Measurement of Sediment Accumulation in Catchment
Basins at Stream Gage Sites 1, 2 and 3
H. J. Andrews Experimental Forest

by
Raymond Graber

The purpose of this report is to present the data and the procedure
used to measure the basins and in such a way that it will be possible to
duplicate the method in successive years. The following is an outline of
this procedure.

Survey of Catchment Basins

I. Requirements

Basin to be cross-sectioned at three-foot intervals and depth measurements
are to be made. These measurements are to be compared with future
measurements to discover the annual sediment accumulation.

II. Method

A. Instruments

1. Level and rod--rod equipped with light gage metal base

2. Compass (Silva)

B. Control for level transects of basin

1. A primary control line was laid out on the dam (Figure 1).

a. The primary line is marked at each end by a 4" x 4" x30" cedar
stake. The stakes are marked with aluminum foil and numbered.
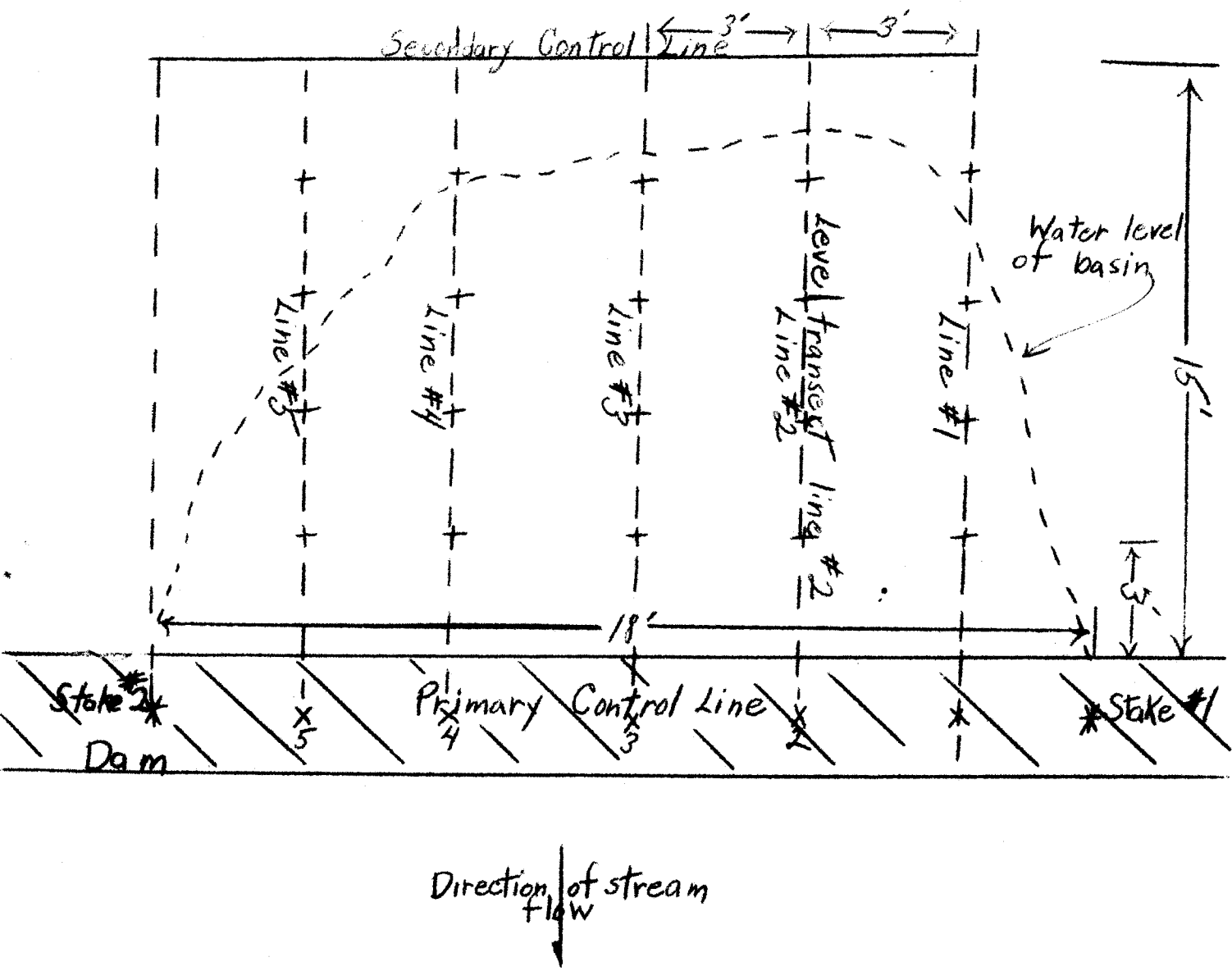
Figure 1.--Typical control system for cross-sectioning debris basin.

2. A secondary line was laid out on the opposite (upstream) side of the basin parallel to the primary line.

3. Starting on the right side (facing up stream) three-foot intervals were set off on the primary line and numbered.

   Example: Line one would be located three feet from primary control stake No. 1, at six feet would be line two, etc.

4. Level readings were taken at three-foot intervals on the lines running perpendicular to and between the primary and secondary control lines.

5. Level readings were taken on the outlet to determine the elevation of the water surface.

6. All elevations are relative and in reference to a railroad spike driven into a hemlock. The assumed elevation of the spike is 100.00 feet in all three cases.

C. Field Technique

1. Stakes were driven at each end of an arbitrary primary control line which was laid out on and parallel to the axis of the dam. A string was strung between the stakes to mark the center of the primary control line. (Figure 1).

2. A small log was placed on line between the stakes and three-foot intervals were marked with nails driven into the log.

3. Using the hand compass (Silva), a secondary control line was established at the opposite end of the basin parallel to the primary control line. Using the same procedure as described above, a log was placed on line and three-foot intervals were marked off.

4. A string was then strung between the primary and secondary line logs. The string was fastened to the nails in the logs. This string acted as a guide for the level transects between the primary and secondary lines.

5. The rod man carried a seventy-five foot metal tape. One end was hooked over the nail on the primary control line. The rod man was then able to let out tape and accurately place the rod at three-foot intervals. The rod man stopped every three feet and a reading was taken by the instrument man.

6. Readings other than those taken at the three-foot interval: At the start and finish of each line a reading should be made at water level. The distance of these two readings from the primary control line should be recorded in the field notes. This information will be very helpful when a map of the basins is made. This was not done in the original survey, the water edge being determined by interpolation between the last reading inside the basin and the first reading outside.

D. Additional Information

Bench marks -- A railroad spike was driven into a suitable Tsuga at each basin site. The assumed elevation of the bench mark in all cases was 100.00 feet. The azimuth to the Tsuga in each case is given on the map of that area included in the survey notes. The trees are marked with an aluminum foil cross.

Level Rod Base -- A 7" x 10" sheet metal forest boundary sign was used

as a base. Two slots were cut in the center of the sign. The brass

base was removed from the rod. The projecting legs of the brass base

were pushed through special slots in the sheet metal. The base was then

reattached to the rod.

Side view
Brass rod base
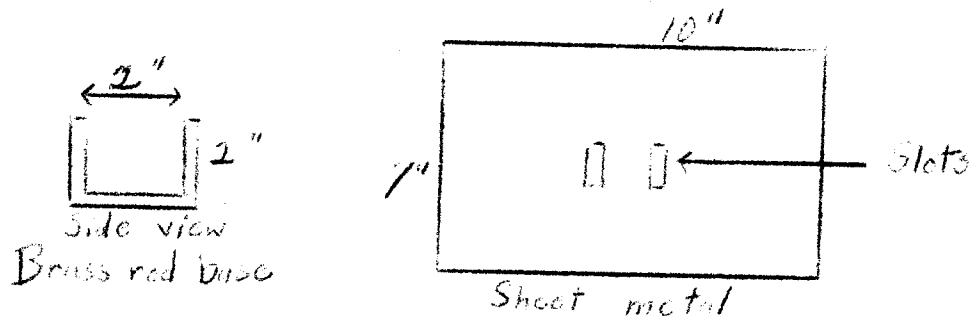
Sheet metal

The sheet metal base was flexible resulting in an accurate reading

on uneven rocky ground as well as on the unstable silt soils in the

basin.

Level rod

Flexible metal base
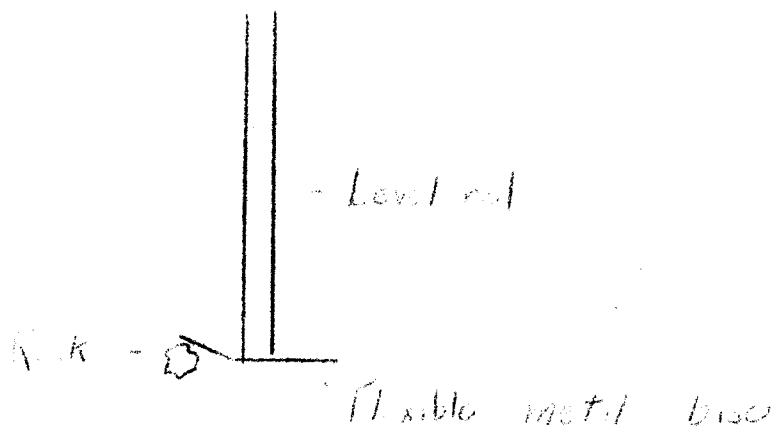
Instrument location -- The best location for the level is as shown below.

Stream

Level transects

Dam
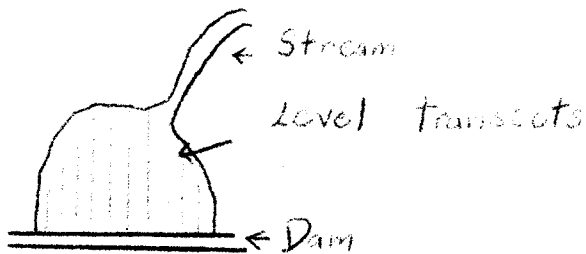
By placing the level to the side, unnecessary focusing is avoided.
The level must be at least nine feet from the nearest desired reading
as it will focus at no distance less than nine feet.

E. Calculations

The purpose of this calculation is to show the annual sediment accumulation in the catchment basin.

Method -- The sum of all rod readings greater than the reading
taken at the water surface is divided by the total number of readings
to give the average reading. The average reading minus the reading
taken at the water surface equals the average depth of the basin:

$$\left(\frac{\le \text{of all readings greater than reading at water surface}}{\text{number of readings}}\right) - \left(\begin{array}{l}\text{reading} \\ \text{(at water} \\ \text{surface)}\end{array}\right) = \begin{array}{l}\text{av. depth} \\ \text{of basin.}\end{array}$$

The surface in square feet is taken from the scale drawing of the basin.

In the future the difference between the present average depth and the
average depth of a later year multiplied by the surface area will equal
the sediment accumulation in cubic feet. The same surface elevation
must be used:

(area of water surface in sq. ft.) x (1956 av. depth - 1957 av. depth)=
the volume sediment accumulation in cubic feet for the water year.

Original maps and field sheets are enclosed in the Andrews copy of
this report. In case of loss, duplicates are being made for the
Willamette Research Center copy.

Watershed No One
Catchment Basin Map
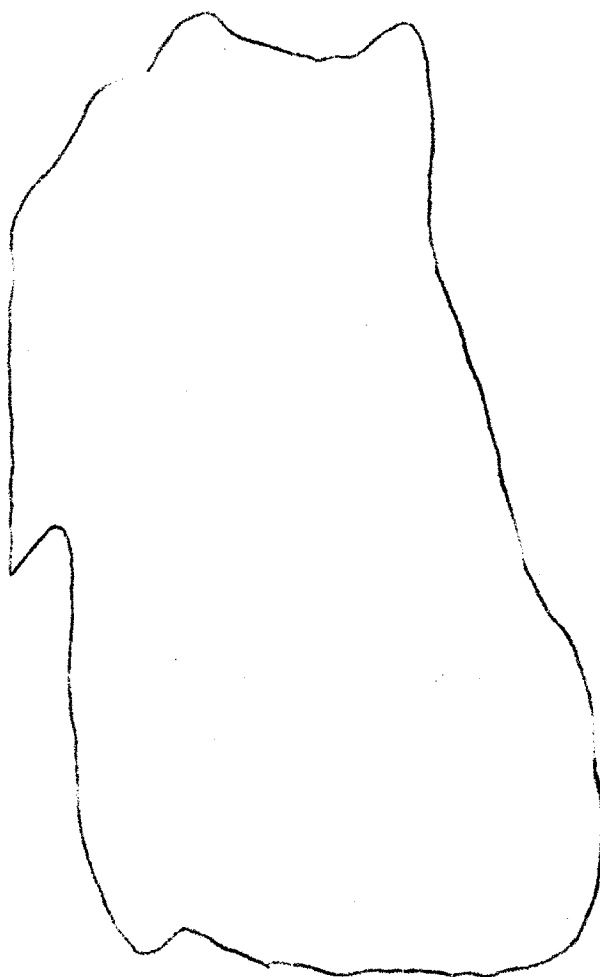
0+78

0+72

0+66

0+60

0+54

0+48

0+42

0+36

0+30

0+24

0+18

0+12

0+06

0+00

14 13 12 11 10 9 8 7 6 5 4 3 2 1
0+42 0+36 0+30 0+24 0+18 0+12 0+06 0+00

Scale 1" = 12'
Sept. 19, 1956
R.E. Graber

Stream I

← Mag North

27'

Secondary Stake #3

Secondary Stake #4

12'

Sediment Catchment Basin

Stream bearing due West

75.00'

Outlet

6'

base line

Stake #2

43.27'

Stake #1
Main Control Stake

Magnetic bearing from stake #1 to Tsuga
N 8° W

Tsuga heterophylla
d.b.h. 17"

SOIL STABILIZATION

Watersheds

Benchmark: **100.00'**

H.I. **4.60**

Elev. **107.80**

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

Experimental Area: **H. J. Andrews E. F.**

Basin Location: **Stream I**

FORM RI-2

Date: **Sept. 5, 1956**

Party: Level **Graber**

Rod **Allison**

Notes **Graber**

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
Benchmark			112.40											
Instrument height			4.60											
			107.80 - elevation at instrument											
			Lowest pt. in bed of outlet -- 107.80 - 4.13 = 103.67 ft.											

distance in feet of the line from 0+00 base stake at south end of dam.

LINE 1		3 ft.	LINE 2		6 ft.	LINE 3		9 ft.	LINE 4		12 ft.
Station			Station			Station			Station		
0+06	2.40		0+06	2.86		0+06	3.09		0+06	2.67	
0+09	3.74		0+09	4.87		0+09	5.18		0+09	5.27	
0+12	5.54		0+12	6.91		0+12	7.29		0+12	7.35	
0+15	5.07		0+15	8.06		0+15	9.15		0+15	8.77	
0+18	5.30		0+18	7.91		0+18	9.96		0+18	10.23	
0+21	5.66		0+21	6.76		0+21	9.50		0+21	9.54	
0+24	6.07		0+24	6.99		0+24	9.44		0+24	9.79	
0+27	5.23		0+27	6.58		0+27	9.08		0+27	9.37	
0+30	4.18		0+30	6.40		0+30	9.37		0+30	8.81	
0+33	2.12		0+33	5.80		0+33	7.58		0+33	8.57	
			0+36	3.54		0+36	7.36		0+36	8.27	
						0+39	6.32		0+39	7.88	
						0+42	4.78		0+42	7.51	
				96.76		0+45	4.79		0+45	6.98	
						0+48	3.91		0+48	6.13	
						0+51	3.78		0+51	5.19	
						0+54	2.86		0+54	5.54	
									0+57	3.40	
							99.69		0+60	2.98	
									0+63	3.50	
									0+66	3.97	
									0+69	3.89	
									0+72	3.62	
										125.00	
Total											
Average											

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds
    Benchmark: **100.00'**
      H.I.   **4.60**
      Elev. **107.80**

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

Experimental Area: **M. J. Andrews E. F.**
Basin Location: **Stream I**

Date: **Sept. 5, 1956**
Party: Level **Graber**
      Rod   **Allison**
      Notes **Graber**

Transects (Designated in ft. starting at crest of dam)

Station*	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.

LINE 5	15 ft.		LINE 6	18 ft.		LINE 7	21 ft.		LINE 8	24 ft.
Station	Elev		Station	Elev		Station	Elev		Station	Elev
0+05	2.68		0+06	2.90		0+06	2.90		0+06	2.76
0+09	4.80		0+09	4.93		0+09	4.60			4.41
0+12	7.30		0+12	7.1		0+12	7.12			6.39
0+15	8.91		0+15	8.7		0+15	8.23			8.09
0+18	9.72		0+18	9.8		0+18	10.40			10.27
0+21	10.27		0+21	10.7		0+21	10.31			10.71
0+24	9.71		0+24	10.0		0+24	9.58			9.49
0+27	9.65		0+27	9.7		0+27	9.73			10.10
0+30	9.03		0+30	9.5		0+30	9.55			9.53
0+33	8.60		0+33	9.1		0+33	9.16			9.18
0+36	8.34		0+36	9.01		0+36	8.93			8.92
0+39	8.04		0+39	8.6		0+39	8.45			8.92
0+42	7.51		0+42	8.3		0+42	8.17			8.22
0+45	7.10		0+45	7.3		0+45	7.76			7.69
0+48	6.98		0+48	7.1		0+48	7.44			7.51
0+51	6.75		0+51	6.7		0+51	7.05			7.05
0+54	6.29		0+54	6.39		0+54	6.71			6.76
0+57	5.79		0+57	5.8		0+57	6.57			6.64
0+60	5.68		0+60	5.6		0+60	6.00			5.93
0+63	5.47		0+63	5.5		0+63	5.55			5.78
0+66	5.40		0+66	5.10		0+66	5.22			5.43
0+69	4.69		0+69	4.66		0+69	4.65			5.14
0+72	4.32		0+72	3.91		0+72	3.87			4.18
0+75	3.79		0+75	3.69		0+75	3.25			3.86
	160.35			159.75			161.18			161.76

Total
Average

*Numbered to right starting with O at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

FORM RI-2

Benchmark: **100.00'**
H.I. **4.60**
Elev. **107.80**

Experimental Area: **H. J. Andrews E. F.**
Basin Location: **Stream I**

Date:
Party: **April 5, 1956**
Rod **Graber**
Notes **Allison**
Graber

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
			Water level = 4.13 = reading on bed of outlet											
			Elevation of water surface = 107.80 x 4.13											
						= 103.67 feet								
LINE 9		27 ft.	LINE 10		30 ft.	LINE 11		33 ft.						
Station			Station			Station								
0+07	2.31		0+07		2.53	0+09		2.77						
0+09	3.78				3.23			4.03						
0+12	5.81				4.78			6.55						
0+15	7.63				6.91			8.60						
0+18	9.00				8.20			8.39						
0+21	10.12				9.85			7.91						
0+24	9.75				9.62			8.05						
0+27	10.00				9.82			7.78						
0+30	9.67				9.52			7.48						
0+33	9.12				9.65			7.56						
0+36	9.04				8.51			7.22						
0+39	8.73				8.10			7.44						
0+42	8.44				8.01			6.68						
0+45	7.79				7.71			5.86						
0+48	7.55				7.36			6.15						
0+51	7.14				6.84			5.96						
0+54	6.74				6.19			5.76						
0+57	6.22				5.88			5.36						
0+60	6.02				5.83			5.26						
0+63	5.65				5.74			5.41						
0+66	5.55				5.34			5.11						
0+69	5.14				5.13			4.44						
0+72	4.38				4.72			3.64						
0+75	3.60				3.64									
	159.79				153.79			132.92						
	159.79				153.79			124.42						
			21											
Total														
Average														

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark: 100.00'
H.I.   4.61
Elev.   107.80

Experimental Area: **H. J. Andrews E. F.**
Basin Location: _____**Stream I**_____

Date: **Sept. 6, 1956**
Party: Level **Graber**
Rod **Allison**
Notes **Notes**

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
		12.41 * reading on bench mark				112.41								
						-4.61								
						107.80								
L I N E 12			L I N E 13			L I N E 14								
Station			Station			Station								
0+11	2.61		0+12		1.86	0+00		2.47						
0+15	4.62				2.55	0+27		2.41						
0+18	5.60				3.81	0+30		2.98						
0+21	5.19				3.40	0+33		3.86						
0+24	5.51				2.98	0+36		4.23						
0+27	5.15				2.82	0+39		4.78						
0+30	5.14				2.32	0+42		4.86						
0+33	5.18				3.28	0+45		4.54						
0+36	5.05				3.16	0+48		4.57						
0+39	4.75				4.21	0+51		4.43						
0+42	5.11				4.50	0+54		4.57						
0+45	4.85				5.07	0+57		4.43						
0+48	5.24				5.15	0+60		3.94						
0+51	5.50				4.81	0+63		3.02						
0+54	5.16				5.11	0+66		1.48						
0+57	5.23				5.16									
0+60	5.25				4.78									
0+63	5.14				4.22									
0+66	5.29				3.79									
0+69	4.00				2.77									
0+72	2.81				1.56									
0+75	2.13													
	93.46				43.10			56.43						
	α													
	Reading on bed of outlet = 4.13 = water level													
	Sum of 228 reading greater than 4.13 = 1584.11													
	Average reading greater than 4.13 = 6.947 or 6.95													
	Average depth of basin = 6.95 - 4.13 = 2.82													
	Surface area of basin = 222 x 9 = 1998 sq. ft.													

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

Watershed No. Two

Catchment Basin Map

	0+60
	0+54
	0+48
	0+42
	0+36
	0+30
	0+24
	0+18
	0+12
	0+06
	0+00

18 | 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

0+54   0+48   0+42   0+36   0+30   0+24   0+18   0+12   0+06   0+00

Scale 1" = 12'
Sept. 27, 1956
R.E. Graber

Stream II

Stream

Mag. North

6'

27'

Stream bearing N 57° W

57'

Outlet

Stake #2

Base Stake No. 1

54'
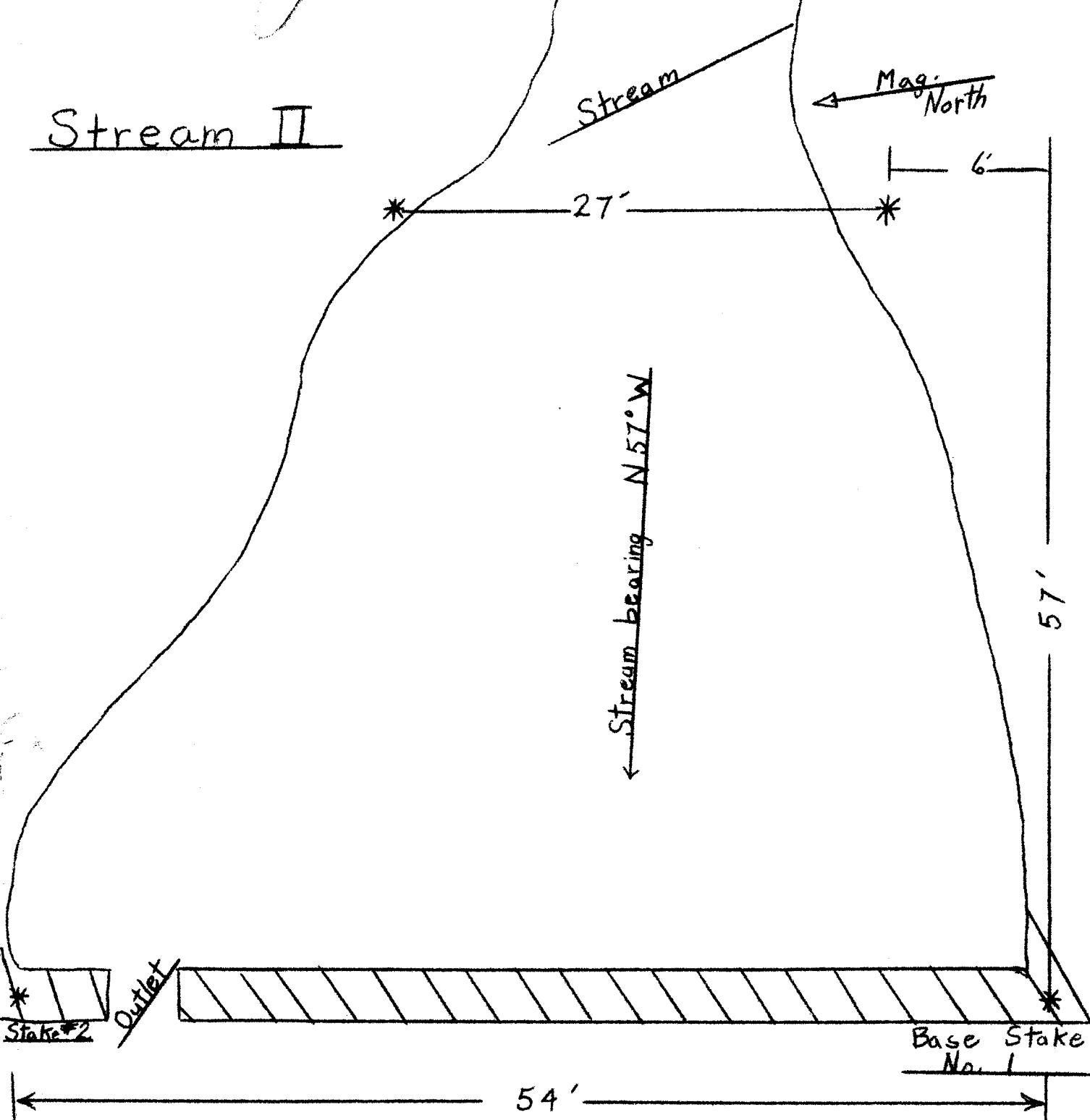
Magnetic bearing from stake #1 to Tsuga
N 5° E

Tsuga heterophylla (dbh 17")

RI - NW
SOIL STABILIZATION
Watersheds
   Benchmark: **8.10**
    H.I. **4.66**
    Elev. **103.44**

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

FORM RI-2

Date: **Sept. 6, 1956**
Party: Level **Graber**
Rod **Allison**
Notes **Graber**

Experimental Area: **H. J. Andrews**
Basin Location: **Stream II**

Benchmark elevation = 100.00'
Rod reading = +8.10
B.M. elev. = 100.00
108.10
H. I. = -4.66
103.44'

Station	LINE 1 (0 ft.) H.I.	LINE 2 (3 ft.) Elev.	LINE 3 (6 ft.) Elev.	LINE 4 (9 ft.) Elev.
0+00	3.76	3.55	3.61	4.10
0+03	3.74	4.10	4.50	5.39
0+06	4.25	5.04	6.06	7.16
0+09	4.29	5.34	6.74	7.48
0+12	4.14	5.29	6.97	7.47
0+15	4.31	5.74	7.08	7.43
0+18	4.80	5.83	7.18	7.34
0+21	4.55	6.19	7.16	7.41
0+24	4.43	7.38	7.74	7.77
0+27	3.91	8.16	7.78	7.91
0+30	2.68	7.95	7.71	8.60
0+33	2.35	8.05	7.89	7.81
0+36	1.20	6.01	7.78	8.08
0+39	0.28	4.78	7.81	7.64
0+42		4.63	7.16	7.74
0+45			7.35	7.34
0+48			5.77	7.17
0+51			4.86	6.55
0+54			4.40	5.10
0+57			3.09	4.95
		43.68	102.61	119.84

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI – NW
SOIL STABILIZATION
Watersheds
   Benchmark:
      H.I.   4.66
      Elev. 103.44

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

FORM RI-2

Experimental Area: H. J. Andrews E. F.
Basin Location: Stream II
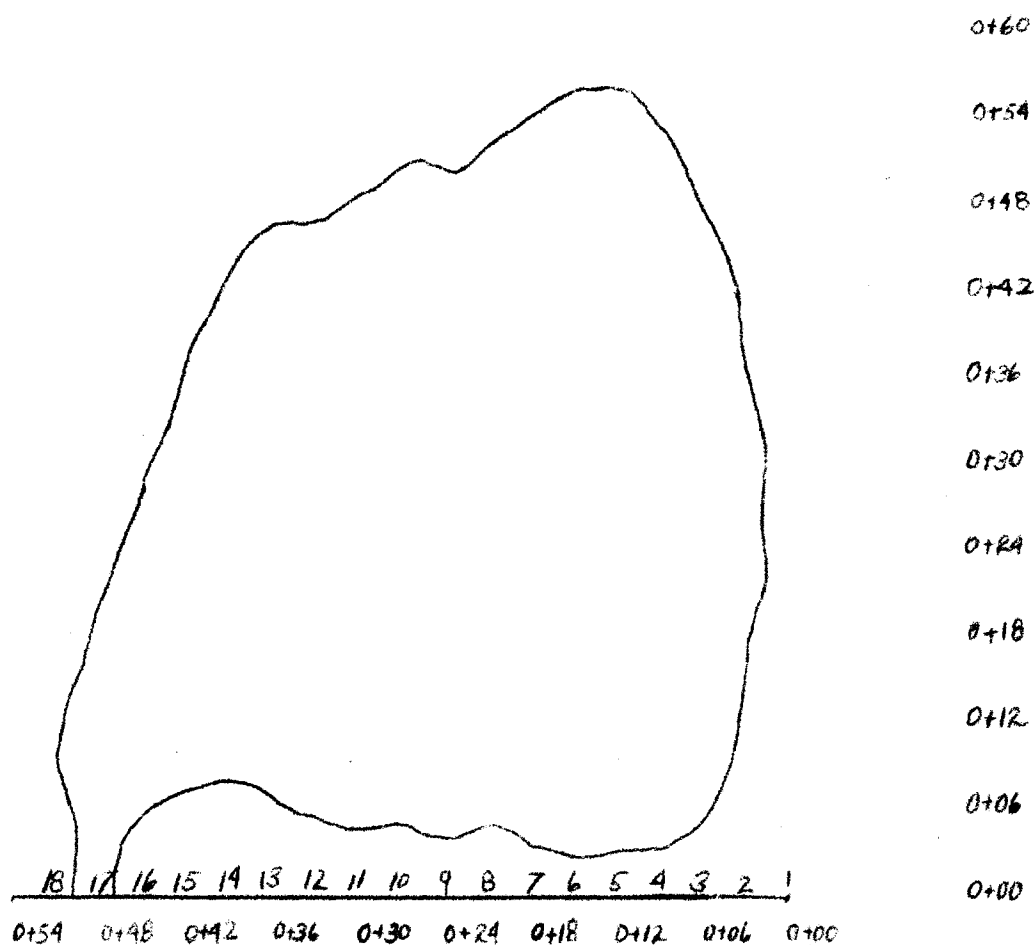
Date: Sept. 6, 1956
Party: Level Graber
      Rod Allison
      Notes Graber

Transects (Designated in ft. starting at crest of dam)

Station*	H.I. (LINE 5)	Elev.	H.I. (LINE 6)	Elev.	H.I. (LINE 7)	Elev.	H.I. (LINE 8)	Elev.
0+00	4.84		4.15		3.91		3.82	
0+03	5.74		5.89		5.54		4.84	
0+06	6.81		7.12		6.50		6.13	
0+09	7.43		7.10		7.26		7.22	
0+12	7.48		7.43		7.44		7.34	
0+15	7.48		7.62		7.66		7.48	
0+18	7.59		7.48		7.63		7.60	
0+21	7.68		7.59		7.65		7.64	
0+24	8.00		7.61		7.64		7.76	
0+27	7.69		7.78		7.76		7.78	
0+30	8.51		7.88		7.84		7.82	
0+33	7.76		7.86		7.72		7.87	
0+36	7.98		7.78		7.87		8.15	
0+39	7.78		7.77		7.78		7.71	
0+42	7.56		7.95		7.69		7.56	
0+45	7.56		7.81		7.43		7.43	
0+48	7.31		7.26		6.80		6.80	
0+51	6.98		6.44		6.36		6.01	
0+54	6.19		6.11		5.79		5.65	
0+57	5.56		5.72		5.45		5.07	
	127.92		126.94		119.03		118.30	

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds
   Benchmark:

H.I.	4.66
Elev.	103.44

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

Experimental Area: **H. J. Andrews E. F.**
Basin Location: **Stream II**

FORM RI-2

Date: **Sept. 6, 1956**
Party: Level **Graber**
   Rod **Allison**
   Notes **Graber**

Transects (Designated in ft. starting at crest of dam)

Station*	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
	LINE 9		LINE 10		LINE 11		LINE 12							
Station			Station		Station		Station							
0+00	3.73			3.64			4.07						3.36	
0+03	5.21			4.61			5.04						4.10	
0+06	6.74			6.23			6.33						5.98	
0+09	7.18			7.15			6.89						6.58	
0+12	7.18			7.18			7.58						6.99	
0+15	7.53			7.55			7.50						7.05	
0+18	7.64			7.61			7.58						7.10	
0+21	7.72			7.63			7.57						7.54	
0+24	7.53			7.76			7.61						7.65	
0+27	7.59			7.80			7.76						7.64	
0+30	7.60			7.64			7.74						7.59	
0+33	7.64			7.79			7.58						7.51	
0+36	7.71			7.76			7.51						7.13	
0+39	7.67			8.04			7.51						7.31	
0+42	7.68			7.65			7.05						6.83	
0+45	7.10			6.98			6.67						6.22	
0+48	6.35			6.31			6.01						5.65	
0+51	5.68			5.81			5.38						5.83	
0+54	5.36			5.47			4.86						4.16	
0+57	5.18			4.67			4.58						3.55	
	111.48			110.98			108.83						99.76	
	LINE 13		LINE 14		LINE 15		LINE 16							
Station			Station		Station		Station							
0+00	3.35			3.77			4.80						5.34	
0+03	3.80			4.14			4.68						5.46	
0+06	5.40			4.78			5.64						6.06	
0+09	6.33			6.59			6.09						6.68	
0+12	6.91			6.66			6.57						6.71	
0+15	7.07			6.65			6.95						5.91	
0+18	7.15			7.22			6.66						5.97	
0+21	7.24			7.36			6.43						6.33	
0+24	7.56			7.12			6.54						6.25	
0+27	7.57			7.28			6.79						6.06	
0+30	7.47			7.40			6.80						5.68	
0+33	7.54			7.15			6.68						4.67	
0+36	7.33			6.68			6.33							
0+39	7.04			6.27			5.64							
0+42	6.50			6.12										
0+45	6.09			5.50										
0+48	5.58			4.62										
0+51	3.81													
	91.80			82.95			65.84						49.97	
Total														
Average														

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

SOIL STABILIZATION   IN CATCHMENT BASINS

Watersheds

     Benchmark:

         H.I.   4.66   Experimental Area: **H. J. Andrews**

         Elev.   103.44   Basin Location: **Stream II**

Date: **Sept. 6, 1956**

Party: Level **Graber**

          Rod   **Allison**

          Notes **Graber**

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
	L I N E	17	L I N E	16										
Station			Station											
0+00	5.98			5.19										
0+03	6.16			5.07										
0+06	6.15			4.76										
0+09	5.92			5.81										
0+12	5.99			5.78										
0+15	6.01			5.44										
0+18	6.05			4.59										
0+21	5.68			4.91										
0+24	4.84													
	42.26													
	This													
	line													
	in													
	outlet													
	Lowest point in outlet - rod reading = 5.84'													
				elevation = 108.10 - 5.84 = 102.26'										
	Reading at outlet = 5.84' =													
	Sum of 213 readings greater than 5.84 = 1522.19													
	Average readings greater than 5.84 = 7.146 or 7.15'													
	Average depth of basin = 7.15' - 5.84' = 1.31'													
	Surface area of basin = 210 x 9 = 1890 sq. ft.													
Total														
Average														

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

Watershed No. Three

Catchment Basin Map

0+54

0+48

0+42

0+36

0+30

0+24

0+16

0+12

0+06

0+00

0+48 0+42 0+36 0+30 0+24 0+18 0+12 0+06 0+00

Scale 1" = 12'
Sept 27, 1956
R.E. Graber

Stream III

Magnetic North

Tsuga heterophulla
dbh 12"

9'   Secondary Base Line   33'   3'

Magnetic bearing from Nail to Tsuga   N 24° E

Line 10

Line 11

Line 12

6'

33'

Spillway

Base

Wooden

LIVE

Dam

Nail #2

Nail No. 1
Main Control

45.00'

RI - NW
SOIL STABILIZATION
Watersheds
   Benchmark: 100.00
    H.I. 4.26
    Elev. 91.30

**ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS**
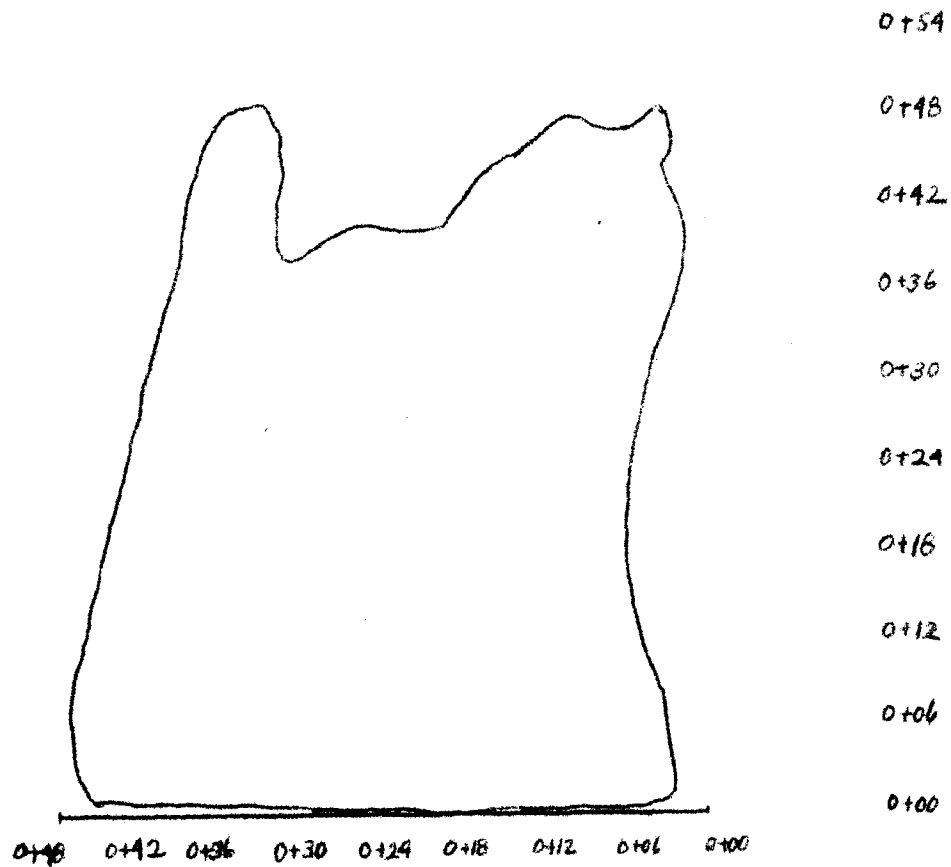
Experimental Area: _HJ Andrews_
Basin Location: _Stream_

FORM RI-2

Date: _Dec 10, 1956_
Party: Level _Gr..._
    Rod _Rafferty_
    Notes _Gr..._

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
	Benchmark – railroad spike in hemlock – assumed elevation 100.00													
	elevation at inst. = 100.00 – 8.70 = 91.30'													
	Elevation of Ins. 91.30' + 4.26 = 95.56'													
	LINE 1			LINE 2			LINE 3			LINE 4					12 ft
Station				4.95										
0+03	4.16													
0+0	4.23			6.									3.1	
	3.93			6.72										
0+1	2.43													4
0+1	3.65												3.1	
0+1	0.85			4.09									3.15	
0+2														
0+24														
0+27	3.59			6.29										
0+30	3.16													
0+3	3.79												7.04	
0+3	3.94												6.51	
0+3	4.75			5.40										
0+	5.63													
0+	3.97													
0+4														
0+5	3.04								1.25					
	Σ 30.99	7		Σ 84.83	15		Σ 109.39			Σ 111.97	15			

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark: 100.00
H.I.   4.26
Elev. 91.30

Experimental Area: **H. J. Andrews**
Basin Location: **Stream III**

Date: **Sept. 10, 1956**
Party: Level **Graber**
Rod **Rafferty**
Notes **Graber**

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
	LINE 5		**LINE 6**				**LINE 7**				**LINE 8**			
Station		18 ft.Station			18 ft.Station			21 ft.Station						
0+03	7.73			6.13				6.25				6.25		
0+06	8.30			8.41				8.34				8.33		
0+09	8.16			8.13				8.45				8.47		
0+12	8.47			8.30				8.18				8.71		
0+15	8.48			7.92				8.10				8.54		
0+18	8.36			7.94				8.18				8.52		
0+21	8.28			8.34				8.43				8.46		
0+24	8.23			8.12				8.33				8.06		
0+27	8.09			7.98				7.84				7.72		
0+30	8.04			7.50				7.56				7.21		
0+33	7.10			6.56				6.59				6.58		
0+36	6.30			5.78				5.87				4.58		
0+39	5.84			4.18				4.28				4.16		
0+42	4.87			3.79				3.58						
0+45	3.68													
0+48	2.07													
	106.49			95.89				95.80				91.00		

Total
Average
*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI - NW
SOIL STABILIZATION
Watersheds
    Benchmark: **100.00'**
      H.I.   4.26
      Elev. 91.30

ELEVATIONS OF SEDIMENT ACCUMULATED IN CATCHMENT BASINS

Experimental Area: **H. J. Andrews E. F.**
Basin Location: **Stream III**

Date: **Sept. 10, 1956**
Party: Level **Graber**
      Rod **Rafferty**
      Notes **Graber**

Transects (Designated in ft. starting at crest of dam)

Station*	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.

	LINE 9		LINE 10		LINE 11		LINE 12	
Station	27 ft.	Station		30 ft.	Station		33 ft.	Station		36 ft.
0+03	5.89			6.10		6.14		4.81
0+06	8.37			8.42		8.31		7.93
0+09	8.62			8.50		8.33		8.09
0+12	9.13			9.19		8.79		7.89
0+15	8.85			8.79		8.55		7.30
0+18	8.52			8.42		8.26		6.54
0+21	8.04			8.18		7.71		6.06
0+24	8.07			7.39		7.45		5.88
0+27	7.38			6.86		6.38		5.45
0+30	6.17			4.68		5.98		5.68
0+33	5.64			4.06		6.06		5.73
0+36	4.65			5.10		5.96		4.81
0+39				4.06		5.74		3.96
0+42				5.11		5.33		
0+45				4.86		4.68		
0+48				4.20		4.14		
0+51				3.45				
	89.63			105.17		107.96		79.49

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.

RI – NW
SOIL STABILIZATION
Watersheds

ELEVATIONS OF SEDIMENT ACCUMULATED
IN CATCHMENT BASINS

FORM RI-2

Benchmark: 100.00'
H.I. 4.26
Elev. 91.30

Experimental Area: H. J. Andrews E. F.
Basin Location: ___Stream III___

Date: September 10,1956
Party: Level Graber
Rod Rafferty
Notes Graber

Station*	Transects (Designated in ft. starting at crest of dam)													
	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.	H.I.	Elev.
	LINE 13		LINE 14		LINE 15									
Station		30 ft.	Station		42 ft.	Station		45 ft.						
0+03	5.00				4.70				3.16					
0+06	6.66				5.42				3.32					
0+09	7.30				5.83				2.56					
0+12	7.18				5.94									
0+15	6.81				5.11									
0+18	6.00													
0+21	5.41													
0+24	4.64													
0+27	4.60													
	53.40				27.00									

Spillway elevations 3.85 left
3.97 center
3.98 right

11.83
average 3.94

Water level 3.94 – 95.56 = 91.62 ft.

Sum of 177 readings greater than 3.94 = 1189.03

Average readings greater than 3.94 = 6.717 or 6.72

Surface area of the basin = 177 x 9 = 1593 sq. ft.

Total
Average

*Numbered to right starting with 0 at borderline which extends upstream from left end of dam.