Figure 2-1 Sheet 1 of 6

FIGURE 2-1

Engineering Notes for Pond Dam

Design and Construction Layout Survey

These notes are for a small pond dam that was designed and staked for construction during one trip to the field. The design survey and the construction layout survey were combined in one operation.

A reference hub was set at spillway elevation and the following information was given to the landowner for use by him and the contractor:

1. Total fill height (design height plus allowance for settlement) at each station as measured form the reference hub.

2. Spillway dimensions and its elevation in relation to the reference hub.

3. Top width of fill.

4. Side slopes of fill.

5. Standard specifications for site preparation and placement of fill.

Soil investigations and fill volume computations were made and recorded in accordance with State procedures.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCD Clear River — Date 2/26/74

Field Office Rayville

Name W. F. Jones

Individual Group Unit of Govt. (circle one)

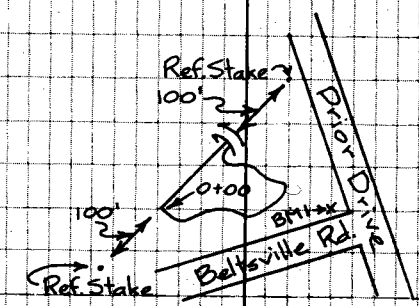
Job Pond

Design Sur. ✓ — Const. Layout ✓

Const. Check — Other

Ident. No. 42-010-718 — Field No. 3

Location 3 mi. West of Beltsville



SCS-ENG-28A REV. 8-75

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.	Settlement ±10% ℄ H.
BM1	2.80	102.80		100.00	
0+00			+0.8	102.0	
0+85			+0.8	102.0	0.5
1+00			+0.8	102.0	0.9
1+35			+0.8	102.0	0.8
2+00			+0.8	102.0	0.5
2+45			+0.8	102.0	0.2

SCS-ENG-29 (5-70)

GPO : 1970 O—385-053

W.F. Jones Pond
Design & Const. Layout

J. Gibbs
K. Hill 2/26/74

1

Design Data

D.A. 8.0 ac. Q=18 (ES-1027)
Elev. top dam = 102.0 top width = 8.0'
Earth spillway 10.0' × 2.0 2:1 S.S.
Spillway elev. 100.0
Add 10% to ℄ H for settlement

Left ℄ (downstream) 2:1	Right ℄ (upstream) 3:1
F=0.0, 0.8, 4.0	F=0.0, 0.8, 0.0
F=6.6, 6.4, 15.2	F=5.0, 5.8, 0.0
F=9.2, 10.0, 22.4	F=9.1, 9.9, 0.0
F=8.8, 9.6, 21.6	F=7.9, 8.7, 0.0
F=4.8, 5.6, 13.6	F=4.7, 5.5, 0.0
F=3.3, 4.1, 10.6	F=2.0, 2.8, 0.0

20d nail in root of 12" maple in fence corner 200' E. of S. end of dam.

Right ℄ (upstream)
F=0.0, 0.8, 4.0
F=4.2, 5.0, 16.6
F=8.2, 9.0, 28.6
F=7.2, 8.0, 25.6
F=2.4, 3.2, 11.2
F=1.0, 1.8, 7.0

Figure 2-1 Sheet 2 of 6

Figure 2-1 Sheet 3 of 6

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.	Settlement = 10% ℄ H.
		102.80			
2+50	End Fill		0.8	102.0	0.0
2+61	Spillway ℄		2.8	100.0	
	Slope Stakes - Spillway				
0+00			2.8	100.0	
0+12			2.8	100.0	℄ Dam Sta. 2+61 @ 90°
0+25			2.8	100.0	
TBM1			2.81	99.99	OK.

1976—0-200-611

W.F. Jones Pond
Design & Const. Layout

2

Left		Right
F=0.0 0.8 4.0	F=0.0 0.8	F=0.0 0.8 4.0
	C=2.3 0.5	

Left 2:1	℄	Right 2:1
C=0.0 2.8 5.0	C=0.0 2.8	C=0.0 2.8 5.0
C=2.2 0.6 9.4	C=2.3 0.5	C=2.5 0.3 10.0
C=0.0 2.8 5.0	C=0.0 2.8	C=0.1 2.7 5.2

(Spillway stationing is downstream)

FIGURE 1

Engineering Notes for Pond Dam

Construction Check Survey

To expedite the construction check survey, the following information was taken from the plans and listed in the field notebook where it would be convenient for reference: (This was done before any survey work was started.)

Sta.	Planned Elev.	Planned Elev. + 10% of ℄ Height
0 + 00	102.0	
0 + 85	102.0	102.5
1 + 35	102.0	102.8
2 + 00	102.0	102.5
2 + 45	102.0	102.2
2 + 50	102.0	
2 + 51.6	102.2	
2 + 56	100.0	
2 + 61	100.0	
2 + 66	100.0	
2 + 71	102.5	

The constructed fill was uniform in appearance, therefore, only ane cross section was taken.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCD Clear River Date 3/5/74
Field Office Rayville
Name W.F. Jones
Individual Group Unit of Govt.
(circle one)
Job Pond
Design Sur. Const. Layout
Const. Check ✓ Other
Ident. No. 42-010-718 Field No. 3
Location 3 mi. W. of Beltsville. N

SCS-ENG-28A REV. 5-75

Figure 2-1 Sheet 4 of 6

Figure 2-1 Sheet 5 of 6

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.	Planned Elev. + 10% ℄ H.
BM1	3.81	103.81		100.00	
0+00			+1.8		102.0
0+85			+1.3		102.5
1+35			+1.0		102.8
2+00			+1.3		102.5
2+45			+1.6		102.2
2+50	End Fill		+1.8		102.0
2+52	Edge Cut Spillway		+1.6	102.2	
2+57	Bottom Spillway		+3.8	100.0	
2+62	℄ Spillway		+3.8	100.0	
2+67	Bottom Spillway		+3.8	100.0	

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W.F. Jones Pond
Const. Check

J. Jones
℄ K. Hill 3/5/74 1

Left (downstream) 2:1 | ℄ | Right (upstream) 3:1

1.8
1.2
9.8 9.6 6.4 0.9 0.9 1.0 4.2 8.6 9.0
25.0 20.0 14.0 4.0 4.0 13.0 25.0 30.0
1.2
1.4
1.7
1.6
3.8
3.9
3.8

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.
		103.81		
2+72	Edge Spillway cut.		+1.3	102.5
TP	3.87	104.42	3.26	100.55
BM1			4.42	100.00
	7.68		7.68	OK.

Note: Normally rod readings are sufficient for checkout but complex or large dams may require a plotted section.

SCS-ENG-29 (5-70)

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W.F. Jones Pond
Const. Check

2

℄

1.3

Pond has 0.1 acre area at elev. 90.1 as determined with hand level and tape.

Fill and spillway not seeded. N.W. end of fill is rip-rapped with stone.

Construction meets plans and specifications except for seeding

F. Jones
Cons. Tech.
3/5/74

Figure 2-1 Sheet 6 of 6

Figure 2-2 Sheet 1 of 15

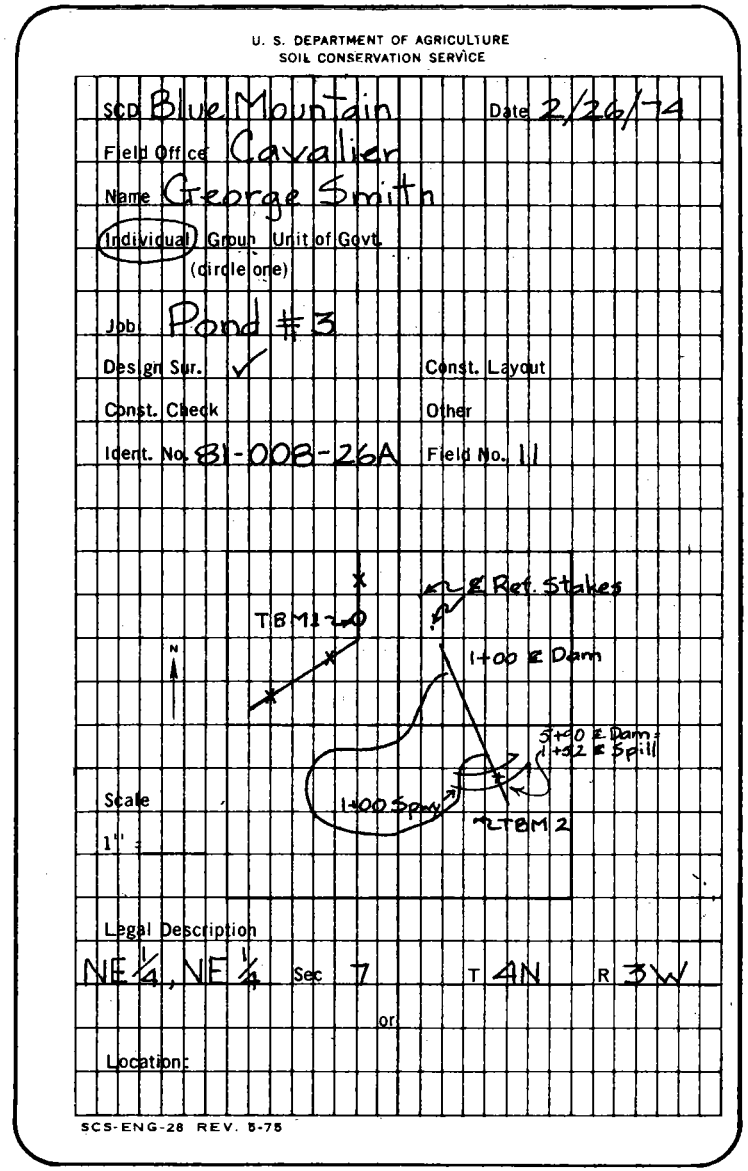
FIGURE 2-2

Engineering Notes for Pond Dam and Spillway

Design Survey

These notes illustrate a job where the design survey was made by a survey party and the plans and specifications prepared from the notes by an engineer.

Soil investigations and hydrologic studies were made and recorded in accordance with Service standards and procedures for the State.



Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.
BM1	6.71	106.71		100.00
1+00				
2+00				
2+39				
TP1	1.32	96.17 (96.2)	11.86	94.85
2+83				
3+00				
3+35				
4+00				
TP2	11.82	106.46 (106.5)	1.53	94.64
4+69				

SCS-ENG-29 (5-70)

GPO : 1970 O—385-053

Geo. Smith Pond #3 Design Survey Dam

⊼ J. Doe 1
ø R. Rowe 2/26/74

Left ℄ Right

1" steel axle in fence 200' N.W. of N.W. end of dam ℄

	105.8 / 0.9 / 15	105.9 / 0.8 / 0	105.9 / 0.8 / 15		
	105.5 / 1.2 / 15	105.5 / 1.2 / 0	105.6 / 1.1 / 15		
	94.8 / 11.9 / 29	95.1 / 11.6 / 0	95.8 / 10.9 / 13	98.2 / 8.5 / 23	98.9 / 7.8 / 46
92.2 / 4.0 / 36	91.4 / 4.8 / 19	93.5 / 2.7 / 0	95.3 / 0.9 / 15	94.6 / 1.6 / 27	94.4 / 1.8 / 49
87.7 / 8.5 / 68	85.3 / 10.9 / 31	88.0 / 8.2 / 0	87.7 / 8.5 / 17	88.6 / 7.6 / 40	88.9 / 7.3 / 80
84.3 / 11.9 / 60	86.2 / 10.0 / 20	85.0 / 11.2 / 0	87.4 / 8.8 / 20	85.9 / 10.3 / 42	86.7 / 9.5 / 80
93.5 / 2.7 / 45	95.9 / 0.3 / 15	94.3 / 1.9 / 0	94.6 / 1.6 / 15	96.0 / 0.2 / 46	95.4 / 0.8 / 70
95.3 / 11.2 / 40	95.8 / 10.7 / 30	96.0 / 10.5 / 0	96.3 / 10.2 / 35	96.7 / 9.8 / 50	

Figure 2-2 Sheet 2 of 15

Figure 2-2 Sheet 3 of 15

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.
		106.46		
5+00		(106.5)		
5+27				
5+50				
TP3	5.73	110.87	1.32	105.14
		(110.9)		
5+65				
5+72				
5+90				
6+00				
6+50				
BM2	0.33	110.34	0.86	110.01

SCS-ENG-29 (5-70) GPO : 1970 O—385-053

Geo. Smith Pond #3 Design Surv. Dam

2

Left			℄	Right		
96.3 / 0.2 / 35	96.8 / 9.7 / 25	100.1 / 6.4 / 10.0	97.4 / 9.1 / 0	95.4 / 11.1 / 15	98.1 / 8.4 / 35	99.3 / 7.2 / 60
	100.4 / 6.1 / 25	101.0 / 5.5 / 15	101.3 / 5.2 / 0	101.5 / 5.0 / 20	101.9 / 4.6 / 35	
	104.7 / 1.8 / 25	104.8 / 1.7 / 15	105.0 / 1.5 / 0	105.1 / 1.4 / 15	105.4 / 1.1 / 30	
			106.4 / 4.5 / 0			
			104.6 / 6.3 / 0			
			105.2 / 5.7 / 0			
			105.9 / 5.0 / 0			
			109.2 / 1.7 / 0			

Spike in base of lone elm.

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.
		110.34		
TP1	4.87	105.00	10.21	100.13
1+00	Starting Sta.			
TP2	9.60	110.95	3.65	101.35
		(110.9)		
1+40				
1+52 = Sta. 5+90 ℄ Dam				
2+00				
TP3	0.84	100.56	11.23	99.72
		(100.6)		
2+40				
2+56				
TP4	1.76	92.18	10.14	90.42

SCS-ENG-29 (5-70)

GPO : 1970 O—385-053

Geo. Smith Pond #3
Design Surv.
Emergency Spillway

3

Left			℄	Right	
		98.6 / 6.4 / 30	98.5 / 6.5 / 0	98.7 / 6.3 / 25	
108.9 / 2.0 / 35	108.6 / 2.3 / 15	105.0 / 5.9 / 9.0	104.0 / 6.9 / 0	104.7 / 6.2 / 9	105.2 / 5.7 / 31
	106.4 / 4.5 / 25	104.5 / 6.4 / 18	105.2 / 5.7 / 0	105.9 / 5.0 / 10	107.8 / 3.1 / 25
	103.6 / 7.3 / 30	101.6 / 9.3 / 12	100.3 / 10.6 / 0	101.0 / 9.9 / 15	103.9 / 7.0 / 30
	96.5 / 4.1 / 30	95.4 / 5.2 / 20	94.4 / 6.2 / 0	95.2 / 5.4 / 20	96.3 / 4.3 / 30
	94.4 / 6.2 / 32	93.2 / 7.4 / 15	92.9 / 7.7 / 0	93.1 / 7.5 / 15	94.2 / 6.4 / 30

Figure 2-2 Sheet 4 of 15

Figure 2-2 Sheet 5 of 15

Sta.	B.S.	H.I.	F.S. or Grade Rod	Elev. or Planned Elev.	
		92.18			
3+00		(92.2)			
3+42					
TP5	11.48	102.49	1.17	91.01	
BM1			2.51	99.98	
	54.46		54.48		
Correct elev. BM1 = 100.00					
		Diff. =		.02	OK.
Adjust elev. BM2 = .01				110.00	Adjusted
				J. Doe	

SCS-ENG-29 (5-70)

GPO : 1970 O-385-053

Geo. Smith Pond #3
Design Surv.
Emergency Spillway

4

Left		℄		Right
90.2	89.5	88.8	89.6	90.0
2.0	2.7	3.4	2.6	2.2
30	18	0	20	35
	85.5	85.0	85.3	
	6.7	7.2	6.9	
	32	0	30	

FIGURE 2-2

Engineering Notes for Pond Dam and Spillway

Construction Layout

To expedite the construction layout survey the following information was taken from the plans and listed in the field notebook.

1. Planned elevation of top of embankment at each station and the allowance for settlement. In this example, settled heights are shown. See Chapter 3 for an example using constructed heights.

2. Planned top width of embankment.

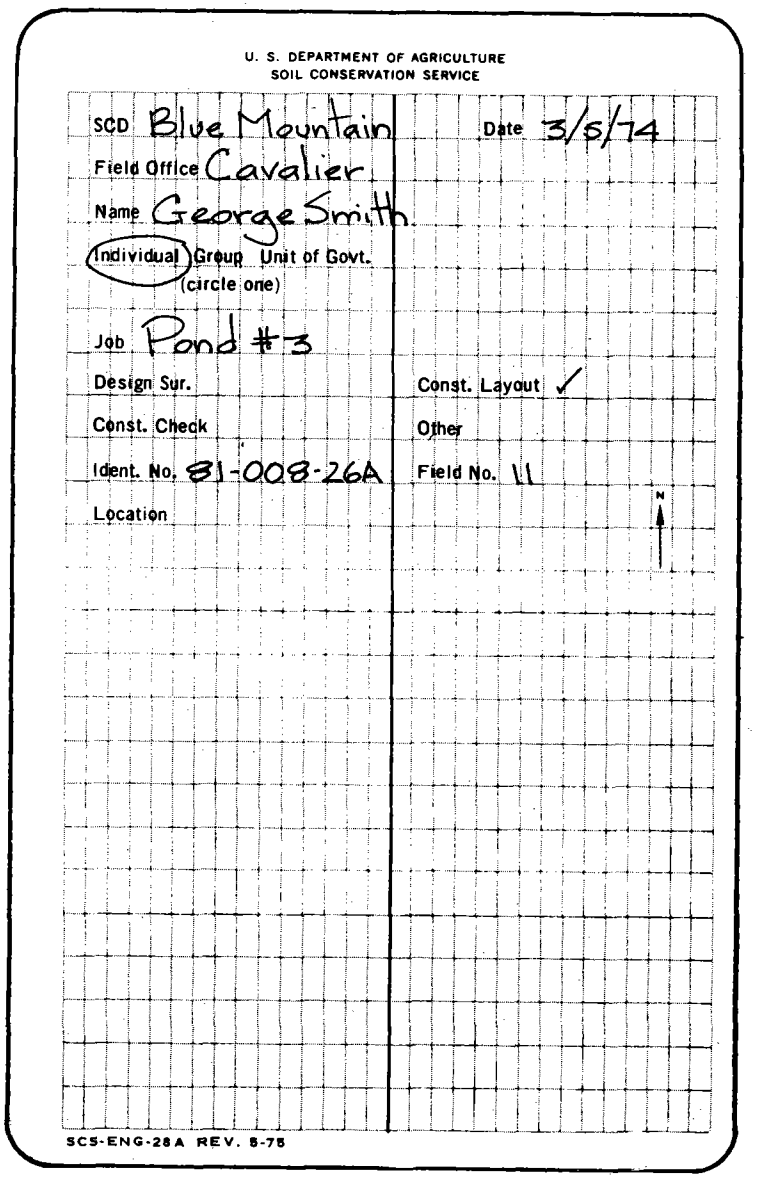
3. Planned elevation of bottom of excavation for the conduit at upper end, lower end, and intermediate points.

4. Planned elevation of emergency spillway at several points.

5. Dimensions of emergency spillway.

This information is also useful in construction check survey.

After the job was staked a reference hub was set at emergency spillway crest elevation so contractor could make preliminary checks for completion before calling on the Soil Conservation Service for final check-out.


U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCD Blue Mountain | Date 3/5/74
Field Office Cavalier
Name George Smith
Individual Group Unit of Govt.
(circle one)
Job Pond #3
Design Sur. | Const. Layout ✓
Const. Check | Other
Ident. No. 81-008-26A | Field No. 11
Location

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Figure 2-2 Sheet 6 of 15