO .537

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 971.6 1050.0 TYPE= 1 TARGET= 78.390

.537	4.74	2079.64	2079.64	2079.53	2081.59	1.95	5.95	.22	2074.90
3098.0	214.8	1336.4	1546.7	27.5	94.7	183.7	19.3	5.5	2074.90
.06	7.82	14.11	8.42	.050	.035	.050	.000	2074.90	971.61
.013876	520.	533.	500.	0	5	0	.00	78.39	1050.00

*SECNO .625
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 947.3 1058.6 TYPE= 1 TARGET= 111.300

.625	4.62	2091.22	2091.22	2091.23	2092.81	1.59	6.55	.04	2086.60
3098.0	1067.6	1172.9	857.5	142.4	87.8	115.3	23.0	6.6	2086.60
.08	7.50	13.35	7.44	.050	.035	.050	.000	2086.60	947.42
.012843	560.	465.	480.	0	5	0	.00	111.13	1058.55

*SECNO .708
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 946.5 1042.9 TYPE= 1 TARGET= 96.470

.708	6.01	2102.91	2102.91	2102.91	2104.70	1.79	4.98	.06	2097.50
3098.0	1012.4	1519.3	566.2	138.4	112.8	83.0	26.4	7.7	2097.80
.09	7.32	13.47	6.83	.050	.035	.050	.000	2096.90	946.47
.010074	440.	438.	440.	0	11	0	.00	96.43	1042.90

*SECNO .811
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 973.8 1088.8 TYPE= 1 TARGET= 115.080

.811	7.64	2117.14	2117.14	2117.14	2118.81	1.66	4.40	.01	2109.50
3098.0	199.4	1621.3	1277.3	39.1	121.5	234.2	31.0	9.0	2109.60
.11	5.10	13.35	5.45	.050	.035	.050	.000	2109.50	973.77
.006624	460.	544.	600.	0	11	0	.00	115.08	1088.85

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .898
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 927.0 1022.0 TYPE= 1 TARGET= 94.980

.898	5.49	2130.59	2130.59	2130.58	2132.30	1.72	4.04	.02	2125.40
3098.0	1599.2	1323.7	175.1	211.9	97.7	25.7	34.8	10.1	2126.80
.12	7.55	13.55	6.80	.050	.035	.050	.000	2125.10	926.97
.012391	500.	459.	400.	0	19	0	.00	94.98	1021.95

*SECNO .992

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 739.4 1018.9 TYPE= 1 TARGET= 279.510

.992	5.24	2141.14	2141.14	2141.14	2141.99	.85	5.01	.09	2136.30
3098.0	1824.8	859.5	413.7	387.9	75.7	61.9	39.8	12.3	2136.10
.14	4.70	11.35	6.69	.050	.035	.050	.000	2135.90	739.42
.008259	520.	470.	500.	0	10	0	.00	279.51	1018.93

*SECNO 1.092

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 938.2 1036.4 TYPE= 1 TARGET= 98.260

1.092	4.42	2153.12	2153.12	2153.11	2154.81	1.69	5.29	.25	2148.70
3098.0	1363.4	1665.4	69.3	186.3	132.6	14.2	45.1	14.6	2148.70
.15	7.32	12.56	4.87	.050	.035	.050	.000	2148.70	938.16
.012065	540.	528.	530.	0	15	0	.00	98.26	1036.42

*SECNO 1.187

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 976.5 1024.7 TYPE= 1 TARGET= 48.290

1.187	6.94	2171.84	2171.84	2171.80	2174.64	2.80	5.33	.33	2164.90
3098.0	49.5	2115.4	933.0	12.4	138.8	110.2	48.4	15.5	2164.90
.16	3.99	15.24	8.47	.050	.035	.050	.000	2164.90	976.45
.009731	500.	500.	460.	0	14	0	.00	48.29	1024.74

*SECNO 1.281
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 960.9 1021.0 TYPE= 1 TARGET= 60.140

1.281	5.02	2180.12	2180.12	2180.10	2182.44	2.32	5.78	.05	2175.10
3098.0	1597.9	1400.5	99.6	160.9	95.3	17.6	51.5	16.1	2175.10
.18	9.93	14.70	5.65	.050	.035	.050	.000	2175.10	960.87
.013952	510.	496.	500.	0	15	0	.00	60.14	1021.01

*SECNO 1.376

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 884.9 1033.2 TYPE= 1 TARGET= 148.260

1.376	4.95	2189.55	2189.55	2189.55	2190.90	1.36	6.18	.10	2184.80
3098.0	1128.2	1170.0	799.7	190.9	92.4	108.2	55.4	17.3	2184.60
.19	5.91	12.66	7.39	.050	.035	.050	.000	2184.60	884.93
.010797	520.	500.	480.	0	5	0	.00	148.25	1033.18

*SECNO 1.456
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 947.3 1030.8 TYPE= 1 TARGET= 83.440

1.456	4.29	2199.99	2199.99	2199.97	2201.84	1.85	4.99	.15	2195.78
3098.0	968.5	1634.2	495.2	121.6	126.6	59.3	58.7	18.4	2195.97
.20	7.96	12.91	8.35	.050	.035	.050	.000	2195.70	947.31
.013549	400.	422.	420.	0	11	0	.00	83.44	1030.75

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.554

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 851.3 1095.0 TYPE= 1 TARGET= 243.690

1.554	2.69	2209.59	2209.59	2209.60	2210.50	.91	8.55	.09	2207.60
3098.0	2035.5	613.6	448.9	273.4	63.2	94.7	63.1	20.4	2207.60
.22	7.44	9.71	4.74	.050	.035	.050	.000	2206.90	851.34
.020206	520.	517.	540.	0	14	0	.00	243.63	1094.97

*SECNO 1.649
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 849.8 1045.3 TYPE= 1 TARGET= 195.460

1.649	3.11	2221.81	2221.81	2221.80	2222.82	1.01	10.91	.03	2219.30
098.0	1979.5	662.7	455.8	286.7	56.9	72.6	68.6	23.1	2218.90
.24	6.91	11.64	6.28	.050	.035	.050	.000	2218.70	849.82
.018665	600.	500.	480.	0	8	0	.00	195.46	1045.28

*SECNO 1.744
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 887.1 1156.4 TYPE= 1 TARGET= 269.230

1.744	2.92	2233.22	2233.22	2233.22	2234.08	.86	8.70	.02	2230.60
3098.0	864.7	891.0	1342.3	168.4	89.1	200.5	73.8	25.9	2230.60
.26	5.13	10.00	6.69	.050	.035	.050	.000	2230.30	887.14
.015376	500.	500.	550.	0	11	0	.00	269.21	1156.35

*SECNO 1.838

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 927.3 1034.0 TYPE= 1 TARGET= 106.780

1.838	3.95	2245.75	2245.75	2245.74	2247.28	1.54	7.76	.20	2241.96
3098.0	1564.2	1019.4	514.4	195.4	77.5	67.4	78.3	28.1	2242.08
.28	8.00	13.15	7.63	.050	.035	.050	.000	2241.80	927.25
.015753	500.	496.	500.	0	11	0	.00	106.78	1034.03

*SECNO 1.933

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 986.3 1013.2 TYPE= 1 TARGET= 26.880

1.933	9.51	2263.01	2263.01	2263.00	2267.36	4.36	5.53	.85	2253.60
3098.0	68.7	2919.1	110.2	17.6	169.4	23.7	81.5	28.8	2253.80
.28	3.91	17.23	4.64	.050	.035	.050	.000	2253.50	986.27
.008287	480.	500.	520.	0	17	0	.00	26.88	1013.15

*SECNO 2.016
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 992.0 1018.3 TYPE= 1 TARGET= 26.400

2.016	19.14	2283.54	2283.54	2283.58	2287.58	4.04	5.50	.03	2272.65
3098.0	64.0	1292.7	1741.2	14.6	67.9	125.2	83.6	29.1	2267.40
.29	4.38	19.03	13.91	.050	.035	.050	.000	2264.40	992.04
.021139	460.	438.	440.	0	17	0	.00	26.28	1018.32

*SECNO 2.111

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 964.2 1023.3 TYPE= 1 TARGET= 59.120

2.111	6.66	2312.46	2312.46	2312.45	2314.84	2.38	7.71	.17	2306.10
3098.0	733.2	1335.7	1029.0	88.8	84.5	110.0	86.5	29.6	2305.80
.30	8.25	15.81	9.35	.050	.035	.050	.000	2305.80	964.17
.011439	560.	500.	500.	0	22	0	.00	59.12	1023.29

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 2.206
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 954.9 1018.9 TYPE= 1 TARGET= 64.000

2.206	7.85	2331.75	2331.75	2331.74	2334.05	2.30	4.83	.01	2324.20
3098.0	1053.8	1969.3	74.9	154.1	136.7	17.0	89.8	30.3	2326.00
.32	6.84	14.41	4.41	.050	.035	.050	.000	2323.90	954.90
.008416	470.	500.	520.	0	11	0	.00	64.00	1018.90

THIS RUN EXECUTED 30APR92 11:53:03

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH B: CALAMITY WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.106	.00	.00	.00	2019.60	3098.00	2022.42	2022.42	2023.57	142.76	10.13	401.34	259.29
	.106	.00	.00	.00	2019.60	3098.00	2022.42	2022.42	2023.57	142.76	10.13	401.34	259.29
*	.125	100.00	.00	.00	2022.80	3098.00	2026.90	2026.90	2028.80	79.84	11.35	297.45	346.72
*	.125	100.00	.00	.00	2022.80	3098.00	2026.90	2026.90	2028.80	79.84	11.35	297.45	346.72
	.135	58.00	2036.90	2036.80	2024.10	3098.00	2029.19	.00	2030.35	37.18	8.94	387.65	508.06
	.135	58.00	2036.90	2036.80	2024.10	3098.00	2029.19	.00	2030.35	37.18	8.94	387.65	508.06
	.153	95.00	.00	.00	2024.60	3098.00	2030.30	2028.11	2030.81	19.84	5.92	582.53	695.54
	.153	95.00	.00	.00	2024.60	3098.00	2030.30	2028.11	2030.81	19.84	5.92	582.53	695.54
*	.248	500.00	.00	.00	2036.80	3098.00	2041.28	2041.28	2043.21	107.06	11.58	299.52	299.40
*	.248	500.00	.00	.00	2036.80	3098.00	2041.33	2041.33	2043.21	102.36	11.41	303.98	306.20
*	.335	459.00	.00	.00	2048.20	3098.00	2052.88	2052.88	2054.91	103.08	11.82	292.47	305.14
*	.335	459.00	.00	.00	2048.20	3098.00	2052.91	2052.91	2054.91	101.45	11.76	293.21	307.58
*	.436	533.00	.00	.00	2060.80	3098.00	2065.09	2065.09	2065.98	95.73	10.90	528.71	316.63
*	.436	533.00	.00	.00	2060.80	3098.00	2065.59	2065.59	2066.80	96.34	11.78	443.11	315.64
*	.537	533.00	.00	.00	2074.90	3098.00	2079.53	2079.53	2080.73	107.30	12.22	420.69	299.07
*	.537	533.00	.00	.00	2074.90	3098.00	2079.64	2079.64	2081.59	138.76	14.11	305.91	262.99
*	.625	465.00	.00	.00	2086.60	3098.00	2091.23	2091.23	2092.81	127.10	13.31	346.75	274.79
*	.625	465.00	.00	.00	2086.60	3098.00	2091.22	2091.22	2092.81	128.43	13.35	345.45	273.37
*	.708	438.00	.00	.00	2096.90	3098.00	2102.91	2102.91	2104.70	100.63	13.47	334.25	308.83
*	.708	438.00	.00	.00	2096.90	3098.00	2102.91	2102.91	2104.70	100.74	13.47	334.10	308.66
*	.811	544.00	.00	.00	2109.50	3098.00	2117.14	2117.14	2118.81	66.41	13.36	394.35	380.15
	.811	544.00	.00	.00	2109.50	3098.00	2117.14	2117.14	2118.81	66.24	13.35	394.77	380.64

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	.898	459.00	.00	.00	2125.10	3098.00	2130.58	2130.58	2132.30	124.35	13.57	334.97	277.82
*	.898	459.00	.00	.00	2125.10	3098.00	2130.59	2130.59	2132.30	123.91	13.55	335.36	278.31
*	.992	470.00	.00	.00	2135.90	3098.00	2141.14	2141.14	2141.99	82.62	11.35	525.46	340.84
*	.992	470.00	.00	.00	2135.90	3098.00	2141.14	2141.14	2141.99	82.59	11.35	525.52	340.89
*	1.092	528.00	.00	.00	2148.70	3098.00	2153.11	2153.11	2154.81	121.48	12.59	332.29	281.07
*	1.092	528.00	.00	.00	2148.70	3098.00	2153.12	2153.12	2154.81	120.65	12.56	333.06	282.04
*	1.187	500.00	.00	.00	2164.90	3098.00	2171.80	2171.80	2174.64	99.42	15.35	259.46	310.70
*	1.187	500.00	.00	.00	2164.90	3098.00	2171.84	2171.84	2174.64	97.31	15.24	261.38	314.05
*	1.281	496.00	.00	.00	2175.10	3098.00	2180.10	2180.10	2182.44	140.96	14.74	272.91	260.94
*	1.281	496.00	.00	.00	2175.10	3098.00	2180.12	2180.12	2182.44	139.52	14.70	273.80	262.28
*	1.376	500.00	.00	.00	2184.60	3098.00	2189.55	2189.55	2190.90	107.35	12.64	392.45	299.00
*	1.376	500.00	.00	.00	2184.60	3098.00	2189.55	2189.55	2190.90	107.97	12.66	391.58	298.15
*	1.456	422.00	.00	.00	2195.70	3098.00	2199.97	2199.97	2201.84	137.99	12.98	305.73	263.72
*	1.456	422.00	.00	.00	2195.70	3098.00	2199.99	2199.99	2201.84	135.49	12.91	307.52	266.15
	1.554	517.00	.00	.00	2206.90	3098.00	2209.60	2209.59	2210.50	197.97	9.64	434.30	220.18
*	1.554	517.00	.00	.00	2206.90	3098.00	2209.59	2209.59	2210.50	202.06	9.71	431.33	217.94
	1.649	500.00	.00	.00	2218.70	3098.00	2221.80	2221.80	2222.82	187.39	11.66	415.68	226.31
	1.649	500.00	.00	.00	2218.70	3098.00	2221.81	2221.81	2222.82	186.65	11.64	416.20	226.76
*	1.744	500.00	.00	.00	2230.30	3098.00	2233.22	2233.22	2234.08	153.59	10.00	458.22	249.98
*	1.744	500.00	.00	.00	2230.30	3098.00	2233.22	2233.22	2234.08	153.76	10.00	458.02	249.84
*	1.838	496.00	.00	.00	2241.80	3098.00	2245.74	2245.74	2247.28	157.96	13.16	340.09	246.50
*	1.838	496.00	.00	.00	2241.80	3098.00	2245.75	2245.75	2247.28	157.53	13.15	340.38	246.83
*	1.933	500.00	.00	.00	2253.50	3098.00	2263.00	2263.00	2267.36	83.15	17.25	210.49	339.75
*	1.933	500.00	.00	.00	2253.50	3098.00	2263.01	2263.01	2267.36	82.87	17.23	210.74	340.33
*	2.016	438.00	.00	.00	2264.40	3098.00	2283.58	2283.58	2287.58	208.60	18.93	208.79	214.50
*	2.016	438.00	.00	.00	2264.40	3098.00	2283.54	2283.54	2287.58	211.39	19.03	207.76	213.08
*	2.111	500.00	.00	.00	2305.80	3098.00	2312.45	2312.45	2314.84	115.34	15.85	282.54	288.47
*	2.111	500.00	.00	.00	2305.80	3098.00	2312.46	2312.46	2314.84	114.39	15.81	283.34	289.66
*	2.206	500.00	.00	.00	2323.90	3098.00	2331.74	2331.74	2334.05	84.42	14.43	307.42	337.17
*	2.206	500.00	.00	.00	2323.90	3098.00	2331.75	2331.75	2334.05	84.16	14.41	307.75	337.69

B: CALAMITY WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.106	3098.00	2022.42	.00	.00	.00	170.00	.00
	.106	3098.00	2022.42	.00	.00	.00	170.00	.00
*	.125	3098.00	2026.90	.00	4.48	.00	82.36	100.00
*	.125	3098.00	2026.90	.00	4.48	.00	82.36	100.00
*	.135	3098.00	2029.19	.00	2.29	.00	89.63	58.00
*	.135	3098.00	2029.19	.00	2.29	.00	89.63	58.00
	.153	3098.00	2030.30	.00	1.11	.00	129.09	95.00
	.153	3098.00	2030.30	.00	1.11	.00	129.09	95.00
*	.248	3098.00	2041.28	.00	10.97	.00	82.96	500.00
*	.248	3098.00	2041.33	.05	11.03	.05	82.95	500.00
*	.335	3098.00	2052.88	.00	11.61	.00	85.39	459.00
*	.335	3098.00	2052.91	.02	11.57	.02	75.43	459.00
*	.436	3098.00	2065.09	.00	12.21	.00	268.76	533.00
	.436	3098.00	2065.59	.50	12.69	.50	168.24	533.00
*	.537	3098.00	2079.53	.00	14.44	.00	170.54	533.00
*	.537	3098.00	2079.64	.11	14.04	.11	78.39	533.00
*	.625	3098.00	2091.23	.00	11.71	.00	111.30	465.00
*	.625	3098.00	2091.22	-.01	11.59	-.01	111.13	465.00
*	.708	3098.00	2102.91	.00	11.68	.00	96.47	438.00
*	.708	3098.00	2102.91	.00	11.69	.00	96.43	438.00
*	.811	3098.00	2117.14	.00	14.22	.00	115.08	544.00
*	.811	3098.00	2117.14	.00	14.23	.00	115.08	544.00
*	.898	3098.00	2130.58	.00	13.45	.00	94.98	459.00
*	.898	3098.00	2130.59	.00	13.45	.00	94.98	459.00
*	.992	3098.00	2141.14	.00	10.55	.00	279.51	470.00
*	.992	3098.00	2141.14	.00	10.55	.00	279.51	470.00
*	1.092	3098.00	2153.11	.00	11.98	.00	98.26	528.00
*	1.092	3098.00	2153.12	.01	11.98	.01	98.26	528.00
*	1.187	3098.00	2171.80	.00	18.69	.00	48.30	500.00
*	1.187	3098.00	2171.84	.04	18.72	.04	48.29	500.00
	1.281	3098.00	2180.10	.00	8.30	.00	60.14	496.00
*	1.281	3098.00	2180.12	.01	8.28	.01	60.14	496.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1.376	3098.00	2189.55	.00	9.45	.00	148.27	500.00
*	1.376	3098.00	2189.55	-.01	9.43	-.01	148.25	500.00
*	1.456	3098.00	2199.97	.00	10.42	.00	83.45	422.00
*	1.456	3098.00	2199.99	.02	10.45	.02	83.44	422.00
	1.554	3098.00	2209.60	.00	9.63	.00	243.69	517.00
*	1.554	3098.00	2209.59	-.01	9.59	-.01	243.63	517.00
*	1.649	3098.00	2221.80	.00	12.20	.00	195.46	500.00
*	1.649	3098.00	2221.81	.00	12.22	.00	195.46	500.00
*	1.744	3098.00	2233.22	.00	11.42	.00	269.23	500.00
*	1.744	3098.00	2233.22	.00	11.41	.00	269.21	500.00
*	1.838	3098.00	2245.74	.00	12.52	.00	106.78	496.00
*	1.838	3098.00	2245.75	.00	12.53	.00	106.78	496.00
*	1.933	3098.00	2263.00	.00	17.25	.00	26.88	500.00
*	1.933	3098.00	2263.01	.01	17.26	.01	26.88	500.00
*	2.016	3098.00	2283.58	.00	20.58	.00	26.40	438.00
*	2.016	3098.00	2283.54	-.04	20.53	-.04	26.28	438.00
	2.111	3098.00	2312.45	.00	28.87	.00	59.12	500.00
	2.111	3098.00	2312.46	.01	28.92	.01	59.12	500.00
*	2.206	3098.00	2331.74	.00	19.29	.00	64.00	500.00
*	2.206	3098.00	2331.75	.01	19.28	.01	64.00	500.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      .125  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .125  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .625  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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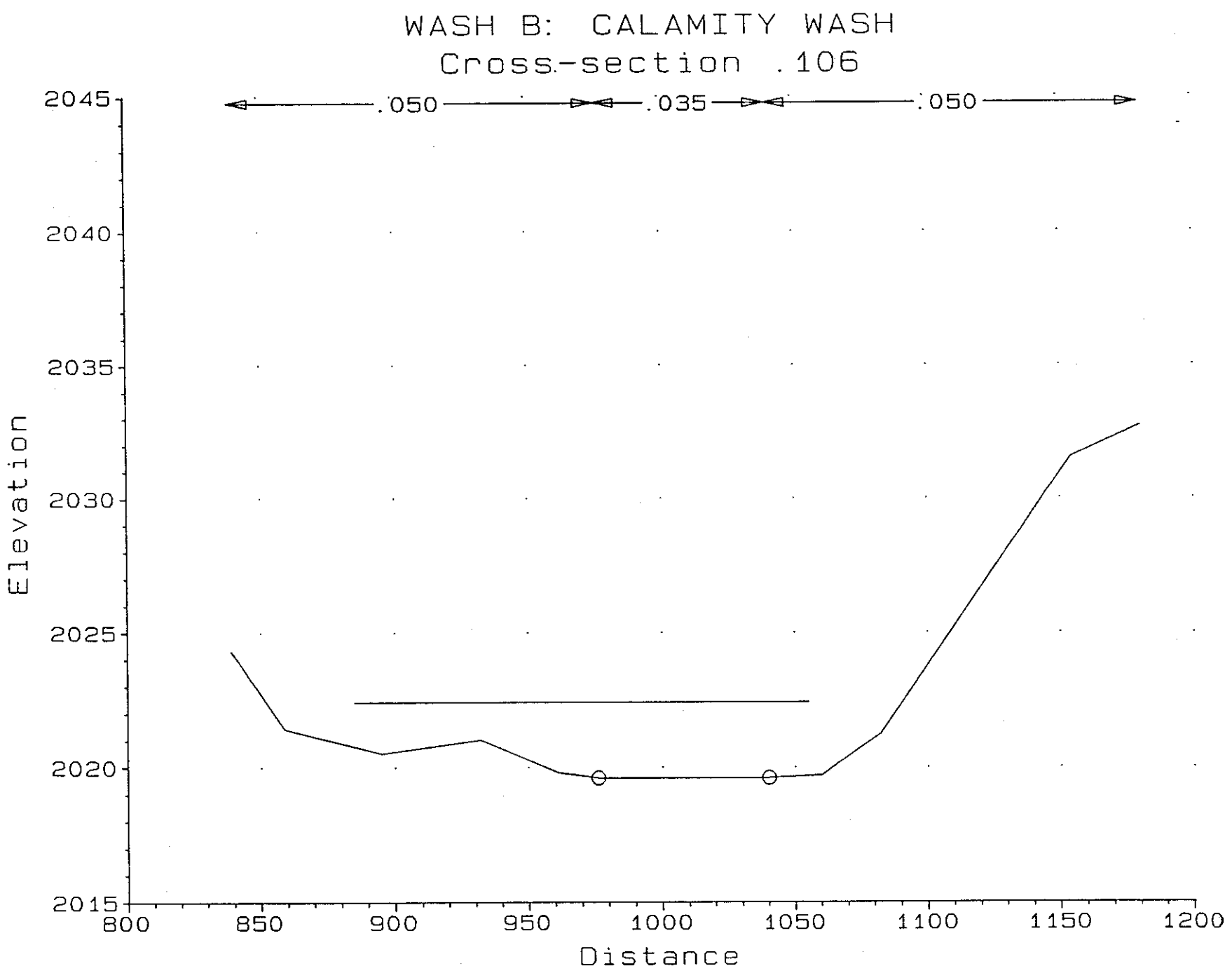
FLOODWAY DATA, WASH B: CALAMITY WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.106	170.	401.	7.7	2022.4	2022.4	.0
.125	82.	297.	10.4	2026.9	2026.9	.0
.135	90.	388.	8.0	2029.2	2029.2	.0
.153	129.	583.	5.3	2030.3	2030.3	.0
.248	83.	304.	10.2	2041.4	2041.3	.1
.335	75.	293.	10.6	2052.9	2052.9	.0
.436	168.	443.	7.0	2065.6	2065.1	.5
.537	78.	306.	10.1	2079.6	2079.5	.1
.625	111.	345.	9.0	2091.2	2091.2	.0
.708	96.	334.	9.3	2102.9	2102.9	.0
.811	115.	395.	7.8	2117.1	2117.1	.0
.898	95.	335.	9.2	2130.6	2130.6	.0
.992	280.	526.	5.9	2141.1	2141.1	.0
1.092	98.	333.	9.3	2153.1	2153.1	.0
1.187	48.	261.	11.9	2171.8	2171.8	.0
1.281	60.	274.	11.3	2180.1	2180.1	.0
1.376	148.	392.	7.9	2189.6	2189.6	.0
1.456	83.	308.	10.1	2200.0	2200.0	.0
1.554	244.	431.	7.2	2209.6	2209.6	.0
1.649	195.	416.	7.4	2221.8	2221.8	.0
1.744	269.	458.	6.8	2233.2	2233.2	.0
1.838	107.	340.	9.1	2245.7	2245.7	.0
1.933	27.	211.	14.7	2263.0	2263.0	.0
2.016	26.	208.	14.9	2283.6	2283.6	.0
2.111	59.	283.	10.9	2312.5	2312.5	.0
2.206	64.	308.	10.1	2331.7	2331.7	.0


WASH B: CALAMITY WASH
Cross-section .106
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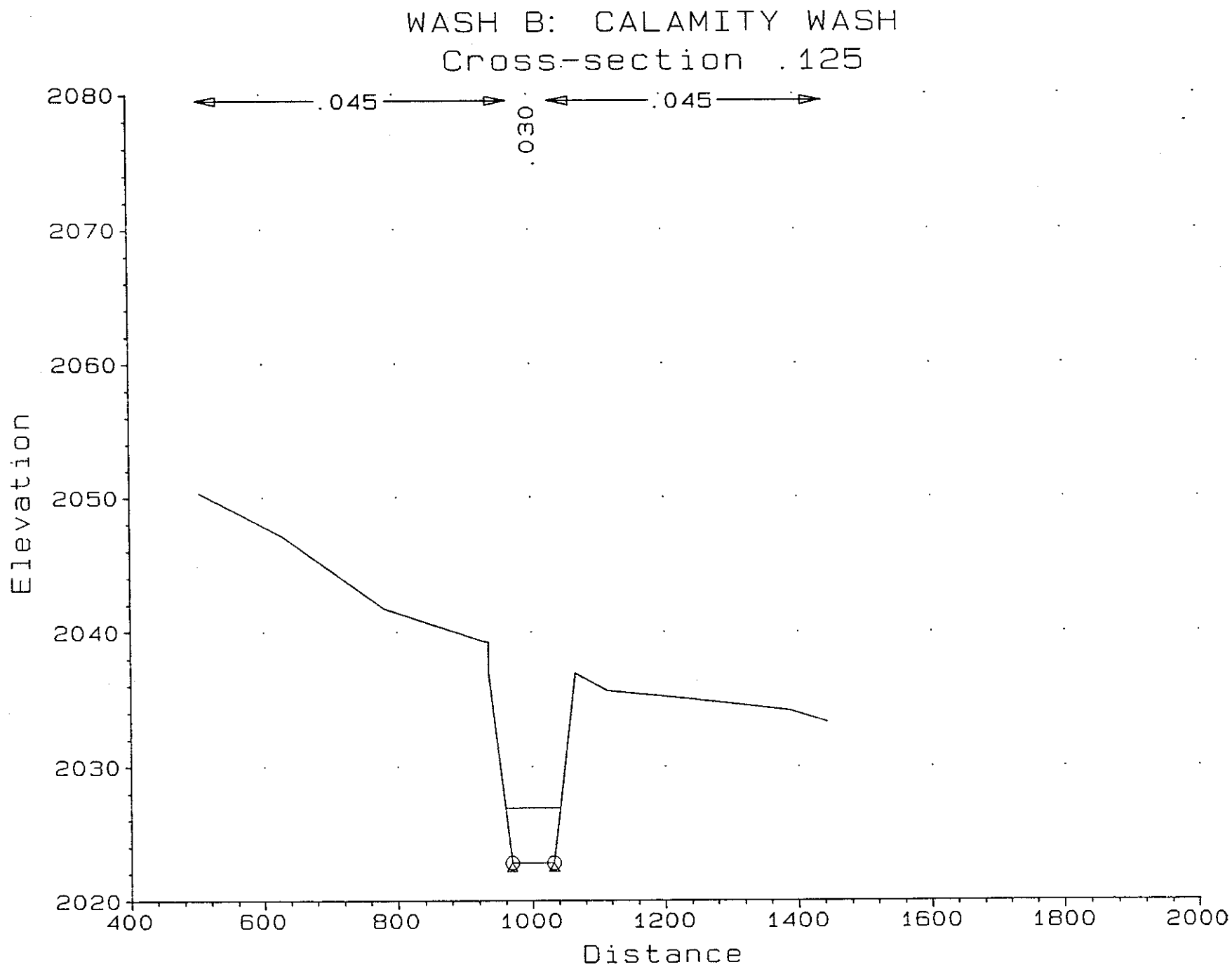
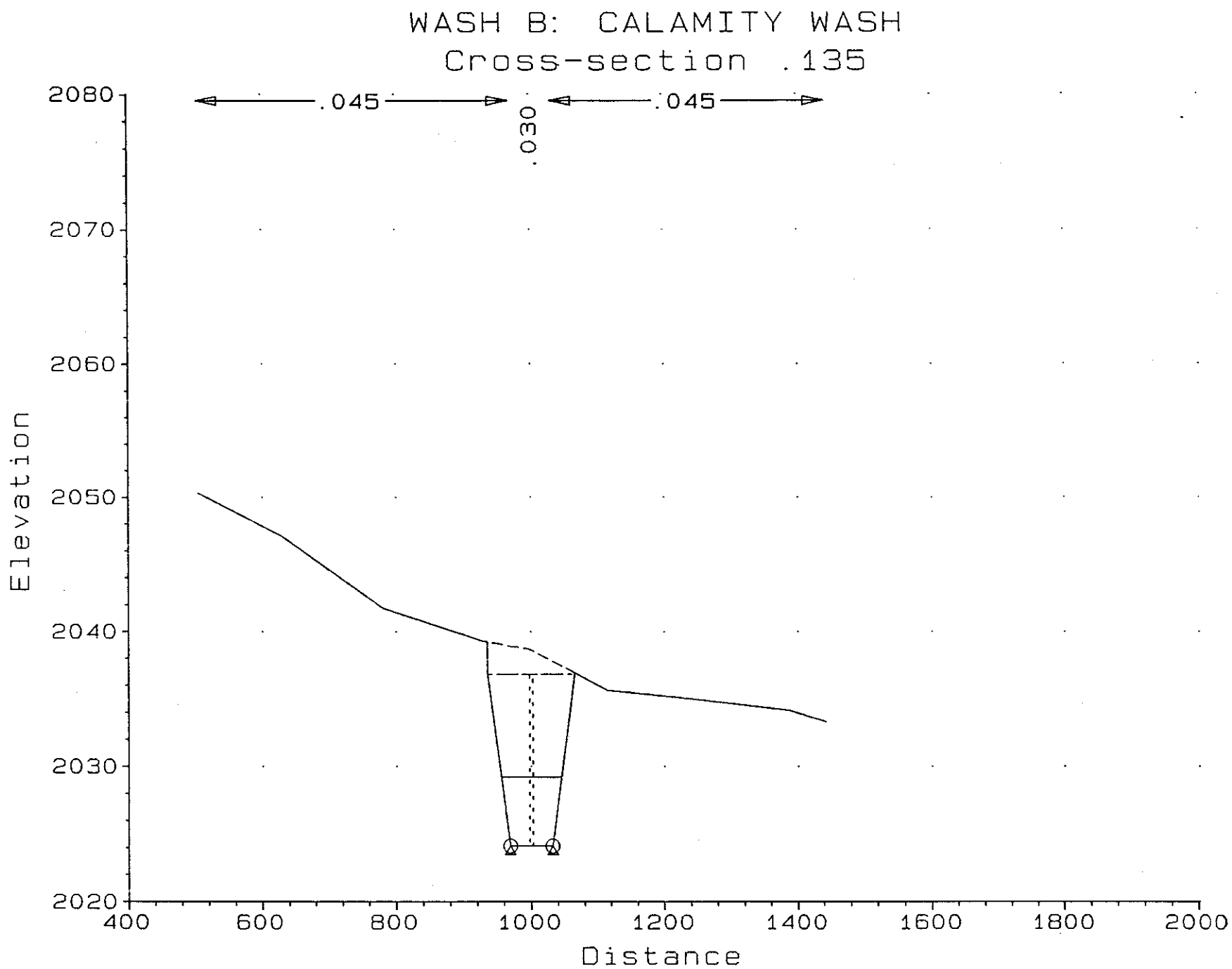
.035
.050
2045
2040
2035
2030
2025
2020
2015
Elevation
800
850
900
950
1000
1050
1100
1150
1200
Distance


WASH B: CALAMITY WASH
Cross-section .125
.045
.030
.045
2080
2070
2060
2050
2040
2030
2020
Elevation
400
600
800
1000
1200
1400
1600
1800
2000
Distance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Cross-section .135
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.030
.045
2080
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2020
Elevation
400
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800
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1200
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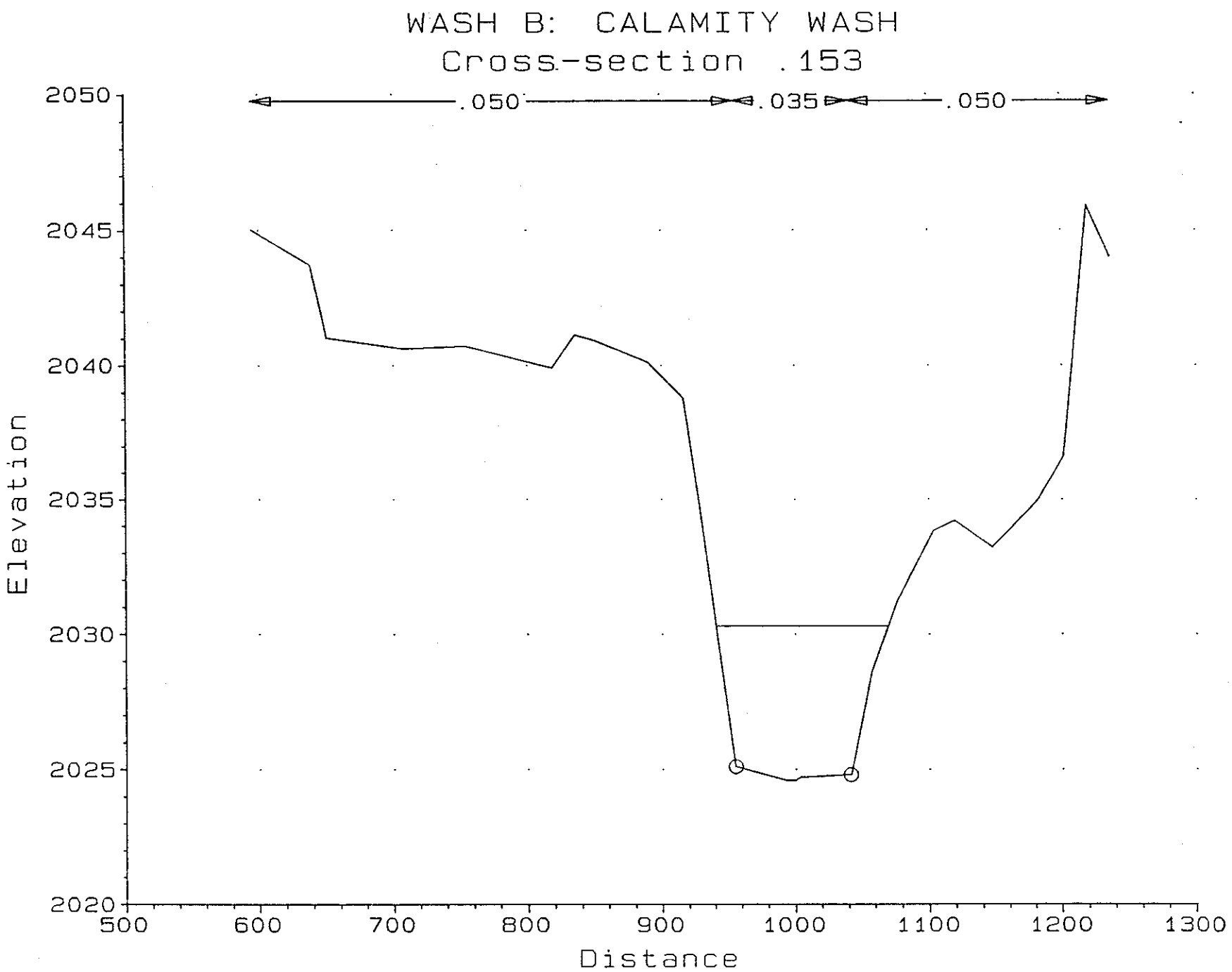
Distance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Cross-section .153
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.035
.050
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2020
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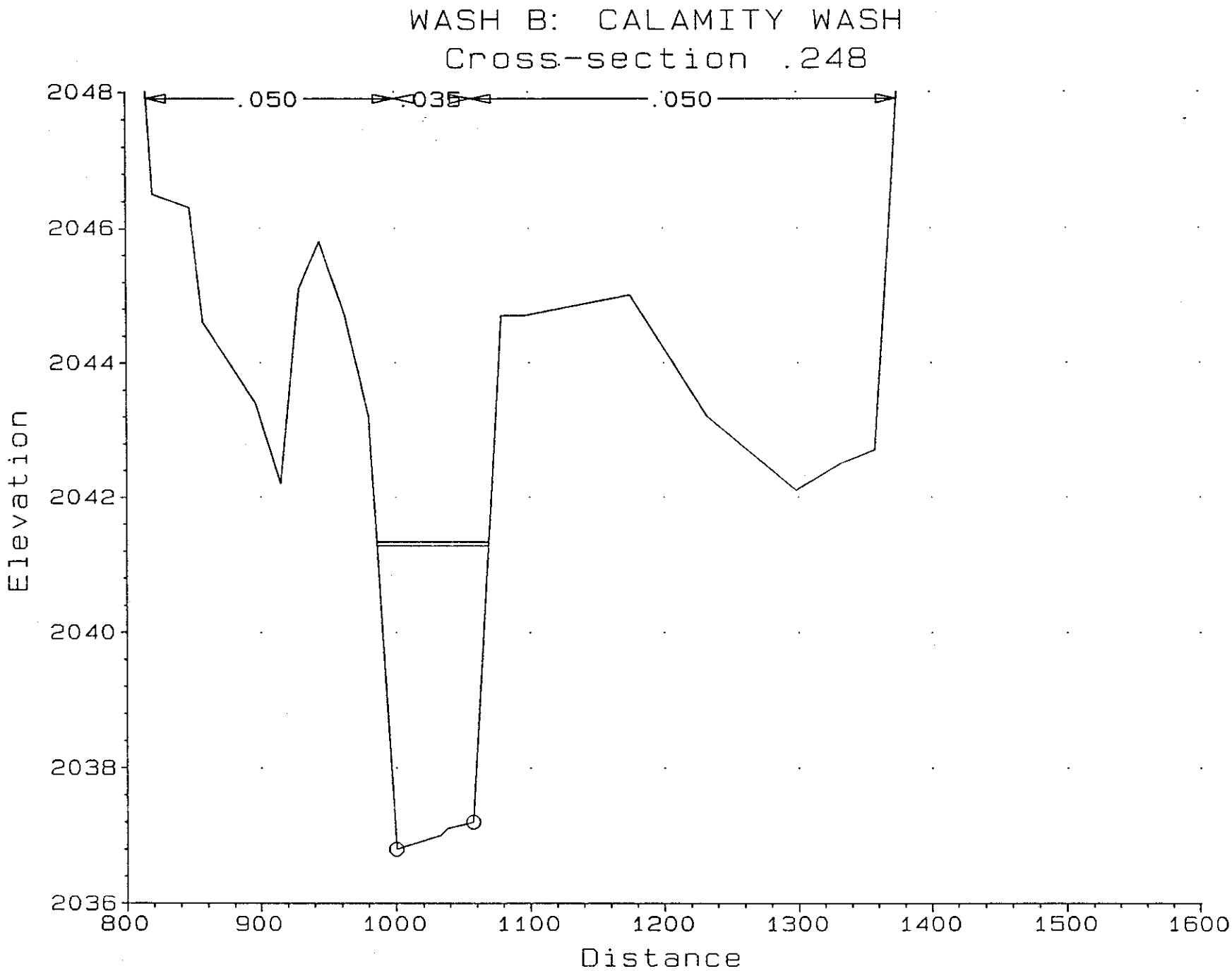
Distance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2048
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Elevation
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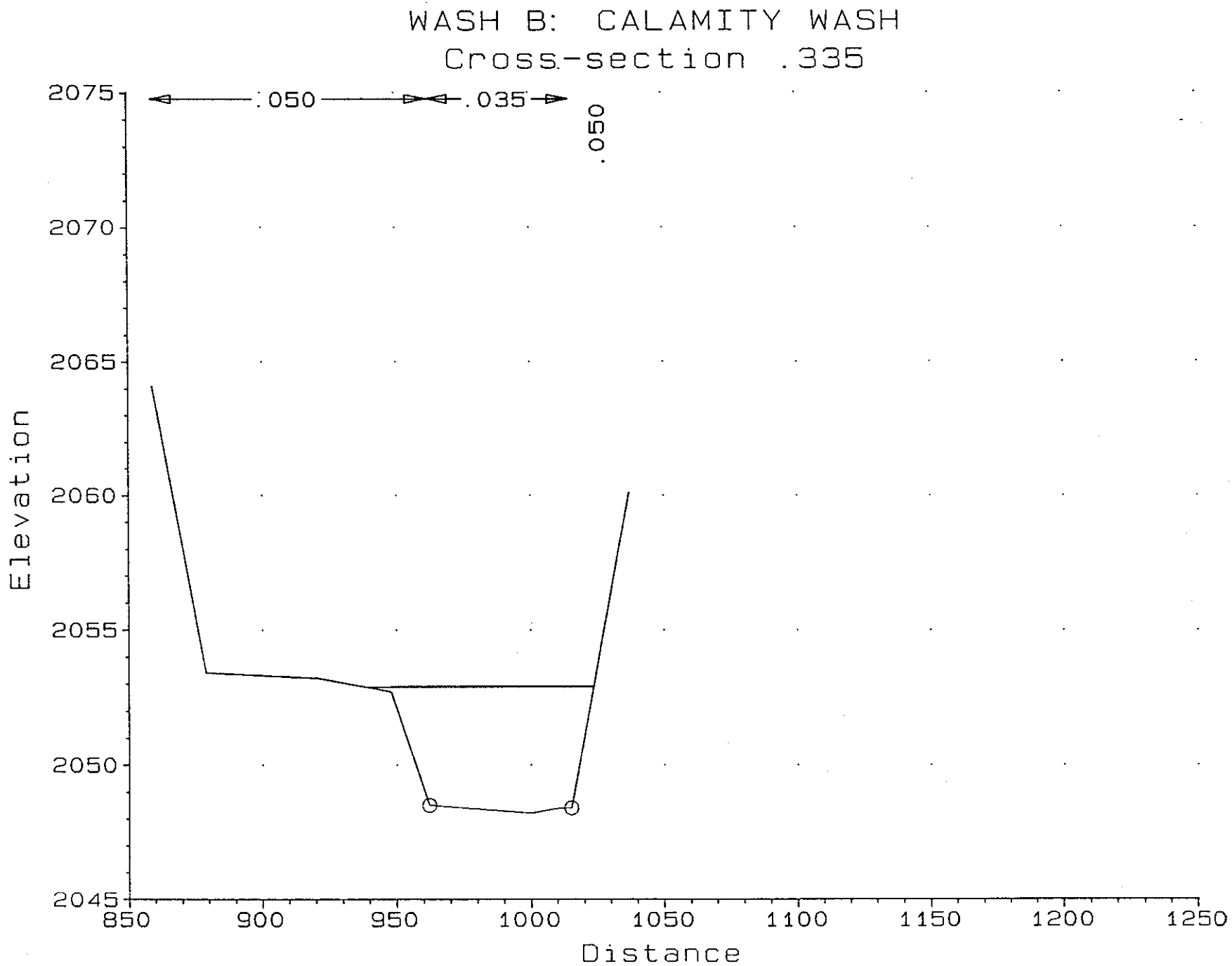
Distance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Cross-section .335
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.050
Elevation
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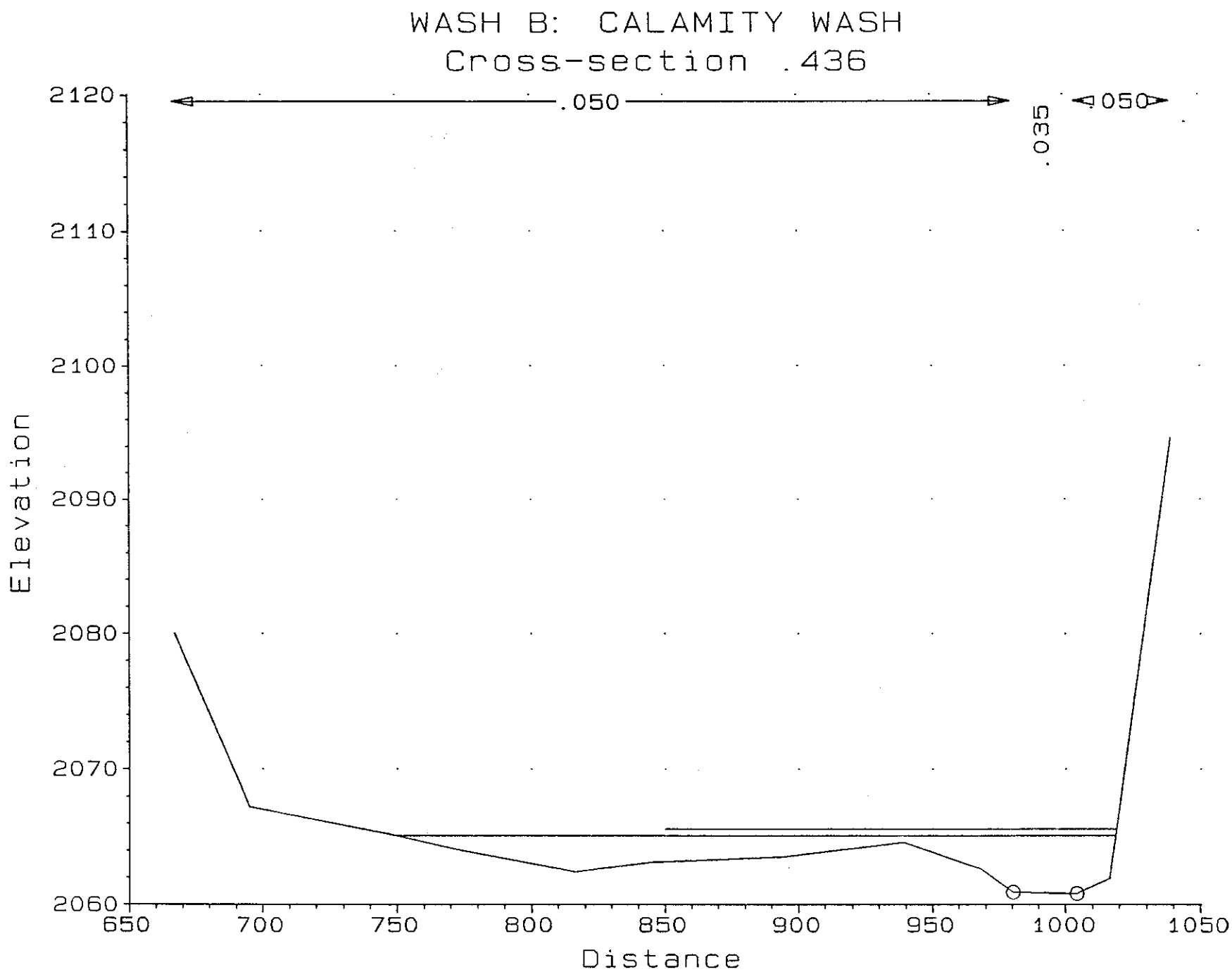
Distance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.050
.035
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2070
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Elevation
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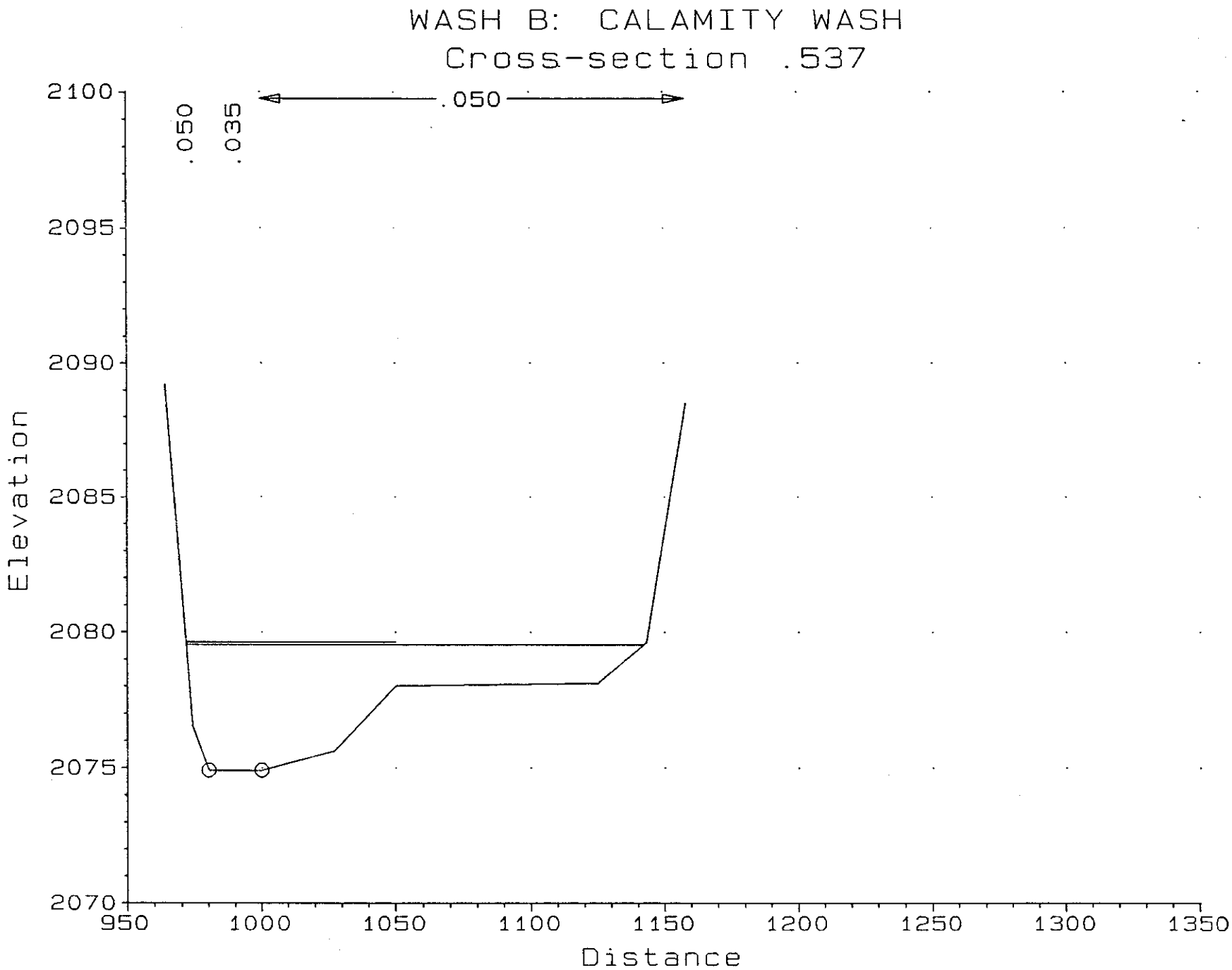
1000
1050
Distance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.050
.035
2100
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Elevation
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1300
1350
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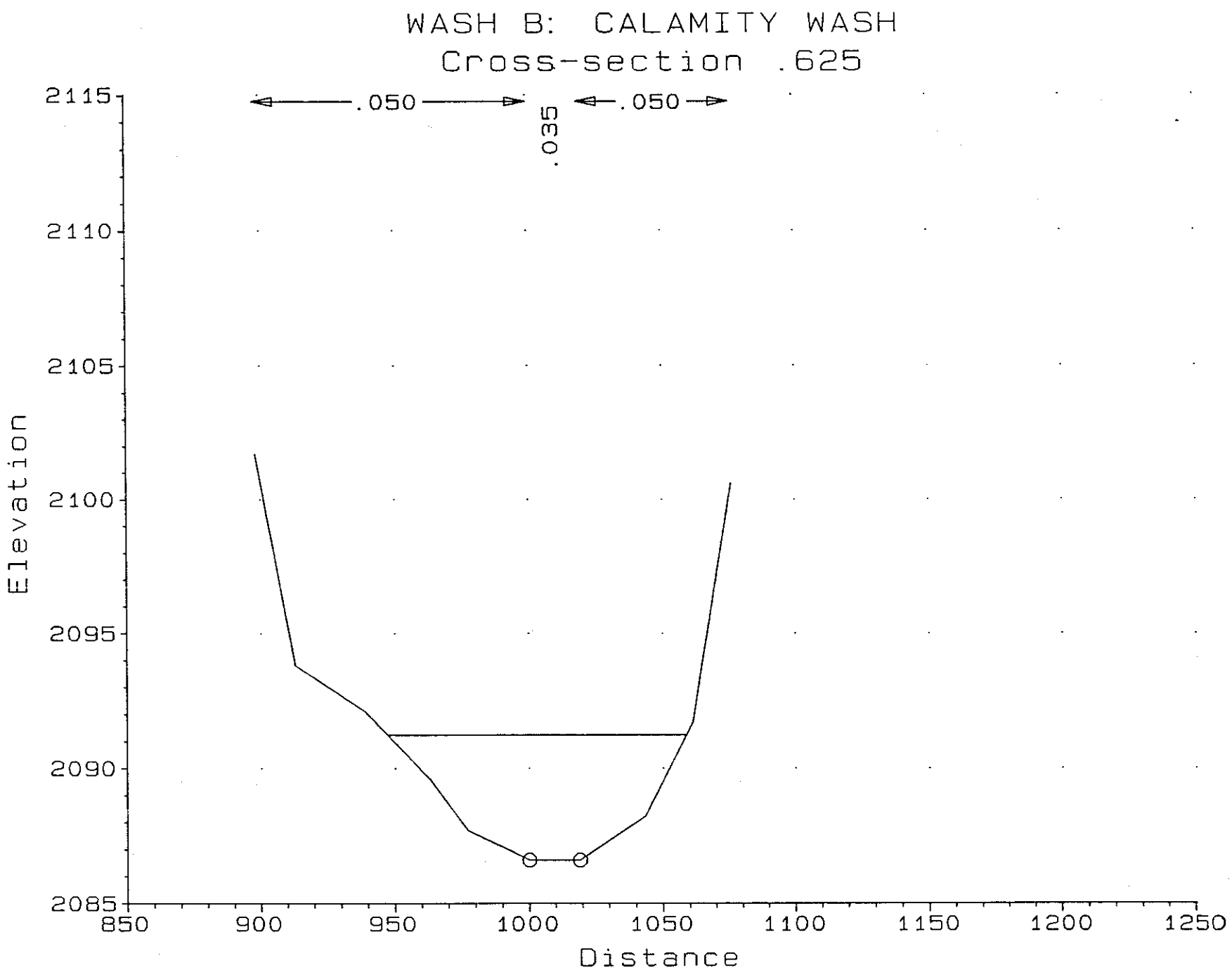
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Cross-section .625
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.050
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Elevation
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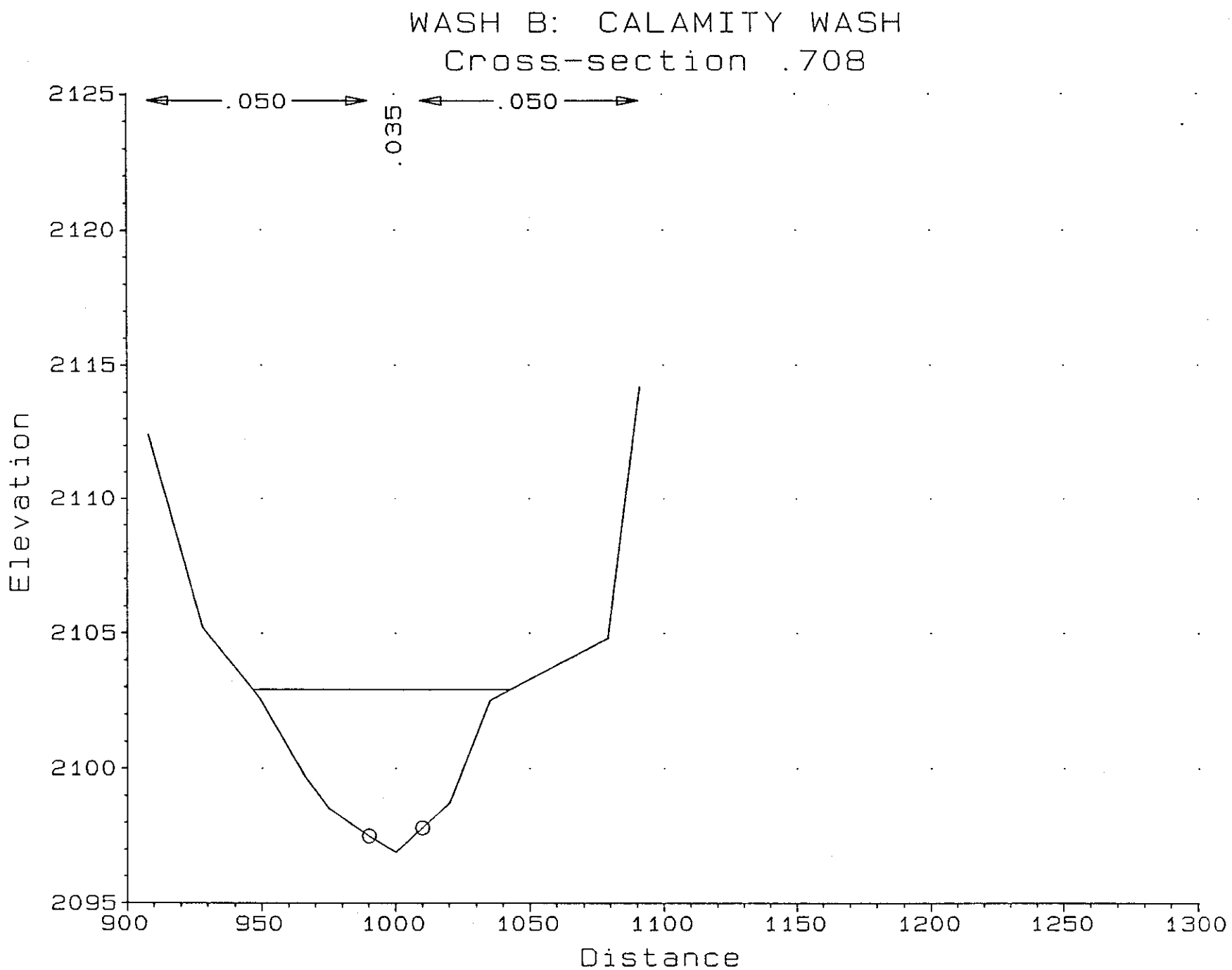
WASH B: CALAMITY WASH
Cross-section .708
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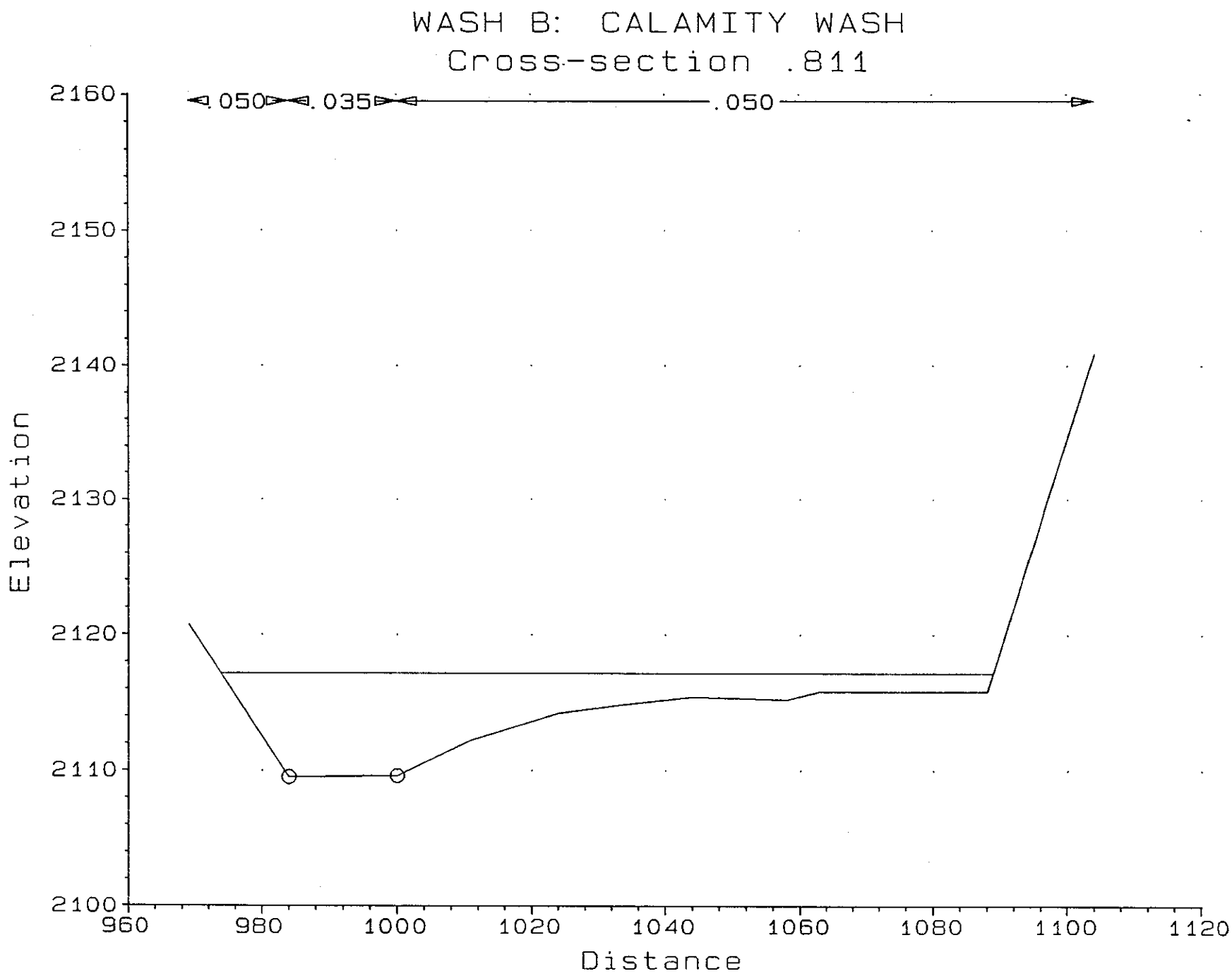
Distance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Elevation
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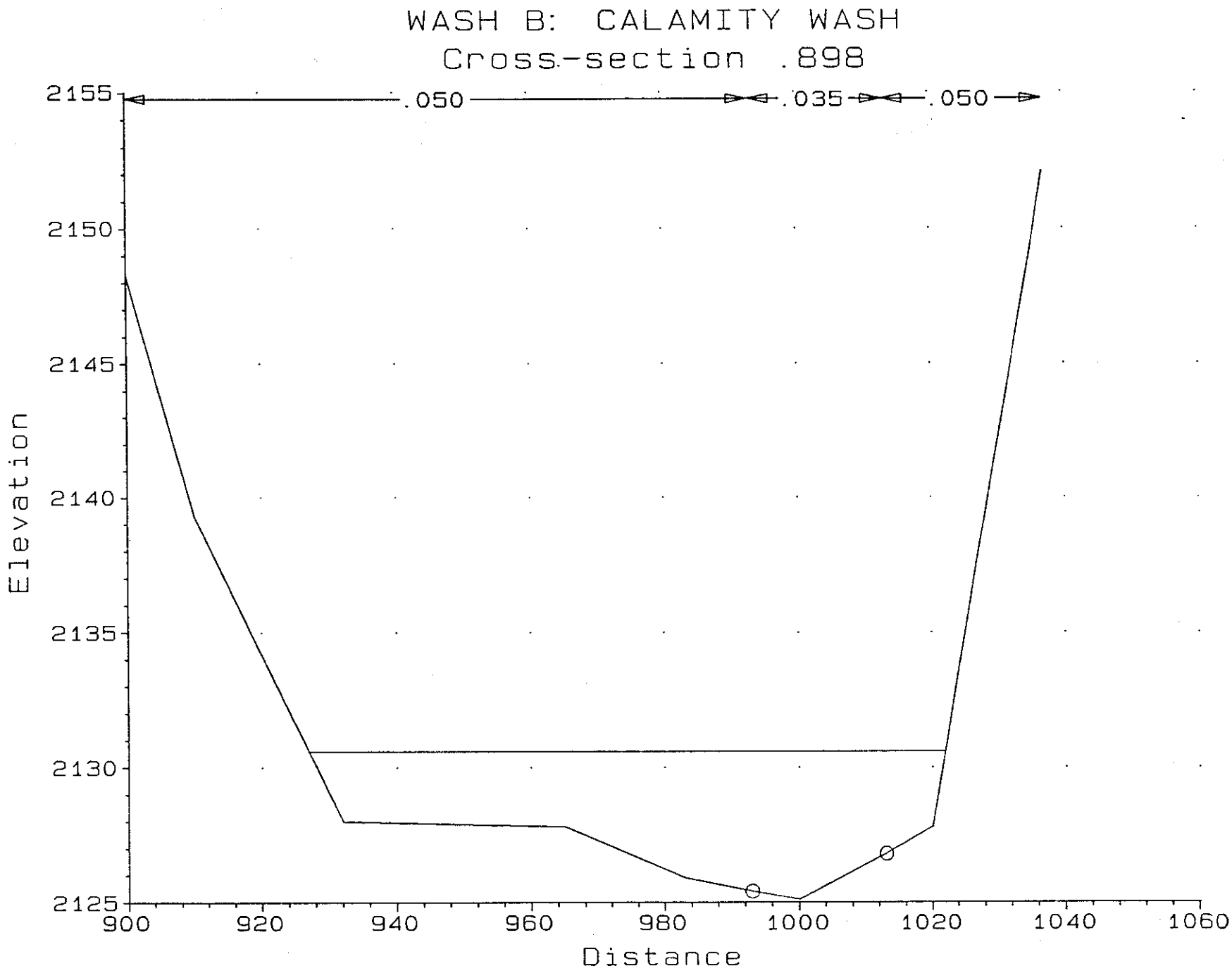
Distance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Elevation
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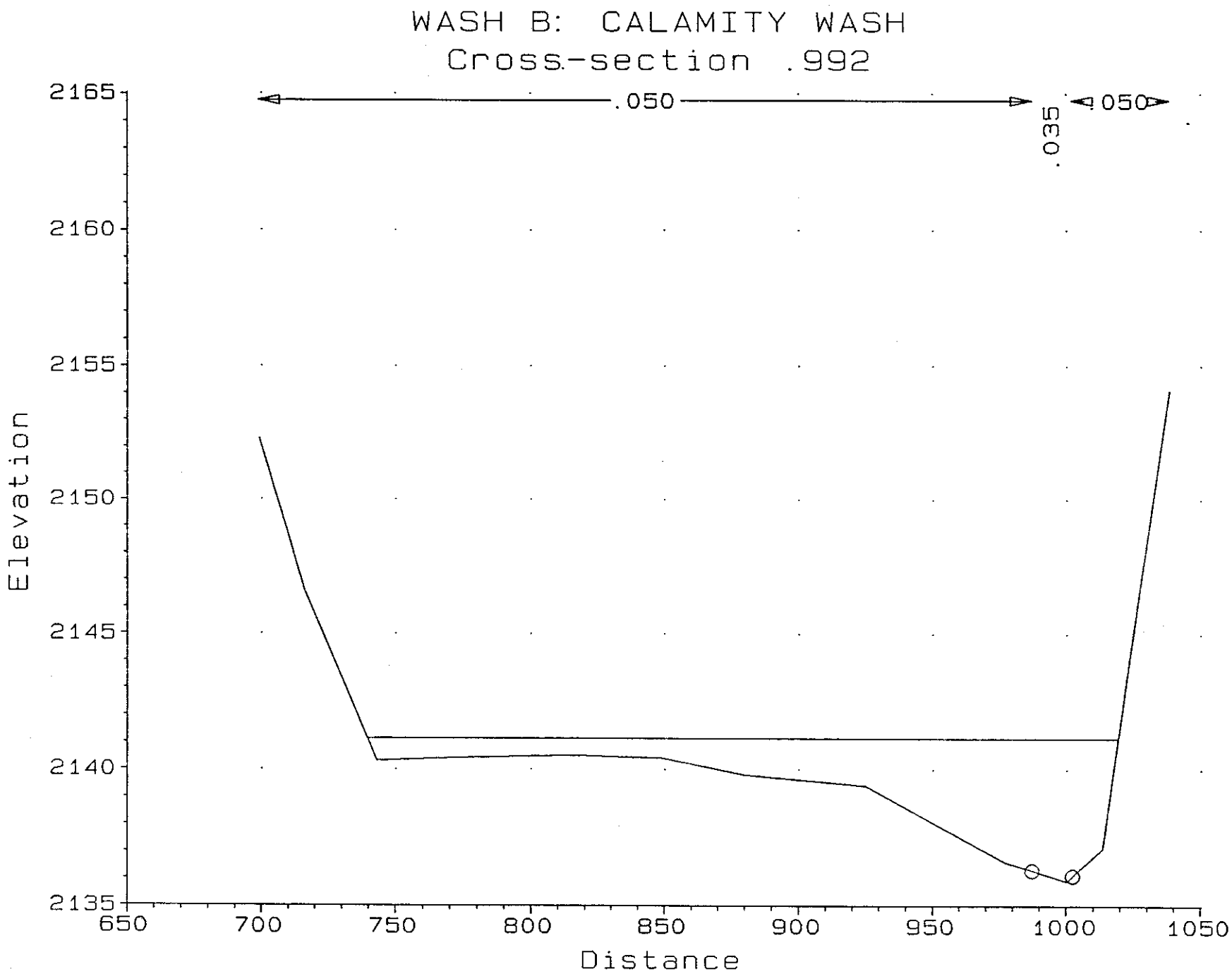
1060
Distance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Cross-section .992
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.050
.035
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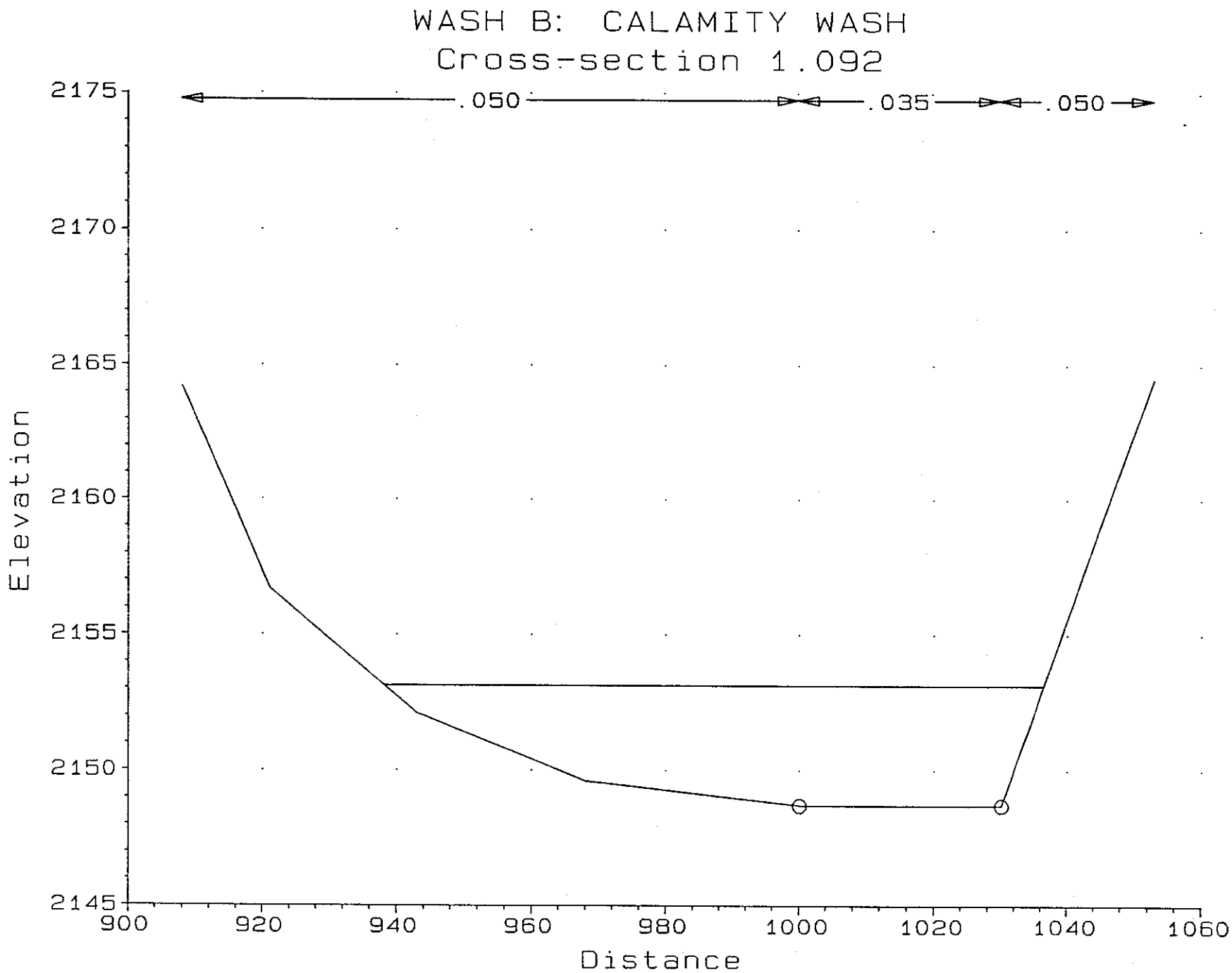
1000
1050
Distance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.035
.050
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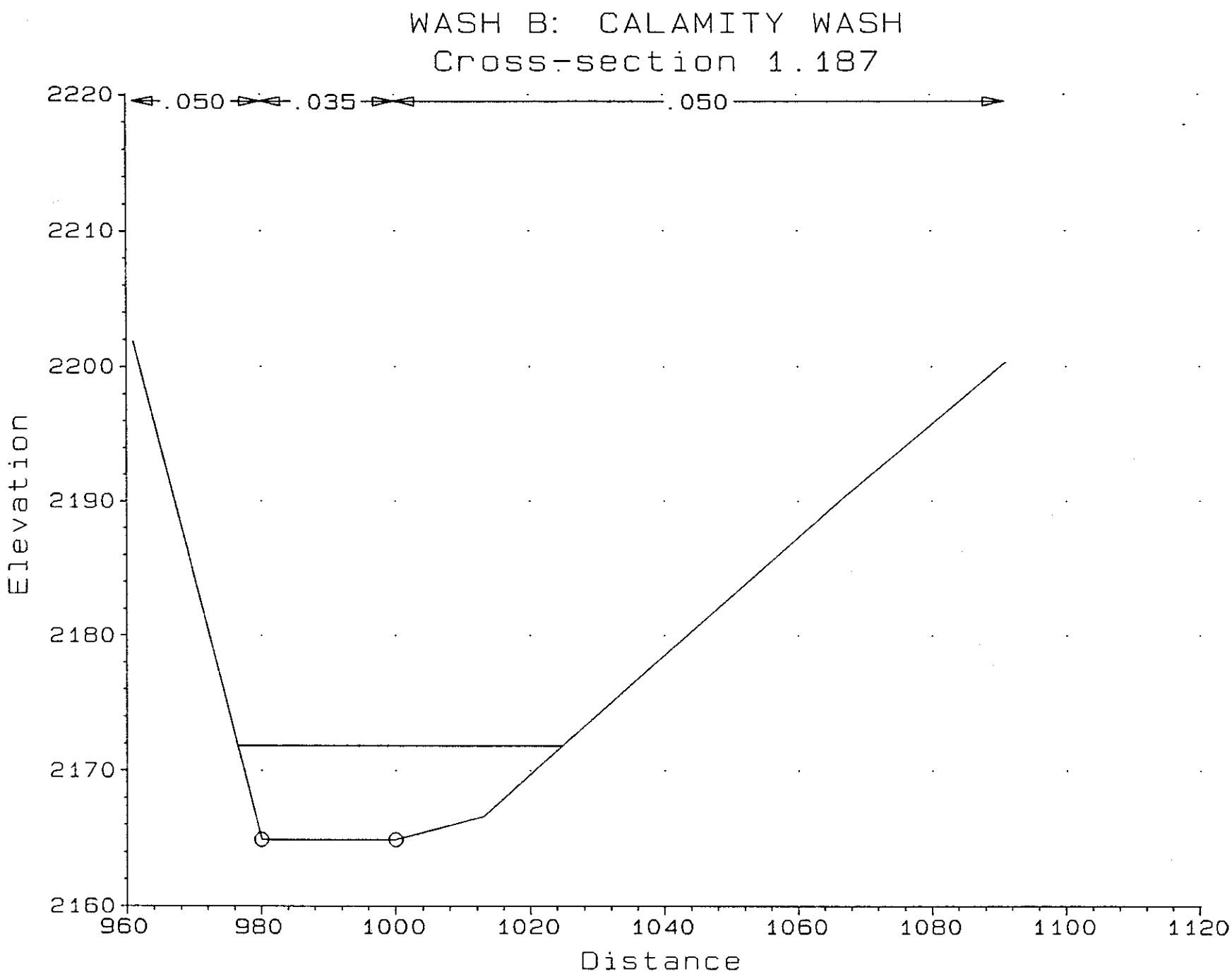
1040
1060
Distance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Cross-section 1.187
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.035
.050
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2200
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Elevation
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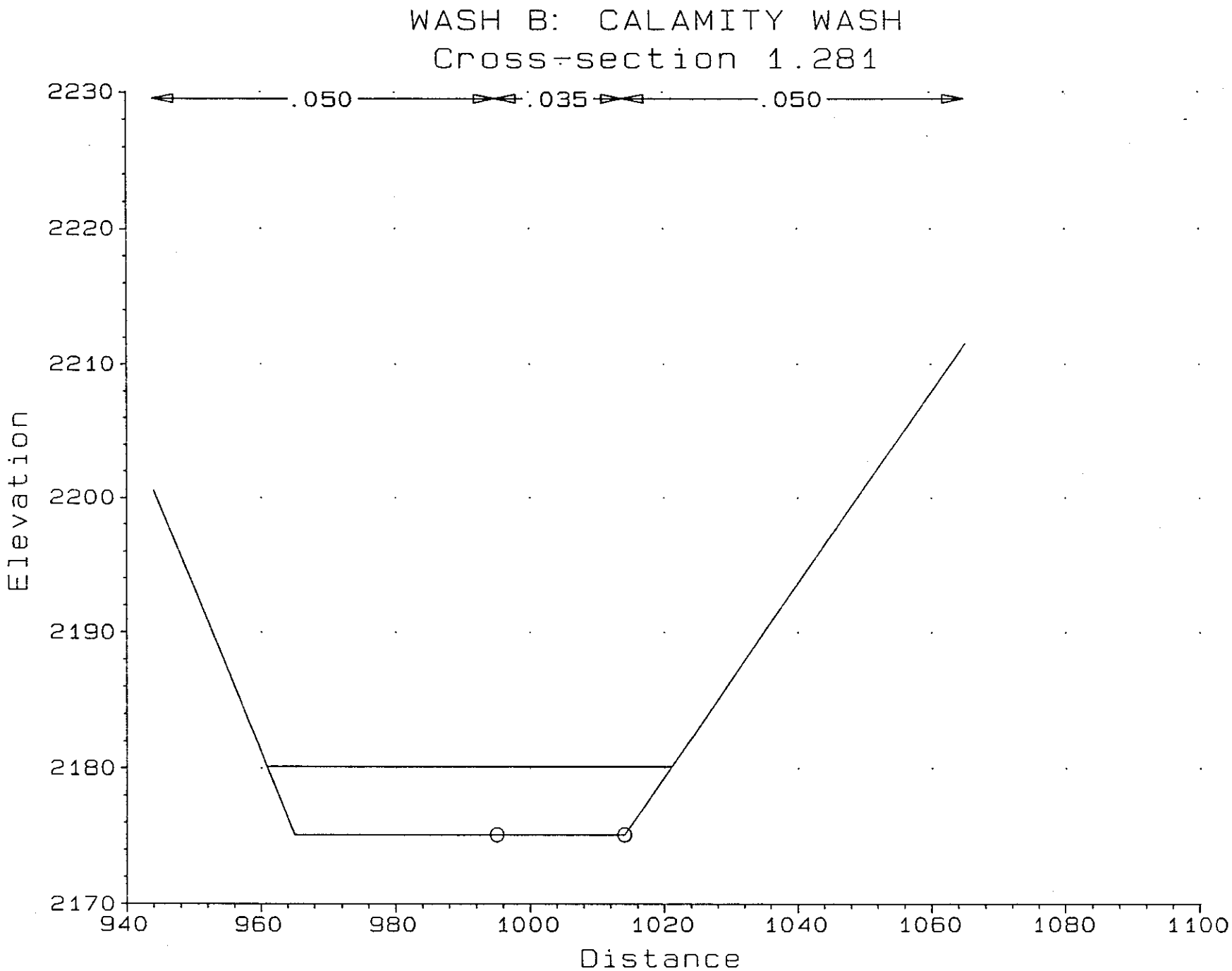
1080
1100
1120
Distance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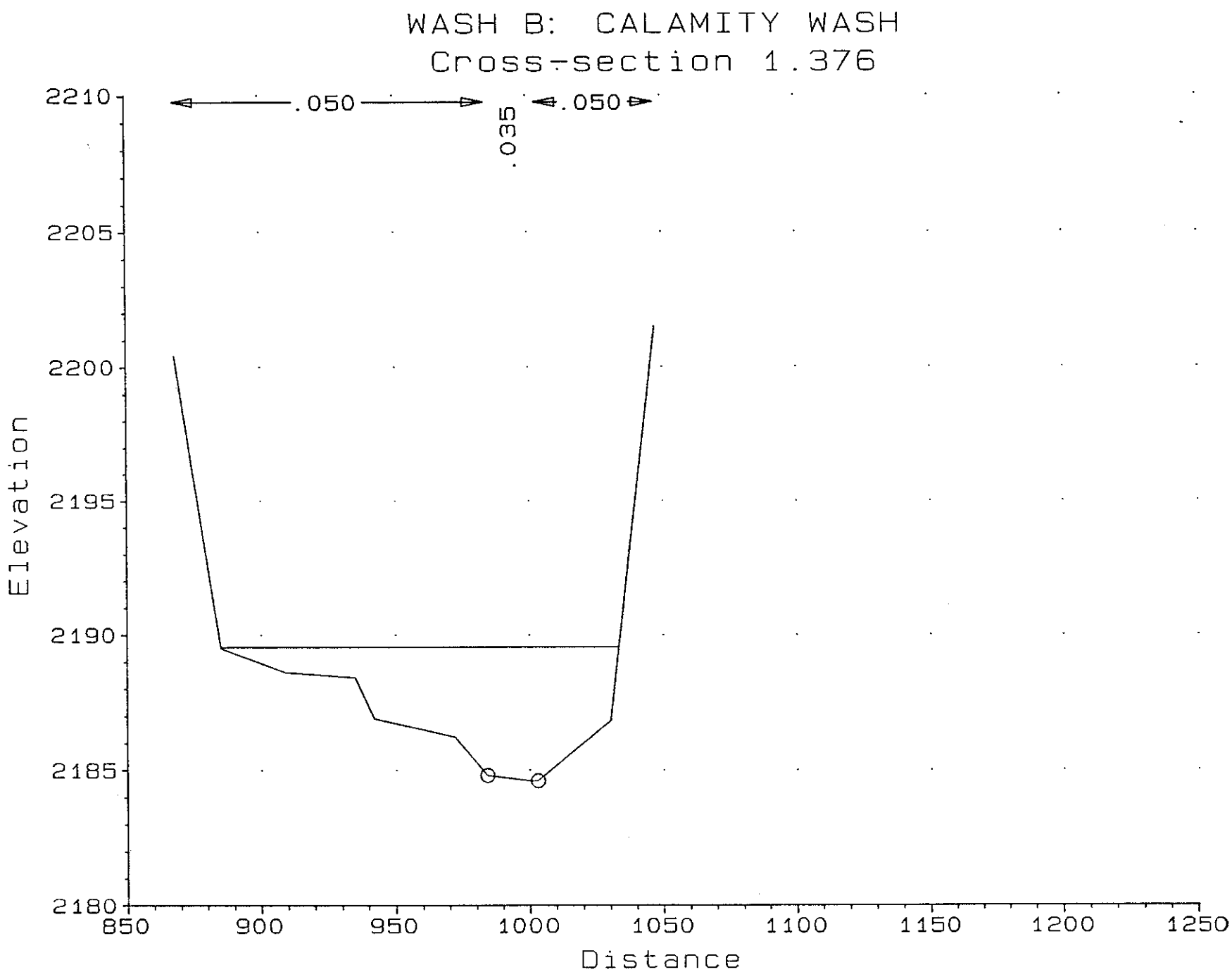
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Cross-section 1.376
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.035
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Elevation
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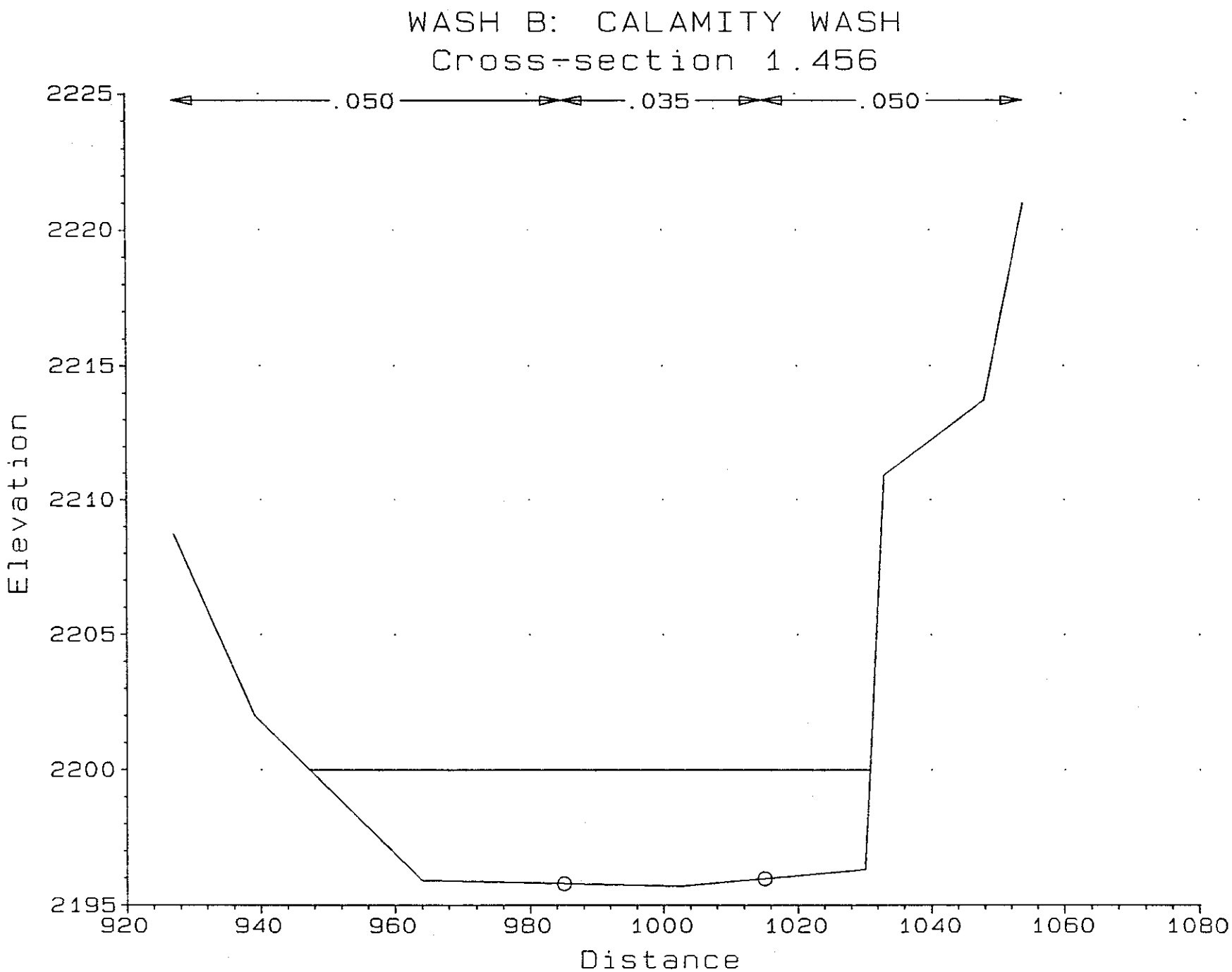
1150
1200
1250
Distance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Cross-section 1.456
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2225
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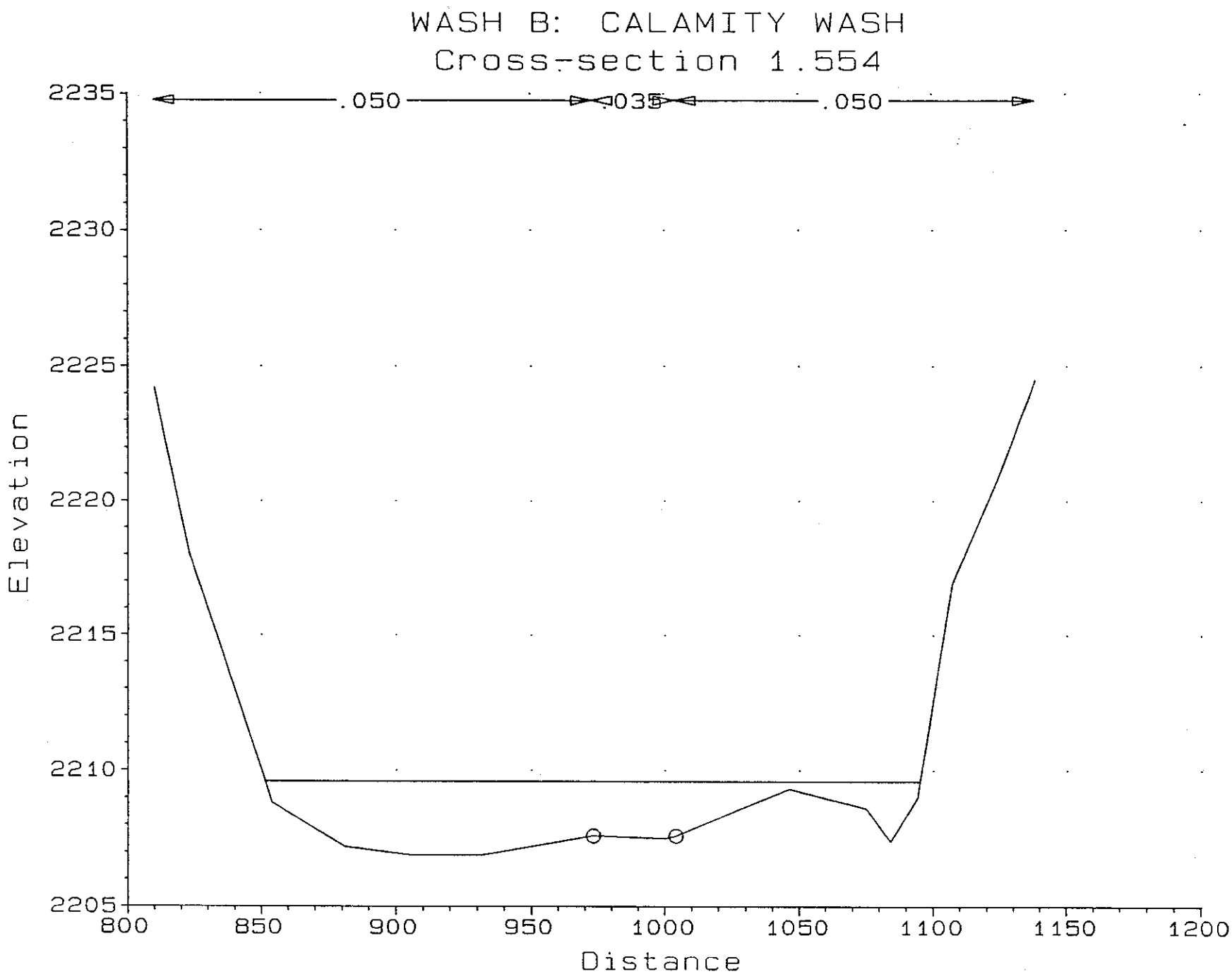
1040
1060
1080
Distance


WASH B: CALAMITY WASH
Cross-section 1.554
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.050
2235
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Elevation
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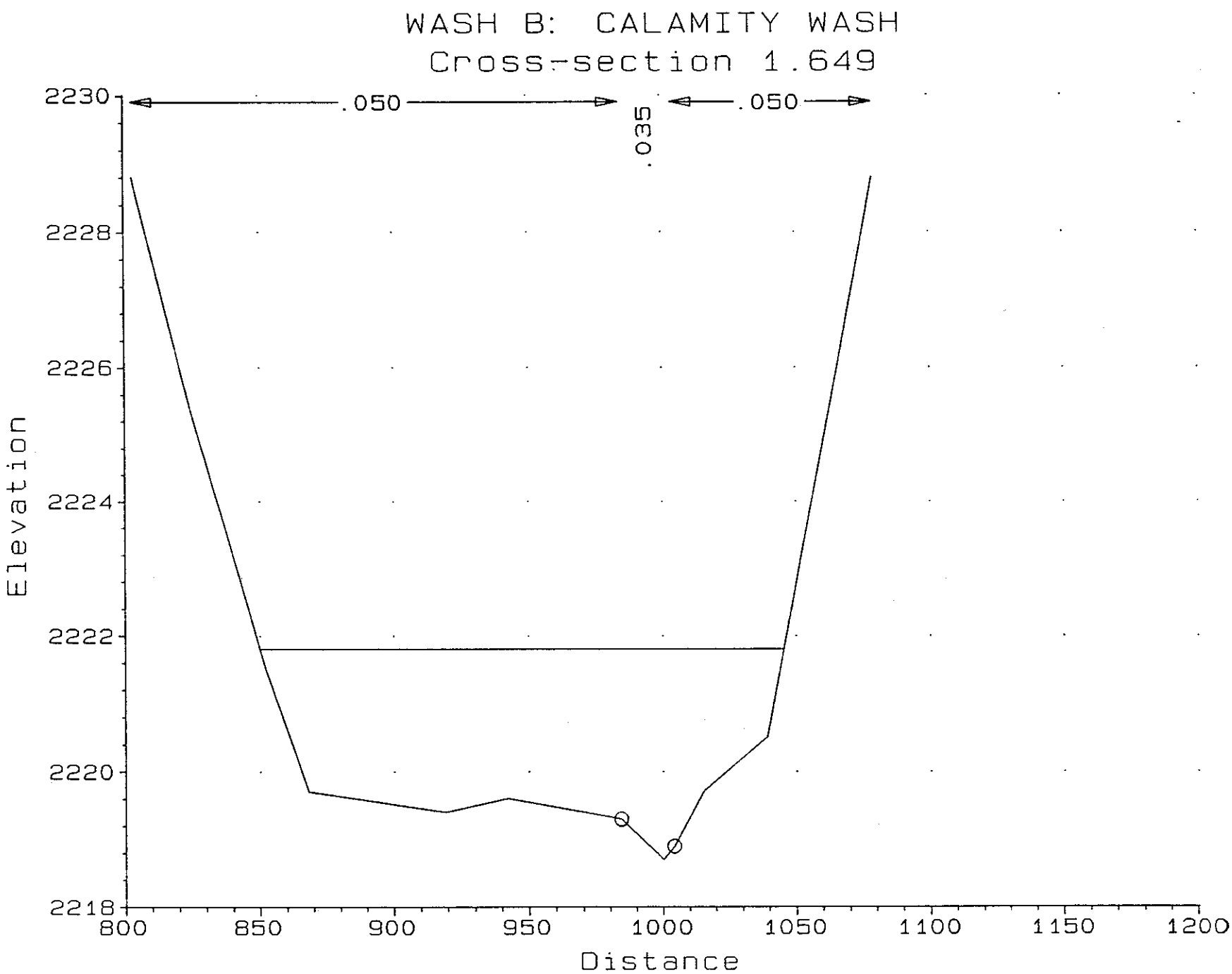
1100
1150
1200
Distance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Cross-section 1.649
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.035
.050
2230
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2226
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2222
2220
2218
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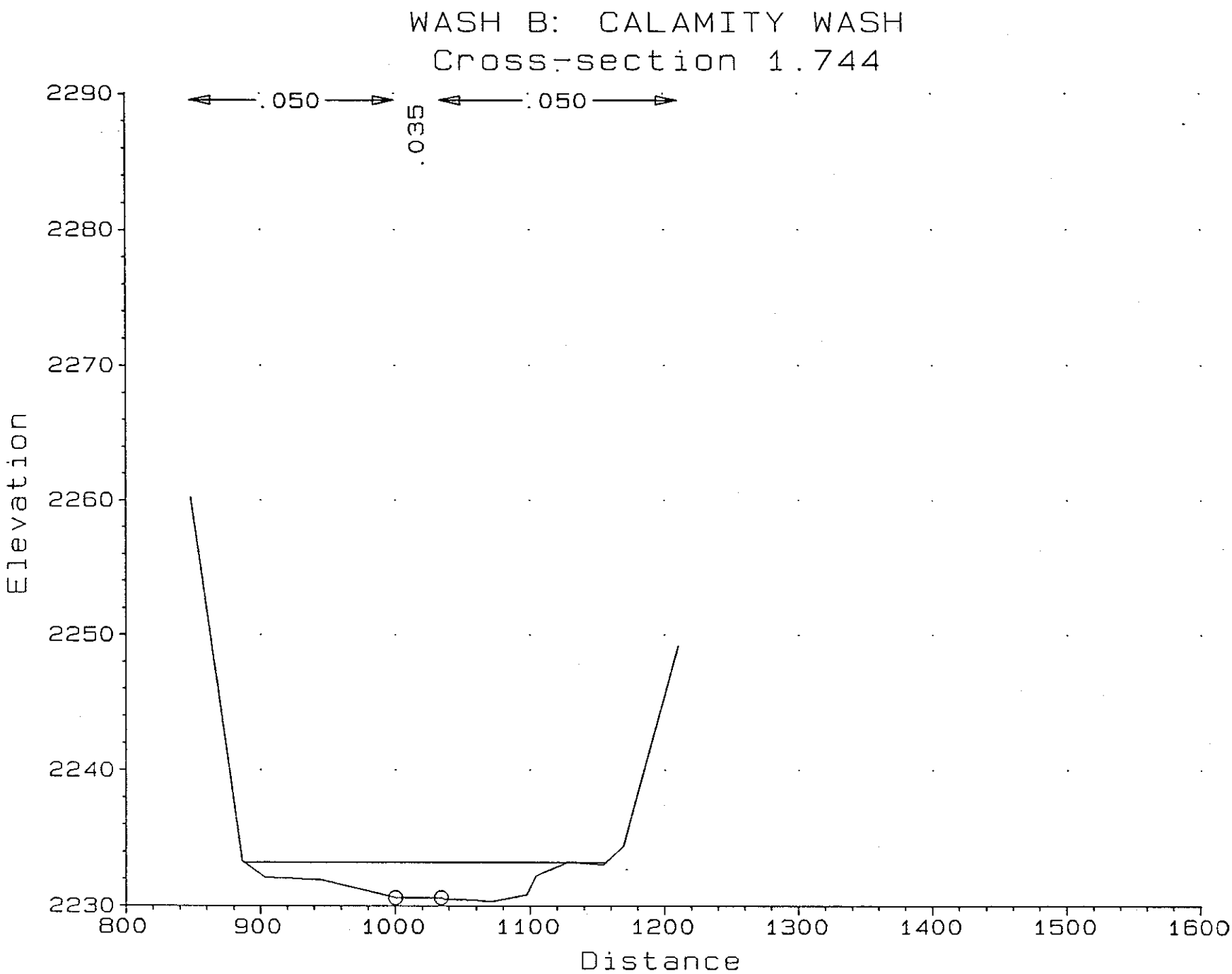
1000
1050
1100
1150
1200
Distance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Cross-section 1.744
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.035
.050
2290
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2240
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Elevation
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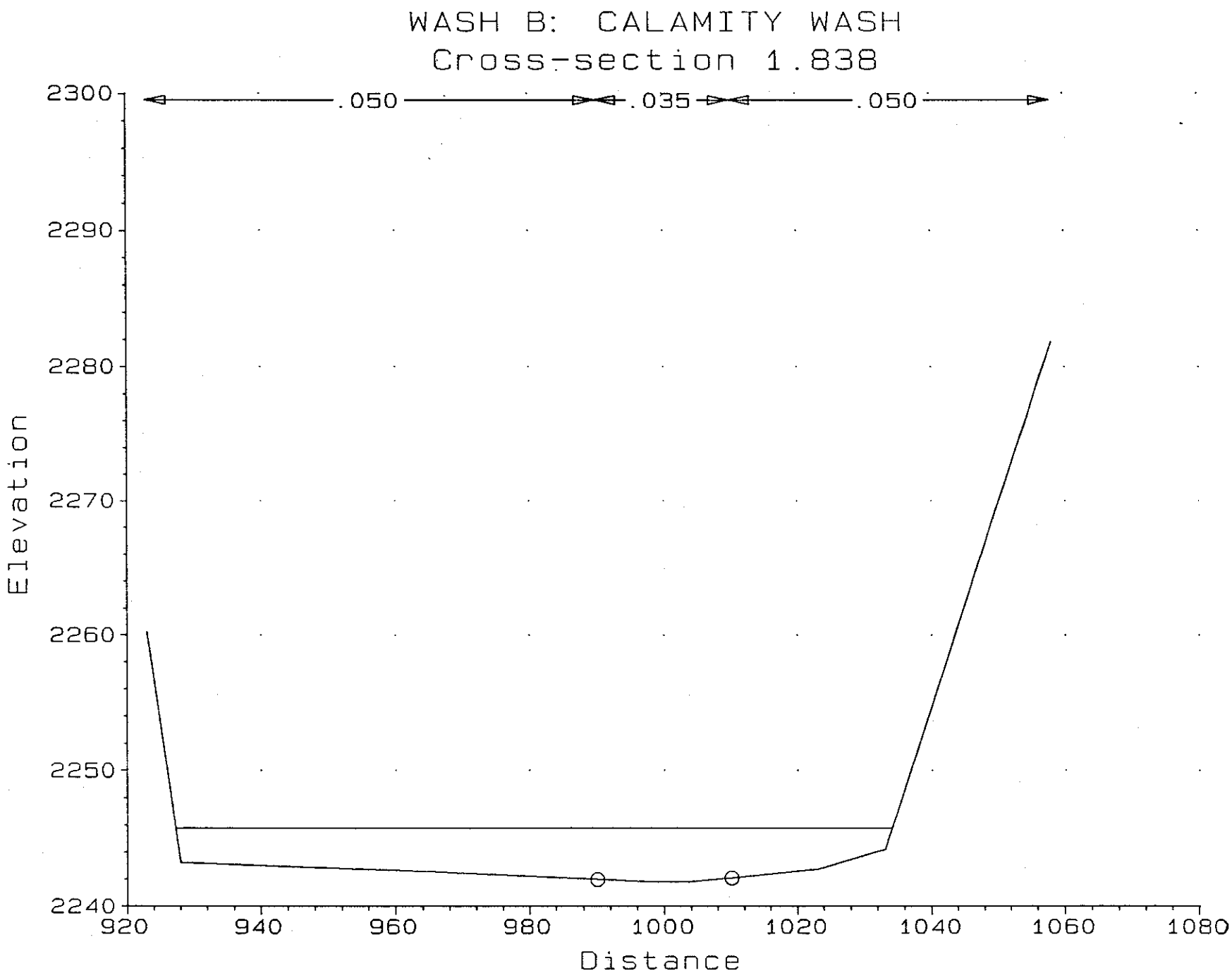
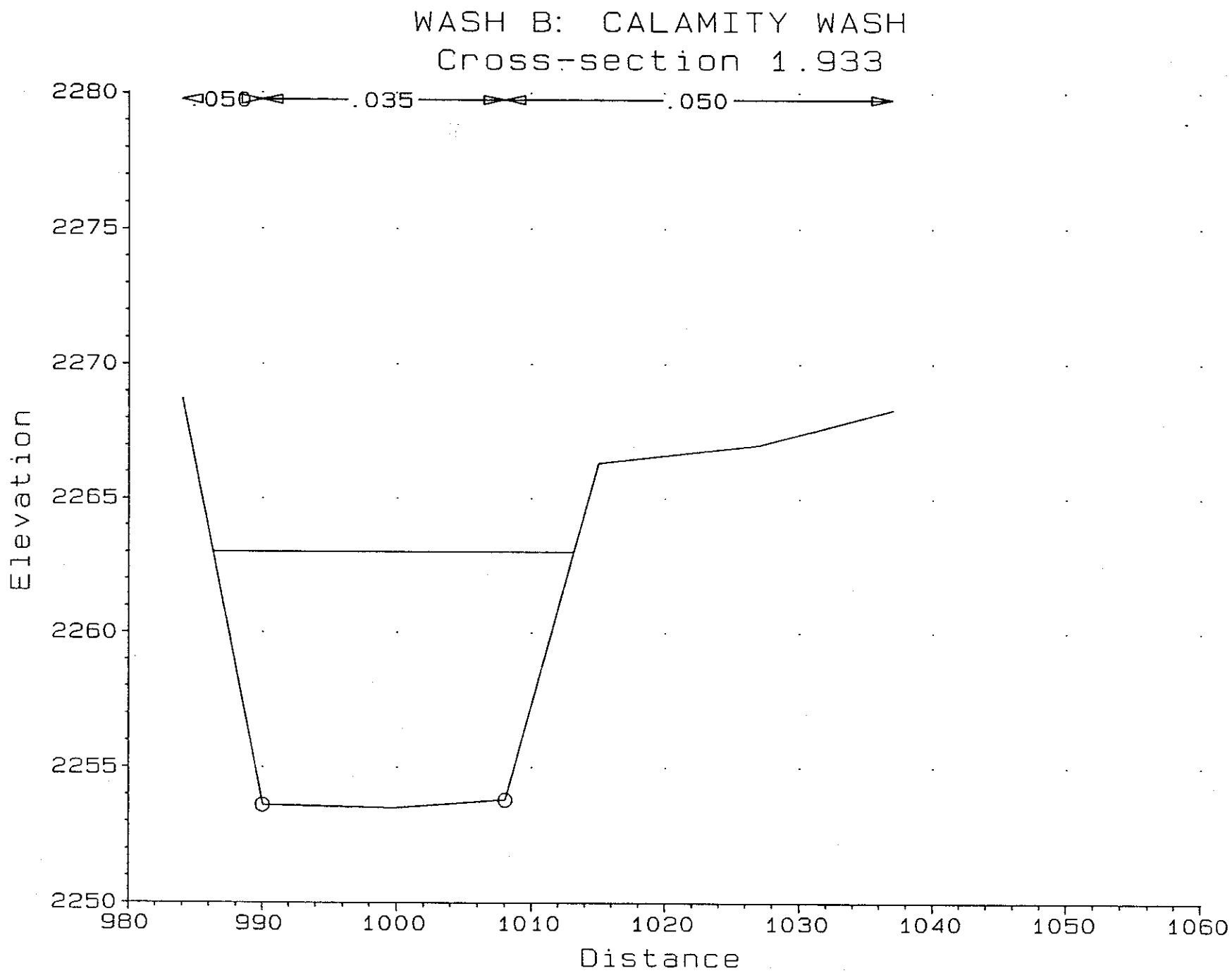
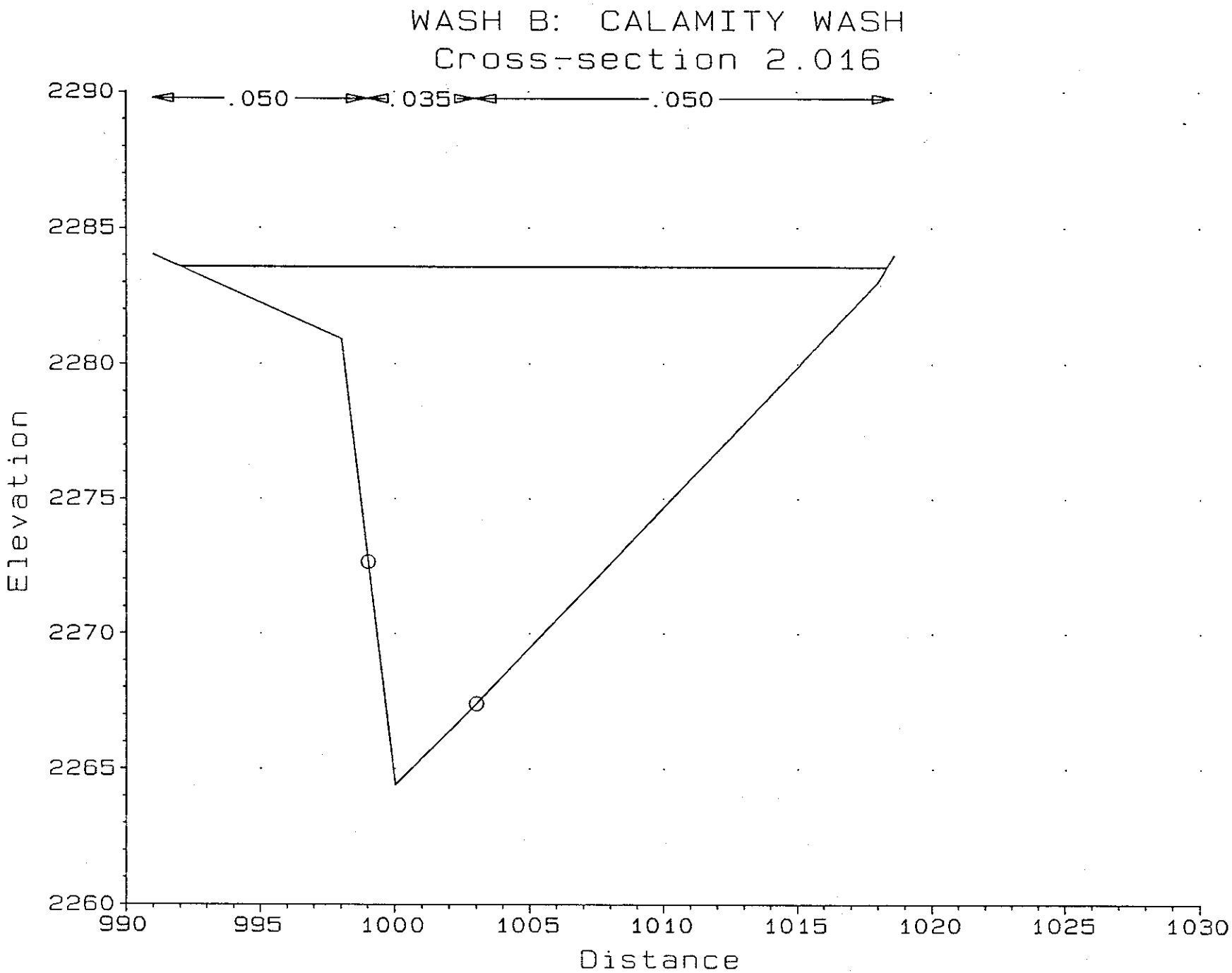
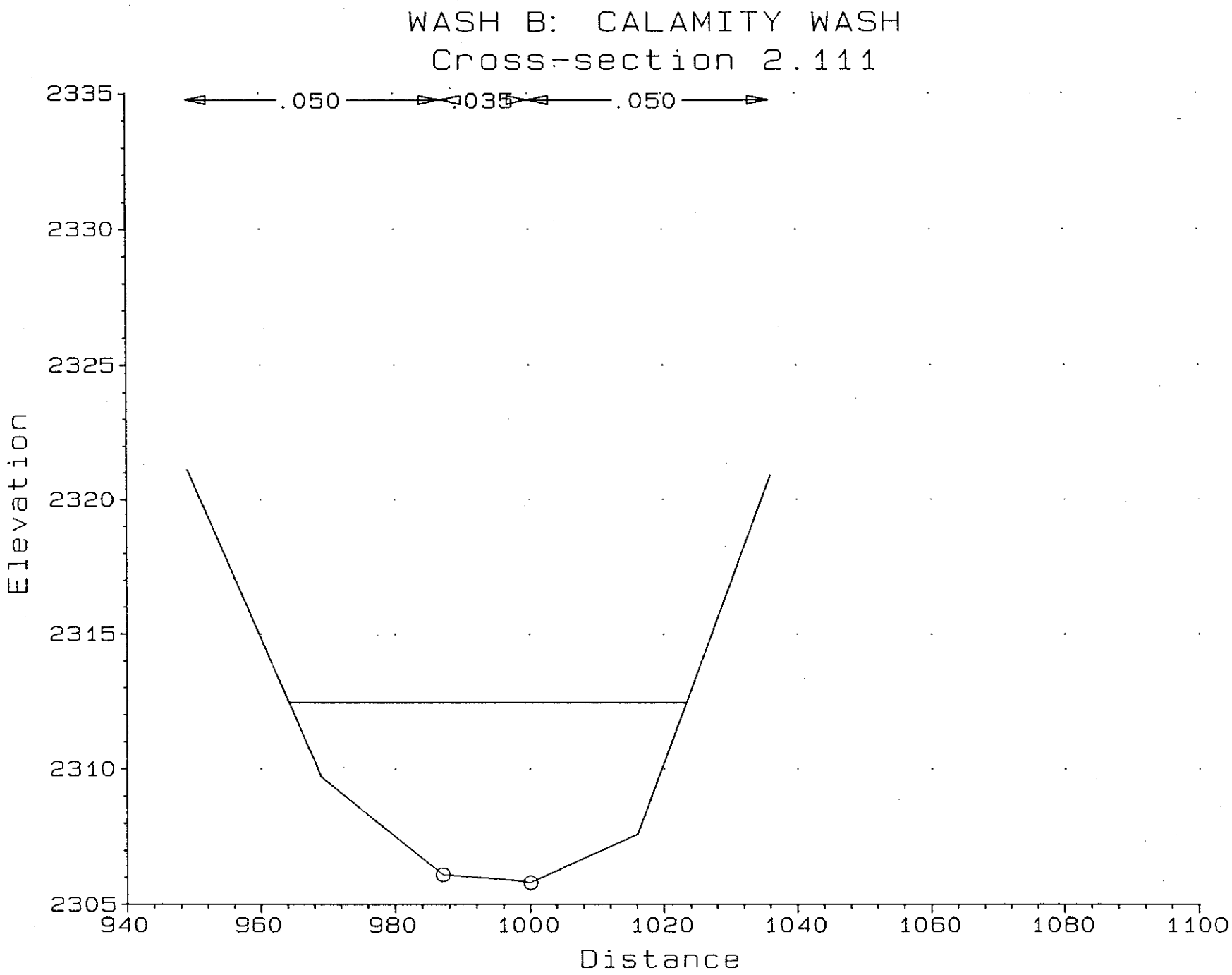
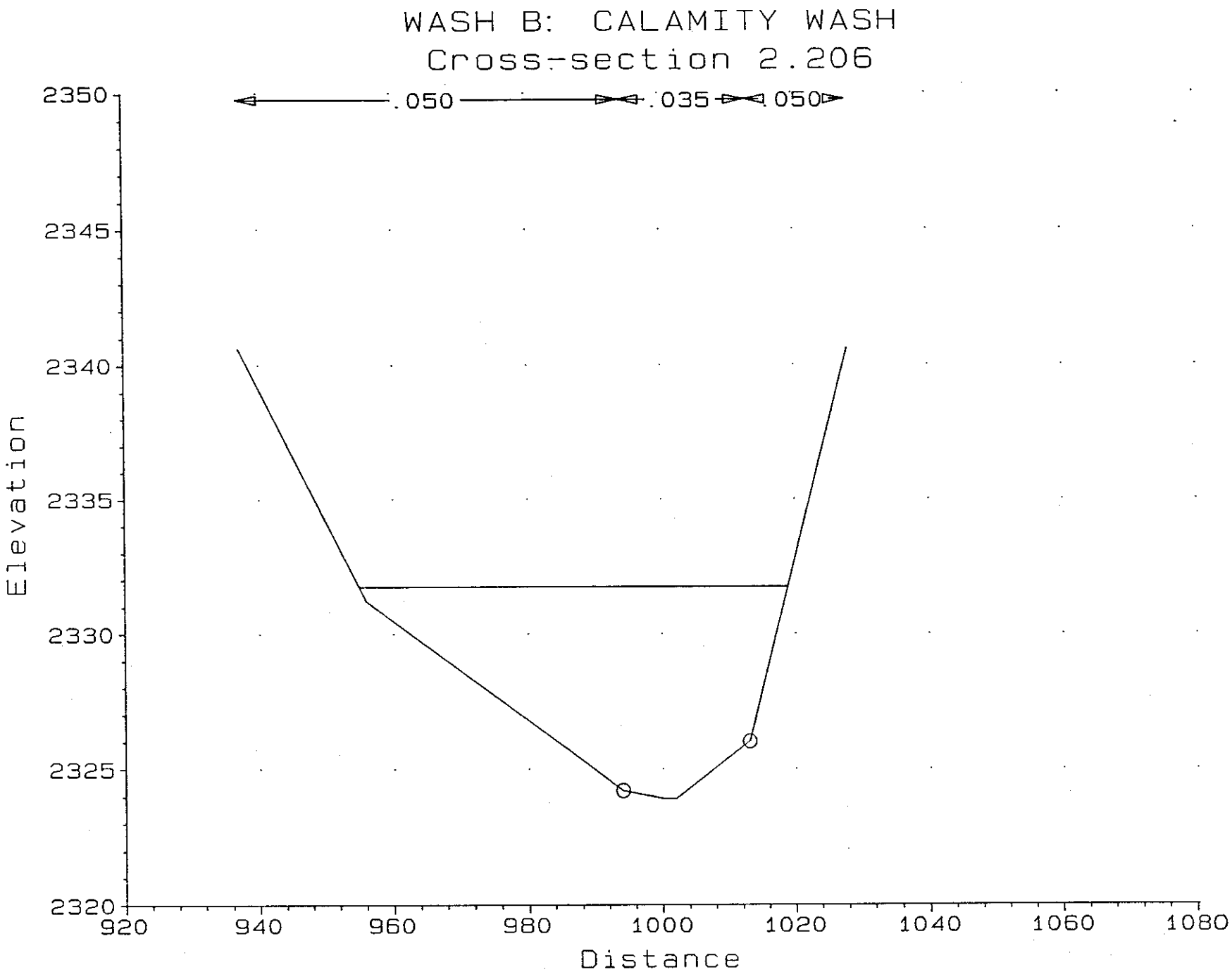
1000
1100
1200
1300
1400
1500
1600
Distance

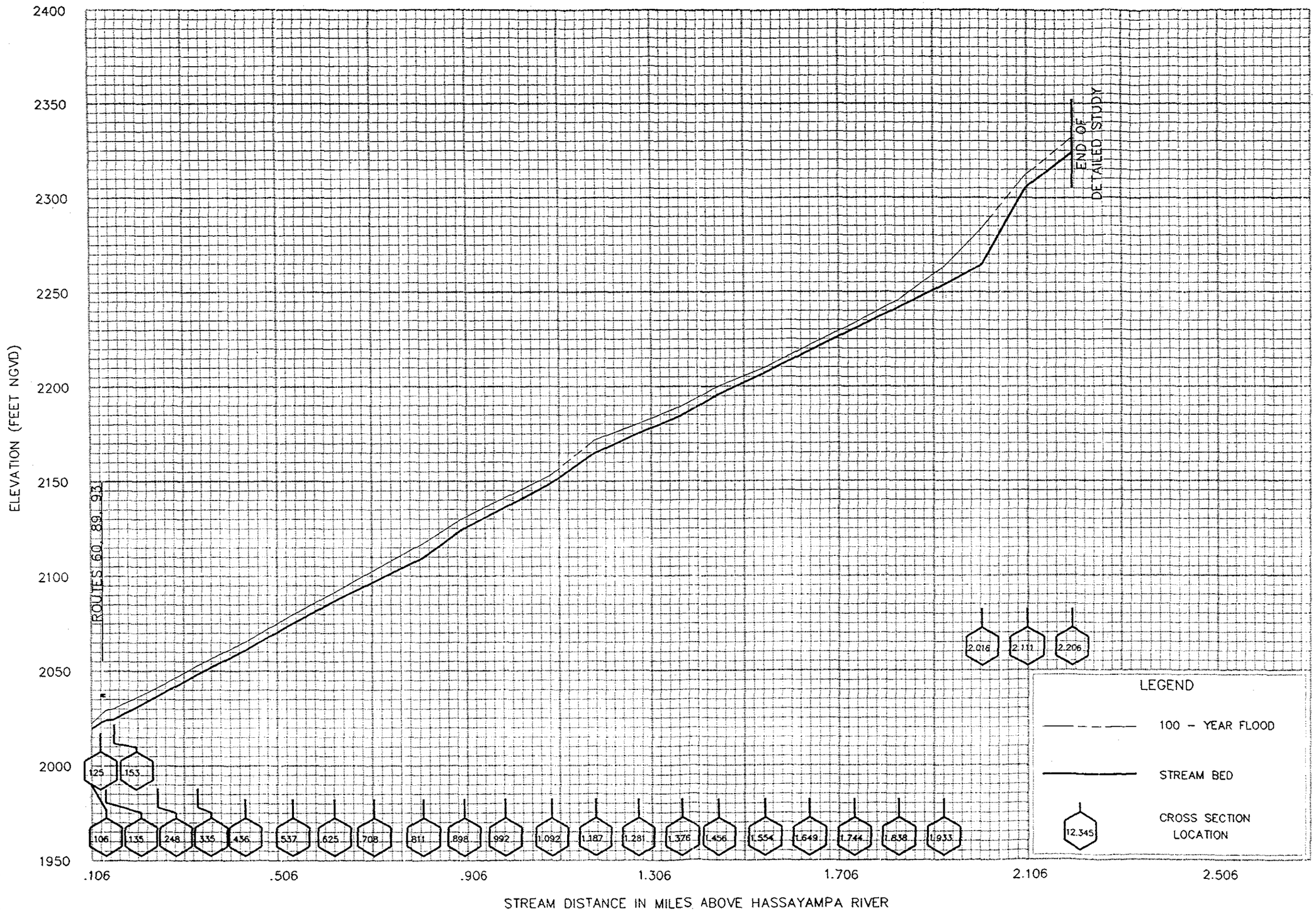

WASH B: CALAMITY WASH
Cross-section 1.838
.050
.035
.050
2300
2290
2280
2270
2260
2250
2240
Elevation
920
940
960
980
1000
1020
1040
1060
1080
Distance


WASH B: CALAMITY WASH
Cross-section 1.933
.050
.035
.050
2280
2275
2270
2265
2260
2255
2250
Elevation
980
990
1000
1010
1020
1030
1040
1050
1060
Distance


WASH B: CALAMITY WASH
Cross-section 2.016
.050
.035
.050
2290
2285
2280
2275
2270
2265
2260
Elevation
990
995
1000
1005
1010
1015
1020
1025
1030
Distance


WASH B: CALAMITY WASH
Cross-section 2.111
.050
.035
.050
2335
2330
2325
2320
2315
2310
2305
Elevation
940
960
980
1000
1020
1040
1060
1080
1100
Distance


WASH B: CALAMITY WASH
Cross-section 2.206
.050
.035
.050
2350
2345
2340
2335
2330
2325
2320
Elevation
920
940
960
980
1000
1020
1040
1060
1080
Distance



FLOOD PROFILES

CALAMITY WASH (B)

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

02/17/94 16:45:01 ACD-12-

PC FILE:WASHB.DWG

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 6.2: HEC-2 Models & Cross Section Plots for East Area Wash
BLUE TANKS WASH (Wash c)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1187\02\ADMIN\118702RP.063

May 1994

6.2

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 *Expires July 31, 1994*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Blue Tanks Wash (c)
(One form for each flooding source)

Project Name/Identifier: WICKENBURG ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

- [x] Approximate study stream (Zone A)
- [ ] Detailed study stream (briefly explain methodology) _____

2. REASON FOR NEW HYDROLOGIC ANALYSIS

- [ ] No existing analysis
- [ ] Improved data *(see data revision on page 3)*
- [ ] Changed physical conditions of watershed *(explain)* _____
- [ ] Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*
- [ ] Evaluation of proposed conditions (CLOMRs only) (explain) _____
- [x] Other No existing analysis or analysis being updated to reflect existing conditions

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

- [x] Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)

  Attach evidence of approval.
- [ ] Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: Wash @ Blue Tanks Wash

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs):	Revised (cfs):
Hassayampa R. Confl.	10.8		4,071

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:

NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		VER 3.0
	Date:		02 AUG 83
2.	Source of rainfall depth:		NOAA ATLAS 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 HOURS
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-GRAPH
7.	Loss rate method:		GREEN-AMPT
	Source of soils information:		SCS
	Source of land use information		TOWN of WICKENBURG
8.	Channel routing method:		NORMAL DEPTH
9.	Reservoir routing:	☐ Yes ☐ No	☐ Yes ☐ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11. Snowmelt considerations: ☐ Yes ☐ No ☐ Yes ☒ No

12. Model calibration: ☐ Yes ☐ No ☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE VS DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

Stream: NA – NO FLOW RECORDS

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: _____
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station .087

Upstream limit: Station .936

2. EFFECTIVE FIS

☐ Not studied

☒ Studied by approximate methods

Downstream limit of study: Hassayampa River

Upstream limit of study: Yavapai County Line

☐ Studied by detailed methods

Downstream limit of study: _____

Upstream limit of study: _____

☐ Floodway delineated

Downstream limit of Floodway: _____

Upstream limit of Floodway: _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☒ Improved hydrologic data/analysis. Explain: Hydrologic Analysis procedures standardized by the Flood Control District of Maricopa County

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (*e.g. duplicate effective model to corrected effective model*). Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model
(Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	4071	4,071
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevation determined by the Slope-Area Method

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... .030

Overbanks ..... .045

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised
NA		

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Data points for cross sections are based on the photogrammetric models for the topographic maps

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (from model used to revise 100-year water surface elevations)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ..... ☐ Yes ☒ No

b. Supercritical depth? ..... ☐ Yes ☒ No

c. Critical depth? ..... ☒ Yes ☐ No

d. Other unique situations ..... ☐ Yes ☒ No

(If yes, Special Problem Report attached)

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 15.39

Specify location 0.359

3. What is the distance between the cross-sections in 2 above? 433

Specify location 0.359

4. What is the maximum distance between cross-sections? 533

Specify location 0.847

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? ..... 1 foot

b. What is the maximum surcharge for the revised conditions? ..... 0 foot

Specify location ..... —

c. What is the maximum velocity? ..... 7.5 fps

Specify location 0.746

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☒ No

If Yes, explain:

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

NA- New Model

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model (*10-, 50-, 100-, and 500-year*), downstream of the project at cross-section NA within _____ feet and upstream of the project at cross section _____ within _____ feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section NA within _____ feet and upstream of the project at cross section _____ within NA feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County/ Town of Wickenburg	Wash C: Blue Tanks Wash	Wickenburg ADMS FCD89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS: New Model - See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet 1 of 1

FLOODWAY DATA, WASH C: BLUE TANK WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.087	423.	590.	6.9	2075.6	2075.6	.0
.182	584.	647.	6.3	2084.8	2084.8	.0
.277	517.	621.	6.6	2093.9	2093.9	.0
.359	419.	682.	6.0	2109.1	2109.1	.0
.466	258.	602.	6.8	2124.2	2124.2	.0
.557	287.	608.	6.7	2136.8	2136.8	.0
.652	228.	586.	6.9	2147.6	2147.6	.0
.746	289.	540.	7.5	2156.6	2156.6	.0
.847	273.	565.	7.2	2168.4	2168.4	.0
.936	483.	624.	6.5	2178.8	2178.8	.0

Wickenburg ADMS FCD 89-79

EXPLANATORY NOTES FOR
FORM 4 SECTION 5 PARAGRAPH 1.C

This watercourse islocated in a mountainous area. It is common for this watercourse to flow in subcritical, supercritical, and transitional flow regimes. The subcritical profile has been used to delineate the 100 year floodplain and prepare maps, tables, etc.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE/COASTAL MAPPING FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Blue Tanks Wash: Wash C

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☐ Yes	☒ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☒ Yes	☐ No	☐ N/A
C.	Revised 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☐ Yes	☐ No	☒ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
I.	The requestor's property boundaries and community easements	☐ Yes	☐ No	☒ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: No [redacted], 500-year, or coastal zones revised or delineated. Revised 100-year floodplains tie into effective Hassayampa River floodplain.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? Photo: Jan. 1991 (E), Oct 1990 (W); Maps 1992

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS unknown scale unknown Contour interval
   b. Revision Request 1" = 200' scale 4 ft Contour interval

NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

Revised detailed 100-year floodplain replaces effective zone floodplain.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☒ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase? _____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

7. If a V-zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

NA

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☐ Proposed ☒ N/A

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☒ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☒ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

   If yes, justify steeper slopes _____

   _____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

   If no, describe erosion protection provided _____

   _____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☒ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

```
*****************************************
*  HEC-2 WATER SURFACE PROFILES         *
*                                       *
*  Version   4.6.2;  May 1991           *
*                                       *
*  RUN DATE    25JUN92  ' TIME   08:45:09 *
*****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED 25JUN92 08:45:09

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1      WICKENBURG ADMS - CONTRACT FCD 89-79
T2      BLACK & VEATCH PN 17676   COE & VAN LOO JN 1197-02
T3      WASH C: BLUE TANK WASH            (FILE WASHC.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0        0        0   2075.64       0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1                -1                                     -1                         15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

     .045      .045      .030        .1        .3
QT      2      4071      4071
ET                        9.1                                                          721.18    1143.85
            CONFLUENCE OF WASH C: BLUE TANK WASH
            AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
                 VK (HASSAYAMPA RIVER MILE 52.40)
                 VM (HASSAYAMPA RIVER MILE 52.59)
            CROSS-SECTION DESIGNATION FROM:
                 HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
                 STUDY, MARICOPA COUNTY, ARIZONA AND
                 UNINCORPORATED AREAS.  FEDERAL EMERGENCY
                 MANAGEMENT AGENCY, EFFECTIVE DATE
                 SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
                 ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

            SWSE DETERMINED BY SLOPE AREA METHOD

            JACK BURDEN ROAD

X1    0.087       23      989     1010        0        0        0
GR   2088.1      594.   2085.1     616.   2083.0     639.   2080.1     651.   2080.1     658.
GR   2076.8      703.   2073.8     750.   2071.6     788.   2070.8     800.   2072.8     835.
GR   2074.1      871.   2074.6     920.   2074.6     958.  2074.674    989.   2074.7    1000.
GR   2075.0     1010.   2075.8    1033.   2075.3    1064.   2075.3    1098.   2075.4    1136.
     2076.5     1172.   2081.1    1221.   2088.4    1285.
```

			9.1						726.70	1310.51
X1	0.182	24	979	1011	500	480	500			
GR	2096.3	703.	2092.0	716.	2081.9	731.	2082.2	749.	2083.5	806.
GR	2084.1	862.	2084.4	917.	2085.8	943.	2085.1	955.	2083.0	979.
GR	2083.0	1000.	2083.0	1011.	2085.1	1023.	2084.9	1041.	2084.7	1098.
GR	2084.2	1149.	2083.3	1196.	2082.2	1218.	2081.4	1237.	2082.3	1255.
GR	2082.2	1263.	2083.8	1290.	2084.2	1309.	2096.1	1339.		
ET			9.1						733.99	1251.28
X1	0.277	25	981	1011	360	420	500			
GR	2104.1	723.	2093.0	735.	2092.5	750.	2090.8	769.	2091.1	787.
GR	2092.0	816.	2093.0	856.	2092.8	877.	2091.6	891.	2092.0	898.
GR	2093.3	914.	2094.3	958.	2093.6	981.	2092.3	1000.	2092.5	1011.
GR	2092.6	1015.	2093.0	1080.	2092.8	1095.	2094.2	1113.	2093.6	1152.
GR	2093.5	1159.	2091.9	1214.	2091.4	1227.	2092.0	1245.	2104.3	1285.
ET			9.1						606.42	1025.16
X1	0.359	22	985	1015	740	440	433			
GR	2120.7	552.	2115.6	566.	2113.2	590.	2109.3	604.	2108.0	624.
GR	2108.8	643.	2109.7	684.	2107.9	738.	2107.9	787.	2106.9	818.
GR	2107.3	846.	2106.8	902.	2106.5	943.	2106.6	977.	2105.867	985.
GR	2105.5	989.	2104.8	1000.	2105.5	1008.	2106.1	1012.	2106.475	1015.
GR	2107.1	1020.	2116.2	1043.						
ET			9.1						845.99	1104.32
	0.466	19	978	1020	560	580	565			
	2128.2	840.	2124.3	845.	2121.9	864.	2122.1	888.	2121.3	900.
GR	2122.2	914.	2122.7	952.	2123.9	973.	2122.9	978.	2120.7	982.
GR	2119.3	993.	2119.3	1000.	2120.1	1010.	2122.8	1020.	2121.8	1038.
GR	2121.2	1071.	2120.9	1084.	2121.4	1099.	2128.7	1113.		
ET			9.1						748.25	1035.47
X1	0.557	19	994	1024	540	600	480			
GR	2144.4	720.	2136.6	749.	2134.6	768.	2135.2	785.	2136.1	803.
GR	2136.7	832.	2135.7	856.	2134.0	878.	2134.6	891.	2134.6	898.
GR	2133.8	917.	2134.0	942.	2134.2	972.	2133.3	994.	2132.3	1000.
GR	2132.4	1008.	2133.9	1024.	2134.4	1033.	2148.0	1047.		
ET			9.1						786.59	1014.96
X1	0.652	15	976	1006	560	500	500			
GR	2160.0	735.	2152.2	748.	2149.3	772.	2146.6	795.	2145.0	834.
GR	2145.3	875.	2145.9	899.	2145.9	902.	2144.7	949.	2143.5	976.
GR	2143.1	990.	2143.1	1000.	2143.5	1006.	2143.9	1011.	2156.0	1024.
ET			9.1						937.96	1227.00
X1	0.746	16	977	1007	480	480	496			
GR	2168.0	908.	2166.1	915.	2158.8	929.	2154.0	949.	2154.9	977.
GR	2154.5	997.	2154.5	1000.	2154.684	1007.	2155.0	1019.	2155.6	1042.
GR	2155.0	1113.	2153.7	1158.	2153.9	1186.	2155.9	1227.	2158.5	1227.01
GR	2168.2	1274.								

			9.1						777.44	1050.03
X1	0.847	19	987	1017	560	440	533			
GR	2180.3	722.	2172.8	736.	2169.2	765.	2167.4	793.	2165.2	822.
GR	2165.1	837.	2166.0	861.	2166.3	878.	2166.5	882.	2166.5	889.
GR	2167.7	931.	2166.2	959.	2165.8	978.	2165.550	987.	2165.3	996.
GR	2165.3	1000.	2165.8	1017.	2166.4	1042.	2180.6	1099.		
ET			9.1						577.75	1061.19
X1	0.936	22	990	1019	480	500	470			
GR	2192.7	537.	2179.1	569.	2178.1	603.	2177.1	646.	2176.3	696.
GR	2177.1	728.	2177.1	761.	2177.2	791.	2177.7	823.	2177.9	871.
GR	2178.7	924.	2178.4	942.	2177.7	955.	2177.389	990.	2177.3	1000.
GR	2177.7	1019.	2177.2	1046.	2178.0	1058.	2185.4	1086.	2187.2	1101.
GR	2193.4	1123.	2193.4	1135.						

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV= .100 CEHV= .300
*SECNO .087

3265 DIVIDED FLOW

CONFLUENCE OF WASH C: BLUE TANK WASH
AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
VK (HASSAYAMPA RIVER MILE 52.40)
VM (HASSAYAMPA RIVER MILE 52.59)
CROSS-SECTION DESIGNATION FROM:
HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
STUDY, MARICOPA COUNTY, ARIZONA AND
UNINCORPORATED AREAS. FEDERAL EMERGENCY
MANAGEMENT AGENCY, EFFECTIVE DATE
SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

SWSE DETERMINED BY SLOPE AREA METHOD

JACK BURDEN ROAD

.087	4.84	2075.64	2075.61	2075.64	2076.44	.80	.00	.00	2074.67
4071.0	3916.3	98.2	56.5	538.5	18.4	33.0	.0	.0	2075.00
.00	7.27	5.34	1.71	.045	.030	.045	.000	2070.80	721.18
.013885	0.	0.	0.	0	4	0	.00	408.14	1143.85

FLOW DISTRIBUTION FOR SECNO= .09 CWSEL= 2075.64

STA=	721.	788.	800.	835.	871.	920.	958.	989.	1010.	1144.
PER Q=	24.3	13.7	31.5	12.7	7.2	3.9	3.0	2.4	1.4	
AREA=	138.2	53.3	134.4	78.8	63.2	39.5	31.1	18.4	33.0	
VEL=	7.2	10.5	9.5	6.6	4.6	4.0	3.9	5.3	1.7	
DEPTH=	2.1	4.4	3.8	2.2	1.3	1.0	1.0	.9	.2	

*SECNO .182

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.182	3.40	2084.80	2084.80	.00	2085.46	.66	7.26	.01	2083.00
4071.0	1525.5	524.9	2020.6	272.5	57.5	317.0	7.0	5.1	2083.00
.02	5.60	9.13	6.37	.045	.030	.045	.000	2081.40	726.70
.015540	500.	500.	480.	0	16	0	.00	500.69	1310.51

FLOW DISTRIBUTION FOR SECNO= .18 CWSEL= 2084.80

STA=	727.	749.	806.	862.	979.	1011.	1196.	1218.	1237.	1255.	1263.	1290.	1311.
PER Q=	10.5	17.5	5.6	3.8	12.9	6.9	7.3	12.0	11.0	3.8	7.2	1.3	
AREA=	55.7	111.0	55.8	50.0	57.5	77.5	45.0	56.9	53.0	20.4	48.5	15.6	
VEL=	7.7	6.4	4.1	3.1	9.1	3.6	6.6	8.6	8.5	7.7	6.1	3.5	
DEPTH=	2.5	1.9	1.0	.4	1.8	.4	2.0	3.0	2.9	2.5	1.8	.8	

*SECNO .277

DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.277	3.13	2093.93	2093.93	.00	2094.62	.69	6.91	.01	2093.60
4071.0	2354.8	273.2	1443.0	333.1	35.5	252.4	12.8	9.6	2092.50
.04	7.07	7.71	5.72	.045	.030	.045	.000	2090.80	733.99
.019416	360.	500.	420.	0	11	0	.00	467.85	1251.28

FLOW DISTRIBUTION FOR SECNO= .28 CWSEL= 2093.93

STA=	734.	769.	787.	816.	856.	891.	914.	981.	1011.	1080.	1214.	1227.	1245.
PER Q=	10.7	12.6	13.9	8.2	6.4	5.5	.5	6.7	9.8	11.5	5.8	7.7	
AREA=	61.5	53.6	69.0	57.2	45.9	35.4	10.5	35.5	79.0	97.5	29.6	40.1	
VEL=	7.1	9.5	8.2	5.8	5.7	6.3	2.0	7.7	5.0	4.8	8.0	7.9	
DEPTH=	1.8	3.0	2.4	1.4	1.3	1.5	.2	1.2	1.1	.7	2.3	2.2	

STA=	1245.	1251.
PER Q=	.6	
AREA=	6.1	
VEL=	4.4	
DEPTH=	1.0	

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .359

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.359	4.34	2109.14	2109.14	.00	2110.01	.87	8.00	.05	2105.87
4071.0	2731.4	1258.5	81.1	552.9	111.6	17.0	22.4	15.7	2106.48
.06	4.94	11.27	4.76	.045	.030	.045	.000	2104.80	606.42
.009038	740.	433.	440.	0	14	0	.00	376.62	1025.16

FLOW DISTRIBUTION FOR SECNO= .36 CWSEL= 2109.14

STA=	606.	787.	818.	846.	902.	943.	977.	985.	1015.	1025.
PER Q=	8.2	6.0	7.1	14.8	14.5	12.8	3.6	30.9	2.0	
AREA=	110.9	54.0	57.2	117.2	102.2	88.1	23.3	111.6	17.0	
VEL=	3.0	4.5	5.1	5.1	5.8	5.9	6.4	11.3	4.8	
DEPTH=	.6	1.7	2.0	2.1	2.5	2.6	2.9	3.7	1.7	

.466
MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.466	4.88	2124.18	2124.18	.00	2125.25	1.07	4.96	.06	2122.90
4071.0	1034.5	1782.8	1253.7	224.1	161.6	215.4	30.7	19.8	2122.80
.08	4.62	11.04	5.82	.045	.030	.045	.000	2119.30	845.99
.008509	560.	565.	580.	0	8	0	.00	258.33	1104.32

FLOW DISTRIBUTION FOR SECNO= .47 CWSEL= 2124.18

STA=	846.	888.	900.	914.	952.	978.	1020.	1038.	1071.	1084.	1099.	1104.
PER Q=	8.2	4.1	4.6	7.1	1.5	43.8	3.8	12.7	6.5	7.1	.6	
AREA=	72.7	29.7	34.0	65.6	22.3	161.6	33.8	88.3	40.6	45.4	7.4	
VEL=	4.6	5.6	5.5	4.4	2.7	11.0	4.6	5.9	6.5	6.4	3.5	
DEPTH=	1.7	2.5	2.4	1.7	.9	3.8	1.9	2.7	3.1	3.0	1.4	

*SECNO .557
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.557	4.50	2136.80	2136.80	.00	2137.83	1.03	4.62	.00	2133.30
4071.0	2536.6	1382.4	152.0	463.2	118.1	26.8	38.2	23.2	2133.90
.10	5.48	11.71	5.66	.045	.030	.045	.000	2132.30	748.25
.009052	540.	480.	600.	0	15	0	.00	287.22	1035.47

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .56 CWSEL= 2136.80

STA=	748.	785.	856.	878.	891.	917.	942.	972.	994.	1024.	1033.	1035.
PER Q=	5.8	3.0	5.2	4.6	9.2	11.4	12.1	10.9	34.0	3.5	.2	
AREA=	55.2	46.9	42.9	32.5	64.9	72.6	81.1	67.1	118.1	23.9	3.0	
VEL=	4.3	2.6	4.9	5.8	5.8	6.4	6.1	6.6	11.7	6.0	2.8	
DEPTH=	1.5	.7	2.0	2.5	2.5	2.9	2.7	3.1	3.9	2.7	1.2	

*SECNO .652
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.652	4.49	2147.59	2147.59	.00	2148.75	1.16	4.65	.04	2143.50
4071.0	2325.9	1573.7	171.4	428.3	130.6	26.7	45.7	26.5	2143.50
.12	5.43	12.05	6.41	.045	.030	.045	.000	2143.10	786.59
.008324	560.	500.	500.	0	5	0	.00	228.38	1014.96

FLOW DISTRIBUTION FOR SECNO= .65 CWSEL= 2147.59

STA=	787.	795.	834.	875.	899.	902.	949.	976.	1006.	1011.	1015.
PER Q=	.2	7.6	13.4	5.6	.5	13.8	16.0	38.7	3.5	.7	
AREA=	4.2	69.7	100.0	47.7	5.1	107.5	94.2	130.6	19.4	7.3	
VEL=	1.9	4.4	5.5	4.8	4.3	5.2	6.9	12.0	7.4	3.7	
DEPTH=	.5	1.8	2.4	2.0	1.7	2.3	3.5	4.4	3.9	1.8	

*SECNO .746
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.746	2.95	2156.65	2156.65	.00	2157.60	.95	5.84	.02	2154.90
4071.0	552.9	647.5	2870.6	76.2	59.8	403.6	51.9	29.4	2154.68
.14	7.25	10.82	7.11	.045	.030	.045	.000	2153.70	937.96
.019004	480.	496.	480.	0	14	0	.00	289.04	1227.00

FLOW DISTRIBUTION FOR SECNO= .75 CWSEL= 2156.65

STA=	938.	949.	977.	1007.	1019.	1042.	1113.	1158.	1186.	1227.
PER Q=	1.9	11.6	15.9	3.6	4.2	13.1	20.2	17.9	11.5	
AREA=	14.6	61.6	59.8	21.7	31.0	95.8	103.5	79.8	71.7	
VEL=	5.4	7.7	10.8	6.8	5.6	5.6	7.9	9.2	6.5	
DEPTH=	1.3	2.2	2.0	1.8	1.3	1.3	2.3	2.8	1.7	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .847
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.847	3.30	2168.40	2168.40	.00	2169.41	1.01	7.96	.02	2165.55
4071.0	2639.5	1020.7	410.8	410.8	87.6	65.5	58.3	32.6	2165.80
.16	6.43	11.65	6.27	.045	.030	.045	.000	2165.10	777.44
.013246	560.	533.	440.	0	8	0	.00	272.59	1050.03

FLOW DISTRIBUTION FOR SECNO= .85 CWSEL= 2168.40

STA=	777.	822.	837.	861.	878.	889.	931.	959.	978.	987.	1017.	1042.	1050.
PER Q=	9.8	10.0	12.8	6.1	3.1	6.1	4.9	7.6	4.5	25.1	9.4	.7	
AREA=	68.7	48.8	68.4	38.3	21.3	54.6	40.6	45.6	24.5	87.6	57.5	8.0	
VEL=	5.8	8.3	7.6	6.5	5.9	4.5	4.9	6.8	7.4	11.6	6.6	3.7	
DEPTH=	1.5	3.3	2.9	2.3	1.9	1.3	1.5	2.4	2.7	2.9	2.3	1.0	

*SECNO .936
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.936	2.54	2178.84	2178.84	.00	2179.52	.68	7.94	.03	2177.39
4071.0	3393.9	365.1	312.0	531.2	40.5	53.9	64.9	36.8	2177.70
.18	6.39	9.02	5.79	.045	.030	.045	.000	2176.30	577.75
.021227	480.	470.	500.	0	19	0	.00	483.44	1061.19

FLOW DISTRIBUTION FOR SECNO= .94 CWSEL= 2178.84

STA=	578.	646.	696.	728.	761.	791.	823.	871.	955.	990.	1019.	1046.	1061.
PER Q=	7.9	21.0	13.5	9.8	8.5	6.6	6.1	3.6	6.4	9.0	5.5	2.1	
AREA=	62.8	107.1	68.6	57.5	50.8	44.6	50.1	44.3	45.4	40.5	37.6	16.3	
VEL=	5.1	8.0	8.0	7.0	6.8	6.0	4.9	3.3	5.7	9.0	6.0	5.3	
DEPTH=	.9	2.1	2.1	1.7	1.7	1.4	1.0	.5	1.3	1.4	1.4	1.1	

FLOODWAY DETERMINATION
1.0 FT TARGET INCREASE
T3 WASH C: BLUE TANK WASH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							2075.64	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1				-1			

```
 ECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
          QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO  .087

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      721.2    1143.8  TYPE=      1  TARGET=      422.670
            CONFLUENCE OF WASH C: BLUE TANK WASH
            AND HASSAYAMPA RIVER BETWEEN CROSS-SECTIONS:
                 VK (HASSAYAMPA RIVER MILE 52.40)
                 VM (HASSAYAMPA RIVER MILE 52.59)
            CROSS-SECTION DESIGNATION FROM:
                 HASSAYAMPA RIVER FLOODWAY FLOOD INSURANCE
                 STUDY, MARICOPA COUNTY, ARIZONA AND
                 UNINCORPORATED AREAS.  FEDERAL EMERGENCY
                 MANAGEMENT AGENCY, EFFECTIVE DATE
                 SEPTEMBER 4, 1991, PERFORMED BY CELLA BARR
                 ASSOCIATES UNDER CONTRACT NO. EMW-88-C-2603.

            SWSE DETERMINED BY SLOPE AREA METHOD

            JACK BURDEN ROAD

     .087      4.84   2075.64   2075.61   2075.64   2076.44       .80       .00       .00   2074.67
   4071.0    3916.3      98.2      56.5     538.5      18.4      33.0        .0        .0   2075.00
     .00      7.27      5.34      1.71      .045      .030      .045      .000   2070.80    721.18
  .013885       0.        0.        0.         0         4         0       .00    408.14   1143.85


*SECNO  .182

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      726.7    1310.5  TYPE=      1  TARGET=      583.810
     .182      3.40   2084.80   2084.80   2084.80   2085.46       .66      7.26       .01   2083.00
   4071.0    1525.5     524.9    2020.6     272.6      57.5     317.1       7.0       5.1   2083.00
     .02      5.60      9.12      6.37      .045      .030      .045      .000   2081.40    726.70
   15526      500.      500.      480.         0        16         0       .00    500.84   1310.51
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .277

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 734.0 1251.3 TYPE= 1 TARGET= 517.290

.277	3.13	2093.93	2093.93	2093.93	2094.62	.69	6.91	.01	2093.60
4071.0	2354.9	273.2	1442.9	333.0	35.4	252.2	12.8	9.6	2092.50
.04	7.07	7.71	5.72	.045	.030	.045	.000	2090.80	733.99
.019435	360.	500.	420.	0	11	0	.00	467.77	1251.27

*SECNO .359

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 606.4 1025.2 TYPE= 1 TARGET= 418.740

.359	4.34	2109.14	2109.14	2109.14	2110.01	.87	7.99	.05	2105.87
4071.0	2732.0	1257.9	81.1	553.5	111.7	17.1	22.4	15.7	2106.48
.06	4.94	11.26	4.75	.045	.030	.045	.000	2104.80	606.42
.009016	740.	433.	440.	0	14	0	.00	376.75	1025.16

*SECNO .466
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 846.0 1104.3 TYPE= 1 TARGET= 258.330

.466	4.88	2124.18	2124.18	2124.18	2125.25	1.07	4.94	.06	2122.90
4071.0	1035.8	1781.4	1253.8	224.7	161.7	215.8	30.7	19.8	2122.80
.08	4.61	11.01	5.81	.045	.030	.045	.000	2119.30	845.99
.008464	560.	565.	580.	0	8	0	.00	258.33	1104.32

*SECNO .557
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 748.3 1035.5 TYPE= 1 TARGET= 287.220

.557	4.50	2136.80	2136.80	2136.80	2137.83	1.03	4.61	.00	2133.30
4071.0	2536.6	1382.4	152.0	463.2	118.1	26.8	38.2	23.2	2133.90
.10	5.48	11.71	5.66	.045	.030	.045	.000	2132.30	748.25
.009052	540.	480.	600.	0	15	0	.00	287.22	1035.47

*SECNO .652
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 786.6 1015.0 TYPE= 1 TARGET= 228.370

.652	4.49	2147.59	2147.59	2147.59	2148.75	1.16	4.64	.04	2143.50
4071.0	2326.5	1573.1	171.4	428.7	130.7	26.8	45.7	26.5	2143.50
.12	5.43	12.04	6.40	.045	.030	.045	.000	2143.10	786.59
.008305	560.	500.	500.	0	5	0	.00	228.37	1014.96

*SECNO .746
MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 938.0 1227.0 TYPE= 1 TARGET= 289.040

.746	2.95	2156.65	2156.65	2156.65	2157.60	.95	5.83	.02	2154.90
4071.0	552.9	647.5	2870.6	76.2	59.9	403.7	51.9	29.4	2154.68
.14	7.25	10.82	7.11	.045	.030	.045	.000	2153.70	937.96
.018988	480.	496.	480.	0	14	0	.00	289.04	1227.00

*SECNO .847
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 777.4 1050.0 TYPE= 1 TARGET= 272.590

.847	3.30	2168.40	2168.40	2168.40	2169.41	1.00	7.94	.01	2165.55
4071.0	2639.9	1020.2	410.8	411.5	87.7	65.6	58.3	32.6	2165.80
.16	6.42	11.63	6.26	.045	.030	.045	.000	2165.10	777.44
.013186	560.	533.	440.	0	8	0	.00	272.59	1050.03

*SECNO .936
7185 MINIMUM SPECIFIC ENERGY

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 577.8 1061.2 TYPE= 1 TARGET= 483.440

.936	2.54	2178.84	2178.84	2178.84	2179.52	.68	7.94	.03	2177.39
4071.0	3394.1	365.0	311.9	530.2	40.4	53.8	64.9	36.8	2177.70
.18	6.40	9.03	5.80	.045	.030	.045	.000	2176.30	577.83
.021345	480.	470.	500.	0	19	0	.00	483.35	1061.18

THIS RUN EXECUTED 25JUN92 08:45:32

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH C: BLUE TANK WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.087	.00	.00	.00	2070.80	4071.00	2075.64	2075.61	2076.44	138.85	5.34	589.89	345.48
	.087	.00	.00	.00	2070.80	4071.00	2075.64	2075.61	2076.44	138.85	5.34	589.89	345.48
*	.182	500.00	.00	.00	2081.40	4071.00	2084.80	2084.80	2085.46	155.40	9.13	647.04	326.57
*	.182	500.00	.00	.00	2081.40	4071.00	2084.80	2084.80	2085.46	155.26	9.12	647.29	326.72
	.277	500.00	.00	.00	2090.80	4071.00	2093.93	2093.93	2094.62	194.16	7.71	620.95	292.16
	.277	500.00	.00	.00	2090.80	4071.00	2093.93	2093.93	2094.62	194.35	7.71	620.72	292.01
*	.359	433.00	.00	.00	2104.80	4071.00	2109.14	2109.14	2110.01	90.38	11.27	681.56	428.21
*	.359	433.00	.00	.00	2104.80	4071.00	2109.14	2109.14	2110.01	90.16	11.26	682.21	428.75
*	.466	565.00	.00	.00	2119.30	4071.00	2124.18	2124.18	2125.25	85.09	11.04	601.11	441.32
*	.466	565.00	.00	.00	2119.30	4071.00	2124.18	2124.18	2125.25	84.64	11.01	602.25	442.51
*	.557	480.00	.00	.00	2132.30	4071.00	2136.80	2136.80	2137.83	90.52	11.71	608.13	427.88
*	.557	480.00	.00	.00	2132.30	4071.00	2136.80	2136.80	2137.83	90.52	11.71	608.13	427.88
*	.652	500.00	.00	.00	2143.10	4071.00	2147.59	2147.59	2148.75	83.24	12.05	585.70	446.21
*	.652	500.00	.00	.00	2143.10	4071.00	2147.59	2147.59	2148.75	83.05	12.04	586.14	446.70
*	.746	496.00	.00	.00	2153.70	4071.00	2156.65	2156.65	2157.60	190.04	10.82	539.64	295.31
*	.746	496.00	.00	.00	2153.70	4071.00	2156.65	2156.65	2157.60	189.88	10.82	539.78	295.43
*	.847	533.00	.00	.00	2165.10	4071.00	2168.40	2168.40	2169.41	132.46	11.65	563.97	353.72
*	.847	533.00	.00	.00	2165.10	4071.00	2168.40	2168.40	2169.41	131.86	11.63	564.83	354.53
*	.936	470.00	.00	.00	2176.30	4071.00	2178.84	2178.84	2179.52	212.27	9.02	625.58	279.42
*	.936	470.00	.00	.00	2176.30	4071.00	2178.84	2178.84	2179.52	213.45	9.03	624.40	278.65

C: BLUE TANK WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.087	4071.00	2075.64	.00	.00	.00	408.14	.00
	.087	4071.00	2075.64	.00	.00	.00	408.14	.00
*	.182	4071.00	2084.80	.00	9.16	.00	500.69	500.00
*	.182	4071.00	2084.80	.00	9.16	.00	500.84	500.00
*	.277	4071.00	2093.93	.00	9.13	.00	467.85	500.00
*	.277	4071.00	2093.93	.00	9.13	.00	467.77	500.00
*	.359	4071.00	2109.14	.00	15.21	.00	376.62	433.00
*	.359	4071.00	2109.14	.00	15.21	.00	376.75	433.00
*	.466	4071.00	2124.18	.00	15.03	.00	258.33	565.00
*	.466	4071.00	2124.18	.00	15.04	.00	258.33	565.00
*	.557	4071.00	2136.80	.00	12.63	.00	287.22	480.00
*	.557	4071.00	2136.80	.00	12.62	.00	287.22	480.00
*	.652	4071.00	2147.59	.00	10.79	.00	228.38	500.00
	.652	4071.00	2147.59	.00	10.79	.00	228.37	500.00
*	.746	4071.00	2156.65	.00	9.06	.00	289.04	496.00
*	.746	4071.00	2156.65	.00	9.06	.00	289.04	496.00
*	.847	4071.00	2168.40	.00	11.75	.00	272.59	533.00
*	.847	4071.00	2168.40	.00	11.75	.00	272.59	533.00
*	.936	4071.00	2178.84	.00	10.44	.00	483.44	470.00
*	.936	4071.00	2178.84	.00	10.44	.00	483.35	470.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .182  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .182  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .182  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .182  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .277  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .277  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .277  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .359  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      .359  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .466  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      .557  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      .652  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .652  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      .652  PROFILE=  2  MINIMUM SPECIFIC ENERGY

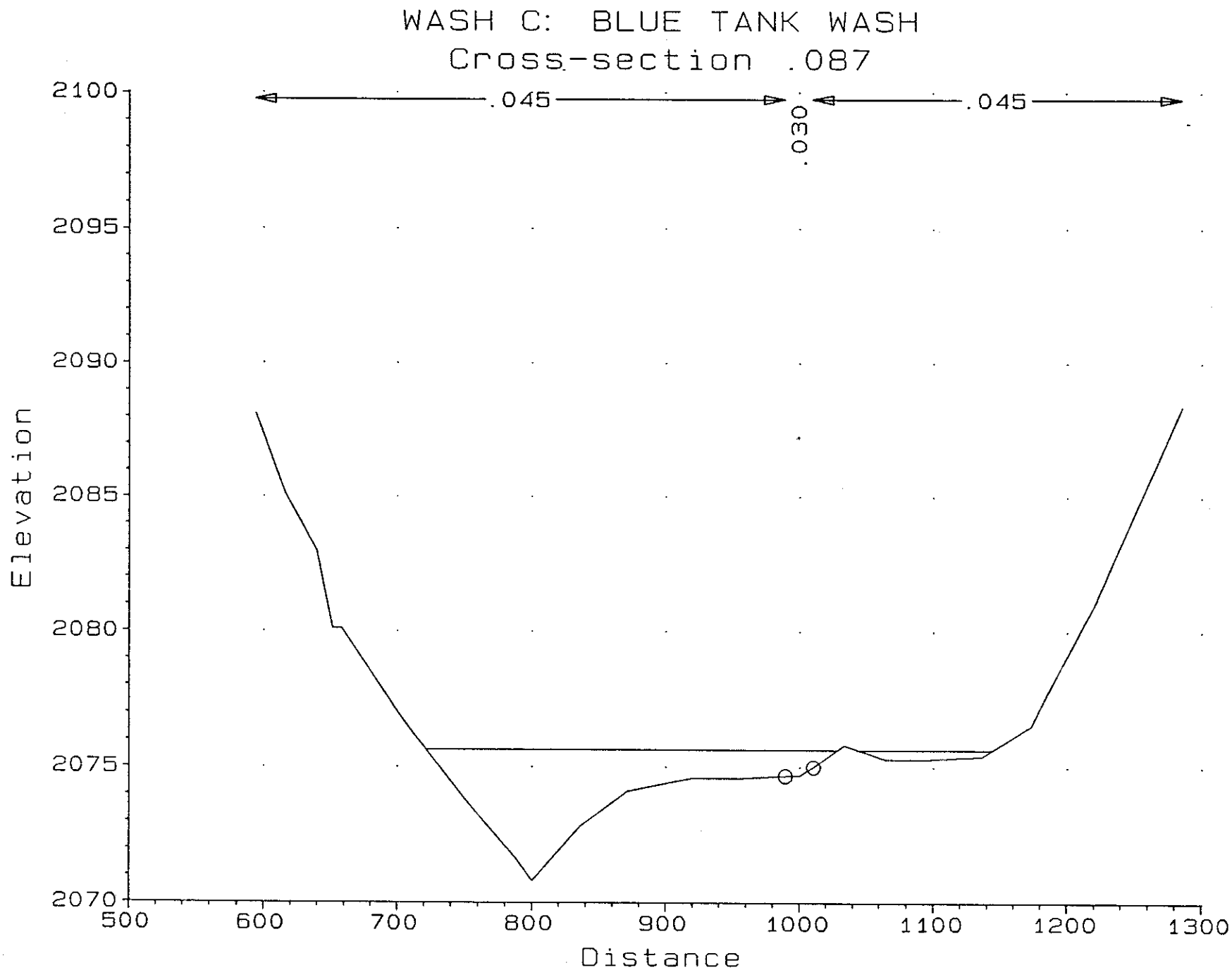
CAUTION SECNO=      .746  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .746  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .746  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .746  PROFILE=  2  MINIMUM SPECIFIC ENERGY

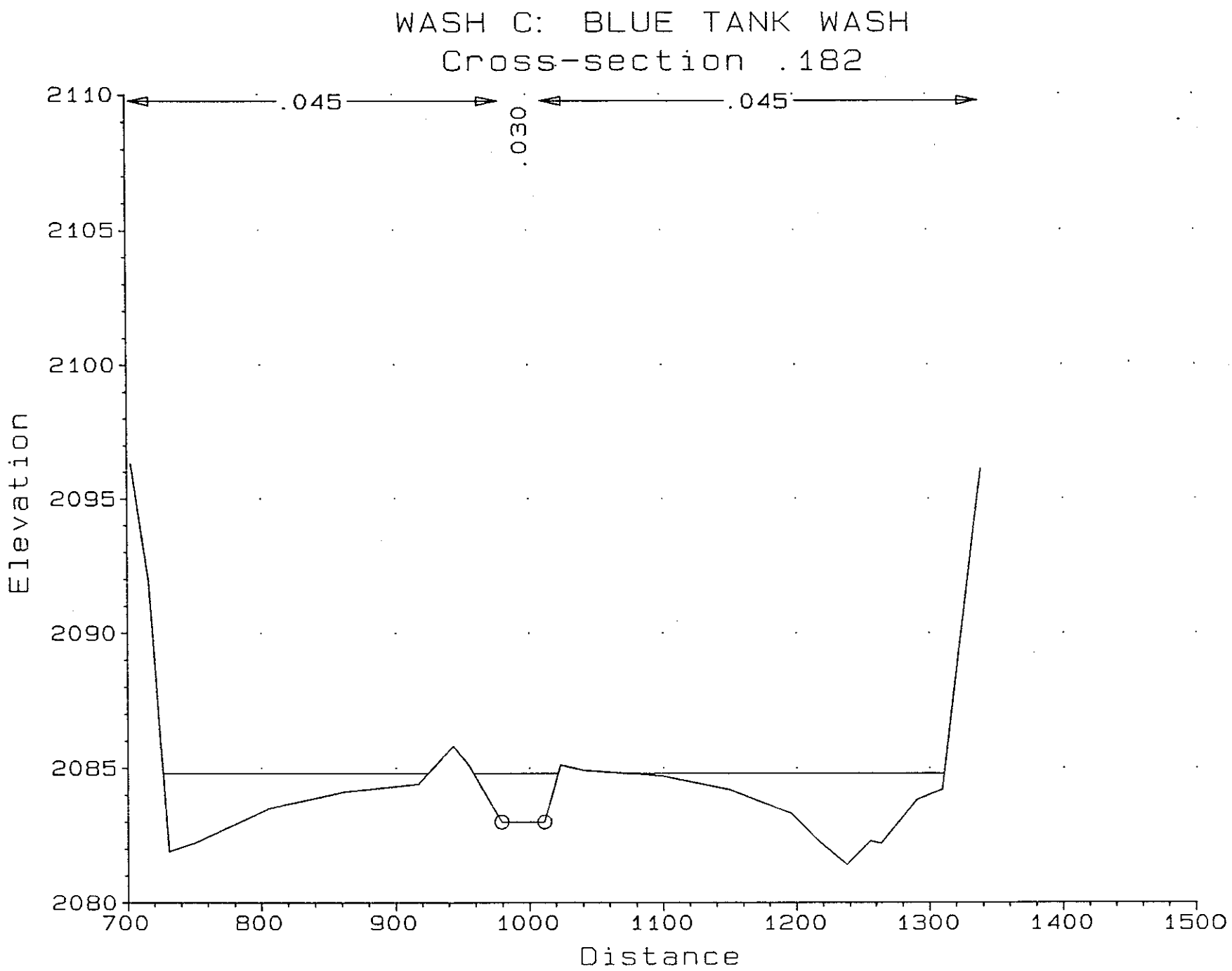
CAUTION SECNO=      .847  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .847  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .847  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .847  PROFILE=  2  MINIMUM SPECIFIC ENERGY

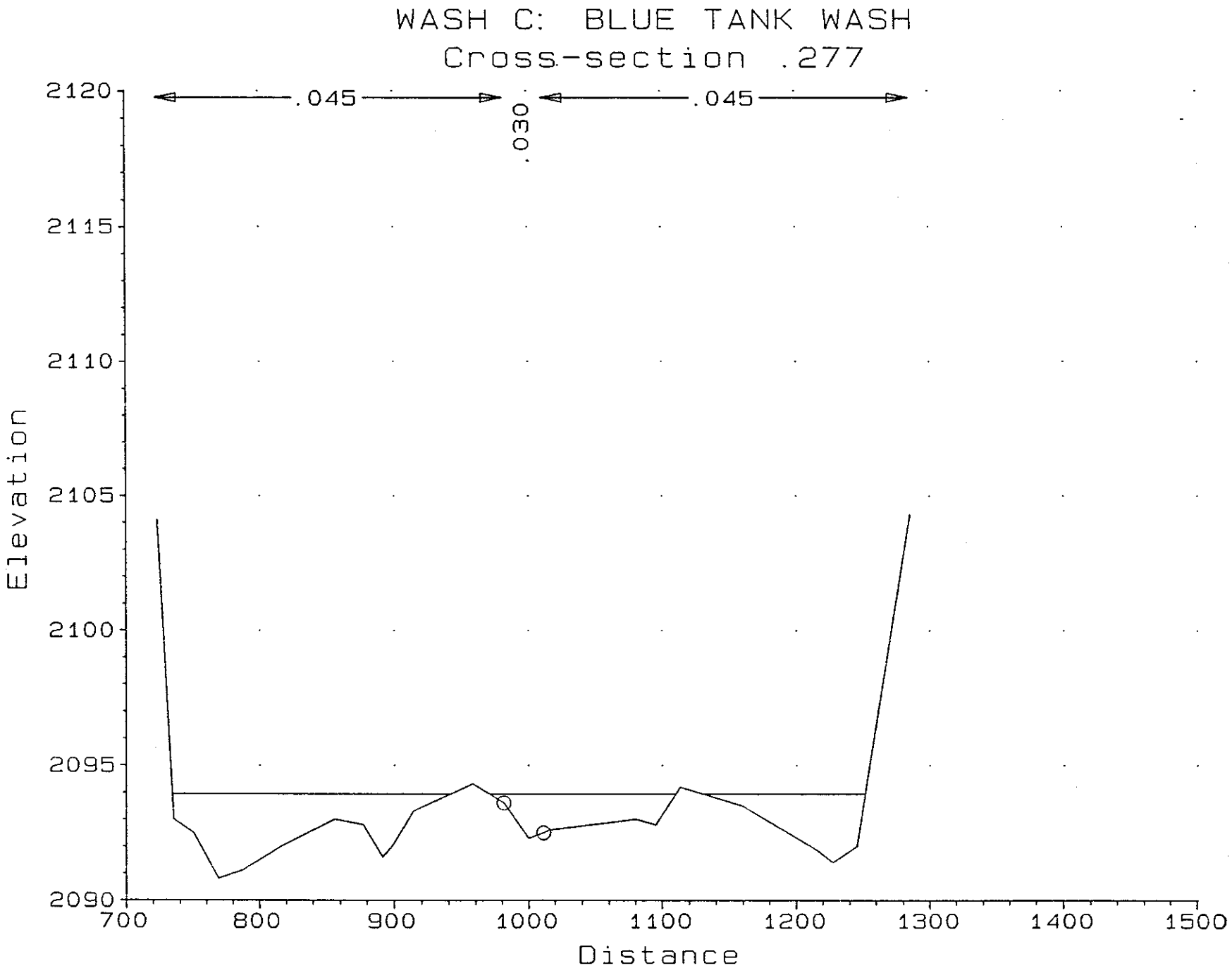
CAUTION SECNO=      .936  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .936  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .936  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .936  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

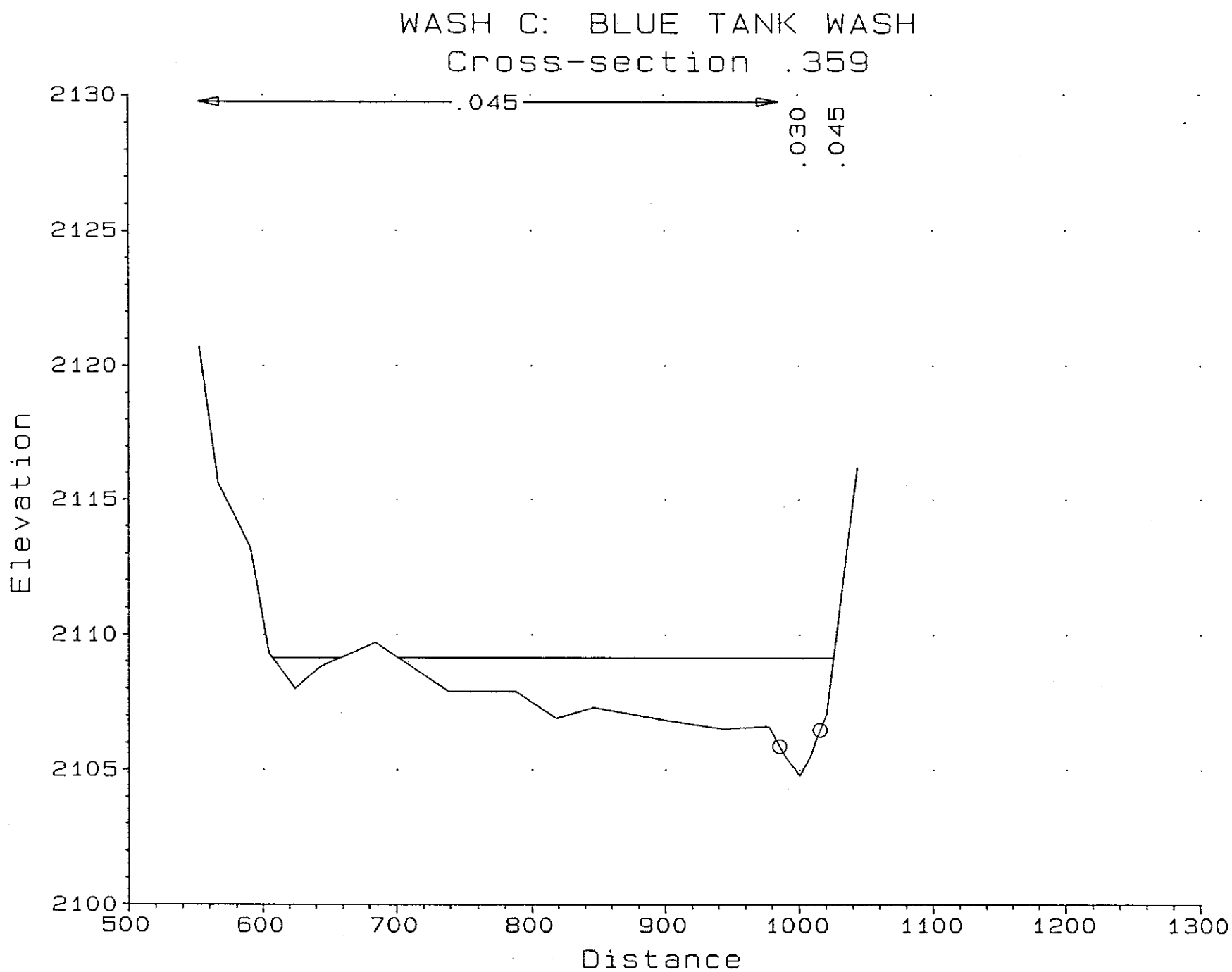
FLOODWAY DATA, WASH C: BLUE TANK WASH
PROFILE NO. 2

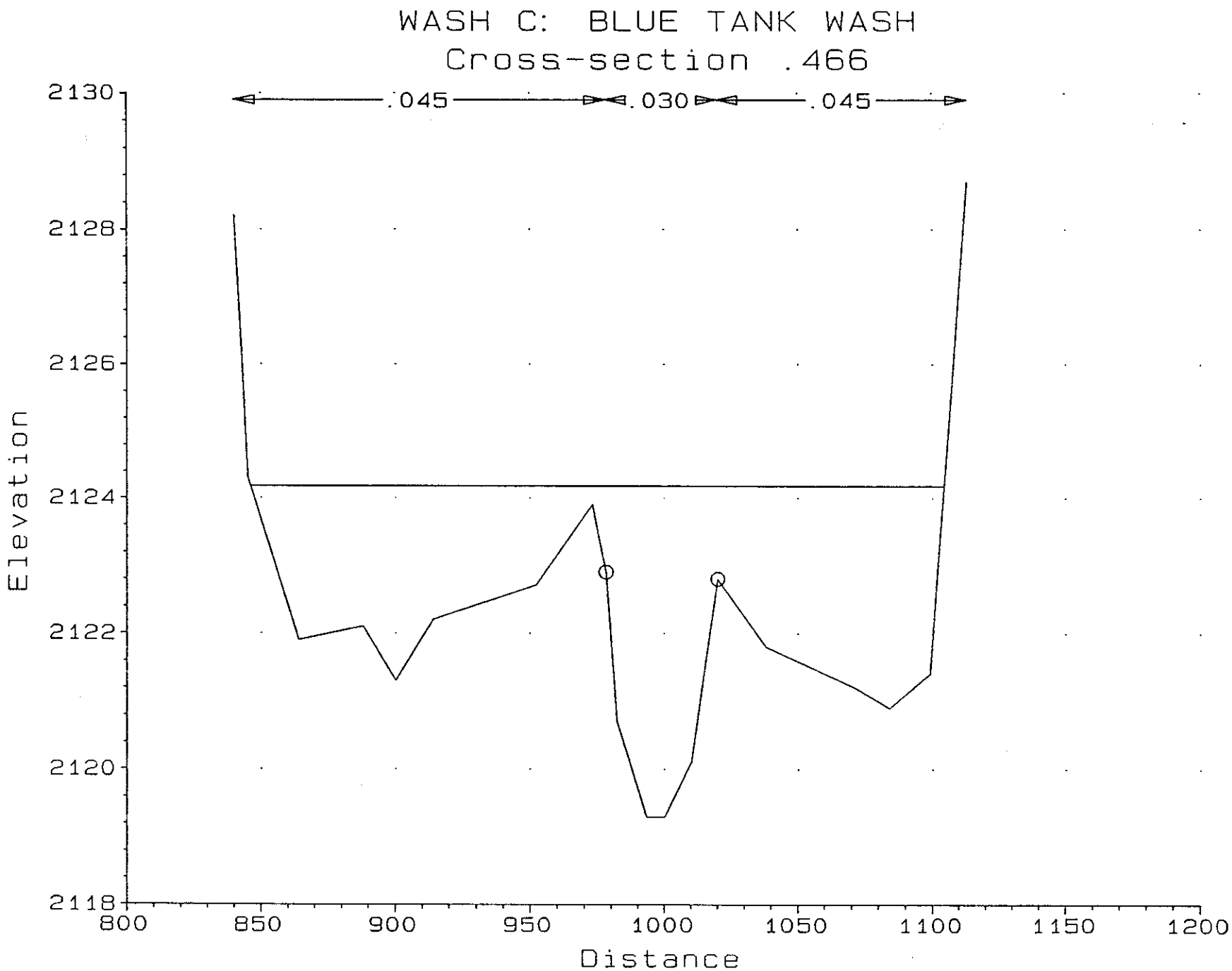
STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.087	423.	590.	6.9	2075.6	2075.6	.0
.182	584.	647.	6.3	2084.8	2084.8	.0
.277	517.	621.	6.6	2093.9	2093.9	.0
.359	419.	682.	6.0	2109.1	2109.1	.0
.466	258.	602.	6.8	2124.2	2124.2	.0
.557	287.	608.	6.7	2136.8	2136.8	.0
.652	228.	586.	6.9	2147.6	2147.6	.0
.746	289.	540.	7.5	2156.6	2156.6	.0
.847	273.	565.	7.2	2168.4	2168.4	.0
.936	483.	624.	6.5	2178.8	2178.8	.0

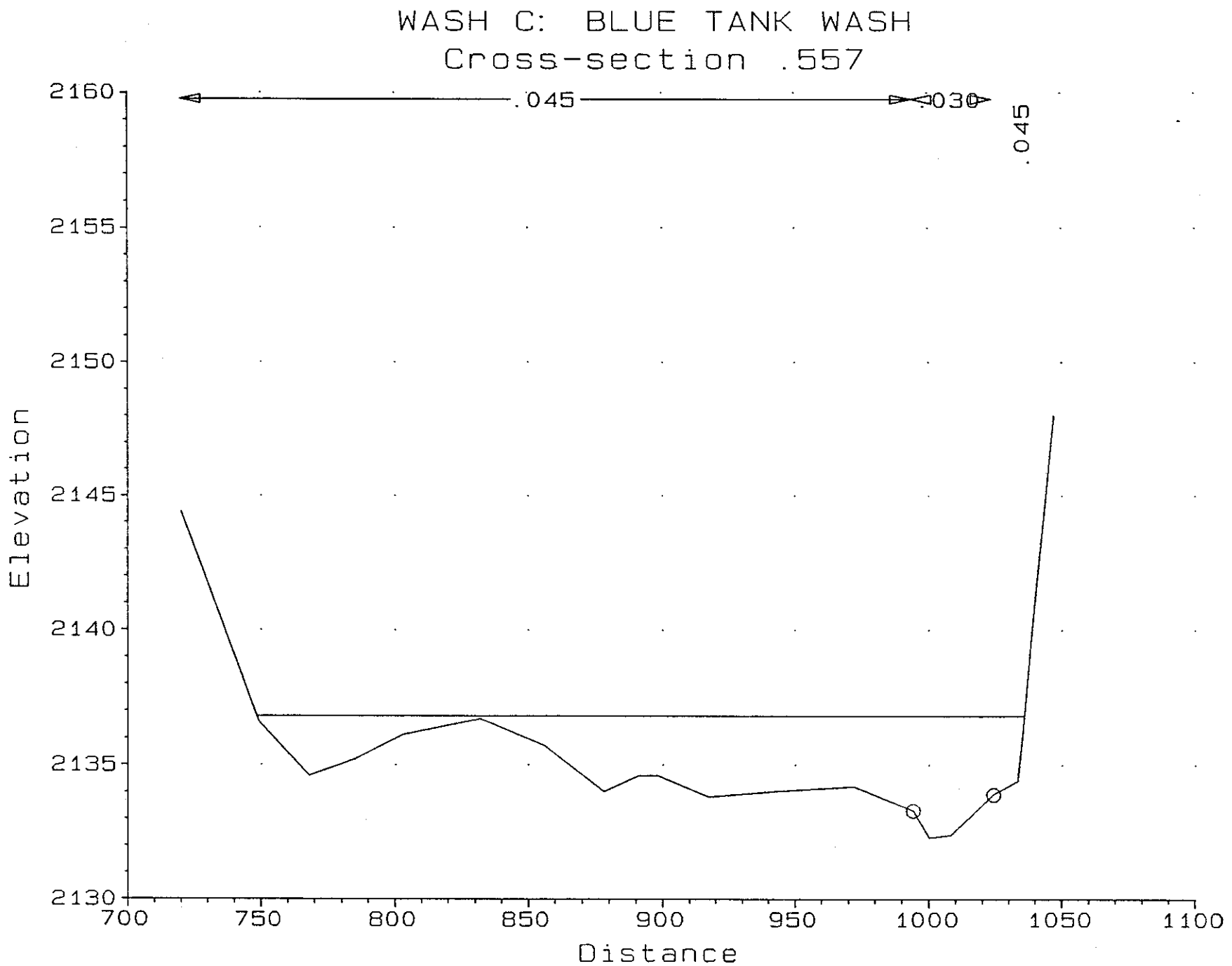

WASH C: BLUE TANK WASH
Cross-section .087
.045
.030
.045
2100
2095
2090
2085
2080
2075
2070
Elevation
500
600
700
800
900
1000
1100
1200
1300
Distance


WASH C: BLUE TANK WASH
Cross-section .182
.045
.030
.045
Elevation
2110
2105
2100
2095
2090
2085
2080
700
800
900
1000
1100
1200
1300
1400
1500
Distance


WASH C: BLUE TANK WASH
Cross-section .277
.045
.030
.045
2120
2115
2110
2105
2100
2095
2090
Elevation
700
800
900
1000
1100
1200
1300
1400
1500
Distance


WASH C: BLUE TANK WASH
Cross-section .359
.045
.030
.045
2130
2125
2120
2115
2110
2105
2100
Elevation
500
600
700
800
900
1000
1100
1200
1300
Distance


WASH C: BLUE TANK WASH
Cross-section .466
.045
.030
.045
2130
2128
2126
2124
2122
2120
2118
Elevation
800
850
900
950
1000
1050
1100
1150
1200
Distance


WASH C: BLUE TANK WASH
Cross-section .557
.045
.030
.045
2160
2155
2150
2145
2140
2135
2130
Elevation
700
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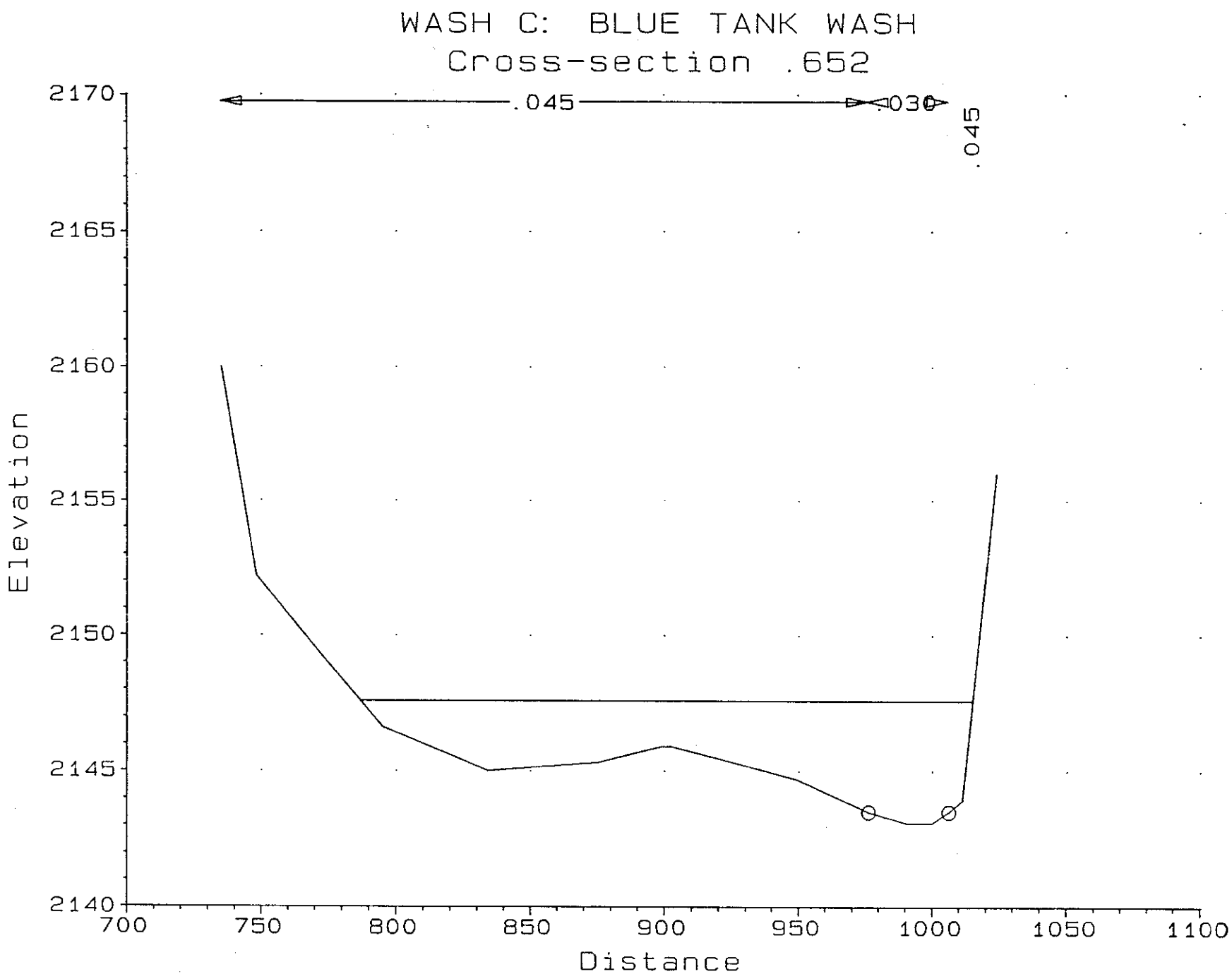
800
850
900
950
1000
1050
1100
Distance


WASH C: BLUE TANK WASH
Cross-section .652
.045
.030
.045
2170
2165
2160
2155
2150
2145
2140
Elevation
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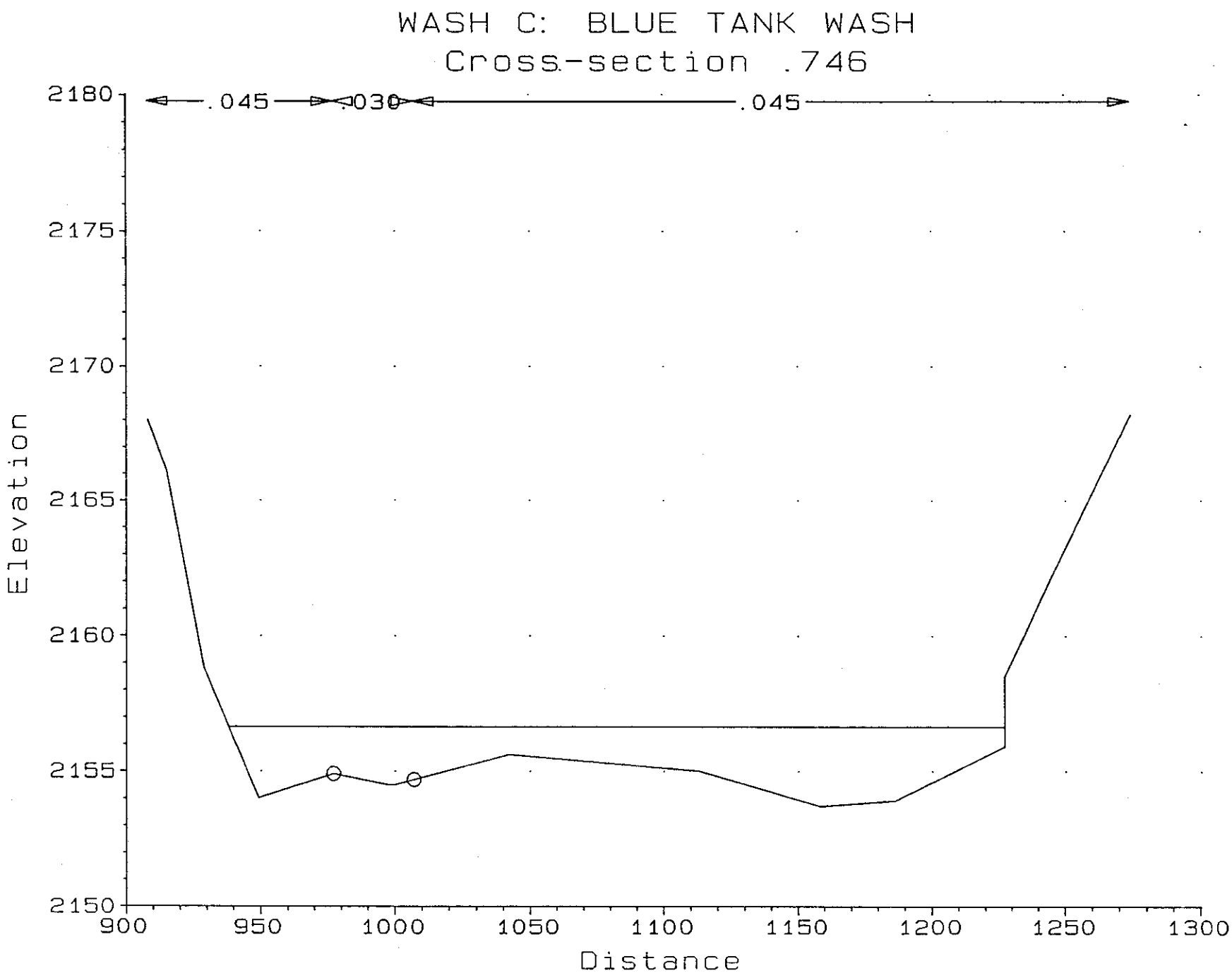
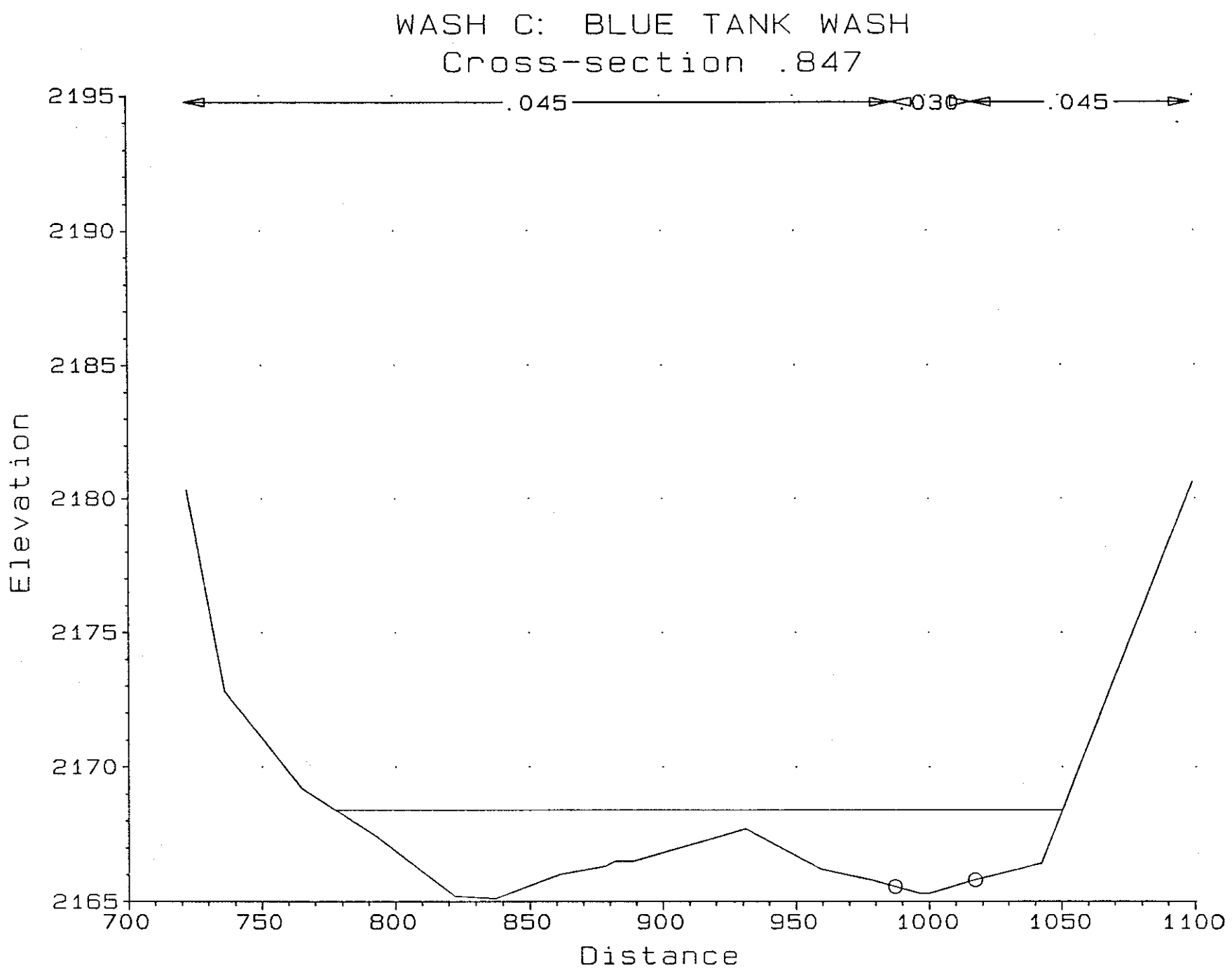
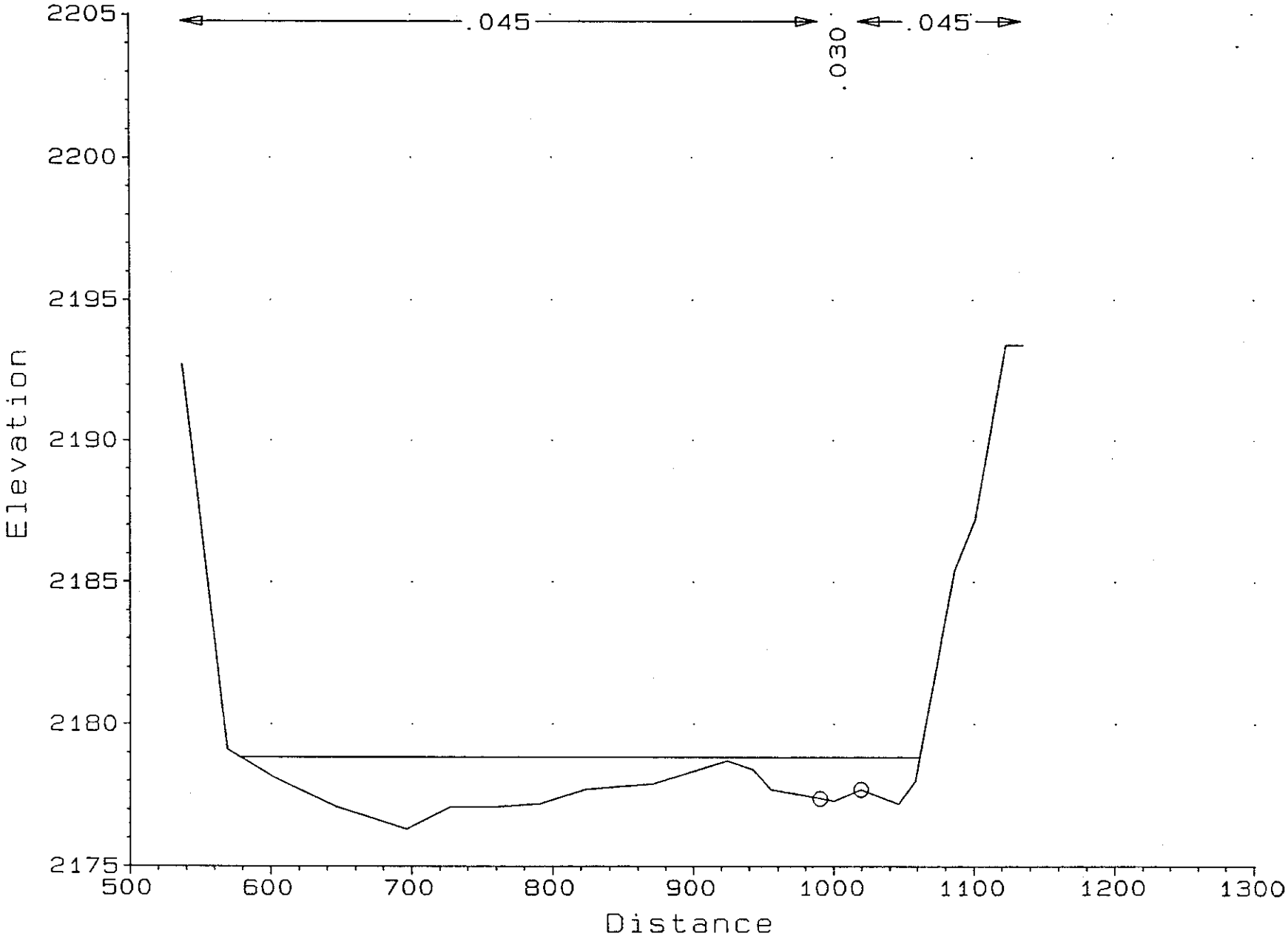
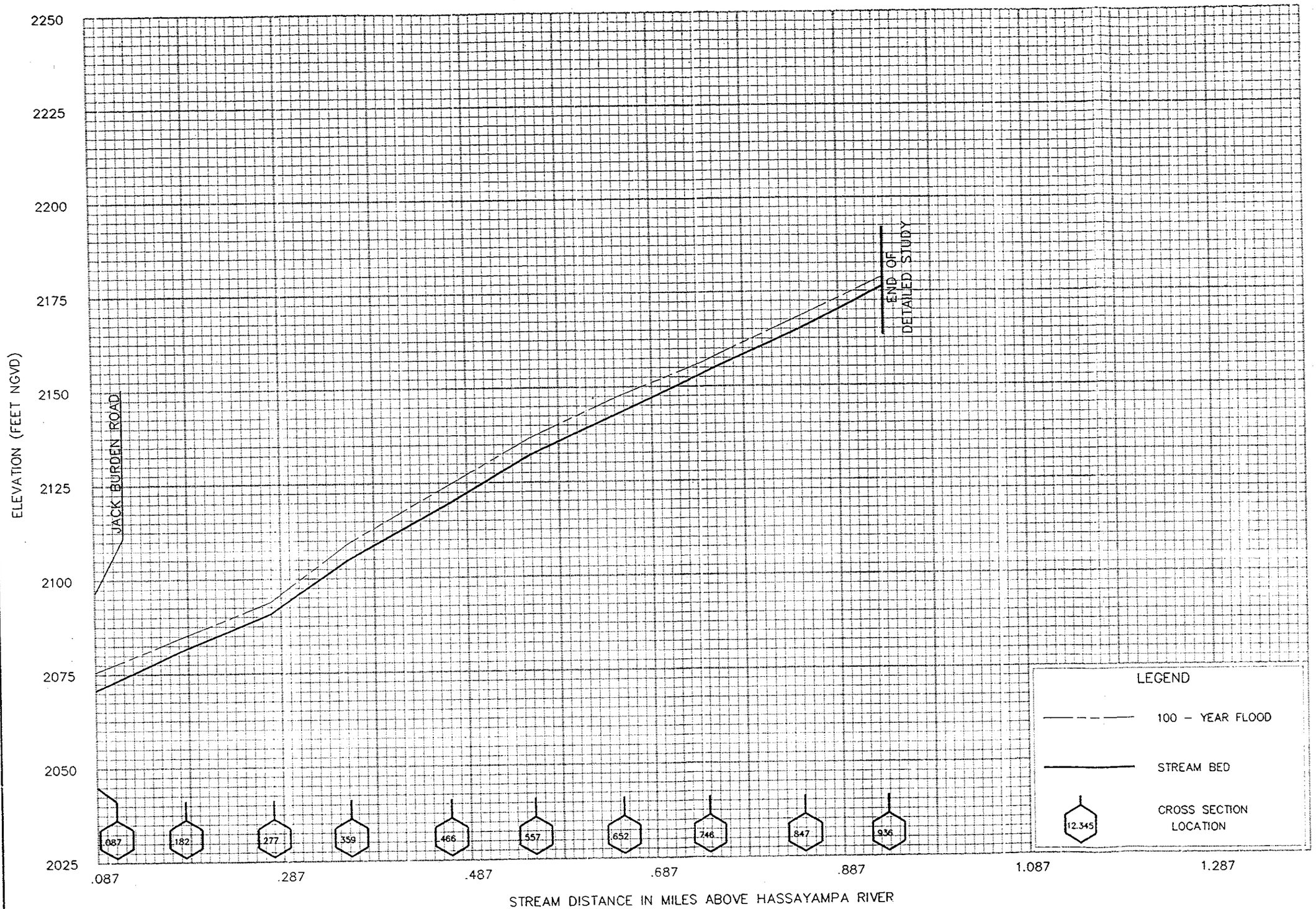
850
900
950
1000
1050
1100
Distance


WASH C: BLUE TANK WASH
Cross-section .746
.045
.030
.045
2180
2175
2170
2165
2160
2155
2150
Elevation
900
950
1000
1050
1100
1150
1200
1250
1300
Distance


WASH C: BLUE TANK WASH
Cross-section .847
.045
.030
.045
2195
2190
2185
2180
2175
2170
2165
Elevation
700
750
800
850
900
950
1000
1050
1100
Distance

WASH C: BLUE TANK WASH
Cross-section .936





FLOOD PROFILES

BLUE TANK WASH (C)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCOPORATED AREAS

02/21/94 11:18:27 ACD-12_

PC FILE:WASHC.DWG

Flood Control District of Maricopa County
Contract FCD 89-79

WICKENBURG AREA DRAINAGE MASTER STUDY

TECHNICAL DOCUMENTATION REPORT

Appendix 6.3: HEC-2 Models & Cross Section Plots for East Area Wash MONARCH WASH (Wash d)

Submitted to the
Federal Emergency Management Agency
on Behalf of the
Flood Control District of Maricopa County

N:\1187\02\ADMIN\118702RP.063

May 1994

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash D: Monarch Wash
(One form for each flooding source)

Project Name /Identifier: Wickenburg ADMS FCD 89-79

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)
☒ Detailed study stream (briefly explain methodology) HEC-1 analysis based on Flood Control District of Maricopa County Methodologies.

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☐ Changed physical conditions of watershed *(explain)* _____

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☐ Evaluation of proposed conditions (CLOMRs only) (explain) _____

☒ Other No existing analysis or analysis being updated to reflect existing conditions.

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
Confluence with Hassayampa River	9.50		8822 cfs

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

No existing analysis or updated analysis to reflect existing conditions.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

NA

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
NA	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

Gaging Station: NA

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data		
Systematic		
Historical		
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers		
Low outliers		
Zero events		
5. Generalized skew		
6. Station skew		
7. Adopted skew		
8. Probability distribution used (justify if log-Pearson III was not used)		
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:
NA

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:		HEC-1
	Version:		Ver. 3.0
	Date:		02 AUG. 88
2.	Source of rainfall depth:		NOAA Atlas 2
3.	Source of rainfall distribution:		SCS TYPE II
4.	Rainfall duration:		24 hours
5.	Areal adjustment to precipitation (%):		NWS HYDRO-40
6.	Hydrograph development method:		S-Graph
7.	Loss rate method:		Green-AMPT
	Source of soils information;		SCS
	Source of land use information		Town of Wickenburg
8.	Channel routing method:		Normal Depth
9.	Reservoir routing:	☐ Yes ☐ No	☐ Yes ☒ No
10.	Baseflow considerations:	☐ Yes ☐ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

11. Snowmelt considerations: ☐ Yes ☐ No ☐ Yes ☒ No

12. Model calibration: ☐ Yes ☐ No ☒ Yes ☐ No

If yes, explain how calibration was performed Computed discharges were compared with DISCHARGE vs DRAINAGE AREA curves and envelopes prepared by the Flood Control District of Maricopa County.

13. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

Stream: NA - No flow records

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

Appendix # 6.3

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County/Town of Wickenburg

Flooding Source: Wash D: Monarch Wash
(One form for each flooding source)

Project Name/Identifier: Wickenburg ADMS - FCD 89-79

1. REACH TO BE REVISED

Downstream limit: Station 0.006

Upstream limit: Station 3.894

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Confluence with Hassayampa River

Upstream limit of study Station 3.894

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☐ Flood control structure. Explain: _____

☐ Other. Explain: _____

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model *(e.g. duplicate effective model to corrected effective model)*. Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation. For areas which do not have detailed flooding, a hydraulic model is not required; however BFE's may not be added to the revised FIRM.

☐ Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

☐ Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

☐ Existing or Pre-Project Conditions Model — Natural ☐ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

☐ Revised or Post-Project Conditions Model — Natural ☐ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

☒ Other: Please attach a sheet describing all other models or calculations submitted. — Natural ☒ Floodway ☒

New Model (Proposed Effective Model)

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

1. Discharges:

	Upstream Limit	Downstream Limit
10-year	812 cfs	2068 cfs
50-year	1369 cfs	3280 cfs
100-year	1590 cfs	3832 cfs
500-year	—	—

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevations determined by the slope-area method.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.030 ~ 0.045

Overbanks ..... 0.050 ~ 0.070

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Data points for cross-sections are based on photogrammetric models for the topographic maps.

5. Explain how reach lengths for channel and overbanks were determined:

All reach lengths were measured from floodplain work maps.

5. RESULTS (*from model used to revise 100-year water surface elevations*)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☐ No

If yes, special problems report attached.

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 0.0155 ft/ft

Specify location 1.615

3. What is the distance between the cross-sections in 2 above? 502 ft

Specify location 1.710

4. What is the maximum distance between cross-sections? 628

Specify location 3.812

5. Floodway determination

a. What is the maximum surcharge allowed by the community or State? 1.0 foot

b. What is the maximum surcharge for the revised conditions? 0 foot

Specify location N/A

c. What is the maximum velocity? 12.92 fps

Specify location 1.229

Explain:

d. Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen. If it is not widened, please explain and indicate the maximum negative surcharge.

Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases.

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY
WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Unincorporated Maricopa County / Town of Wickenburg	Wash D: Monarch Wash	Wickenburg ADMS-FCD 89-79

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

New Model- See following Floodway Data Table

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet ___ of ___

FLOODWAY DATA, WASH D : MONARCH WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
46.340	345.	1131.	3.4	1903.1	1903.1	.0
.006	260.	495.	7.7	1906.3	1906.3	.0
.034	103.	361.	10.6	1910.1	1910.1	.0
.042	114.	485.	7.9	1911.2	1911.2	.0
.045	115.	374.	10.2	1911.0	1911.0	.0
.051	104.	369.	10.4	1912.7	1912.7	.0
.059	110.	508.	7.5	1914.1	1914.1	.0
.089	447.	865.	4.4	1915.3	1915.3	.0
.189	260.	575.	6.7	1924.7	1924.7	.0
.284	285.	602.	6.4	1930.7	1930.7	.0
.347	243.	644.	5.9	1939.1	1939.1	.0
.421	227.	561.	6.8	1947.3	1947.3	.0
.473	196.	516.	7.4	1953.1	1953.1	.0
.546	216.	600.	6.4	1960.4	1960.4	.0
.604	314.	611.	6.2	1968.0	1968.0	.0
.712	417.	738.	5.1	1980.2	1980.2	.0
.790	131.	401.	9.4	1988.5	1988.5	.0
.843	108.	410.	9.2	1993.6	1993.6	.0
.939	92.	363.	10.4	2002.8	2002.8	.0
1.032	129.	453.	8.3	2014.1	2014.1	.0
1.127	142.	483.	8.3	2023.1	2023.1	.0
1.229	151.	547.	7.3	2034.6	2034.6	.0
1.287	143.	467.	8.6	2038.4	2038.4	.0
1.346	268.	726.	5.5	2045.9	2045.9	.0
1.423	274.	620.	6.4	2054.1	2054.1	.0
1.513	395.	785.	5.1	2069.6	2069.6	.0
1.587	395.	705.	5.7	2076.7	2076.7	.0
1.615	372.	758.	5.6	2083.7	2083.7	.0
1.710	361.	588.	7.2	2093.3	2093.3	.0
1.803	418.	708.	6.0	2104.4	2104.4	.0
1.879	307.	674.	6.3	2116.1	2116.1	.0
1.931	173.	547.	7.8	2122.1	2122.1	.0
2.037	319.	543.	7.8	2131.8	2131.8	.0
2.122	184.	544.	7.8	2142.0	2142.0	.0
2.185	221.	590.	7.2	2149.8	2149.8	.0
2.298	133.	471.	9.0	2162.5	2162.5	.0
2.380	162.	330.	5.8	2171.8	2171.8	.0
2.458	163.	312.	6.1	2184.0	2184.0	.0
2.511	130.	282.	6.8	2190.2	2190.2	.0
2.597	221.	361.	5.3	2198.9	2198.9	.0
2.671	196.	344.	5.6	2209.4	2209.4	.0
2.768	160.	322.	5.9	2221.6	2221.6	.0

FLOODWAY DATA, WASH D : MONARCH WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
2.821	222.	326.	5.6	2228.2	2228.2	.0
2.917	256.	386.	4.7	2240.4	2240.4	.0
2.996	165.	314.	5.8	2251.5	2251.5	.0
3.082	89.	240.	7.5	2262.2	2262.2	.0
3.159	96.	239.	7.6	2271.4	2271.4	.0
3.259	90.	216.	7.9	2285.3	2285.3	.0
3.353	106.	247.	6.9	2295.6	2295.6	.0
3.429	314.	426.	4.0	2307.4	2307.4	.0
3.504	57.	182.	9.3	2318.0	2318.0	.0
3.598	125.	233.	6.8	2330.4	2330.4	.0
3.633	124.	244.	6.5	2335.0	2335.0	.0
3.693	233.	294.	5.4	2343.2	2343.2	.0
3.812	69.	177.	9.0	2358.8	2358.8	.0
3.894	82.	212.	7.5	2367.9	2367.9	.0

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash D: Monarch Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: East Bound: US Highway 60-89
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.034 to Station 0.042
3. This revision reflects *(check one of the following)*:

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

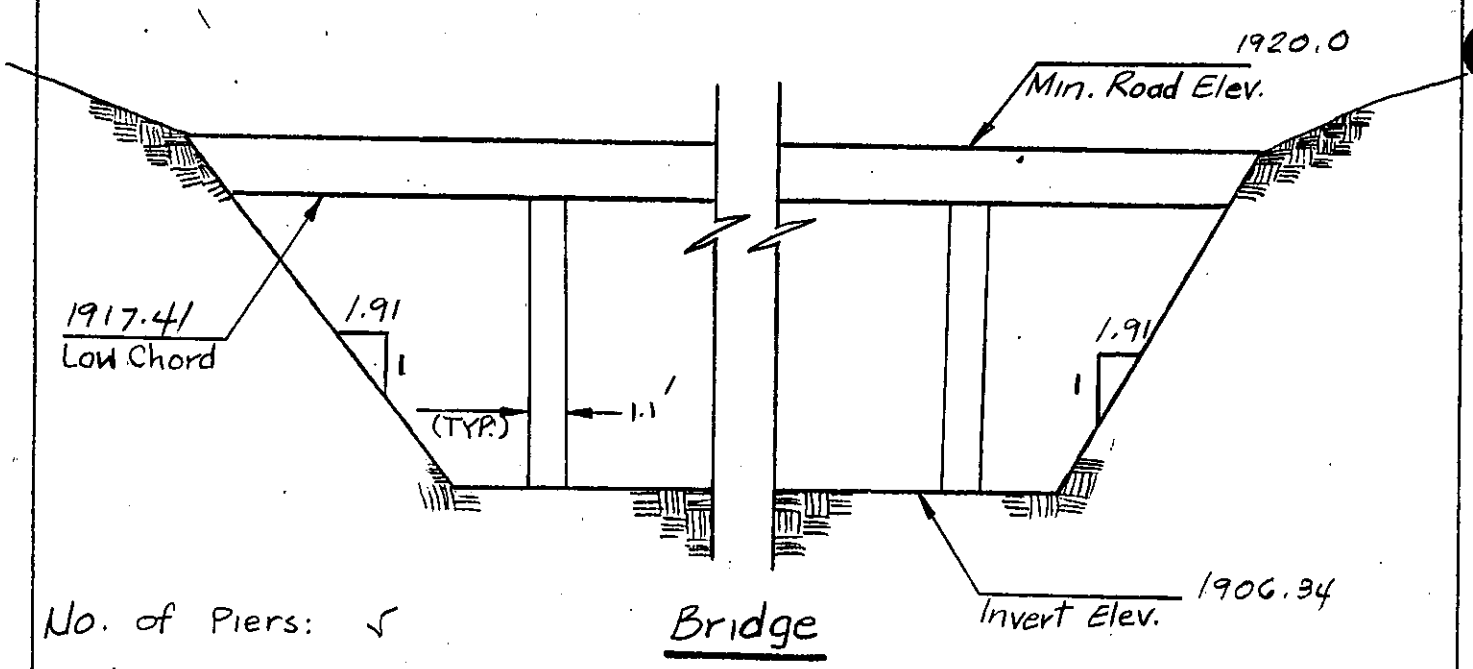
1. Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) six span bridge (i.e., 4 @ 23.6' and 2 @ 20.8') with five 1.1' diameter circular piers.
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) trapezoidal entrance with 1.91:1 side slope and bottom width of 99.9'.
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Bridge Routine

If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A

* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

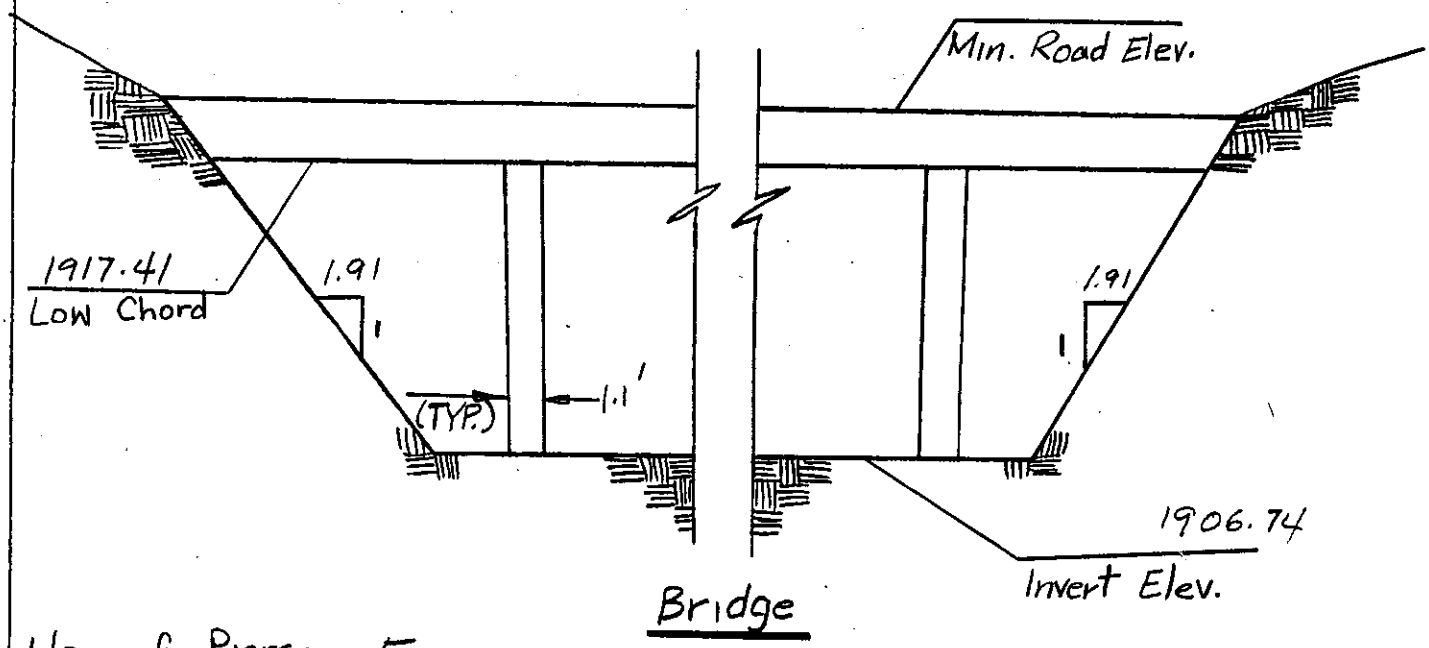


No. of Piers: 5

Total Width of Piers: 5.5

See Cross Section # 0.034

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

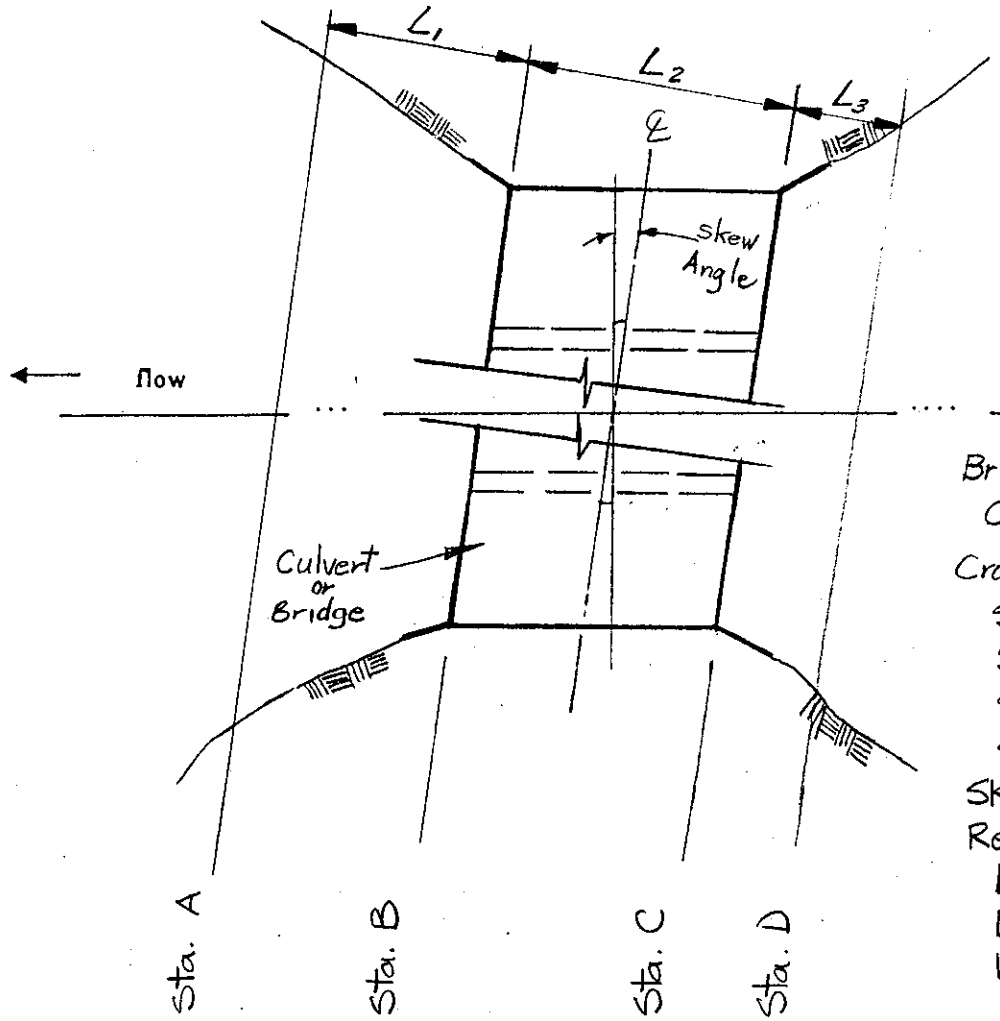


No. of Piers: 5

Total Width of Piers: 5.5

See Cross Section # 0.042

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 42.2

Cross Section Stations

Sta. A = 0.006

Sta. B = 0.034

Sta. C = 0.042

Sta. D = 0.045

Skew Angle: 0

Reach Lengths:

L1 = 148 ft.

L2 = 42.2 ft.

L3 = 15.8 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	42.2 ft
Calculated culvert/bridge area (ft^2) by the hydraulic model, if applicable	1225 ft^2
Total culvert/bridge area (ft^2)	1275.3 ft^2

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (0.042)	1920.0	1921.9
Downstream face (0.034)	1919.2	1919.1

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1920.0	1921.9
Downstream face	1920.0	1921.9

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1911.21	1912.18
Downstream face	1910.12	1911.87

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	3832	–	–	3832.0

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths

	Floodplain	Floodway
Upstream face	*	145.2
Downstream face	*	132.2

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	145.2	*
Downstream face	132.2	*

* Hassayampa River Floodplain

Loss Coefficients

Entrance loss coefficient	0.45
Manning's "n" value assigned to the structure(s)	0.030
Friction loss coefficient through structure (s)	0.062
Other loss coefficients (e.g., bend manhole, etc.) (for intermediate piers)	0.05
Total loss coefficient	1.56
Weir coefficient	2.6
Pier coefficient	1.05
Contraction loss coefficient	0.30
Expansion loss coefficient	0.50

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (*including scour and deposition*) can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

   B Based on the conditions (*such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions*), is there a potential for debris and sediment transport (*including scour and deposition*) to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment (*bed material*) load?
_____cfs (*attach gradation curve*)

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert? _____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of encroachment is used where the encroachment stations (i.e., STENCL, STENCR) are defined in the ET record and the effective elevations (i.e., ELLEA, ELREA) are defined in the XS record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY BRIDGE/CULVERT FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1994	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Unincorporated Maricopa County / Town of Wickenburg

Flooding Source: Wash D : Monarch Wash

Project Name/Identifier: Wickenburg ADMS FCD 89-79

1. IDENTIFIER

1. Name of roadway, railroad, etc.: West Bound : U.S. Highway 60-89

2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Station 0.051 to Station 0.059

3. This revision reflects *(check one of the following)*:

- [x] New bridge/culvert not modeled in the FIS
- [ ] Modified bridge/culvert previously modeled in the FIS
- [ ] New analysis of bridge/culvert previously modeled in the FIS

(Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) six span bridge (i.e., 4 @ 20.8' and 2 @ 10.8') with five 1.2' diameter piers.

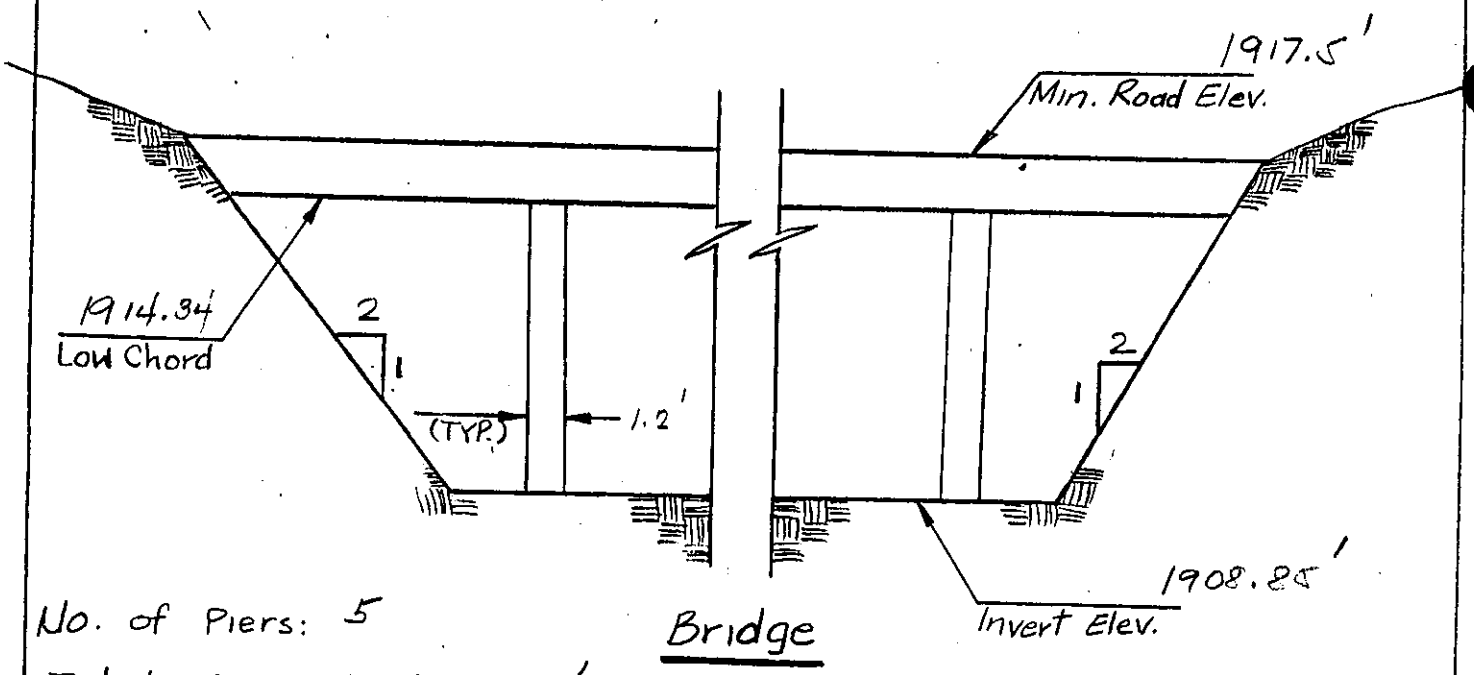
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) trapezoidal entrance with 2:1 side slope and bottom width of 89.2 ft.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Bridge Routine

If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
* One form per new/revised bridge/culvert

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.

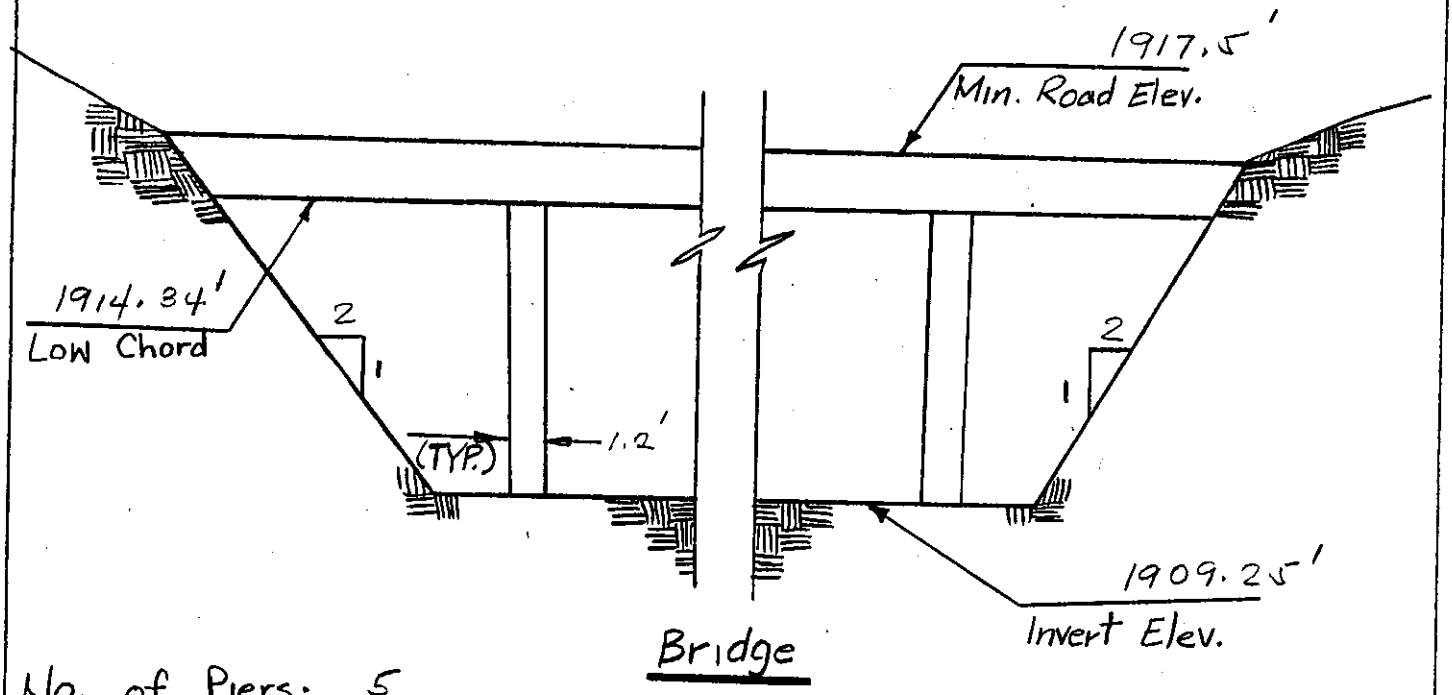


No. of Piers: 5

Total Width of Piers: 6'

See Cross Section # 0.051

Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.

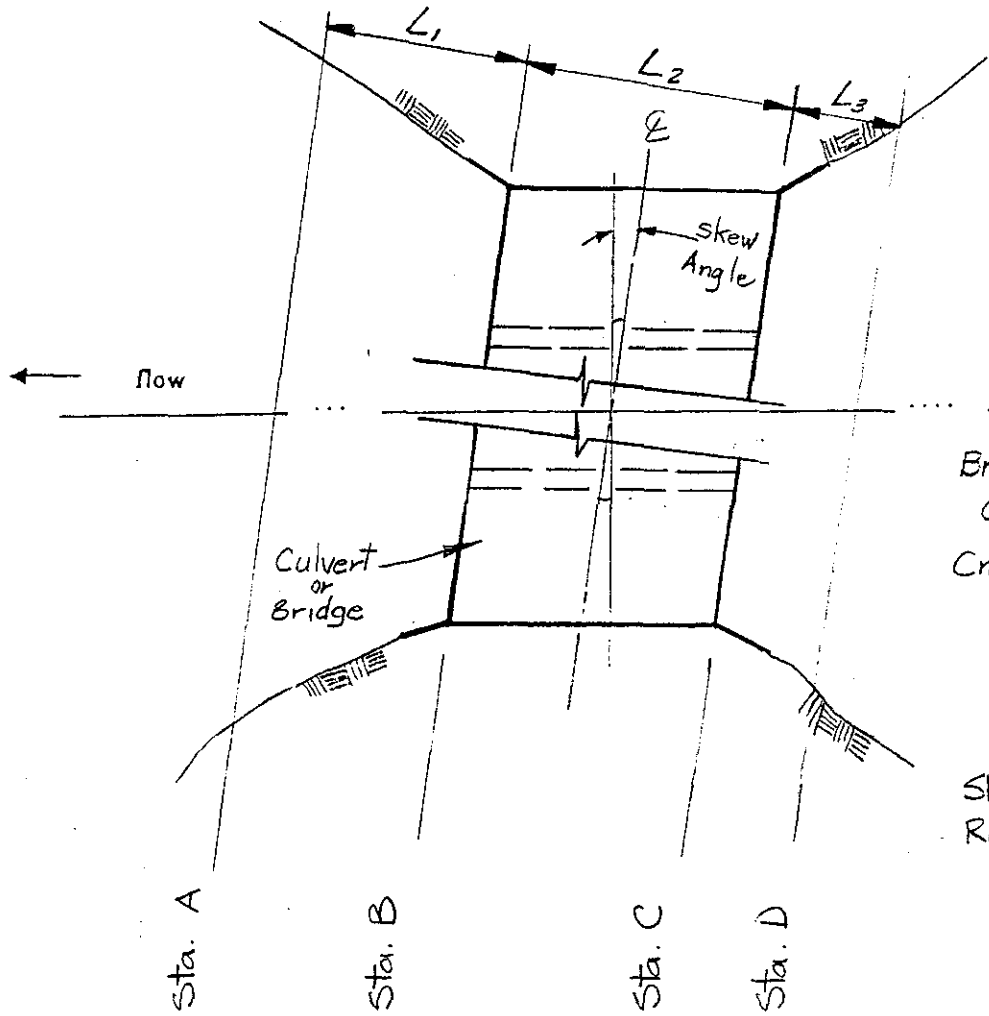


No. of Piers: 5

Total Width of Piers: 6'

See Cross Section # 0.059

Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Bridge Width / Culvert Length: 42.2'

Cross Section Stations

Sta. A = 0.045

Sta. B = 0.051

Sta. C = 0.059

Sta. D = 0.089

Skew Angle: 0

Reach Lengths:

L_1 = 31.7 ft.

L_2 = 42.2 ft.

L_3 = 158 ft.

Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	42.2 ft
Calculated culvert/bridge area (ft^2) by the hydraulic model, if applicable	475.0 ft^2
Total culvert/bridge area (ft^2)	475.0 ft^2

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face (STA 0.059)	1918.4	1917.5
Downstream face (STA 0.051)	1918.0	1912.0

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1918.4	1917.5
Downstream face	1918.4	1917.5

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1914.12	1915.02
Downstream face	1912.66	1914.52

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	3832 cfs	—	—	38[illegible] cfs

The maximum depth of flow over the roadway/railroad (ft.) ..... 0'

Weir length (ft.) ..... 0'

(*) Hassayampa River Floodplain

Top Widths

	Floodplain	Floodway
Upstream face	(*)	110.2'
Downstream face	(*)	125.6'

Top Widths

	Effective Flow	Effective and Ineffective Flow
Upstream face	110.2'	(*)
Downstream face	125.6'	(*)

Loss Coefficients

Entrance loss coefficient	0.45
Manning's "n" value assigned to the structure(s)	0.030
Friction loss coefficient through structure (s)	0.062
Other loss coefficients (e.g., bend manhole, etc.) for intermediate piers	0.05
Total loss coefficient	1.56
Weir coefficient	2.6
Pier coefficient	1.05
Contraction loss coefficient	0.30
Expansion loss coefficient	0.50

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☐ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☐ No

.. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition NA - Sediment transport not considered in analysis.

B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert? _____

5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) Method I of bridge encroachment is used where the encroachment stations (i.e., STENCL, STENCR) are defined in the ET record and the effective elevations (i.e., ELLEA, ELREA) are defined in the X3 record for effective flow calculations.

Comments *(explain any unusual situations)*:

Attach analysis.

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    14APR92    TIME    11:02:19  *
*********************************************
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED 14APR92 11:02:19

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T2      BLACK & VEATCH PN 17676:  COE & VAN LOO JN 1197-02
T3      WASH D : MONARCH WASH            (WD4A.O)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0     .0027       0        0        0    1925.12     0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1        0        0        0       -1        0        0        15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150       200

        2      3832      3832
NC     .07       .07      .035       .2        .5
          HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
          HASSAYAMPA RIVER FLOODPLAIN EXTENDS UP WASH D TO SECTION 0.189.
X1   46.34         9    1100.0    1200.0
GR  1940.0    1065.0    1920.0    1100.0    1900.0    1110.0    1898.0    1115.0    1900.0    1200.0
GR  1900.0    1430.0    1904.0    1460.0    1920.0    1590.0    1944.0    1640.0

NC    .070      .070      .045       .1        .3
ET              7.1       9.1                                     800      1060       800      1060
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
X1   0.006        47       802      1024       280       600       280
GR  1920.2       756.    1915.6      759.    1908.4      760.    1907.6      772.    1905.1      789.
GR  1903.6       802.    1903.1      829.    1903.2      849.    1903.6      870.    1904.1      886.
GR  1904.1       890.    1904.1      910.    1904.3      931.    1904.6      956.    1905.1      972.
GR  1905.4       990.    1905.5     1000.    1905.6     1006.    1905.5     1010.    1905.6     1024.
GR  1905.5      1056.    1905.0     1080.    1904.5     1098.    1904.6     1106.    1904.6     1110.
GR  1904.6      1111.    1904.6     1112.    1904.6     1113.    1904.6     1114.    1904.6     1115.
GR  1904.6      1116.    1904.6     1122.    1905.3     1132.    1905.3     1149.    1905.7     1172.
GR  1905.9      1195.    1906.2     1210.    1906.8     1218.    1907.3     1224.    1907.9     1226.
GR  1908.4      1230.    1908.9     1235.    1910.3     1237.    1912.5     1247.    1913.6     1258.
GR  1915.7      1280.    1920.1     1290.

    .070      .070      .030       .3        .5
ET              7.1       9.1                                    911.9     1044.1     911.9     1044.1
```

```
     0.034       35      912     1044      160      140      148
GR  1917.9     602.   1918.6     635.   1918.5     681.   1917.4     726.   1917.1     766.
GR  1918.5     806.   1919.1     826.   1919.2     856.   1917.5     893.   1917.2     902.
GR  1917.0     912.   1906.3     935.   1906.3     960.   1906.3     966.   1906.3     972.
GR  1906.3     981.   1906.3     987.   1906.3     990.   1906.3     996.   1906.3    1000.
GR  1906.3    1006.   1906.3    1014.   1906.3    1020.   1906.3    1021.   1916.3    1044.
GR  1919.1    1054.   1920.3    1099.   1919.9    1156.   1921.1    1205.   1921.0    1213.
GR  1920.2    1239.   1919.7    1275.   1921.0    1318.   1921.0    1336.   1921.0    1345.

ET                     9.11                                                  919.9    1065.1
SB     1.05     1.56      2.6       0      99.9       5.5   1275.3     1.91  1906.74   1906.34
        EAST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
        ELEVATION = 1917.41, FLOWLINE ELEVATION = 1906.74, 5 PIERS, BOTTOM
        WIDTH = 99.9 FEET.
X1    0.042       49      920     1065     42.2     42.2     42.2
X2                         1  1917.41  1923.28
X3       10                                                 1920.0   1922.4
BT       -3      720   1920.0             1000   1920.6      1221   1921.9
GR  1918.7     606.   1918.6     624.   1919.0     637.   1919.3     682.   1920.0     720.
GR  1920.1     761.   1919.3     798.   1920.1     838.   1920.3     868.   1919.7     890.
GR  1919.6     908.   1919.1     920.   1906.7     941.   1906.7     966.   1906.7     976.
GR  1906.7     980.   1906.7     981.   1906.7     988.   1906.7     989.   1906.7    1000.
GR  1906.7    1002.   1906.7    1007.   1906.7    1010.   1906.7    1015.   1906.7    1020.
GR  1906.7    1028.   1906.7    1030.   1906.7    1035.   1906.7    1037.   1906.7    1042.
GR  1913.2    1050.   1918.9    1065.   1919.9    1078.   1919.9    1108.   1920.1    1141.
    1920.4    1172.   1921.3    1201.   1921.9    1221.   1921.7    1242.   1921.3    1263.
    1921.0    1280.   1921.1    1293.   1921.2    1313.   1921.0    1346.   1921.0    1377.
GR  1921.0    1394.   1921.0    1418.   1922.1    1450.   1921.8    1476.

ET              7.1      9.1                                929.9   1054.1    929.9   1054.1
X1    0.045      60      930     1054     15.8     15.8     15.8
GR  1918.3     613.   1918.6     662.   1918.9     691.   1918.6     735.   1918.4     762.
GR  1918.3     798.   1918.3     825.   1918.7     857.   1918.3     873.   1918.2     896.
GR  1918.0     915.   1917.8     924.   1916.1     928.   1914.4     930.   1910.1     937.
GR  1908.8     944.   1908.2     945.   1908.2     954.   1908.0     965.   1907.8     975.
GR  1907.5     977.   1907.5     978.   1907.4     981.   1907.4     986.   1907.4     998.
GR  1907.3    1000.   1907.3    1003.   1907.3    1008.   1907.3    1013.   1907.3    1023.
GR  1907.3    1026.   1907.1    1034.   1907.1    1037.   1907.1    1041.   1907.6    1047.
GR  1908.6    1049.   1914.8    1054.   1915.0    1059.   1915.6    1071.   1914.6    1104.
GR  1914.5    1122.   1914.6    1139.   1914.8    1165.   1916.0    1177.   1915.4    1229.
GR  1914.9    1259.   1914.4    1294.   1914.6    1322.   1914.3    1350.   1914.0    1361.
GR  1914.0    1378.   1914.2    1384.   1915.1    1401.   1915.3    1422.   1915.3    1436.
GR  1915.3    1449.   1916.0    1462.   1915.9    1479.   1915.7    1481.   1916.0    1497.

ET              7.1      9.1                                921.7   1047.3    921.7   1047.3
X1     .051      4    940.0   1029.0     31.7     31.7     31.7
GR  1918.0    921.7  1908.85     940  1908.85     1029   1918.0   1047.3

ET                     9.11                                                  936.9    1047.1
SB     1.05     1.56      2.6       0      89.2        6    475.3        2  1909.25   1908.85
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        WEST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
        ELEVATION = 1914.34, FLOWLINE ELEVATION = 1909.25, 5 PIERS, BOTTOM
        WIDTH = 89.2 FEET.
X1    0.059      49     937    1047    42.2    42.2    42.2
X2                        1 1914.34  1919.4
X3       10                                            1918.2  1916.6
BT       -5     929  1918.4          1076  1918.2        1117  1917.8
BT            1216  1917.5          1263  1917.8
GR  1918.7     612. 1919.3     643. 1919.4     658. 1919.4     684. 1919.5     711.
GR  1919.5     740. 1919.5     767. 1919.5     794. 1920.0     825. 1920.0     851.
GR  1919.6     882. 1919.6     893. 1919.5     910. 1919.2     918. 1918.4     929.
GR  1909.3     937. 1909.3     954. 1909.2     982. 1909.6     998. 1909.6    1000.
GR  1909.6    1017. 1909.9    1033. 1910.3    1047. 1911.4    1054. 1913.7    1060.
GR  1916.2    1063. 1917.1    1065. 1916.9    1068. 1916.8    1086. 1917.1    1138.
GR  1917.8    1155. 1917.1    1189. 1917.1    1210. 1917.1    1236. 1917.8    1263.
GR  1917.8    1290. 1917.6    1326. 1917.8    1350. 1917.9    1377. 1917.9    1403.
GR  1918.2    1417. 1918.4    1440. 1918.5    1454. 1918.5    1456. 1919.0    1470.
GR  1919.5    1496. 1919.6    1512. 1919.5    1520. 1918.9    1536.

ET            7.1    9.1                                870    1320     870    1320
        ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
        SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
        WSEL AND THE TOPOGRAPHY.
X1    0.089      80     967    1009     120     190     158
GR  1924.0     671. 1921.8     675. 1918.6     681. 1916.4     686. 1915.7     693.
    1915.3     699. 1915.8     708. 1915.8     718. 1916.1     740. 1916.3     763.
    1916.7     797. 1916.4     823. 1916.0     846. 1915.5     862. 1915.3     871.
GR  1915.2     892. 1915.1     908. 1914.2     925. 1914.6     932. 1915.0     942.
GR  1914.6     949. 1914.5     953. 1913.9     959. 1913.1     963. 1911.1     967.
GR  1910.6     968. 1910.1     972. 1910.4     976. 1910.7     977. 1911.1     980.
GR  1911.1     982. 1911.1     984. 1911.2     987. 1911.2     991. 1911.2     995.
GR  1911.2     997. 1911.2    1000. 1911.2    1001. 1911.2    1003. 1911.2    1006.
GR  1911.2    1009. 1913.9    1012. 1914.6    1016. 1913.8    1040. 1913.5    1067.
GR  1913.5    1099. 1913.5    1114. 1913.6    1142. 1913.5    1162. 1913.4    1181.
GR  1912.7    1207. 1912.9    1223. 1912.8    1224. 1912.8    1225. 1912.9    1230.
GR  1912.8    1248. 1912.7    1271. 1912.6    1287. 1912.6    1294. 1912.8    1304.
GR  1913.2    1314. 1913.5    1325. 1913.6    1330. 1913.6    1343. 1913.5    1351.
GR  1913.5    1355. 1913.5    1359. 1913.5    1370. 1914.3    1380. 1915.3    1391.
GR  1915.4    1405. 1916.0    1413. 1916.2    1421. 1919.2    1423. 1920.7    1425.
GR  1922.4    1428. 1924.6    1429. 1925.2    1433. 1925.3    1436. 1925.4    1438.

NC    .070    .070    .030      .1      .3
ET                    9.1                                            964.    1225.
X1    0.189      39     967    1044     520     580     528
GR  1932.3     960. 1932.3     962. 1918.2     967. 1918.4     976. 1918.5     980.
GR  1919.0     988. 1919.3     991. 1919.8     993. 1920.0     996. 1920.2    1000.
GR  1920.3    1001. 1920.4    1004. 1920.6    1009. 1922.4    1017. 1922.4    1021.
GR  1922.4    1024. 1922.5    1029. 1922.5    1044. 1922.9    1059. 1922.9    1077.
GR  1922.8    1099. 1922.8    1121. 1922.9    1140. 1923.2    1160. 1923.5    1172.
GR  1924.2    1189. 1924.7    1210. 1924.8    1217. 1924.5    1221. 1925.3    1235.
GR  1925.3    1259. 1925.6    1279. 1925.6    1294. 1925.6    1307. 1925.5    1318.
    1925.4    1331. 1928.7    1335. 1931.7    1342. 1932.4    1349.
```

NC	.070	.065	.030							
ET			9.1						968.	1254.
X1	0.284	47	970	1013	540	210	502			
GR	1940.2	943.	1938.9	948.	1937.4	952.	1936.7	957.	1934.0	961.
GR	1933.1	963.	1931.7	967.	1929.6	969.	1928.5	970.	1928.2	971.
GR	1927.6	980.	1927.5	983.	1927.5	984.	1927.5	989.	1927.5	993.
GR	1927.6	997.	1927.7	1000.	1927.9	1005.	1928.1	1013.	1929.2	1019.
GR	1930.1	1024.	1930.6	1026.	1930.6	1027.	1931.4	1032.	1931.4	1039.
GR	1929.9	1052.	1929.9	1067.	1929.2	1075.	1928.9	1080.	1928.9	1093.
GR	1928.9	1094.	1928.8	1117.	1928.2	1121.	1927.8	1138.	1927.5	1146.
GR	1927.6	1159.	1927.4	1170.	1927.8	1182.	1928.1	1191.	1928.1	1203.
GR	1928.2	1212.	1928.2	1224.	1928.5	1234.	1928.9	1249.	1934.1	1262.
GR	1937.3	1283.	1940.4	1290.						
ET			9.1						798.	1042.
X1	0.347	41	980	1026	325	310	333			
GR	1948.8	787.	1947.4	788.	1942.7	789.	1941.3	794.	1939.8	798.
GR	1937.6	799.	1937.1	801.	1937.4	815.	1938.2	834.	1938.0	853.
GR	1937.3	868.	1937.2	882.	1937.1	897.	1937.1	905.	1937.6	913.
GR	1937.6	915.	1937.4	925.	1937.0	935.	1936.4	944.	1936.5	952.
GR	1936.3	963.	1936.0	971.	1934.9	975.	1934.5	980.	1934.3	983.
GR	1934.4	986.	1934.2	990.	1933.9	996.	1933.5	998.	1933.5	1000.
GR	1933.5	1004.	1933.2	1009.	1933.2	1012.	1933.2	1017.	1933.3	1021.
GR	1933.4	1022.	1934.6	1026.	1935.2	1031.	1936.2	1034.	1940.4	1045.
	1948.8	1059.								
NC	.065	.065	.030							
ET			9.1						969.	1196.
X1	0.421	34	972	1015	290	530	391			
GR	1960.9	955.	1958.9	960.	1954.3	966.	1949.6	967.	1945.7	971.
GR	1942.2	972.	1942.2	975.	1941.9	977.	1941.9	987.	1940.3	988.
GR	1940.3	995.	1940.4	1000.	1940.4	1004.	1942.0	1015.	1943.1	1023.
GR	1943.6	1033.	1943.9	1041.	1944.1	1044.	1945.2	1048.	1945.5	1056.
GR	1946.0	1080.	1946.2	1101.	1945.9	1117.	1946.0	1138.	1946.7	1155.
GR	1947.0	1168.	1947.1	1178.	1947.1	1180.	1947.1	1185.	1946.8	1195.
GR	1951.2	1203.	1955.6	1210.	1958.8	1215.	1960.8	1224.		
NC	.065	.065	.040							
ET			9.1						947.	1143.
X1	0.473	41	957	1004	280	260	275			
GR	1960.7	943.	1957.4	944.	1954.3	945.	1951.5	950.	1949.5	951.
GR	1949.2	954.	1947.5	957.	1947.4	963.	1947.1	969.	1947.3	976.
GR	1947.5	980.	1947.6	987.	1947.9	990.	1947.9	991.	1947.9	992.
GR	1947.8	998.	1947.8	999.	1948.0	1000.	1948.1	1001.	1948.7	1004.
GR	1949.4	1005.	1950.3	1006.	1950.2	1018.	1950.3	1035.	1951.0	1047.
GR	1951.2	1060.	1951.6	1073.	1952.3	1086.	1952.3	1097.	1952.3	1106.
GR	1952.4	1111.	1952.4	1115.	1952.6	1131.	1952.8	1135.	1952.8	1142.
GR	1953.8	1144.	1955.7	1150.	1956.8	1153.	1957.3	1157.	1962.9	1168.
GR	1968.1	1181.								

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NC     .065      .065      .030
ET                         9.1                                                  828.      1045.
X1    0.546        50       978      1022       460       315       385
GR   1968.9      812.    1967.7      815.    1963.8      824.    1961.3      826.    1959.9      830.
GR   1958.0      831.    1957.4      833.    1957.0      836.    1956.8      839.    1956.3      841.
GR   1956.0      842.    1956.3      850.    1956.7      851.    1957.3      860.    1957.3      865.
GR   1957.6      871.    1958.5      877.    1958.8      895.    1958.5      912.    1958.5      921.
GR   1958.5      928.    1958.5      932.    1958.5      933.    1958.5      934.    1958.5      935.
GR   1958.5      937.    1958.5      946.    1958.1      954.    1957.9      965.    1957.9      970.
GR   1957.1      974.    1956.8      978.    1956.7      981.    1956.3      982.    1956.3      989.
GR   1956.3      990.    1956.3     1000.    1956.3     1002.    1956.3     1003.    1956.3     1004.
GR   1955.7     1005.    1955.7     1011.    1955.8     1017.    1956.8     1022.    1957.2     1025.
GR   1957.9     1030.    1958.0     1031.    1958.9     1043.    1965.2     1050.    1968.1     1067.

QT       2      3774      3774
ET                 7.1       9.1                                     725      1040       725.      1040.
         ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
         SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
         WSEL AND THE TOPOGRAPHY.
X1    0.604        67       948      1011       340       306       306
GR   1976.2      622.    1974.7      626.    1971.7      633.    1969.7      636.    1968.5      639.
GR   1966.8      642.    1966.1      644.    1965.3      645.    1965.6      649.    1965.7      656.
GR   1966.0      664.    1966.0      677.    1966.5      689.    1967.3      696.    1968.4      704.
GR   1968.8      709.    1968.8      718.    1967.7      728.    1967.6      741.    1967.7      750.
     1967.7      758.    1967.7      762.    1968.5      765.    1968.4      768.    1967.9      776.
     1967.8      785.    1967.5      795.    1966.7      802.    1966.0      810.    1966.2      822.
GR   1966.2      834.    1967.1      849.    1967.0      875.    1966.9      884.    1966.8      896.
GR   1966.8      905.    1966.7      918.    1966.1      922.    1966.0      931.    1964.9      933.
GR   1964.8      934.    1964.2      945.    1963.9      946.    1963.5      948.    1963.5      964.
GR   1963.5      968.    1963.5      976.    1963.5      987.    1963.5      993.    1963.5      994.
GR   1963.5      998.    1963.5     1000.    1963.5     1001.    1963.5     1005.    1963.5     1011.
GR   1963.7     1014.    1964.2     1018.    1964.2     1019.    1964.6     1020.    1965.2     1023.
GR   1965.3     1025.    1965.7     1027.    1967.1     1036.    1968.7     1042.    1970.9     1045.
GR   1974.1     1048.    1976.4     1064.

ET                         9.1                                                  710.      1129.
X1    0.712        52       913       985       620       560       570
GR   1992.3      614.    1991.2      624.    1987.5      634.    1984.8      641.    1982.9      648.
GR   1981.3      653.    1980.7      658.    1980.8      692.    1980.1      716.    1980.0      759.
GR   1979.5      782.    1978.9      807.    1978.5      823.    1978.4      841.    1978.4      854.
GR   1978.2      873.    1978.1      884.    1978.1      897.    1978.1      908.    1977.9      913.
GR   1977.7      918.    1977.3      926.    1977.0      928.    1976.7      930.    1976.7      931.
GR   1976.7      936.    1976.7      948.    1976.7      956.    1977.2      966.    1977.4      974.
GR   1977.9      985.    1978.8      991.    1978.8      996.    1978.7     1000.    1978.4     1011.
GR   1978.2     1025.    1978.2     1034.    1978.2     1044.    1978.2     1053.    1978.3     1065.
GR   1978.4     1071.    1978.3     1072.    1978.3     1073.    1978.3     1081.    1978.3     1094.
GR   1978.2     1105.    1978.2     1118.    1979.5     1127.    1985.1     1135.    1988.7     1139.
GR   1990.8     1147.    1992.4     1154.
```

ET			9.1						911.	1043.
X1	0.790	30	933	1033	450	410	412			
GR	2000.9	859.	1998.9	868.	1995.5	877.	1993.4	884.	1993.3	897.
GR	1990.5	904.	1989.4	910.	1987.3	914.	1986.6	916.	1986.5	926.
GR	1985.9	933.	1985.7	941.	1985.7	951.	1985.2	957.	1984.9	963.
GR	1984.6	965.	1984.6	976.	1984.7	984.	1984.7	993.	1984.7	997.
GR	1984.7	1000.	1984.7	1007.	1984.9	1018.	1985.4	1028.	1986.2	1033.
GR	1987.7	1041.	1991.3	1049.	1994.0	1052.	1997.7	1073.	2000.4	1087.
ET			9.1						963.	1071.
X1	0.843	20	978	1020	280	280	280			
GR	2000.4	945.	1999.5	948.	1997.2	954.	1993.3	964.	1991.3	968.
GR	1990.0	971.	1988.4	976.	1987.7	978.	1987.8	996.	1987.8	1000.
GR	1987.8	1003.	1987.8	1012.	1987.8	1020.	1988.8	1027.	1991.9	1034.
GR	1992.0	1050.	1992.0	1060.	1992.7	1070.	1998.3	1075.	2000.7	1087.
ET			9.1						946.	1039.
X1	0.939	35	956	1019	510	510	507			
GR	2008.5	931.	2007.4	935.	2005.4	938.	2005.2	941.	2003.2	946.
GR	2000.5	950.	2000.1	953.	1998.2	955.	1998.1	956.	1998.0	958.
GR	1998.2	961.	1998.3	963.	1998.4	965.	1998.4	968.	1998.4	971.
GR	1998.2	975.	1998.1	979.	1998.0	982.	1998.0	987.	1998.0	989.
GR	1998.4	993.	1998.4	997.	1998.4	1000.	1998.4	1004.	1998.4	1009.
GR	1998.5	1014.	1998.5	1019.	1998.8	1024.	1999.8	1028.	2000.7	1032.
	2001.5	1036.	2003.3	1040.	2005.1	1044.	2007.1	1053.	2008.9	1063.
ET			9.1						912.	1042.
X1	1.032	20	987	1038	500	490	491			
GR	2024.8	868.	2024.0	872.	2022.2	881.	2017.9	892.	2016.8	899.
GR	2015.3	908.	2013.1	917.	2012.6	923.	2011.6	934.	2010.7	938.
GR	2010.2	942.	2011.0	952.	2011.1	958.	2011.0	975.	2010.4	983.
GR	2009.4	987.	2009.4	1000.	2009.5	1029.	2009.8	1038.	2020.0	1047.
QT	2	4000	4000							
ET			9.1						945.	1088.
X1	1.127	23	960	1019	490	510	502			
GR	2032.6	925.	2030.1	931.	2026.2	937.	2023.0	946.	2020.5	953.
GR	2018.9	960.	2018.9	974.	2018.9	989.	2018.9	991.	2019.1	994.
GR	2019.1	996.	2019.1	1000.	2019.1	1019.	2019.7	1038.	2020.1	1049.
GR	2020.1	1063.	2020.5	1068.	2020.6	1084.	2025.1	1091.	2027.0	1104.
GR	2029.1	1111.	2030.5	1124.	2033.0	1129.				
ET			9.1						884.	1037.
X1	1.229	24	989	1025	520	540	539			
GR	2045.3	838.	2044.8	848.	2042.1	859.	2039.4	872.	2036.7	882.
GR	2033.9	886.	2032.6	890.	2031.9	896.	2031.8	910.	2031.6	928.
GR	2031.1	955.	2031.2	974.	2031.0	984.	2030.2	989.	2029.3	990.
GR	2029.1	994.	2029.1	1000.	2029.1	1004.	2029.2	1011.	2029.2	1025.
GR	2031.6	1031.	2036.9	1040.	2043.6	1049.	2044.9	1052.		

ET			9.1						917.	1060.
X1	1.287	24	951	996	240	310	306			
GR	2052.0	880.	2050.3	881.	2043.3	892.	2041.2	900.	2039.3	908.
GR	2039.1	915.	2037.5	920.	2034.3	926.	2033.9	938.	2033.5	951.
GR	2033.2	962.	2033.0	971.	2033.2	978.	2033.3	989.	2033.4	996.
GR	2033.7	1000.	2033.9	1003.	2035.9	1008.	2036.5	1013.	2036.9	1016.
GR	2037.0	1024.	2040.0	1100.	2044.0	1160.	2048.0	1180.		
ET			9.1						744.	1013.
X1	1.346	36	975	1008	350	280	312			
GR	2060.0	652.	2059.6	653.	2058.9	668.	2055.4	689.	2051.6	710.
GR	2049.0	732.	2045.6	745.	2044.7	763.	2044.1	782.	2044.0	806.
GR	2044.4	823.	2043.8	839.	2042.8	855.	2042.5	866.	2042.5	873.
GR	2043.4	881.	2044.6	889.	2044.7	904.	2044.0	918.	2044.3	923.
GR	2041.1	942.	2042.3	952.	2043.1	956.	2043.1	963.	2042.2	968.
GR	2040.0	975.	2040.0	982.	2039.7	986.	2039.6	991.	2039.3	998.
GR	2039.5	1000.	2039.7	1003.	2040.0	1008.	2049.7	1015.	2057.0	1023.
GR	2060.0	1047.								
ET			9.1						901.	1176.
X1	1.423	24	943	1018	320	450	407			
GR	2060.0	894.	2056.1	898.	2051.6	905.	2051.5	922.	2051.2	943.
GR	2050.7	956.	2050.2	972.	2050.6	990.	2050.9	1000.	2051.0	1004.
GR	2050.7	1018.	2051.2	1039.	2051.4	1054.	2052.2	1061.	2052.9	1073.
	2052.2	1088.	2052.2	1107.	2053.3	1124.	2053.7	1144.	2053.2	1164.
	2054.3	1178.	2057.9	1196.	2063.8	1213.	2072.0	1232.		
ET			9.1						636.	1032.
X1	1.513	43	965	996	650	440	475			
GR	2088.0	392.	2084.9	399.	2081.4	419.	2078.8	430.	2075.9	443.
GR	2073.1	466.	2071.6	499.	2069.6	525.	2069.6	567.	2070.0	595.
GR	2070.4	629.	2068.1	650.	2069.4	693.	2069.0	716.	2068.5	741.
GR	2068.9	777.	2068.4	799.	2068.4	811.	2068.0	822.	2067.2	827.
GR	2065.6	836.	2065.2	840.	2066.2	843.	2067.9	850.	2067.9	858.
GR	2068.6	870.	2068.6	882.	2067.9	894.	2067.8	911.	2065.5	916.
GR	2066.2	925.	2066.2	944.	2065.9	959.	2065.3	965.	2064.8	982.
GR	2064.8	986.	2065.2	996.	2065.2	1000.	2065.3	1010.	2065.6	1022.
GR	2066.8	1028.	2074.6	1039.	2080.0	1050.				
ET			9.1						871.	1267.
X1	1.587	49	943	1013	550	380	391			
GR	2092.0	793.	2087.8	800.	2084.0	814.	2079.4	831.	2076.8	842.
GR	2077.3	849.	2077.2	862.	2076.5	876.	2076.2	888.	2076.2	889.
GR	2075.9	910.	2075.2	920.	2074.0	929.	2073.9	943.	2073.4	965.
GR	2073.7	973.	2073.7	985.	2073.3	1000.	2073.2	1004.	2072.9	1013.
GR	2074.3	1023.	2075.4	1027.	2075.9	1035.	2075.2	1043.	2074.6	1050.
GR	2074.3	1061.	2074.1	1068.	2074.3	1078.	2074.8	1085.	2076.5	1087.
GR	2076.8	1094.	2077.3	1101.	2077.6	1115.	2075.6	1131.	2075.5	1140.
GR	2075.5	1151.	2075.3	1167.	2076.5	1178.	2075.8	1190.	2075.3	1199.
GR	2075.1	1209.	2074.4	1220.	2074.2	1225.	2073.7	1235.	2073.7	1252.
	2074.3	1262.	2078.9	1271.	2080.7	1276.	2092.0	1306.		

QT	2	4245	4245							
ET			9.1						957.	1330.
X1	1.615	41	964	1000	130	220	148			
GR	2088.1	937.	2086.4	938.	2086.2	947.	2085.6	955.	2078.2	964.
GR	2078.2	973.	2078.5	988.	2078.7	991.	2078.7	1000.	2078.7	1003.
GR	2078.7	1019.	2079.2	1033.	2079.3	1044.	2079.6	1048.	2080.3	1057.
GR	2081.7	1069.	2081.8	1080.	2081.8	1085.	2081.8	1093.	2081.7	1096.
GR	2082.1	1117.	2082.1	1128.	2081.7	1135.	2082.2	1148.	2082.8	1169.
GR	2082.8	1191.	2082.9	1208.	2083.4	1226.	2083.6	1251.	2083.4	1269.
GR	2082.8	1288.	2082.2	1299.	2083.4	1310.	2083.3	1322.	2084.0	1335.
GR	2084.1	1343.	2084.5	1353.	2084.8	1363.	2086.5	1371.	2089.2	1382.
GR	2096.0	1405.								
NC	.060	.050	.030							
QT	2	4245	4245							
ET			9.1						869.	1232.
X1	1.710	43	962	1001	500	480	502			
GR	2108.0	830.	2102.4	841.	2097.1	857.	2093.7	868.	2091.7	877.
GR	2090.5	885.	2090.0	892.	2090.9	903.	2091.8	908.	2092.4	914.
GR	2092.8	930.	2092.5	947.	2092.5	948.	2091.6	962.	2091.1	968.
GR	2091.7	974.	2091.9	984.	2092.2	1000.	2092.2	1001.	2092.7	1014.
GR	2092.2	1026.	2092.1	1035.	2091.7	1049.	2091.0	1062.	2090.4	1078.
GR	2089.6	1089.	2090.3	1113.	2091.3	1135.	2091.8	1154.	2092.3	1166.
GR	2092.9	1179.	2093.7	1191.	2092.1	1193.	2091.8	1204.	2092.6	1221.
	2093.2	1228.	2093.7	1240.	2094.0	1257.	2094.3	1277.	2094.3	1301.
	2095.3	1309.	2097.0	1319.	2108.1	1342.				
NC	.060	.060	.030							
ET			9.1						677.	1095.
X1	1.803	41	1000	1053	410	500	491			
GR	2120.0	607.	2116.8	617.	2113.1	633.	2109.2	649.	2107.0	657.
GR	2104.9	676.	2103.1	680.	2102.7	695.	2102.4	706.	2103.1	718.
GR	2103.4	728.	2103.1	739.	2102.6	759.	2101.9	769.	2102.4	782.
GR	2103.5	799.	2104.0	810.	2104.4	825.	2104.4	845.	2104.3	871.
GR	2104.5	889.	2104.3	910.	2104.3	929.	2104.6	943.	2104.2	955.
GR	2102.3	962.	2101.1	966.	2100.7	976.	2100.4	993.	2100.2	1000.
GR	2100.1	1006.	2100.0	1021.	2100.5	1033.	2100.9	1053.	2101.2	1069.
GR	2101.7	1083.	2102.7	1091.	2108.9	1104.	2112.7	1113.	2116.2	1126.
GR	2119.9	1143.								
ET			9.1						906.	1214.
X1	1.879	29	958	1037	380	450	401			
GR	2128.0	890.	2123.7	897.	2115.7	907.	2114.1	925.	2113.5	938.
GR	2112.3	958.	2112.4	980.	2112.5	991.	2112.6	1000.	2112.6	1003.
GR	2112.1	1019.	2112.1	1029.	2112.8	1037.	2114.4	1044.	2114.8	1058.
GR	2115.2	1078.	2116.0	1091.	2115.6	1104.	2114.8	1118.	2113.9	1137.
GR	2113.5	1173.	2114.6	1190.	2115.3	1208.	2116.7	1218.	2120.8	1226.
GR	2126.8	1244.	2132.5	1257.	2134.9	1263.	2136.2	1284.		

ET			9.1						952.	1126.
X1	1.931	37	964	1001	240	340	275			
GR	2132.0	943.	2124.2	949.	2115.6	964.	2115.6	970.	2115.8	975.
GR	2116.1	989.	2116.9	1000.	2117.0	1001.	2117.4	1011.	2117.5	1016.
GR	2117.9	1030.	2118.9	1034.	2119.1	1042.	2120.2	1062.	2120.3	1077.
GR	2121.2	1088.	2121.5	1100.	2121.9	1117.	2122.3	1132.	2122.9	1149.
GR	2123.8	1161.	2126.8	1176.	2129.0	1187.	2130.7	1199.	2131.4	1208.
GR	2130.2	1223.	2130.5	1256.	2128.6	1279.	2128.8	1306.	2129.8	1309.
GR	2130.4	1318.	2134.5	1340.	2137.6	1365.	2139.9	1370.	2141.7	1384.
GR	2143.4	1406.	2148.0	1435.						
NC	.060	.050	.030							
ET			9.1						955.	1275.
X1	2.037	45	968	1034	580	270	560			
GR	2148.0	851.	2146.0	859.	2141.5	873.	2137.7	884.	2135.2	906.
GR	2133.6	927.	2132.7	943.	2131.9	955.	2130.1	968.	2130.2	973.
GR	2130.5	984.	2130.2	994.	2130.4	1000.	2130.9	1010.	2130.6	1023.
GR	2130.8	1034.	2131.5	1044.	2132.0	1051.	2132.0	1059.	2132.0	1062.
GR	2131.7	1078.	2131.7	1085.	2130.0	1119.	2128.9	1129.	2128.3	1137.
GR	2129.1	1154.	2129.9	1168.	2130.0	1181.	2129.5	1205.	2129.1	1221.
GR	2128.7	1236.	2127.4	1243.	2128.9	1257.	2130.7	1271.	2133.8	1280.
GR	2134.3	1292.	2132.6	1308.	2132.4	1331.	2133.0	1355.	2133.7	1378.
GR	2133.9	1392.	2138.9	1406.	2145.6	1428.	2150.7	1440.	2152.0	1444.
	.060	.060	.030							
			9.1						842.	1026.
X1	2.122	32	961	1017	470	370	449			
GR	2160.0	774.	2158.3	777.	2150.2	794.	2147.8	804.	2144.8	815.
GR	2142.9	833.	2141.2	851.	2139.9	859.	2140.2	869.	2140.7	876.
GR	2141.0	886.	2140.6	905.	2140.7	924.	2139.5	935.	2138.5	944.
GR	2137.6	961.	2137.4	968.	2136.7	987.	2136.4	1000.	2136.6	1017.
GR	2139.8	1023.	2143.2	1027.	2144.1	1030.	2145.2	1034.	2146.8	1042.
GR	2146.9	1058.	2149.5	1073.	2151.2	1088.	2153.4	1102.	2155.8	1118.
GR	2157.7	1143.	2160.0	1156.						
ET			9.1						891.	1113.
X1	2.185	22	1028	1101	330	330	333			
GR	2160.0	848.	2157.3	854.	2154.9	875.	2151.7	888.	2148.4	894.
GR	2147.4	907.	2147.7	925.	2148.2	931.	2147.7	955.	2147.0	972.
GR	2146.6	986.	2147.0	1000.	2147.0	1001.	2147.4	1012.	2146.2	1028.
GR	2146.4	1053.	2146.4	1070.	2146.5	1088.	2146.9	1101.	2147.5	1110.
GR	2154.7	1118.	2160.0	1126.						
ET			9.1						957.	1091.
X1	2.298	20	977	1040	590	620	597			
GR	2172.0	936.	2169.7	937.	2167.3	946.	2163.3	955.	2159.3	967.
GR	2157.5	977.	2158.0	987.	2158.0	1007.	2158.3	1021.	2158.5	1030.
GR	2158.7	1040.	2159.1	1053.	2159.6	1068.	2160.4	1080.	2161.8	1087.
GR	2163.7	1096.	2164.9	1111.	2166.5	1131.	2168.8	1145.	2172.1	1156.

QT	2	1914	1914							
ET			9.1						972.	1135.
X1	2.380	22	983	1010	420	470	433			
GR	2180.0	959.	2176.8	967.	2169.4	975.	2167.6	983.	2167.6	991.
GR	2167.4	998.	2168.5	1008.	2168.8	1010.	2169.9	1016.	2170.9	1023.
GR	2170.9	1035.	2170.7	1052.	2171.8	1066.	2170.8	1076.	2170.5	1088.
GR	2169.4	1093.	2169.1	1101.	2168.5	1115.	2168.6	1125.	2169.9	1129.
GR	2174.9	1144.	2180.0	1163.						
ET			9.1						907.	1071.
X1	2.458	21	935	980	380	500	412			
GR	2200.0	819.	2197.9	835.	2194.4	856.	2191.8	872.	2188.3	889.
GR	2185.0	905.	2182.1	912.	2180.9	935.	2181.4	964.	2182.1	980.
GR	2182.6	989.	2182.4	1007.	2182.2	1010.	2181.4	1022.	2181.8	1034.
GR	2182.9	1047.	2183.6	1065.	2184.3	1075.	2185.6	1085.	2193.4	1098.
GR	2200.0	1117.								
ET			9.1						970.	1101.
X1	2.511	21	982	1030	250	320	280			
GR	2200.0	962.	2197.5	965.	2189.6	971.	2186.5	982.	2186.1	993.
GR	2186.4	1000.	2186.5	1004.	2186.6	1017.	2188.9	1030.	2189.6	1039.
GR	2188.5	1049.	2187.7	1057.	2188.8	1077.	2190.6	1107.	2190.2	1122.
GR	2191.1	1140.	2191.6	1160.	2192.1	1173.	2193.6	1182.	2201.1	1200.
GR	2208.0	1222.								
			9.1						833.	1055.
X1	2.597	32	997	1039	480	270	454			
GR	2208.0	758.	2205.8	762.	2203.0	773.	2200.1	783.	2199.9	801.
GR	2199.3	819.	2198.7	842.	2198.3	860.	2198.3	872.	2197.5	880.
GR	2197.4	893.	2197.4	900.	2197.5	908.	2198.1	916.	2198.5	924.
GR	2198.8	929.	2196.5	945.	2197.4	957.	2197.3	964.	2198.9	969.
GR	2199.3	973.	2197.3	980.	2195.6	997.	2195.5	1000.	2195.1	1007.
GR	2195.6	1017.	2195.5	1029.	2195.8	1039.	2196.7	1047.	2198.0	1053.
GR	2205.2	1067.	2208.0	1079.						
ET			9.1						949.	1146.
X1	2.671	31	962	1004	410	350	391			
GR	2228.0	898.	2224.6	900.	2219.3	915.	2214.7	930.	2209.8	949.
GR	2206.9	954.	2206.8	962.	2205.1	982.	2205.1	987.	2205.3	992.
GR	2205.8	1000.	2206.0	1004.	2207.4	1009.	2208.1	1018.	2209.5	1024.
GR	2209.9	1030.	2209.4	1040.	2208.6	1046.	2207.8	1051.	2208.0	1075.
GR	2208.3	1089.	2208.0	1103.	2208.1	1123.	2208.3	1132.	2208.8	1143.
GR	2210.5	1149.	2211.5	1154.	2212.7	1165.	2215.3	1178.	2218.0	1190.
GR	2220.0	1203.								
ET			9.1						867.	1028.
X1	2.768	23	950	987	490	500	512			
GR	2232.0	847.	2230.2	852.	2223.3	864.	2219.7	871.	2218.7	881.
GR	2219.9	895.	2220.4	911.	2220.5	925.	2221.2	935.	2221.4	944.
GR	2220.6	948.	2218.5	950.	2218.3	966.	2218.0	979.	2218.4	987.
GR	2218.9	997.	2219.0	1000.	2219.3	1008.	2220.5	1021.	2221.7	1028.
GR	2224.3	1036.	2228.0	1052.	2232.0	1063.				

QT	2	1810	1810							
ET			9.1						925.	1147.
X1	2.821	28	927	986	270	290	285			
GR	2236.0	915.	2233.3	917.	2227.1	927.	2224.9	932.	2226.1	944.
GR	2226.6	950.	2226.1	967.	2226.8	978.	2226.5	986.	2226.7	994.
GR	2227.0	1000.	2227.4	1006.	2228.0	1016.	2227.4	1025.	2227.4	1033.
GR	2227.6	1044.	2227.1	1052.	2227.1	1053.	2226.8	1078.	2226.6	1089.
GR	2226.1	1109.	2225.9	1119.	2225.6	1128.	2226.4	1134.	2226.8	1142.
GR	2227.6	1146.	2237.3	1164.	2240.0	1171.				
ET			9.1						973.	1230.
X1	2.917	25	980	1028	510	520	507			
GR	2255.9	927.	2253.8	935.	2247.9	951.	2243.3	966.	2239.5	976.
GR	2237.6	980.	2237.9	991.	2238.0	1000.	2237.8	1006.	2238.3	1017.
GR	2238.5	1028.	2239.2	1039.	2240.0	1041.	2239.5	1068.	2239.2	1086.
GR	2238.7	1103.	2239.4	1134.	2238.9	1156.	2238.7	1171.	2239.2	1191.
GR	2238.8	1207.	2239.0	1223.	2241.2	1233.	2249.4	1249.	2256.1	1261.
ET			9.1						888.	1054.
X1	2.996	36	1000	1041	470	380	417			
GR	2264.0	678.	2263.8	683.	2263.3	686.	2261.7	697.	2255.5	715.
GR	2252.4	722.	2252.6	731.	2252.9	752.	2252.1	767.	2251.6	775.
GR	2252.6	780.	2253.0	791.	2254.2	804.	2254.5	817.	2254.6	823.
GR	2253.5	830.	2252.9	843.	2253.1	850.	2253.2	854.	2252.9	872.
	2251.7	883.	2251.3	897.	2249.6	904.	2249.5	915.	2249.2	926.
	2249.6	934.	2249.6	948.	2250.2	964.	2249.8	978.	2249.6	1000.
GR	2249.0	1013.	2248.3	1027.	2248.6	1041.	2250.5	1047.	2252.1	1057.
GR	2256.0	1064.								
ET			9.1						958.	1049.
X1	3.082	15	977	1009	375	500	454			
GR	2272.0	952.	2270.2	954.	2262.0	959.	2258.6	968.	2258.2	977.
GR	2258.0	982.	2258.2	995.	2258.3	1000.	2258.6	1009.	2260.1	1015.
GR	2260.7	1023.	2260.8	1036.	2262.0	1048.	2267.3	1056.	2272.0	1076.
ET			9.1						942.	1040.
X1	3.159	15	984	1030	430	370	407			
GR	2284.0	915.	2274.9	930.	2269.4	950.	2269.1	957.	2269.6	964.
GR	2270.1	973.	2269.6	982.	2267.9	984.	2267.6	1000.	2267.5	1005.
GR	2267.5	1006.	2269.0	1030.	2269.8	1035.	2274.4	1047.	2284.0	1064.
QT	2	1700	1700							
ET			9.1						964.	1055.
X1	3.259	14	981	1033	510	550	528			
GR	2300.0	930.	2294.6	942.	2288.0	959.	2282.9	969.	2282.2	981.
GR	2282.2	1000.	2282.2	1003.	2283.3	1015.	2283.3	1022.	2282.0	1033.
GR	2284.4	1050.	2288.1	1069.	2293.7	1085.	2300.1	1109.		

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ET                      9.1                                                963.     1070.
X1   3.353       11     972     1008      500      510      496
GR  2308.0      930.   2303.0    943.   2292.4    972.   2291.4    980.  2291.1     989.
GR  2291.5     1000.   2291.5   1002.   2292.5   1008.   2293.9   1017.  2294.6    1067.
GR  2308.0     1099.

ET                      9.1                                                885.     1200.
X1   3.429       25     991     1017      420      390      401
GR  2320.0      864.   2313.3    868.   2304.2    895.   2304.5    897.  2307.1     910.
GR  2315.9      924.   2315.8    928.   2315.5    950.   2313.6    959.  2310.4     967.
GR  2303.2      991.   2303.2    996.   2303.3   1000.   2303.5   1006.  2304.7    1017.
GR  2306.3     1028.   2306.3   1052.   2306.7   1065.   2305.1   1118.  2305.7    1146.
GR  2305.9     1165.   2306.3   1188.   2308.6   1213.   2311.0   1235.  2320.0    1265.

ET                      9.1                                                965.     1023.
X1   3.504       17     981     1017      450      350      396
GR  2332.0      801.   2327.6    819.   2323.9    838.   2321.5    867.  2321.5     887.
GR  2322.6      914.   2321.7    931.   2321.0    948.   2318.4    964.  2316.0     972.
GR  2313.9      981.   2314.0    990.   2314.0    995.   2314.3   1009.  2314.4    1017.
GR  2330.4     1042.   2332.0   1055.

QT       2     1590     1590
ET             7.1      9.1                                       954     1080      954     1080
        ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
        SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
        WSEL AND THE TOPOGRAPHY.
X1   3.598       26     975     1035      480      470      496
GR  2344.0      813.   2336.7    832.   2332.7    847.   2332.4    877.  2331.9     908.
GR  2332.6      922.   2332.7    929.   2329.7    963.   2328.3    975.  2328.1    1000.
GR  2328.1     1001.   2327.7   1007.   2327.3   1015.   2327.6   1028.  2328.1    1035.
GR  2328.6     1050.   2329.7   1065.   2330.3   1080.   2330.3   1096.  2329.4    1133.
GR  2329.6     1164.   2330.2   1195.   2330.4   1209.   2332.5   1222.  2335.7    1242.
GR  2344.0     1276.

ET                      9.1                                                919.     1044.
X1   3.633       23     977     1024      190      190      185
GR  2360.0      732.   2347.8    748.   2341.8    769.   2340.1    791.  2338.2     795.
GR  2337.7      821.   2336.5    854.   2335.8    861.   2336.7    868.  2336.5     895.
GR  2335.4      913.   2334.9    921.   2332.5    932.   2332.7    945.  2333.3     959.
GR  2333.5      977.   2331.8    987.   2332.8    997.   2332.8   1000.  2333.0    1024.
GR  2333.4     1041.   2343.7   1058.   2348.0   1085.

ET                      9.1                                                879.     1113.
X1   3.693       33     970     1026      300      390      317
GR  2362.0      756.   2359.6    762.   2343.6    782.   2343.9    798.  2344.8     815.
GR  2344.8      823.   2344.0    853.   2343.1    882.   2342.6    915.  2340.8     936.
GR  2340.7      947.   2340.8    955.   2342.5    958.   2343.0    963.  2342.1     970.
GR  2340.9      983.   2340.9    993.   2340.9   1000.   2340.8   1003.  2341.6    1022.
GR  2342.0     1026.   2344.5   1035.   2343.3   1043.   2341.6   1057.  2341.8    1083.
    2341.4     1098.   2342.8   1107.   2343.4   1116.   2344.1   1150.  2343.8    1185.
    2344.8     1229.   2348.7   1264.   2352.0   1282.
```

NC	.060	.060	.035							
ET			9.1						986.	1056.
X1	3.812	16	991	1051	600	680	628			
GR	2384.0	951.	2375.7	963.	2355.7	991.	2355.7	1000.	2355.7	1004.
GR	2357.1	1013.	2357.8	1017.	2356.5	1025.	2355.6	1027.	2355.6	1051.
GR	2361.8	1059.	2367.8	1068.	2371.1	1093.	2374.4	1124.	2375.8	1144.
GR	2378.0	1174.								
ET			9.1						965.	1048.
X1	3.894	14	989	1021	470	420	433			
GR	2376.0	941.	2374.1	944.	2368.2	965.	2367.0	967.	2366.3	976.
GR	2364.2	989.	2364.0	1000.	2364.1	1006.	2364.7	1021.	2367.6	1046.
GR	2371.3	1060.	2372.0	1071.	2372.0	1082.	2376.0	1108.		

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=     .200 CEHV=     .500
*SECNO 46.340
          HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
          HASSAYAMPA RIVER FLOODPLAIN EXTENDS UP WASH D TO SECTION 0.189.
   46.340      5.13   1903.13   1901.76   1925.12   1903.43       .30       .00       .00   1920.00
   3832.0        .0    2076.2    1755.8        .0     374.5     757.5        .0        .0   1900.00
      .00       .00      5.54      2.32      .000      .035      .070      .000   1898.00   1108.43
  .002697        0.        0.        0.         0        17         8       .00    345.07   1453.50


FLOW DISTRIBUTION FOR SECNO=     46.34          CWSEL=   1903.13

STA=    1108.    1200.    1430.    1453.
  PER Q=     54.2     44.4      1.4
   AREA=    374.5    720.7     36.8
    VEL=      5.5      2.4      1.5
  DEPTH=      4.1      3.1      1.6

CCHV=     .100 CEHV=     .300
*SECNO  .006

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      800.0    1060.0  TYPE=      1  TARGET=      260.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
     .006      3.23   1906.33   1906.33       .00   1907.33      1.00      2.13       .21   1903.60
   3832.0      18.5    3736.9      76.6       5.2     461.3      28.5       8.1       3.0   1905.60
      .01      3.53      8.10      2.69      .070      .045      .070      .000   1903.10    800.00
  .022692      280.      280.      600.         0        14         0       .00    260.00   1060.00


FLOW DISTRIBUTION FOR SECNO=       .01          CWSEL=   1906.33
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	800.	802.	1024.	1056.	1060.
PER Q=	.5	97.5	1.8	.2	
AREA=	5.2	461.3	25.0	3.5	
VEL=	3.5	8.1	2.7	2.5	
DEPTH=	2.6	2.1	.8	.9	

CCHV= .300 CEHV= .500
*SECNO .034

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 911.9 1044.1 TYPE= 1 TARGET= 132.200

.034	3.82	1910.12	1910.12	.00	1911.87	1.75	1.98	.38	1917.00
3832.0	.0	3832.0	.0	.0	360.8	.0	9.6	3.6	1916.30
.02	.00	10.62	.00	.000	.030	.000	.000	1906.30	926.79
.008821	160.	148.	140.	0	8	0	.00	102.99	1029.78

FLOW DISTRIBUTION FOR SECNO= .03 CWSEL= 1910.12

STA=	927.	1044.
PER Q=	100.0	
AREA=	360.8	
VEL=	10.6	
DEPTH=	3.5	

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1909.29 , NOT 1910.12 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	.00	99.90	5.50	1275.30	1.91	1906.74	1906.34

*SECNO .042

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1910.16 BRIDGE VELOCITY= 10.44 CALCULATED CHANNEL AREA= 345.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1912.18	.00	0.	3832.	1275.	1225.	1917.41	1923.28	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1920.00 ELREA= 1922.40

EAST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
ELEVATION = 1917.41, FLOWLINE ELEVATION = 1906.74, 5 PIERS, BOTTOM
WIDTH = 99.9 FEET.

.042	4.51	1911.21	.00	.00	1912.18	.97	.31	.00	1919.10
3832.0	.0	3832.0	.0	.0	484.7	.0	10.0	3.7	1918.90
.02	.00	7.91	.00	.000	.030	.000	.000	1906.70	933.37
.003828	42.	42.	42.	0	0	0	.00	114.18	1047.55

FLOW DISTRIBUTION FOR SECNO= .04 CWSEL= 1911.21

STA= 933. 1065.
PER Q= 100.0
AREA= 484.7
VEL= 7.9
DEPTH= 4.2

*SECNO .045

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 929.9 1054.1 TYPE= 1 TARGET= 124.200

.045	3.89	1910.99	1910.99	.00	1912.62	1.63	.09	.33	1914.40
3832.0	.0	3832.0	.0	.0	374.2	.0	10.1	3.8	1914.80
.02	.00	10.24	.00	.000	.030	.000	.000	1907.10	935.55
.009102	16.	16.	16.	0	11	0	.00	115.38	1050.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .05 CWSEL= 1910.99

STA=	936.	1054.
PER Q=	100.0	
AREA=	374.2	
VEL=	10.2	
DEPTH=	3.2	

*SECNO .051
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 921.7 1047.3 TYPE= 1 TARGET= 125.600

.051	3.81	1912.66	1912.66	.00	1914.52	1.86	.28	.12	1908.85
3832.0	40.3	3751.4	40.3	14.6	339.5	14.5	10.4	3.8	1908.85
.02	2.77	11.05	2.77	.070	.030	.070	.000	1908.85	932.37
.008350	32.	32.	32.	0	8	0	.00	104.26	1036.63

FLOW DISTRIBUTION FOR SECNO= .05 CWSEL= 1912.66

STA=	932.	940.	1029.	1037.
PER Q=	1.1	97.9	1.1	
AREA=	14.6	339.5	14.5	
VEL=	2.8	11.1	2.8	
DEPTH=	1.9	3.8	1.9	

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1911.96 , NOT 1912.66 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	.00	89.20	6.00	475.30	2.00	1909.25	1908.85

*SECNO .059

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1912.96 BRIDGE VELOCITY= 10.77 CALCULATED CHANNEL AREA= 336.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1914.24	1915.02	.00	0.	3832.	475.	475.	1914.34	1919.40	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1918.20 ELREA= 1916.60

WEST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
ELEVATION = 1914.34, FLOWLINE ELEVATION = 1909.25, 5 PIERS, BOTTOM
WIDTH = 89.2 FEET.

.059	4.94	1914.14	.00	.00	1915.02	.88	.50	.00	1909.30
3832.0	.0	3832.0	.0	.0	507.9	.0	10.8	4.0	1910.30
.02	.00	7.55	.00	.000	.030	.000	.000	1909.20	937.00
.003019	42.	42.	42.	0	0	0	.00	110.00	1047.00

FLOW DISTRIBUTION FOR SECNO= .06 CWSEL= 1914.14

STA= 937. 1047.
PER Q= 100.0
AREA= 507.9
VEL= 7.5
DEPTH= 4.6

*SECNO .089
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 870.0 1320.0 TYPE= 1 TARGET= 450.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.089	5.19	1915.29	1915.29	.00	1916.26	.97	.71	.04	1911.10
3832.0	113.4	1946.8	1771.8	58.0	181.5	625.1	13.5	5.0	1911.20
.03	1.96	10.73	2.83	.070	.030	.070	.000	1910.10	873.00
.006716	120.	158.	190.	0	8	0	.00	447.00	1320.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .09 CWSEL= 1915.29

STA=	873.	967.	1009.	1067.	1099.	1142.	1181.	1207.	1223.	1248.	1271.	1287.	1304.
PER Q=	3.0	50.8	4.8	3.8	5.0	4.7	4.5	3.3	5.0	4.9	3.7	3.9	
AREA=	58.0	181.5	82.8	57.3	75.6	69.8	58.3	39.8	61.1	58.4	42.2	44.7	
VEL=	2.0	10.7	2.2	2.6	2.5	2.6	3.0	3.2	3.2	3.2	3.3	3.3	
DEPTH=	.6	4.3	1.4	1.8	1.8	1.8	2.2	2.5	2.4	2.5	2.6	2.6	

STA=	1304.	1320.
PER Q=	2.5	
AREA=	35.0	
VEL=	2.8	
DEPTH=	2.2	

CCHV= .100 CEHV= .300
*SECNO .189

3265 DIVIDED FLOW

[illegible]5 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

.189	6.51	1924.71	1924.71	.00	1926.07	1.36	3.59	.12	1918.20
3832.0	13.6	3205.7	612.7	7.5	315.2	251.4	22.8	9.6	1922.50
.04	1.81	10.17	2.44	.070	.030	.070	.000	1918.20	964.69
.006473	520.	528.	580.	0	11	0	.00	252.53	1224.68

FLOW DISTRIBUTION FOR SECNO= .19 CWSEL= 1924.71

STA=	965.	967.	1044.	1077.	1121.	1160.	1225.
PER Q=	.4	83.7	4.3	5.6	4.5	1.6	
AREA=	7.5	315.2	62.7	83.0	68.6	37.1	
VEL=	1.8	10.2	2.6	2.6	2.5	1.6	
DEPTH=	3.3	4.1	1.9	1.9	1.8	.6	

*SECNO .284

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
.284	3.29	1930.69	1930.69	.00	1931.80	1.12	3.60	.02	1928.50
3832.0	5.1	1521.7	2305.1	2.2	126.2	474.0	27.1	11.2	1928.10
.06	2.34	12.06	4.86	.070	.030	.065	.000	1927.40	967.97
.014128	540.	502.	210.	0	8	0	.00	267.84	1253.46

FLOW DISTRIBUTION FOR SECNO= .28 CWSEL= 1930.69

STA=	968.	970.	1013.	1075.	1093.	1117.	1138.	1146.	1159.	1170.	1182.	1191.	1203.
PER Q=	.1	39.7	3.3	3.2	4.7	7.3	3.6	6.2	5.4	5.6	3.4	4.1	
AREA=	2.2	126.2	41.7	31.4	44.0	54.4	24.3	40.8	35.0	37.0	24.6	31.0	
VEL=	2.3	12.1	3.0	3.9	4.1	5.1	5.7	5.8	5.9	5.8	5.3	5.1	
DEPTH=	1.1	2.9	.7	1.7	1.8	2.6	3.0	3.1	3.2	3.1	2.7	2.6	

STA=	1203.	1212.	1224.	1249.	1253.
PER Q=	3.0	3.9	6.2	.2	
AREA=	22.8	29.8	53.1	4.0	
VEL=	5.1	5.0	4.5	2.4	
DEPTH=	2.5	2.5	2.1	.9	

*SECNO .347
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.347	5.91	1939.11	1939.11	.00	1940.53	1.42	2.67	.09	1934.50
3832.0	916.6	2763.4	151.9	353.2	248.3	42.4	31.7	13.1	1934.60
.07	2.59	11.13	3.58	.070	.030	.065	.000	1933.20	798.31
.005372	325.	333.	310.	0	14	0	.00	243.31	1041.62

FLOW DISTRIBUTION FOR SECNO= .35 CWSEL= 1939.11

STA=	798.	834.	882.	913.	944.	963.	975.	980.	1026.	1034.	1042.
PER Q=	3.0	3.5	3.7	3.8	4.0	3.4	2.4	72.1	3.4	.6	
AREA=	55.0	67.2	59.6	59.9	51.1	38.3	22.1	248.3	31.3	11.1	
VEL=	2.1	2.0	2.4	2.5	3.0	3.4	4.2	11.1	4.1	2.1	
DEPTH=	1.5	1.4	1.9	1.9	2.7	3.2	4.4	5.4	3.9	1.5	

*SECNO .421
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.421	7.04	1947.34	1947.34	.00	1948.94	1.60	2.00	.05	1942.20
3832.0	6.6	3018.1	807.3	4.8	266.3	290.1	37.2	15.3	1942.00
.08	1.39	11.33	2.78	.065	.030	.065	.000	1940.30	969.32
.004750	290.	391.	530.	0	8	0	.00	226.67	1195.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .42 CWSEL= 1947.34

STA=	969.	972.	1015.	1023.	1033.	1044.	1080.	1138.	1196.
PER Q=	.2	78.8	4.5	4.1	3.7	4.0	3.7	1.0	
AREA=	4.8	266.3	38.3	39.9	38.8	64.9	76.0	32.1	
VEL=	1.4	11.3	4.5	4.0	3.6	2.4	1.9	1.2	
DEPTH=	1.8	6.2	4.8	4.0	3.5	1.8	1.3	.6	

*SECNO .473
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.473	6.04	1953.14	1953.14	.00	1954.63	1.49	1.74	.01	1947.50
3832.0	151.2	2893.3	787.5	30.7	261.2	223.2	40.5	16.6	1948.70
.09	4.92	11.08	3.53	.065	.040	.065	.000	1947.10	947.08
.009059	280.	275.	260.	0	15	0	.00	195.59	1142.67

FLOW DISTRIBUTION FOR SECNO= .47 CWSEL= 1953.14

STA=	947.	957.	1004.	1018.	1035.	1047.	1073.	1143.
PER Q=	3.9	75.5	4.8	5.6	3.1	4.3	2.7	
AREA=	30.7	261.2	42.0	49.1	29.8	49.0	53.4	
VEL=	4.9	11.1	4.4	4.4	4.0	3.3	1.9	
DEPTH=	3.1	5.6	3.0	2.9	2.5	1.9	.8	

*SECNO .546
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.546	4.70	1960.40	1960.40	.00	1961.74	1.34	3.41	.02	1956.80
3832.0	1440.9	2196.0	195.1	362.2	186.1	51.6	45.6	18.4	1956.80
.10	3.98	11.80	3.78	.065	.030	.065	.000	1955.70	828.57
.008384	460.	385.	315.	0	15	0	.00	216.10	1044.67

FLOW DISTRIBUTION FOR SECNO= .55 CWSEL= 1960.40

STA=	829.	839.	850.	860.	871.	895.	921.	946.	965.	978.	1022.	1031.	1045.
PER Q=	3.1	6.5	4.3	3.8	3.9	3.8	4.0	4.1	4.3	57.3	3.1	2.0	
AREA=	27.3	46.0	34.5	33.2	45.6	46.9	47.5	43.2	37.9	186.1	26.9	24.7	
VEL=	4.3	5.4	4.8	4.4	3.2	3.1	3.2	3.6	4.3	11.8	4.3	3.2	
DEPTH=	2.6	4.2	3.5	3.0	1.9	1.8	1.9	2.3	2.9	4.2	3.0	1.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .604

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 725.0 1040.0 TYPE= 1 TARGET= 315.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.604	4.49	1967.99	1967.99	.00	1969.24	1.25	2.16	.01	1963.50
3774.0	638.7	2872.7	262.6	256.2	282.6	72.1	50.1	20.4	1963.50
.11	2.49	10.16	3.64	.065	.030	.065	.000	1963.50	725.40
.005692	340.	306.	306.	0	8	0	.00	302.36	1039.32

FLOW DISTRIBUTION FOR SECNO= .60 CWSEL= 1967.99

=	725.	834.	896.	931.	945.	948.	1011.	1018.	1036.	1039.
ER Q=	4.4	3.3	3.0	4.7	1.5	76.1	3.5	3.5	.0
AREA=	79.3	67.3	50.5	46.6	12.5	282.6	29.3	41.3	1.5
VEL=	2.1	1.8	2.3	3.8	4.4	10.2	4.5	3.2	1.0
DEPTH=	.7	1.1	1.4	3.3	4.2	4.5	4.2	2.3	.4

*SECNO .712
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.712	3.53	1980.23	1980.23	.00	1981.14	.91	3.99	.03	1977.90
3774.0	737.0	2173.5	863.5	247.2	223.4	267.2	59.2	25.3	1977.90
.13	2.98	9.73	3.23	.065	.030	.065	.000	1976.70	711.51
.008539	620.	570.	560.	0	15	0	.00	416.54	1128.04

FLOW DISTRIBUTION FOR SECNO= .71 CWSEL= 1980.23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	712.	823.	854.	873.	897.	913.	985.	1011.	1034.	1053.	1071.	1094.	1118.
PER Q=	3.8	4.6	3.2	4.7	3.2	57.6	3.4	4.0	3.5	3.1	3.8	4.3	
AREA=	69.4	55.9	36.7	50.6	34.6	223.4	42.9	45.3	38.6	35.1	44.4	48.2	
VEL=	2.1	3.1	3.3	3.5	3.5	9.7	3.0	3.3	3.4	3.3	3.3	3.4	
DEPTH=	.6	1.8	1.9	2.1	2.2	3.1	1.6	2.0	2.0	1.9	1.9	2.0	

STA=	1118.	1128.
PER Q=	.9	
AREA=	12.8	
VEL=	2.6	
DEPTH=	1.3	

*SECNO .790

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.790	3.92	1988.52	1988.52	.00	1990.13	1.61	3.52	.21	1985.90
3774.0	134.8	3603.3	35.9	40.5	346.9	13.3	64.7	28.0	1986.20
.15	3.33	10.39	2.70	.065	.030	.065	.000	1984.60	911.68
.008385	450.	412.	410.	0	8	0	.00	131.15	1042.82

FLOW DISTRIBUTION FOR SECNO= .79 CWSEL= 1988.52

STA=	912.	914.	916.	926.	933.	1033.	1041.	1043.
PER Q=	.1	.2	1.7	1.6	95.5	.9	.0	
AREA=	1.4	3.1	19.7	16.2	346.9	12.6	.7	
VEL=	1.4	2.7	3.3	3.7	10.4	2.8	1.1	
DEPTH=	.6	1.6	2.0	2.3	3.5	1.6	.4	

*SECNO .843

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.843	5.92	1993.62	1993.62	.00	1995.77	2.15	2.03	.16	1987.70
3774.0	208.7	3136.8	428.5	47.6	245.5	116.4	67.3	28.8	1987.80
.15	4.38	12.78	3.68	.065	.030	.065	.000	1987.70	963.17
.006317	280.	280.	280.	0	11	0	.00	107.66	1070.83

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= .84 CWSEL= 1993.62

STA=	963.	968.	971.	976.	978.	1020.	1027.	1034.	1050.	1060.	1070.	1071.
PER Q=	.3	.8	2.8	1.6	83.1	5.4	2.3	1.8	1.1	.7	.0	
AREA=	5.4	8.9	22.1	11.1	245.5	37.3	22.9	26.8	16.2	12.7	.4	
VEL=	2.0	3.5	4.7	5.5	12.8	5.5	3.8	2.6	2.5	2.1	.8	
DEPTH=	1.1	3.0	4.4	5.6	5.8	5.3	3.3	1.7	1.6	1.3	.5	

*SECNO .939
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

.939	4.81	2002.81	2002.81	.00	2004.91	2.10	3.59	.00	1998.10
3774.0	91.1	3447.6	235.4	23.4	285.0	53.8	71.8	29.9	1998.50
.17	3.88	12.10	4.38	.065	.030	.065	.000	1998.00	946.58
.007975	510.	507.	510.	0	15	0	.00	92.33	1038.91

FLOW DISTRIBUTION FOR SECNO= .94 CWSEL= 2002.81

STA=	947.	950.	953.	955.	956.	1019.	1024.	1028.	1032.	1036.	1039.
PER Q=	.2	.7	.8	.7	91.4	2.9	1.7	1.0	.5	.1	
AREA=	3.9	7.5	7.3	4.7	285.0	20.8	14.0	10.2	6.8	1.9	
VEL=	2.0	3.7	3.9	5.7	12.1	5.3	4.6	3.8	2.9	1.4	
DEPTH=	1.2	2.5	3.7	4.7	4.5	4.2	3.5	2.6	1.7	.7	

*SECNO 1.032
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.032	4.71	2014.11	2014.11	.00	2015.92	1.81	3.87	.03	2009.40
3774.0	882.1	2871.0	20.9	207.9	236.5	8.2	76.4	31.2	2009.80
.18	4.24	12.14	2.55	.065	.030	.065	.000	2009.40	912.87
.007764	500.	491.	490.	0	8	0	.00	128.94	1041.80

FLOW DISTRIBUTION FOR SECNO= 1.03 CWSEL= 2014.11

STA=	913.	917.	923.	934.	938.	942.	952.	958.	975.	983.	987.	1038.	1042.
PER Q=	.1	.5	1.9	1.3	1.8	4.3	2.1	5.9	3.3	2.3	76.1	.6	
AREA=	2.1	7.6	22.1	11.8	14.6	35.1	18.4	52.0	27.3	16.8	236.5	8.2	
VEL=	1.3	2.3	3.2	4.1	4.8	4.6	4.2	4.2	4.6	5.1	12.1	2.6	
DEPTH=	.5	1.3	2.0	3.0	3.7	3.5	3.1	3.1	3.4	4.2	4.6	2.2	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.127
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.127	4.20	2023.10	2023.10	.00	2024.81	1.72	4.18	.01	2018.90
4000.0	138.1	2910.5	951.4	33.2	242.3	207.0	81.7	32.7	2019.10
.19	4.16	12.01	4.60	.065	.030	.065	.000	2018.90	945.73
.008940	490.	502.	510.	0	11	0	.00	142.16	1087.88

FLOW DISTRIBUTION FOR SECNO= 1.13 CWSEL= 2023.10

STA=	946.	953.	960.	1019.	1038.	1049.	1063.	1068.	1084.	1088.
PER Q=	.6	2.9	72.8	9.1	4.1	4.7	1.5	4.1	.3	
AREA=	9.4	23.8	242.3	70.2	35.2	42.0	14.0	40.8	4.8	
VEL=	2.5	4.8	12.0	5.2	4.7	4.5	4.3	4.0	2.2	
DEPTH=	1.3	3.4	4.1	3.7	3.2	3.0	2.8	2.5	1.2	

*SECNO 1.229
7185 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

1.229	5.50	2034.60	2034.60	.00	2036.34	1.74	4.29	.01	2030.20
4000.0	1336.4	2524.4	139.3	319.3	195.4	32.9	88.0	34.5	2029.20
.21	4.18	12.92	4.23	.065	.030	.065	.000	2029.10	884.99
.007227	520.	539.	540.	0	11	0	.00	151.11	1036.10

FLOW DISTRIBUTION FOR SECNO= 1.23 CWSEL= 2034.60

STA=	885.	890.	896.	910.	928.	955.	974.	984.	989.	1025.	1031.	1036.
PER Q=	.3	1.2	3.7	5.2	9.4	7.3	3.9	2.4	63.1	3.0	.4	
AREA=	5.8	14.1	38.6	52.3	87.9	65.6	35.0	20.0	195.4	25.2	7.7	
VEL=	2.2	3.4	3.8	4.0	4.3	4.4	4.5	4.9	12.9	4.8	2.3	
DEPTH=	1.2	2.4	2.8	2.9	3.3	3.5	3.5	4.0	5.4	4.2	1.5	

*SECNO 1.287
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.287	5.40	2038.40	2038.40	.00	2040.36	1.96	2.12	.07	2033.50
4000.0	658.1	2963.0	378.9	129.0	232.5	103.4	91.3	35.4	2033.40
.22	5.10	12.75	3.67	.065	.030	.065	.000	2033.00	917.18
.007417	240.	306.	310.	0	8	0	.00	142.35	1059.53

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 1.29 CWSEL= 2038.40

STA=	917.	920.	926.	938.	951.	996.	1000.	1003.	1008.	1013.	1016.	1024.	1060.
PER Q=	.0	1.3	6.7	8.4	74.1	2.7	1.9	1.9	.9	.4	.7	1.0	
AREA=	1.3	15.0	51.6	61.1	232.5	19.4	13.8	17.5	11.0	5.1	11.6	24.9	
VEL=	1.1	3.3	5.2	5.5	12.7	5.6	5.4	4.3	3.3	2.8	2.5	1.6	
DEPTH=	.5	2.5	4.3	4.7	5.2	4.9	4.6	3.5	2.2	1.7	1.5	.7	

*SECNO 1.346

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.346	6.57	2045.87	2045.87	.00	2047.24	1.37	1.96	.06	2040.00
4000.0	1562.8	2408.1	29.1	510.5	202.9	12.4	95.8	37.0	2040.00
.23	3.06	11.87	2.34	.065	.030	.065	.000	2039.30	743.99
.005105	350.	312.	280.	0	11	0	.00	268.25	1012.23

W DISTRIBUTION FOR SECNO= 1.35 CWSEL= 2045.87

STA=	744.	806.	839.	855.	866.	881.	923.	942.	952.	968.	975.	1008.	1012.
PER Q=	4.5	3.3	3.1	3.1	4.1	3.4	5.2	4.4	4.1	3.7	60.2	.7	
AREA=	84.4	56.6	41.0	35.4	46.9	62.9	60.1	41.7	48.1	33.4	202.9	12.4	
VEL=	2.1	2.3	3.1	3.6	3.5	2.2	3.5	4.2	3.4	4.5	11.9	2.3	
DEPTH=	1.4	1.7	2.6	3.2	3.1	1.5	3.2	4.2	3.0	4.8	6.1	2.9	

*SECNO 1.423
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.423	3.90	2054.10	2054.10	.00	2055.31	1.21	2.54	.02	2051.20
4000.0	423.3	2696.4	880.3	106.1	257.7	255.7	101.6	39.4	2050.70
.24	3.99	10.46	3.44	.065	.030	.065	.000	2050.20	901.11
.008605	320.	407.	450.	0	14	0	.00	274.38	1175.49

FLOW DISTRIBUTION FOR SECNO= 1.42 CWSEL= 2054.10

STA=	901.	922.	943.	1018.	1039.	1054.	1088.	1124.	1175.
PER Q=	4.6	6.0	67.4	7.5	4.4	4.5	4.4	1.1	
AREA=	48.3	57.8	257.7	66.2	42.0	58.0	59.1	30.3	
VEL=	3.8	4.2	10.5	4.6	4.2	3.1	3.0	1.5	
DEPTH=	2.3	2.8	3.4	3.2	2.8	1.7	1.6	.6	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.513
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.513	4.76	2069.56	2069.56	.00	2070.57	1.01	4.09	.02	2065.30
4000.0	1686.3	1651.1	662.6	510.6	141.3	135.4	110.3	43.7	2065.20
.26	3.30	11.68	4.89	.065	.030	.065	.000	2064.80	636.67
.007365	650.	475.	440.	0	8	0	.00	395.23	1031.89

FLOW DISTRIBUTION FOR SECNO= 1.51 CWSEL= 2069.56

STA=	637.	777.	827.	840.	858.	911.	925.	944.	959.	965.	996.	1010.	1022.
PER Q=	4.3	3.3	5.1	3.8	4.4	5.3	7.0	6.0	2.9	41.3	7.9	6.2	
AREA=	104.1	58.7	45.1	42.4	72.0	47.9	63.8	52.7	23.8	141.3	60.5	49.3	
VEL=	1.7	2.3	4.5	3.6	2.5	4.4	4.4	4.5	4.9	11.7	5.2	5.0	
DEPTH=	.7	1.2	3.5	2.4	1.4	3.4	3.4	3.5	4.0	4.6	4.3	4.1	

STA=	1022.	1032.
PER Q=	2.5	
AREA=	25.5	
VEL=	3.9	
DEPTH=	2.6	

*SECNO 1.587

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.587	3.82	2076.72	2076.72	.00	2077.75	1.03	3.50	.01	2073.90
4000.0	292.7	2306.8	1400.5	88.8	224.1	391.6	118.0	47.8	2072.90
.28	3.30	10.29	3.58	.065	.030	.065	.000	2072.90	871.68
.009159	550.	391.	380.	0	15	0	.00	365.02	1266.73

FLOW DISTRIBUTION FOR SECNO= 1.59 CWSEL= 2076.72

STA=	872.	929.	943.	1013.	1023.	1061.	1078.	1151.	1209.	1225.	1252.	1267.
PER Q=	3.1	4.2	57.7	3.6	5.0	4.3	3.1	3.8	3.0	8.8	3.2	
AREA=	50.1	38.7	224.1	31.2	63.0	42.8	46.7	62.5	33.7	78.9	32.9	
VEL=	2.5	4.3	10.3	4.6	3.2	4.0	2.7	2.4	3.6	4.5	3.9	
DEPTH=	.9	2.8	3.2	3.1	1.7	2.5	.6	1.1	2.1	2.9	2.2	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.615
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.615	5.49	2083.69	2083.69	.00	2084.91	1.22	1.31	.06	2078.20
4245.0	54.2	2230.2	1960.6	18.3	189.5	549.6	121.3	49.5	2078.70
.28	2.96	11.77	3.57	.065	.030	.065	.000	2078.20	957.33
.006165	130.	148.	220.	0	11	0	.00	371.82	1329.15

FLOW DISTRIBUTION FOR SECNO= 1.62 CWSEL= 2083.69

STA=	957.	964.	1000.	1019.	1033.	1044.	1057.	1080.	1117.	1148.	1288.	1329.
PER Q=	1.3	52.5	11.7	7.9	5.6	5.3	4.0	4.3	3.2	3.2	1.1	
AREA=	18.3	189.5	94.7	66.3	48.8	50.6	53.5	67.8	52.5	87.3	28.2	
VEL=	3.0	11.8	5.2	5.1	4.8	4.4	3.2	2.7	2.6	1.5	1.7	
DEPTH=	2.7	5.3	5.0	4.7	4.4	3.9	2.3	1.8	1.7	.6	.7	

*SECNO 1.710

5 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.710	3.73	2093.33	2093.33	.00	2094.20	.87	5.13	.04	2091.60
4245.0	760.5	587.1	2897.4	136.1	60.3	392.0	128.8	53.5	2092.20
.30	5.59	9.74	7.39	.060	.030	.050	.000	2089.60	869.67
.021661	500.	502.	480.	0	20	0	.00	355.35	1231.07

FLOW DISTRIBUTION FOR SECNO= 1.71 CWSEL= 2093.33

STA=	870.	885.	892.	903.	947.	962.	1001.	1035.	1062.	1078.	1089.	1113.	1135.
PER Q=	3.0	3.9	5.5	3.6	1.9	13.8	3.3	6.8	8.2	8.4	18.8	10.6	
AREA=	23.8	21.5	31.7	40.4	18.7	60.3	32.5	45.7	42.0	36.6	81.1	55.6	
VEL=	5.4	7.7	7.4	3.8	4.2	9.7	4.3	6.3	8.3	9.7	9.8	8.1	
DEPTH=	1.6	3.1	2.9	.9	1.2	1.5	1.0	1.7	2.6	3.3	3.4	2.5	

STA=	1135.	1154.	1204.	1231.
PER Q=	5.1	4.7	2.3	
AREA=	33.8	42.3	22.4	
VEL=	6.4	4.7	4.4	
DEPTH=	1.8	.8	.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.803

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.803	4.45	2104.45	2104.45	.00	2105.57	1.12	5.54	.07	2100.20
4245.0	1375.8	2353.4	515.8	372.8	217.2	117.6	135.7	57.4	2100.90
.32	3.69	10.84	4.39	.060	.030	.060	.000	2100.00	677.00
.007302	410.	491.	500.	0	11	0	.00	396.26	1094.67

FLOW DISTRIBUTION FOR SECNO= 1.80 CWSEL= 2104.45

STA=	677.	706.	759.	782.	966.	976.	993.	1000.	1053.	1069.	1083.	1095.
PER Q=	3.2	5.0	4.4	3.7	4.1	8.2	3.7	55.4	6.1	4.4	1.7	
AREA=	46.2	77.6	51.9	66.4	35.5	66.3	29.0	217.2	54.4	42.0	21.2	
VEL=	3.0	2.8	3.6	2.3	4.9	5.2	5.5	10.8	4.8	4.4	3.3	
DEPTH=	1.6	1.5	2.3	.4	3.5	3.9	4.1	4.1	3.4	3.0	1.8	

*SECNO 1.879
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.879	4.01	2116.11	2116.11	.00	2117.27	1.17	2.93	.02	2112.30
4245.0	454.3	2979.5	811.2	116.0	294.9	262.4	142.1	60.7	2112.80
.33	3.92	10.10	3.09	.060	.030	.060	.000	2112.10	906.49
.007187	380.	401.	450.	0	11	0	.00	307.28	1213.77

FLOW DISTRIBUTION FOR SECNO= 1.88 CWSEL= 2116.11

STA=	906.	938.	958.	1037.	1078.	1137.	1173.	1208.	1214.
PER Q=	3.8	6.9	70.2	4.1	3.3	7.7	3.9	.1	
AREA=	51.8	64.2	294.9	60.8	56.7	86.7	55.8	2.3	
VEL=	3.1	4.6	10.1	2.9	2.5	3.8	3.0	1.1	
DEPTH=	1.6	3.2	3.7	1.5	1.0	2.4	1.6	.4	

*SECNO 1.931

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1.931	6.53	2122.13	2122.13	.00	2123.96	1.83	1.90	.20	2115.60
4245.0	143.6	2888.2	1213.2	37.2	225.0	285.4	146.3	62.4	2117.00
.34	3.86	12.84	4.25	.060	.030	.060	.000	2115.60	952.61
.006060	240.	275.	340.	0	14	0	.00	173.04	1125.65

FLOW DISTRIBUTION FOR SECNO= 1.93 CWSEL= 2122.13

STA=	953.	964.	1001.	1011.	1030.	1042.	1062.	1100.	1126.
PER Q=	3.4	68.0	6.5	10.6	4.0	4.1	3.2	.2	
AREA=	37.2	225.0	49.3	85.4	40.0	49.6	52.8	8.3	
VEL=	3.9	12.8	5.6	5.3	4.3	3.5	2.5	1.0	
DEPTH=	3.3	6.1	4.9	4.5	3.3	2.5	1.4	.3	

*SECNO 2.037

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.037	4.44	2131.84	2131.84	.00	2132.80	.95	4.01	.09	2130.10
4245.0	34.6	739.2	3471.2	11.0	87.9	448.0	150.9	64.3	2130.80
.35	3.15	8.41	7.75	.060	.030	.050	.000	2127.40	955.40
.019679	580.	560.	270.	0	20	0	.00	297.47	1274.32

FLOW DISTRIBUTION FOR SECNO= 2.04 CWSEL= 2131.84

STA=	955.	968.	1034.	1119.	1129.	1137.	1154.	1168.	1181.	1205.	1221.	1236.	1243.
PER Q=	.8	17.4	3.9	4.2	5.6	11.3	5.7	3.7	8.1	7.5	8.9	6.3	
AREA=	11.0	87.9	43.2	23.9	26.0	53.5	32.8	24.6	50.3	40.7	44.2	26.6	
VEL=	3.2	8.4	3.8	7.4	9.1	8.9	7.4	6.4	6.8	7.8	8.6	10.0	
DEPTH=	.9	1.3	.5	2.4	3.2	3.1	2.3	1.9	2.1	2.5	2.9	3.8	

STA=	1243.	1257.	1271.	1274.
PER Q=	12.1	4.5	.1	
AREA=	51.7	28.6	1.9	
VEL=	9.9	6.7	2.8	
DEPTH=	3.7	2.0	.6	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 2.122

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.122	5.64	2142.04	2142.04	.00	2143.73	1.69	4.17	.22	2137.60
4245.0	764.8	3375.3	104.9	225.0	292.1	26.0	156.2	66.6	2136.60
.37	3.40	11.56	4.04	.060	.030	.060	.000	2136.40	842.12
.006019	470.	449.	370.	0	11	0	.00	183.52	1025.63

FLOW DISTRIBUTION FOR SECNO= 2.12 CWSEL= 2142.04

STA=	842.	886.	935.	961.	1017.	1026.
PER Q=	3.5	4.2	10.3	79.5	2.5	
AREA=	58.5	71.3	95.2	292.1	26.0	
VEL=	2.5	2.5	4.6	11.6	4.0	
DEPTH=	1.3	1.5	3.7	5.2	3.0	

*SECNO 2.185
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.185	3.56	2149.76	2149.76	.00	2151.07	1.31	2.54	.04	2146.20
4245.0	1449.8	2682.4	112.8	321.8	242.8	25.9	160.5	68.1	2146.90
.38	4.51	11.05	4.36	.060	.030	.060	.000	2146.20	891.53
.010016	330.	333.	330.	0	14	0	.00	220.98	1112.51

FLOW DISTRIBUTION FOR SECNO= 2.18 CWSEL= 2149.76

STA=	892.	925.	955.	972.	986.	1000.	1012.	1028.	1101.	1113.
PER Q=	6.1	4.7	4.3	5.0	5.0	3.4	5.7	63.2	2.7	
AREA=	65.6	54.2	40.9	41.4	41.4	30.9	47.3	242.8	25.9	
VEL=	4.0	3.7	4.5	5.1	5.1	4.7	5.1	11.0	4.4	
DEPTH=	2.0	1.8	2.4	3.0	3.0	2.6	3.0	3.3	2.2	

*SECNO 2.298

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.298	5.04	2162.54	2162.54	.00	2164.37	1.83	5.39	.15	2157.50
4245.0	283.2	3322.9	638.9	57.1	276.7	136.9	167.8	70.6	2158.70
.39	4.96	12.01	4.67	.060	.030	.060	.000	2157.50	957.29
.008173	590.	597.	620.	0	11	0	.00	133.21	1090.50

FLOW DISTRIBUTION FOR SECNO= 2.30 CWSEL= 2162.54

STA=	957.	967.	977.	1040.	1053.	1068.	1080.	1087.	1090.
PER Q=	1.1	5.6	78.3	5.9	5.5	3.0	.7	.0	
AREA=	15.7	41.4	276.7	47.3	47.8	30.5	10.1	1.3	
VEL=	3.0	5.7	12.0	5.3	4.8	4.2	2.8	1.1	
DEPTH=	1.6	4.1	4.4	3.6	3.2	2.5	1.4	.4	

*SECNO 2.380

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.380	4.36	2171.76	2171.76	.00	2172.86	1.10	3.47	.07	2167.60
1914.0	124.4	1132.4	657.2	29.1	107.4	193.5	171.9	72.1	2168.80
.41	4.28	10.54	3.40	.060	.030	.060	.000	2167.40	972.45
.007220	420.	433.	470.	0	15	0	.00	161.20	1134.58

FLOW DISTRIBUTION FOR SECNO= 2.38 CWSEL= 2171.76

STA=	972.	983.	1010.	1023.	1065.	1093.	1101.	1115.	1125.	1135.
PER Q=	6.5	59.2	4.1	3.3	3.3	4.1	9.4	7.7	2.5	
AREA=	29.1	107.4	24.0	33.8	27.0	20.1	41.4	32.1	15.2	
VEL=	4.3	10.5	3.3	1.9	2.4	3.9	4.3	4.6	3.1	
DEPTH=	2.8	4.0	1.8	.8	1.0	2.5	3.0	3.2	1.6	

*SECNO 2.458
7185 MINIMUM SPECIFIC ENERGY

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

2.458	3.06	2183.96	2183.96	.00	2184.94	.98	3.83	.01	2180.90
1914.0	275.7	1139.9	498.4	60.6	116.7	134.2	175.2	73.8	2182.10
.42	4.55	9.77	3.71	.060	.030	.060	.000	2180.90	907.52
.010931	380.	412.	500.	0	19	0	.00	162.56	1070.08

FLOW DISTRIBUTION FOR SECNO= 2.46 CWSEL= 2183.96

STA=	908.	912.	935.	980.	989.	1007.	1010.	1022.	1034.	1047.	1065.	1070.
PER Q=	.5	13.9	59.6	2.7	4.6	.9	5.8	6.8	3.9	1.4	.0	
AREA=	4.2	56.5	116.7	14.5	26.2	5.0	25.9	28.3	20.9	12.7	.9	
VEL=	2.3	4.7	9.8	3.5	3.3	3.6	4.3	4.6	3.5	2.1	.8	
DEPTH=	.9	2.5	2.6	1.6	1.5	1.7	2.2	2.4	1.6	.7	.2	

*SECNO 2.511
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.511	4.09	2190.19	2190.19	.00	2191.39	1.21	2.53	.07	2186.50
1914.0	80.8	1577.9	255.3	23.6	164.3	91.3	177.2	74.8	2188.90
.43	3.42	9.61	2.80	.060	.030	.060	.000	2186.10	970.55
.007337	250.	280.	320.	0	11	0	.00	129.57	1100.13

FLOW DISTRIBUTION FOR SECNO= 2.51 CWSEL= 2190.19

STA=	971.	982.	1030.	1039.	1049.	1057.	1077.	1100.
PER Q=	4.2	82.4	.9	1.4	3.0	6.7	1.4	
AREA=	23.6	164.3	8.4	11.4	16.7	38.8	16.0	
VEL=	3.4	9.6	2.0	2.3	3.5	3.3	1.7	
DEPTH=	2.1	3.4	.9	1.1	2.1	1.9	.7	

*SECNO 2.597

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.597	3.81	2198.91	2198.91	.00	2199.84	.93	3.06	.03	2195.60
1914.0	489.3	1316.8	107.9	185.2	143.9	31.5	180.3	76.5	2195.80
.45	2.64	9.15	3.43	.060	.030	.060	.000	2195.10	833.88
.006606	480.	454.	270.	0	11	0	.00	215.66	1054.77

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 2.60 CWSEL= 2198.91

STA=	834.	893.	908.	945.	957.	997.	1039.	1047.	1055.
PER Q=	4.4	3.1	3.9	3.9	10.3	68.8	4.3	1.4	
AREA=	42.7	22.3	35.3	23.5	61.4	143.9	21.3	10.2	
VEL=	2.0	2.6	2.1	3.1	3.2	9.1	3.9	2.5	
DEPTH=	.7	1.5	1.0	2.0	1.5	3.4	2.7	1.3	

*SECNO 2.671

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.671	4.32	2209.42	2209.42	.00	2210.43	1.01	2.43	.02	2206.80
1914.0	84.6	1442.4	387.0	26.0	157.0	161.3	183.5	78.2	2206.00
.46	3.25	9.19	2.40	.060	.030	.060	.000	2205.10	949.66
.005943	410.	391.	350.	0	8	0	.00	179.52	1145.18

W DISTRIBUTION FOR SECNO= 2.67 CWSEL= 2209.42

STA=	950.	962.	1004.	1018.	1075.	1103.	1123.	1145.
PER Q=	4.4	75.4	4.7	5.9	4.1	3.4	2.1	
AREA=	26.0	157.0	28.6	48.7	35.5	27.3	21.2	
VEL=	3.3	9.2	3.1	2.3	2.2	2.4	1.9	
DEPTH=	2.1	3.7	2.0	.9	1.3	1.4	1.0	

*SECNO 2.768
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.768	3.60	2221.60	2221.60	.00	2222.65	1.05	3.50	.01	2218.50
1914.0	364.7	1225.6	323.7	115.7	123.2	82.7	187.3	80.2	2218.40
.48	3.15	9.95	3.92	.060	.030	.060	.000	2218.00	867.31
.008110	490.	512.	500.	0	15	0	.00	160.11	1027.41

FLOW DISTRIBUTION FOR SECNO= 2.77 CWSEL= 2221.60

STA=	867.	881.	895.	911.	948.	950.	987.	997.	1008.	1021.	1027.
PER Q=	5.4	6.5	3.5	3.1	.6	64.0	7.1	5.9	3.7	.3	
AREA=	27.5	32.2	23.2	28.7	4.1	123.2	29.5	27.5	22.1	3.5	
VEL=	3.7	3.9	2.9	2.1	2.8	9.9	4.6	4.1	3.2	1.5	
DEPTH=	2.0	2.3	1.4	.8	2.0	3.3	2.9	2.5	1.7	.5	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 2.821
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.821	3.25	2228.15	2228.15	.00	2228.93	.78	2.90	.03	2227.10
1810.0	1.5	1015.4	793.1	.9	114.7	209.5	189.4	81.4	2226.50
.50	1.67	8.86	3.79	.060	.030	.060	.000	2224.90	925.31
.013353	270.	285.	290.	0	15	0	.00	221.71	1147.02

FLOW DISTRIBUTION FOR SECNO= 2.82 CWSEL= 2228.15

STA=	925.	927.	986.	1000.	1044.	1078.	1089.	1109.	1119.	1128.	1134.	1146.	1147.
PER Q=	.1	56.1	4.1	3.3	6.4	3.2	8.4	5.7	6.1	3.4	3.2	.0	
AREA=	.9	114.7	20.2	27.4	37.5	16.0	36.0	21.5	21.6	12.9	16.2	.3	
VEL=	1.7	8.9	3.7	2.2	3.1	3.7	4.2	4.8	5.1	4.7	3.6	1.1	
DEPTH=	.5	1.9	1.4	.6	1.1	1.5	1.8	2.2	2.4	2.2	1.4	.3	

*SECNO 2.917
7185 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

2.917	2.84	2240.44	2240.44	.00	2241.16	.71	5.73	.01	2237.60
1810.0	27.7	1008.7	773.5	8.7	116.0	261.3	193.6	84.3	2238.50
.52	3.18	8.69	2.96	.060	.030	.060	.000	2237.60	973.52
.009499	510.	507.	520.	0	15	0	.00	256.03	1229.55

FLOW DISTRIBUTION FOR SECNO= 2.92 CWSEL= 2240.44

STA=	974.	980.	1028.	1039.	1086.	1103.	1134.	1156.	1171.	1191.	1207.	1223.	1230.
PER Q=	1.5	55.7	3.2	4.9	4.4	7.2	4.5	4.6	5.2	3.9	4.4	.5	
AREA=	8.7	116.0	17.5	40.0	25.4	43.1	28.4	24.6	29.8	23.1	24.7	4.7	
VEL=	3.2	8.7	3.3	2.2	3.2	3.0	2.9	3.4	3.2	3.1	3.2	1.9	
DEPTH=	1.3	2.4	1.6	.9	1.5	1.4	1.3	1.6	1.5	1.4	1.5	.7	

*SECNO 2.996
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2.996	3.23	2251.53	2251.53	.00	2252.47	.94	4.04	.07	2249.60
1810.0	680.7	1079.6	49.7	186.2	112.5	15.2	197.0	86.3	2248.60
.53	3.66	9.60	3.27	.060	.030	.060	.000	2248.30	888.91
.009787	470.	417.	380.	0	8	0	.00	164.54	1053.44

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 3.00 CWSEL= 2251.53

STA=	889.	897.	904.	915.	926.	934.	948.	964.	978.	1000.	1041.	1047.	1053.
PER Q=	.0	1.1	4.7	5.5	3.8	5.7	4.9	3.9	8.2	59.6	2.5	.3	
AREA=	.9	7.6	21.8	24.0	17.0	27.0	26.1	21.4	40.3	112.5	11.9	3.3	
VEL=	.6	2.5	3.9	4.1	4.1	3.8	3.4	3.3	3.7	9.6	3.7	1.6	
DEPTH=	.1	1.1	2.0	2.2	2.1	1.9	1.6	1.5	1.8	2.7	2.0	.5	

*SECNO 3.082

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.082	4.22	2262.22	2262.22	.00	2263.67	1.45	3.73	.15	2258.20
1810.0	235.1	1383.6	191.3	51.7	128.0	60.8	199.7	87.5	2258.60
.55	4.55	10.81	3.15	.060	.030	.060	.000	2258.00	958.87
.007507	375.	454.	500.	0	11	0	.00	89.47	1048.33

W DISTRIBUTION FOR SECNO= 3.08 CWSEL= 2262.22

STA=	959.	968.	977.	1009.	1015.	1023.	1036.	1048.
PER Q=	3.0	10.0	76.4	4.0	2.6	2.9	1.0	
AREA=	17.3	34.4	128.0	17.2	14.6	19.1	9.9	
VEL=	3.2	5.2	10.8	4.2	3.2	2.8	1.9	
DEPTH=	1.9	3.8	4.0	2.9	1.8	1.5	.8	

*SECNO 3.159
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.159	3.88	2271.38	2271.38	.00	2272.72	1.33	3.13	.01	2267.90
1810.0	218.6	1551.5	40.0	69.2	156.4	13.2	201.9	88.4	2269.00
.56	3.16	9.92	3.03	.060	.030	.060	.000	2267.50	942.78
.007853	430.	407.	370.	0	11	0	.00	96.35	1039.13

FLOW DISTRIBUTION FOR SECNO= 3.16 CWSEL= 2271.38

STA=	943.	950.	957.	964.	973.	982.	984.	1030.	1035.	1039.
PER Q=	.8	3.0	2.8	2.2	2.2	1.0	85.7	1.9	.3	
AREA=	7.2	14.9	14.2	13.8	13.8	5.3	156.4	9.9	3.3	
VEL=	2.1	3.6	3.5	2.9	2.9	3.5	9.9	3.4	1.8	
DEPTH=	1.0	2.1	2.0	1.5	1.5	2.6	3.4	2.0	.8	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3.259
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.259	3.27	2285.27	2285.27	.00	2286.54	1.26	4.73	.01	2282.20
1700.0	175.5	1377.6	146.8	38.2	140.6	37.2	204.7	89.5	2282.00
.58	4.59	9.80	3.95	.060	.030	.060	.000	2282.00	964.35
.010432	510.	528.	550.	0	15	0	.00	90.14	1054.48

FLOW DISTRIBUTION FOR SECNO= 3.26 CWSEL= 2285.27

STA=	964.	969.	981.	1033.	1050.	1054.
PER Q=	.9	9.5	81.0	8.5	.2	
AREA=	5.5	32.7	140.6	35.2	2.0	
VEL=	2.6	4.9	9.8	4.1	1.4	
DEPTH=	1.2	2.7	2.7	2.1	.4	

*SECNO 3.353
7185 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

3.353	4.47	2295.57	2295.57	.00	2296.87	1.30	3.97	.01	2292.40
1700.0	35.2	1434.1	230.8	13.7	144.7	88.3	207.3	90.6	2292.50
.59	2.56	9.91	2.61	.060	.030	.060	.000	2291.10	963.33
.006304	500.	496.	510.	0	11	0	.00	105.98	1069.31

FLOW DISTRIBUTION FOR SECNO= 3.35 CWSEL= 2295.57

STA=	963.	972.	1008.	1017.	1067.	1069.
PER Q=	2.1	84.4	4.3	9.2	.1	
AREA=	13.7	144.7	21.3	65.9	1.1	
VEL=	2.6	9.9	3.5	2.4	1.1	
DEPTH=	1.6	4.0	2.4	1.3	.5	

*SECNO 3.429

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.429	4.18	2307.38	2307.38	.00	2308.07	.69	2.39	.06	2303.20
1700.0	197.5	874.1	628.4	70.6	97.3	257.1	210.4	92.2	2304.70
.61	2.80	8.98	2.44	.060	.030	.060	.000	2303.20	885.58
.005683	420.	401.	390.	0	10	0	.00	247.49	1199.70

FLOW DISTRIBUTION FOR SECNO= 3.43 CWSEL= 2307.38

STA=	886.	897.	910.	991.	1017.	1028.	1065.	1118.	1146.	1165.	1188.	1200.
PER Q=	3.5	3.0	5.1	51.4	3.4	4.1	11.1	9.6	4.5	3.8	.5	
AREA=	21.0	20.5	29.1	97.3	20.6	37.2	78.3	55.3	30.0	29.4	6.3	
VEL=	2.9	2.5	3.0	9.0	2.8	1.9	2.4	2.9	2.5	2.2	1.2	
DEPTH=	1.8	1.6	.4	3.7	1.9	1.0	1.5	2.0	1.6	1.3	.5	

*SECNO 3.504

3301 HV CHANGED MORE THAN HVINS

5 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.504	4.08	2317.98	2317.98	.00	2319.70	1.73	2.66	.31	2313.90
1700.0	139.9	1530.7	29.5	33.8	138.8	10.0	213.1	93.5	2314.40
.62	4.14	11.03	2.95	.060	.030	.060	.000	2313.90	965.41
.008209	450.	396.	350.	0	8	0	.00	57.18	1022.59

FLOW DISTRIBUTION FOR SECNO= 3.50 CWSEL= 2317.98

STA=	965.	972.	981.	1017.	1023.
PER Q=	.8	7.4	90.0	1.7	
AREA=	6.5	27.3	138.8	10.0	
VEL=	2.2	4.6	11.0	2.9	
DEPTH=	1.0	3.0	3.9	1.8	

*SECNO 3.598

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 954.0 1080.0 TYPE= 1 TARGET= 126.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

3.598	3.15	2330.45	2330.45	.00	2331.48	1.03	4.20	.07	2328.30
1590.0	55.3	1351.7	182.9	20.5	154.6	57.6	215.4	94.6	2328.10
.64	2.69	8.75	3.17	.060	.030	.060	.000	2327.30	954.53
.008836	480.	496.	470.	0	15	0	.00	125.47	1080.00

FLOW DISTRIBUTION FOR SECNO= 3.60 CWSEL= 2330.45

STA=	955.	963.	975.	1035.	1050.	1065.	1080.
PER Q=	.2	3.2	85.0	7.5	3.4	.6	
AREA=	3.2	17.4	154.6	31.5	19.5	6.7	
VEL=	1.2	3.0	8.7	3.8	2.8	1.4	
DEPTH=	.4	1.4	2.6	2.1	1.3	.4	

*SECNO 3.633
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.633	3.21	2335.01	2335.01	.00	2336.01	1.00	1.92	.00	2333.50
1590.0	433.0	1027.1	129.9	103.2	108.2	33.0	216.4	95.1	2333.00
.65	4.19	9.49	3.94	.060	.030	.060	.000	2331.80	919.16
.012150	190.	185.	190.	0	8	0	.00	124.51	1043.67

FLOW DISTRIBUTION FOR SECNO= 3.63 CWSEL= 2335.01

STA=	919.	932.	945.	959.	977.	1024.	1041.	1044.
PER Q=	2.9	9.7	7.7	6.9	64.6	7.9	.3	
AREA=	14.6	31.4	28.2	29.1	108.2	30.9	2.2	
VEL=	3.2	4.9	4.4	3.8	9.5	4.1	2.1	
DEPTH=	1.1	2.4	2.0	1.6	2.3	1.8	.8	

*SECNO 3.693

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.693	2.47	2343.17	2343.17	.00	2343.92	.75	3.90	.02	2342.10
1590.0	373.7	939.5	276.8	98.5	110.2	85.1	218.5	96.4	2342.00
.66	3.79	8.53	3.25	.060	.030	.060	.000	2340.70	879.74
.012047	300.	317.	390.	0	15	0	.00	218.95	1112.55

FLOW DISTRIBUTION FOR SECNO= 3.69 CWSEL= 2343.17

STA=	880.	936.	947.	955.	970.	1026.	1083.	1098.	1113.
PER Q=	7.7	8.2	6.0	1.7	59.1	10.2	5.4	1.8	
AREA=	41.5	26.6	19.4	11.0	110.2	50.8	23.6	10.7	
VEL=	2.9	4.9	4.9	2.4	8.5	3.2	3.7	2.6	
DEPTH=	.7	2.4	2.4	.7	2.0	.9	1.6	.7	

*SECNO 3.812

3301 HV CHANGED MORE THAN HVINS

[illegible]5 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.812	3.22	2358.82	2358.82	.00	2360.16	1.35	7.90	.18	2355.70
1590.0	22.6	1545.3	22.2	6.8	163.7	6.7	221.9	98.5	2355.60
.68	3.32	9.44	3.32	.060	.035	.060	.000	2355.60	986.64
.013094	600.	628.	680.	0	11	0	.00	68.51	1055.15

FLOW DISTRIBUTION FOR SECNO= 3.81 CWSEL= 2358.82

STA=	987.	991.	1051.	1055.
PER Q=	1.4	97.2	1.4	
AREA=	6.8	163.7	6.7	
VEL=	3.3	9.4	3.3	
DEPTH=	1.6	2.7	1.6	

*SECNO 3.894
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3.894	3.95	2367.95	2367.95	.00	2369.26	1.32	5.00	.00	2364.20
1590.0	203.8	1220.9	165.3	47.5	118.9	45.1	223.8	99.2	2364.70
.69	4.29	10.27	3.66	.060	.035	.060	.000	2364.00	965.42
.010170	470.	433.	420.	0	11	0	.00	81.89	1047.31

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 3.89 CWSEL= 2367.95

STA=	965.	967.	976.	989.	1021.	1046.	1047.
PER Q=	.1	2.2	10.6	76.8	10.4	.0	
AREA=	.7	11.7	35.1	118.9	44.9	.2	
VEL=	1.4	3.0	4.8	10.3	3.7	.8	
DEPTH=	.5	1.3	2.7	3.7	1.8	.2	

T2 FLOODWAY DETERMINATION

T3 WASH D : MONARCH WASH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	0	0	0	0	1903.13	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15	0	-1	0	0	0	-1	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .200 CEHV=     .500
*SECNO 46.340
          HASSAYAMPA RIVER FIS SECTION (CBA 1988, NO DATUM CHANGE)
          HASSAYAMPA RIVER FLOODPLAIN EXTENDS UP WASH D TO SECTION 0.189.
    46.340      5.13   1903.13   1901.74   1903.13   1903.43       .30       .00       .00   1920.00
    3832.0        .0    2076.7    1755.3        .0     374.1     756.6        .0        .0   1900.00
       .00       .00      5.55      2.32      .000      .035      .070      .000   1898.00   1108.44
   .002705        0.        0.        0.         0        18         0       .00    345.04   1453.48


CCHV=     .100 CEHV=     .300
*SECNO  .006

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      800.0    1060.0  TYPE=      1  TARGET=      260.000
          ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
          SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
          WSEL AND THE TOPOGRAPHY.
      .006      3.23   1906.33   1906.33   1906.33   1907.33      1.00      2.13       .21   1903.60
    3832.0      18.5    3736.9      76.7       5.2     461.5      28.5       8.1       3.0   1905.60
       .01      3.53      8.10      2.69      .070      .045      .070      .000   1903.10    800.00
   .022669      280.      280.      600.         0        14         0       .00    260.00   1060.00


CCHV=     .300 CEHV=     .500
*SECNO  .034

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      911.9    1044.1  TYPE=      1  TARGET=      132.200
      .034      3.82   1910.12   1910.12   1910.12   1911.87      1.75      1.98       .38   1917.00
    3832.0        .0    3832.0        .0        .0     360.9        .0       9.6       3.6   1916.30
       .02       .00     10.62       .00      .000      .030      .000      .000   1906.30    926.79
   .008819      160.      148.      140.         0         8         0       .00    102.99   1029.78
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1909.29 , NOT 1910.12 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	.00	99.90	5.50	1275.30	1.91	1906.74	1906.34

*SECNO .042
BTCARD, BRIDGE STENCL= 919.90 STENCR= 1065.10

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1910.16 BRIDGE VELOCITY= 10.44 CALCULATED CHANNEL AREA= 345.

GPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1912.18	.00	0.	3832.	1275.	1225.	1917.41	1923.28	0.

3470 ENCROACHMENT STATIONS= 919.9 1065.1 TYPE= 1 TARGET= 145.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1920.00 ELREA= 1922.40

EAST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
ELEVATION = 1917.41, FLOWLINE ELEVATION = 1906.74, 5 PIERS, BOTTOM
WIDTH = 99.9 FEET.

.042	4.51	1911.21	.00	1911.21	1912.18	.97	.31	.00	1919.10
3832.0	.0	3832.0	.0	.0	484.7	.0	10.0	3.7	1918.90
.02	.00	7.91	.00	.000	.030	.000	.000	1906.70	933.37
.003828	42.	42.	42.	0	0	0	.00	114.18	1047.55

*SECNO .045

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
RO CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 929.9 1054.1 TYPE= 1 TARGET= 124.200

.045	3.89	1910.99	1910.99	1910.99	1912.62	1.63	.09	.33	1914.40
3832.0	.0	3832.0	.0	.0	374.2	.0	10.1	3.8	1914.80
.02	.00	10.24	.00	.000	.030	.000	.000	1907.10	935.55
.009102	16.	16.	16.	0	11	0	.00	115.38	1050.93

*SECNO .051
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 921.7 1047.3 TYPE= 1 TARGET= 125.600

.051	3.81	1912.66	1912.66	1912.66	1914.52	1.86	.28	.12	1908.85
3832.0	40.3	3751.4	40.3	14.6	339.5	14.5	10.4	3.8	1908.85
.02	2.77	11.05	2.77	.070	.030	.070	.000	1908.85	932.37
.008350	32.	32.	32.	0	8	0	.00	104.26	1036.63

CIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1911.96 , NOT 1912.66 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	.00	89.20	6.00	475.30	2.00	1909.25	1908.85

*SECNO .059
BTCARD, BRIDGE STENCL= 936.90 STENCR= 1047.10

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1912.96 BRIDGE VELOCITY= 10.77 CALCULATED CHANNEL AREA= 336.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1914.24	1915.02	.00	0.	3832.	475.	475.	1914.34	1919.40	0.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 936.9 1047.1 TYPE= 1 TARGET= 110.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1918.20 ELREA= 1916.60

WEST BOUND BRIDGE SECTION AT DOWNSTREAM SECTION; LOW CHORD
ELEVATION = 1914.34, FLOWLINE ELEVATION = 1909.25, 5 PIERS, BOTTOM
WIDTH = 89.2 FEET.

.059	4.94	1914.14	.00	1914.14	1915.02	.88	.50	.00	1909.30
3832.0	.0	3832.0	.0	.0	507.9	.0	10.8	4.0	1910.30
.02	.00	7.55	.00	.000	.030	.000	.000	1909.20	937.00
.003019	42.	42.	42.	0	0	0	.00	110.00	1047.00

*SECNO .089
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 870.0 1320.0 TYPE= 1 TARGET= 450.000

ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION; THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.089	5.19	1915.29	1915.29	1915.29	1916.26	.97	.71	.04	1911.10
3832.0	113.4	1946.8	1771.8	58.0	181.5	625.1	13.5	5.0	1911.20
.03	1.96	10.73	2.83	.070	.030	.070	.000	1910.10	873.00
.006716	120.	158.	190.	0	8	0	.00	447.00	1320.00

CCHV= .100 CEHV= .300
*SECNO .189

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 964.0 1225.0 TYPE= 1 TARGET= 261.000

.189	6.51	1924.71	1924.71	1924.71	1926.07	1.36	3.58	.12	1918.20
3832.0	13.6	3204.8	613.7	7.5	315.4	251.9	22.8	9.6	1922.50
.04	1.80	10.16	2.44	.070	.030	.070	.000	1918.20	964.69
.006452	520.	528.	580.	0	11	0	.00	252.85	1224.74

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .284

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 968.0 1254.0 TYPE= 1 TARGET= 286.000

.284	3.28	1930.68	1930.68	1930.69	1931.80	1.12	3.59	.02	1928.50
3832.0	5.1	1521.8	2305.1	2.2	126.2	473.8	27.1	11.2	1928.10
.06	2.34	12.06	4.86	.070	.030	.065	.000	1927.40	968.00
.014139	540.	502.	210.	0	8	0	.00	267.79	1253.46

*SECNO .347
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 798.0 1042.0 TYPE= 1 TARGET= 244.000

.347	5.91	1939.11	1939.11	1939.11	1940.53	1.42	2.67	.09	1934.50
3832.0	917.2	2762.9	151.9	353.5	248.3	42.4	31.7	13.1	1934.60
.07	2.59	11.13	3.58	.070	.030	.065	.000	1933.20	798.31
.005365	325.	333.	310.	0	14	0	.00	243.32	1041.63

*SECNO .421
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 969.0 1196.0 TYPE= 1 TARGET= 227.000

.421	7.04	1947.34	1947.34	1947.34	1948.94	1.60	2.00	.05	1942.20
3832.0	6.6	3018.0	807.3	4.8	266.3	290.1	37.2	15.3	1942.00
.08	1.39	11.33	2.78	.065	.030	.065	.000	1940.30	969.31
.004750	290.	391.	530.	0	8	0	.00	226.67	1195.99

*SECNO .473
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 947.0 1143.0 TYPE= 1 TARGET= 196.000

.473	6.04	1953.14	1953.14	1953.14	1954.63	1.49	1.74	.01	1947.50
3832.0	151.2	2892.8	788.0	30.8	261.3	223.5	40.5	16.6	1948.70
.09	4.92	11.07	3.53	.065	.040	.065	.000	1947.10	947.08
.009047	280.	275.	260.	0	15	0	.00	195.60	1142.67

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO .546
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 828.0 1045.0 TYPE= 1 TARGET= 217.000

.546	4.70	1960.40	1960.40	1960.40	1961.74	1.34	3.41	.01	1956.80
3832.0	1440.8	2196.1	195.1	362.1	186.1	51.6	45.6	18.4	1956.80
.10	3.98	11.80	3.78	.065	.030	.065	.000	1955.70	828.57
.008387	460.	385.	315.	0	15	0	.00	216.10	1044.67

*SECNO .604

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 725.0 1040.0 TYPE= 1 TARGET= 315.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

.604	4.49	1967.99	1967.99	1967.99	1969.24	1.25	2.16	.01	1963.50
3774.0	638.7	2872.7	262.6	256.2	282.6	72.1	50.1	20.4	1963.50
.11	2.49	10.17	3.64	.065	.030	.065	.000	1963.50	725.40
.005692	340.	306.	306.	0	8	0	.00	302.36	1039.32

*SECNO .712
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 710.0 1129.0 TYPE= 1 TARGET= 419.000

.712	3.53	1980.23	1980.23	1980.23	1981.14	.91	3.98	.03	1977.90
3774.0	737.2	2173.1	863.7	247.4	223.5	267.3	59.2	25.3	1977.90
.13	2.98	9.72	3.23	.065	.030	.065	.000	1976.70	711.47
.008527	620.	570.	560.	0	15	0	.00	416.57	1128.05

*SECNO .790

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 911.0 1043.0 TYPE= 1 TARGET= 132.000

.790	3.92	1988.52	1988.52	1988.52	1990.13	1.61	3.52	.21	1985.90
3774.0	134.8	3603.3	35.9	40.5	346.9	13.3	64.7	28.0	1986.20
.15	3.33	10.39	2.70	.065	.030	.065	.000	1984.60	911.68
.008386	450.	412.	410.	0	8	0	.00	131.15	1042.82

*SECNO .843

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 963.0 1071.0 TYPE= 1 TARGET= 108.000

.843	5.92	1993.62	1993.62	1993.62	1995.77	2.15	2.03	.16	1987.70
3774.0	208.7	3136.7	428.6	47.6	245.5	116.4	67.3	28.8	1987.80
.15	4.38	12.77	3.68	.065	.030	.065	.000	1987.70	963.17
.006315	280.	280.	280.	0	11	0	.00	107.66	1070.83

*SECNO .939
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 946.0 1039.0 TYPE= 1 TARGET= 93.000

.939	4.81	2002.81	2002.81	2002.81	2004.91	2.10	3.58	.01	1998.10
3774.0	91.1	3447.4	235.5	23.5	285.2	53.9	71.8	29.9	1998.50
.17	3.88	12.09	4.37	.065	.030	.065	.000	1998.00	946.58
.007958	510.	507.	510.	0	15	0	.00	92.34	1038.91

*SECNO 1.032
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 912.0 1042.0 TYPE= 1 TARGET= 130.000

1.032	4.71	2014.11	2014.11	2014.11	2015.92	1.81	3.87	.03	2009.40
3774.0	882.0	2871.1	20.9	207.8	236.5	8.2	76.4	31.2	2009.80
.18	4.24	12.14	2.55	.065	.030	.065	.000	2009.40	912.87
.007768	500.	491.	490.	0	8	0	.00	128.93	1041.80

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.127
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 945.0 1088.0 TYPE= 1 TARGET= 143.000

1.127	4.20	2023.10	2023.10	2023.10	2024.81	1.71	4.18	.01	2018.90
4000.0	138.1	2910.3	951.6	33.3	242.5	207.1	81.8	32.7	2019.10
.19	4.15	12.00	4.59	.065	.030	.065	.000	2018.90	945.72
.008920	490.	502.	510.	0	11	0	.00	142.17	1087.89

*SECNO 1.229
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 884.0 1037.0 TYPE= 1 TARGET= 153.000

1.229	5.50	2034.60	2034.60	2034.60	2036.34	1.74	4.29	.01	2030.20
4000.0	1336.2	2524.5	139.3	319.3	195.3	32.9	88.1	34.5	2029.20
.21	4.19	12.92	4.23	.065	.030	.065	.000	2029.10	884.99
.007231	520.	539.	540.	0	11	0	.00	151.11	1036.10

*SECNO 1.287
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 917.0 1060.0 TYPE= 1 TARGET= 143.000

1.287	5.42	2038.42	2038.42	2038.40	2040.36	1.94	2.11	.06	2033.50
4000.0	658.4	2961.1	380.5	129.5	233.1	104.3	91.3	35.5	2033.40
.22	5.08	12.70	3.65	.065	.030	.065	.000	2033.00	917.14
.007339	240.	306.	310.	0	5	0	.00	142.76	1059.89

*SECNO 1.346

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 744.0 1013.0 TYPE= 1 TARGET= 269.000

1.346	6.56	2045.86	2045.86	2045.87	2047.24	1.37	1.95	.06	2040.00
4000.0	1562.6	2408.4	29.1	510.3	202.9	12.4	95.8	37.0	2040.00
.23	3.06	11.87	2.34	.065	.030	.065	.000	2039.30	744.00
.005108	350.	312.	280.	0	11	0	.00	268.23	1012.23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.423
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 901.0 1176.0 TYPE= 1 TARGET= 275.000

1.423	3.91	2054.11	2054.11	2054.10	2055.31	1.21	2.54	.02	2051.20
4000.0	423.4	2695.7	880.9	106.2	258.0	256.2	101.6	39.4	2050.70
.24	3.99	10.45	3.44	.065	.030	.065	.000	2050.20	901.10
.008576	320.	407.	450.	0	14	0	.00	274.42	1175.52

*SECNO 1.513
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 636.0 1032.0 TYPE= 1 TARGET= 396.000

1.513	4.75	2069.55	2069.55	2069.56	2070.57	1.01	4.09	.02	2065.30
4000.0	1684.1	1652.9	663.1	508.8	141.2	135.2	110.3	43.7	2065.20
.26	3.31	11.71	4.90	.065	.030	.065	.000	2064.80	636.72
.007409	650.	475.	440.	0	8	0	.00	395.17	1031.88

*SECNO 1.587

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 871.0 1267.0 TYPE= 1 TARGET= 396.000

1.587	3.82	2076.72	2076.72	2076.72	2077.75	1.03	3.51	.00	2073.90
4000.0	292.9	2306.1	1401.0	89.0	224.2	392.1	118.1	47.8	2072.90
.28	3.29	10.28	3.57	.065	.030	.065	.000	2072.90	871.63
.009133	550.	391.	380.	0	15	0	.00	365.13	1266.73

*SECNO 1.615
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 957.0 1330.0 TYPE= 1 TARGET= 373.000

1.615	5.49	2083.69	2083.69	2083.69	2084.91	1.22	1.30	.06	2078.20
4245.0	54.2	2229.4	1961.4	18.3	189.6	550.4	121.3	49.5	2078.70
.28	2.96	11.76	3.56	.065	.030	.065	.000	2078.20	957.33
.006151	130.	148.	220.	0	11	0	.00	371.87	1329.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 1.710

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 869.0 1232.0 TYPE= 1 TARGET= 363.000

1.710	3.73	2093.33	2093.33	2093.33	2094.20	.87	5.13	.03	2091.60
4245.0	760.5	586.9	2897.6	136.0	60.3	391.8	128.8	53.5	2092.20
.30	5.59	9.74	7.40	.060	.030	.050	.000	2089.60	869.68
.021697	500.	502.	480.	0	20	0	.00	355.30	1231.04

*SECNO 1.803

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
[illegible]20 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 677.0 1095.0 TYPE= 1 TARGET= 418.000

1.803	4.45	2104.45	2104.45	2104.45	2105.57	1.12	5.55	.07	2100.20
4245.0	1375.8	2353.4	515.8	372.8	217.2	117.6	135.7	57.4	2100.90
.32	3.69	10.84	4.39	.060	.030	.060	.000	2100.00	677.00
.007302	410.	491.	500.	0	11	0	.00	396.26	1094.67

*SECNO 1.879
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 906.0 1214.0 TYPE= 1 TARGET= 308.000

1.879	4.01	2116.11	2116.11	2116.11	2117.27	1.17	2.93	.01	2112.30
4245.0	454.3	2979.2	811.5	116.0	295.0	262.5	142.2	60.7	2112.80
.33	3.92	10.10	3.09	.060	.030	.060	.000	2112.10	906.49
.007181	380.	401.	450.	0	11	0	.00	307.29	1213.78

*SECNO 1.931

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 952.0 1126.0 TYPE= 1 TARGET= 174.000

1.931	6.53	2122.13	2122.13	2122.13	2123.96	1.83	1.90	.20	2115.60
4245.0	143.5	2889.0	1212.5	37.2	224.9	285.0	146.4	62.4	2117.00
.34	3.86	12.85	4.25	.060	.030	.060	.000	2115.60	952.62
.006075	240.	275.	340.	0	14	0	.00	172.91	1125.52

*SECNO 2.037

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 955.0 1275.0 TYPE= 1 TARGET= 320.000

2.037	4.43	2131.83	2131.83	2131.84	2132.80	.97	4.05	.09	2130.10
4245.0	34.3	735.2	3475.5	10.8	87.1	445.5	150.9	64.3	2130.80
.35	3.17	8.44	7.80	.060	.030	.050	.000	2127.40	955.48
.020036	580.	560.	270.	0	19	0	.00	296.58	1274.29

*SECNO 2.122

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 842.0 1026.0 TYPE= 1 TARGET= 184.000

2.122	5.65	2142.05	2142.05	2142.04	2143.73	1.68	4.18	.21	2137.60
4245.0	766.5	3373.6	105.0	225.8	292.5	26.0	156.2	66.6	2136.60
.37	3.40	11.54	4.03	.060	.030	.060	.000	2136.40	842.04
.005988	470.	449.	370.	0	11	0	.00	183.60	1025.64

*SECNO 2.185
7185 MINIMUM SPECIFIC ENERGY

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 891.0 1113.0 TYPE= 1 TARGET= 222.000

2.185	3.56	2149.76	2149.76	2149.76	2151.07	1.31	2.53	.04	2146.20
4245.0	1449.8	2682.4	112.8	321.7	242.8	25.8	160.5	68.1	2146.90
.38	4.51	11.05	4.36	.060	.030	.060	.000	2146.20	891.53
.010019	330.	333.	330.	0	14	0	.00	220.98	1112.51

*SECNO 2.298

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 957.0 1091.0 TYPE= 1 TARGET= 134.000

2.298	5.04	2162.54	2162.54	2162.54	2164.37	1.83	5.39	.15	2157.50
4245.0	283.2	3322.7	639.0	57.1	276.8	137.0	167.8	70.6	2158.70
.39	4.96	12.00	4.66	.060	.030	.060	.000	2157.50	957.28
.008163	590.	597.	620.	0	11	0	.00	133.22	1090.50

*SECNO 2.380

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 972.0 1135.0 TYPE= 1 TARGET= 163.000

2.380	4.36	2171.76	2171.76	2171.76	2172.86	1.10	3.46	.07	2167.60
1914.0	124.4	1131.9	657.7	29.1	107.5	193.8	171.9	72.1	2168.80
.41	4.27	10.53	3.39	.060	.030	.060	.000	2167.40	972.45
.007198	420.	433.	470.	0	15	0	.00	161.27	1134.58

*SECNO 2.458
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 907.0 1071.0 TYPE= 1 TARGET= 164.000

2.458	3.06	2183.96	2183.96	2183.96	2184.94	.98	3.82	.01	2180.90
1914.0	275.7	1139.9	498.4	60.6	116.7	134.2	175.2	73.8	2182.10
.42	4.55	9.77	3.71	.060	.030	.060	.000	2180.90	907.52
.010931	380.	412.	500.	0	19	0	.00	162.56	1070.08

*SECNO 2.511

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 970.0 1101.0 TYPE= 1 TARGET= 131.000

2.511	4.11	2190.21	2190.21	2190.19	2191.39	1.19	2.50	.06	2186.50
1914.0	81.1	1575.4	257.6	23.8	165.1	92.6	177.2	74.8	2188.90
.43	3.40	9.54	2.78	.060	.030	.060	.000	2186.10	970.54
.007189	250.	280.	320.	0	11	0	.00	129.88	1100.42

ECNO 2.597

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 833.0 1055.0 TYPE= 1 TARGET= 222.000

2.597	3.81	2198.91	2198.91	2198.91	2199.84	.93	3.03	.03	2195.60
1914.0	489.5	1316.6	107.9	185.4	144.0	31.5	180.4	76.5	2195.80
.45	2.64	9.14	3.43	.060	.030	.060	.000	2195.10	833.84
.006598	480.	454.	270.	0	11	0	.00	215.71	1054.77

*SECNO 2.671

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 949.0 1146.0 TYPE= 1 TARGET= 197.000

2.671	4.32	2209.42	2209.42	2209.42	2210.43	1.01	2.43	.02	2206.80
1914.0	84.6	1442.3	387.1	26.0	157.0	161.4	183.5	78.2	2206.00
.46	3.25	9.18	2.40	.060	.030	.060	.000	2205.10	949.66
.005942	410.	391.	350.	0	8	0	.00	179.52	1145.18

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 2.768
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 867.0 1028.0 TYPE= 1 TARGET= 161.000

2.768	3.60	2221.60	2221.60	2221.60	2222.65	1.05	3.50	.01	2218.50
1914.0	364.8	1225.4	323.7	115.7	123.3	82.7	187.3	80.2	2218.40
.48	3.15	9.94	3.91	.060	.030	.060	.000	2218.00	867.30
.008100	490.	512.	500.	0	15	0	.00	160.11	1027.42

*SECNO 2.821
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 925.0 1147.0 TYPE= 1 TARGET= 222.000

2.821	3.25	2228.15	2228.15	2228.15	2228.93	.78	2.89	.03	2227.10
1810.0	1.5	1015.1	793.4	.9	114.8	209.9	189.4	81.4	2226.50
.50	1.67	8.84	3.78	.060	.030	.060	.000	2224.90	925.30
.013290	270.	285.	290.	0	15	0	.00	221.70	1147.00

*SECNO 2.917
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 973.0 1230.0 TYPE= 1 TARGET= 257.000

2.917	2.84	2240.44	2240.44	2240.44	2241.16	.71	5.72	.01	2237.60
1810.0	27.7	1008.8	773.5	8.7	116.0	261.3	193.6	84.3	2238.50
.52	3.18	8.69	2.96	.060	.030	.060	.000	2237.60	973.52
.009503	510.	507.	520.	0	15	0	.00	256.03	1229.55

*SECNO 2.996
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 888.0 1054.0 TYPE= 1 TARGET= 166.000

2.996	3.23	2251.53	2251.53	2251.53	2252.47	.93	4.04	.07	2249.60
1810.0	680.9	1079.4	49.7	186.3	112.5	15.2	197.0	86.3	2248.60
.53	3.65	9.59	3.27	.060	.030	.060	.000	2248.30	888.86
.009769	470.	417.	380.	0	8	0	.00	164.59	1053.45

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3.082

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 958.0 1049.0 TYPE= 1 TARGET= 91.000

3.082	4.22	2262.22	2262.22	2262.22	2263.67	1.45	3.73	.15	2258.20
1810.0	235.1	1383.8	191.1	51.7	127.9	60.7	199.7	87.5	2258.60
.55	4.55	10.82	3.15	.060	.030	.060	.000	2258.00	958.87
.007522	375.	454.	500.	0	11	0	.00	89.46	1048.33

*SECNO 3.159
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 942.0 1040.0 TYPE= 1 TARGET= 98.000

3.159	3.88	2271.38	2271.38	2271.38	2272.72	1.33	3.14	.01	2267.90
1810.0	218.4	1551.7	39.9	69.1	156.3	13.2	201.9	88.4	2269.00
.56	3.16	9.93	3.03	.060	.030	.060	.000	2267.50	942.79
.007870	430.	407.	370.	0	11	0	.00	96.33	1039.13

*SECNO 3.259
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 964.0 1055.0 TYPE= 1 TARGET= 91.000

3.259	3.28	2285.28	2285.28	2285.27	2286.54	1.26	4.72	.01	2282.20
1700.0	175.5	1377.5	146.9	38.3	140.7	37.3	204.7	89.5	2282.00
.58	4.59	9.79	3.94	.060	.030	.060	.000	2282.00	964.34
.010383	510.	528.	550.	0	15	0	.00	90.16	1054.50

*SECNO 3.353
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 963.0 1070.0 TYPE= 1 TARGET= 107.000

3.353	4.47	2295.57	2295.57	2295.57	2296.87	1.30	3.95	.01	2292.40
1700.0	35.2	1433.1	231.7	13.8	144.9	88.7	207.4	90.6	2292.50
.59	2.56	9.89	2.61	.060	.030	.060	.000	2291.10	963.32
.006259	500.	496.	510.	0	11	0	.00	106.01	1069.33

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3.429

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 885.0 1200.0 TYPE= 1 TARGET= 315.000

3.429	4.18	2307.38	2307.38	2307.38	2308.07	.69	2.38	.06	2303.20
1700.0	197.5	873.4	629.1	70.8	97.4	257.6	210.4	92.2	2304.70
.61	2.79	8.97	2.44	.060	.030	.060	.000	2303.20	885.57
.005661	420.	401.	390.	0	10	0	.00	247.54	1199.73

*SECNO 3.504

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 965.0 1023.0 TYPE= 1 TARGET= 58.000

3.504	4.07	2317.97	2317.97	2317.98	2319.70	1.73	2.66	.31	2313.90
1700.0	139.7	1530.8	29.4	33.7	138.6	10.0	213.1	93.5	2314.40
.62	4.15	11.05	2.95	.060	.030	.060	.000	2313.90	965.42
.008244	450.	396.	350.	0	8	0	.00	57.16	1022.58

*SECNO 3.598

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 954.0 1080.0 TYPE= 1 TARGET= 126.000
ET-DATA USED TO SET LIMITS OF EFFECTIVE FLOW AREA AT CURRENT
SECTION: THEREFORE, FLOODPLAIN LIMITS ARE BASED ON THE COMPUTED
WSEL AND THE TOPOGRAPHY.

3.598	3.15	2330.45	2330.45	2330.45	2331.48	1.03	4.20	.07	2328.30
1590.0	55.3	1351.7	182.9	20.5	154.6	57.6	215.5	94.6	2328.10
.64	2.69	8.75	3.17	.060	.030	.060	.000	2327.30	954.53
.008836	480.	496.	470.	0	15	0	.00	125.47	1080.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 3.633
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 919.0 1044.0 TYPE= 1 TARGET= 125.000

3.633	3.21	2335.01	2335.01	2335.01	2336.01	1.00	1.92	.00	2333.50
1590.0	432.8	1027.3	129.8	103.1	108.1	33.0	216.5	95.1	2333.00
.65	4.20	9.51	3.94	.060	.030	.060	.000	2331.80	919.20
.012201	190.	185.	190.	0	8	0	.00	124.46	1043.66

*SECNO 3.693

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 879.0 1113.0 TYPE= 1 TARGET= 234.000

3.693	2.47	2343.17	2343.17	2343.17	2343.92	.75	3.90	.03	2342.10
1590.0	373.7	939.5	276.8	98.5	110.2	85.1	218.5	96.4	2342.00
.66	3.79	8.53	3.25	.060	.030	.060	.000	2340.70	879.73
.012041	300.	317.	390.	0	15	0	.00	218.97	1112.56

*SECNO 3.812

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 986.0 1056.0 TYPE= 1 TARGET= 70.000

3.812	3.22	2358.82	2358.82	2358.82	2360.16	1.35	7.89	.18	2355.70
1590.0	22.6	1545.3	22.2	6.8	163.9	6.7	221.9	98.5	2355.60
.68	3.32	9.43	3.32	.060	.035	.060	.000	2355.60	986.64
.013055	600.	628.	680.	0	11	0	.00	68.52	1055.15

*SECNO 3.894
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 965.0 1048.0 TYPE= 1 TARGET= 83.000

3.894	3.95	2367.95	2367.95	2367.95	2369.26	1.31	4.99	.00	2364.20
1590.0	203.9	1220.8	165.3	47.5	118.9	45.2	223.9	99.2	2364.70
.69	4.29	10.26	3.66	.060	.035	.060	.000	2364.00	965.42
.010157	470.	433.	420.	0	11	0	.00	81.90	1047.32

THIS RUN EXECUTED 14APR92 11:02:35

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WASH D : MONARCH WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	46.340	.00	.00	.00	1898.00	3832.00	1903.13	1901.76	1903.43	26.97	5.54	1131.93	737.85
	46.340	.00	.00	.00	1898.00	3832.00	1903.13	1901.74	1903.43	27.05	5.55	1130.79	736.72
*	.006	280.00	.00	.00	1903.10	3832.00	1906.33	1906.33	1907.33	226.92	8.10	495.05	254.39
*	.006	280.00	.00	.00	1903.10	3832.00	1906.33	1906.33	1907.33	226.69	8.10	495.21	254.51
	.034	148.00	.00	.00	1906.30	3832.00	1910.12	1910.12	1911.87	88.21	10.62	360.84	408.01
*	.034	148.00	.00	.00	1906.30	3832.00	1910.12	1910.12	1911.87	88.19	10.62	360.87	408.05
*	.042	42.20	1923.28	1917.41	1906.70	3832.00	1911.21	.00	1912.18	38.28	7.91	484.72	619.35
*	.042	42.20	1923.28	1917.41	1906.70	3832.00	1911.21	.00	1912.18	38.28	7.91	484.72	619.35
*	.045	15.80	.00	.00	1907.10	3832.00	1910.99	1910.99	1912.62	91.02	10.24	374.24	401.65
*	.045	15.80	.00	.00	1907.10	3832.00	1910.99	1910.99	1912.62	91.02	10.24	374.24	401.65
*	.051	31.70	.00	.00	1908.85	3832.00	1912.66	1912.66	1914.52	83.50	11.05	368.59	419.36
*	.051	31.70	.00	.00	1908.85	3832.00	1912.66	1912.66	1914.52	83.50	11.05	368.59	419.36
*	.059	42.20	1919.40	1914.34	1909.20	3832.00	1914.14	.00	1915.02	30.19	7.55	507.86	697.47
*	.059	42.20	1919.40	1914.34	1909.20	3832.00	1914.14	.00	1915.02	30.19	7.55	507.86	697.47
*	.089	158.00	.00	.00	1910.10	3832.00	1915.29	1915.29	1916.26	67.16	10.73	864.52	467.60
*	.089	158.00	.00	.00	1910.10	3832.00	1915.29	1915.29	1916.26	67.16	10.73	864.52	467.60
*	.189	528.00	.00	.00	1918.20	3832.00	1924.71	1924.71	1926.07	64.73	10.17	574.09	476.30
*	.189	528.00	.00	.00	1918.20	3832.00	1924.71	1924.71	1926.07	64.52	10.16	574.89	477.06
*	.284	502.00	.00	.00	1927.40	3832.00	1930.69	1930.69	1931.80	141.28	12.06	602.39	322.39
*	.284	502.00	.00	.00	1927.40	3832.00	1930.68	1930.68	1931.80	141.39	12.06	602.23	322.27
*	.347	333.00	.00	.00	1933.20	3832.00	1939.11	1939.11	1940.53	53.72	11.13	643.90	522.81
	.347	333.00	.00	.00	1933.20	3832.00	1939.11	1939.11	1940.53	53.65	11.13	644.29	523.17

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	.421	391.00	.00	.00	1940.30	3832.00	1947.34	1947.34	1948.94	47.50	11.33	561.18	555.99
*	.421	391.00	.00	.00	1940.30	3832.00	1947.34	1947.34	1948.94	47.50	11.33	561.21	556.02
*	.473	275.00	.00	.00	1947.10	3832.00	1953.14	1953.14	1954.63	90.59	11.08	515.19	402.61
*	.473	275.00	.00	.00	1947.10	3832.00	1953.14	1953.14	1954.63	90.47	11.07	515.50	402.88
*	.546	385.00	.00	.00	1955.70	3832.00	1960.40	1960.40	1961.74	83.84	11.80	599.82	418.50
*	.546	385.00	.00	.00	1955.70	3832.00	1960.40	1960.40	1961.74	83.87	11.80	599.74	418.42
*	.604	306.00	.00	.00	1963.50	3774.00	1967.99	1967.99	1969.24	56.92	10.16	610.94	500.25
*	.604	306.00	.00	.00	1963.50	3774.00	1967.99	1967.99	1969.24	56.92	10.17	610.91	500.22
*	.712	570.00	.00	.00	1976.70	3774.00	1980.23	1980.23	1981.14	85.39	9.73	737.75	408.41
*	.712	570.00	.00	.00	1976.70	3774.00	1980.23	1980.23	1981.14	85.27	9.72	738.16	408.70
*	.790	412.00	.00	.00	1984.60	3774.00	1988.52	1988.52	1990.13	83.85	10.39	400.74	412.14
*	.790	412.00	.00	.00	1984.60	3774.00	1988.52	1988.52	1990.13	83.86	10.39	400.73	412.11
*	.843	280.00	.00	.00	1987.70	3774.00	1993.62	1993.62	1995.77	63.17	12.78	409.50	474.85
*	.843	280.00	.00	.00	1987.70	3774.00	1993.62	1993.62	1995.77	63.15	12.77	409.55	474.93
*	.939	507.00	.00	.00	1998.00	3774.00	2002.81	2002.81	2004.91	79.75	12.10	362.27	422.60
*	.939	507.00	.00	.00	1998.00	3774.00	2002.81	2002.81	2004.91	79.58	12.09	362.54	423.07
	1.032	491.00	.00	.00	2009.40	3774.00	2014.11	2014.11	2015.92	77.64	12.14	452.59	428.30
*	1.032	491.00	.00	.00	2009.40	3774.00	2014.11	2014.11	2015.92	77.68	12.14	452.51	428.19
*	1.127	502.00	.00	.00	2018.90	4000.00	2023.10	2023.10	2024.81	89.40	12.01	482.49	423.04
*	1.127	502.00	.00	.00	2018.90	4000.00	2023.10	2023.10	2024.81	89.20	12.00	482.85	423.52
*	1.229	539.00	.00	.00	2029.10	4000.00	2034.60	2034.60	2036.34	72.27	12.92	547.59	470.51
*	1.229	539.00	.00	.00	2029.10	4000.00	2034.60	2034.60	2036.34	72.31	12.92	547.48	470.38
*	1.287	306.00	.00	.00	2033.00	4000.00	2038.40	2038.40	2040.36	74.17	12.75	464.88	464.46
*	1.287	306.00	.00	.00	2033.00	4000.00	2038.42	2038.42	2040.36	73.39	12.70	466.93	466.91
*	1.346	312.00	.00	.00	2039.30	4000.00	2045.87	2045.87	2047.24	51.05	11.87	725.79	559.84
*	1.346	312.00	.00	.00	2039.30	4000.00	2045.86	2045.86	2047.24	51.08	11.87	725.62	559.70
*	1.423	407.00	.00	.00	2050.20	4000.00	2054.10	2054.10	2055.31	86.05	10.46	619.52	431.19
*	1.423	407.00	.00	.00	2050.20	4000.00	2054.11	2054.11	2055.31	85.76	10.45	620.32	431.93
*	1.513	475.00	.00	.00	2064.80	4000.00	2069.56	2069.56	2070.57	73.65	11.68	787.31	466.10
*	1.513	475.00	.00	.00	2064.80	4000.00	2069.55	2069.55	2070.57	74.09	11.71	785.18	464.70
*	1.587	391.00	.00	.00	2072.90	4000.00	2076.72	2076.72	2077.75	91.59	10.29	704.45	417.96
*	1.587	391.00	.00	.00	2072.90	4000.00	2076.72	2076.72	2077.75	91.33	10.28	705.25	418.56
*	1.615	148.00	.00	.00	2078.20	4245.00	2083.69	2083.69	2084.91	61.65	11.77	757.38	540.64
	1.615	148.00	.00	.00	2078.20	4245.00	2083.69	2083.69	2084.91	61.51	11.76	758.28	541.26

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1.710	502.00	.00	.00	2089.60	4245.00	2093.33	2093.33	2094.20	216.61	9.74	588.42	288.43
*	1.710	502.00	.00	.00	2089.60	4245.00	2093.33	2093.33	2094.20	216.97	9.74	588.07	288.19
*	1.803	491.00	.00	.00	2100.00	4245.00	2104.45	2104.45	2105.57	73.02	10.84	707.58	496.79
*	1.803	491.00	.00	.00	2100.00	4245.00	2104.45	2104.45	2105.57	73.02	10.84	707.58	496.79
*	1.879	401.00	.00	.00	2112.10	4245.00	2116.11	2116.11	2117.27	71.87	10.10	673.31	500.73
*	1.879	401.00	.00	.00	2112.10	4245.00	2116.11	2116.11	2117.27	71.81	10.10	673.54	500.94
*	1.931	275.00	.00	.00	2115.60	4245.00	2122.13	2122.13	2123.96	60.60	12.84	547.58	545.29
*	1.931	275.00	.00	.00	2115.60	4245.00	2122.13	2122.13	2123.96	60.75	12.85	546.98	544.63
*	2.037	560.00	.00	.00	2127.40	4245.00	2131.84	2131.84	2132.80	196.79	8.41	546.87	302.61
*	2.037	560.00	.00	.00	2127.40	4245.00	2131.83	2131.83	2132.80	200.36	8.44	543.46	299.90
*	2.122	449.00	.00	.00	2136.40	4245.00	2142.04	2142.04	2143.73	60.19	11.56	543.05	547.16
*	2.122	449.00	.00	.00	2136.40	4245.00	2142.05	2142.05	2143.73	59.88	11.54	544.26	548.60
*	2.185	333.00	.00	.00	2146.20	4245.00	2149.76	2149.76	2151.07	100.16	11.05	590.46	424.15
*	2.185	333.00	.00	.00	2146.20	4245.00	2149.76	2149.76	2151.07	100.19	11.05	590.40	424.09
*	2.298	597.00	.00	.00	2157.50	4245.00	2162.54	2162.54	2164.37	81.73	12.01	470.77	469.55
*	2.298	597.00	.00	.00	2157.50	4245.00	2162.54	2162.54	2164.37	81.63	12.00	470.96	469.83
	2.380	433.00	.00	.00	2167.40	1914.00	2171.76	2171.76	2172.86	72.20	10.54	329.95	225.25
*	2.380	433.00	.00	.00	2167.40	1914.00	2171.76	2171.76	2172.86	71.98	10.53	330.39	225.59
*	2.458	412.00	.00	.00	2180.90	1914.00	2183.96	2183.96	2184.94	109.31	9.77	311.55	183.06
*	2.458	412.00	.00	.00	2180.90	1914.00	2183.96	2183.96	2184.94	109.31	9.77	311.55	183.06
*	2.511	280.00	.00	.00	2186.10	1914.00	2190.19	2190.19	2191.39	73.37	9.61	279.23	223.46
*	2.511	280.00	.00	.00	2186.10	1914.00	2190.21	2190.21	2191.39	71.89	9.54	281.51	225.74
*	2.597	454.00	.00	.00	2195.10	1914.00	2198.91	2198.91	2199.84	66.06	9.15	360.64	235.48
*	2.597	454.00	.00	.00	2195.10	1914.00	2198.91	2198.91	2199.84	65.98	9.14	360.85	235.63
*	2.671	391.00	.00	.00	2205.10	1914.00	2209.42	2209.42	2210.43	59.43	9.19	344.37	248.27
*	2.671	391.00	.00	.00	2205.10	1914.00	2209.42	2209.42	2210.43	59.42	9.18	344.42	248.31
*	2.768	512.00	.00	.00	2218.00	1914.00	2221.60	2221.60	2222.65	81.10	9.95	321.54	212.53
*	2.768	512.00	.00	.00	2218.00	1914.00	2221.60	2221.60	2222.65	81.00	9.94	321.70	212.67
*	2.821	285.00	.00	.00	2224.90	1810.00	2228.15	2228.15	2228.93	133.53	8.86	325.05	156.63
*	2.821	285.00	.00	.00	2224.90	1810.00	2228.15	2228.15	2228.93	132.90	8.84	325.59	157.01
*	2.917	507.00	.00	.00	2237.60	1810.00	2240.44	2240.44	2241.16	94.99	8.69	386.07	185.72
*	2.917	507.00	.00	.00	2237.60	1810.00	2240.44	2240.44	2241.16	95.03	8.69	386.01	185.67
	2.996	417.00	.00	.00	2248.30	1810.00	2251.53	2251.53	2252.47	97.87	9.60	313.89	182.96
	2.996	417.00	.00	.00	2248.30	1810.00	2251.53	2251.53	2252.47	97.69	9.59	314.09	183.12

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	3.082	454.00	.00	.00	2258.00	1810.00	2262.22	2262.22	2263.67	75.07	10.81	240.49	208.90
*	3.082	454.00	.00	.00	2258.00	1810.00	2262.22	2262.22	2263.67	75.22	10.82	240.31	208.70
*	3.159	407.00	.00	.00	2267.50	1810.00	2271.38	2271.38	2272.72	78.53	9.92	238.82	204.25
*	3.159	407.00	.00	.00	2267.50	1810.00	2271.38	2271.38	2272.72	78.70	9.93	238.63	204.03
*	3.259	528.00	.00	.00	2282.00	1700.00	2285.27	2285.27	2286.54	104.32	9.80	215.96	166.44
*	3.259	528.00	.00	.00	2282.00	1700.00	2285.28	2285.28	2286.54	103.83	9.79	216.29	166.83
*	3.353	496.00	.00	.00	2291.10	1700.00	2295.57	2295.57	2296.87	63.04	9.91	246.69	214.12
*	3.353	496.00	.00	.00	2291.10	1700.00	2295.57	2295.57	2296.87	62.59	9.89	247.42	214.88
*	3.429	401.00	.00	.00	2303.20	1700.00	2307.38	2307.38	2308.07	56.83	8.98	425.01	225.51
*	3.429	401.00	.00	.00	2303.20	1700.00	2307.38	2307.38	2308.07	56.61	8.97	425.67	225.95
*	3.504	396.00	.00	.00	2313.90	1700.00	2317.98	2317.98	2319.70	82.09	11.03	182.52	187.63
*	3.504	396.00	.00	.00	2313.90	1700.00	2317.97	2317.97	2319.70	82.44	11.05	182.25	187.24
*	3.598	496.00	.00	.00	2327.30	1590.00	2330.45	2330.45	2331.48	88.36	8.75	232.75	169.15
*	3.598	496.00	.00	.00	2327.30	1590.00	2330.45	2330.45	2331.48	88.36	8.75	232.75	169.15
*	3.633	185.00	.00	.00	2331.80	1590.00	2335.01	2335.01	2336.01	121.50	9.49	244.45	144.25
*	3.633	185.00	.00	.00	2331.80	1590.00	2335.01	2335.01	2336.01	122.01	9.51	244.11	143.95
	3.693	317.00	.00	.00	2340.70	1590.00	2343.17	2343.17	2343.92	120.47	8.53	293.73	144.86
*	3.693	317.00	.00	.00	2340.70	1590.00	2343.17	2343.17	2343.92	120.41	8.53	293.78	144.90
*	3.812	628.00	.00	.00	2355.60	1590.00	2358.82	2358.82	2360.16	130.94	9.44	177.19	138.95
*	3.812	628.00	.00	.00	2355.60	1590.00	2358.82	2358.82	2360.16	130.55	9.43	177.35	139.16
*	3.894	433.00	.00	.00	2364.00	1590.00	2367.95	2367.95	2369.26	101.70	10.27	211.52	157.66
*	3.894	433.00	.00	.00	2364.00	1590.00	2367.95	2367.95	2369.26	101.57	10.26	211.62	157.77

SH D : MONARCH WASH

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	46.340	3832.00	1903.13	.00	.00	-21.99	345.07	.00
	46.340	3832.00	1903.13	.00	.00	.00	345.04	.00
*	.006	3832.00	1906.33	.00	3.20	.00	260.00	280.00
*	.006	3832.00	1906.33	.00	3.20	.00	260.00	280.00
*	.034	3832.00	1910.12	.00	3.79	.00	102.99	148.00
*	.034	3832.00	1910.12	.00	3.79	.00	102.99	148.00
*	.042	3832.00	1911.21	.00	1.09	.00	114.18	42.20
*	.042	3832.00	1911.21	.00	1.09	.00	114.18	42.20
*	.045	3832.00	1910.99	.00	-.22	.00	115.38	15.80
*	.045	3832.00	1910.99	.00	-.22	.00	115.38	15.80
*	.051	3832.00	1912.66	.00	1.67	.00	104.26	31.70
*	.051	3832.00	1912.66	.00	1.67	.00	104.26	31.70
	.059	3832.00	1914.14	.00	1.47	.00	110.00	42.20
	.059	3832.00	1914.14	.00	1.47	.00	110.00	42.20
*	.089	3832.00	1915.29	.00	1.15	.00	447.00	158.00
*	.089	3832.00	1915.29	.00	1.15	.00	447.00	158.00
*	.189	3832.00	1924.71	.00	9.42	.00	252.53	528.00
*	.189	3832.00	1924.71	.00	9.42	.00	252.85	528.00
*	.284	3832.00	1930.69	.00	5.97	.00	267.84	502.00
*	.284	3832.00	1930.68	.00	5.97	.00	267.79	502.00
*	.347	3832.00	1939.11	.00	8.43	.00	243.31	333.00
*	.347	3832.00	1939.11	.00	8.43	.00	243.32	333.00
*	.421	3832.00	1947.34	.00	8.23	.00	226.67	391.00
*	.421	3832.00	1947.34	.00	8.23	.00	226.67	391.00
*	.473	3832.00	1953.14	.00	5.79	.00	195.59	275.00
*	.473	3832.00	1953.14	.00	5.79	.00	195.60	275.00
*	.546	3832.00	1960.40	.00	7.27	.00	216.10	385.00
*	.546	3832.00	1960.40	.00	7.26	.00	216.10	385.00
*	.604	3774.00	1967.99	.00	7.58	.00	302.36	306.00
	.604	3774.00	1967.99	.00	7.59	.00	302.36	306.00
*	.712	3774.00	1980.23	.00	12.25	.00	416.54	570.00
*	.712	3774.00	1980.23	.00	12.25	.00	416.57	570.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	.790	3774.00	1988.52	.00	8.29	.00	131.15	412.00
*	.790	3774.00	1988.52	.00	8.29	.00	131.15	412.00
*	.843	3774.00	1993.62	.00	5.10	.00	107.66	280.00
*	.843	3774.00	1993.62	.00	5.10	.00	107.66	280.00
*	.939	3774.00	2002.81	.00	9.18	.00	92.33	507.00
*	.939	3774.00	2002.81	.00	9.19	.00	92.34	507.00
*	1.032	3774.00	2014.11	.00	11.30	.00	128.94	491.00
*	1.032	3774.00	2014.11	.00	11.30	.00	128.93	491.00
*	1.127	4000.00	2023.10	.00	8.99	.00	142.16	502.00
*	1.127	4000.00	2023.10	.00	8.99	.00	142.17	502.00
*	1.229	4000.00	2034.60	.00	11.51	.00	151.11	539.00
*	1.229	4000.00	2034.60	.00	11.50	.00	151.11	539.00
*	1.287	4000.00	2038.40	.00	3.80	.00	142.35	306.00
*	1.287	4000.00	2038.42	.01	3.81	.01	142.76	306.00
*	1.346	4000.00	2045.87	.00	7.46	.00	268.25	312.00
*	1.346	4000.00	2045.86	.00	7.45	.00	268.23	312.00
	1.423	4000.00	2054.10	.00	8.24	.00	274.38	407.00
*	1.423	4000.00	2054.11	.00	8.24	.00	274.42	407.00
*	1.513	4000.00	2069.56	.00	15.46	.00	395.23	475.00
*	1.513	4000.00	2069.55	-.01	15.45	-.01	395.17	475.00
*	1.587	4000.00	2076.72	.00	7.16	.00	365.02	391.00
*	1.587	4000.00	2076.72	.00	7.16	.00	365.13	391.00
*	1.615	4245.00	2083.69	.00	6.97	.00	371.82	148.00
*	1.615	4245.00	2083.69	.00	6.97	.00	371.87	148.00
*	1.710	4245.00	2093.33	.00	9.64	.00	355.35	502.00
*	1.710	4245.00	2093.33	.00	9.64	.00	355.30	502.00
*	1.803	4245.00	2104.45	.00	11.12	.00	396.26	491.00
*	1.803	4245.00	2104.45	.00	11.12	.00	396.26	491.00
*	1.879	4245.00	2116.11	.00	11.66	.00	307.28	401.00
*	1.879	4245.00	2116.11	.00	11.66	.00	307.29	401.00
*	1.931	4245.00	2122.13	.00	6.02	.00	173.04	275.00
*	1.931	4245.00	2122.13	.00	6.02	.00	172.91	275.00
	2.037	4245.00	2131.84	.00	9.71	.00	297.47	560.00
	2.037	4245.00	2131.83	-.01	9.71	-.01	296.58	560.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	2.122	4245.00	2142.04	.00	10.19	.00	183.52	449.00
*	2.122	4245.00	2142.05	.01	10.21	.01	183.60	449.00
*	2.185	4245.00	2149.76	.00	7.72	.00	220.98	333.00
*	2.185	4245.00	2149.76	.00	7.71	.00	220.98	333.00
*	2.298	4245.00	2162.54	.00	12.78	.00	133.21	597.00
*	2.298	4245.00	2162.54	.00	12.78	.00	133.22	597.00
*	2.380	1914.00	2171.76	.00	9.22	.00	161.20	433.00
*	2.380	1914.00	2171.76	.00	9.22	.00	161.27	433.00
*	2.458	1914.00	2183.96	.00	12.20	.00	162.56	412.00
*	2.458	1914.00	2183.96	.00	12.19	.00	162.56	412.00
*	2.511	1914.00	2190.19	.00	6.23	.00	129.57	280.00
*	2.511	1914.00	2190.21	.02	6.25	.02	129.88	280.00
*	2.597	1914.00	2198.91	.00	8.72	.00	215.66	454.00
*	2.597	1914.00	2198.91	.00	8.71	.00	215.71	454.00
*	2.671	1914.00	2209.42	.00	10.51	.00	179.52	391.00
*	2.671	1914.00	2209.42	.00	10.50	.00	179.52	391.00
	2.768	1914.00	2221.60	.00	12.18	.00	160.11	512.00
*	2.768	1914.00	2221.60	.00	12.18	.00	160.11	512.00
*	2.821	1810.00	2228.15	.00	6.55	.00	221.71	285.00
*	2.821	1810.00	2228.15	.00	6.55	.00	221.70	285.00
*	2.917	1810.00	2240.44	.00	12.29	.00	256.03	507.00
*	2.917	1810.00	2240.44	.00	12.29	.00	256.03	507.00
*	2.996	1810.00	2251.53	.00	11.09	.00	164.54	417.00
*	2.996	1810.00	2251.53	.00	11.09	.00	164.59	417.00
*	3.082	1810.00	2262.22	.00	10.69	.00	89.47	454.00
*	3.082	1810.00	2262.22	.00	10.69	.00	89.46	454.00
*	3.159	1810.00	2271.38	.00	9.16	.00	96.35	407.00
*	3.159	1810.00	2271.38	.00	9.16	.00	96.33	407.00
*	3.259	1700.00	2285.27	.00	13.89	.00	90.14	528.00
*	3.259	1700.00	2285.28	.00	13.89	.00	90.16	528.00
*	3.353	1700.00	2295.57	.00	10.29	.00	105.98	496.00
*	3.353	1700.00	2295.57	.01	10.30	.01	106.01	496.00
*	3.429	1700.00	2307.38	.00	11.81	.00	247.49	401.00
	3.429	1700.00	2307.38	.00	11.80	.00	247.54	401.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	3.504	1700.00	2317.98	.00	10.60	.00	57.18	396.00
*	3.504	1700.00	2317.97	.00	10.59	.00	57.16	396.00
*	3.598	1590.00	2330.45	.00	12.47	.00	125.47	496.00
*	3.598	1590.00	2330.45	.00	12.47	.00	125.47	496.00
*	3.633	1590.00	2335.01	.00	4.57	.00	124.51	185.00
*	3.633	1590.00	2335.01	.00	4.56	.00	124.46	185.00
*	3.693	1590.00	2343.17	.00	8.16	.00	218.95	317.00
*	3.693	1590.00	2343.17	.00	8.16	.00	218.97	317.00
*	3.812	1590.00	2358.82	.00	15.65	.00	68.51	628.00
*	3.812	1590.00	2358.82	.00	15.65	.00	68.52	628.00
*	3.894	1590.00	2367.95	.00	9.13	.00	81.89	433.00
*	3.894	1590.00	2367.95	.00	9.13	.00	81.90	433.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      .006  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .006  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .006  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .006  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .034  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .034  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .034  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .034  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .042  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=      .042  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      .042  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=      .042  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .045  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .045  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .045  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .045  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .051  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .051  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .051  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .051  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .059  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=      .059  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      .059  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=      .059  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .089  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .089  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .089  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .089  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .189  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .189  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .189  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .189  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .284  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .284  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .284  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .284  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .347  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .347  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .347  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .347  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .421  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      .421  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .421  PROFILE=  2  CRITICAL DEPTH ASSUMED
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FLOODWAY DATA, WASH D : MONARCH WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
46.340	345.	1131.	3.4	1903.1	1903.1	.0
.006	260.	495.	7.7	1906.3	1906.3	.0
.034	103.	361.	10.6	1910.1	1910.1	.0
.042	114.	485.	7.9	1911.2	1911.2	.0
.045	115.	374.	10.2	1911.0	1911.0	.0
.051	104.	369.	10.4	1912.7	1912.7	.0
.059	110.	508.	7.5	1914.1	1914.1	.0
.089	447.	865.	4.4	1915.3	1915.3	.0
.189	260.	575.	6.7	1924.7	1924.7	.0
.284	285.	602.	6.4	1930.7	1930.7	.0
.347	243.	644.	5.9	1939.1	1939.1	.0
.421	227.	561.	6.8	1947.3	1947.3	.0
.473	196.	516.	7.4	1953.1	1953.1	.0
.546	216.	600.	6.4	1960.4	1960.4	.0
.604	314.	611.	6.2	1968.0	1968.0	.0
.712	417.	738.	5.1	1980.2	1980.2	.0
.790	131.	401.	9.4	1988.5	1988.5	.0
.843	108.	410.	9.2	1993.6	1993.6	.0
.939	92.	363.	10.4	2002.8	2002.8	.0
1.032	129.	453.	8.3	2014.1	2014.1	.0
1.127	142.	483.	8.3	2023.1	2023.1	.0
1.229	151.	547.	7.3	2034.6	2034.6	.0
1.287	143.	467.	8.6	2038.4	2038.4	.0
1.346	268.	726.	5.5	2045.9	2045.9	.0
1.423	274.	620.	6.4	2054.1	2054.1	.0
1.513	395.	785.	5.1	2069.6	2069.6	.0
1.587	395.	705.	5.7	2076.7	2076.7	.0
1.615	372.	758.	5.6	2083.7	2083.7	.0
1.710	361.	588.	7.2	2093.3	2093.3	.0
1.803	418.	708.	6.0	2104.4	2104.4	.0
1.879	307.	674.	6.3	2116.1	2116.1	.0
1.931	173.	547.	7.8	2122.1	2122.1	.0
2.037	319.	543.	7.8	2131.8	2131.8	.0
2.122	184.	544.	7.8	2142.0	2142.0	.0
2.185	221.	590.	7.2	2149.8	2149.8	.0
2.298	133.	471.	9.0	2162.5	2162.5	.0
2.380	162.	330.	5.8	2171.8	2171.8	.0
2.458	163.	312.	6.1	2184.0	2184.0	.0
2.511	130.	282.	6.8	2190.2	2190.2	.0
2.597	221.	361.	5.3	2198.9	2198.9	.0
2.671	196.	344.	5.6	2209.4	2209.4	.0
2.768	160.	322.	5.9	2221.6	2221.6	.0

FLOODWAY DATA, WASH D : MONARCH WASH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
2.821	222.	326.	5.6	2228.2	2228.2	.0
2.917	256.	386.	4.7	2240.4	2240.4	.0
2.996	165.	314.	5.8	2251.5	2251.5	.0
3.082	89.	240.	7.5	2262.2	2262.2	.0
3.159	96.	239.	7.6	2271.4	2271.4	.0
3.259	90.	216.	7.9	2285.3	2285.3	.0
3.353	106.	247.	6.9	2295.6	2295.6	.0
3.429	314.	426.	4.0	2307.4	2307.4	.0
3.504	57.	182.	9.3	2318.0	2318.0	.0
3.598	125.	233.	6.8	2330.4	2330.4	.0
3.633	124.	244.	6.5	2335.0	2335.0	.0
3.693	233.	294.	5.4	2343.2	2343.2	.0
3.812	69.	177.	9.0	2358.8	2358.8	.0
3.894	82.	212.	7.5	2367.9	2367.9	.0

<<<<<< Cross Section: 46.34: (FN = WASHD.O) >>>>>>

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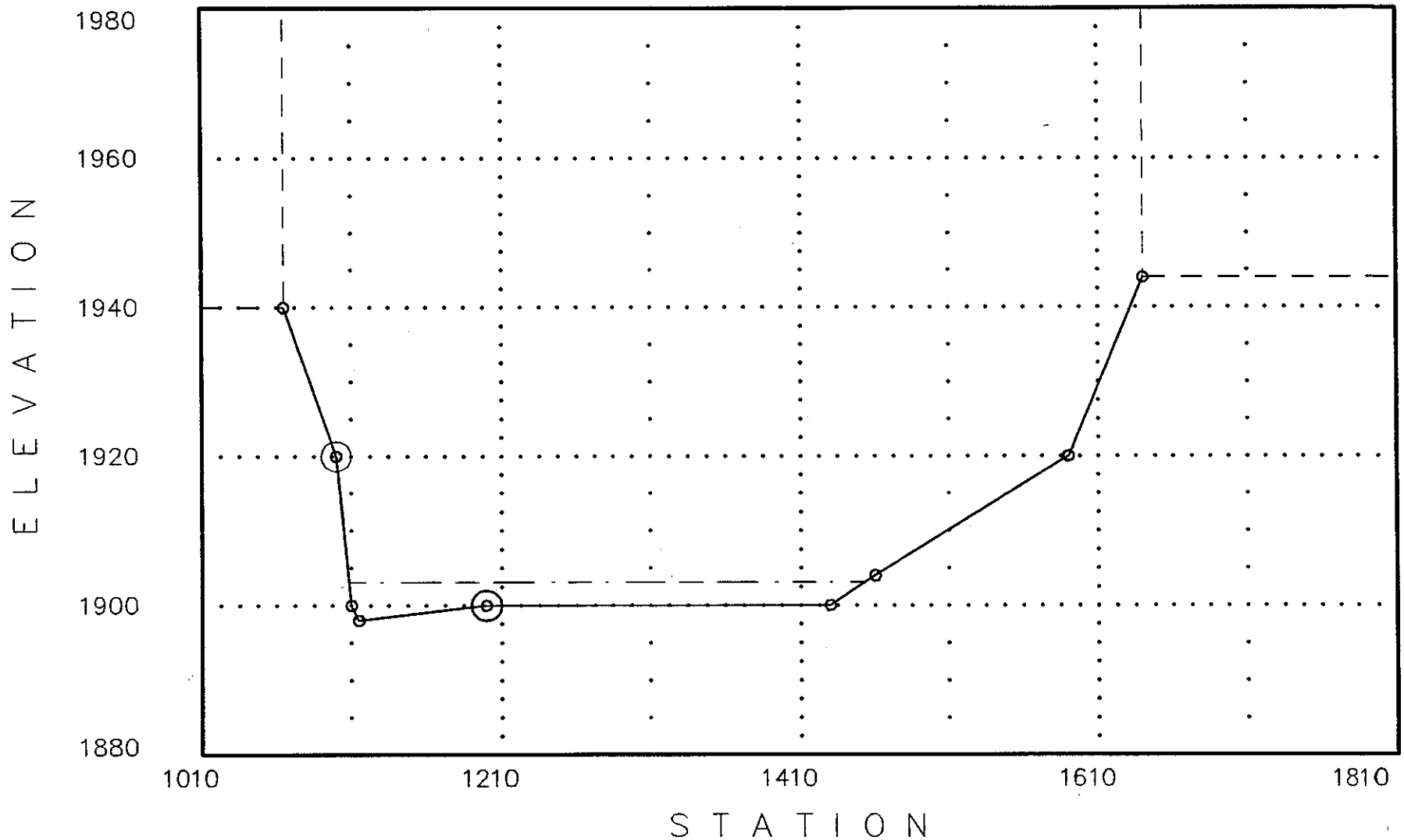
Manning-n's: n-lob = .07 n-ch = .035 n-rob = .07



11-19-1992

<<<<<< Cross Section: .006: (FN = WASHD.O) >>>>>>

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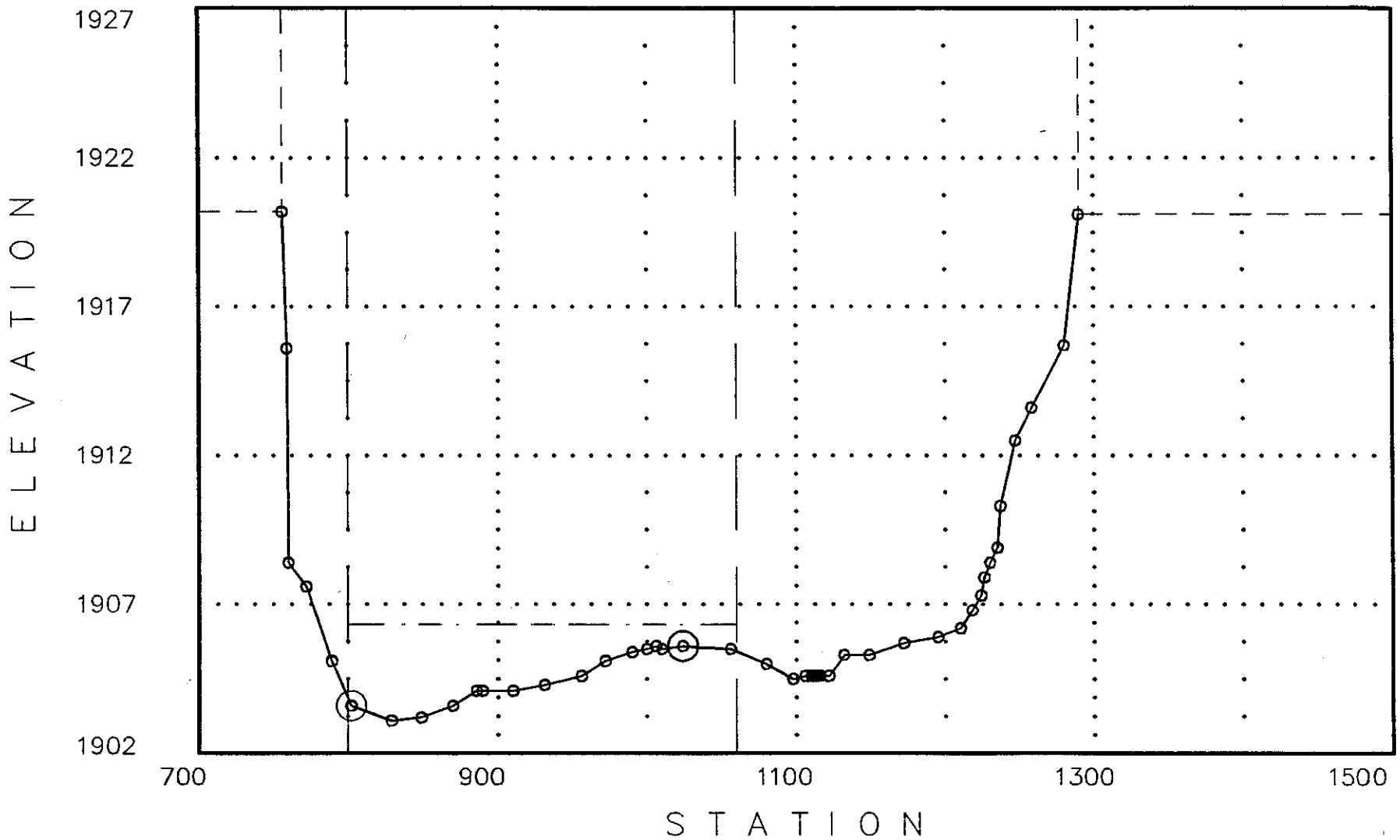
Q2= 3832 WS2= 1906.33

Manning-n's: n-lob = .07 n-ch = .045 n-rob = .07



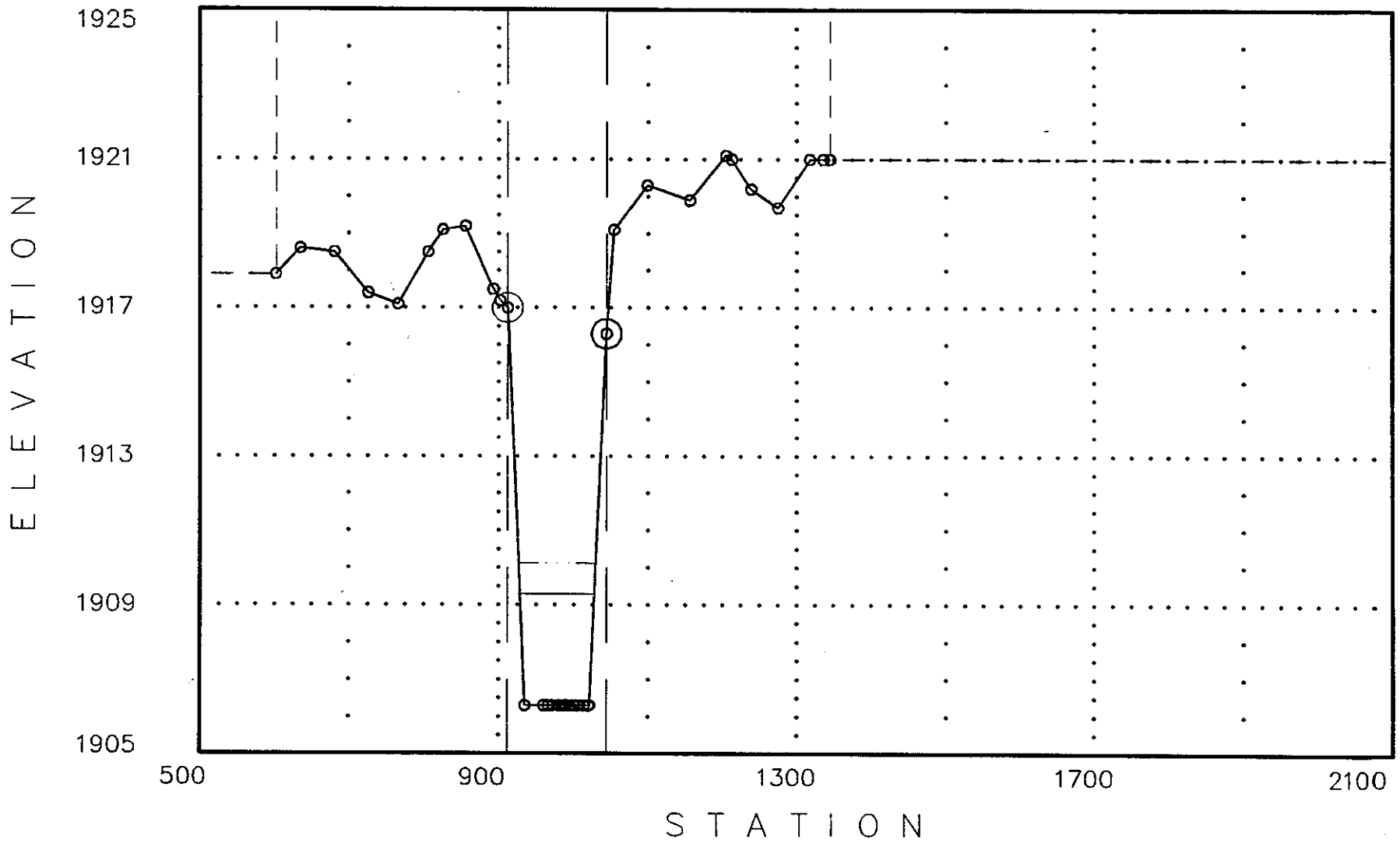
11-19-1992

<<<<<< Cross Section: .034: (FN = WASHD.0) >>>>>>

Q1= 3832 WS1= 1910.12
Q2= 3832 WS2= 1910.12

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

HYDRAULIC JUMP



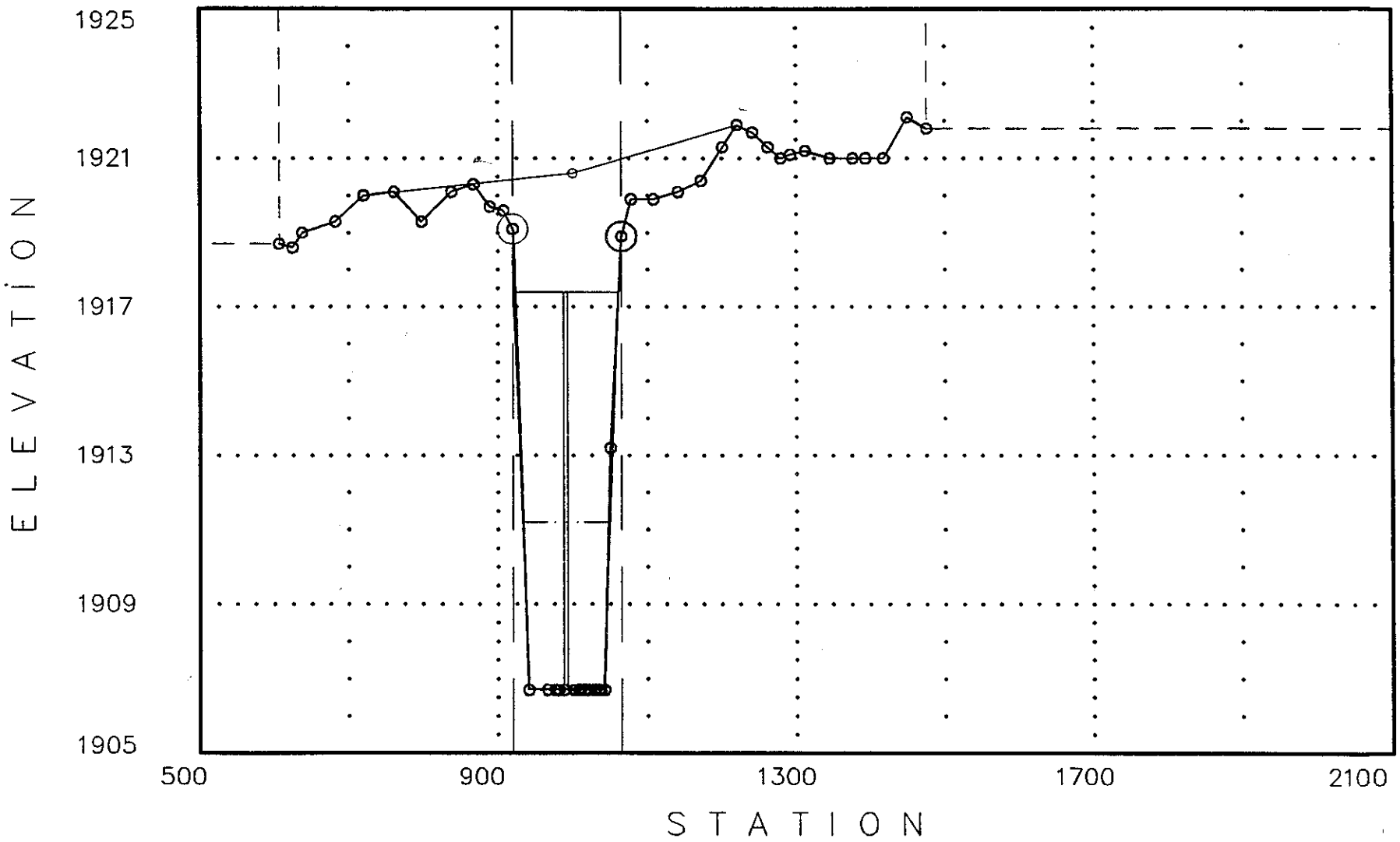
11-19-1992

<<<<<< Cross Section: .042: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1911.21
Q2= 3832 WS2= 1911.21

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

SPECIAL BRIDGE



11-19-1992

<<<<<< Cross Section: .045: (FN = WASHD.0) >>>>>>

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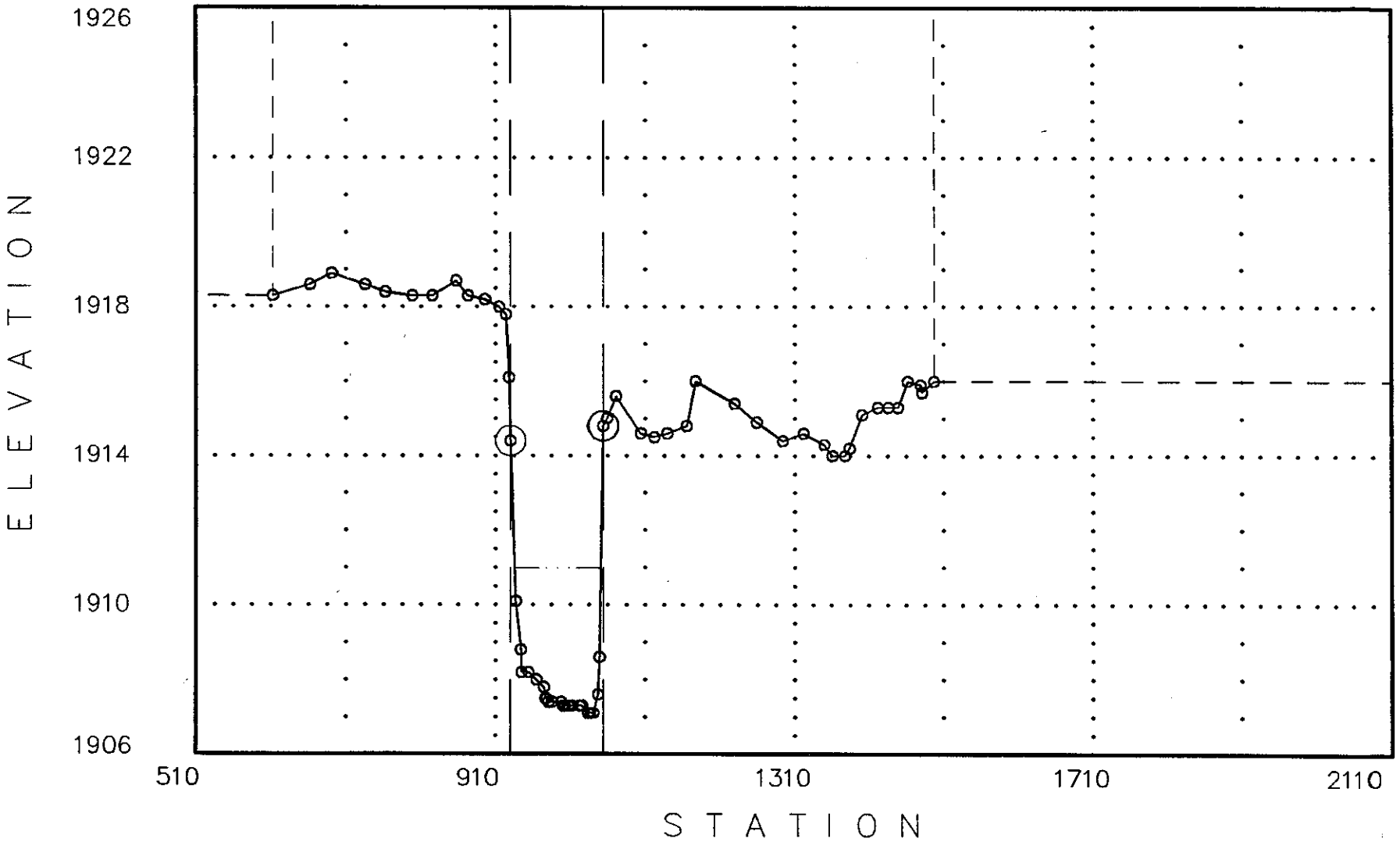
Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07



11-19-1992

<<<<<< Cross Section: .051: (FN = WASHD.0) >>>>>>

Q1= 3832 WS1= 1912.66
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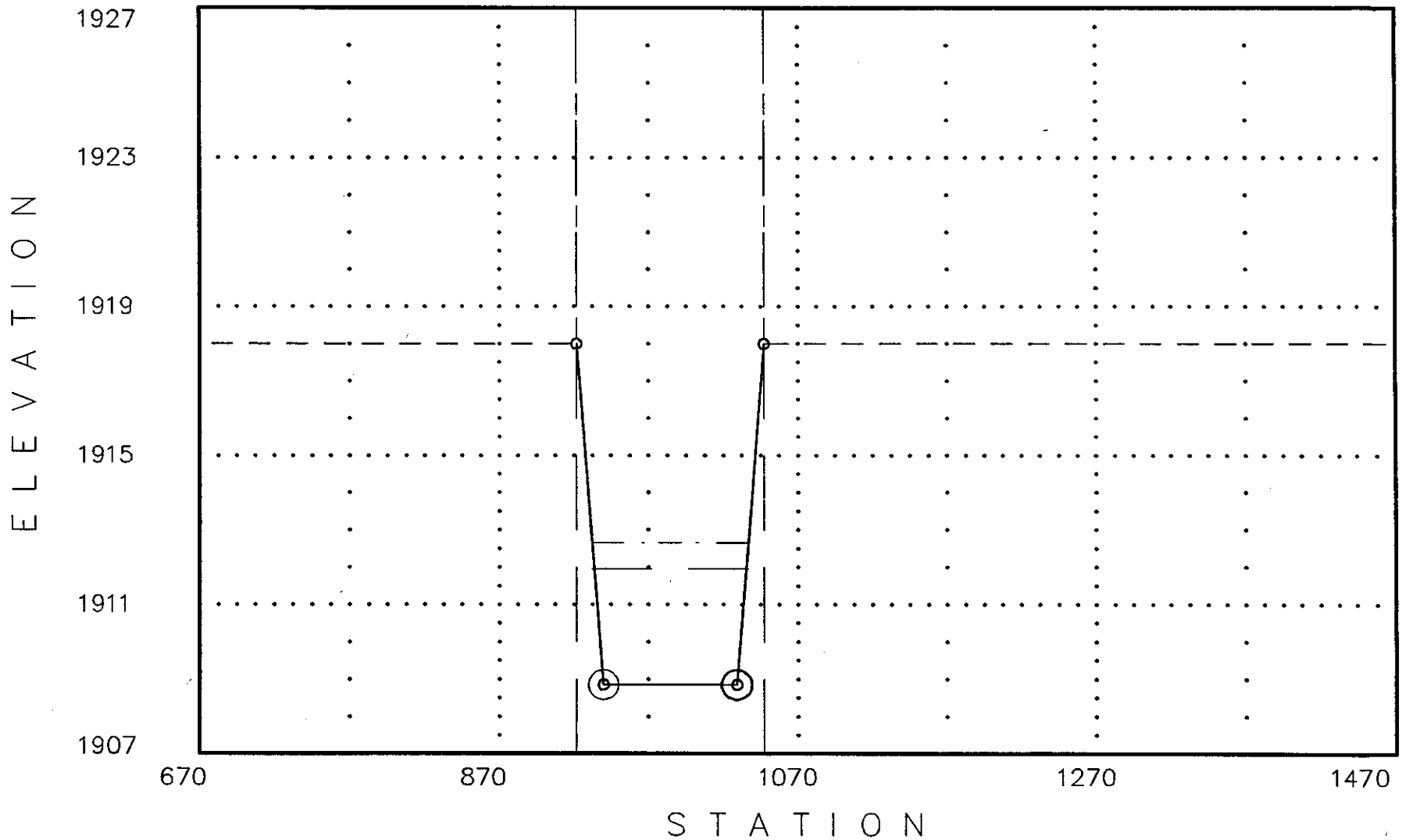
Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

HYDRAULIC JUMP



11-19-1992

<<<<<< Cross Section: .059: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1914.14
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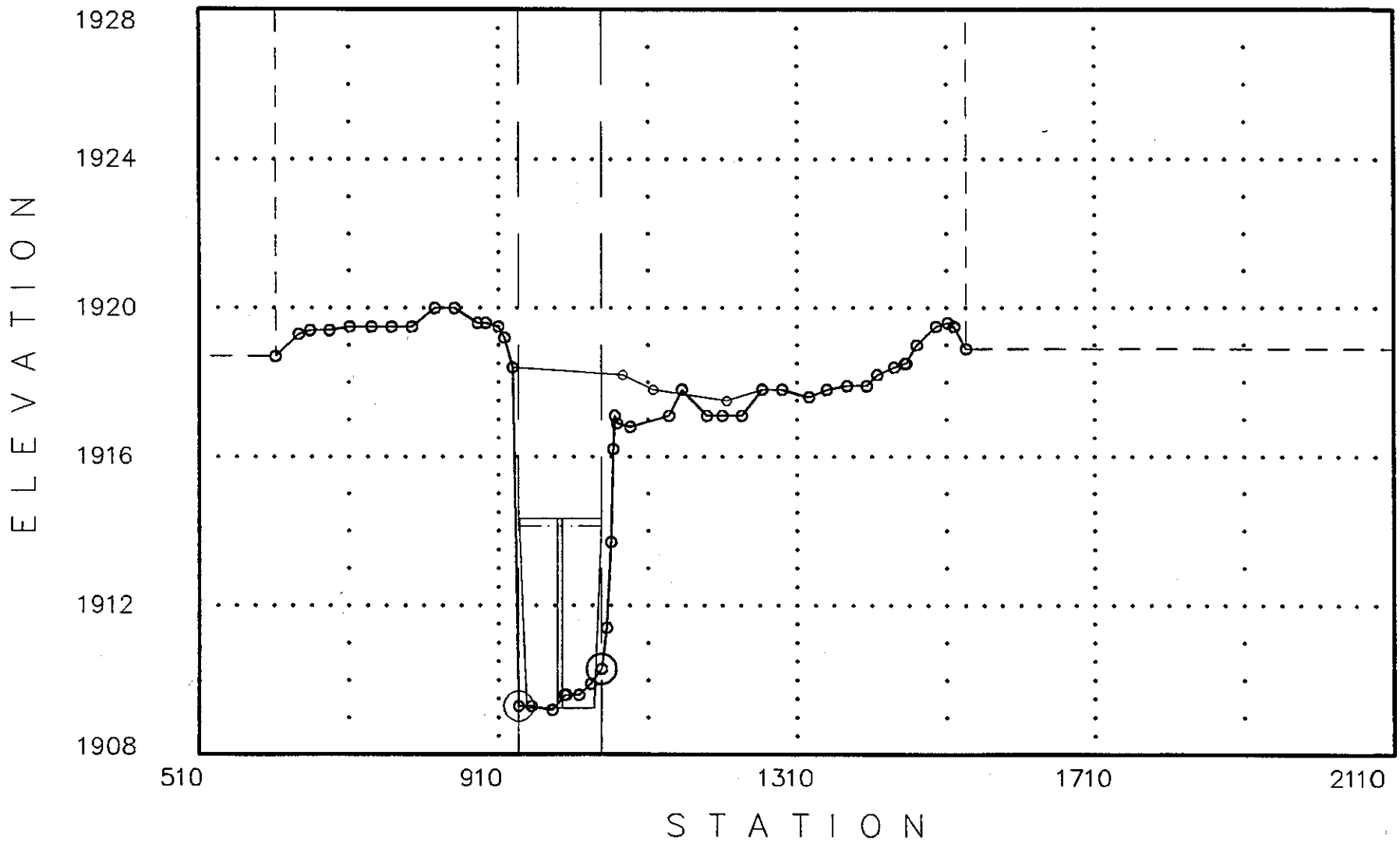
Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

SPECIAL BRIDGE

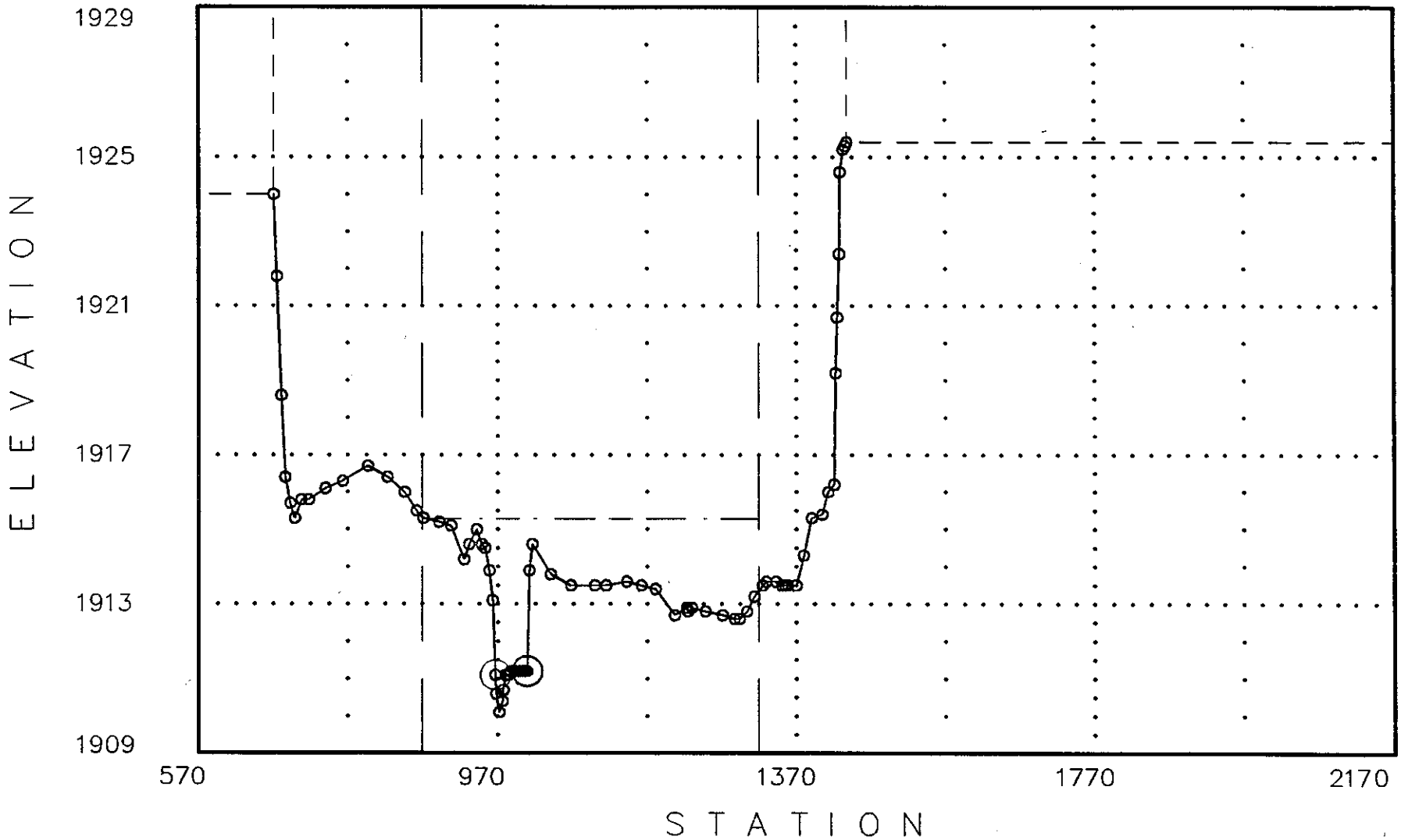


11-19-1992

<<<<<< Cross Section: .089: (FN = WASHD.0) >>>>>>

Q1= 3832 WS1= 1915.29
Q2= 3832 WS2= 1915.29

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

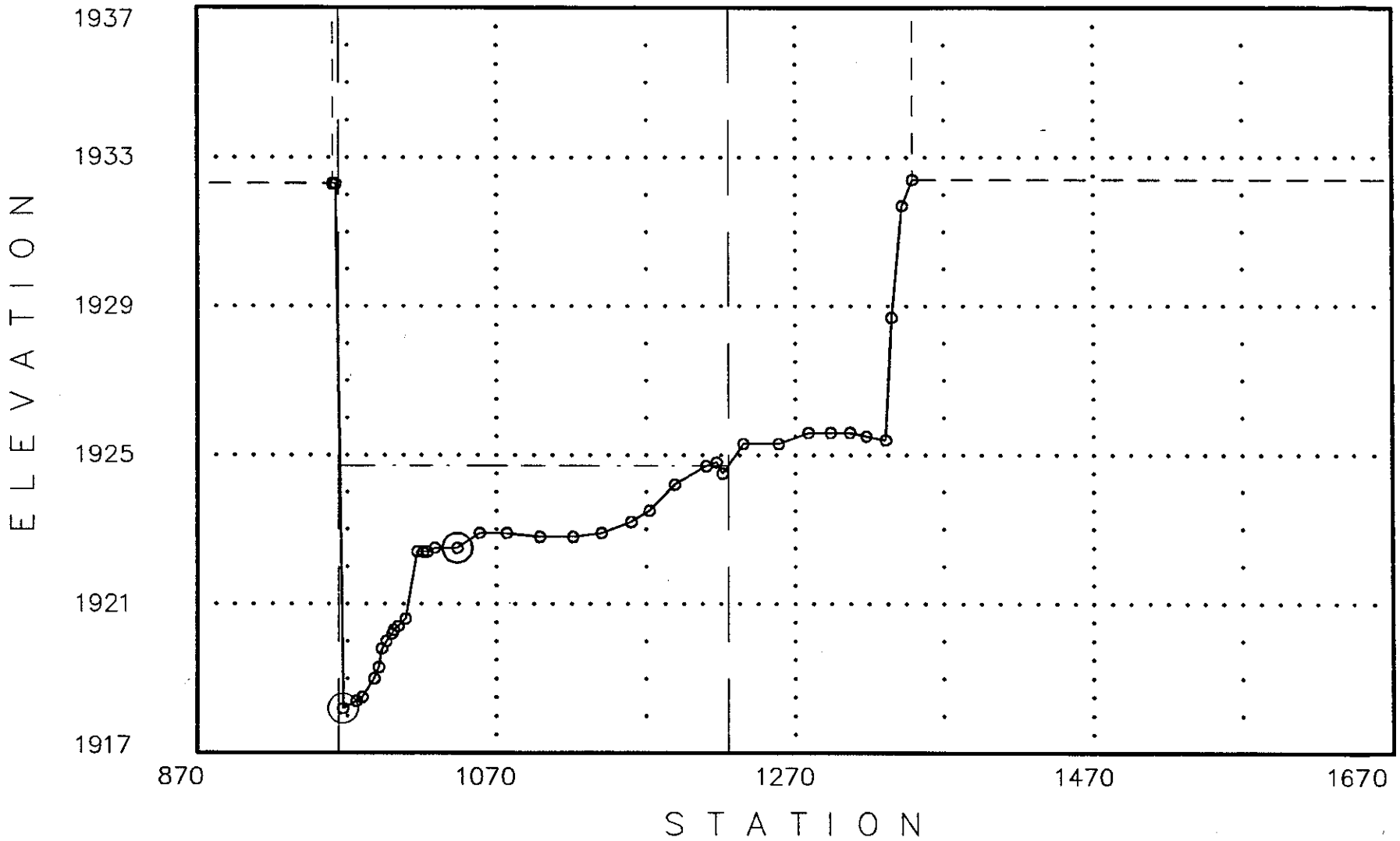


11-19-1992

<<<<<< Cross Section: .189: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1924.71
Q2= 3832 WS2= 1924.71

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .07

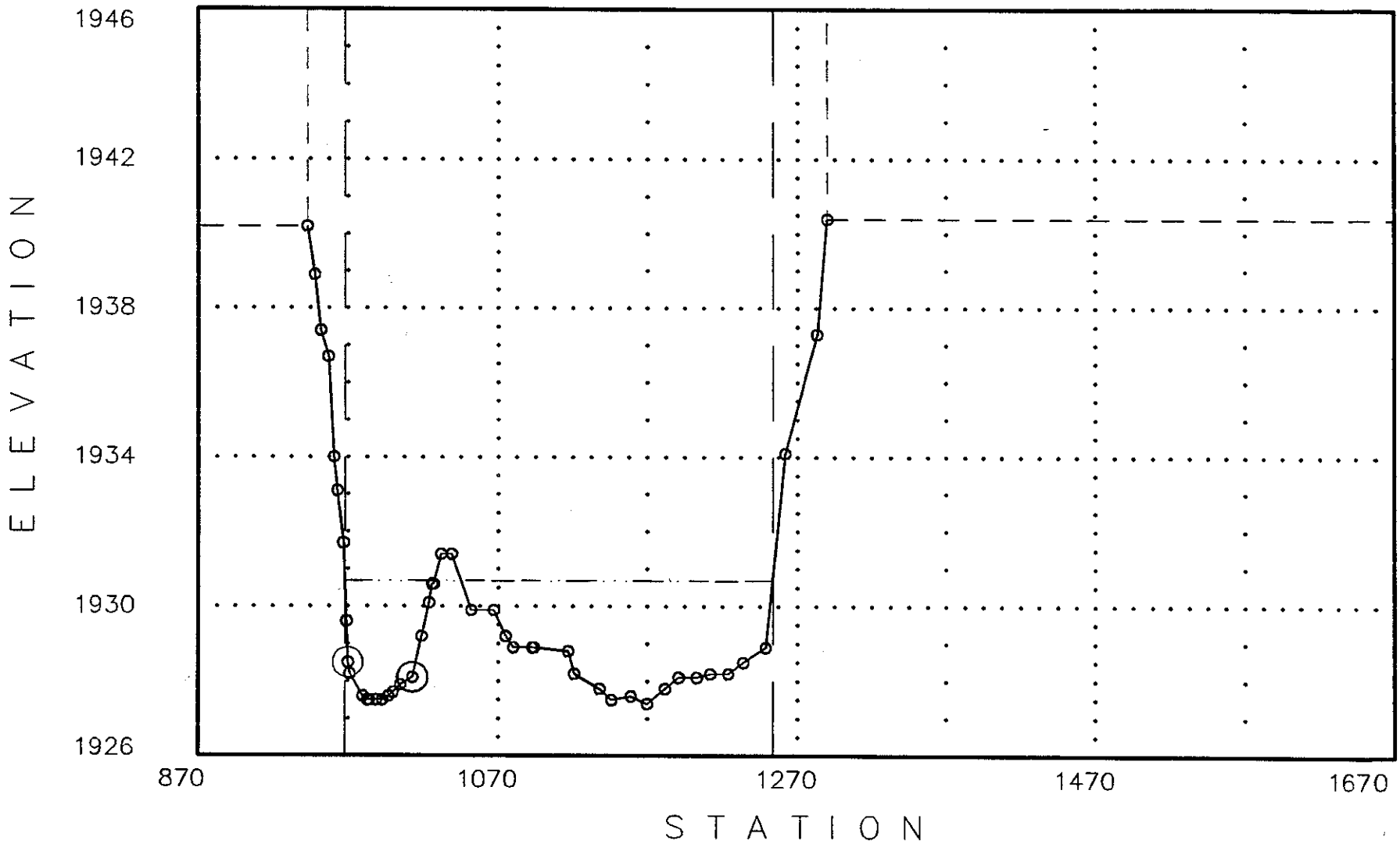


11-19-1992

<<<<<< Cross Section: .284: (FN = WASHD.0) >>>>>>

Q1= 3832 WS1= 1930.69
Q2= 3832 WS2= 1930.68

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .065

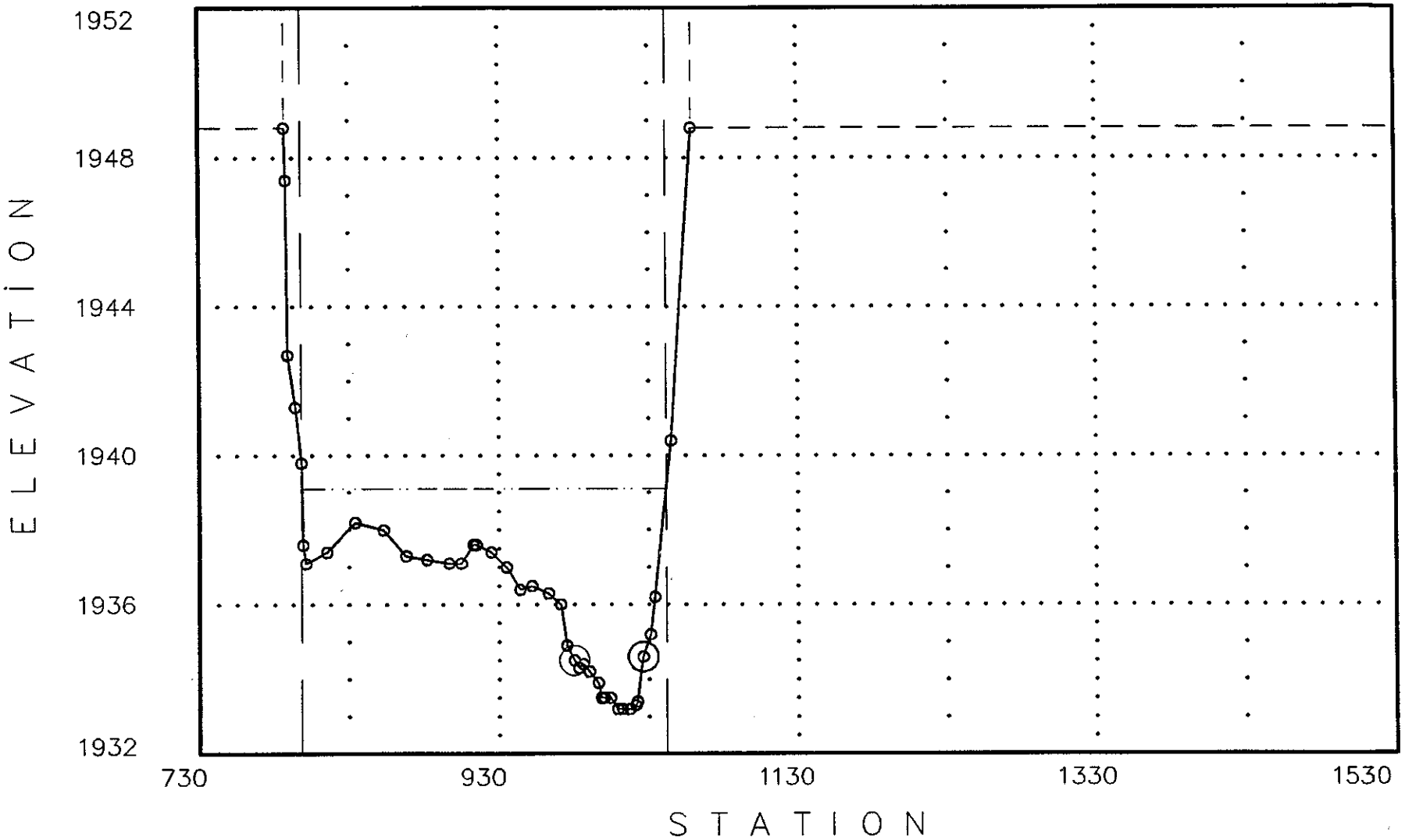


11-19-1992

<<<<<< Cross Section: .347: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1939.11
Q2= 3832 WS2= 1939.11

Manning-n's: n-lob = .07 n-ch = .03 n-rob = .065

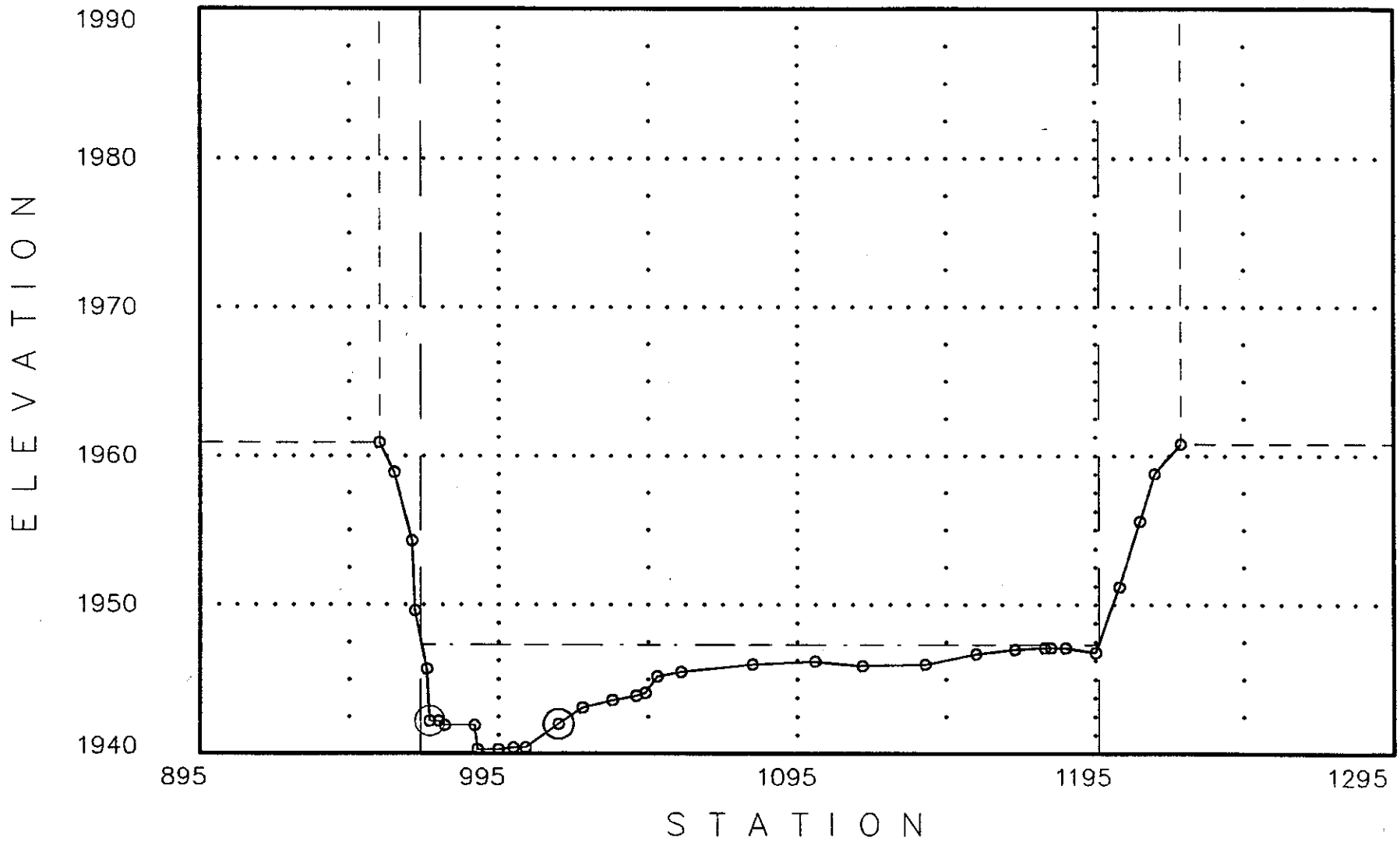


11-19-1992

<<<<<< Cross Section: .421: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1947.34
Q2= 3832 WS2= 1947.34

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

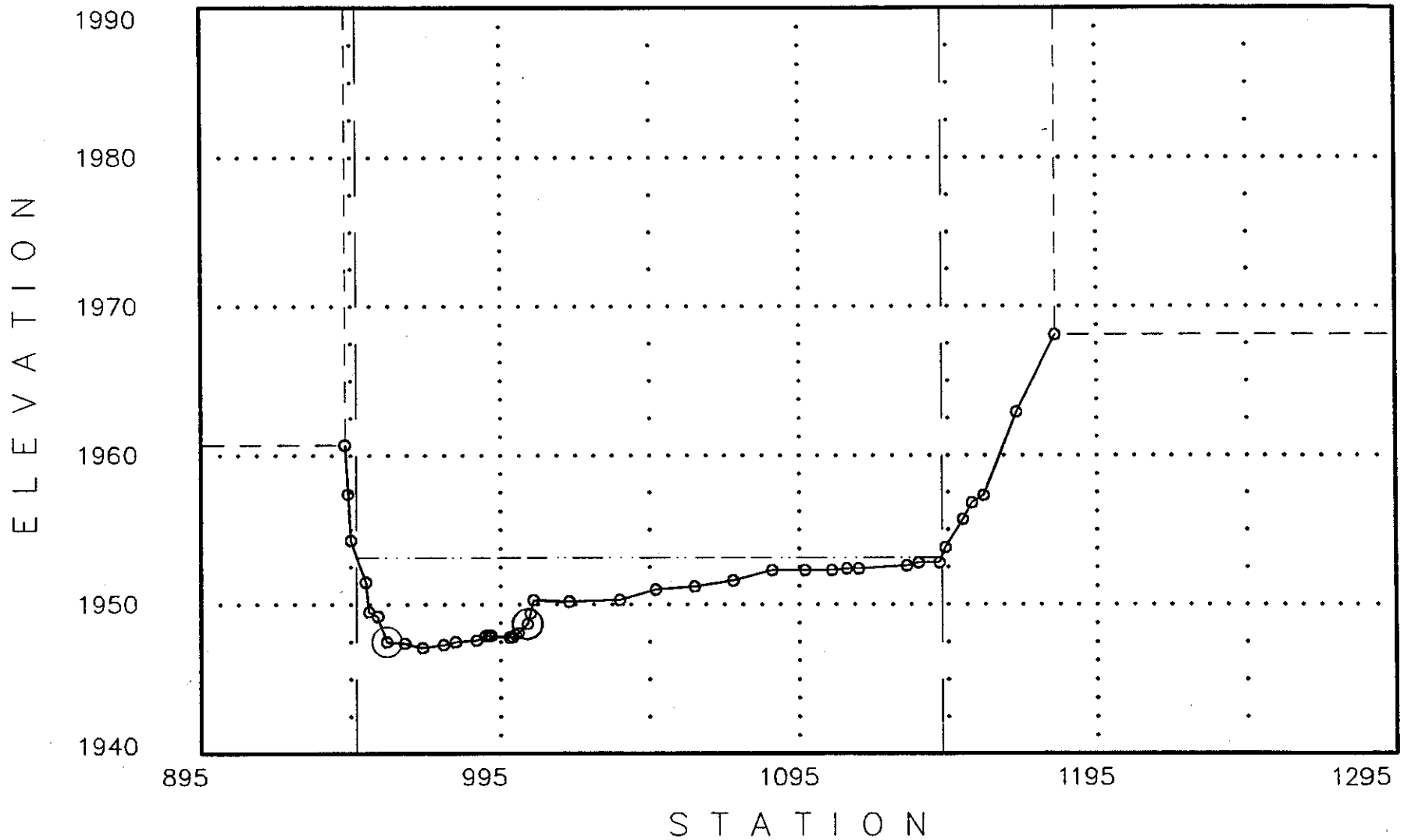


11-19-1992

<<<<<< Cross Section: .473: (FN = WASHD.0) >>>>>>

Q1= 3832 WS1= 1953.14
Q2= 3832 WS2= 1953.14

Manning-n's: n-lob = .065 n-ch = .04 n-rob = .065

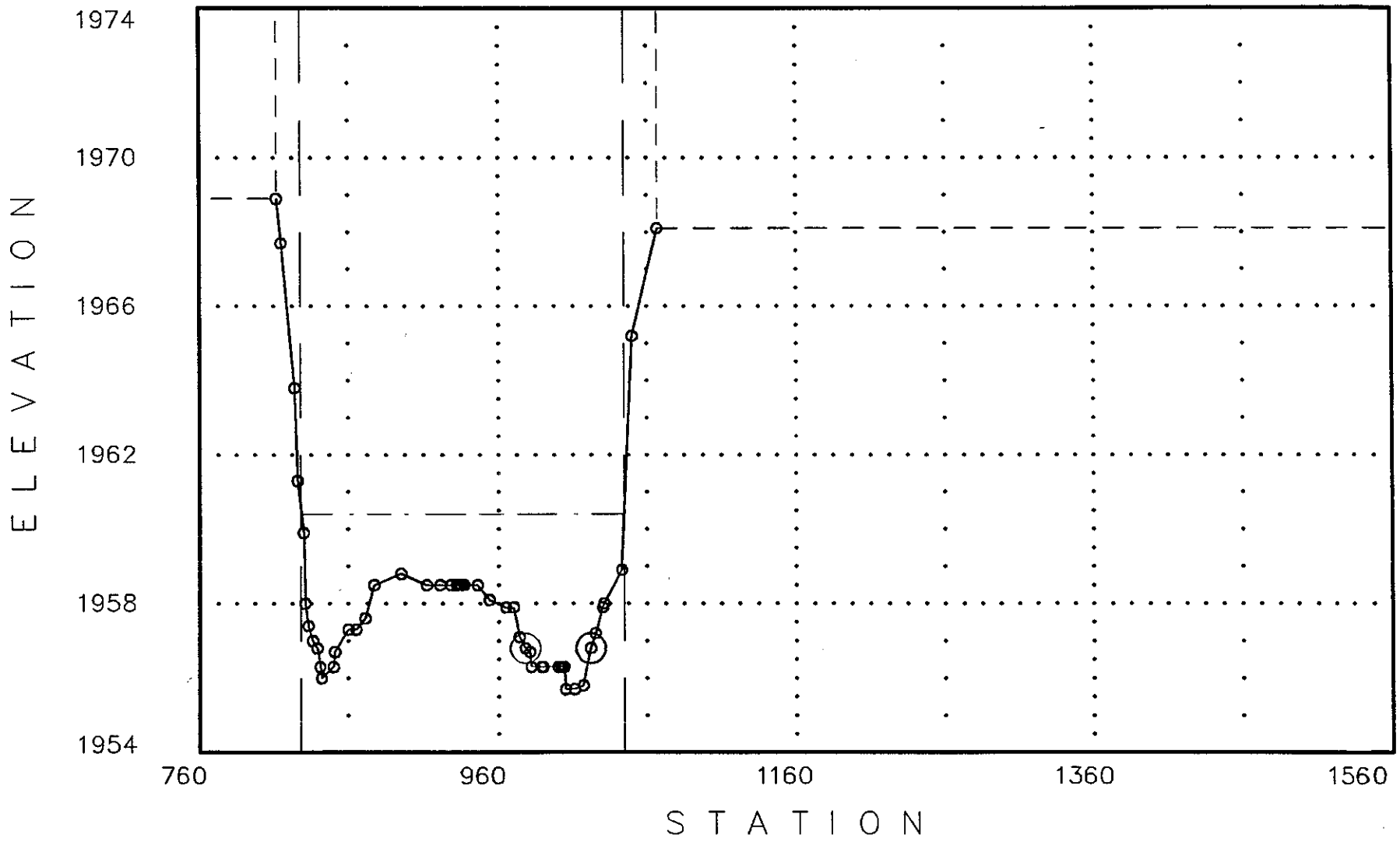


11-19-1992

<<<<<< Cross Section: .546: (FN = WASHD.O) >>>>>>

Q1= 3832 WS1= 1960.4
Q2= 3832 WS2= 1960.4

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

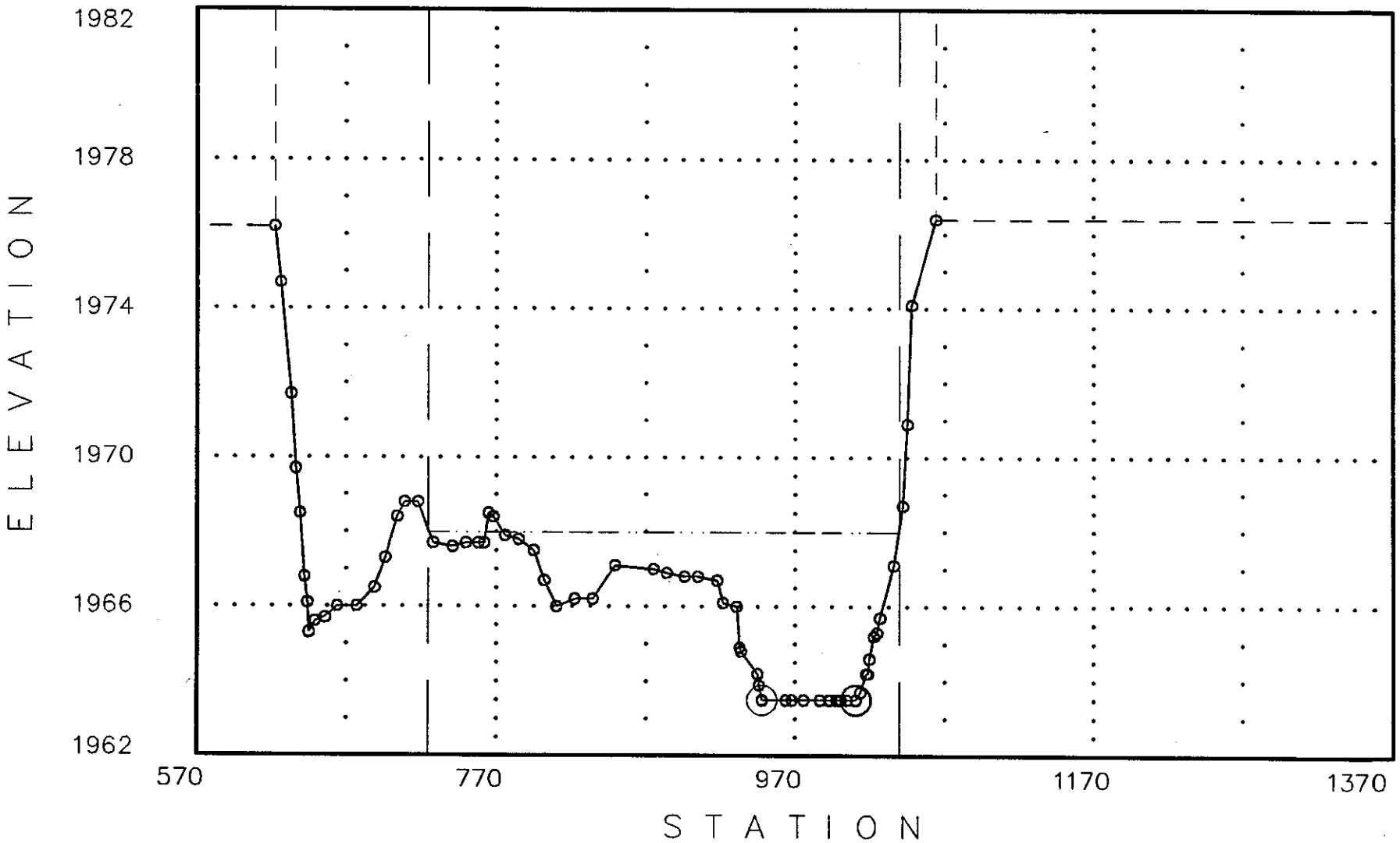


11-19-1992

<<<<<< Cross Section: .604: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 1967.99
Q2= 3774 WS2= 1967.99

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

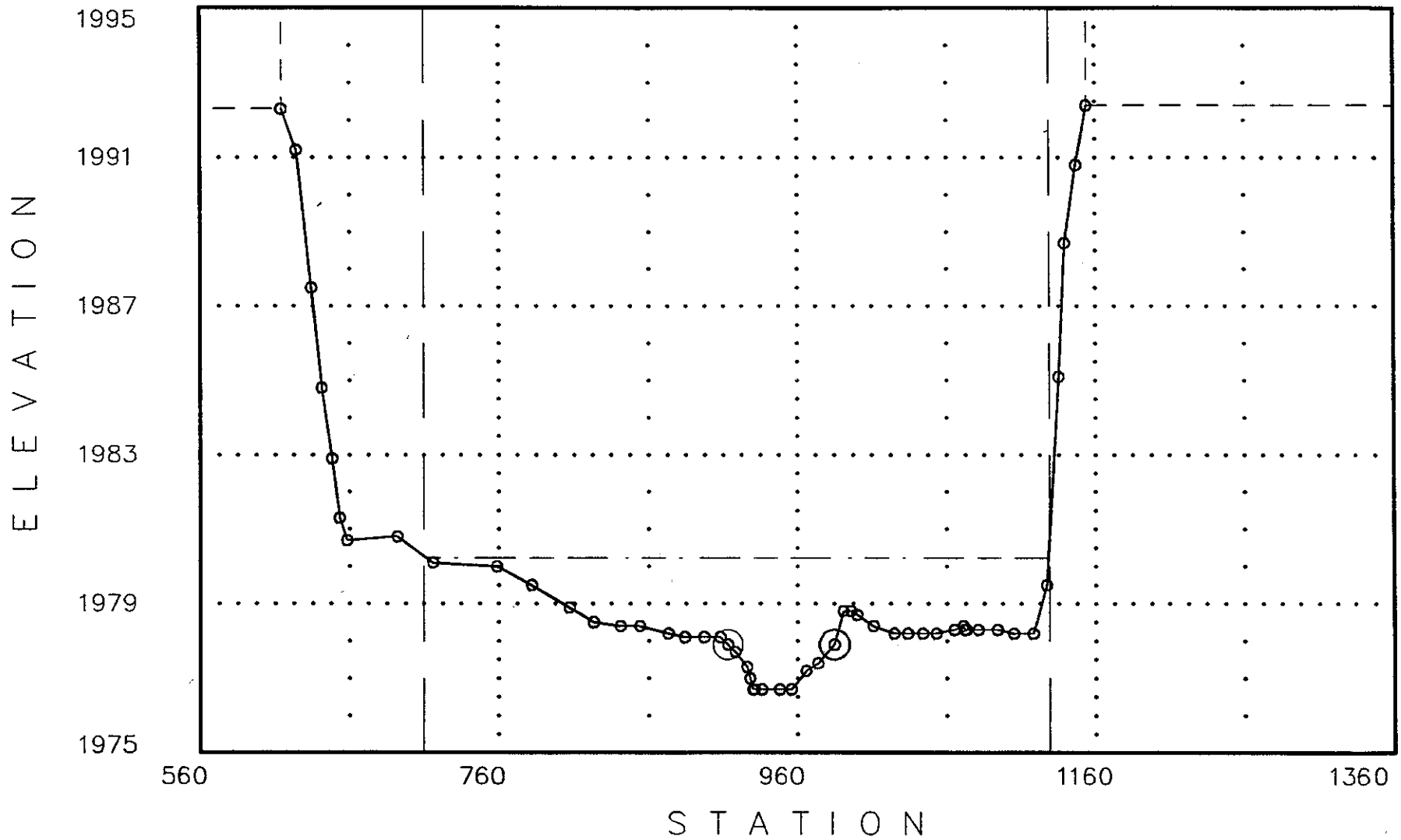


11-19-1992

<<<<<< Cross Section: .712: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 1980.23
Q2= 3774 WS2= 1980.23

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

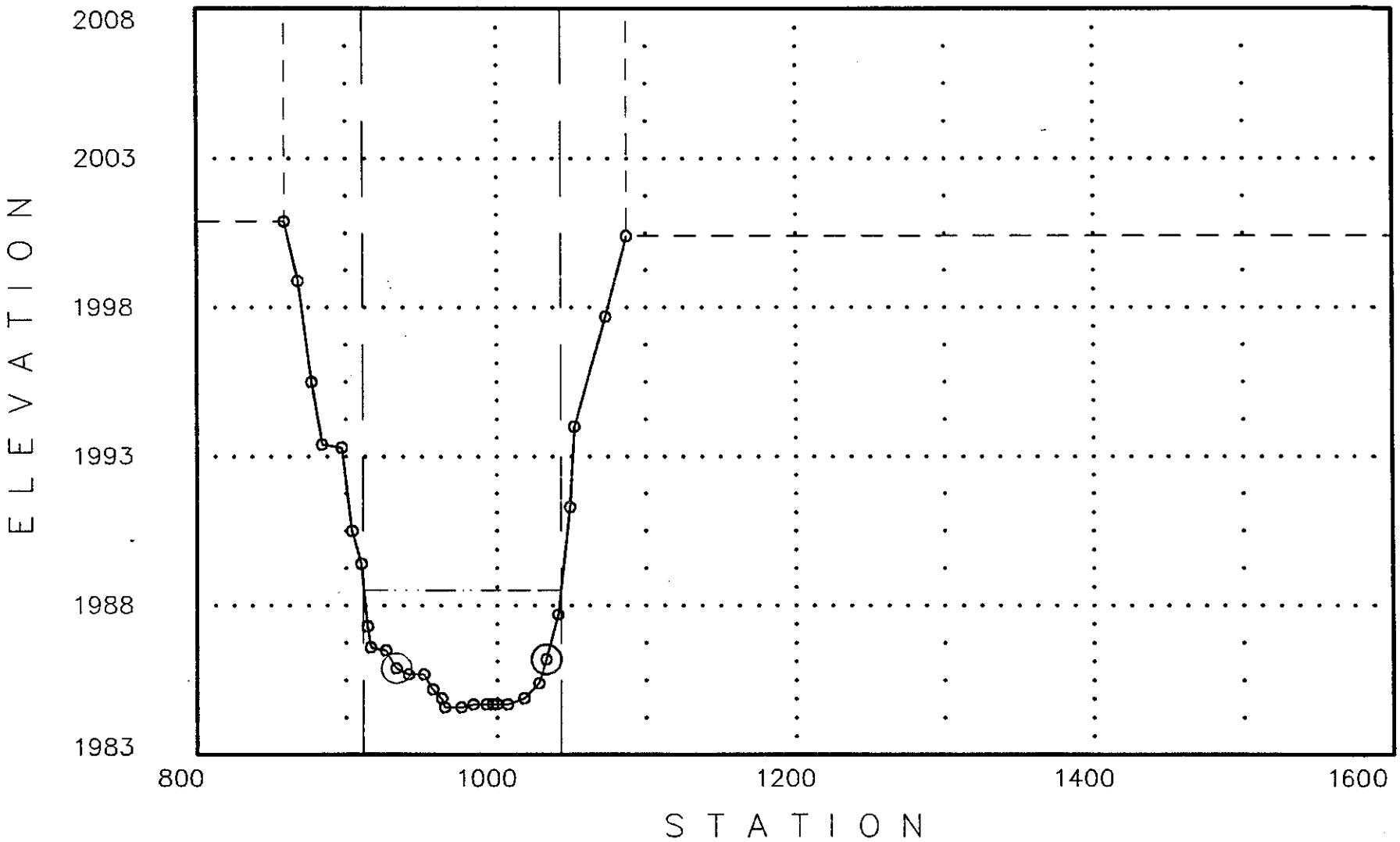


11-19-1992

<<<<<< Cross Section: .79: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 1988.52
Q2= 3774 WS2= 1988.52

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

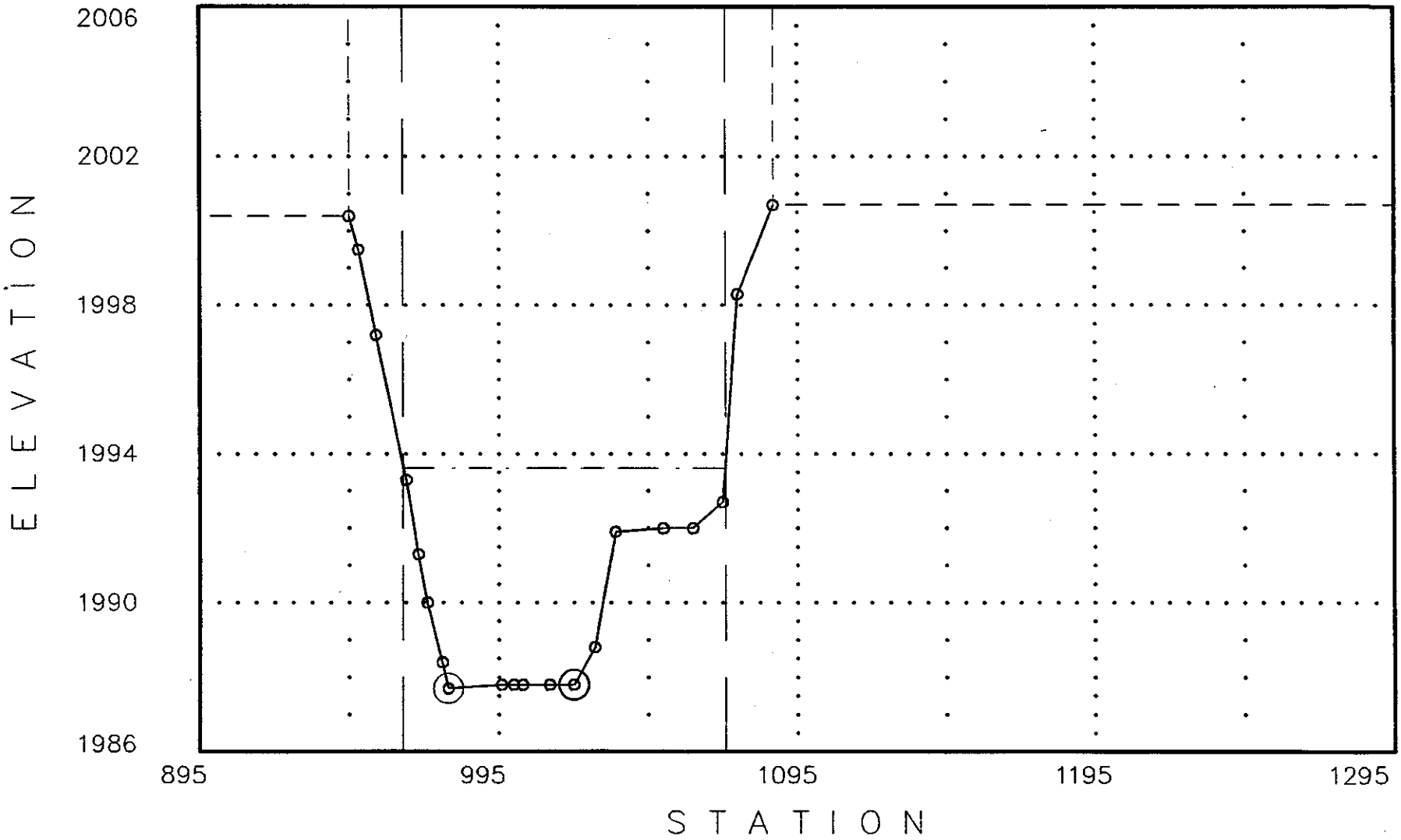


11-19-1992

<<<<<< Cross Section: .843: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 1993.62
Q2= 3774 WS2= 1993.62

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

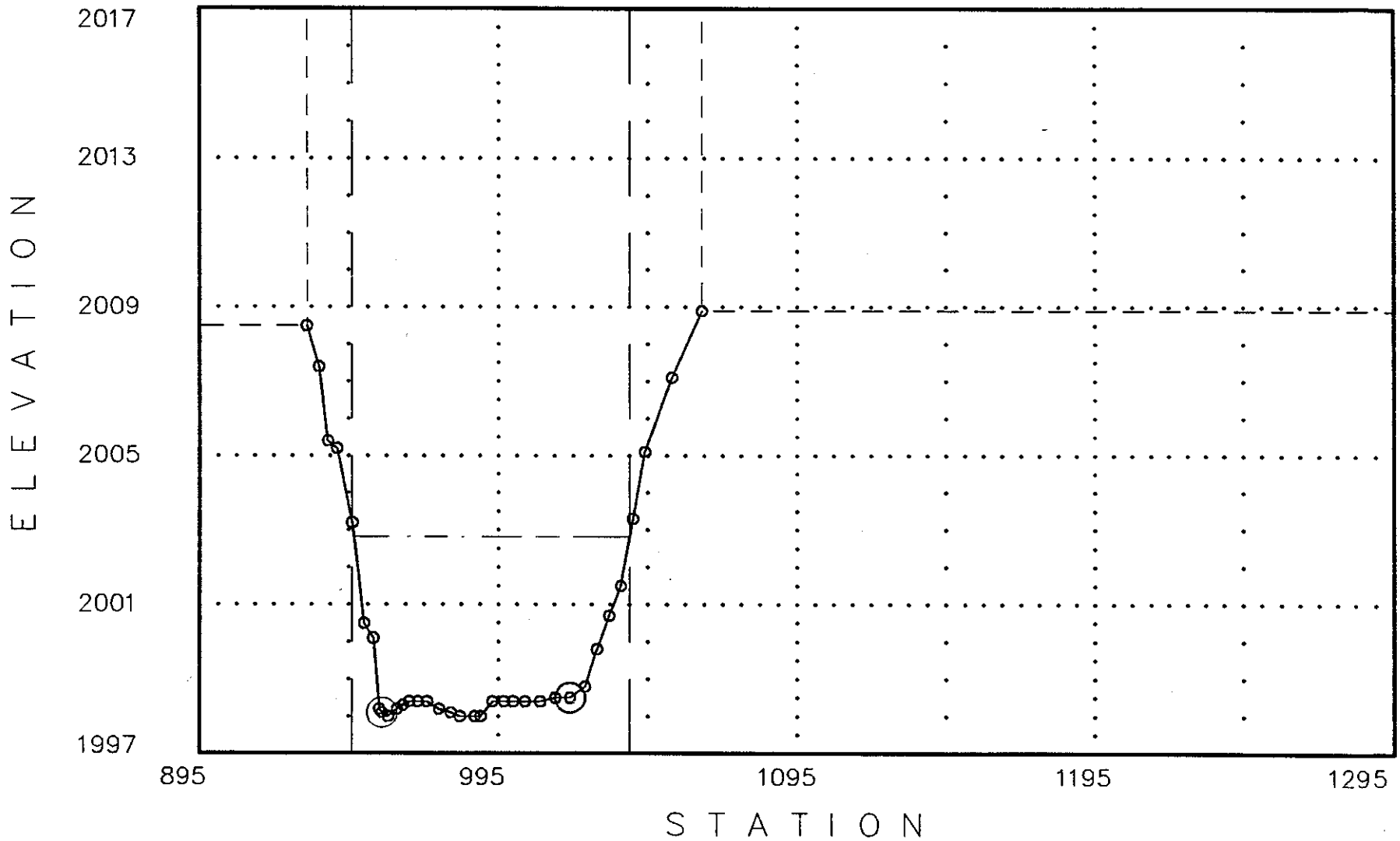


11-19-1992

<<<<<< Cross Section: .939: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 2002.81
Q2= 3774 WS2= 2002.81

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

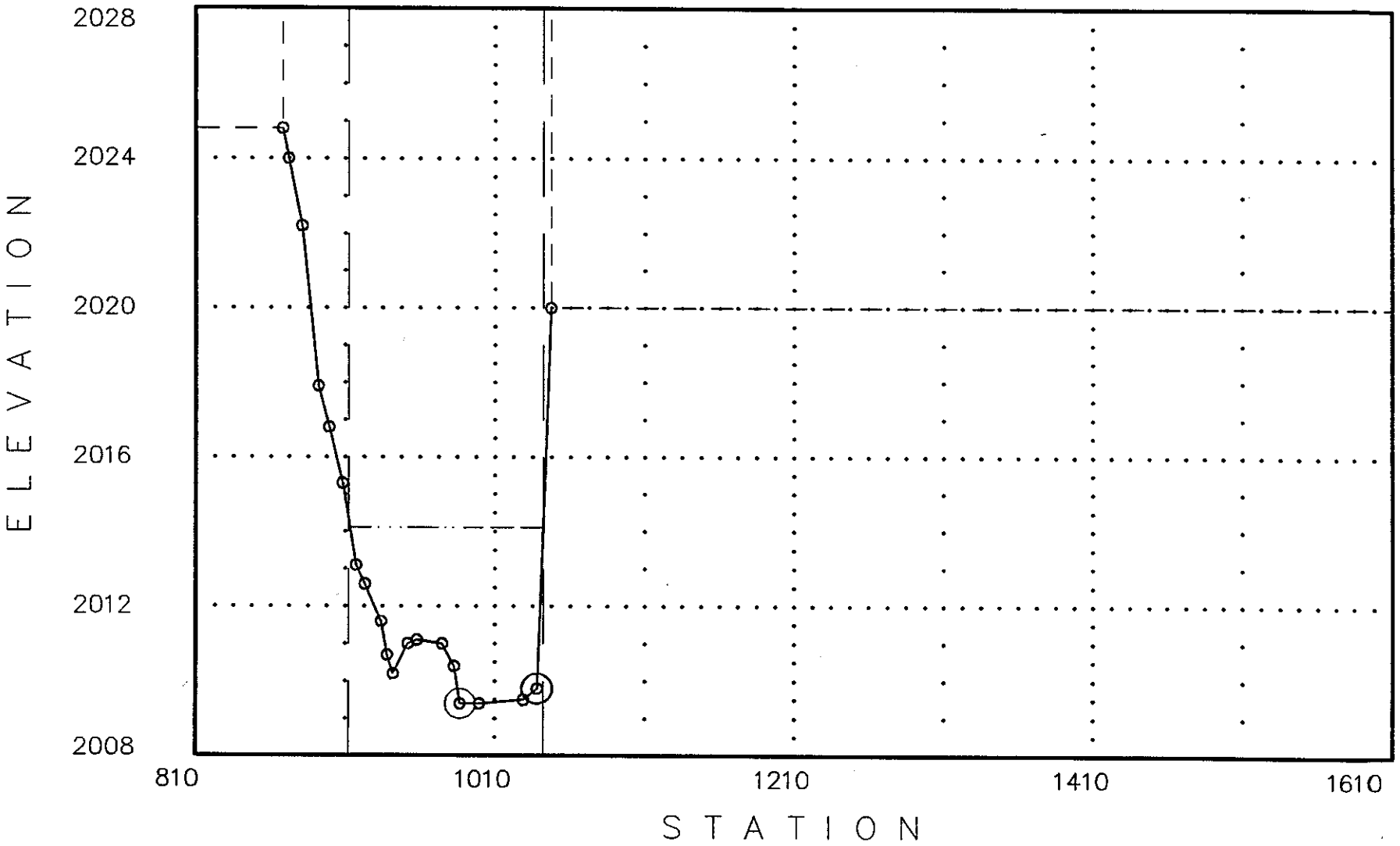


11-19-1992

<<<<<< Cross Section: 1.032: (FN = WASHD.O) >>>>>>

Q1= 3774 WS1= 2014.11
Q2= 3774 WS2= 2014.11

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

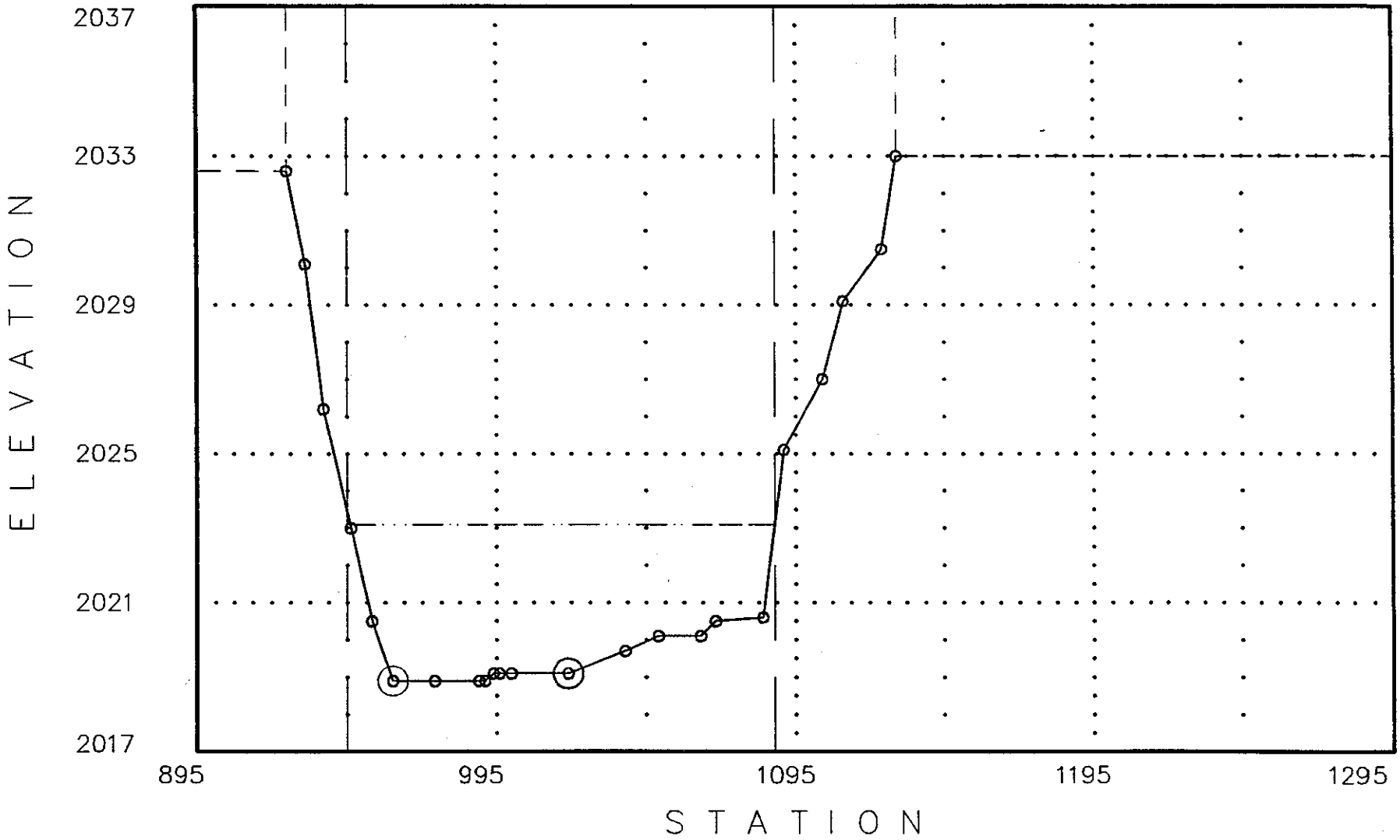


11-19-1992

<<<<<< Cross Section: 1.127: (FN = WASHD.0) >>>>>>

Q1= 4000 WS1= 2023.1
Q2= 4000 WS2= 2023.1

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

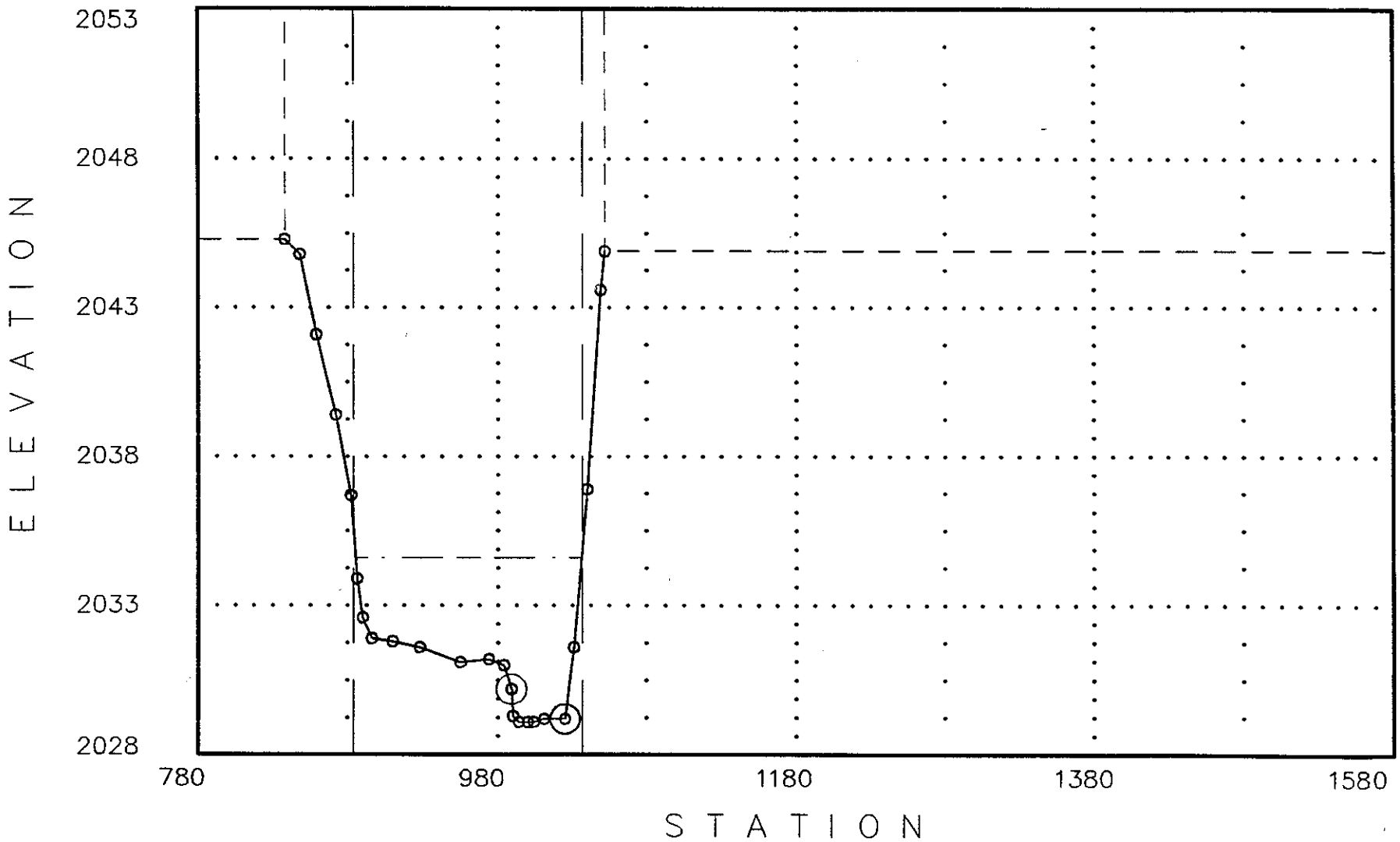


11-19-1992

<<<<<< Cross Section: 1.229: (FN = WASHD.O) >>>>>>

Q1= 4000 WS1= 2034.6
Q2= 4000 WS2= 2034.6

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

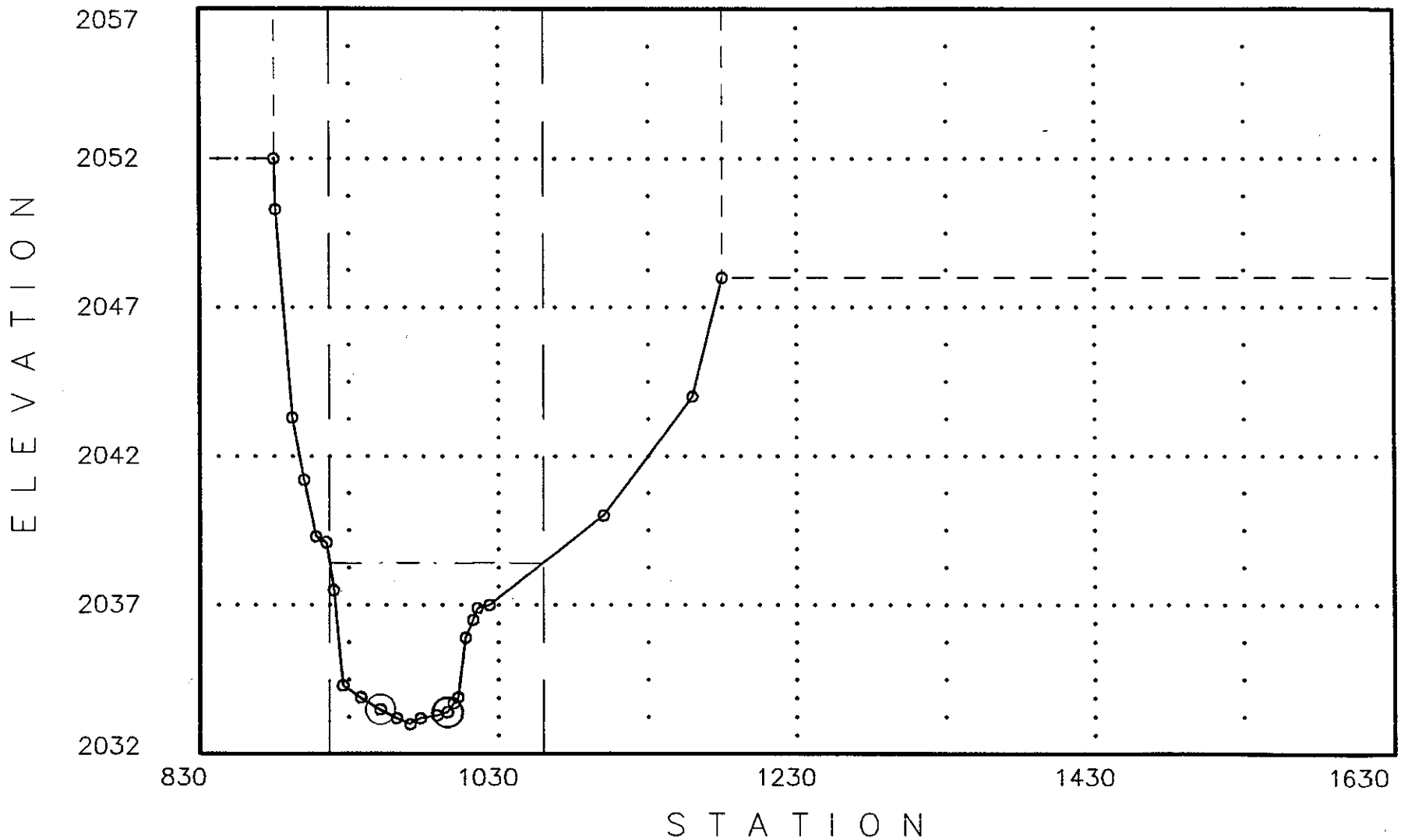


11-19-1992

<<<<<< Cross Section: 1.287: (FN = WASHD.O) >>>>>>

Q1= 4000 WS1= 2038.4
Q2= 4000 WS2= 2038.42

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

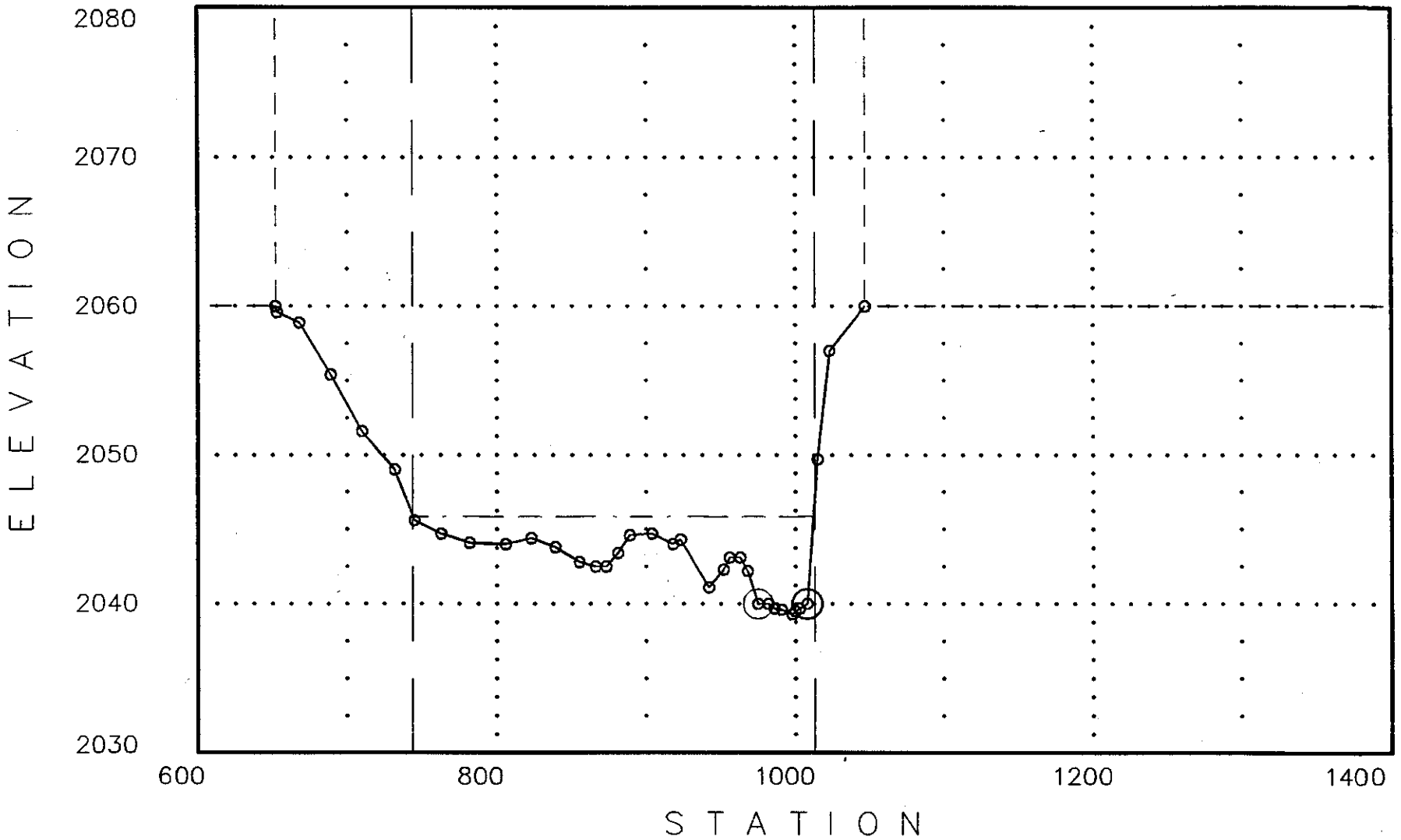


11-19-1992

<<<<<< Cross Section: 1.346: (FN = WASHD.O) >>>>>>

Q1= 4000 WS1= 2045.87
Q2= 4000 WS2= 2045.86

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

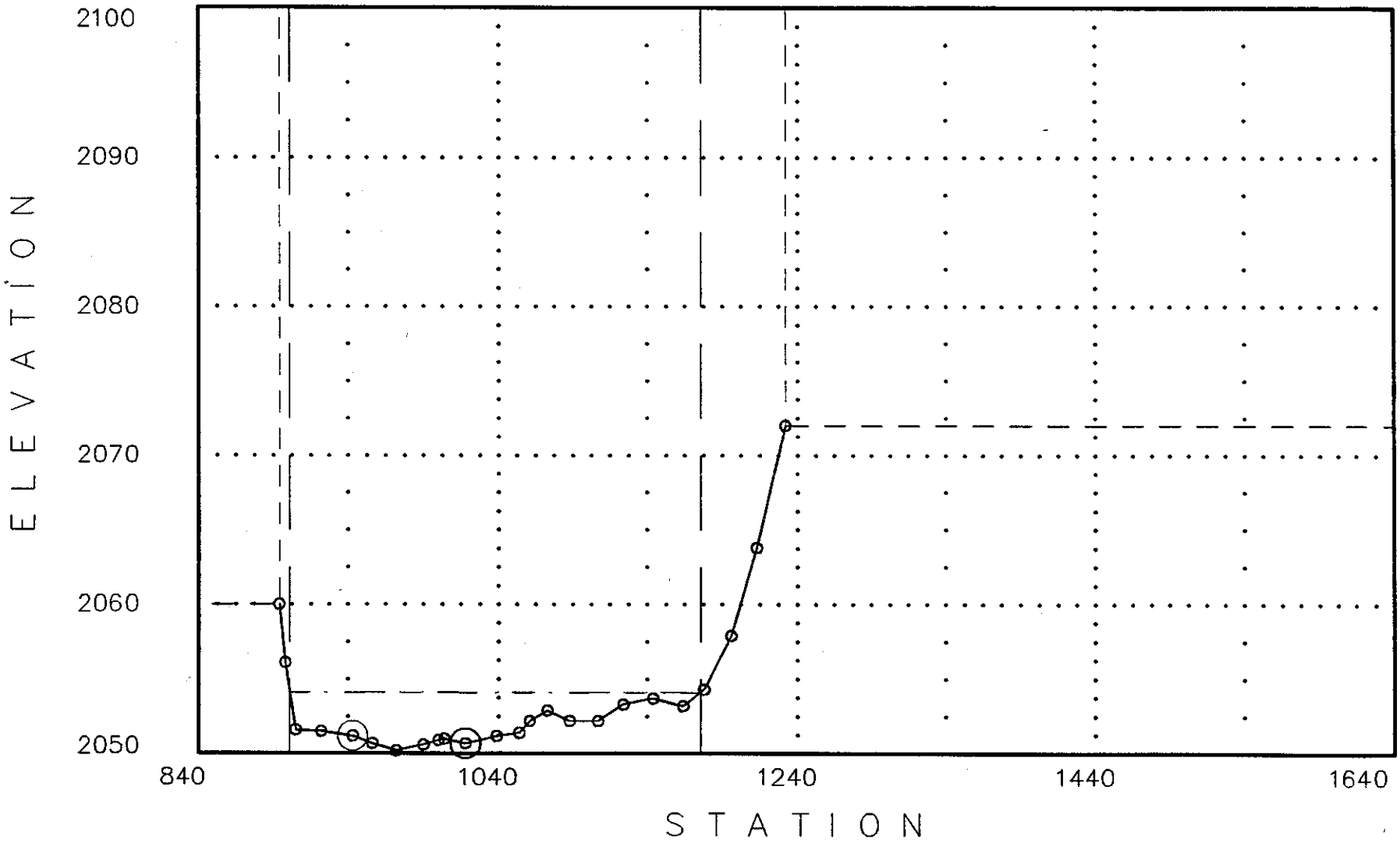


11-19-1992

<<<<<< Cross Section: 1.423: (FN = WASHD.O) >>>>>>

Q1= 4000 WS1= 2054.1
Q2= 4000 WS2= 2054.11

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

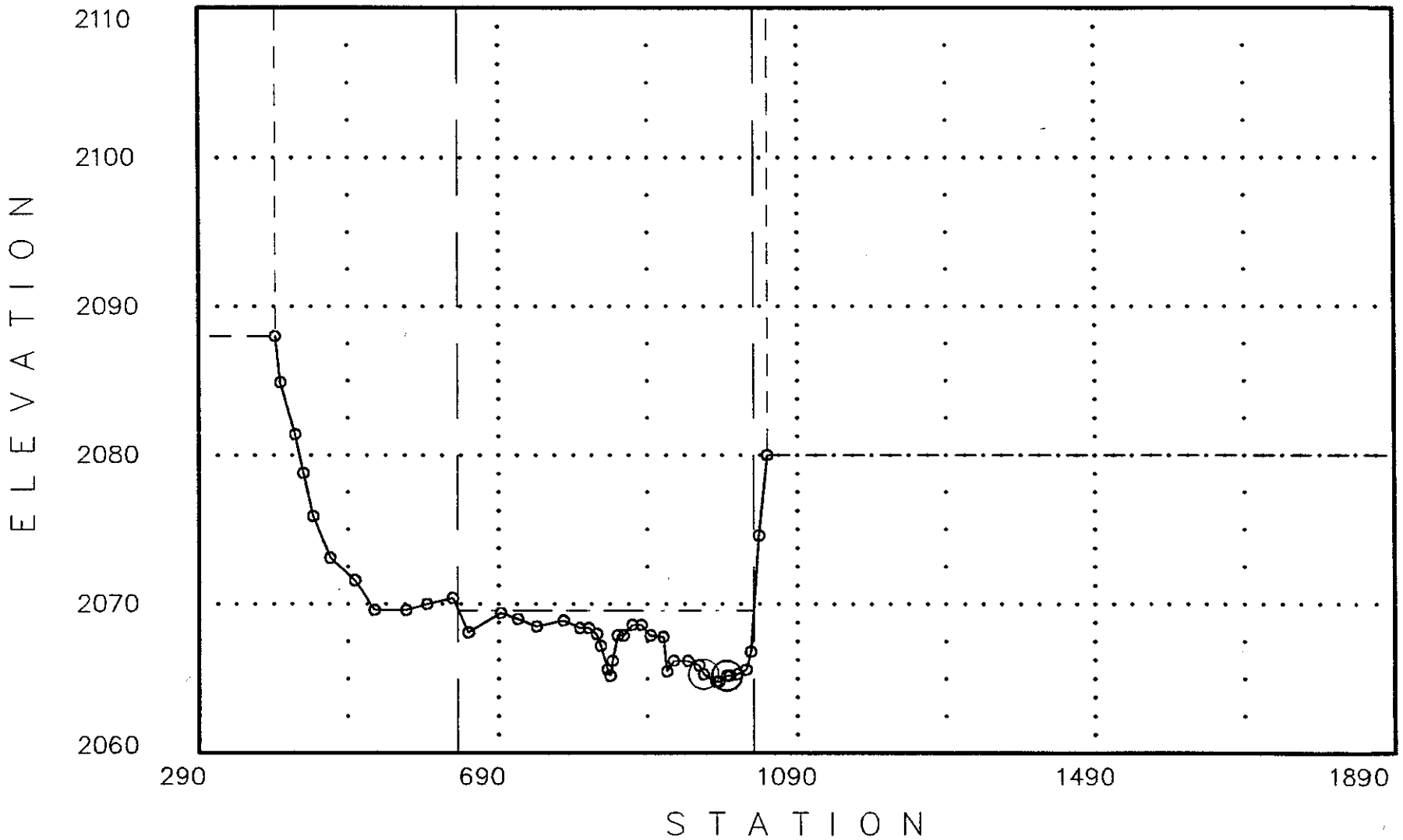


11-19-1992

<<<<<< Cross Section: 1.513: (FN = WASHD.0) >>>>>>

Q1= 4000 WS1= 2069.56
Q2= 4000 WS2= 2069.55

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

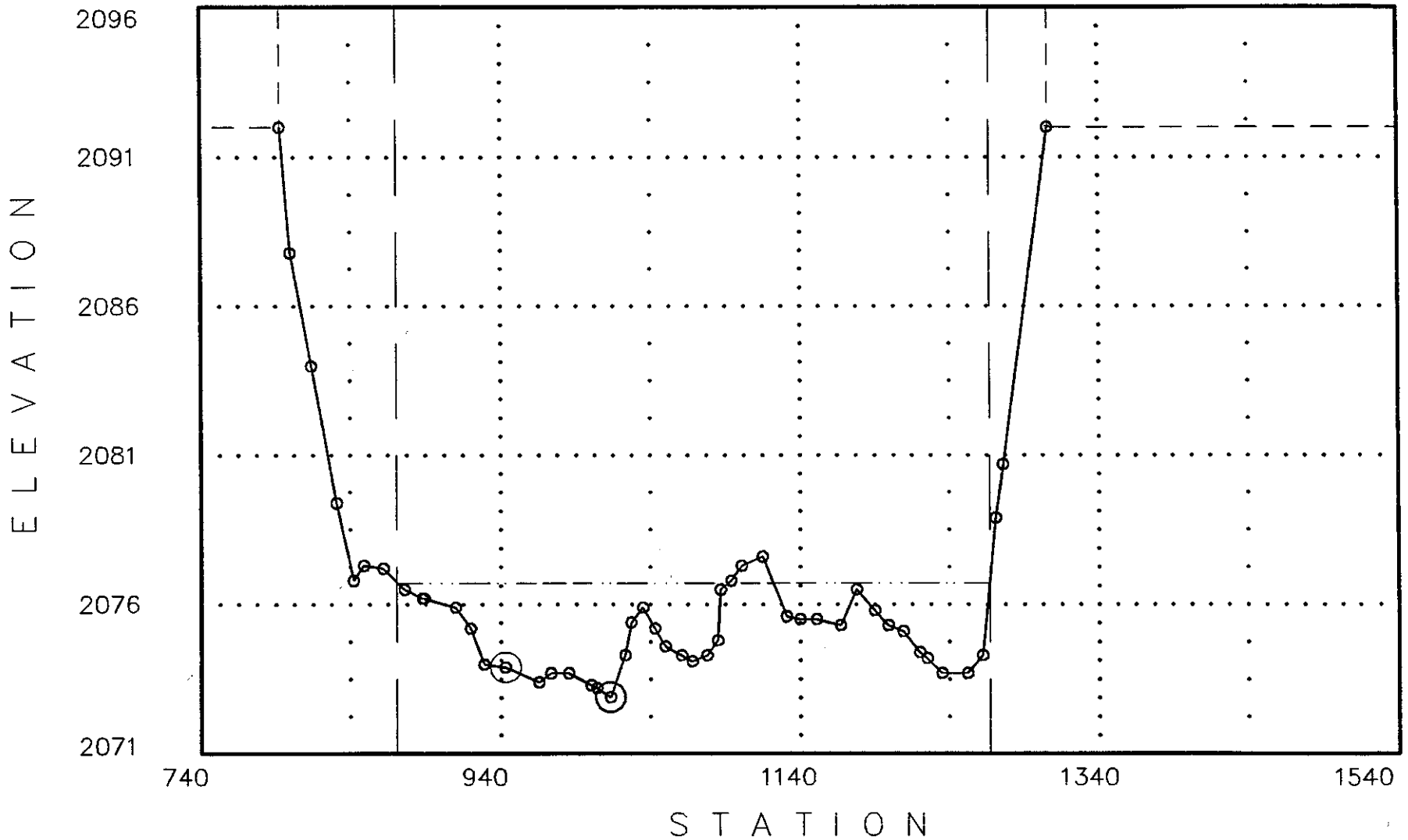


11-19-1992

<<<<<< Cross Section: 1.587: (FN = WASHD.O) >>>>>>

Q1= 4000 WS1= 2076.72
Q2= 4000 WS2= 2076.72

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

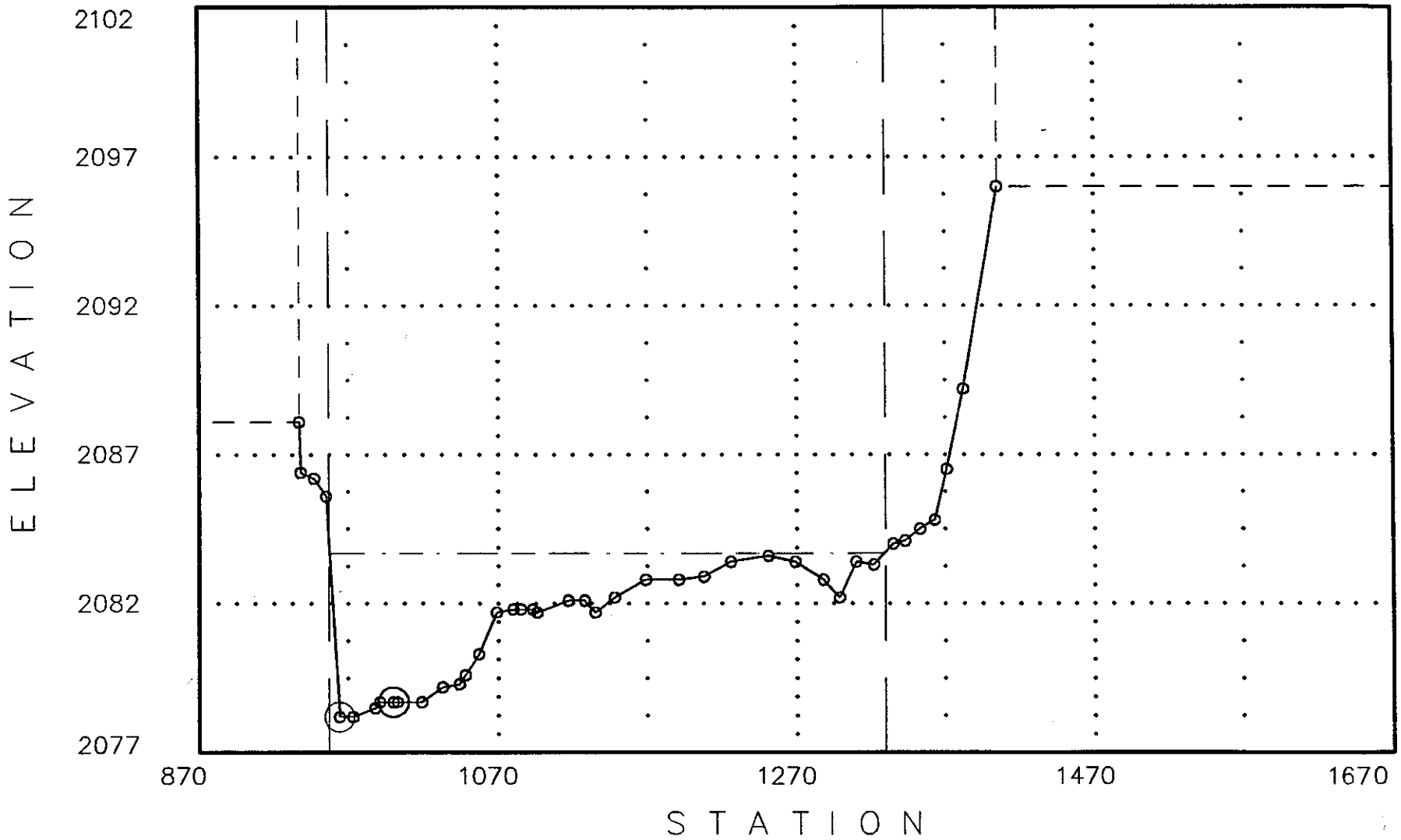


11-19-1992

<<<<<< Cross Section: 1.615: (FN = WASHD.0) >>>>>>

Q1= 4245 WS1= 2083.69
Q2= 4245 WS2= 2083.69

Manning-n's: n-lob = .065 n-ch = .03 n-rob = .065

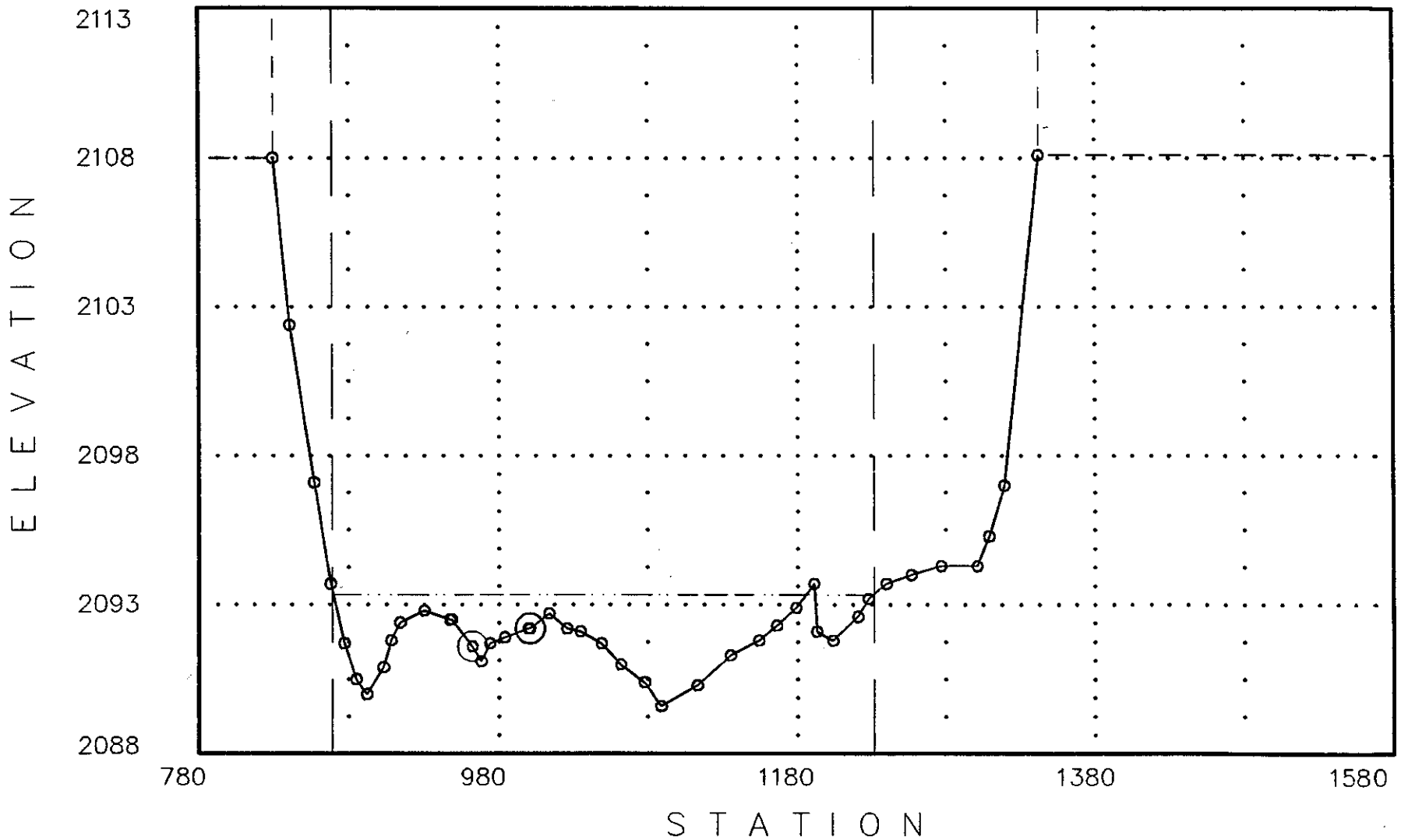


11-19-1992

<<<<<< Cross Section: 1.71: (FN = WASHD.O) >>>>>>

Q1= 4245 WS1= 2093.33
Q2= 4245 WS2= 2093.33

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .05

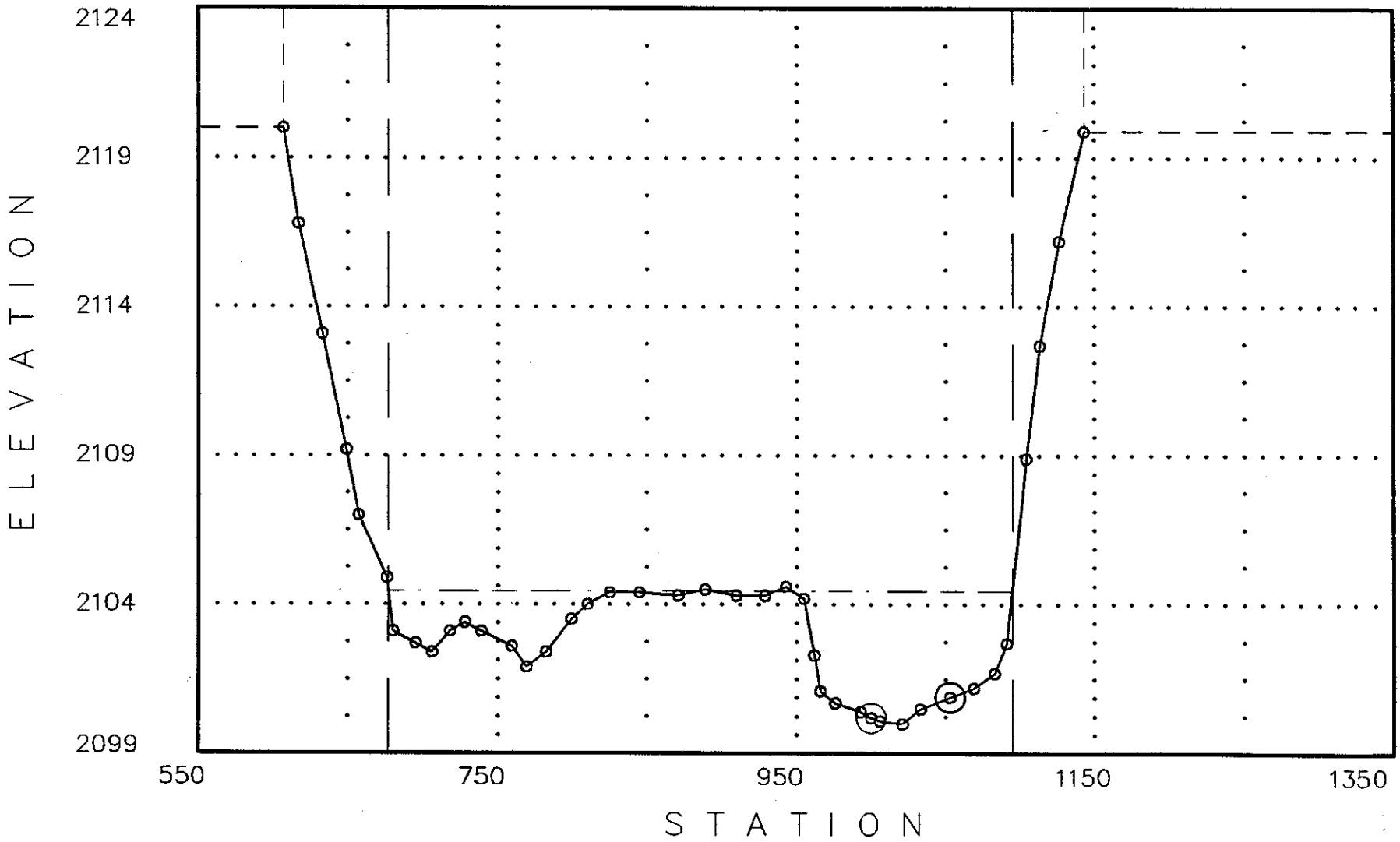


11-19-1992

<<<<<< Cross Section: 1.803: (FN = WASHD.0) >>>>>>

Q1= 4245 WS1= 2104.45
Q2= 4245 WS2= 2104.45

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

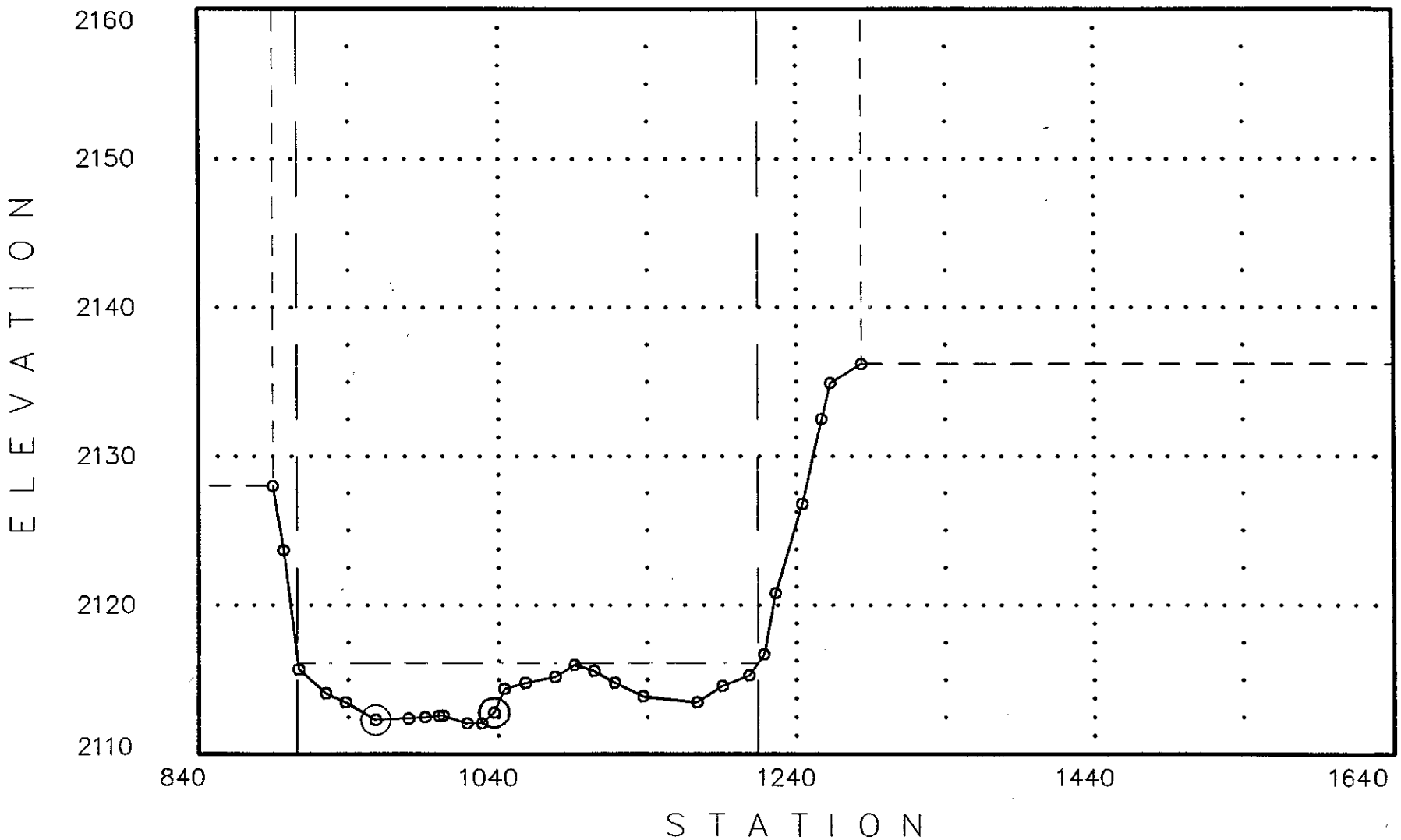


11-19-1992

<<<<<< Cross Section: 1.879: (FN = WASHD.O) >>>>>>

Q1= 4245 WS1= 2116.11
Q2= 4245 WS2= 2116.11

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

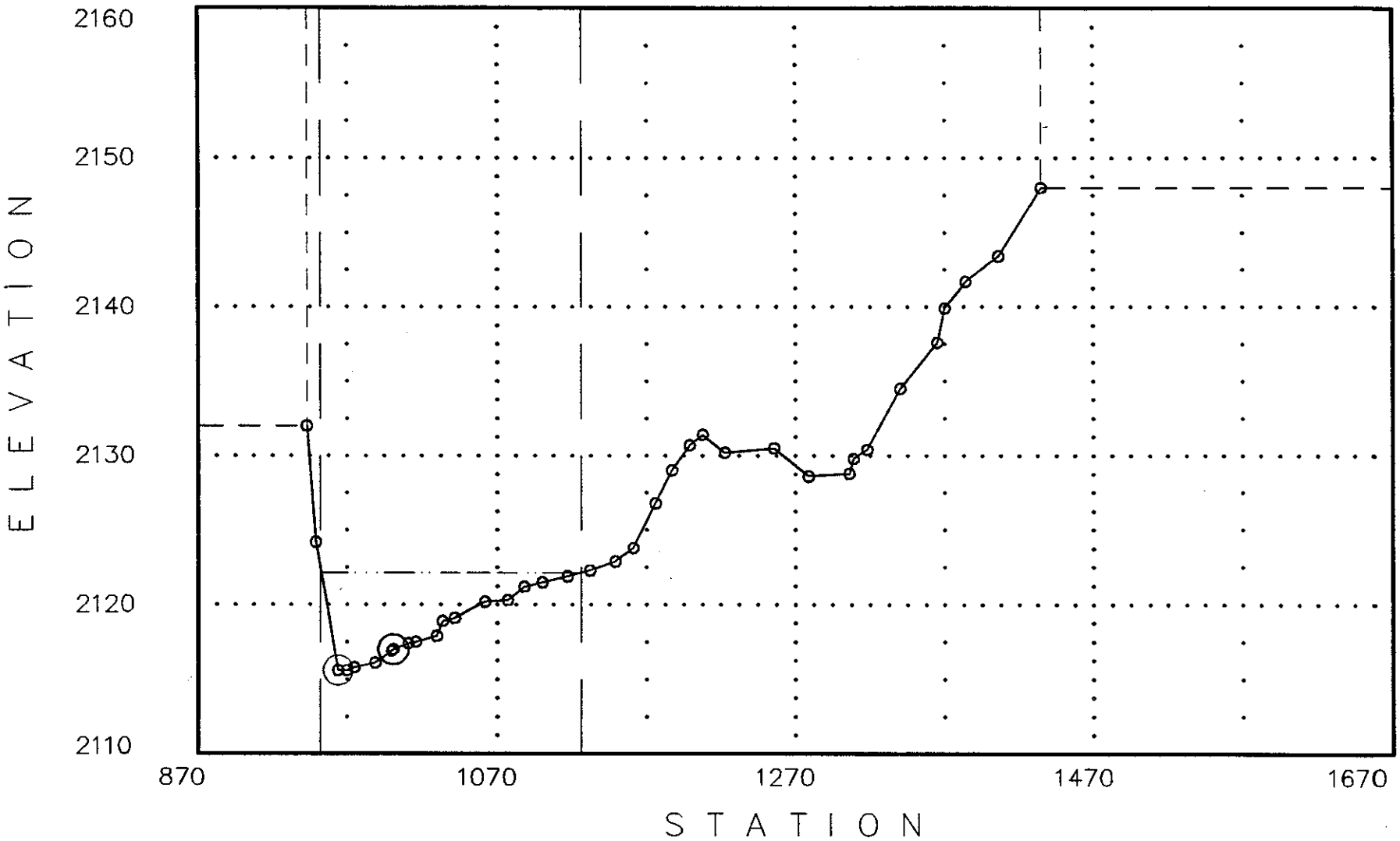


11-19-1992

<<<<<< Cross Section: 1.931: (FN = WASHD.O) >>>>>>

Q1= 4245 WS1= 2122.13
Q2= 4245 WS2= 2122.13

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

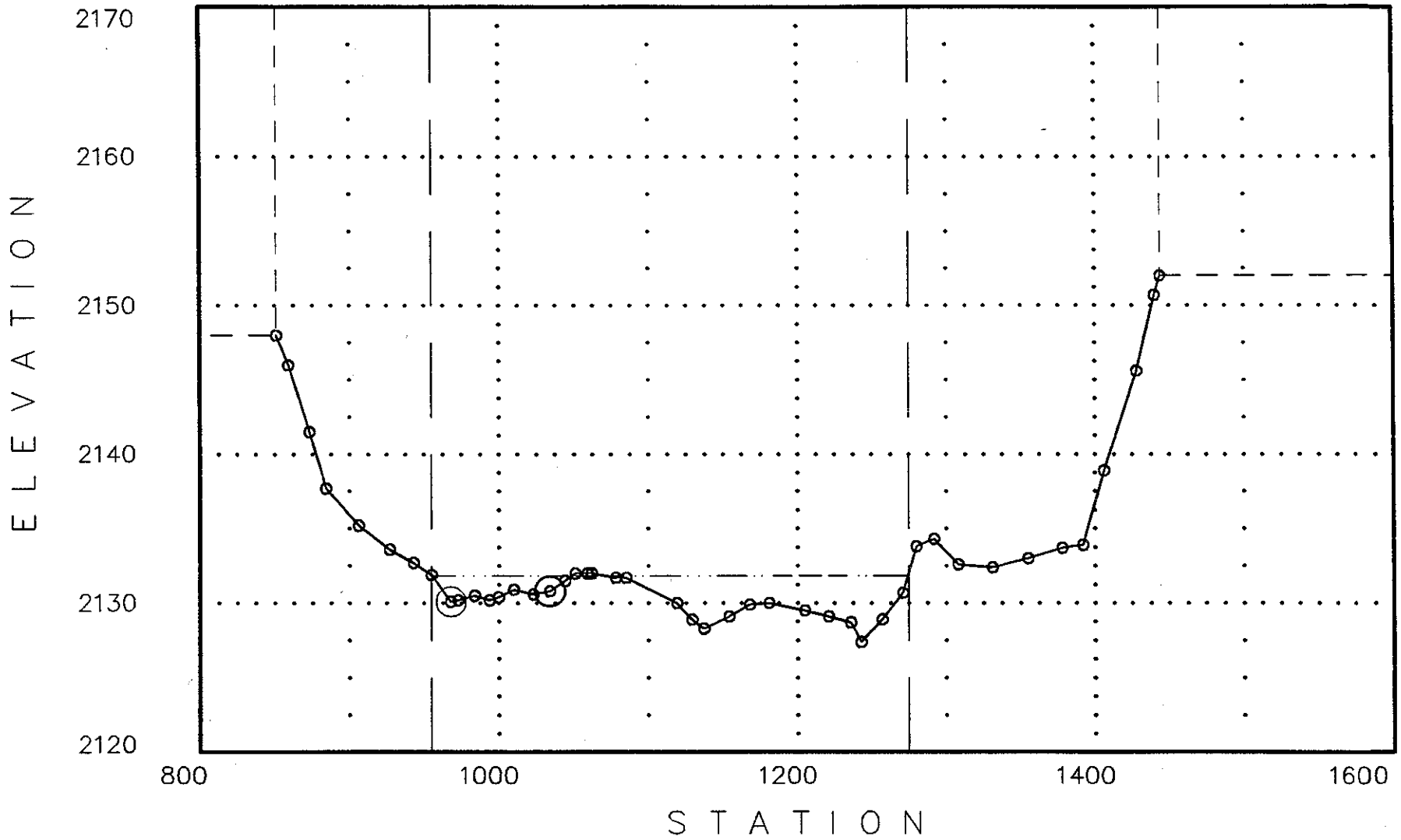


11-19-1992

<<<<<< Cross Section: 2.037: (FN = WASHD.O) >>>>>>

Q1= 4245 WS1= 2131.84
Q2= 4245 WS2= 2131.83

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .05

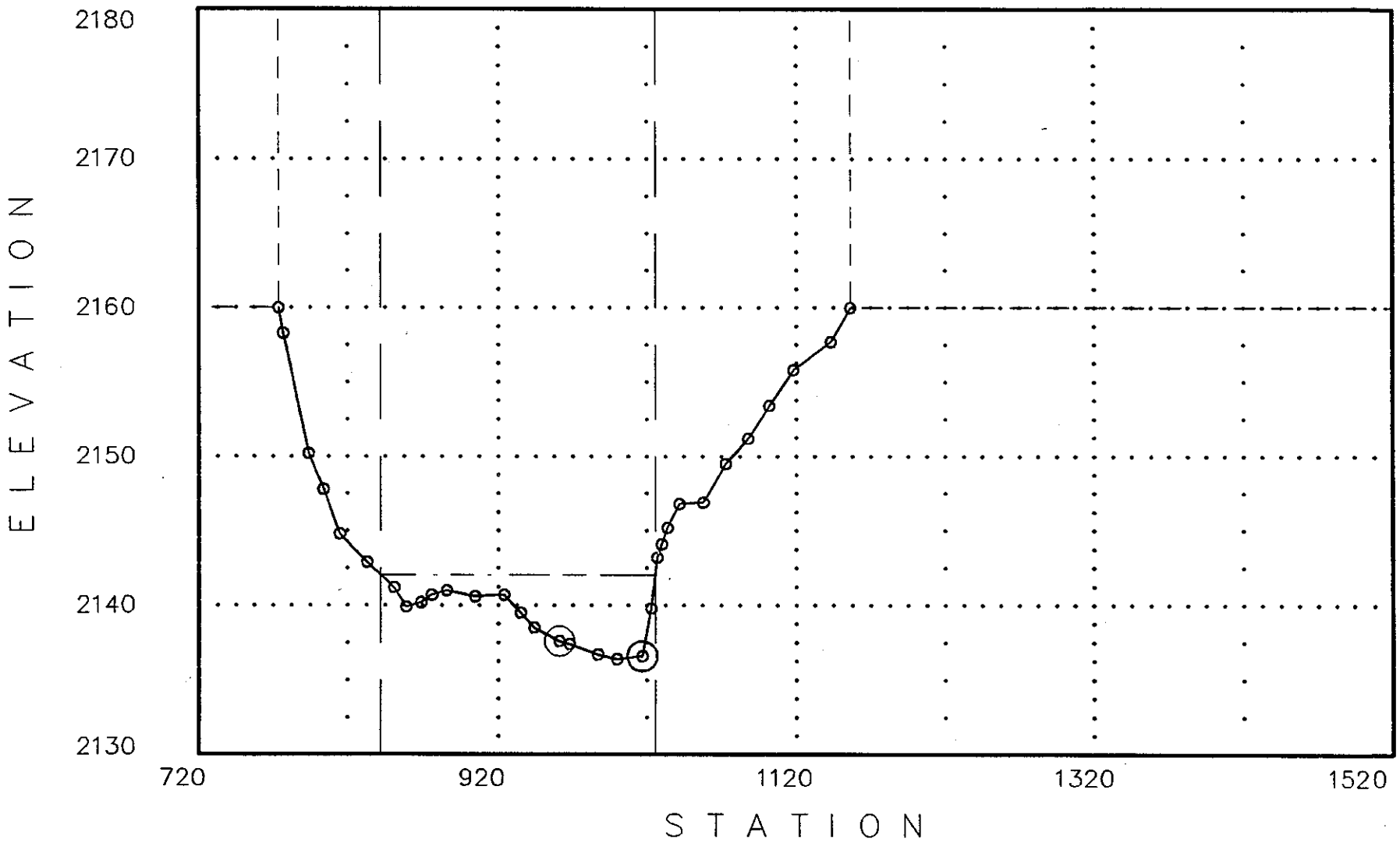


11-19-1992

<<<<<< Cross Section: 2.122: (FN = WASHD.0) >>>>>>

Q1= 4245 WS1= 2142.04
Q2= 4245 WS2= 2142.05

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

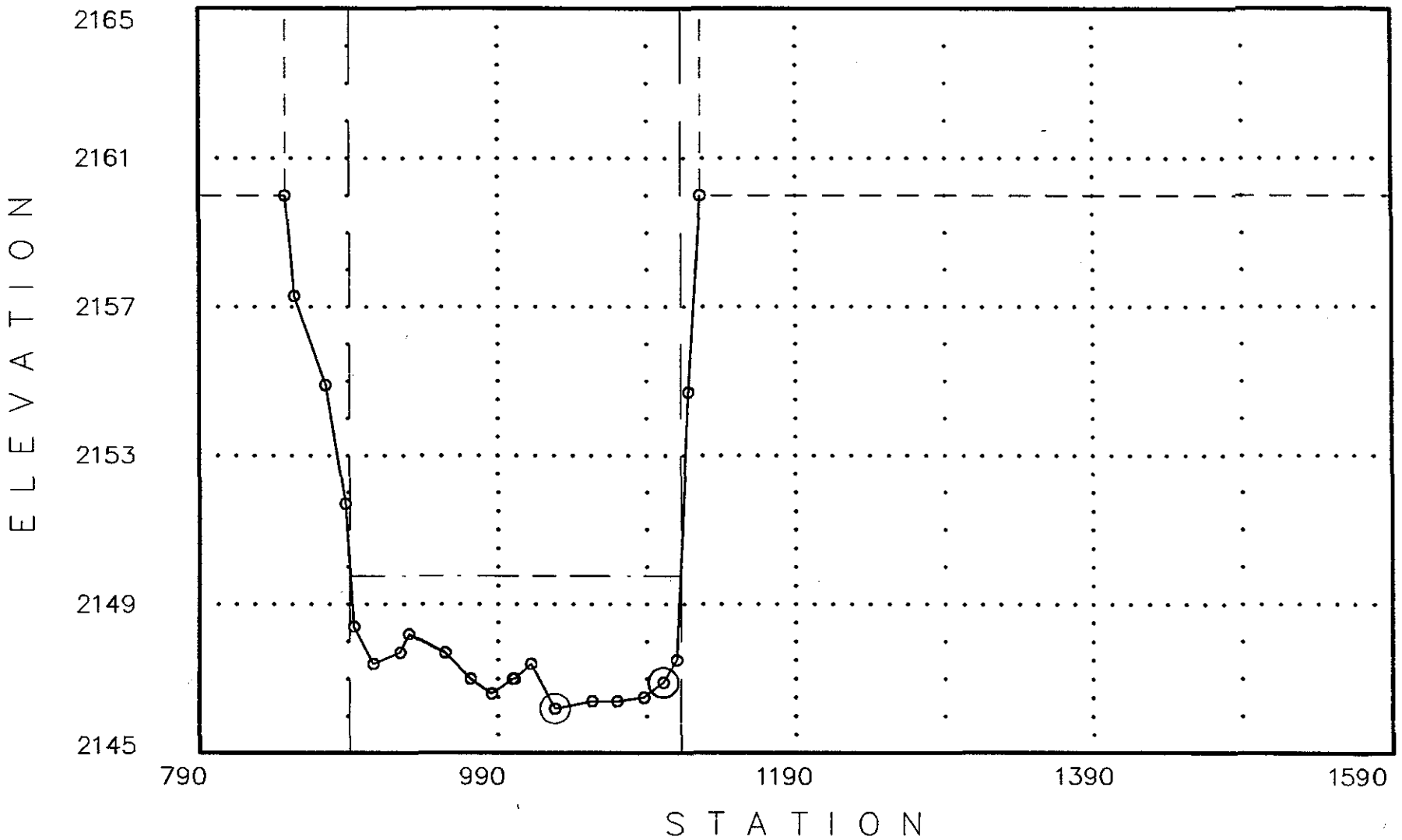


11-19-1992

<<<<<< Cross Section: 2.185: (FN = WASHD.0) >>>>>>

Q1= 4245 WS1= 2149.76
Q2= 4245 WS2= 2149.76

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

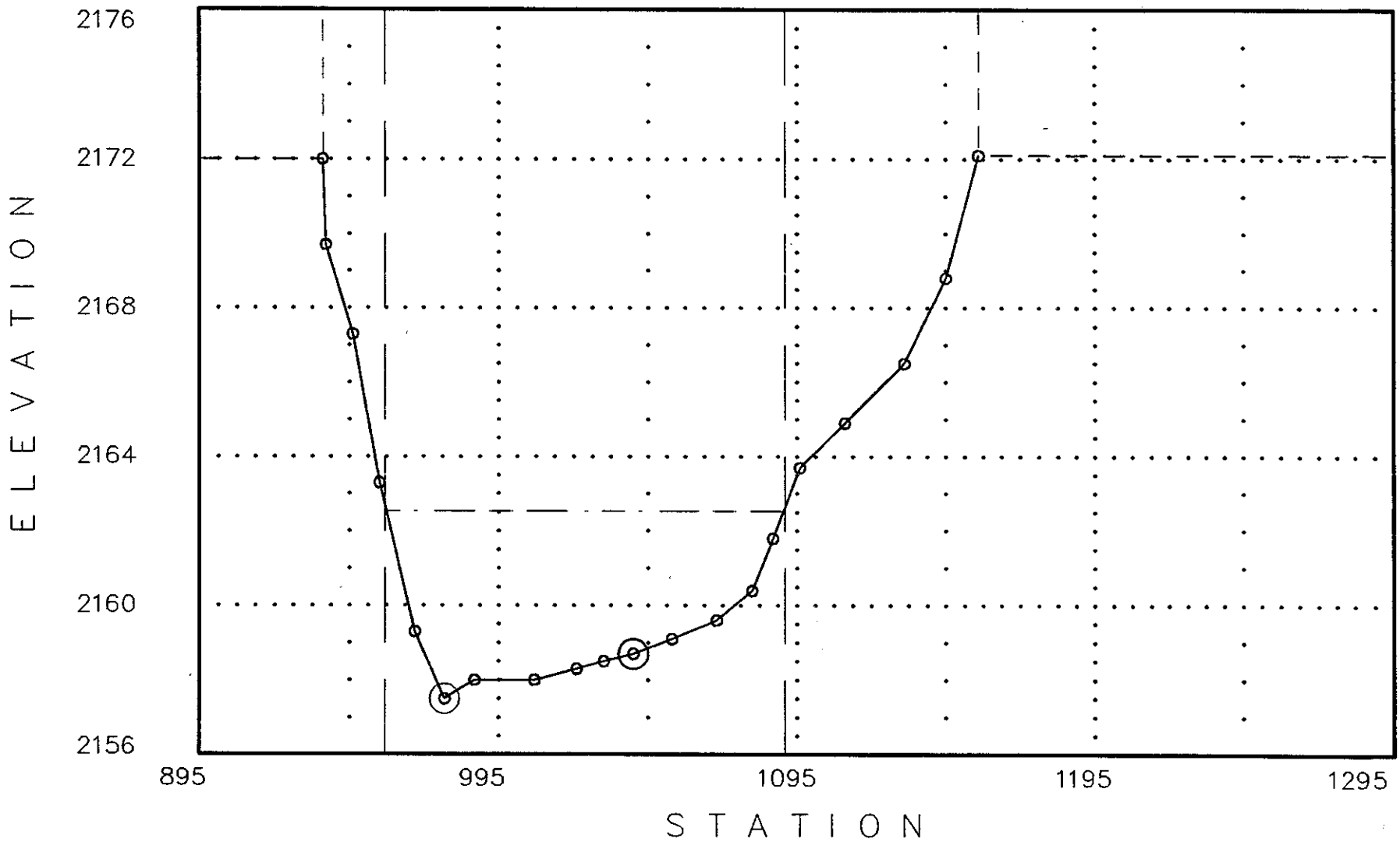


11-19-1992

<<<<<< Cross Section: 2.298: (FN = WASHD.0) >>>>>>

Q1= 4245 WS1= 2162.54
Q2= 4245 WS2= 2162.54

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

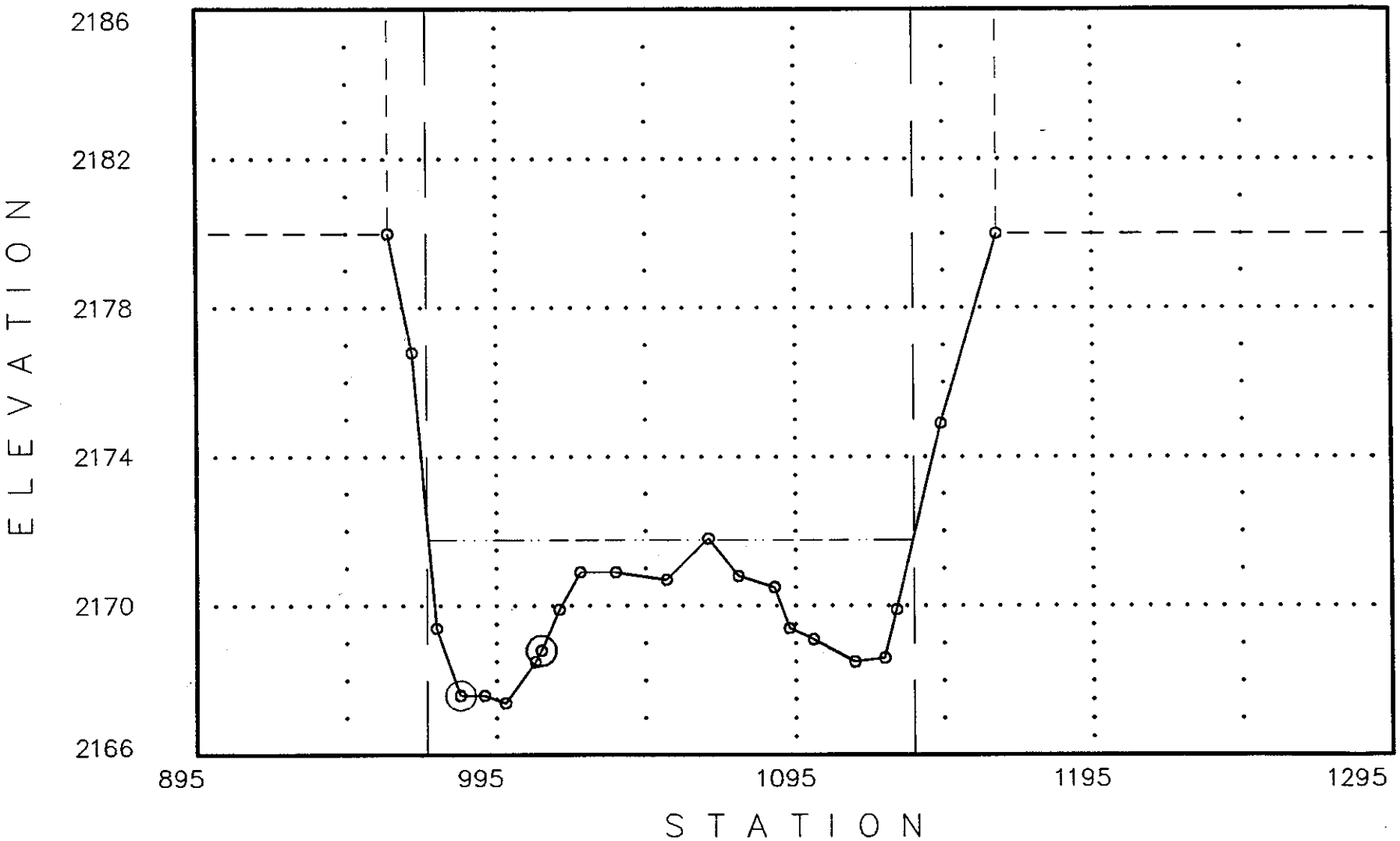


11-19-1992

<<<<<< Cross Section: 2.38: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2171.76
Q2= 1914 WS2= 2171.76

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

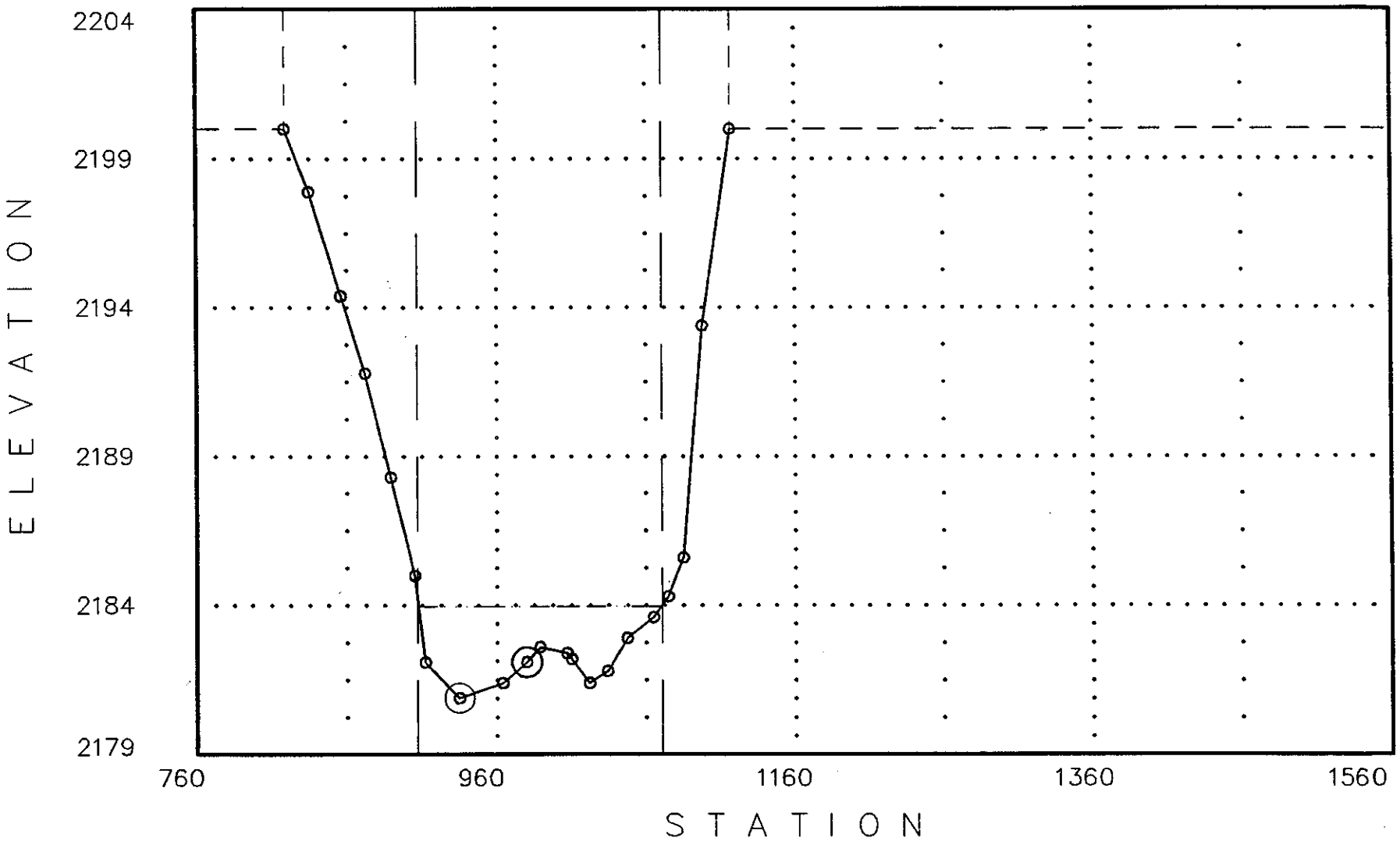


11-19-1992

<<<<<< Cross Section: 2.458: (FN = WASHD.0) >>>>>>

Q1= 1914 WS1= 2183.96
Q2= 1914 WS2= 2183.96

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

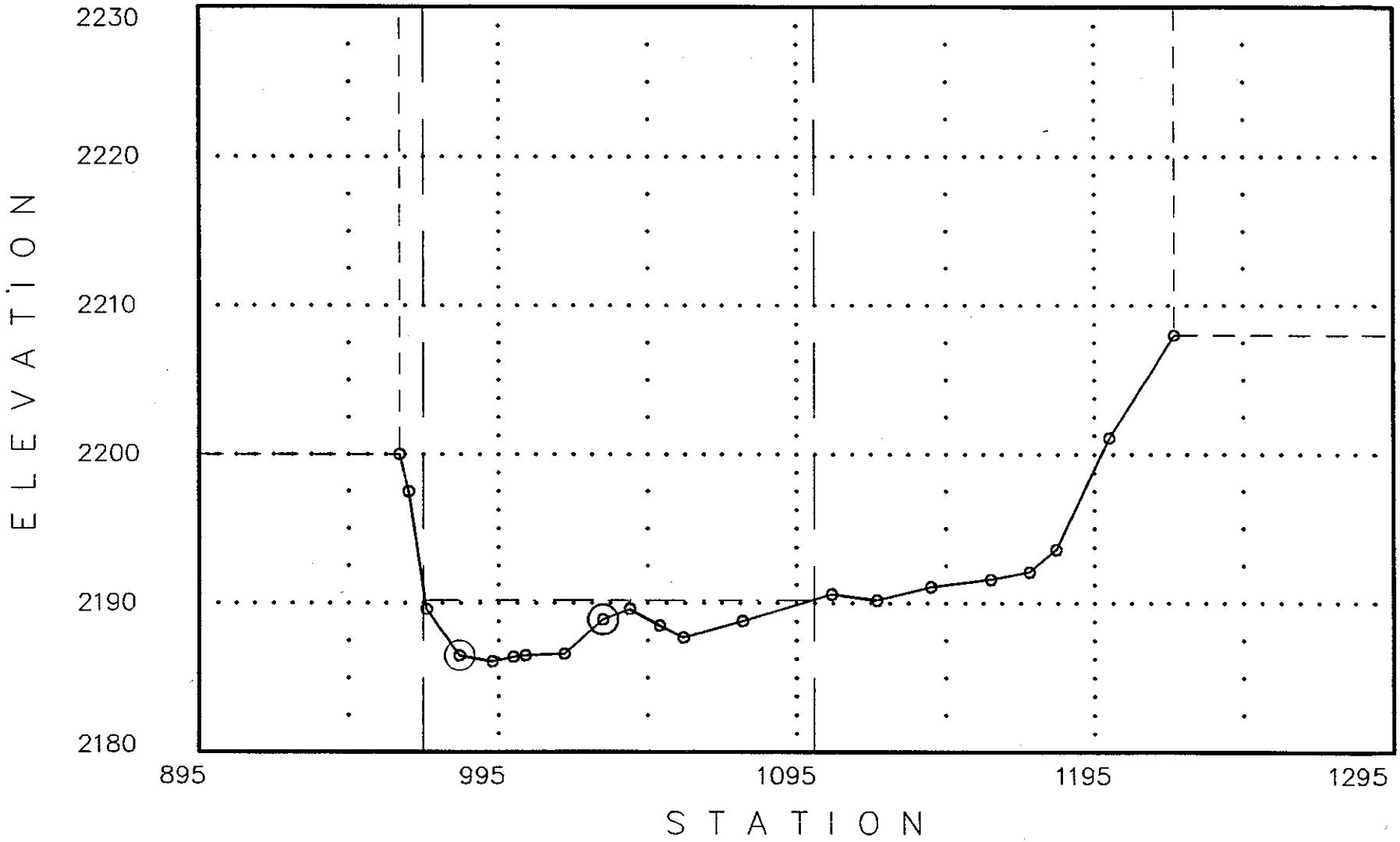


11-19-1992

<<<<<< Cross Section: 2.511: (FN = WASHD.0) >>>>>>

Q1= 1914 WS1= 2190.19
Q2= 1914 WS2= 2190.21

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

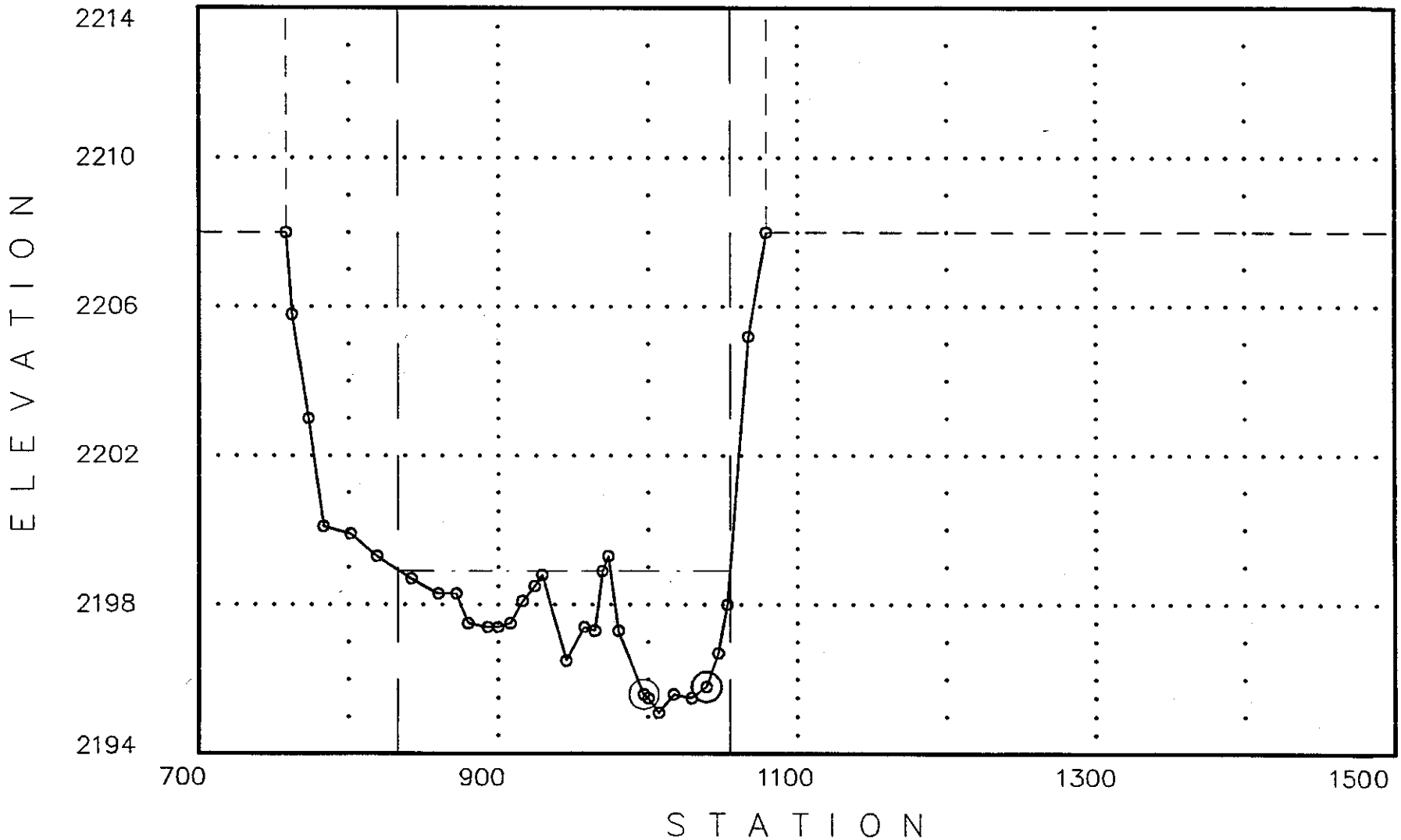


11-19-1992

<<<<<< Cross Section: 2.597: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2198.91
Q2= 1914 WS2= 2198.91

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

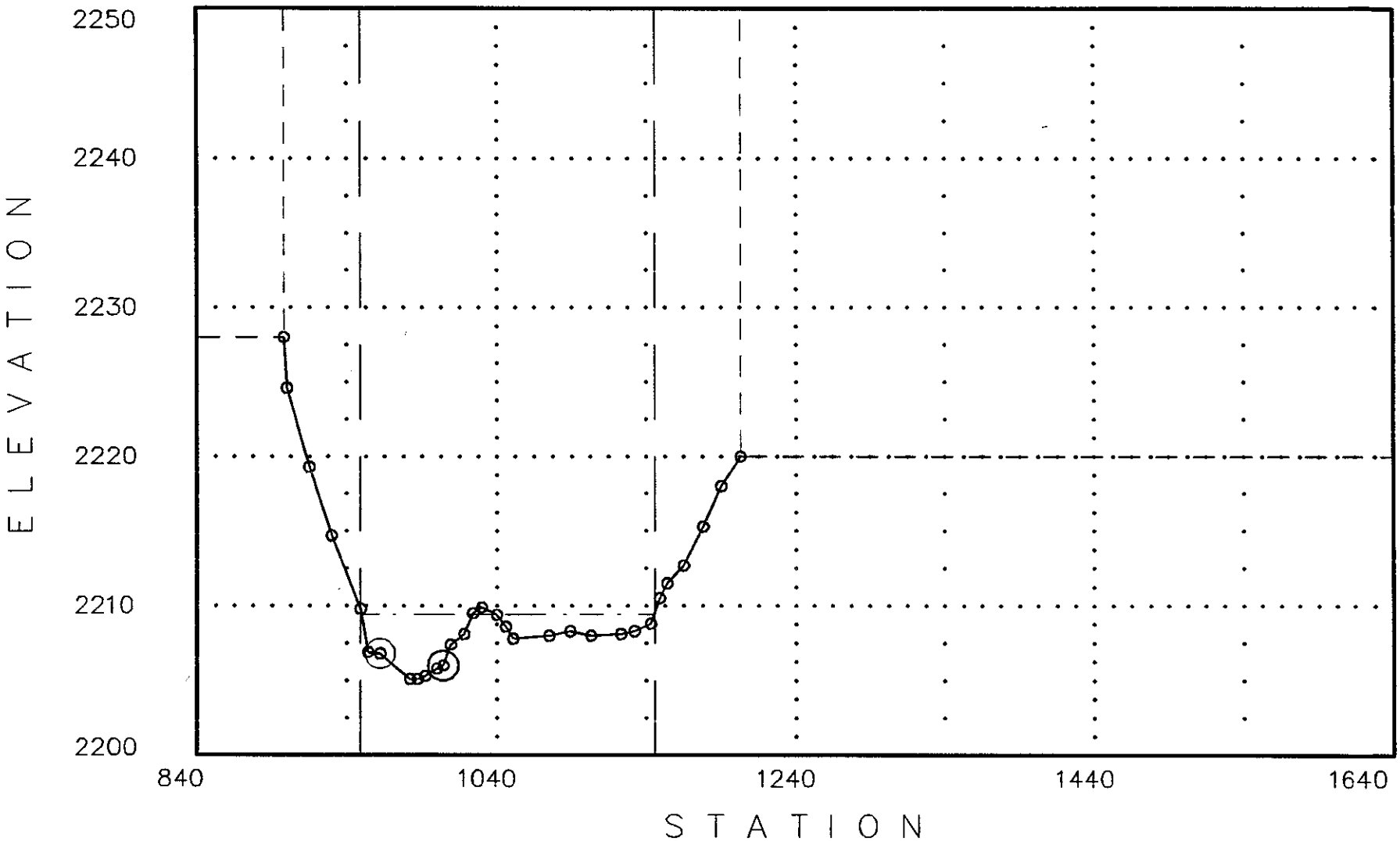


11-19-1992

<<<<<< Cross Section: 2.671: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2209.42
Q2= 1914 WS2= 2209.42

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

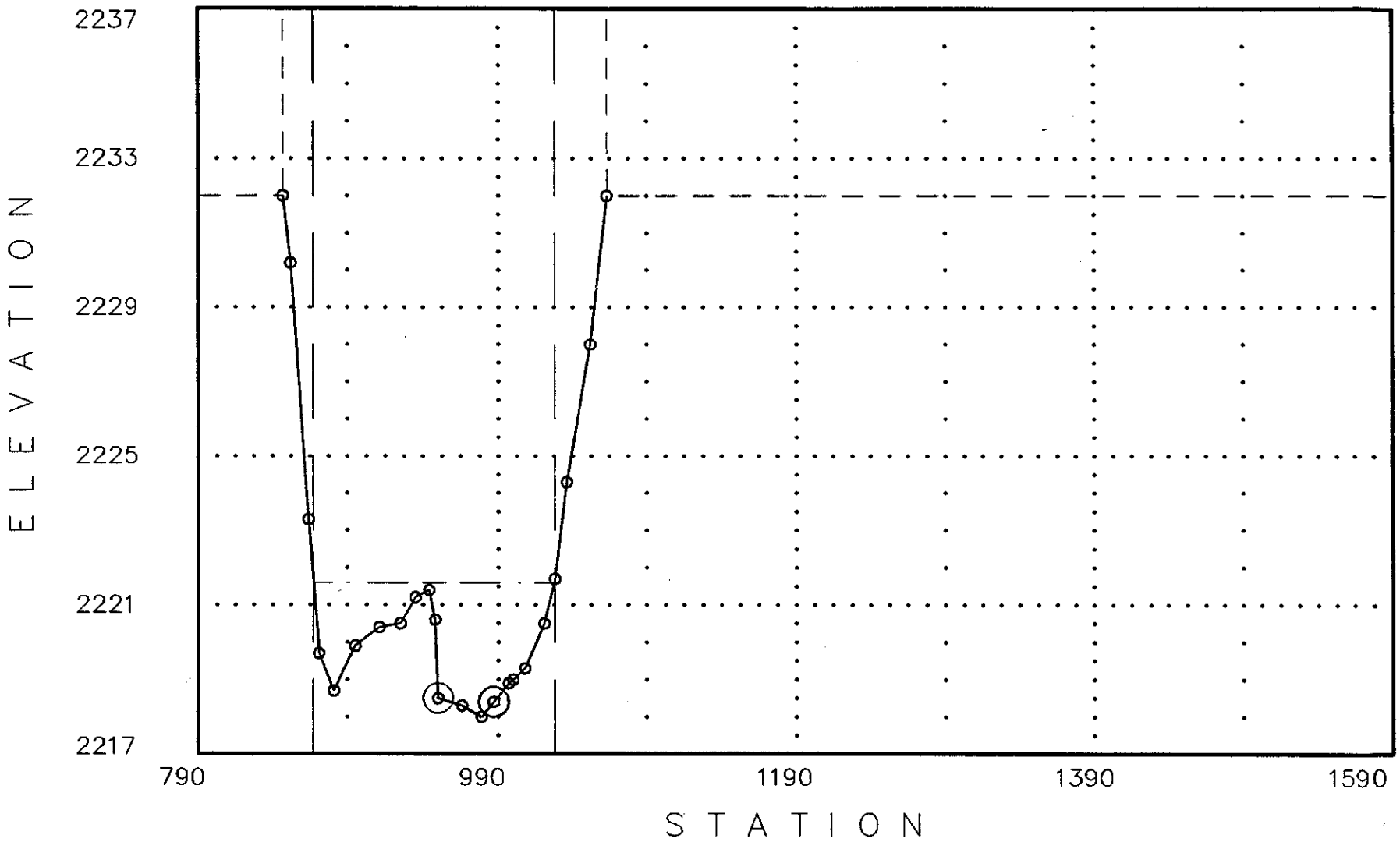


11-19-1992

<<<<<< Cross Section: 2.768: (FN = WASHD.0) >>>>>>

Q1= 1914 WS1= 2221.6
Q2= 1914 WS2= 2221.6

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

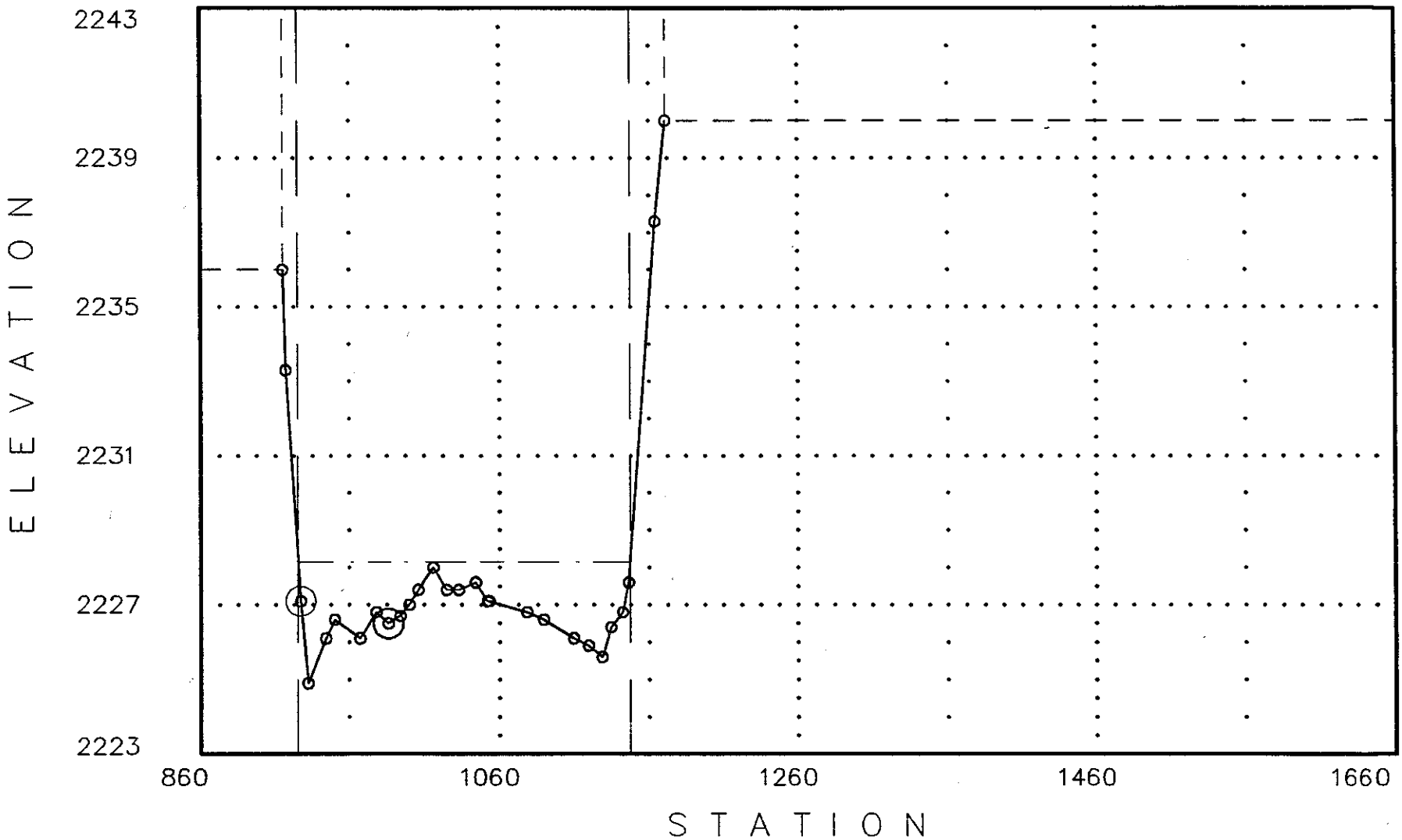


11-19-1992

<<<<<< Cross Section: 2.821: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2228.15
Q2= 1810 WS2= 2228.15

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

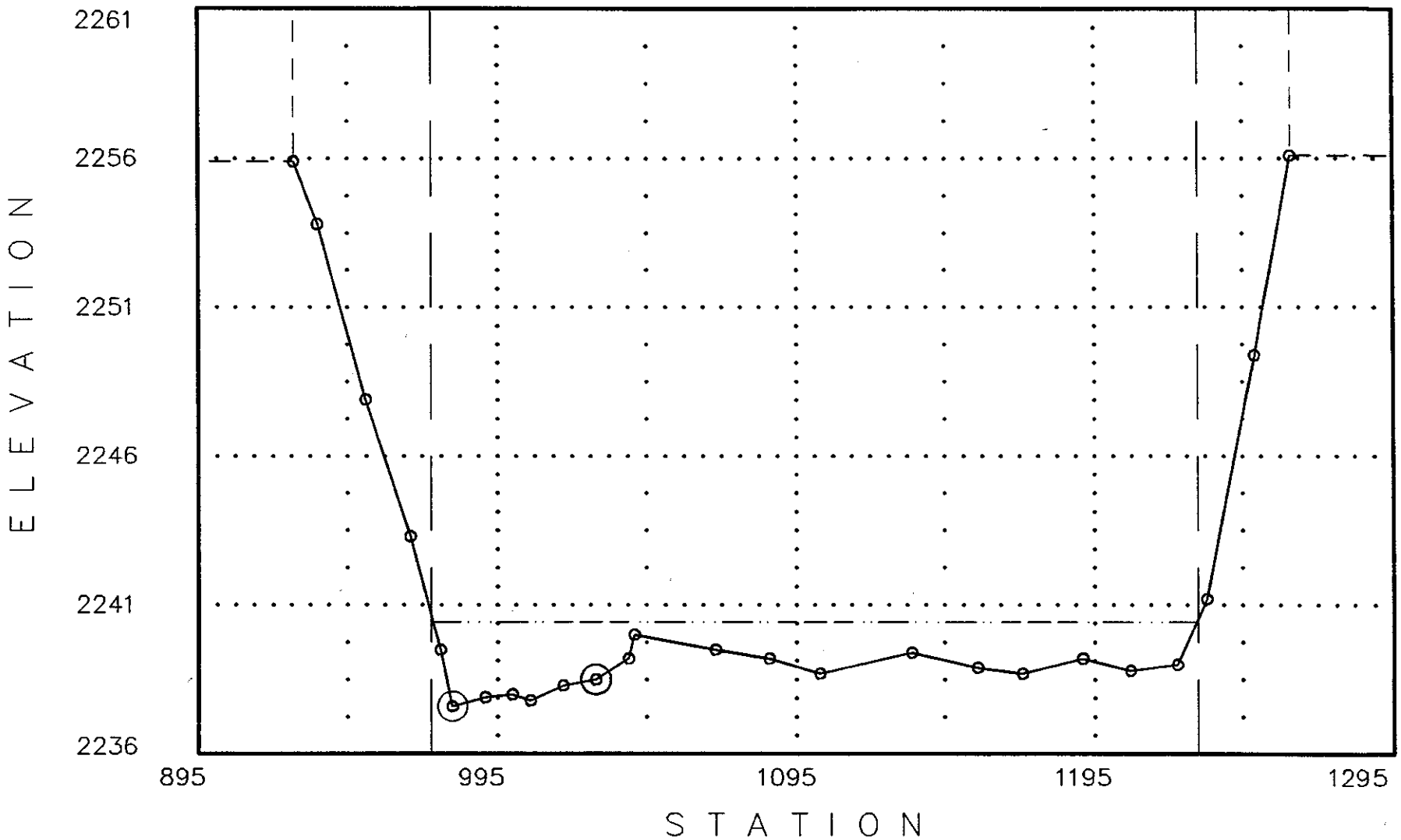


11-19-1992

<<<<<< Cross Section: 2.917: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2240.44
Q2= 1810 WS2= 2240.44

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

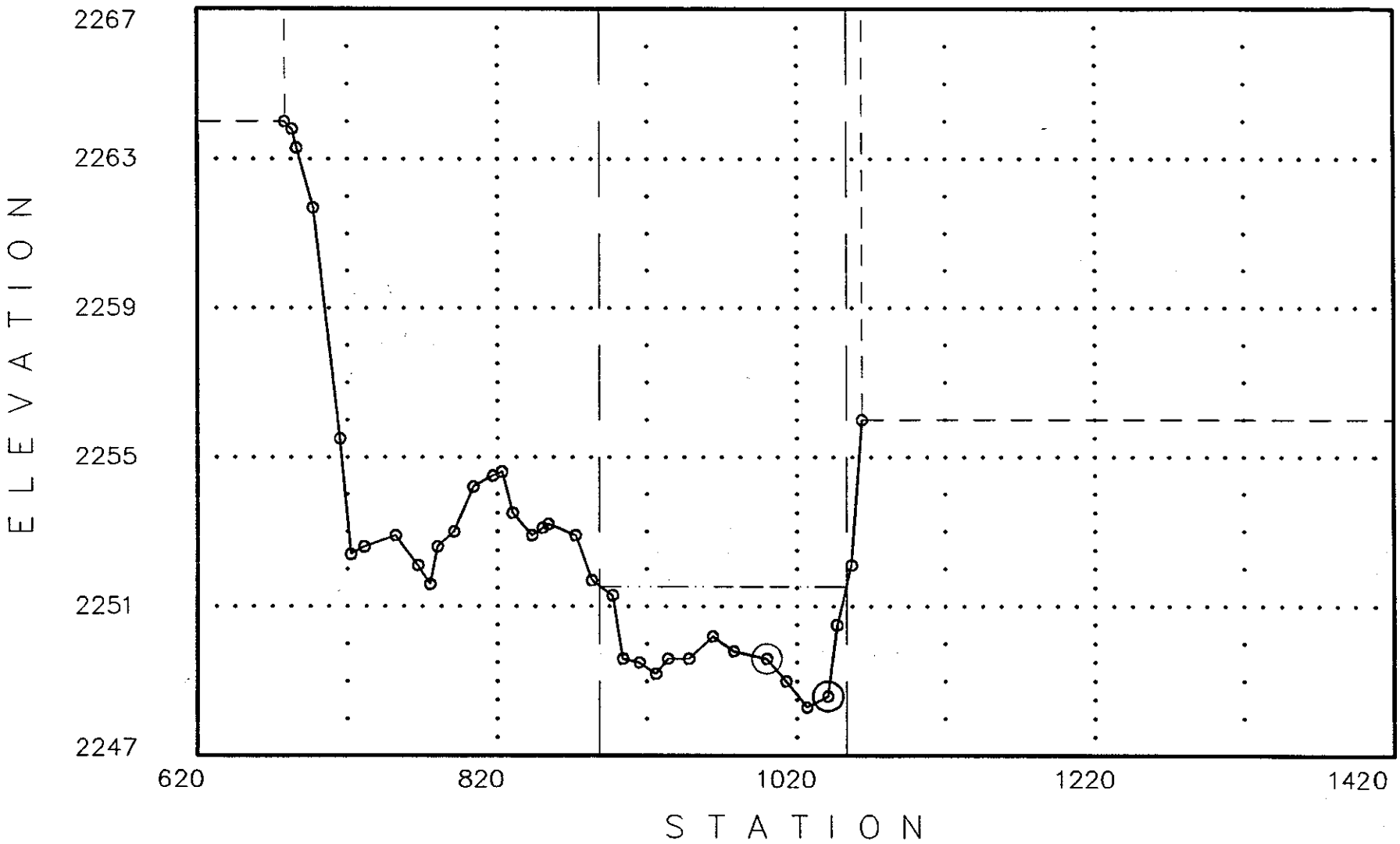


11-19-1992

<<<<<< Cross Section: 2.996: (FN = WASHD.0) >>>>>>

Q1= 1810 WS1= 2251.53
Q2= 1810 WS2= 2251.53

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

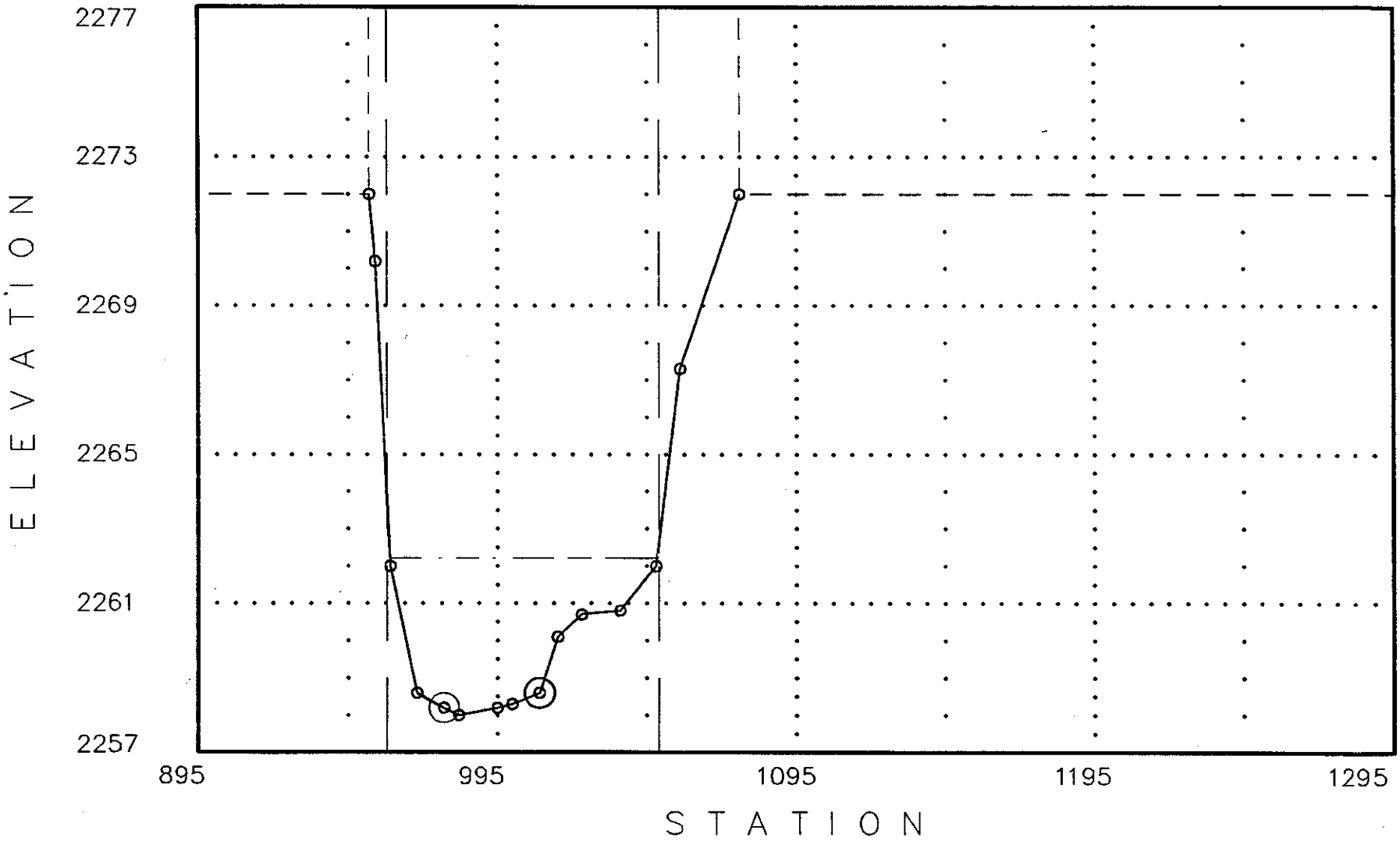


11-19-1992

<<<<<< Cross Section: 3.082: (FN = WASHD.0) >>>>>>

Q1= 1810 WS1= 2262.22
Q2= 1810 WS2= 2262.22

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



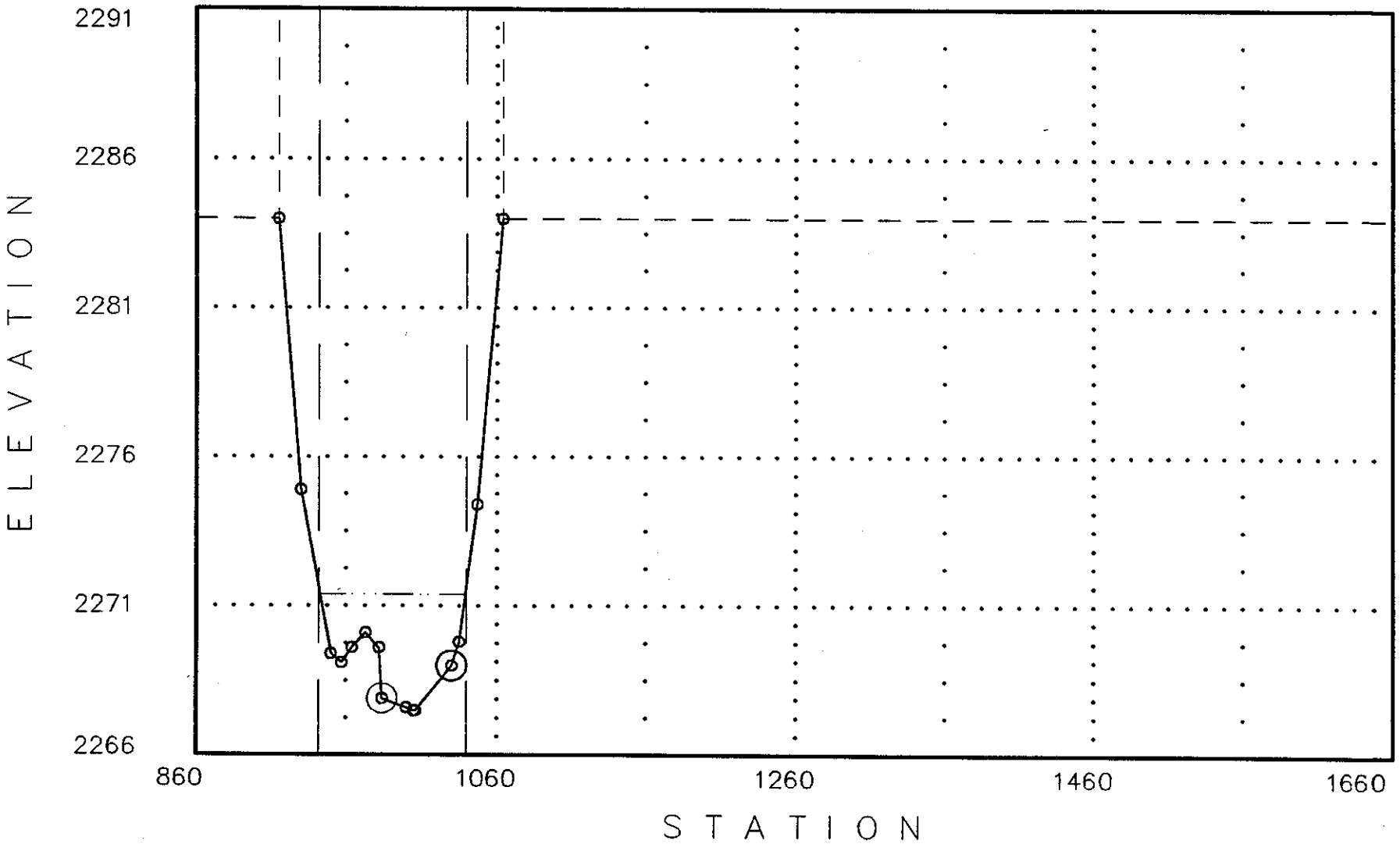
11-19-1992

<<<<<< Cross Section: 3.159: (FN = WASHD.0) >>>>>>

Q1= 1810 WS1= 2271.38

Q2= 1810 WS2= 2271.38

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

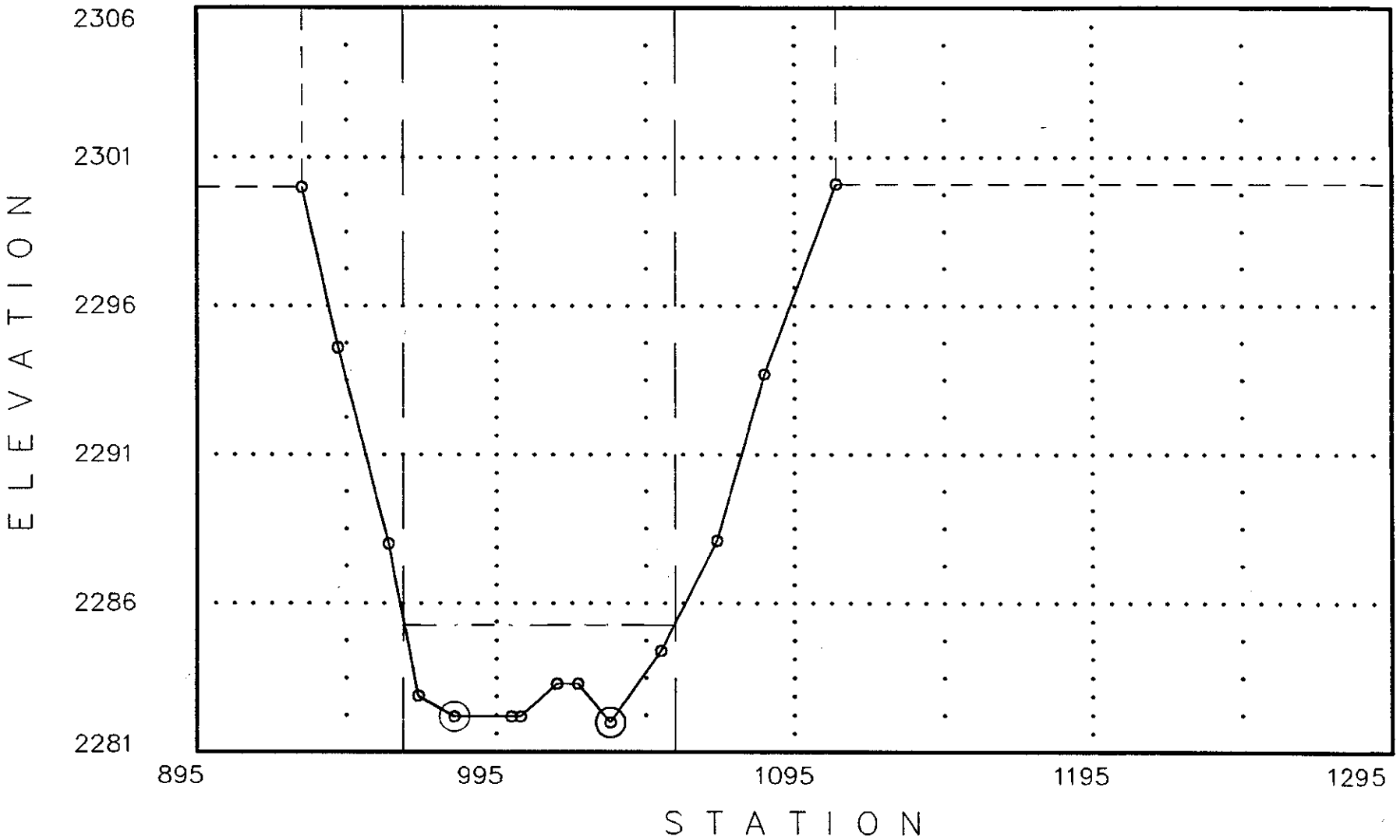


11-19-1992

<<<<<< Cross Section: 3.259: (FN = WASHD.0) >>>>>>

Q1= 1700 WS1= 2285.27
Q2= 1700 WS2= 2285.28

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

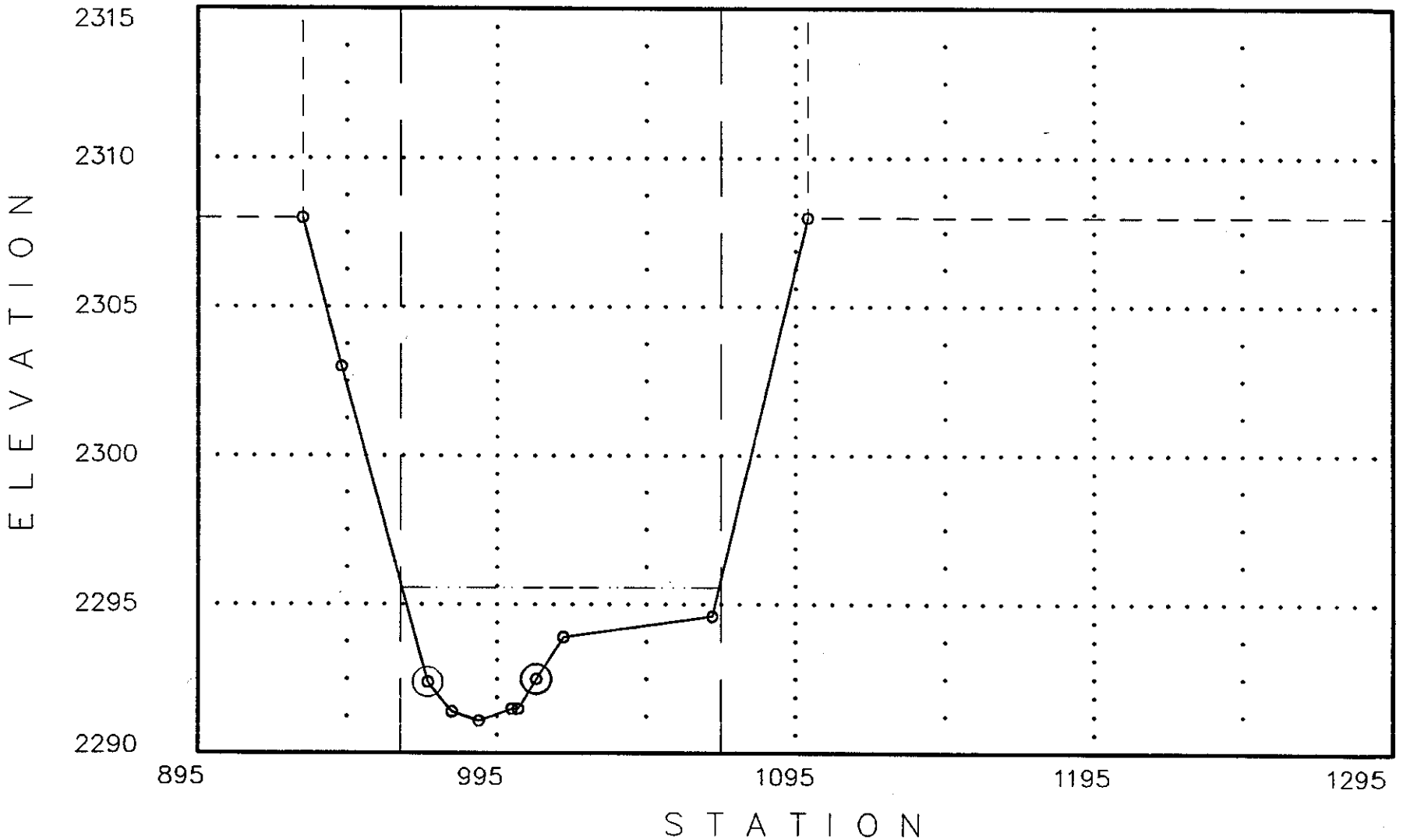


11-19-1992

<<<<<< Cross Section: 3.353: (FN = WASHD.O) >>>>>>

Q1= 1700 WS1= 2295.57
Q2= 1700 WS2= 2295.57

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

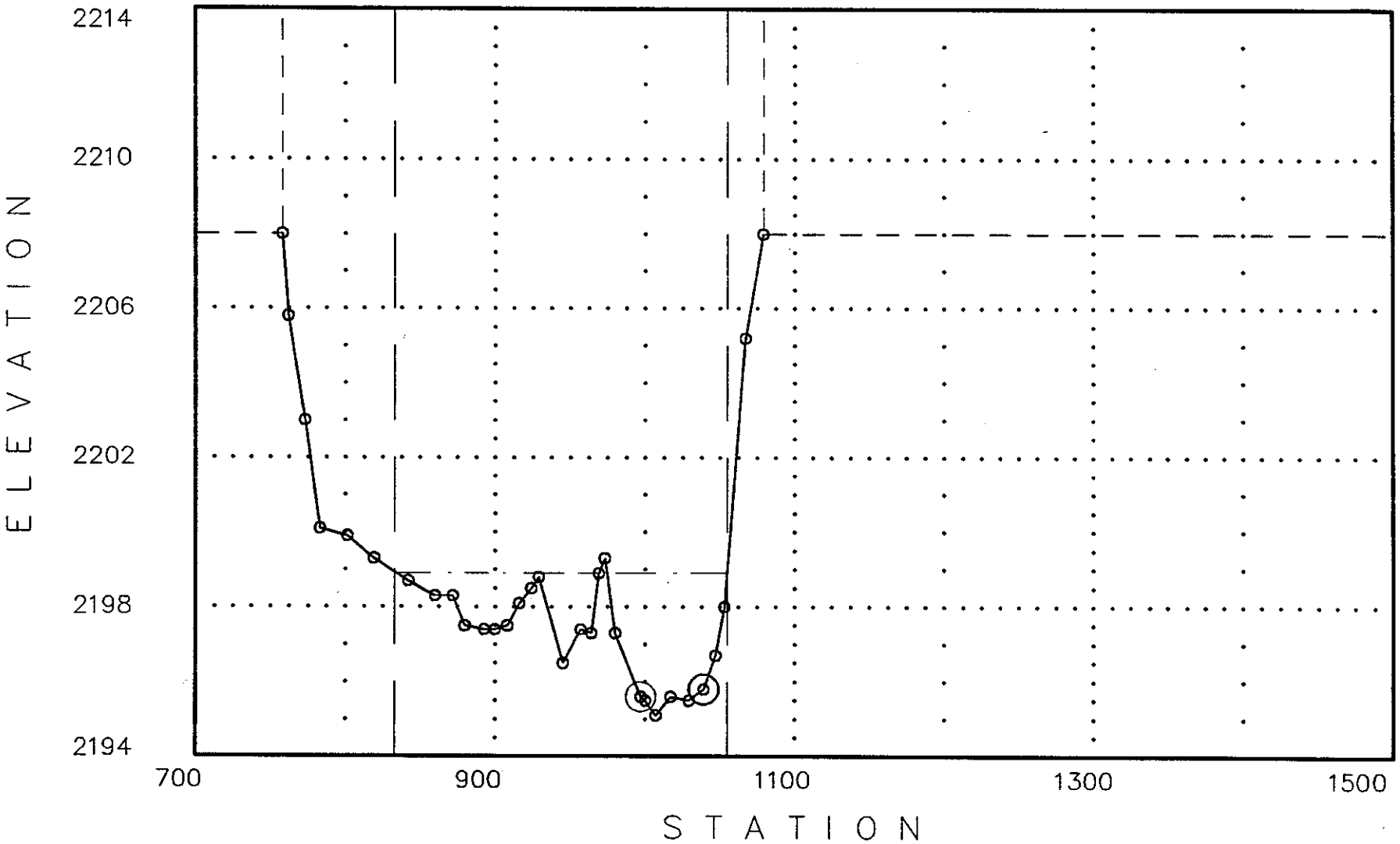


11-19-1992

<<<<<< Cross Section: 2.597: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2198.91
Q2= 1914 WS2= 2198.91

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



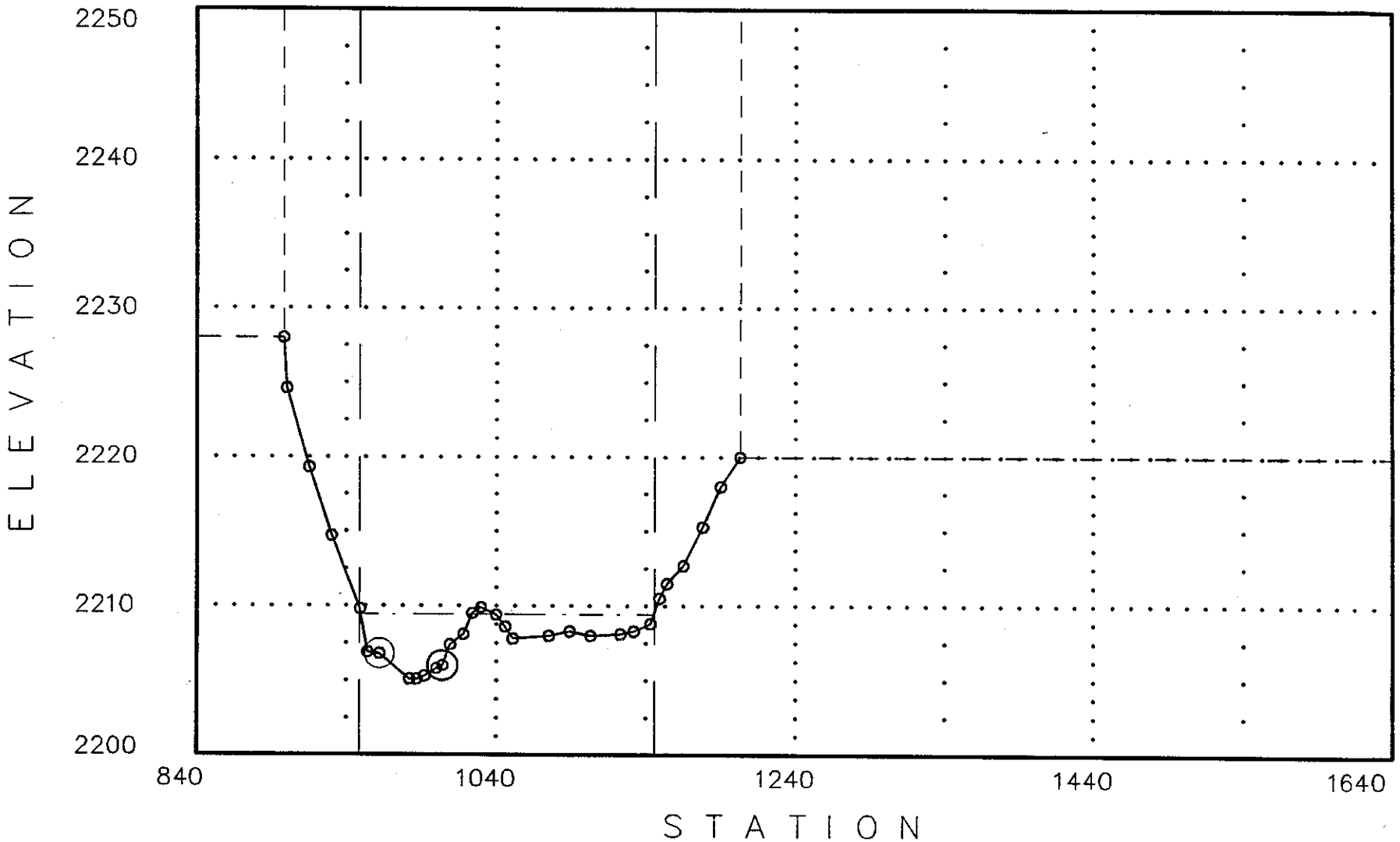
11-19-1992

<<<<<< Cross Section: 2.671: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2209.42

Q2= 1914 WS2= 2209.42

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

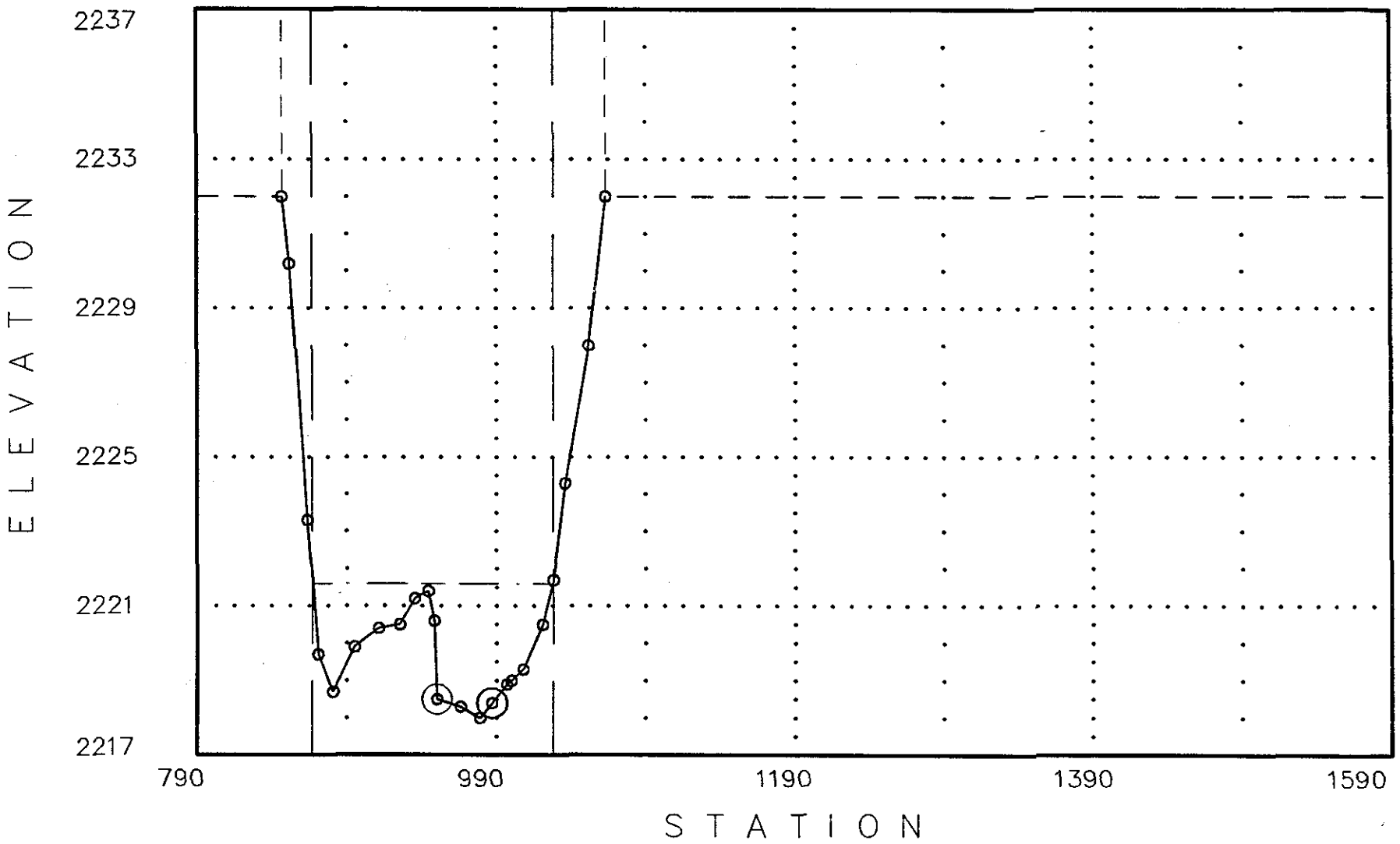


11-19-1992

<<<<<< Cross Section: 2.768: (FN = WASHD.O) >>>>>>

Q1= 1914 WS1= 2221.6
Q2= 1914 WS2= 2221.6

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

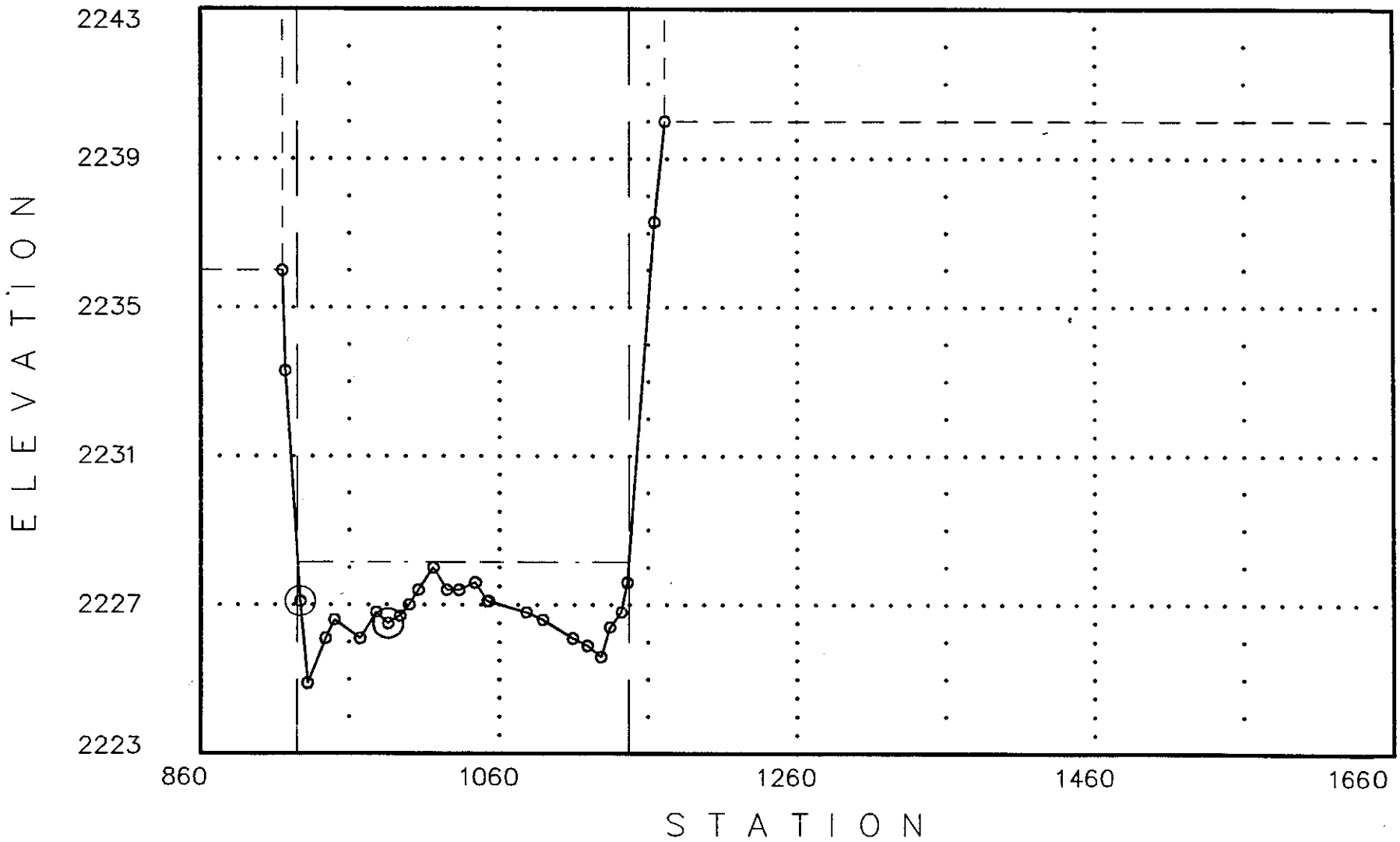


11-19-1992

<<<<<< Cross Section: 2.821: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2228.15
Q2= 1810 WS2= 2228.15

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

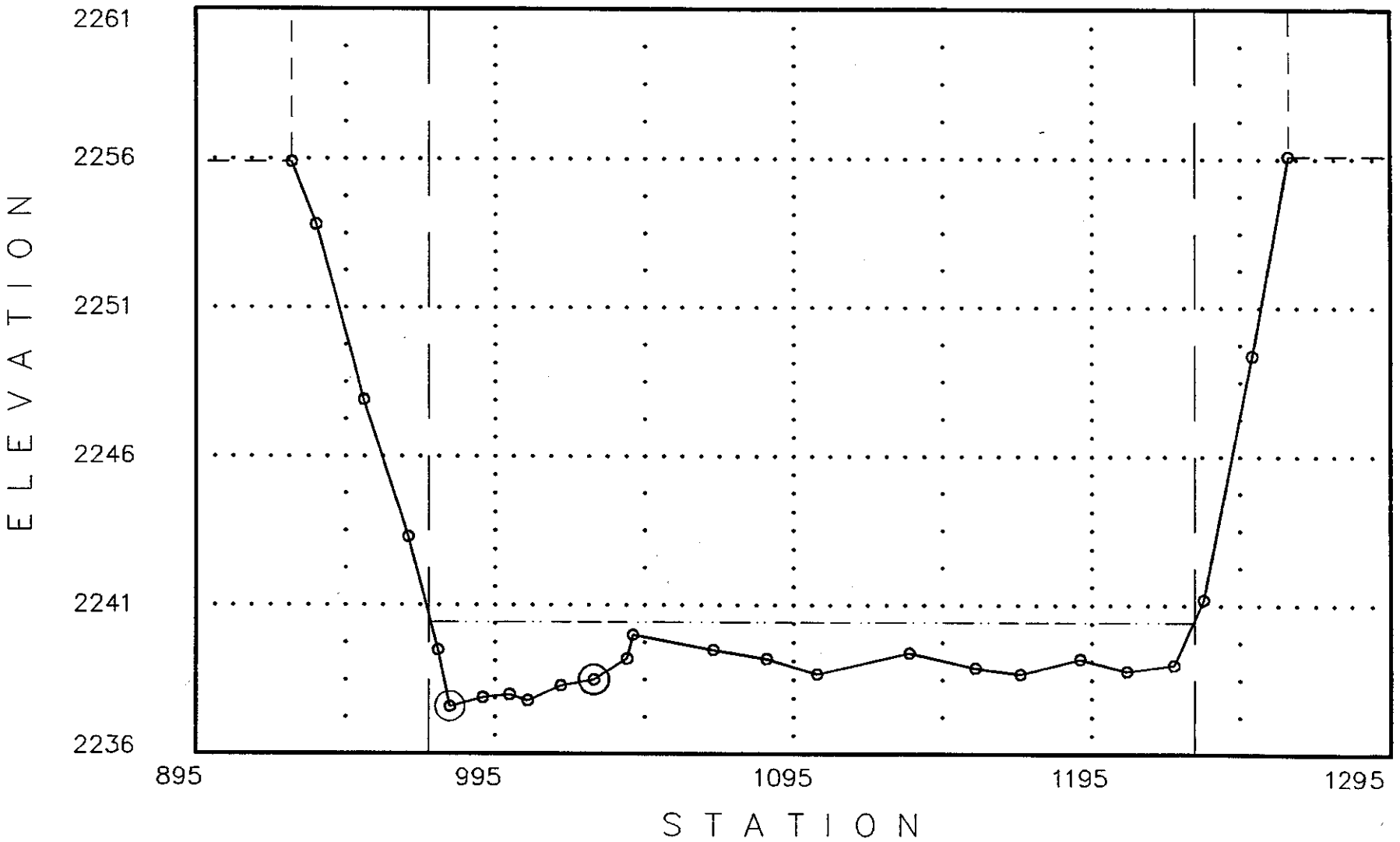


11-19-1992

<<<<<< Cross Section: 2.917: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2240.44
Q2= 1810 WS2= 2240.44

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



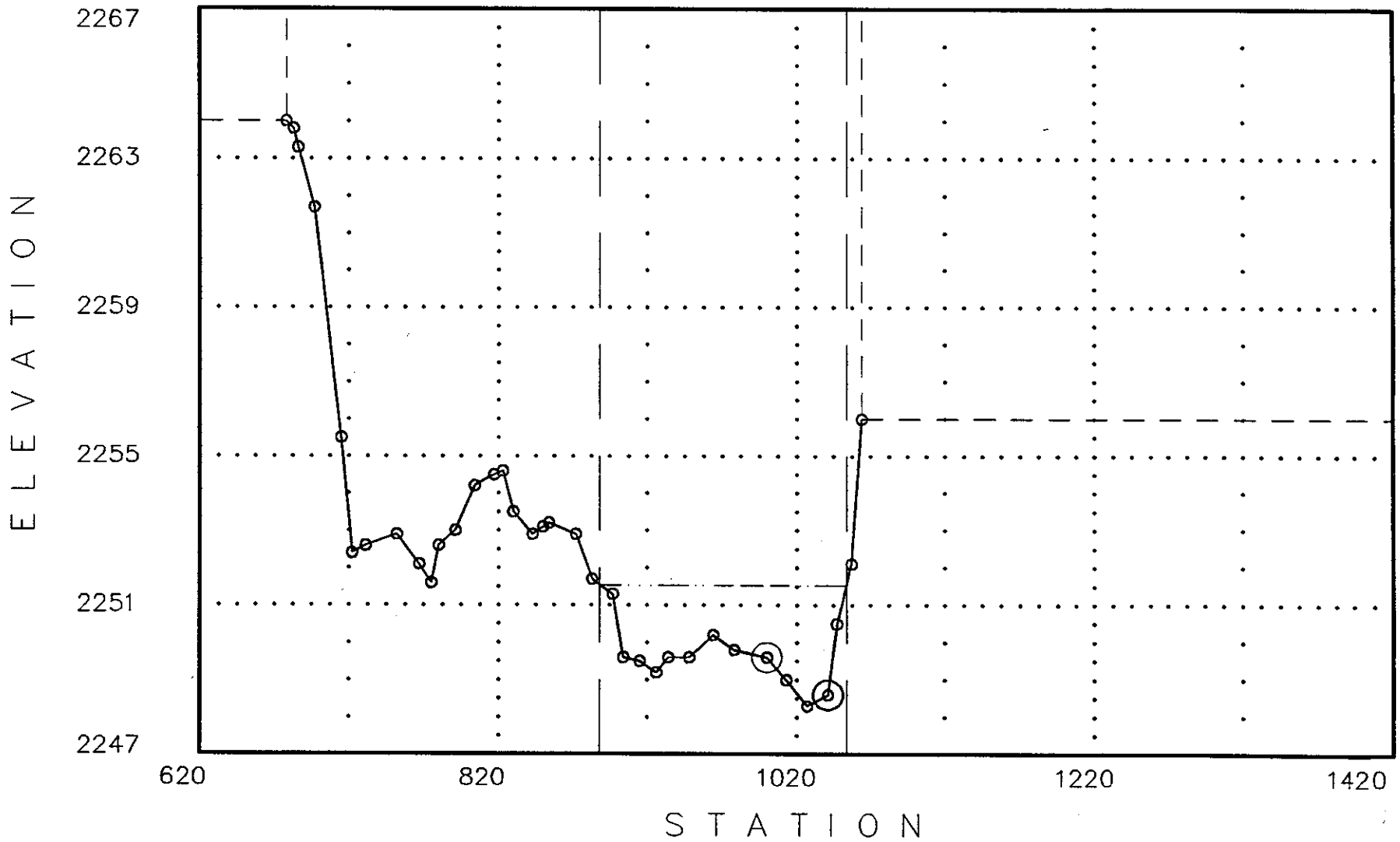
11-19-1992

<<<<<< Cross Section: 2.996: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2251.53

Q2= 1810 WS2= 2251.53

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

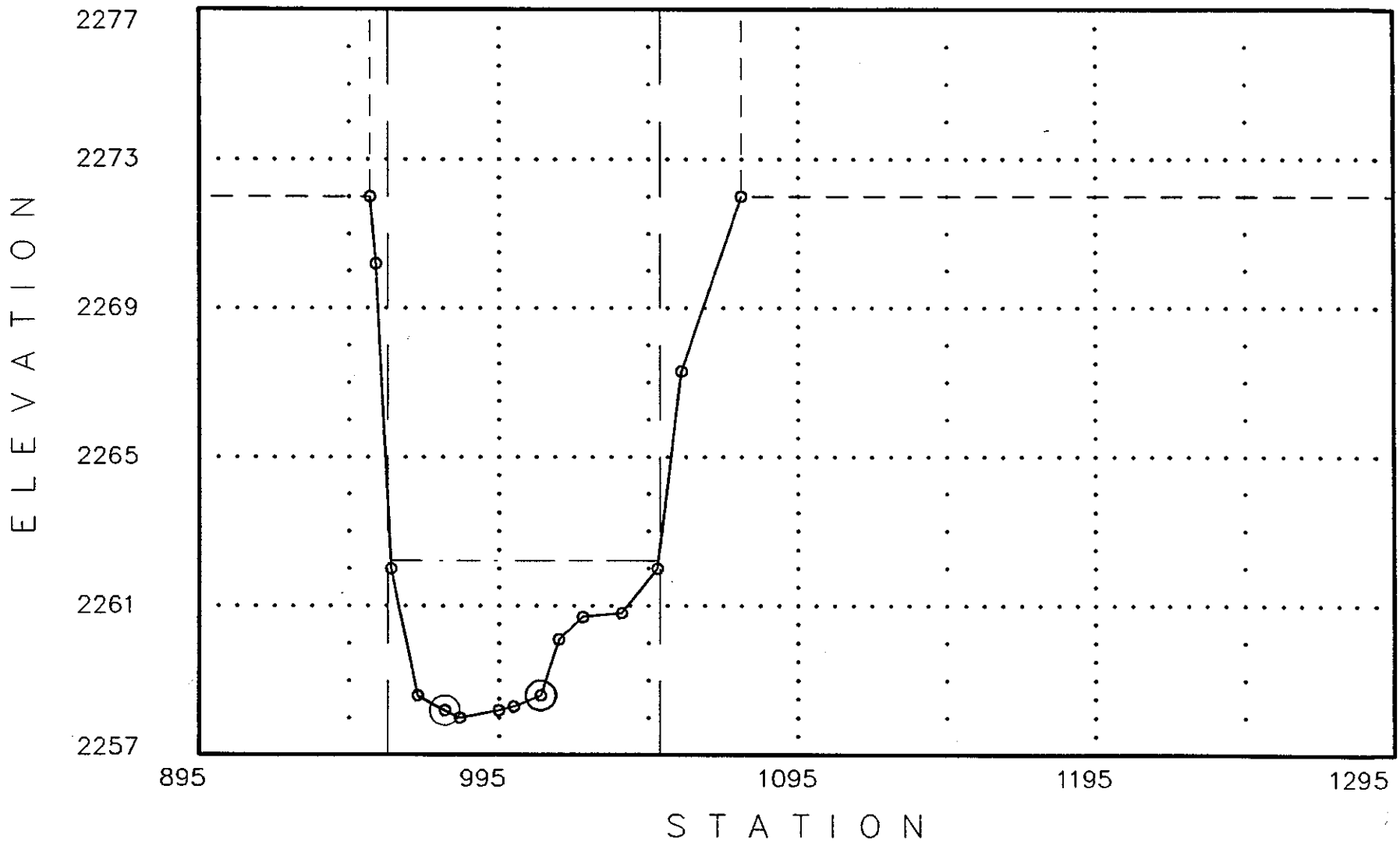


11-19-1992

<<<<<< Cross Section: 3.082: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2262.22
Q2= 1810 WS2= 2262.22

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

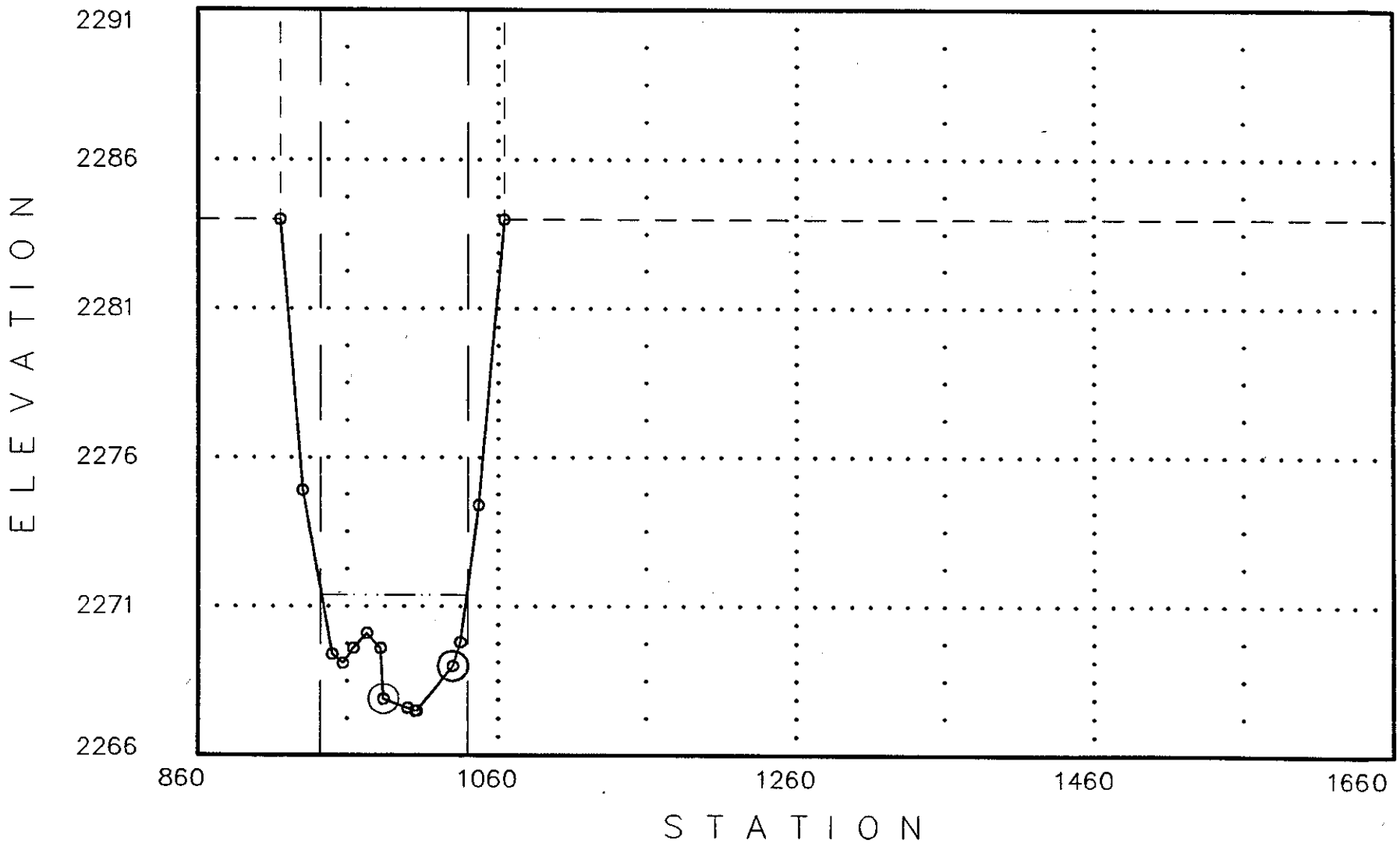


11-19-1992

<<<<<< Cross Section: 3.159: (FN = WASHD.O) >>>>>>

Q1= 1810 WS1= 2271.38
Q2= 1810 WS2= 2271.38

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

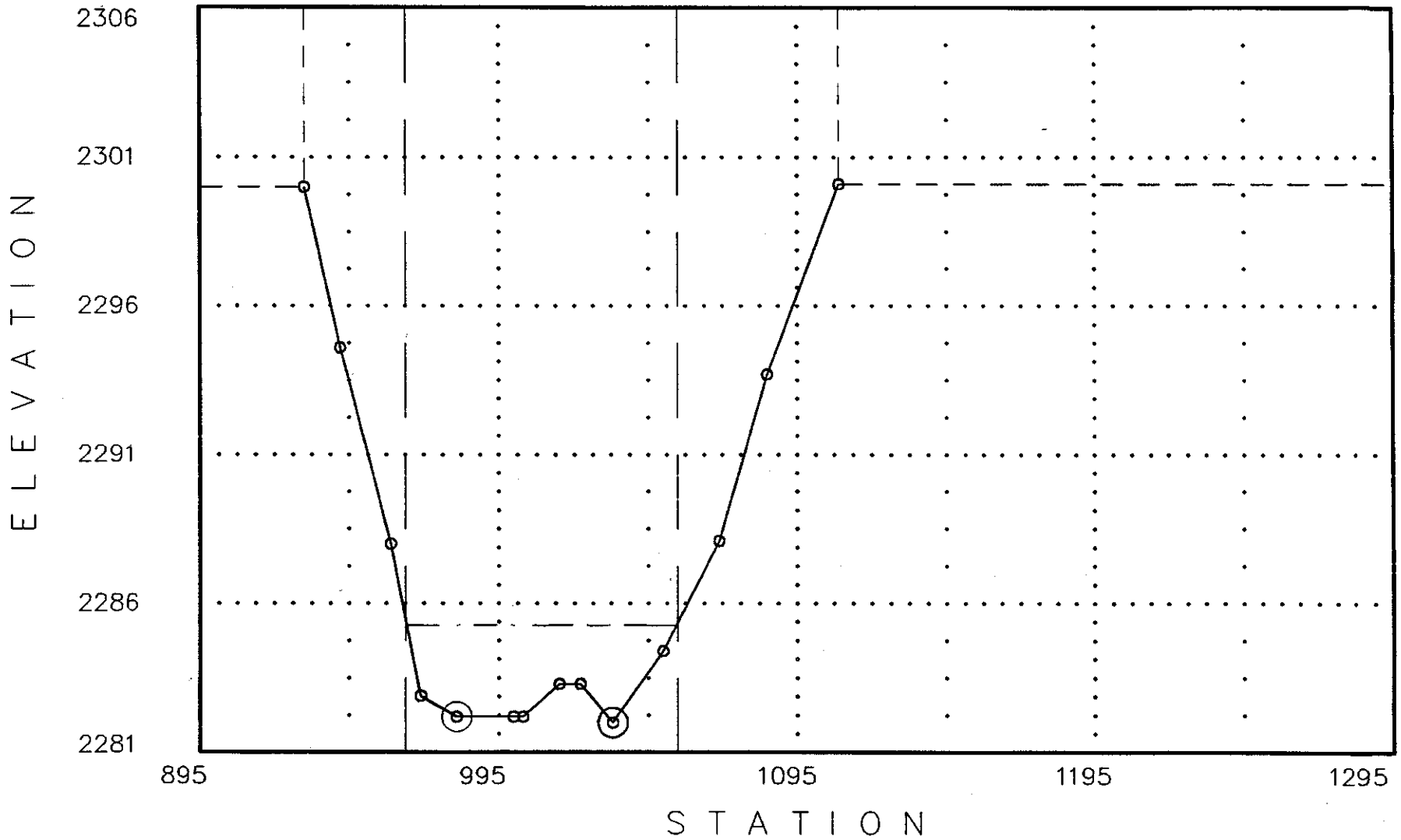


11-19-1992

<<<<<< Cross Section: 3.259: (FN = WASHD.0) >>>>>>

Q1= 1700 WS1= 2285.27
Q2= 1700 WS2= 2285.28

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

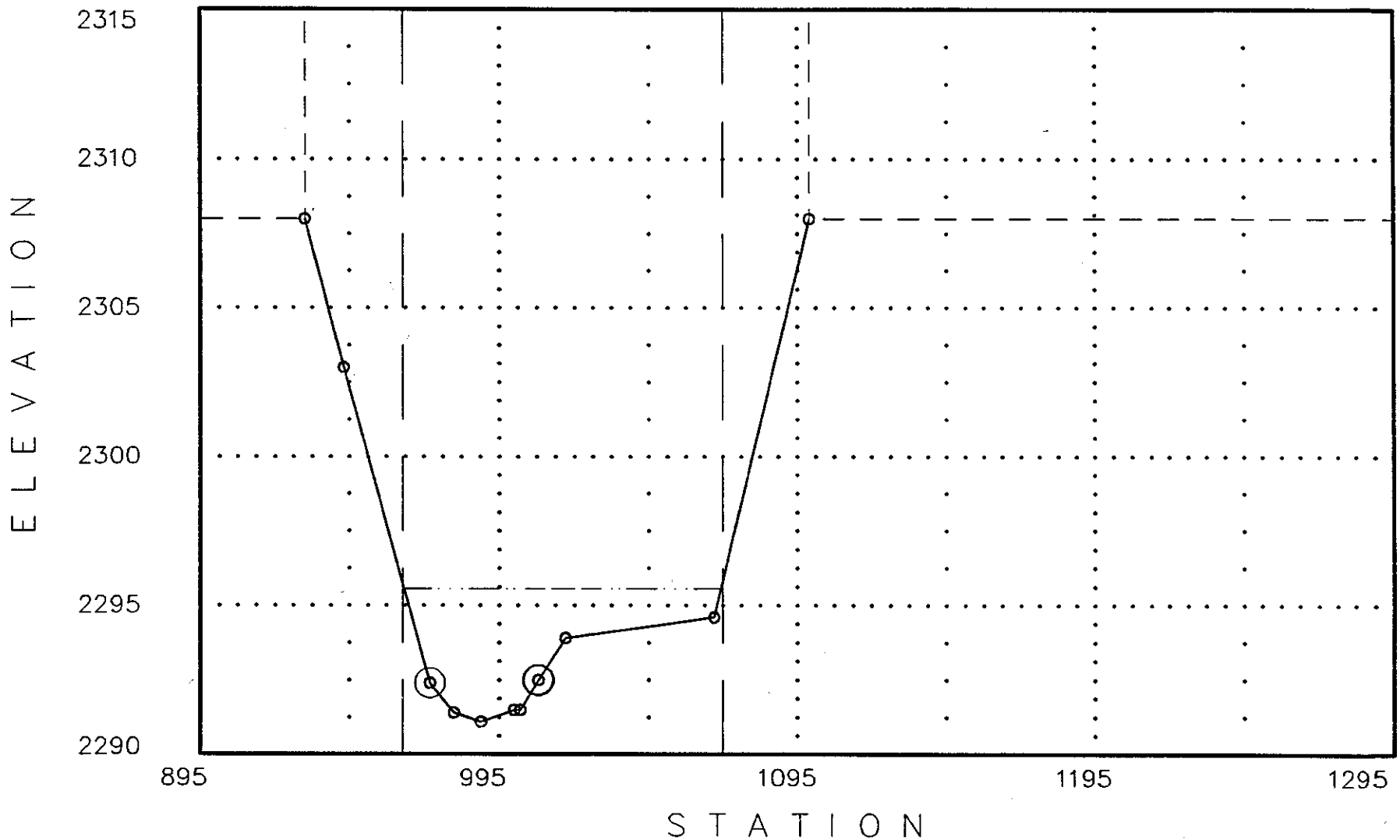


11-19-1992

<<<<<< Cross Section: 3.353: (FN = WASHD.O) >>>>>>

Q1= 1700 WS1= 2295.57
Q2= 1700 WS2= 2295.57

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06



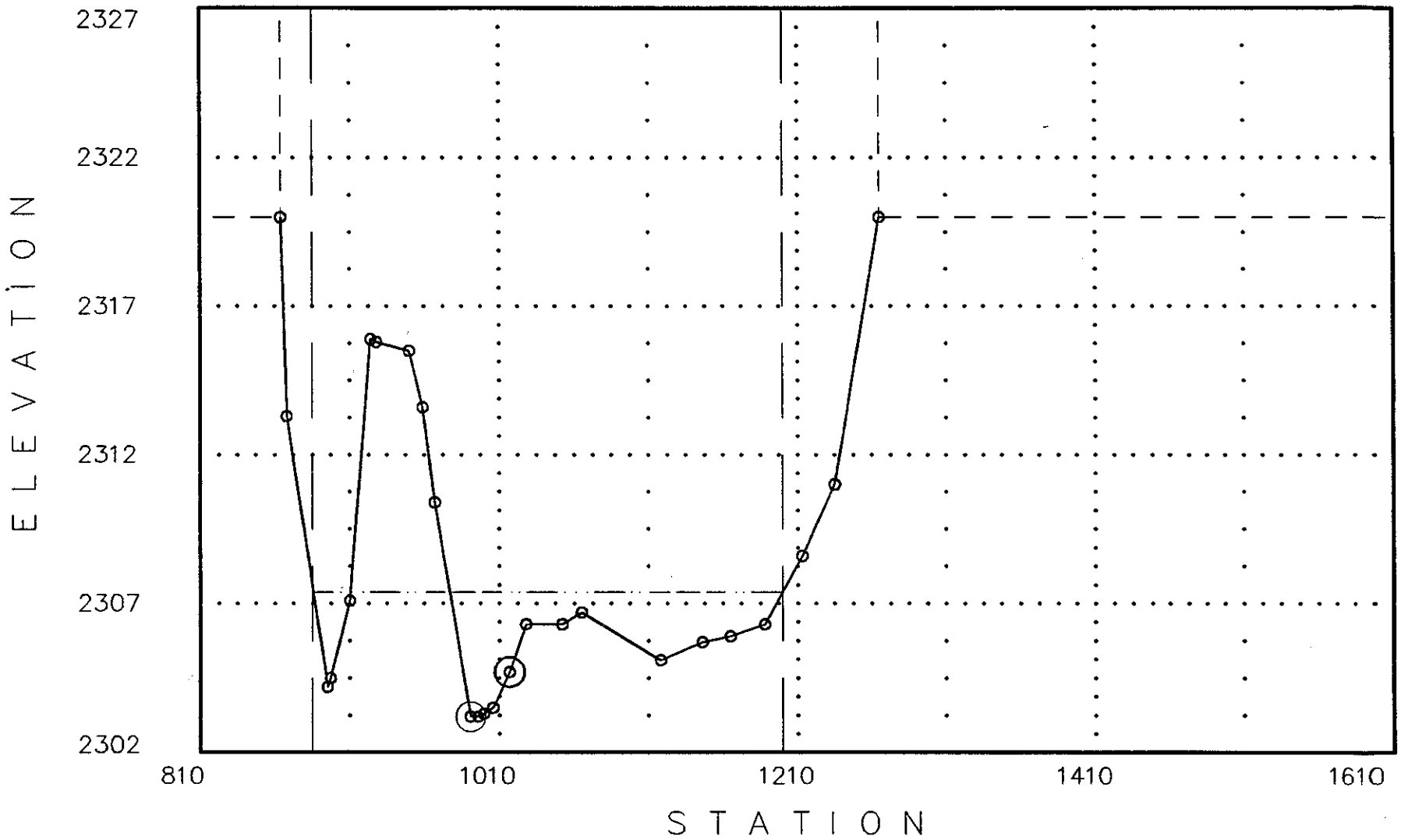
11-19-1992

<<<<<< Cross Section: 3.429: (FN = WASHD.O) >>>>>>

Q1= 1700 WS1= 2307.38

Q2= 1700 WS2= 2307.38

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

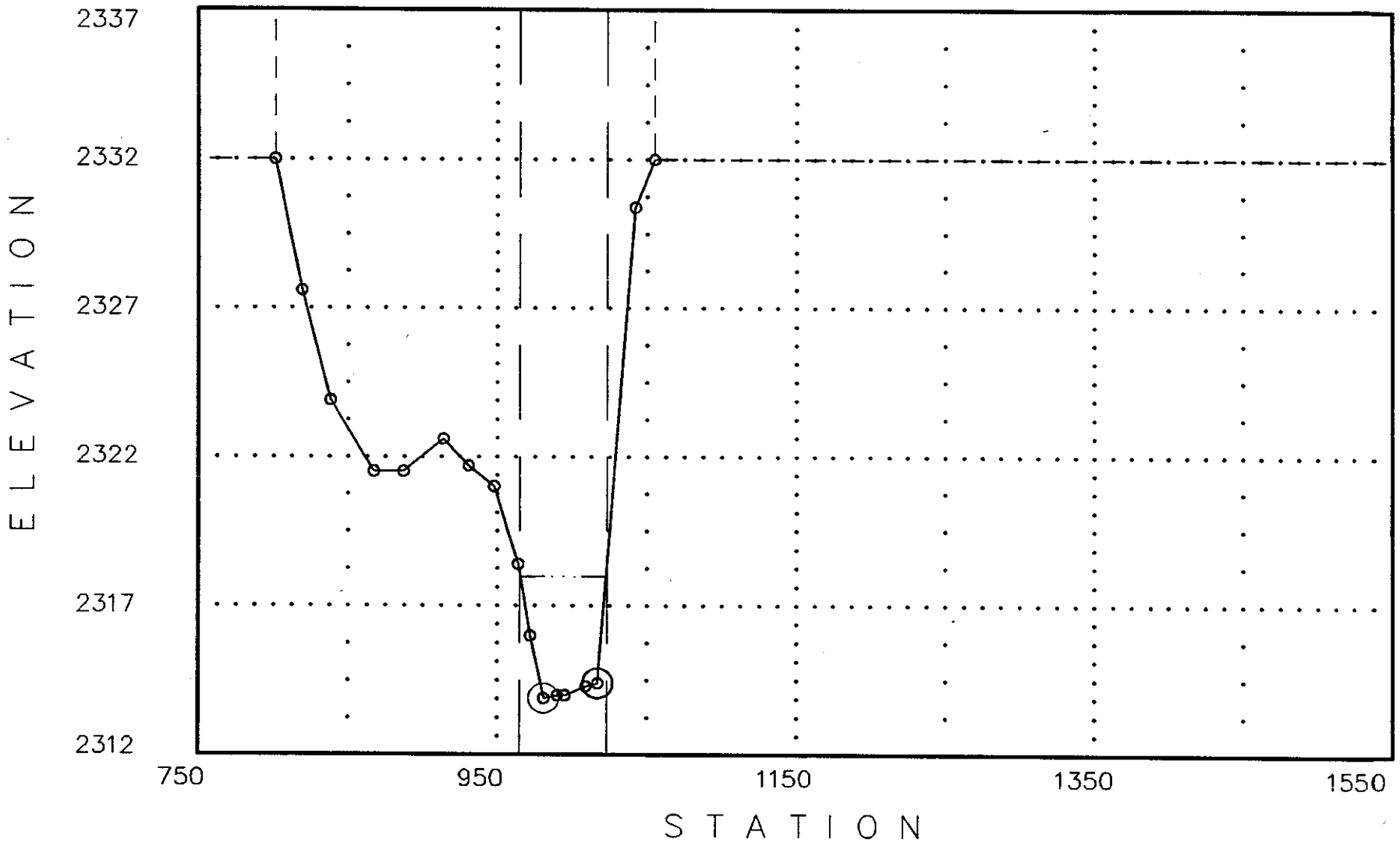


11-19-1992

<<<<<< Cross Section: 3.504: (FN = WASHD.O) >>>>>>

Q1= 1700 WS1= 2317.98
Q2= 1700 WS2= 2317.97

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

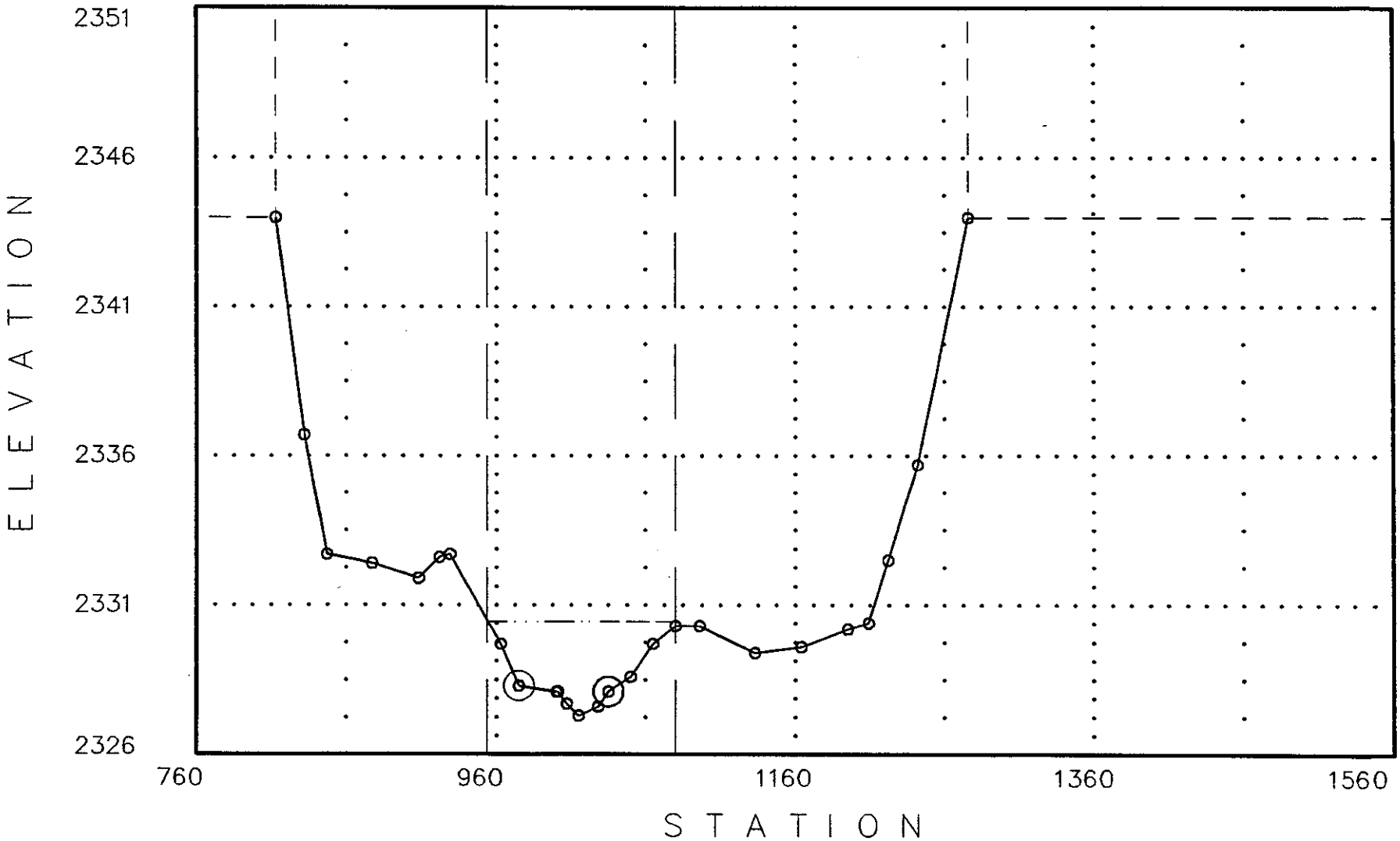


11-19-1992

<<<<<< Cross Section: 3.598: (FN = WASHD.0) >>>>>>

Q1= 1590 WS1= 2330.45
Q2= 1590 WS2= 2330.45

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

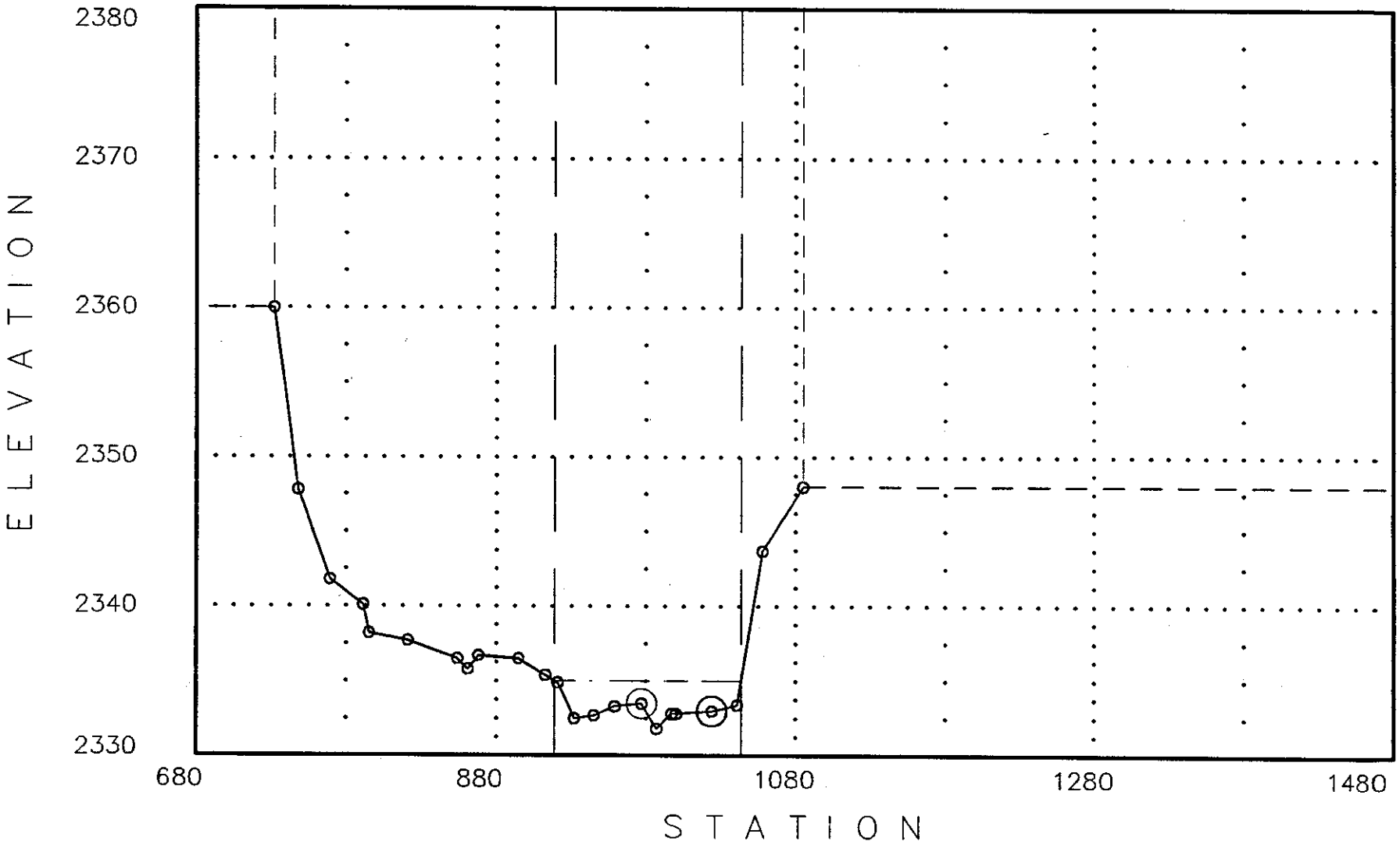


11-19-1992

<<<<<< Cross Section: 3.633: (FN = WASHD.0) >>>>>>

Q1= 1590 WS1= 2335.01
Q2= 1590 WS2= 2335.01

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

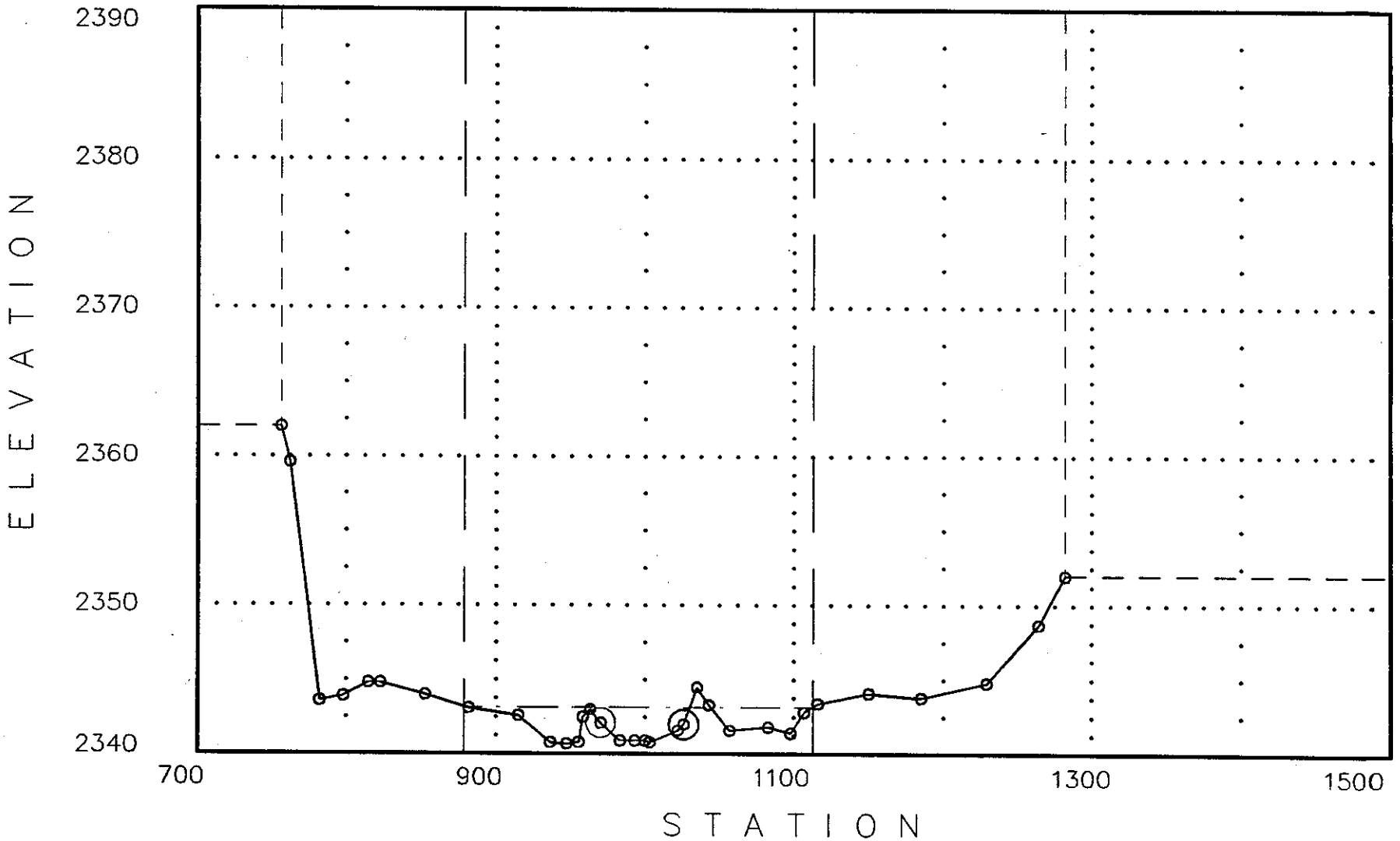


11-19-1992

<<<<<< Cross Section: 3.693: (FN = WASHD.0) >>>>>>

Q1= 1590 WS1= 2343.17
Q2= 1590 WS2= 2343.17

Manning-n's: n-lob = .06 n-ch = .03 n-rob = .06

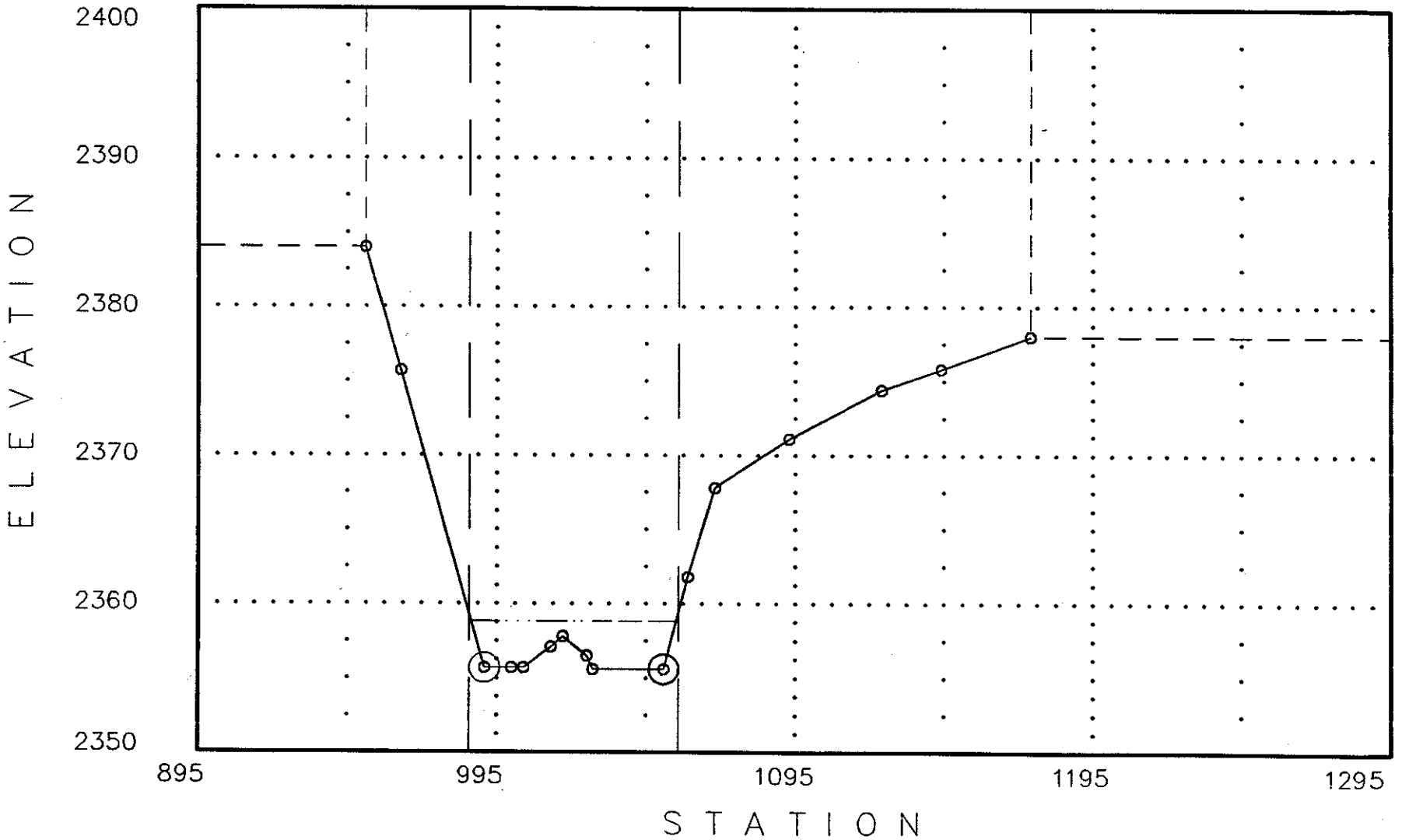


11-19-1992

<<<<<< Cross Section: 3.812: (FN = WASHD.O) >>>>>>

Q1= 1590 WS1= 2358.82
Q2= 1590 WS2= 2358.82

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .06

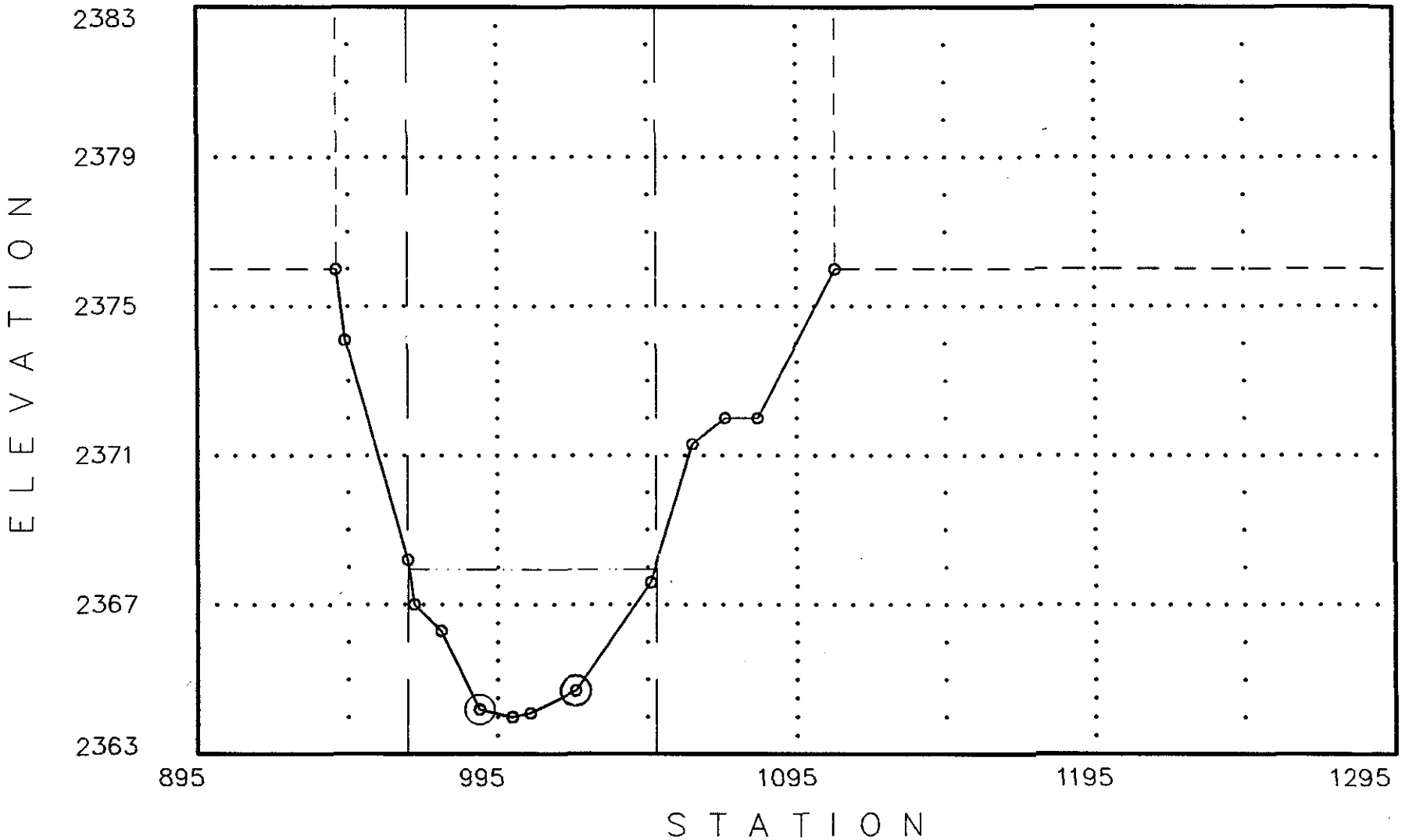


11-19-1992

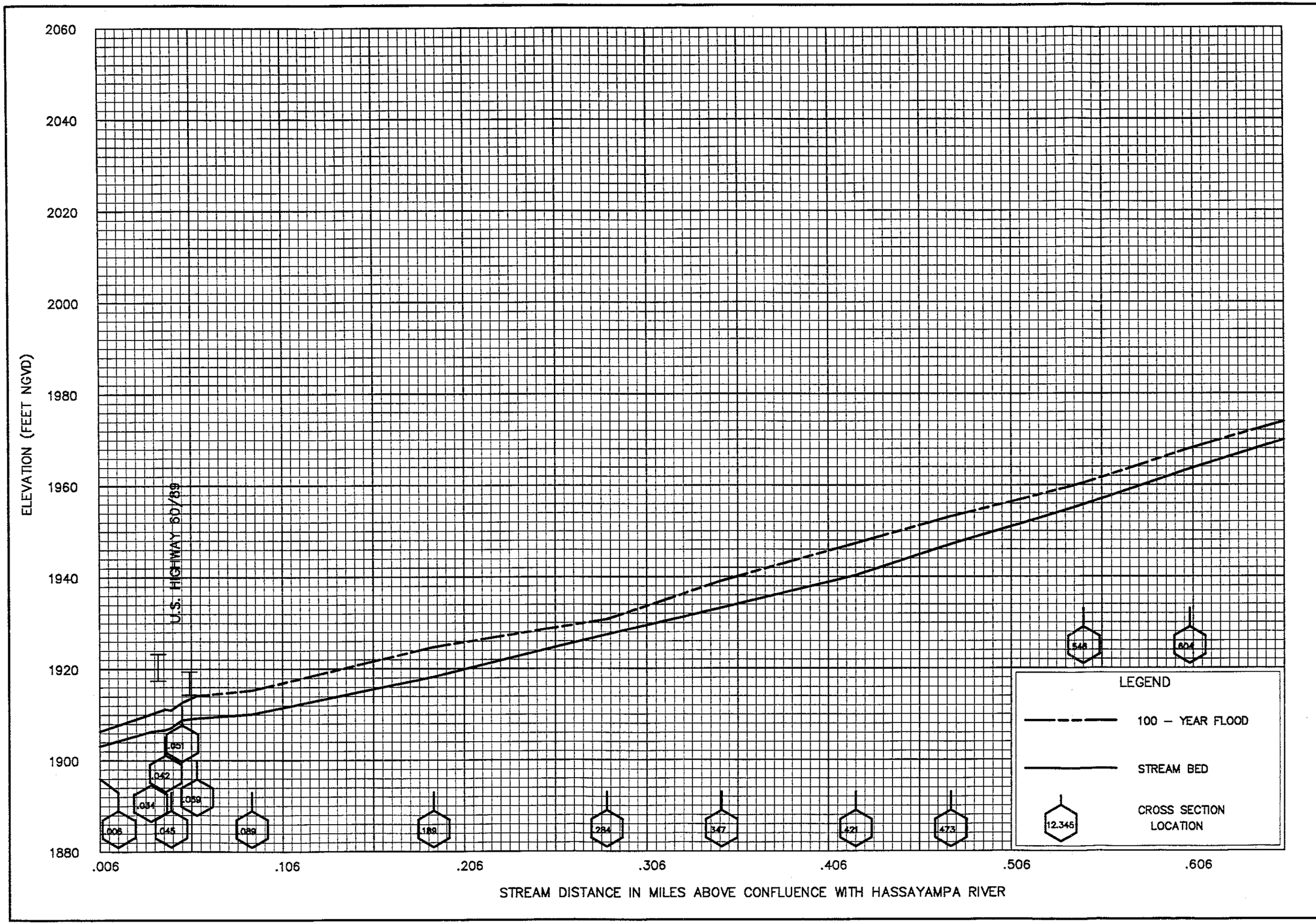
<<<<<< Cross Section: 3.894: (FN = WASHD.0) >>>>>>

Q1= 1590 WS1= 2367.95
Q2= 1590 WS2= 2367.95

Manning-n's: n-lob = .06 n-ch = .035 n-rob = .06



11-19-1992

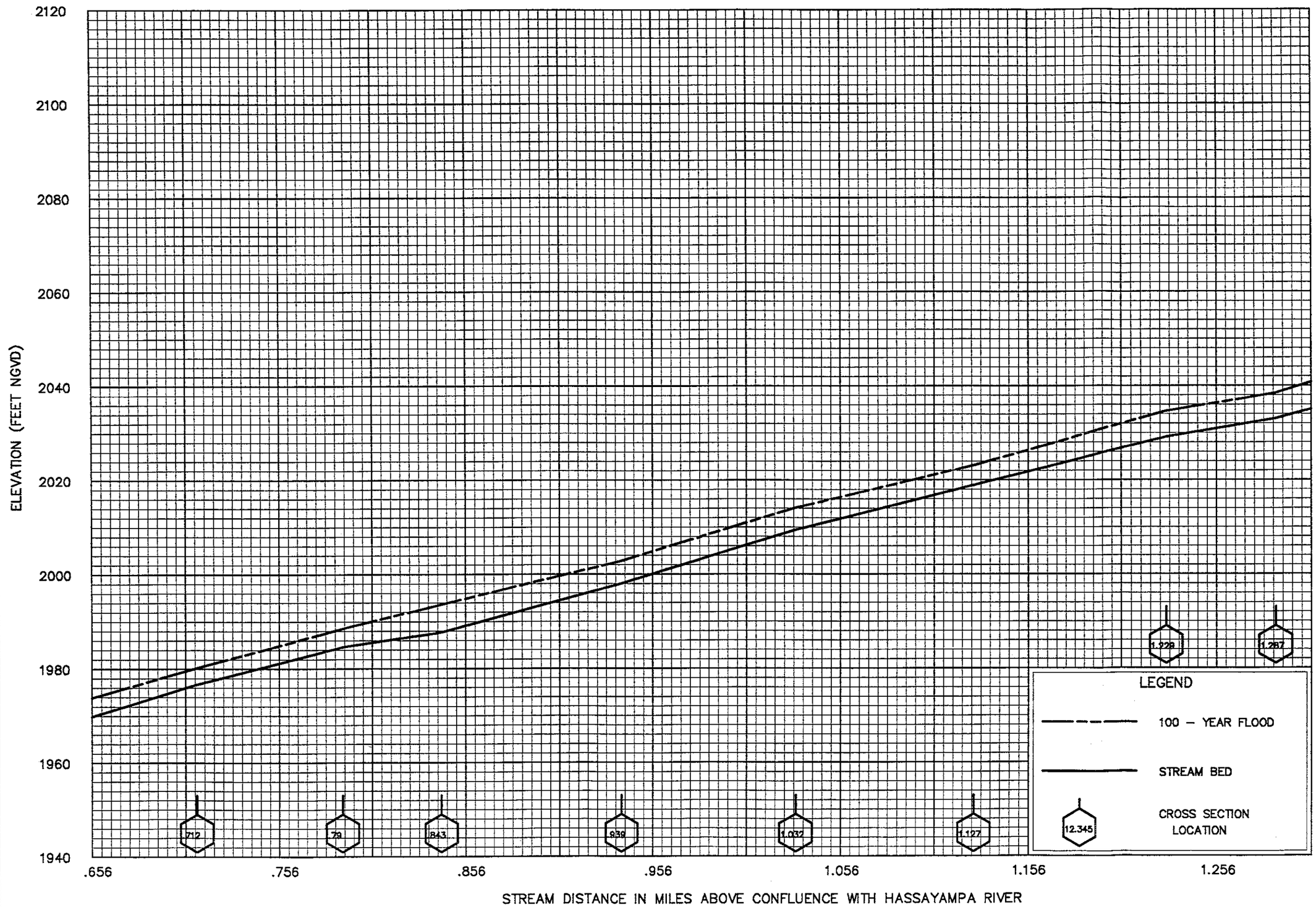


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

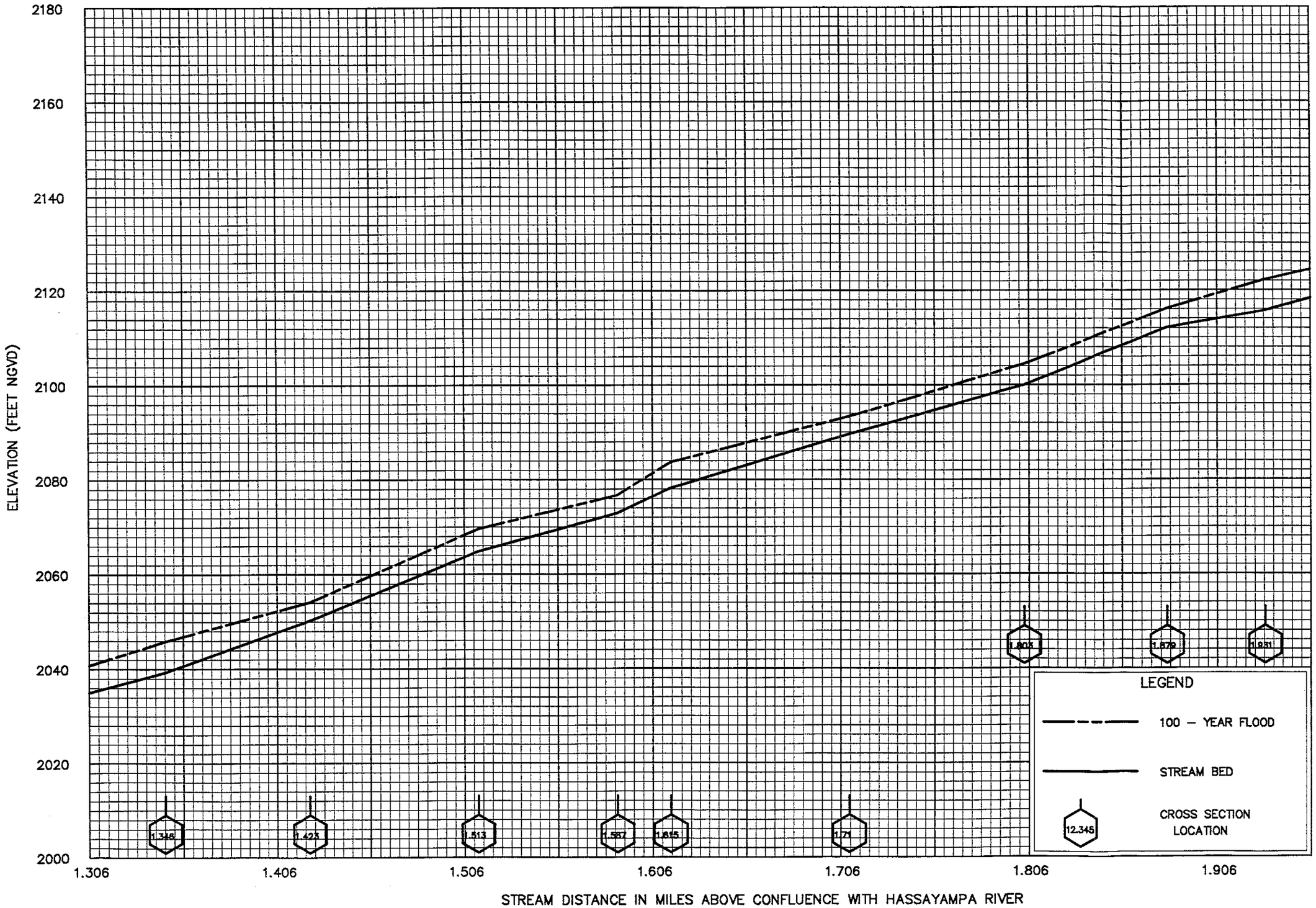


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

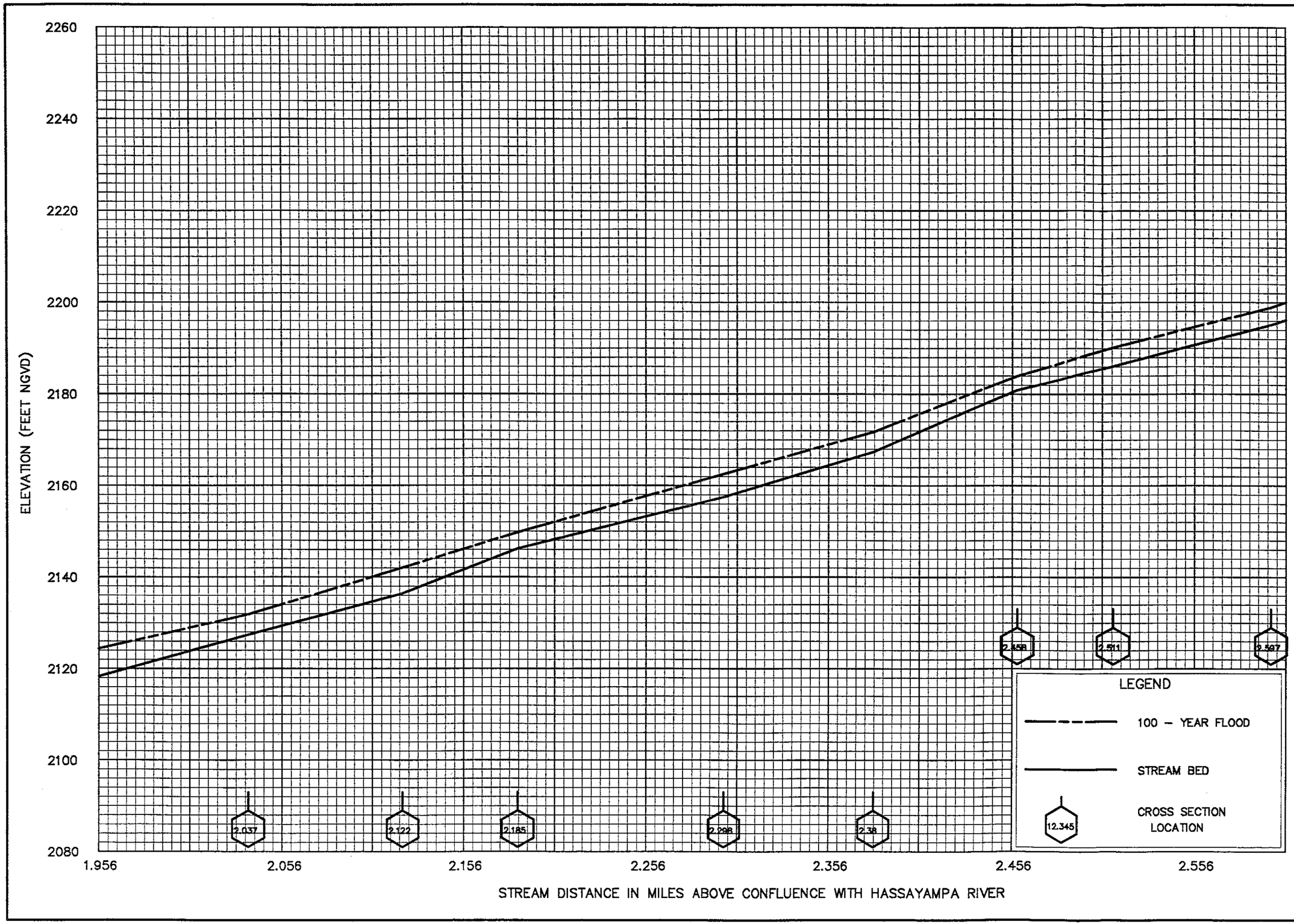


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

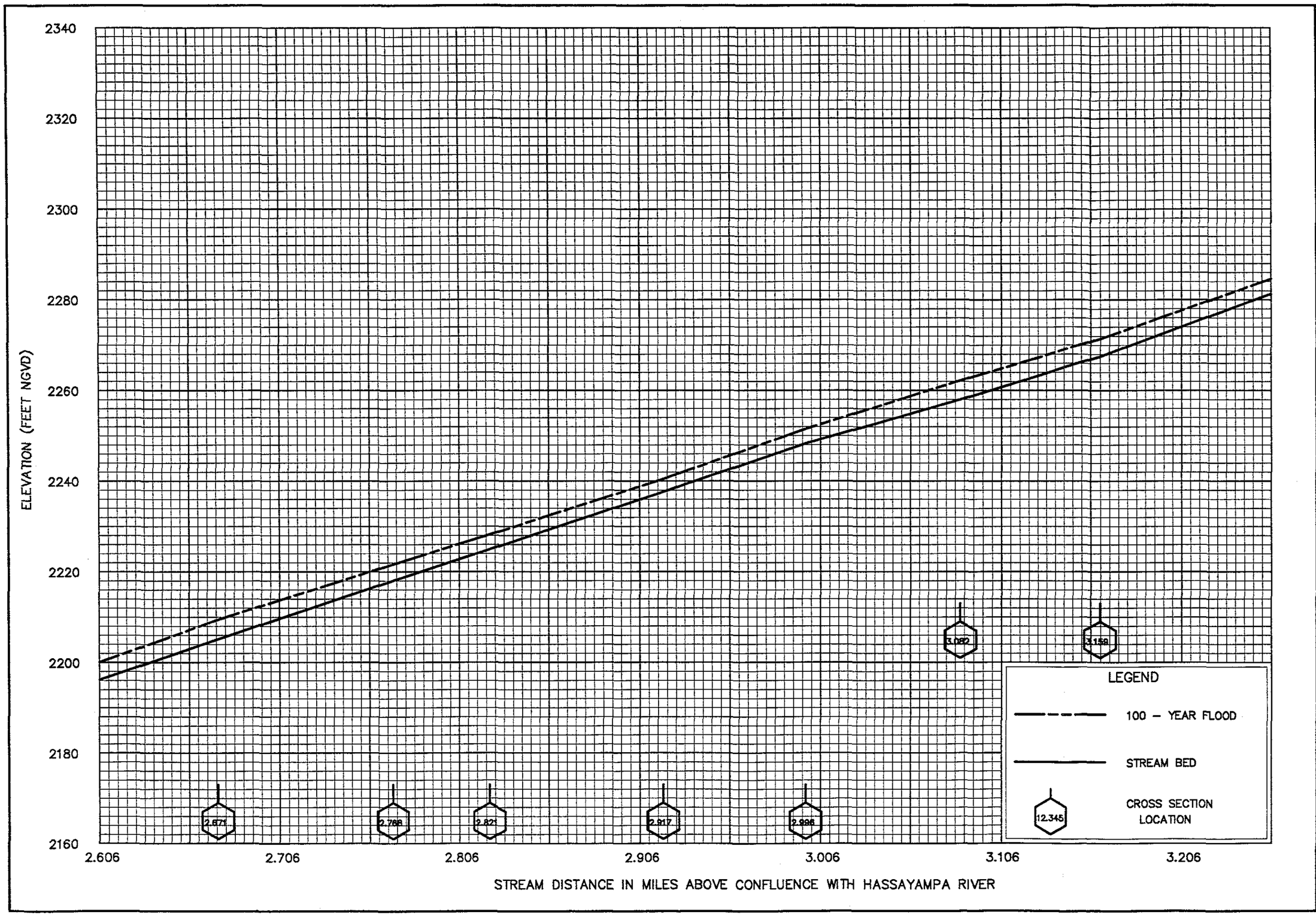


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

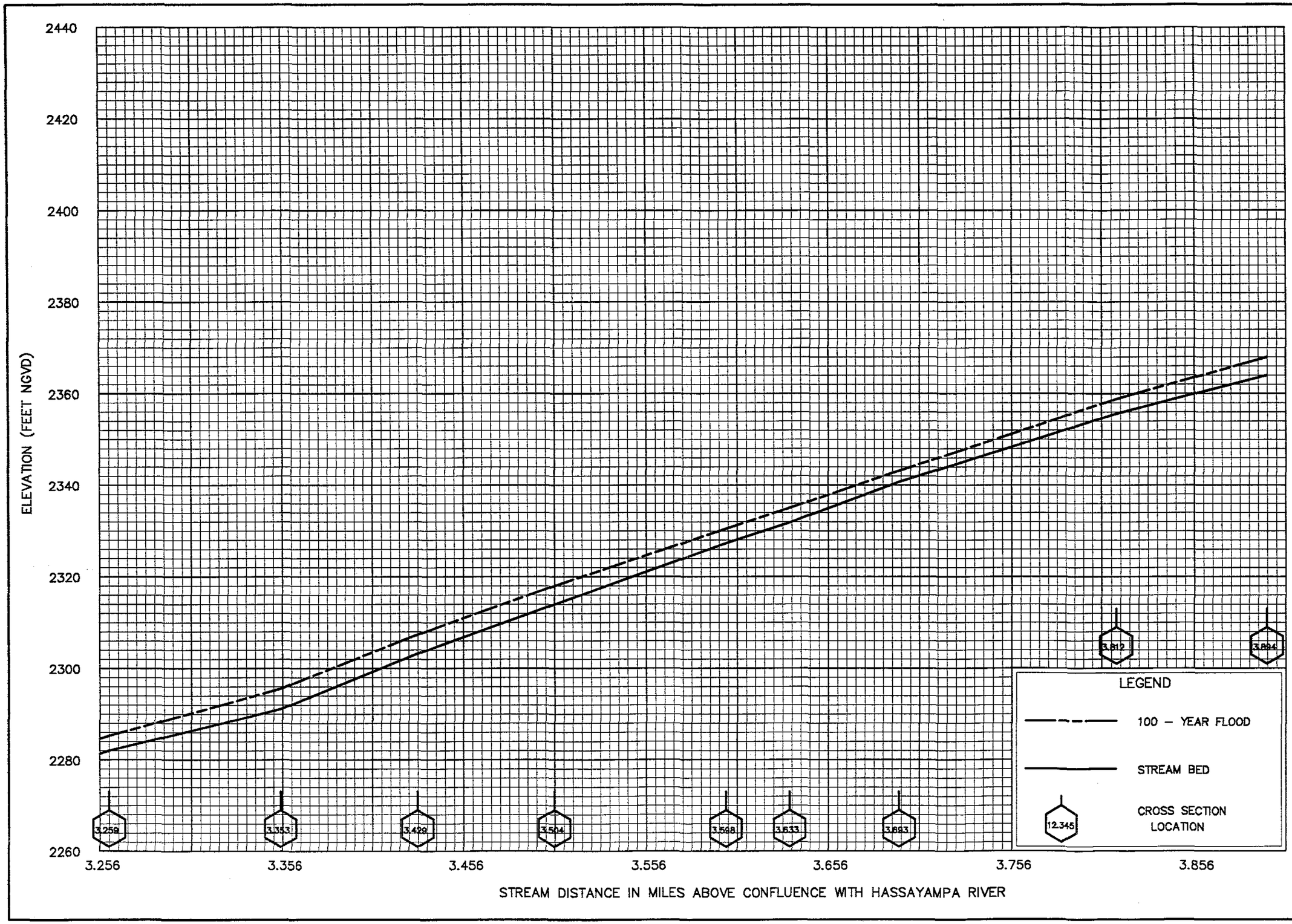


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

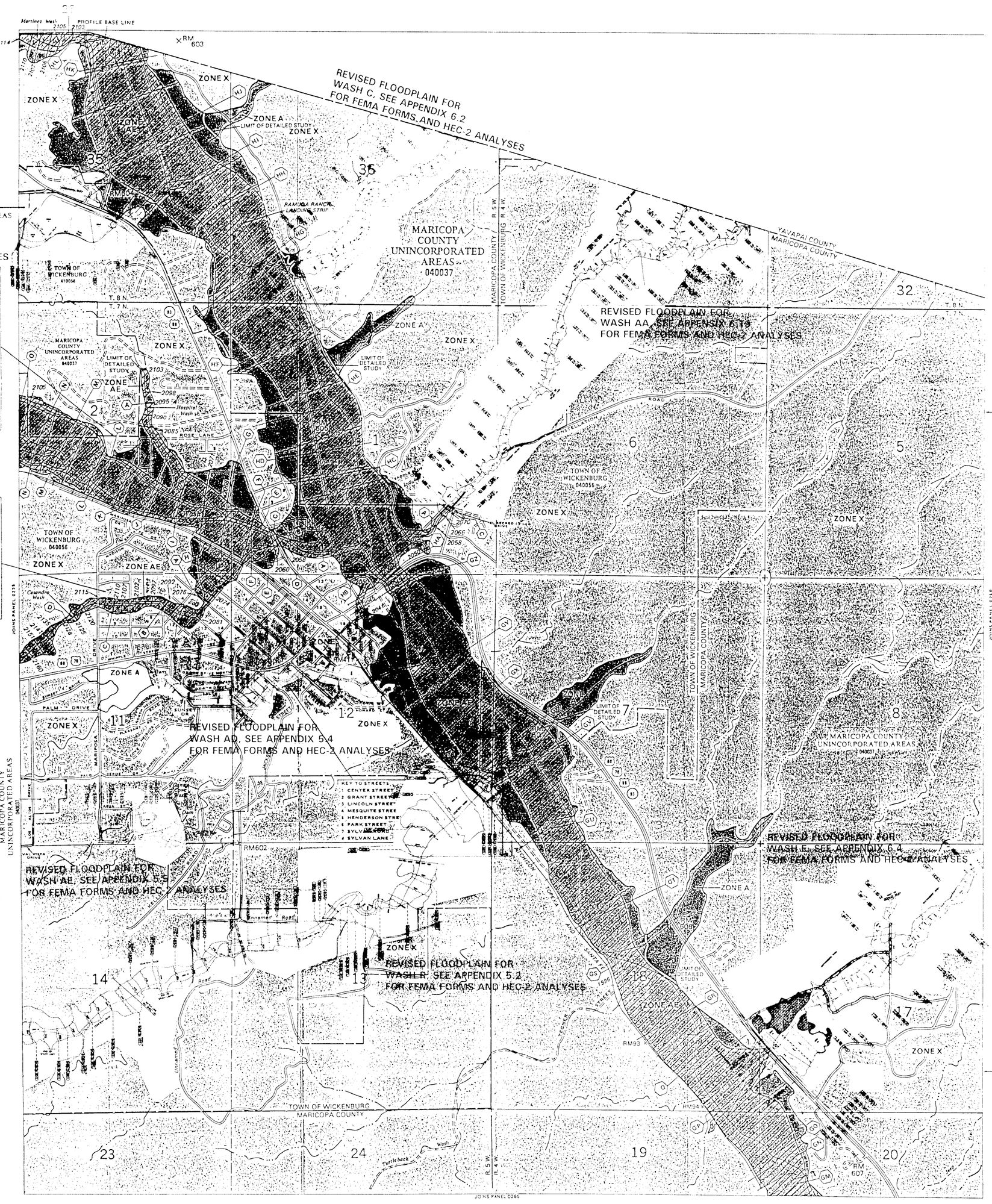


FLOOD PROFILES

MONARCH WASH (WASH D)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM601	1,993.78	U.S. Geological Survey standard disk 2.4 miles southeast of Wickenburg, approximately 100 feet west of the Atchison, Topeka and Santa Fe Railroad, marked M 24 1 BLU.
RM604	1,989.29	Bronze metal disk in concrete at headwall on south side of Atchison, Topeka and Santa Fe Railroad 2.5 miles southeast of Wickenburg. U.S. Geological Survey designation RM 114.
RM611	2,058.80	At Wickenburg, 0.4 mile south of the Atchison, Topeka and Santa Fe Railroad station, 800 feet south of Wassamo Hill, 50 feet west of the centerline of the track, and in the corner of a residence yard. A standard disk, stamped N 24 1 B33 and set in the top of a concrete post.
RM600	2,036.18	Chiseled 2" x 2" + on southeast corner of railroad bridge at Constellation Wash.
RM601	2,034.84	Chiseled 2" x 2" + on top of 2" x 1" concrete headwall on the northwest corner of Castetter Wash bridge on State Route 93, approximately 0.4 mile north of mile post 112.
RM602	2,180.87	Chiseled + on top of north and south of the northeast corner of castle guard on Kaiser Road across from south entrance to Centennial Park, approximately 0.6 mile south of the intersection of Kaiser Road and Whipple Street in Wickenburg.
*RM603	2,142.71	Brass cap set in a rock stamped U.S. Coast and Geodetic Survey, HASS 1924, approximately 2 miles north of Wickenburg, 800 feet east of the west bank of the Hassayampa River, shown as triangulation station 2111 on the U.S. Department of Interior Geological Survey, Wickenburg Quadrangle.
RM604	2,084.71	Brass cap stamped A D G S 1 S E V 2095 34 STA B10 + 46.84 1963 set in top of 1" x 33" x 12" headwall on the west side of Highway 93 approximately 300 feet south of Henson Road, Wickenburg.
RM605	2,053.02	Chiseled 2" x 2" + on southeast corner of concrete slab at top of foundation of a garage to a frame building smaller than is the farthest north of 3 and seven miles in a north-south direction on Double Thoroughbred Farm, Inc. located at the intersection of the east end of Cavaneness Street and Whipple Street in Wickenburg.
RM606	2,011.18	Brass cap stamped A D G S 1 Sta 938 + 86 E Sta 2011 47 1967 set top of a 1" x 7" x 5.5" high box culvert on the east side of Route 93 where Turtleback Wash crosses under the highway, 0.25 mile north of north end of a medium span 2,150 miles north of mile post 113 (Sta. 1 at approximately 15 below highway elevation).
RM607	2,012.02	Brass cap stamped Arizona Highways Department STA. E ELEV set on 8" x 10.5" x 2" high headwall at north end of a catwalk crossing at the entrance to Rock House Ranch, located approximately 155 feet north of entrance to Foothills Trailer Park on a driveway that is parallel to and on the west side of Highway 93. Foothills Trailer Park entrance is west from the median crossing on Highways 93 that is 0.40 mile north of mile post 114.

*OUTSIDE CORPORATE LIMITS

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD:

- ZONE A — No base flood elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99 — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- ZONE V — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside 500-year flood plain.
- ZONE D — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM7x — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all permanent features outside Special Flood Hazard Areas.

Areas of special flood hazard (100-year flood) include Zones A, A1-30, AE, AH, AO, A99, V, V1-30, VE, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.

Coastal base flood elevations apply only landward of the shoreline.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

APRIL 15, 1988

EFFECTIVE DATE (S) OF REVISION (S) TO THIS PANEL

Map revised September 29, 1989 to change base flood elevations and special flood hazard areas, to add base flood elevations and special flood hazard areas, to change zone designations, to reflect updated topographic information, to incorporate previously issued letters of map revision and map amendments, and to update map format.

Map revised September 4, 1991 to update corporate limits, to change base flood elevations, to add base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to update map format, to add roads and road names and to incorporate previously issued letter of map revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 255 OF 4350

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY UNINCORPORATED AREAS	040037	0255	F
WICKENBURG, TOWN OF	040056	0255	F

MAP NUMBER 04013C0255 F

MAP REVISED: SEPTEMBER 4, 1991

Federal Emergency Management Agency