September 10, 1988

Department of Engineering
Seventh Floor-City Hall
455 North Main
Wichita, Kansas 67202

Attention: Mr. Mike Lindebak, P.E., City Engineer

Dear Mike:

Following our meeting of last Thursday I used prints of the City of Wichita 1:1200 scale topographic maps for Cowskin Creek to prepare three new cross sections for the reach of Cowskin Creek effected by Teal Brook Estates, and made new water surface profile runs with the HEC-2 Computer Program to determine profiles for the 100-year flood discharge of 15050 cubic feet per second as reported in the City of Wichita Flood Insurance Study (FIS). The first new cross section is located about 120 feet north of the south line of Teal Brook Estates and models the flood plain at the beginning of the effect which any fill placed as part of that development would have on upstream properties. The next new cross section is at the mapped location of Section Y of the FIS which goes through the Eberly house and then takes two distinct paths across the balance of the Cowskin flood plain. Cross Section Y-1 runs due west from the house at a distance of approximately 450 feet south of and parallel to 21st Street. This path is included because it best represents Section Y plotted from the HEC-2 input file of the original FIS study contractor, Howard Needles Tammen and Bergendoff (HNTB). Cross Section Y-2 follows the path shown for Section Y on Panel 125 of the Sedgwick County Flood Boundary and Floodway Map series.

While there is enough similarity between HNTB Section Y and either of the new sections, Y-1 and Y-2, to prove that the City of Wichita topographic map was the basis for the cross sections used by HNTB, there is considerable difference in the location of the Cowskin Creek channel. HNTB Section Y and new cross section Y-1 model the improved channel of Cowskin Creek due south of the 21st Street Bridge.

New cross section Y-2 matches HNTB Section Y from its beginning to a point just west of the Eberly house and then the pattern of old creek meanders and the location of the Cowskin Creek channel differ to a considerable degree by modeling the the Cowskin Creek channel about 200 feet west of the channel shown on the HNTB Section Y.

To include all of the effect that the permitted Floodway Fringe fills and the definition of the left bank Floodway intercepts which I ran for the Autumn Ridge Addition in the hydraulic analysis of the proposed Floodway Fringe fill for Teal Brook Estates, I made HEC-2 runs for the entire reach of Cowskin Creek from just upstream from 13th Street to the end of the HNTB study which is just upstream from 21st Street. Included in these new runs are five cross sections I used to define the left bank Floodway Intercepts for Autumn Ridge Addition as well as the new cross section at the south edge of Teal Brook Estates and new groundpoints for Section Y. In all, three HEC-2 runs were made; first, the calibration run to prove that my HEC-2 Computer Program is compatible with the one used by the study contractor, HNTB. Second is a run with the new cross section at Station 24.22 (south edge of Teal Brook Estates) and cross section Y-1 substituted for Section Y. The third run is same as the second but with cross section Y-2 substituted for Section Y. Input and summary printouts for each run are furnished as exhibits. Base Flood and "With Floodway" elevations for each of the cross section locations from HNTB Section X at Station 24.08 to the end of the HNTB study at Station 24.47 are tabulated below:

STATION	HNTB STUDY		W/SECTION Y-1		W/SECTION Y-2	
	BFE	FLDWY	BFE	FLDWY	BFE	FLDWY
24.08	1342.0	1342.8	1341.0	1341.8	1341.0	1341.8
24.22	NA	NA	1341.9	1342.6	1341.9	1342.6
24.25	1343.5	1344.2	1344.1	1344.8	1343.2	1343.8
24.42	1345.4	1346.0	1344.8	1345.5	1344.7	1345.1
24.43	1345.4	1346.0	1344.8	1345.5	1344.8	1345.2
24.47	1346.6	1347.0	1346.1	1346.6	1346.1	1346.4

The result of the exercise to check the accuracy of the cross sections used by the HNTB study to model the reach of Cowskin Creek where fill in the Floodway Fringe would have an effect on the Base Flood or With Floodway Elevations when the left bank Floodway Intercept is set at the west boundary of Teal Brook Estates is that while the Base Flood Elevation of cross section Y-1 is calculated to be 0.6 feet higher than reported by HNTB at Station 24.25 (the cross section which runs through the Eberly house), the BFE is 0.3 feet lower when cross section Y-2 is substituted. In neither case does the location of the left bank Floodway Intercept at the Teal Brook west boundary cause a rise in the 100-year flood elevation of more than the 0.7 feet

calculated by HNTB. In my opinion, the differences in cross section data taken from the HNTB computer input file and the ones I plotted from the City topographic map are not significant and the Flood Insurance Study data is well within the range of accuracy expected of such general studies.

Submitted with this letter is a portion of the City of Wichita topographic mapping for the reach of Cowskin Creek from south of Teal Brook Estates to north of 21st Street on which I have drawn the location and extent of the three new cross sections I described above. Also transmitted are plots of the HNTB cross section which appears in the FIS as Section Y, and the three new cross sections I took off the topo map together with copies of the three HEC-2 Computer Program runs.

I believe that the above information and discussion answers the questions you had about the Flood Insurance Study data for this reach of Cowskin Creek and request that you advise your staff to remove the restriction they placed on Mr. Huffman's Development Permit so that he can proceed with his plan to fill the lots on the west side of Teal Brook Estates to at least the elevation of the Base Flood and make application for a Letter of Map Revision for the area now mapped as Zone A-4.

Yours truly,

encl

M. S. Mitchell
Flood Plain Management & Land Development Specialist
1215 Forest • Wichita, KS. 67203
(316) 265-9812

RUN 1

COWSKIN CREEK

13TH TO 21ST - AUTUMN RIDGE 2ND

FILE : CSKATMRI.HC2

CALIBRATION RUN VS HNTB RUN

THIS RUN EXECUTED 07/10/87 08:14:12

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
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C
T1       SEDGWICK COUNTY, KANSAS  COWSKIN CREEK NATURAL 100-YEAR PROFILE
T2       HNTB INPUT DATA CALIBRATION RUN BETWEEN SECTIONS V AND Y
T3       CSK CRK U/S 13TH TO END OF DETAILED STUDY FILE CSKATMR1.HC2
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.000000	.00	.0	0.	1337.590	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

J3	VARIABLE CODES FOR SUMMARY PRINTOUT									
	110.000	150.000	200.000	.000	.000	.000	.000	.000	.000	.000

NC	.054	.053	.050	.300	.500	.000	.000	.000	.000	.000
QT	2.000	15050.000	15050.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10700.000	12013.000	.000
	G&O CROSS SECTION V JUST U/S FROM 13TH STREET									
X1	22.130	36.000	10700.000	10760.000	.000	.000	.000	.000	.000	.000
GR	1350.000	10000.000	1348.000	10055.000	1346.000	10130.000	1344.000	10190.000	1342.000	10365.000
GR	1340.000	10404.000	1338.000	10450.000	1336.000	10492.000	1334.000	10640.000	1332.000	10675.000
GR	1330.000	10700.000	1328.000	10714.000	1326.000	10718.000	1324.000	10720.000	1321.000	10730.000
GR	1322.000	10735.000	1326.000	10737.000	1328.000	10740.000	1330.000	10742.000	1332.000	10752.000
GR	1334.000	10760.000	1334.000	10795.000	1332.000	10844.000	1334.000	10884.000	1334.000	10942.000
GR	1332.000	11250.000	1333.000	11990.000	1334.000	12120.000	1336.000	12480.000	1338.000	12564.000
GR	1340.000	12620.000	1342.000	12640.000	1344.000	12660.000	1346.000	12680.000	1348.000	12710.000
GR	1350.000	12730.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10708.000	11636.000	.000
	G&O CROSS SECTION W									
X1	22.570	35.000	10710.000	10782.000	1500.000	1100.000	2325.000	.000	.000	.000
GR	1352.000	10000.000	1350.000	10145.000	1348.000	10210.000	1346.000	10276.000	1344.000	10316.000
GR	1342.000	10370.000	1340.000	10410.000	1338.000	10448.000	1336.000	10550.000	1336.000	10580.000
GR	1334.000	10710.000	1332.000	10718.000	1330.000	10728.000	1326.000	10732.000	1323.600	10734.000
GR	1323.100	10744.000	1323.600	10754.000	1330.000	10760.000	1332.000	10766.000	1334.000	10776.000
GR	1336.000	10782.000	1336.000	10870.000	1336.400	11000.000	1336.000	11150.000	1334.000	11315.000
GR	1334.000	11345.000	1334.700	11610.000	1336.000	11790.000	1338.000	11930.000	1340.000	12000.000
GR	1342.000	12030.000	1344.000	12064.000	1346.000	12110.000	1348.000	12140.000	1350.000	12190.000

ET	.000	.000	8.100	.000	.000	.000	.000	10588.000	11995.000	.000
	G&O CROSS SECTION X									
X1	24.080	33.000	11905.000	11995.000	2000.000	2700.000	7655.000	.000	.000	.000
GR	1352.500	10000.000	1352.000	10045.000	1350.000	10104.000	1348.000	10112.000	1348.000	10145.000
GR	1344.000	10210.000	1344.000	10244.000	1340.000	10282.000	1338.000	10330.000	1336.000	10550.000
GR	1336.000	10950.000	1338.000	10980.000	1338.500	11080.000	1338.000	11190.000	1337.200	11270.000
GR	1338.000	11485.000	1340.500	11825.000	1340.000	11905.000	1338.000	11912.000	1330.000	11920.000
GR	1329.000	11924.000	1329.000	11946.000	1330.000	11948.000	1340.000	11960.000	1352.000	11995.000
GR	1356.000	12016.000	1356.000	12315.000	1358.000	12370.000	1358.000	12505.000	1358.500	12590.000
GR	1360.000	12654.000	1360.000	12700.000	1362.000	12855.000	.000	.000	.000	.000
NC	.065	.053	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	.000	8.100	.000	.000	.000	.000	10513.000	11764.000	.000
	G&O CROSS SECTION Y									
X1	24.250	34.000	11560.000	11665.000	1400.000	1100.000	1215.000	.000	.000	.000
GR	1352.500	10000.000	1350.000	10130.000	1348.000	10150.000	1346.000	10210.000	1344.000	10230.000
GR	1340.000	10355.000	1340.000	10730.000	1336.000	10745.000	1336.000	10775.000	1340.000	10795.000
GR	1342.000	10940.000	1342.000	10980.000	1342.900	11030.000	1343.200	11180.000	1342.000	11260.000
GR	1342.000	11560.000	1338.000	11580.000	1330.000	11590.000	1328.700	11592.000	1329.700	11602.000
GR	1330.000	11604.000	1332.000	11606.000	1334.000	11610.000	1336.000	11612.000	1338.000	11660.000
GR	1340.000	11665.000	1341.000	11710.000	1340.000	11750.000	1340.000	11775.000	1342.000	12015.000
GR	1344.000	12020.000	1346.000	12036.000	1348.000	12145.000	1360.000	12365.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

THIS RUN EXECUTED 07/10/87 08:17:03

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22.130	1337.59	.00	1337.64	2088.17	1060.71	1679.18	12310.10	.00	.00	10700.00	10760.00	.00
22.130	1338.35	.76	1338.41	1313.00	.00	1738.72	13311.28	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.64	.00	1338.83	1516.64	1747.41	3694.53	9608.06	.00	.00	10710.00	10782.00	.00
22.570	1339.36	.72	1339.60	928.00	15.99	4178.33	10855.68	928.00	10708.00	10710.00	10782.00	11636.00
24.080	1342.00	.00	1342.07	1702.97	13467.85	1582.15	.00	.00	.00	11905.00	11995.00	.00
24.080	1342.82	.81	1342.89	1380.19	13312.16	1737.84	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.250	1343.49	.00	1343.73	1773.03	7685.27	4592.06	2772.67	.00	.00	11560.00	11665.00	.00
24.250	1344.22	.73	1344.52	1251.00	8410.44	5310.38	1329.18	1251.00	10513.00	11560.00	11665.00	11764.00

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.59	.00	1337.64	4.76	2.81	8772.98	6898.38
22.130	.00	.00	.00	1321.00	15050.00	1338.35	.00	1338.41	4.68	2.70	7621.98	6958.04
22.570	2325.00	.00	.00	1323.10	15050.00	1338.64	.00	1338.83	17.76	5.33	5039.64	3570.94
22.570	2325.00	.00	.00	1323.10	15050.00	1339.36	.00	1339.60	17.88	5.61	4260.66	3559.16
24.080	7655.00	.00	.00	1329.00	15050.00	1342.00	.00	1342.07	6.36	2.95	7528.46	5966.50
24.080	7655.00	.00	.00	1329.00	15050.00	1342.82	.00	1342.89	6.00	2.97	7131.88	6145.33
24.250	1215.00	.00	.00	1328.70	15050.00	1343.49	.00	1343.73	29.00	5.87	4708.34	2794.65
24.250	1215.00	.00	.00	1328.70	15050.00	1344.22	.00	1344.52	28.49	6.19	4227.52	2819.78

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.59	.00	.00	.00	2088.17	.00
22.130	15050.00	1338.35	.76	.00	.76	1313.00	.00
22.570	15050.00	1338.64	.00	1.05	.00	1516.64	2325.00
22.570	15050.00	1339.36	.72	1.01	.72	928.00	2325.00
24.080	15050.00	1342.00	.00	3.36	.00	1702.97	7655.00
24.080	15050.00	1342.82	.81	3.46	.81	1380.19	7655.00
24.250	15050.00	1343.49	.00	1.49	.00	1773.03	1215.00
24.250	15050.00	1344.22	.73	1.40	.73	1251.00	1215.00

SUMMARY OF ERRORS AND SPECIAL NOTES

FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
22.130	1313.	7622.	2.0	1338.4	1337.6	.8
22.570	928.	4261.	3.5	1339.3	1338.6	.7
24.080	1380.	7132.	2.1	1342.8	1342.0	.8
24.250	1251.	4228.	3.6	1344.2	1343.5	.7

Cowskin Creek
13TH to U/S from 21st
W/ New X-Secs for Autumn Ridge & Teal Brook

File: CSKTLBK1.HC2

THIS RUN EXECUTED 09/12/88 16:16:56

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
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C
T1       SEDGWICK COUNTY, KANSAS  COWSKIN CREEK NATURAL 100-YEAR PROFILE
T2       HNTB INPUT DATA W/NEW SECTIONS BETWEEN G&O SECTIONS W AND X
T3       CSK CRK U/S 13TH TO END OF DETAILED STUDY FILE CSKTLBK1.HC2

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.        2.         0.         0.    .000000        .00        .0         0.   1337.600       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       .000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

J3   VARIABLE CODES FOR SUMMARY PRINTOUT

     110.000    150.000    200.000       .000       .000       .000       .000       .000       .000       .000


NC       .054       .053       .050       .300       .500       .000       .000       .000       .000       .000
QT      2.000  15050.000  15050.000       .000       .000       .000       .000       .000       .000       .000
ET       .000       .000      8.100       .000       .000       .000       .000  10700.000  12013.000       .000
           G&O CROSS SECTION V JUST U/S FROM 13TH STREET
X1     22.130     36.000  10700.000  10760.000       .000       .000       .000       .000       .000       .000
GR   1350.000  10000.000   1348.000  10055.000   1346.000  10130.000   1344.000  10190.000   1342.000  10365.000
GR   1340.000  10404.000   1338.000  10450.000   1336.000  10492.000   1334.000  10640.000   1332.000  10675.000
GR   1330.000  10700.000   1328.000  10714.000   1326.000  10718.000   1324.000  10720.000   1321.000  10730.000
GR   1322.000  10735.000   1326.000  10737.000   1328.000  10740.000   1330.000  10742.000   1332.000  10752.000
GR   1334.000  10760.000   1334.000  10795.000   1332.000  10844.000   1334.000  10884.000   1334.000  10942.000
GR   1332.000  11250.000   1333.000  11990.000   1334.000  12120.000   1336.000  12480.000   1338.000  12564.000
GR   1340.000  12620.000   1342.000  12640.000   1344.000  12660.000   1346.000  12680.000   1348.000  12710.000
GR   1350.000  12730.000       .000       .000       .000       .000       .000       .000       .000       .000

ET       .000       .000      8.100       .000       .000       .000       .000  10708.000  11636.000       .000
           G&O CROSS SECTION W
X1     22.570     35.000  10710.000  10782.000   1500.000   1100.000   2325.000       .000       .000       .000
GR   1352.000  10000.000   1350.000  10145.000   1348.000  10210.000   1346.000  10276.000   1344.000  10316.000
GR   1342.000  10370.000   1340.000  10410.000   1338.000  10448.000   1336.000  10550.000   1336.000  10580.000
GR   1334.000  10710.000   1332.000  10718.000   1330.000  10728.000   1326.000  10732.000   1323.600  10734.000
GR   1323.100  10744.000   1323.600  10754.000   1330.000  10760.000   1332.000  10766.000   1334.000  10776.000
GR   1336.000  10782.000   1336.000  10870.000   1336.400  11000.000   1336.000  11150.000   1334.000  11315.000
GR   1334.000  11345.000   1334.700  11610.000   1336.000  11790.000   1338.000  11930.000   1340.000  12000.000
GR   1342.000  12030.000   1344.000  12064.000   1346.000  12110.000   1348.000  12140.000   1350.000  12190.000
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NH	4.000	.050	360.000	.065	442.000	.054	1040.000	.035	2500.000	.000
ET	.000	.000	7.400	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-1									
X1	22.779	40.000	360.000	442.000	510.000	400.000	1104.000	.000	.000	.000
GR	1350.000	250.000	1348.000	275.000	1346.000	295.000	1344.000	332.000	1342.000	340.000
GR	1340.000	350.000	1338.000	355.000	1336.000	360.000	1334.000	365.000	1332.000	375.000
GR	1330.000	385.000	1328.000	390.000	1326.000	392.000	1324.000	396.000	1324.000	410.000
GR	1330.000	420.000	1332.000	422.000	1334.000	430.000	1336.000	442.000	1336.000	570.000
GR	1336.000	730.000	1334.000	880.000	1334.000	910.000	1334.000	970.000	1336.000	1010.000
GR	1336.000	1040.000	1336.000	1145.000	1336.000	1230.000	1334.500	1330.000	1334.000	1440.000
GR	1334.000	1520.000	1334.000	1630.000	1336.000	2150.000	1338.000	2180.000	1340.000	2280.000
GR	1342.000	2360.000	1344.000	2385.000	1346.000	2420.000	1348.000	2470.000	1350.000	2500.000
NH	4.000	.050	600.000	.065	680.000	.054	1225.000	.035	2495.000	.000
	NEW CROSS SECTION W-2									
X1	22.842	34.000	600.000	680.000	245.000	25.000	333.000	.000	.000	.000
GR	1350.000	15.000	1348.000	55.000	1346.000	105.000	1344.000	210.000	1342.000	320.000
GR	1340.000	400.000	1338.000	495.000	1336.000	500.000	1334.000	600.000	1332.000	620.000
GR	1330.000	635.000	1328.000	650.000	1328.000	665.000	1330.000	670.000	1332.000	675.000
GR	1334.000	680.000	1336.000	700.000	1336.000	735.000	1334.000	970.000	1334.000	1005.000
GR	1336.000	1040.000	1336.000	1140.000	1336.000	1225.000	1334.000	1430.000	1334.000	1520.000
GR	1334.000	1620.000	1336.000	2150.000	1338.000	2190.000	1340.000	2260.000	1342.000	2340.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2455.000	1350.000	2495.000	.000	.000
NH	4.000	.050	590.000	.065	705.000	.054	1155.000	.035	2490.000	.000
	NEW CROSS SECTION W-3									
X1	22.860	39.000	590.000	705.000	45.000	30.000	96.000	.000	.000	.000
GR	1350.000	20.000	1348.000	50.000	1346.000	90.000	1344.000	185.000	1342.000	280.000
GR	1340.000	390.000	1340.000	430.000	1340.000	440.000	1338.000	500.000	1336.000	510.000
GR	1334.000	590.000	1332.000	625.000	1330.000	650.000	1328.000	660.000	1326.000	670.000
GR	1326.000	690.000	1330.000	695.000	1332.000	700.000	1334.000	705.000	1336.000	725.000
GR	1336.000	780.000	1335.000	900.000	1334.000	995.000	1334.000	1020.000	1336.000	1040.000
GR	1336.000	1070.000	1335.600	1155.000	1334.000	1410.000	1332.500	1445.000	1334.000	1500.000
GR	1334.000	1610.000	1336.000	2150.000	1338.000	2185.000	1340.000	2255.000	1342.000	2330.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2450.000	1350.000	2490.000	.000	.000
NH	5.000	.035	695.000	.055	1030.000	.065	1350.000	.054	1870.000	.035
NH	3010.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-4									
X1	22.908	37.000	1105.000	1170.000	195.000	13.000	251.000	.000	.000	.000
GR	1350.000	150.000	1348.000	355.000	1346.000	560.000	1346.000	620.000	1344.000	695.000
GR	1342.000	900.000	1340.000	940.000	1338.000	1030.000	1334.000	1105.000	1330.000	1120.000
GR	1328.000	1125.000	1328.000	1150.000	1330.000	1152.000	1332.000	1160.000	1334.000	1170.000
GR	1336.000	1200.000	1336.400	1270.000	1336.200	1350.000	1336.000	1400.000	1334.000	1570.000
GR	1334.000	1590.000	1336.000	1610.000	1336.000	1640.000	1336.500	1700.000	1334.600	1870.000
GR	1334.000	1950.000	1332.500	2000.000	1334.000	2050.000	1334.000	2175.000	1336.000	2680.000
GR	1338.000	2710.000	1340.000	2780.000	1342.000	2845.000	1344.000	2890.000	1346.000	2910.000
GR	1348.000	2960.000	1350.000	3010.000	.000	.000	.000	.000	.000	.000

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NH      5.000      .035    625.000      .040   1030.000      .035   2065.000      .065   2380.000      .040
NH   2490.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
          NEW CROSS SECTION W-5
X1     23.833    31.000  2110.000  2155.000   285.000  1632.000  4884.000      .000      .000      .000
GR   1350.000   170.000  1348.000   370.000  1346.000   595.000  1346.000   625.000  1344.000   760.000
GR   1342.000   840.000  1340.000   900.000  1338.000  1030.000  1336.000  1200.000  1334.000  1265.000
GR   1333.000  1330.000  1334.000  1360.000  1336.000  1440.000  1337.000  1820.000  1338.000  1980.000
GR   1340.000  2065.000  1340.000  2100.000  1338.000  2110.000  1336.000  2113.000  1330.000  2130.000
GR   1328.000  2132.000  1328.000  2140.000  1330.000  2142.000  1338.000  2155.000  1339.000  2235.000
GR   1340.000  2315.000  1342.000  2380.000  1344.000  2410.000  1344.000  2440.000  1344.000  2475.000
GR   1350.000  2490.000      .000      .000      .000      .000      .000      .000      .000      .000

NC       .054      .053      .050      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000  10588.000  11995.000      .000
          G&O CROSS SECTION X
X1     24.080    33.000 11905.000 11995.000   660.000   600.000   898.000      .000      .000      .000
GR   1352.500 10000.000  1352.000 10045.000  1350.000 10104.000  1348.000 10112.000  1348.000 10145.000
GR   1344.000 10210.000  1344.000 10244.000  1340.000 10282.000  1338.000 10330.000  1336.000 10550.000
GR   1336.000 10950.000  1338.000 10980.000  1338.500 11080.000  1338.000 11190.000  1337.200 11270.000
GR   1338.000 11485.000  1340.500 11825.000  1340.000 11905.000  1338.000 11912.000  1330.000 11920.000
GR   1329.000 11924.000  1329.000 11946.000  1330.000 11948.000  1340.000 11960.000  1352.000 11995.000
GR   1356.000 12016.000  1356.000 12315.000  1358.000 12370.000  1358.000 12505.000  1358.500 12590.000
GR   1360.000 12654.000  1360.000 12700.000  1362.000 12855.000      .000      .000      .000      .000

NC       .065      .053      .050      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000  1545.000  2700.000      .000
          NEW CROSS SECTION TO MODEL TEAL BROOK FLOOD PLAIN FILL
X1     24.220    24.000  2520.000  2615.000   520.000   560.000   760.000      .000      .000      .000
GR   1344.000  1000.000  1342.000  1050.000  1340.000  1210.000  1338.000  1480.000  1334.000  1485.000
GR   1334.000  1510.000  1338.000  1530.000  1338.000  2030.000  1334.000  2040.000  1334.000  2065.000
GR   1336.000  2070.000  1338.000  2110.000  1340.000  2150.000  1342.000  2500.000  1342.000  2520.000
GR   1340.000  2535.000  1328.000  2545.000  1328.000  2560.000  1340.000  2615.000  1342.000  2700.000
GR   1344.000  2710.000  1346.000  2730.000  1348.000  2795.000  1350.000  2805.000      .000      .000

NC       .000      .000      .000      .300      .500      .000      .000      .000      .000      .000
NH      5.000      .065 11130.000      .990 11215.000      .065 11620.000      .050 11735.000      .053
NH  12455.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000 10665.000 11916.000      .000
          NEW CROSS SECTION Y-1 AT LOCATION OF G&O SECTION Y W/TEAL BROOK FLDY
X1     24.250    47.000 11620.000 11735.000   880.000   940.000  1335.000      .000      .000      .000
GR   1352.500 10000.000  1352.000 10115.000  1350.000 10212.000  1348.000 10293.000  1346.000 10310.000
GR   1344.000 10340.000  1342.000 10383.000  1340.000 10435.000  1340.000 10510.000  1340.000 10680.000
GR   1340.000 10740.000  1340.000 10815.000  1338.000 10822.000  1336.000 10830.000  1336.000 10860.000
GR   1338.000 10865.000  1340.000 10875.000  1340.200 10895.000  1342.000 10915.000  1342.500 10955.000
GR   1342.000 10990.000  1342.000 11050.000  1342.900 11100.000  1344.000 11130.000  1344.000 11215.000
GR   1343.000 11250.000  1342.000 11320.000  1342.000 11620.000  1340.000 11633.000  1330.000 11653.000
GR   1330.000 11657.000  1336.000 11680.000  1338.000 11730.000  1340.000 11735.000  1341.500 11790.000
GR   1340.000 11835.000  1340.000 11870.000  1342.000 12000.000  1344.000 12100.000  1346.000 12185.000
GR   1348.000 12220.000  1350.000 12260.000  1352.000 12310.000  1354.000 12340.000  1356.000 12375.000
GR   1358.000 12415.000  1360.000 12455.000      .000      .000      .000      .000      .000      .000
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HNTB CROSS SECTION 50 FEET DOWNSTREAM FROM 21ST STREET

X1	24.420	21.000	11890.000	12110.000	400.000	400.000	400.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	1347.000	1347.000	.000
GR	1354.500	10000.000	1354.000	10340.000	1352.000	10510.000	1348.000	10645.000	1340.000	10815.000
GR	1339.100	11085.000	1340.000	11265.000	1340.000	11550.000	1342.000	11554.000	1344.000	11890.000
GR	1334.000	11940.000	1331.900	12000.000	1334.700	12060.000	1343.100	12110.000	1344.000	12190.000
GR	1350.000	12310.000	1351.000	12470.000	1352.000	12670.000	1354.000	12830.000	1358.000	13020.000
GR	1358.600	13155.000	.000	.000	.000	.000	.000	.000	.000	.000
SB	1.050	1.600	2.600	.000	103.000	5.000	2310.000	3.980	.000	.000

HNTB 21ST BRIDGE TABLE

X1	24.430	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000
X2	.000	.000	1.000	1346.600	1350.400	.000	.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	1347.800	1350.000	.000
BT	16.000	10000.000	1354.500	.000	10340.000	1354.000	.000	10510.000	1352.000	.000
BT	10840.000	1348.000	.000	11150.000	1347.800	.000	11690.000	1349.900	.000	11790.000
BT	1349.800	.000	11890.000	1350.400	.000	12110.000	1350.400	.000	12210.000	1350.100
BT	.000	12310.000	1350.000	.000	12470.000	1351.000	.000	12670.000	1352.000	.000
BT	12830.000	1354.000	.000	13020.000	1358.000	.000	13155.000	1358.600	.000	.000

HNTB CROSS SECTION UPSTREAM FROM 21ST STREET, END OF HNTB COWSKIN RUN

X1	24.470	41.000	11550.000	11722.000	75.000	200.000	220.000	.000	.000	.000
GR	1354.000	10000.000	1345.000	10280.000	1352.000	10330.000	1350.000	10370.000	1348.000	10410.000
GR	1346.000	10465.000	1344.000	10510.000	1344.000	10560.000	1342.500	11035.000	1342.000	11380.000
GR	1342.000	11500.000	1343.500	11550.000	1342.000	11575.000	1340.000	11585.000	1338.000	11590.000
GR	1336.000	11634.000	1334.000	11638.000	1332.000	11640.000	1331.000	11644.000	1331.000	11664.000
GR	1332.000	11666.000	1334.000	11668.000	1336.000	11670.000	1338.000	11708.000	1340.000	11715.000
GR	1342.000	11722.000	1342.500	11940.000	1342.000	12000.000	1341.700	12140.000	1342.000	12375.000
GR	1344.000	12420.000	1346.000	12470.000	1348.000	12515.000	1350.000	12570.000	1352.000	12620.000
GR	1354.000	12670.000	1356.000	12730.000	1358.000	12780.000	1360.000	12840.000	1362.000	12935.000
GR	1363.200	12990.000	.000	.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

THIS RUN EXECUTED 09/12/88 16:25:27

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22.130	1337.60	.00	1337.65	2088.80	1061.76	1675.95	12312.29	.00	.00	10700.00	10760.00	.00
22.130	1338.50	.90	1338.56	1313.00	.00	1704.77	13345.23	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.65	.00	1338.83	1516.83	1748.26	3691.19	9610.55	.00	.00	10710.00	10782.00	.00
22.570	1339.43	.79	1339.67	928.00	15.86	4126.73	10907.41	928.00	10708.00	10710.00	10782.00	11636.00
22.779	1339.19	.00	1339.25	1887.62	11.00	1407.52	13631.48	.00	.00	360.00	442.00	.00
22.779	1340.02	.82	1340.08	1414.66	.00	1524.74	13525.26	.22	360.00	360.00	442.00	1774.66
22.842	1339.21	.00	1339.28	1795.20	707.96	1373.12	12968.92	.00	.00	600.00	680.00	.00
22.842	1340.03	.82	1340.11	1269.94	.00	1475.70	13574.30	.22	600.00	600.00	680.00	1869.94
22.860	1339.24	.00	1339.29	1765.46	531.73	1937.08	12581.19	.00	.00	590.00	705.00	.00
22.860	1340.05	.82	1340.12	1256.06	.00	2102.82	12947.18	.21	590.00	590.00	705.00	1846.06
22.908	1339.25	.00	1339.32	1779.99	279.45	1243.84	13526.71	.00	.00	1105.00	1170.00	.00
22.908	1340.07	.82	1340.14	1272.87	.00	1316.56	13733.44	.22	1105.00	1105.00	1170.00	2377.87
23.833	1340.06	.00	1340.25	1418.58	13907.93	987.58	154.49	.00	.00	2110.00	2155.00	.00
23.833	1340.83	.77	1341.06	889.55	13959.05	1090.95	.00	.25	1265.45	2110.00	2155.00	2155.00
24.080	1341.02	.00	1341.13	1690.63	13092.34	1957.66	.00	.00	.00	11905.00	11995.00	.00
24.080	1341.77	.75	1341.89	1377.16	12973.06	2076.94	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.220	1341.95	.00	1342.14	1614.47	11040.55	3904.35	105.09	.00	.00	2520.00	2615.00	.00
24.220	1342.63	.68	1342.87	1155.00	10240.00	4552.80	257.20	1155.00	1545.00	2520.00	2615.00	2700.00
24.250	1344.06	.00	1344.25	1763.45	7905.38	4623.04	2521.59	.00	.00	11620.00	11735.00	.00
24.250	1344.81	.75	1345.04	1251.00	7232.95	5329.49	2487.57	1251.00	10665.00	11620.00	11735.00	11916.00
24.420	1344.78	.00	1345.67	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.420	1345.49	.72	1346.26	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
24.430	1344.85	.00	1345.73	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.430	1345.55	.70	1346.31	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.470	1346.14	.00	1346.23	2055.83	4740.21	5027.59	5282.19	.00	.00	11550.00	11722.00	.00
24.470	1346.64	.50	1346.70	2099.66	5031.32	4607.70	5410.99	.00	.00	11550.00	11722.00	.00

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.60	.00	1337.65	4.73	2.80	8793.89	6923.26
22.130	.00	.00	.00	1321.00	15050.00	1338.50	.00	1338.56	4.31	2.61	7818.96	7253.11
22.570	2325.00	.00	.00	1323.10	15050.00	1338.65	.00	1338.83	17.71	5.33	5045.01	3576.36
22.570	2325.00	.00	.00	1323.10	15050.00	1339.43	.00	1339.67	17.03	5.50	4329.76	3647.03
22.779	1104.00	.00	.00	1324.00	15050.00	1339.19	.00	1339.25	3.87	1.88	7852.61	7649.40
22.779	1104.00	.00	.00	1324.00	15050.00	1340.02	.00	1340.08	3.62	1.87	7432.30	7913.28
22.842	333.00	.00	.00	1328.00	15050.00	1339.21	.00	1339.28	4.35	1.98	7474.60	7218.91
22.842	333.00	.00	.00	1328.00	15050.00	1340.03	.00	1340.11	4.09	1.95	6881.31	7443.77
22.860	96.00	.00	.00	1326.00	15050.00	1339.24	.00	1339.29	3.61	1.86	7833.48	7925.24
22.860	96.00	.00	.00	1326.00	15050.00	1340.05	.00	1340.12	3.41	1.85	7207.79	8145.13
22.908	251.00	.00	.00	1328.00	15050.00	1339.25	.00	1339.32	4.69	2.11	7315.79	6952.20
22.908	251.00	.00	.00	1328.00	15050.00	1340.07	.00	1340.14	4.42	2.05	6816.88	7155.50
23.833	4884.00	.00	.00	1328.00	15050.00	1340.06	.00	1340.25	11.70	2.83	4394.61	4399.69
23.833	4884.00	.00	.00	1328.00	15050.00	1340.83	.00	1341.06	11.18	2.85	3924.10	4500.33
24.080	898.00	.00	.00	1329.00	15050.00	1341.02	.00	1341.13	13.52	4.10	5841.19	4092.47
24.080	898.00	.00	.00	1329.00	15050.00	1341.77	.00	1341.89	11.85	3.98	5700.20	4371.79
24.220	760.00	.00	.00	1328.00	15050.00	1341.95	.00	1342.14	22.32	5.27	5032.42	3185.53
24.220	760.00	.00	.00	1328.00	15050.00	1342.63	.00	1342.87	23.07	5.66	4463.08	3133.47
24.250	1335.00	.00	.00	1330.00	15050.00	1344.06	.00	1344.25	19.34	5.08	5302.56	3422.64
24.250	1335.00	.00	.00	1330.00	15050.00	1344.81	.00	1345.04	19.03	5.35	4763.36	3449.75
24.420	400.00	.00	.00	1331.90	15050.00	1344.78	.00	1345.67	39.60	7.60	1981.12	2391.46
24.420	400.00	.00	.00	1331.90	15050.00	1345.49	.00	1346.26	30.70	7.04	2138.47	2716.33
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1344.85	.00	1345.73	38.60	7.54	1996.51	2422.50
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1345.55	.00	1346.31	30.15	7.00	2150.02	2740.82
24.470	220.00	.00	.00	1331.00	15050.00	1346.14	.00	1346.23	6.67	3.31	7975.61	5827.69
24.470	220.00	.00	.00	1331.00	15050.00	1346.64	.00	1346.70	4.73	2.87	9007.63	6922.87

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.60	.00	.00	.00	2088.80	.00
22.130	15050.00	1338.50	.90	.00	.90	1313.00	.00
22.570	15050.00	1338.65	.00	1.05	.00	1516.83	2325.00
22.570	15050.00	1339.43	.79	.93	.79	928.00	2325.00
22.779	15050.00	1339.19	.00	.55	.00	1887.62	1104.00
22.779	15050.00	1340.02	.82	.58	.82	1414.66	1104.00
22.842	15050.00	1339.21	.00	.02	.00	1795.20	333.00
22.842	15050.00	1340.03	.82	.02	.82	1269.94	333.00
22.860	15050.00	1339.24	.00	.02	.00	1765.46	96.00
22.860	15050.00	1340.05	.82	.02	.82	1256.06	96.00
22.908	15050.00	1339.25	.00	.01	.00	1779.99	251.00
22.908	15050.00	1340.07	.82	.01	.82	1272.87	251.00
23.833	15050.00	1340.06	.00	.81	.00	1418.58	4884.00
23.833	15050.00	1340.83	.77	.77	.77	889.55	4884.00
24.080	15050.00	1341.02	.00	.96	.00	1690.63	898.00
24.080	15050.00	1341.77	.75	.94	.75	1377.16	898.00
24.220	15050.00	1341.95	.00	.93	.00	1614.47	760.00
24.220	15050.00	1342.63	.68	.86	.68	1155.00	760.00
24.250	15050.00	1344.06	.00	2.11	.00	1763.45	1335.00
24.250	15050.00	1344.81	.75	2.18	.75	1251.00	1335.00
24.420	15050.00	1344.78	.00	.72	.00	220.00	400.00
24.420	15050.00	1345.49	.72	.68	.72	220.00	400.00
24.430	15050.00	1344.85	.00	.07	.00	220.00	50.00
24.430	15050.00	1345.55	.70	.05	.70	220.00	50.00
24.470	15050.00	1346.14	.00	1.30	.00	2055.83	220.00
24.470	15050.00	1346.64	.50	1.09	.50	2099.66	220.00

FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
22.130	1313.	7819.	1.9	1338.5	1337.6	.9
22.570	928.	4330.	3.5	1339.4	1338.6	.8
22.779	1415.	7432.	2.0	1340.0	1339.2	.8
22.842	1270.	6881.	2.2	1340.0	1339.2	.8
22.860	1256.	7208.	2.1	1340.0	1339.2	.8
22.908	1273.	6817.	2.2	1340.0	1339.2	.8
23.833	890.	3924.	3.8	1340.9	1340.1	.8
24.080	1377.	5700.	2.6	1341.8	1341.0	.8
24.220	1155.	4463.	3.4	1342.6	1341.9	.7
24.250	1251.	4763.	3.2	1344.8	1344.1	.7
24.420	220.	2138.	7.0	1345.5	1344.8	.7
24.430	220.	2150.	7.0	1345.5	1344.8	.7
24.470	2255.	9008.	1.7	1346.6	1346.1	.5

COWSKIN CREEK

13TH TO U/S FROM 21ST

W/ New X-Secs for Autumn Ridge & Teal Brook

File CSKTLBK2.HC2

THIS RUN EXECUTED 09/12/88 13:26:17

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
**************************************************

C
T1      SEDGWICK COUNTY, KANSAS  COWSKIN CREEK NATURAL 100-YEAR PROFILE
T2      HNTB INPUT DATA W/NEW SECTIONS BETWEEN G&O SECTIONS W AND X
T3      CSK CRK U/S 13TH TO END OF DETAILED STUDY FILE CSKTLBK2.HC2

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.        2.         0.         0.    .000000        .00        .0         0.   1337.600       .000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      .000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000    150.000    200.000       .000       .000       .000       .000       .000       .000       .000


NC       .054       .053       .050       .300       .500       .000       .000       .000       .000       .000
QT      2.000  15050.000  15050.000       .000       .000       .000       .000       .000       .000       .000
ET       .000       .000      8.100       .000       .000       .000       .000  10700.000  12013.000       .000
          G&O CROSS SECTION V JUST U/S FROM 13TH STREET
X1     22.130     36.000  10700.000  10760.000       .000       .000       .000       .000       .000       .000
GR   1350.000  10000.000   1348.000  10055.000   1346.000  10130.000   1344.000  10190.000   1342.000  10365.000
GR   1340.000  10404.000   1338.000  10450.000   1336.000  10492.000   1334.000  10640.000   1332.000  10675.000
GR   1330.000  10700.000   1328.000  10714.000   1326.000  10718.000   1324.000  10720.000   1321.000  10730.000
GR   1322.000  10735.000   1326.000  10737.000   1328.000  10740.000   1330.000  10742.000   1332.000  10752.000
GR   1334.000  10760.000   1334.000  10795.000   1332.000  10844.000   1334.000  10884.000   1334.000  10942.000
GR   1332.000  11250.000   1333.000  11990.000   1334.000  12120.000   1336.000  12480.000   1338.000  12564.000
GR   1340.000  12620.000   1342.000  12640.000   1344.000  12660.000   1346.000  12680.000   1348.000  12710.000
GR   1350.000  12730.000       .000       .000       .000       .000       .000       .000       .000       .000

ET       .000       .000      8.100       .000       .000       .000       .000  10708.000  11636.000       .000
          G&O CROSS SECTION W
X1     22.570     35.000  10710.000  10782.000   1500.000   1100.000   2325.000       .000       .000       .000
GR   1352.000  10000.000   1350.000  10145.000   1348.000  10210.000   1346.000  10276.000   1344.000  10316.000
GR   1342.000  10370.000   1340.000  10410.000   1338.000  10448.000   1336.000  10550.000   1336.000  10580.000
GR   1334.000  10710.000   1332.000  10718.000   1330.000  10728.000   1326.000  10732.000   1323.600  10734.000
GR   1323.100  10744.000   1323.600  10754.000   1330.000  10760.000   1332.000  10766.000   1334.000  10776.000
GR   1336.000  10782.000   1336.000  10870.000   1336.400  11000.000   1336.000  11150.000   1334.000  11315.000
GR   1334.000  11345.000   1334.700  11610.000   1336.000  11790.000   1338.000  11930.000   1340.000  12000.000
GR   1342.000  12030.000   1344.000  12064.000   1346.000  12110.000   1348.000  12140.000   1350.000  12190.000
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NH	4.000	.050	360.000	.065	442.000	.054	1040.000	.035	2500.000	.000
ET	.000	.000	7.400	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-1									
X1	22.779	40.000	360.000	442.000	510.000	400.000	1104.000	.000	.000	.000
GR	1350.000	250.000	1348.000	275.000	1346.000	295.000	1344.000	332.000	1342.000	340.000
GR	1340.000	350.000	1338.000	355.000	1336.000	360.000	1334.000	365.000	1332.000	375.000
GR	1330.000	385.000	1328.000	390.000	1326.000	392.000	1324.000	396.000	1324.000	410.000
GR	1330.000	420.000	1332.000	422.000	1334.000	430.000	1336.000	442.000	1336.000	570.000
GR	1336.000	730.000	1334.000	880.000	1334.000	910.000	1334.000	970.000	1336.000	1010.000
GR	1336.000	1040.000	1336.000	1145.000	1336.000	1230.000	1334.500	1330.000	1334.000	1440.000
GR	1334.000	1520.000	1334.000	1630.000	1336.000	2150.000	1338.000	2180.000	1340.000	2280.000
GR	1342.000	2360.000	1344.000	2385.000	1346.000	2420.000	1348.000	2470.000	1350.000	2500.000
NH	4.000	.050	600.000	.065	680.000	.054	1225.000	.035	2495.000	.000
	NEW CROSS SECTION W-2									
X1	22.842	34.000	600.000	680.000	245.000	25.000	333.000	.000	.000	.000
GR	1350.000	15.000	1348.000	55.000	1346.000	105.000	1344.000	210.000	1342.000	320.000
GR	1340.000	400.000	1338.000	495.000	1336.000	500.000	1334.000	600.000	1332.000	620.000
GR	1330.000	635.000	1328.000	650.000	1328.000	665.000	1330.000	670.000	1332.000	675.000
GR	1334.000	680.000	1336.000	700.000	1336.000	735.000	1334.000	970.000	1334.000	1005.000
GR	1336.000	1040.000	1336.000	1140.000	1336.000	1225.000	1334.000	1430.000	1334.000	1520.000
GR	1334.000	1620.000	1336.000	2150.000	1338.000	2190.000	1340.000	2260.000	1342.000	2340.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2455.000	1350.000	2495.000	.000	.000
NH	4.000	.050	590.000	.065	705.000	.054	1155.000	.035	2490.000	.000
	NEW CROSS SECTION W-3									
X1	22.860	39.000	590.000	705.000	45.000	30.000	96.000	.000	.000	.000
GR	1350.000	20.000	1348.000	50.000	1346.000	90.000	1344.000	185.000	1342.000	280.000
GR	1340.000	390.000	1340.000	430.000	1340.000	440.000	1338.000	500.000	1336.000	510.000
GR	1334.000	590.000	1332.000	625.000	1330.000	650.000	1328.000	660.000	1326.000	670.000
GR	1326.000	690.000	1330.000	695.000	1332.000	700.000	1334.000	705.000	1336.000	725.000
GR	1336.000	780.000	1335.000	900.000	1334.000	995.000	1334.000	1020.000	1336.000	1040.000
GR	1336.000	1070.000	1335.600	1155.000	1334.000	1410.000	1332.500	1445.000	1334.000	1500.000
GR	1334.000	1610.000	1336.000	2150.000	1338.000	2185.000	1340.000	2255.000	1342.000	2330.000
GR	1344.000	2380.000	1346.000	2405.000	1348.000	2450.000	1350.000	2490.000	.000	.000
NH	5.000	.035	695.000	.055	1030.000	.065	1350.000	.054	1870.000	.035
NH	3010.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	NEW CROSS SECTION W-4									
X1	22.908	37.000	1105.000	1170.000	195.000	13.000	251.000	.000	.000	.000
GR	1350.000	150.000	1348.000	355.000	1346.000	560.000	1346.000	620.000	1344.000	695.000
GR	1342.000	900.000	1340.000	940.000	1338.000	1030.000	1334.000	1105.000	1330.000	1120.000
GR	1328.000	1125.000	1328.000	1150.000	1330.000	1152.000	1332.000	1160.000	1334.000	1170.000
GR	1336.000	1200.000	1336.400	1270.000	1336.200	1350.000	1336.000	1400.000	1334.000	1570.000
GR	1334.000	1590.000	1336.000	1610.000	1336.000	1640.000	1336.500	1700.000	1334.600	1870.000
GR	1334.000	1950.000	1332.500	2000.000	1334.000	2050.000	1334.000	2175.000	1336.000	2680.000
GR	1338.000	2710.000	1340.000	2780.000	1342.000	2845.000	1344.000	2890.000	1346.000	2910.000
GR	1348.000	2960.000	1350.000	3010.000	.000	.000	.000	.000	.000	.000

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NH      5.000      .035   625.000      .040  1030.000      .035  2065.000      .065  2380.000      .040
NH   2490.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
          NEW CROSS SECTION W-5
X1     23.833    31.000  2110.000  2155.000   285.000  1632.000  4884.000      .000      .000      .000
GR   1350.000   170.000  1348.000   370.000  1346.000   595.000  1346.000   625.000  1344.000   760.000
GR   1342.000   840.000  1340.000   900.000  1338.000  1030.000  1336.000  1200.000  1334.000  1265.000
GR   1333.000  1330.000  1334.000  1360.000  1336.000  1440.000  1337.000  1820.000  1338.000  1980.000
GR   1340.000  2065.000  1340.000  2100.000  1338.000  2110.000  1336.000  2113.000  1330.000  2130.000
GR   1328.000  2132.000  1328.000  2140.000  1330.000  2142.000  1338.000  2155.000  1339.000  2235.000
GR   1340.000  2315.000  1342.000  2380.000  1344.000  2410.000  1344.000  2440.000  1344.000  2475.000
GR   1350.000  2490.000      .000      .000      .000      .000      .000      .000      .000      .000

NC       .054      .053      .050      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000  10588.000  11995.000      .000
          G&O CROSS SECTION X
X1     24.080    33.000 11905.000 11995.000   660.000   600.000   898.000      .000      .000      .000
GR   1352.500 10000.000  1352.000 10045.000  1350.000 10104.000  1348.000 10112.000  1348.000 10145.000
GR   1344.000 10210.000  1344.000 10244.000  1340.000 10282.000  1338.000 10330.000  1336.000 10550.000
GR   1336.000 10950.000  1338.000 10980.000  1338.500 11080.000  1338.000 11190.000  1337.200 11270.000
GR   1338.000 11485.000  1340.500 11825.000  1340.000 11905.000  1338.000 11912.000  1330.000 11920.000
GR   1329.000 11924.000  1329.000 11946.000  1330.000 11948.000  1340.000 11960.000  1352.000 11995.000
GR   1356.000 12016.000  1356.000 12315.000  1358.000 12370.000  1358.000 12505.000  1358.500 12590.000
GR   1360.000 12654.000  1360.000 12700.000  1362.000 12855.000      .000      .000      .000      .000

NC       .065      .053      .050      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000  1545.000  2700.000      .000
          NEW CROSS SECTION TO MODEL TEAL BROOK FLOOD PLAIN FILL
X1     24.220    24.000  2520.000  2615.000   520.000   560.000   760.000      .000      .000      .000
GR   1344.000  1000.000  1342.000  1050.000  1340.000  1210.000  1338.000  1480.000  1334.000  1485.000
GR   1334.000  1510.000  1338.000  1530.000  1338.000  2030.000  1334.000  2040.000  1334.000  2065.000
GR   1336.000  2070.000  1338.000  2110.000  1340.000  2150.000  1342.000  2500.000  1342.000  2520.000
GR   1340.000  2535.000  1328.000  2545.000  1328.000  2560.000  1340.000  2615.000  1342.000  2700.000
GR   1344.000  2710.000  1346.000  2730.000  1348.000  2795.000  1350.000  2805.000      .000      .000

NC       .000      .000      .000      .300      .500      .000      .000      .000      .000      .000
NH      7.000      .065  11130.000      .990  11215.000      .065  11870.000      .050  11985.000      .053
NH  12190.000      .990  12250.000      .053  12505.000      .000      .000      .000      .000      .000
ET       .000      .000     8.100      .000      .000      .000      .000  10665.000  12080.000      .000
          NEW CROSS SECTION Y-2 AT LOCATION OF G&O SECTION Y W/TEAL BROOK FLDY
X1     24.250    64.000 11620.000 11735.000   880.000   540.000   455.000      .000      .000      .000
GR   1352.500 10000.000  1352.000 10115.000  1350.000 10212.000  1348.000 10293.000  1346.000 10310.000
GR   1344.000 10340.000  1342.000 10383.000  1340.000 10435.000  1340.000 10510.000  1340.000 10680.000
GR   1340.000 10740.000  1340.000 10815.000  1338.000 10822.000  1336.000 10830.000  1336.000 10860.000
GR   1338.000 10865.000  1340.000 10875.000  1340.200 10895.000  1342.000 10915.000  1342.500 10955.000
GR   1342.000 10990.000  1342.000 11050.000  1342.900 11100.000  1344.000 11130.000  1344.000 11215.000
GR   1343.000 11245.000  1342.000 11283.000  1340.000 11300.000  1334.000 11310.000  1334.000 11315.000
GR   1340.000 11340.000  1342.000 11385.000  1342.000 11520.000  1340.000 11550.000  1338.000 11560.000
GR   1336.000 11590.000  1336.000 11595.000  1340.000 11600.000  1342.000 11610.000  1342.000 11715.000
GR   1340.000 11720.000  1332.000 11745.000  1332.000 11795.000  1340.000 11820.000  1342.000 11850.000
GR   1342.000 11870.000  1340.000 11900.000  1338.000 11915.000  1330.000 11960.000  1329.000 11965.000
GR   1330.000 11980.000  1340.000 11985.000  1342.000 12120.000  1344.000 12160.000  1346.000 12180.000
GR   1347.000 12190.000  1347.000 12250.000  1348.000 12270.000  1350.000 12300.000  1352.000 12345.000
GR   1354.000 12380.000  1356.000 12420.000  1358.000 12463.000  1360.000 12505.000      .000      .000
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NC	.065	.053	.050	.000	.000	.000	.000	.000	.000	.000
	HNTB CROSS SECTION 50 FEET DOWNSTREAM FROM 21ST STREET									
X1	24.420	21.000	11890.000	12110.000	400.000	800.000	880.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	1347.000	1347.000	.000
GR	1354.500	10000.000	1354.000	10340.000	1352.000	10510.000	1348.000	10645.000	1340.000	10815.000
GR	1339.100	11085.000	1340.000	11265.000	1340.000	11550.000	1342.000	11554.000	1344.000	11890.000
GR	1334.000	11940.000	1331.900	12000.000	1334.700	12060.000	1343.100	12110.000	1344.000	12190.000
GR	1350.000	12310.000	1351.000	12470.000	1352.000	12670.000	1354.000	12830.000	1358.000	13020.000
GR	1358.600	13155.000	.000	.000	.000	.000	.000	.000	.000	.000
SB	1.050	1.600	2.600	.000	103.000	5.000	2310.000	3.980	.000	.000
	HNTB 21ST BRIDGE TABLE									
X1	24.430	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000
X2	.000	.000	1.000	1346.600	1350.400	.000	.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	1347.800	1350.000	.000
BT	16.000	10000.000	1354.500	.000	10340.000	1354.000	.000	10510.000	1352.000	.000
BT	10840.000	1348.000	.000	11150.000	1347.800	.000	11690.000	1349.900	.000	11790.000
BT	1349.800	.000	11890.000	1350.400	.000	12110.000	1350.400	.000	12210.000	1350.100
BT	.000	12310.000	1350.000	.000	12470.000	1351.000	.000	12670.000	1352.000	.000
BT	12830.000	1354.000	.000	13020.000	1358.000	.000	13155.000	1358.600	.000	.000
	HNTB CROSS SECTION UPSTREAM FROM 21ST STREET, END OF HNTB COWSKIN RUN									
X1	24.470	41.000	11550.000	11722.000	75.000	200.000	220.000	.000	.000	.000
GR	1354.000	10000.000	1345.000	10280.000	1352.000	10330.000	1350.000	10370.000	1348.000	10410.000
GR	1346.000	10465.000	1344.000	10510.000	1344.000	10560.000	1342.500	11035.000	1342.000	11380.000
GR	1342.000	11500.000	1343.500	11550.000	1342.000	11575.000	1340.000	11585.000	1338.000	11590.000
GR	1336.000	11634.000	1334.000	11638.000	1332.000	11640.000	1331.000	11644.000	1331.000	11664.000
GR	1332.000	11666.000	1334.000	11668.000	1336.000	11670.000	1338.000	11708.000	1340.000	11715.000
GR	1342.000	11722.000	1342.500	11940.000	1342.000	12000.000	1341.700	12140.000	1342.000	12375.000
GR	1344.000	12420.000	1346.000	12470.000	1348.000	12515.000	1350.000	12570.000	1352.000	12620.000
GR	1354.000	12670.000	1356.000	12730.000	1358.000	12780.000	1360.000	12840.000	1362.000	12935.000
GR	1363.200	12990.000	.000	.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

THIS RUN EXECUTED 09/12/88 13:34:52

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION APRIL 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22.130	1337.60	.00	1337.65	2088.80	1061.76	1675.95	12312.29	.00	.00	10700.00	10760.00	.00
22.130	1338.50	.90	1338.56	1313.00	.00	1704.77	13345.23	1313.00	10700.00	10700.00	10760.00	12013.00
22.570	1338.65	.00	1338.83	1516.83	1748.26	3691.19	9610.55	.00	.00	10710.00	10782.00	.00
22.570	1339.43	.79	1339.67	928.00	15.86	4126.73	10907.41	928.00	10708.00	10710.00	10782.00	11636.00
22.779	1339.19	.00	1339.25	1887.62	11.00	1407.52	13631.48	.00	.00	360.00	442.00	.00
22.779	1340.02	.82	1340.08	1414.66	.00	1524.74	13525.26	.22	360.00	360.00	442.00	1774.66
22.842	1339.21	.00	1339.28	1795.20	707.96	1373.12	12968.92	.00	.00	600.00	680.00	.00
22.842	1340.03	.82	1340.11	1269.94	.00	1475.70	13574.30	.22	600.00	600.00	680.00	1869.94
22.860	1339.24	.00	1339.29	1765.46	531.73	1937.08	12581.19	.00	.00	590.00	705.00	.00
22.860	1340.05	.82	1340.12	1256.06	.00	2102.82	12947.18	.21	590.00	590.00	705.00	1846.06
22.908	1339.25	.00	1339.32	1779.99	279.45	1243.84	13526.71	.00	.00	1105.00	1170.00	.00
22.908	1340.07	.82	1340.14	1272.87	.00	1316.56	13733.44	.22	1105.00	1105.00	1170.00	2377.87
23.833	1340.06	.00	1340.25	1418.58	13907.93	987.58	154.49	.00	.00	2110.00	2155.00	.00
23.833	1340.83	.77	1341.06	889.55	13959.05	1090.95	.00	.25	1265.45	2110.00	2155.00	2155.00
24.080	1341.02	.00	1341.13	1690.63	13092.34	1957.66	.00	.00	.00	11905.00	11995.00	.00
24.080	1341.77	.75	1341.89	1377.16	12973.06	2076.94	.00	1407.00	10588.00	11905.00	11995.00	11995.00
24.220	1341.95	.00	1342.14	1614.47	11040.55	3904.35	105.09	.00	.00	2520.00	2615.00	.00
24.220	1342.63	.68	1342.87	1155.00	10240.00	4552.80	257.20	1155.00	1545.00	2520.00	2615.00	2700.00
24.250	1343.23	.00	1343.35	1658.45	.00	.00	15050.00	.00	.00	10000.00	10000.00	.00
24.250	1343.87	.64	1344.00	1322.39	.00	.00	15050.00	1415.00	10665.00	10000.00	10000.00	12080.00
24.420	1344.71	.00	1345.62	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.420	1345.13	.42	1345.96	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
24.430	1344.78	.00	1345.67	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.430	1345.19	.41	1346.01	220.00	.00	15050.00	.00	.00	.00	11890.00	12110.00	.00
24.470	1346.09	.00	1346.18	2051.45	4753.64	4978.05	5318.31	.00	.00	11550.00	11722.00	.00
24.470	1346.38	.28	1346.45	2076.55	4923.64	4736.18	5390.17	.00	.00	11550.00	11722.00	.00

CSK CRK U/S 13TH TO END

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22.130	.00	.00	.00	1321.00	15050.00	1337.60	.00	1337.65	4.73	2.80	8793.89	6923.26
22.130	.00	.00	.00	1321.00	15050.00	1338.50	.00	1338.56	4.31	2.61	7818.96	7253.11
22.570	2325.00	.00	.00	1323.10	15050.00	1338.65	.00	1338.83	17.71	5.33	5045.01	3576.36
22.570	2325.00	.00	.00	1323.10	15050.00	1339.43	.00	1339.67	17.03	5.50	4329.76	3647.03
22.779	1104.00	.00	.00	1324.00	15050.00	1339.19	.00	1339.25	3.87	1.88	7852.61	7649.40
22.779	1104.00	.00	.00	1324.00	15050.00	1340.02	.00	1340.08	3.62	1.87	7432.30	7913.28
22.842	333.00	.00	.00	1328.00	15050.00	1339.21	.00	1339.28	4.35	1.98	7474.60	7218.91
22.842	333.00	.00	.00	1328.00	15050.00	1340.03	.00	1340.11	4.09	1.95	6881.31	7443.77
22.860	96.00	.00	.00	1326.00	15050.00	1339.24	.00	1339.29	3.61	1.86	7833.48	7925.24
22.860	96.00	.00	.00	1326.00	15050.00	1340.05	.00	1340.12	3.41	1.85	7207.79	8145.13
22.908	251.00	.00	.00	1328.00	15050.00	1339.25	.00	1339.32	4.69	2.11	7315.79	6952.20
22.908	251.00	.00	.00	1328.00	15050.00	1340.07	.00	1340.14	4.42	2.05	6816.88	7155.50
23.833	4884.00	.00	.00	1328.00	15050.00	1340.06	.00	1340.25	11.70	2.83	4394.61	4399.69
23.833	4884.00	.00	.00	1328.00	15050.00	1340.83	.00	1341.06	11.18	2.85	3924.10	4500.33
24.080	898.00	.00	.00	1329.00	15050.00	1341.02	.00	1341.13	13.52	4.10	5841.19	4092.47
24.080	898.00	.00	.00	1329.00	15050.00	1341.77	.00	1341.89	11.85	3.98	5700.20	4371.79
24.220	760.00	.00	.00	1328.00	15050.00	1341.95	.00	1342.14	22.32	5.27	5032.42	3185.53
24.220	760.00	.00	.00	1328.00	15050.00	1342.63	.00	1342.87	23.07	5.66	4463.08	3133.47
24.250	455.00	.00	.00	1329.00	15050.00	1343.23	.00	1343.35	15.12	.00	5324.25	3870.47
24.250	455.00	.00	.00	1329.00	15050.00	1343.87	.00	1344.00	13.04	.00	5212.26	4167.51
24.420	880.00	.00	.00	1331.90	15050.00	1344.71	.00	1345.62	36.20	7.66	1965.41	2501.53
24.420	880.00	.00	.00	1331.90	15050.00	1345.13	.00	1345.96	31.07	7.31	2057.56	2700.03
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1344.78	.00	1345.67	35.24	7.60	1981.26	2535.23
24.430	50.00	1350.40	1346.60	1331.90	15050.00	1345.19	.00	1346.01	30.35	7.26	2072.00	2731.70
24.470	220.00	.00	.00	1331.00	15050.00	1346.09	.00	1346.18	7.05	3.30	7873.83	5668.70
24.470	220.00	.00	.00	1331.00	15050.00	1346.38	.00	1346.45	5.74	3.04	8460.88	6283.54

CSK CRK U/S 13TH TO END

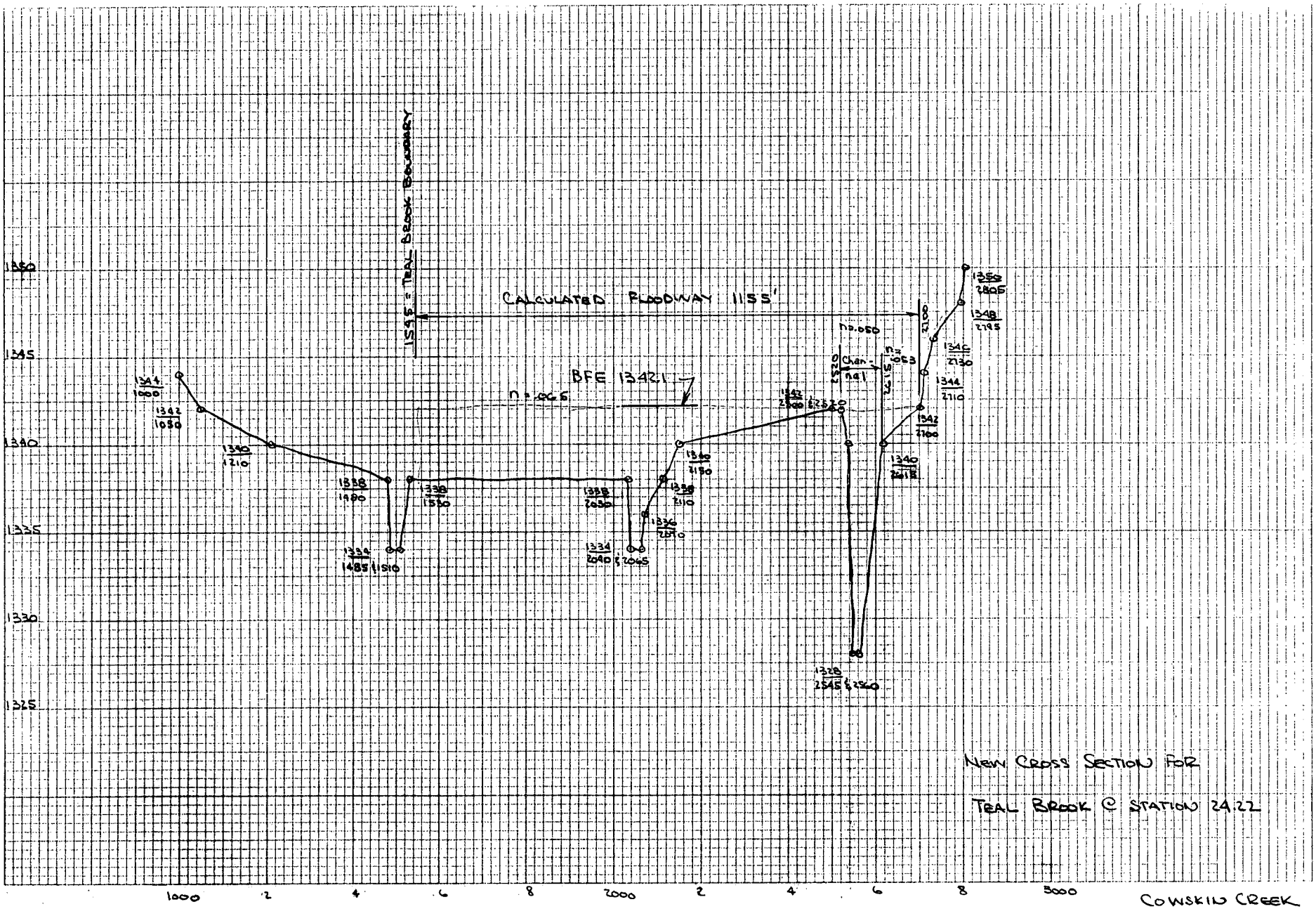
SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.130	15050.00	1337.60	.00	.00	.00	2088.80	.00
22.130	15050.00	1338.50	.90	.00	.90	1313.00	.00
22.570	15050.00	1338.65	.00	1.05	.00	1516.83	2325.00
22.570	15050.00	1339.43	.79	.93	.79	928.00	2325.00
22.779	15050.00	1339.19	.00	.55	.00	1887.62	1104.00
22.779	15050.00	1340.02	.82	.58	.82	1414.66	1104.00
22.842	15050.00	1339.21	.00	.02	.00	1795.20	333.00
22.842	15050.00	1340.03	.82	.02	.82	1269.94	333.00
22.860	15050.00	1339.24	.00	.02	.00	1765.46	96.00
22.860	15050.00	1340.05	.82	.02	.82	1256.06	96.00
22.908	15050.00	1339.25	.00	.01	.00	1779.99	251.00
22.908	15050.00	1340.07	.82	.01	.82	1272.87	251.00
23.833	15050.00	1340.06	.00	.81	.00	1418.58	4884.00
23.833	15050.00	1340.83	.77	.77	.77	889.55	4884.00
24.080	15050.00	1341.02	.00	.96	.00	1690.63	898.00
24.080	15050.00	1341.77	.75	.94	.75	1377.16	898.00
24.220	15050.00	1341.95	.00	.93	.00	1614.47	760.00
24.220	15050.00	1342.63	.68	.86	.68	1155.00	760.00
24.250	15050.00	1343.23	.00	1.28	.00	1658.45	455.00
24.250	15050.00	1343.87	.64	1.24	.64	1322.39	455.00
24.420	15050.00	1344.71	.00	1.48	.00	220.00	880.00
24.420	15050.00	1345.13	.42	1.26	.42	220.00	880.00
24.430	15050.00	1344.78	.00	.07	.00	220.00	50.00
24.430	15050.00	1345.19	.41	.06	.41	220.00	50.00
24.470	15050.00	1346.09	.00	1.32	.00	2051.45	220.00
24.470	15050.00	1346.38	.28	1.19	.28	2076.55	220.00

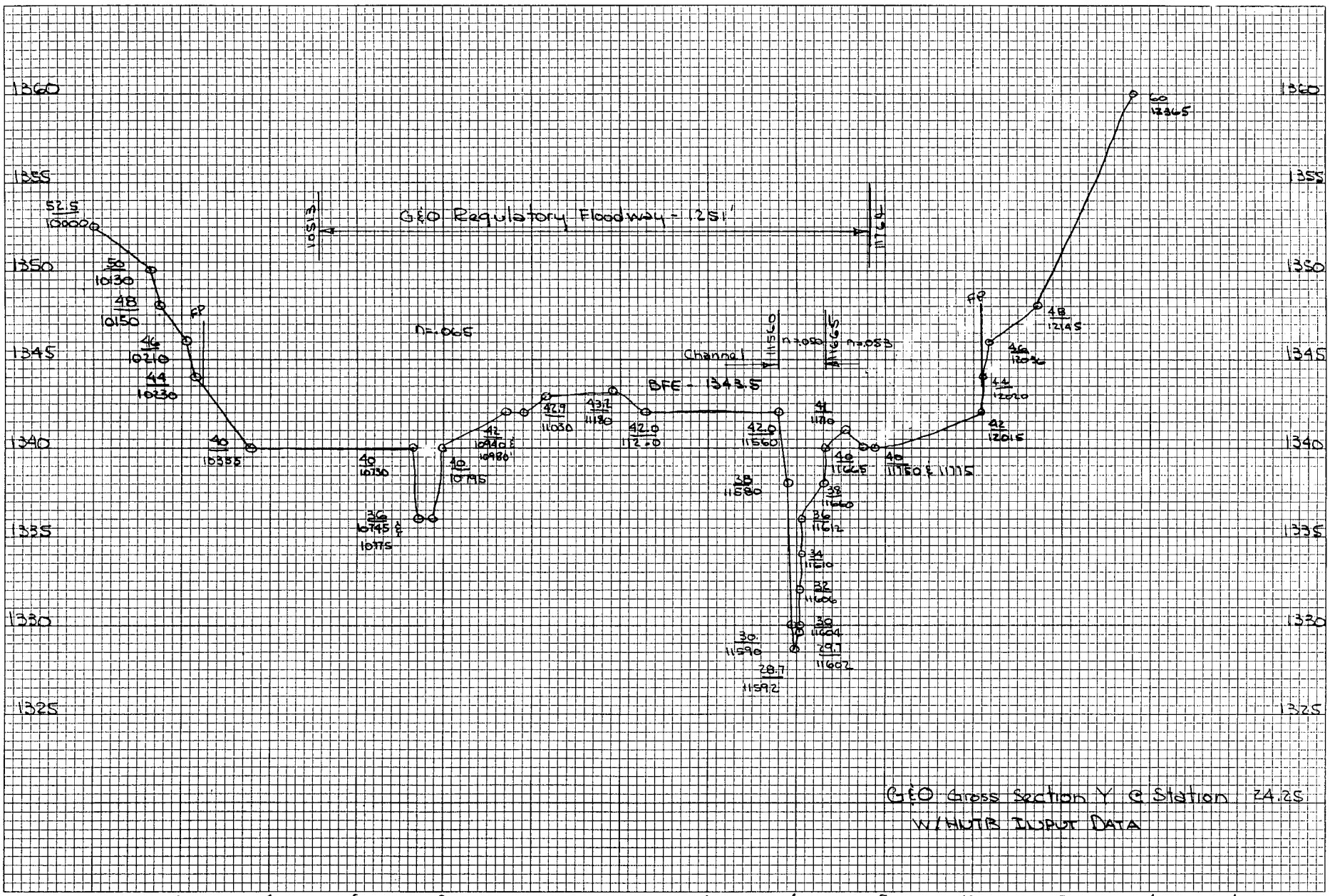
SUMMARY OF ERRORS AND SPECIAL NOTES

FLOODWAY DATA, CSK CRK U/S 13TH TO END
PROFILE NO. 2

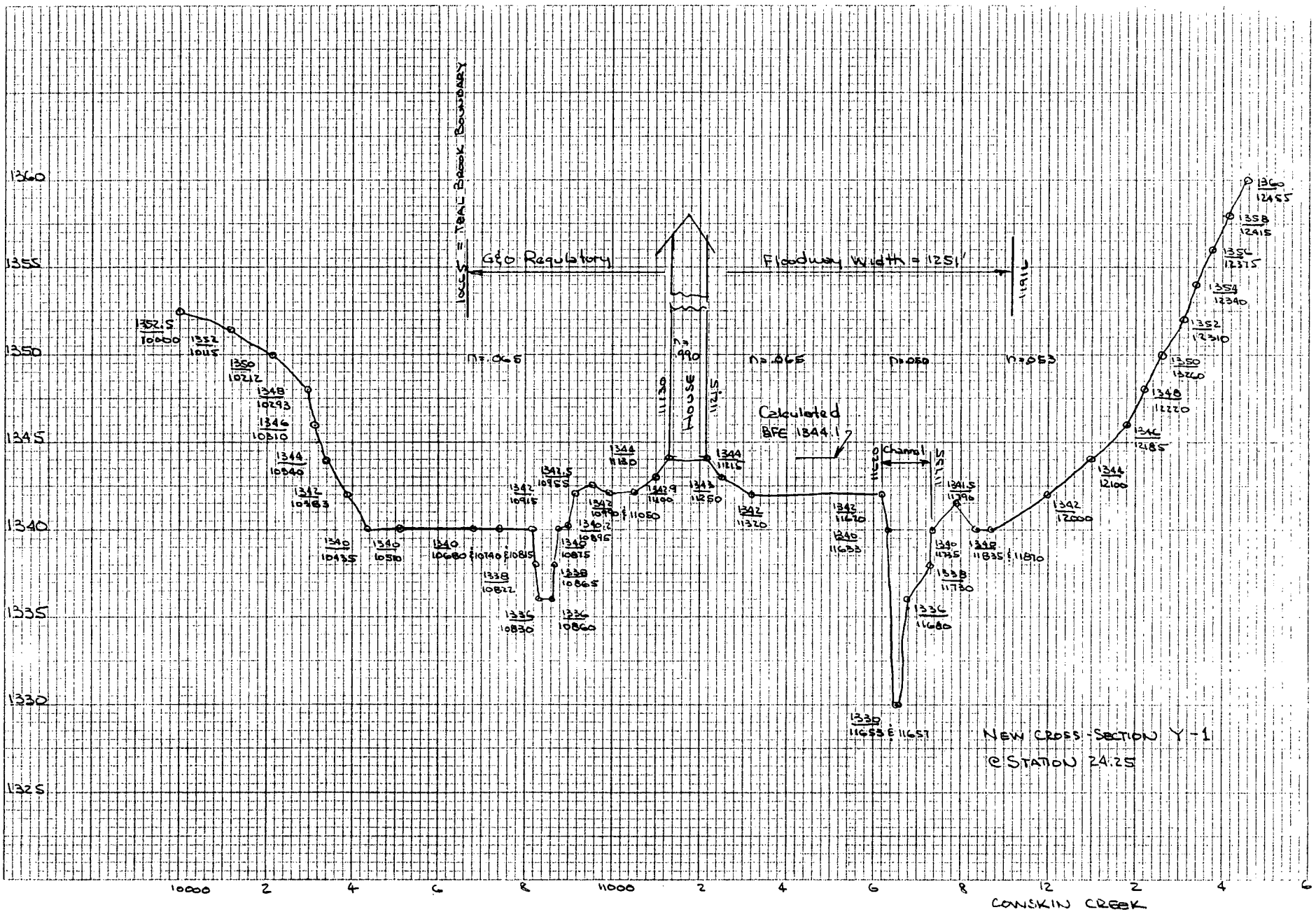
STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
22.130	1313.	7819.	1.9	1338.5	1337.6	.9
22.570	928.	4330.	3.5	1339.4	1338.6	.8
22.779	1415.	7432.	2.0	1340.0	1339.2	.8
22.842	1270.	6881.	2.2	1340.0	1339.2	.8
22.860	1256.	7208.	2.1	1340.0	1339.2	.8
22.908	1273.	6817.	2.2	1340.0	1339.2	.8
23.833	890.	3924.	3.8	1340.9	1340.1	.8
24.080	1377.	5700.	2.6	1341.8	1341.0	.8
24.220	1155.	4463.	3.4	1342.6	1341.9	.7
24.250	1415.	5212.	2.9	1343.8	1343.2	.6
24.420	220.	2058.	7.3	1345.1	1344.7	.4
24.430	220.	2072.	7.3	1345.2	1344.8	.4
24.470	2241.	8461.	1.8	1346.4	1346.1	.3



NEW CROSS SECTION FOR
TEAL BROOK @ STATION 24.22



G&O Cross Section Y @ Station 24.25
W/HUTR INPUT DATA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12
2
4
6
CONSKIN CREEK
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10000
1352
10015
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10212
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1346
10310
1344
10340
1342
10463
1340
10435
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11657
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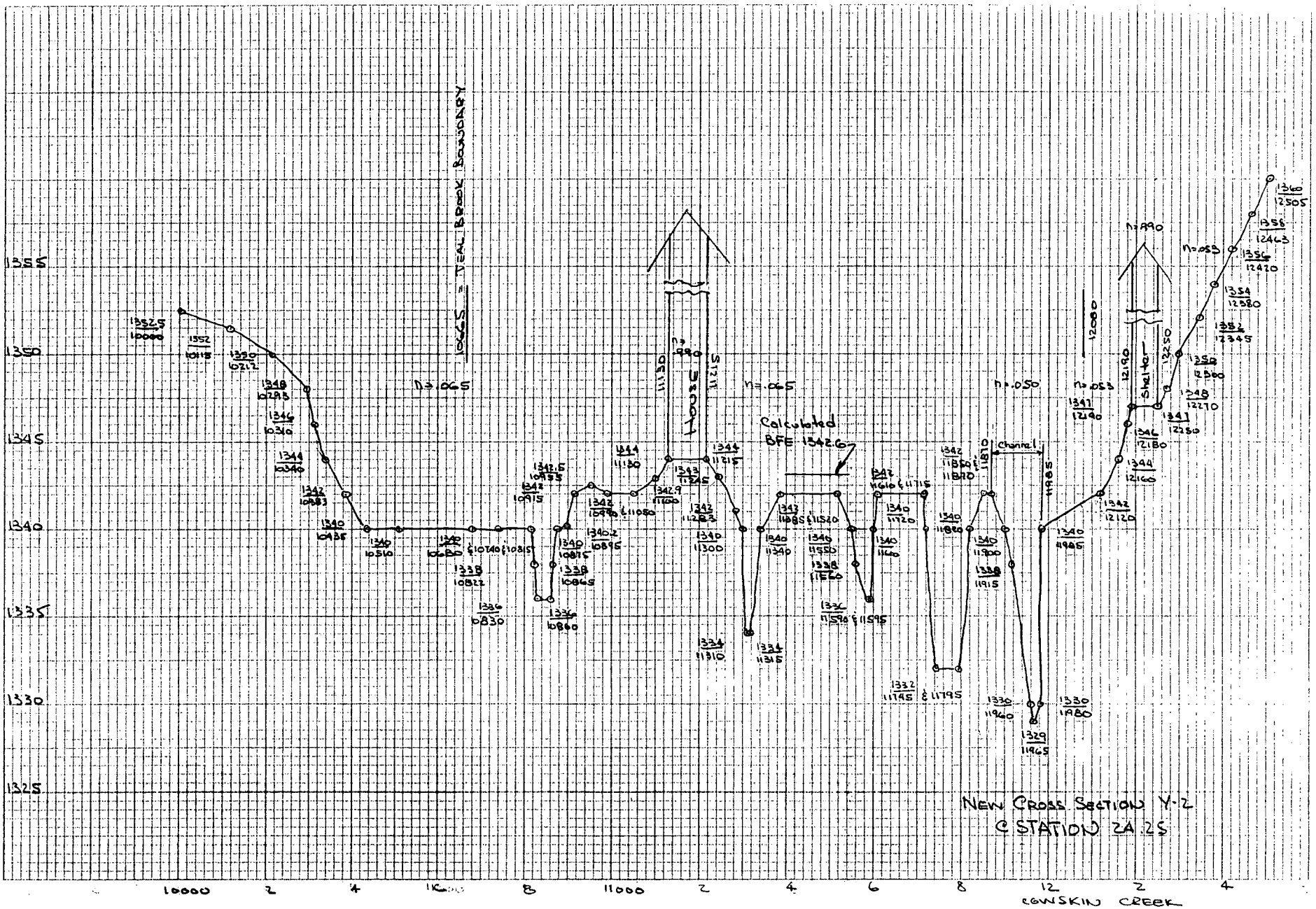
1346
12185
1348
12220
1350
12260
1352
12310
1354
12340
1356
12375
1358
12415
1360
12455
Calculated
BFE 1344.1'
Channel
Floodway Width = 1251'
GEO Regulatory
100 Yr. = Total Brook Boundary
House
n=.065
n=.050
n=.065
n=.050
n=.065
n=.050
990
1130
1125
1115
1120
1155
1191
NEW CROSS-SECTION Y-1
@ STATION 24.25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12
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4
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n=.065
n=.050
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Calculated
BFE 1342.6
Channel
Shelter
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1348
10293
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12270
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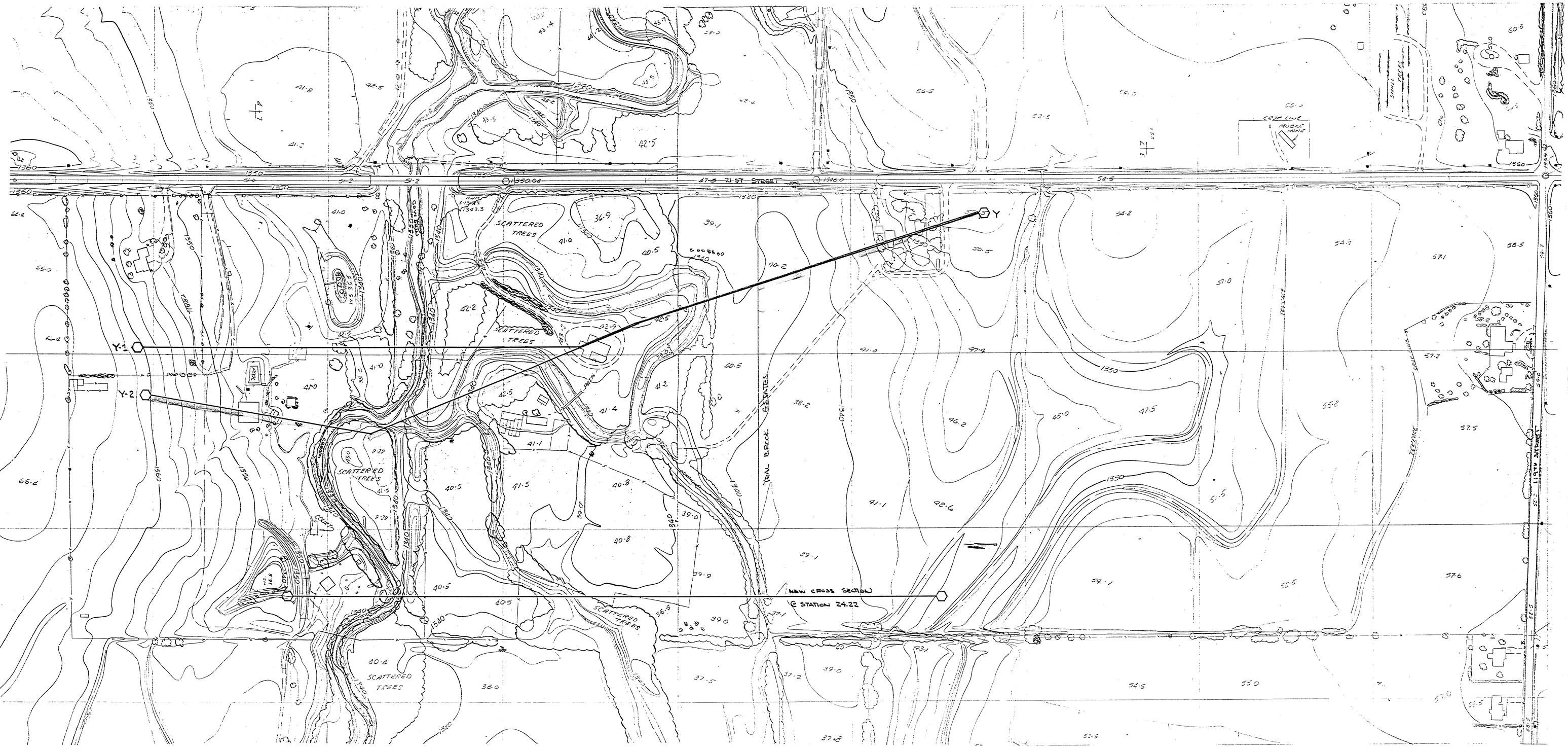
12350
1352
12345
1354
12380
1356
12420
1358
12463
1360
12505
12080
NEW CROSS SECTION Y-Z
@ STATION 24.25
COWSKIN CREEK


21 ST STREET
SCATTERED TREES
Y
Y-1
Y-2
NEW CROSS SECTION
℄ STATION 24.22
TRAIL BLAZER ESTATES
CROP LINE
MOBILE HOME