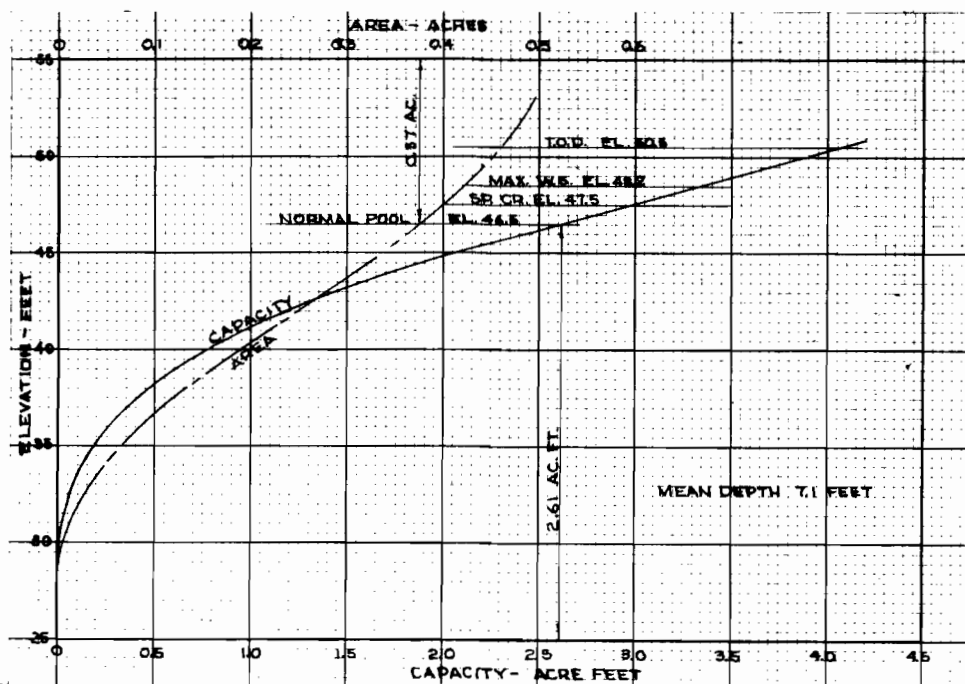
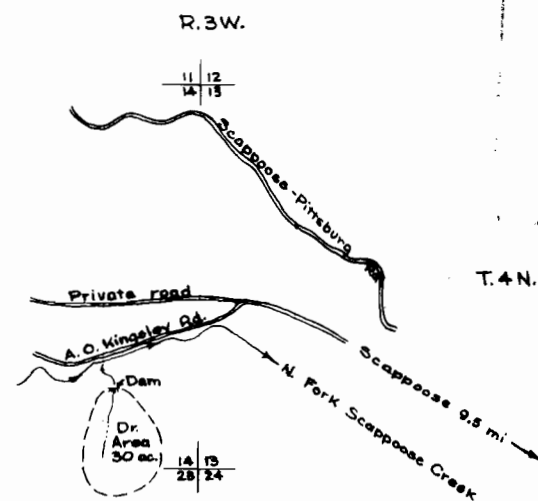


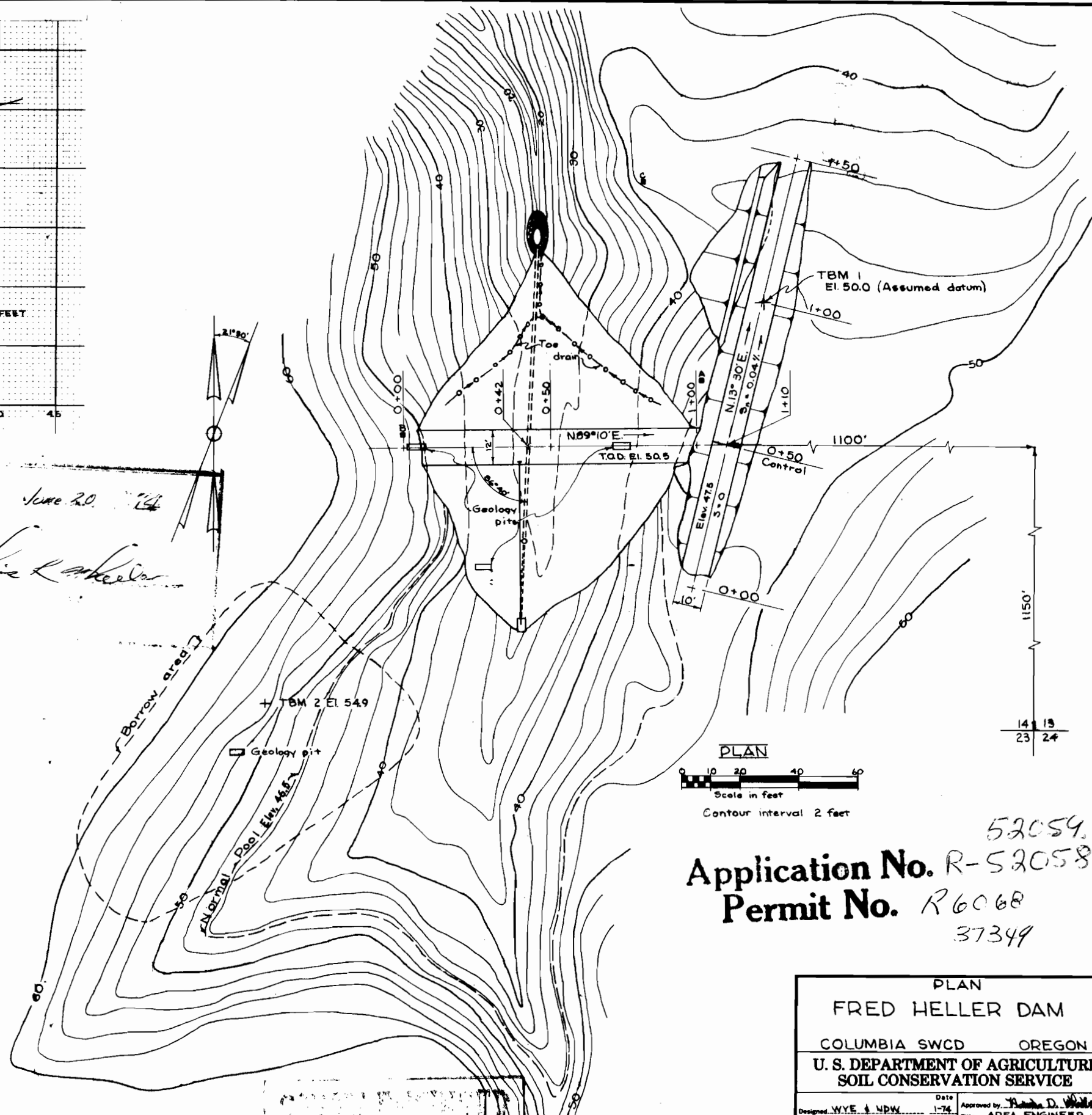


AREA-CAPACITY



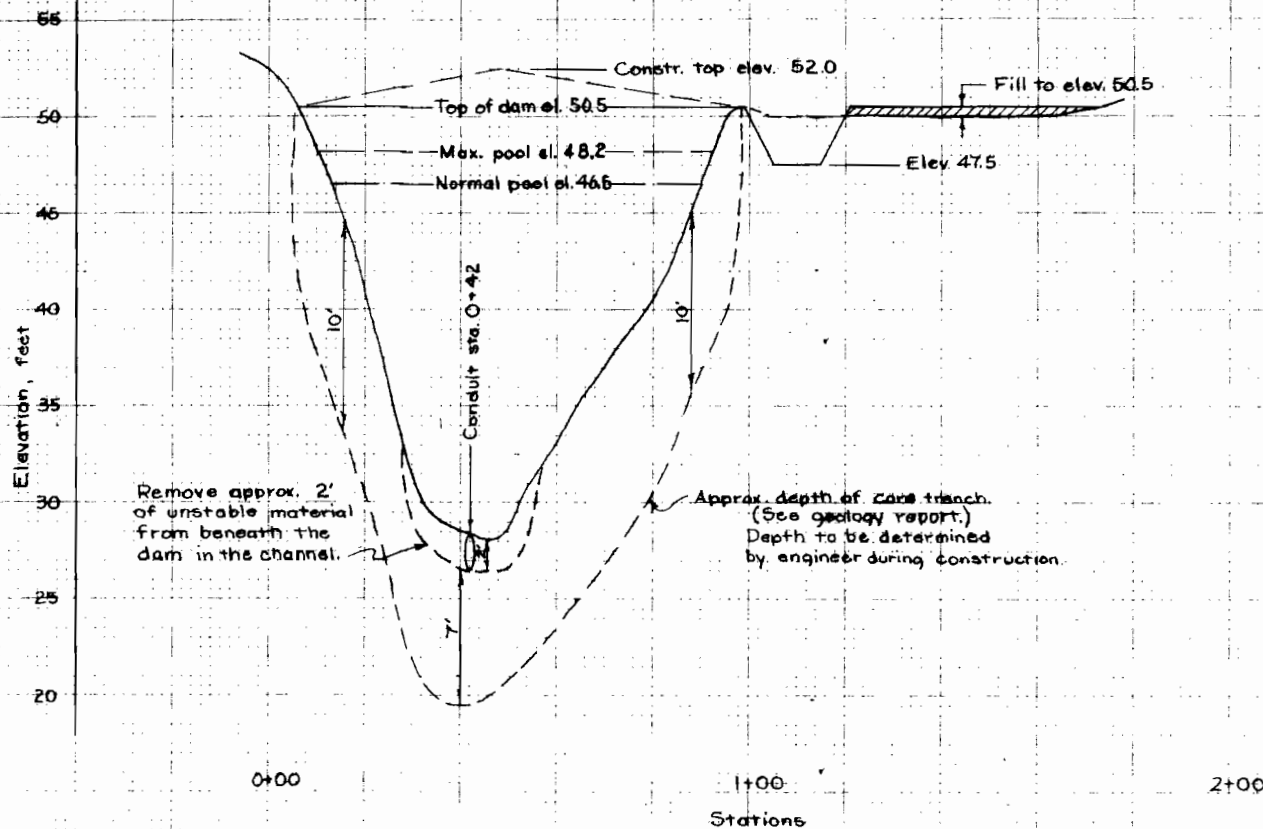
QUANTITIES

EXCAVATION		CONCRETE VOLUME	
STRIPPING	1100 c.y.	RISER BASE & COLLARS	47 c.y.
SPILLWAY	200 c.y.	INTAKE STRUCTURE	1.5 c.y.
CORE TRENCH	740 c.y.	PEDESTALS	1.0 c.y.
COMPACTED VOLUME		OUTLET CONDUIT & RISER	
CORE TRENCH	740 c.y.	8 IN. DIA. CONDUIT	30 l.f.
EMBANKMENT	2200 c.y.	12 IN. DIA. CONDUIT	100 l.f.
SPILLWAY DESIGN DISCHARGE		21 IN. DIA. RISER	19.5 l.f.
$Q_{90} = 17.6 \text{ cfs}$			

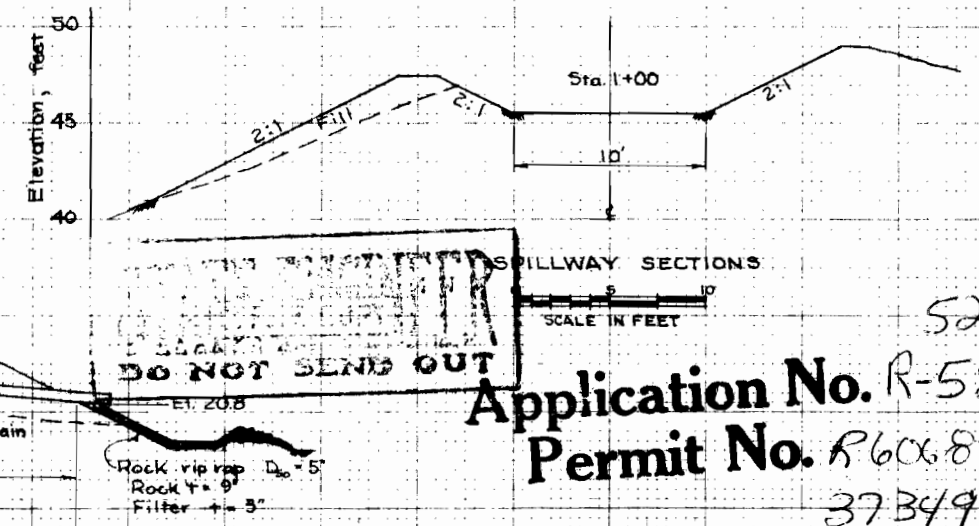
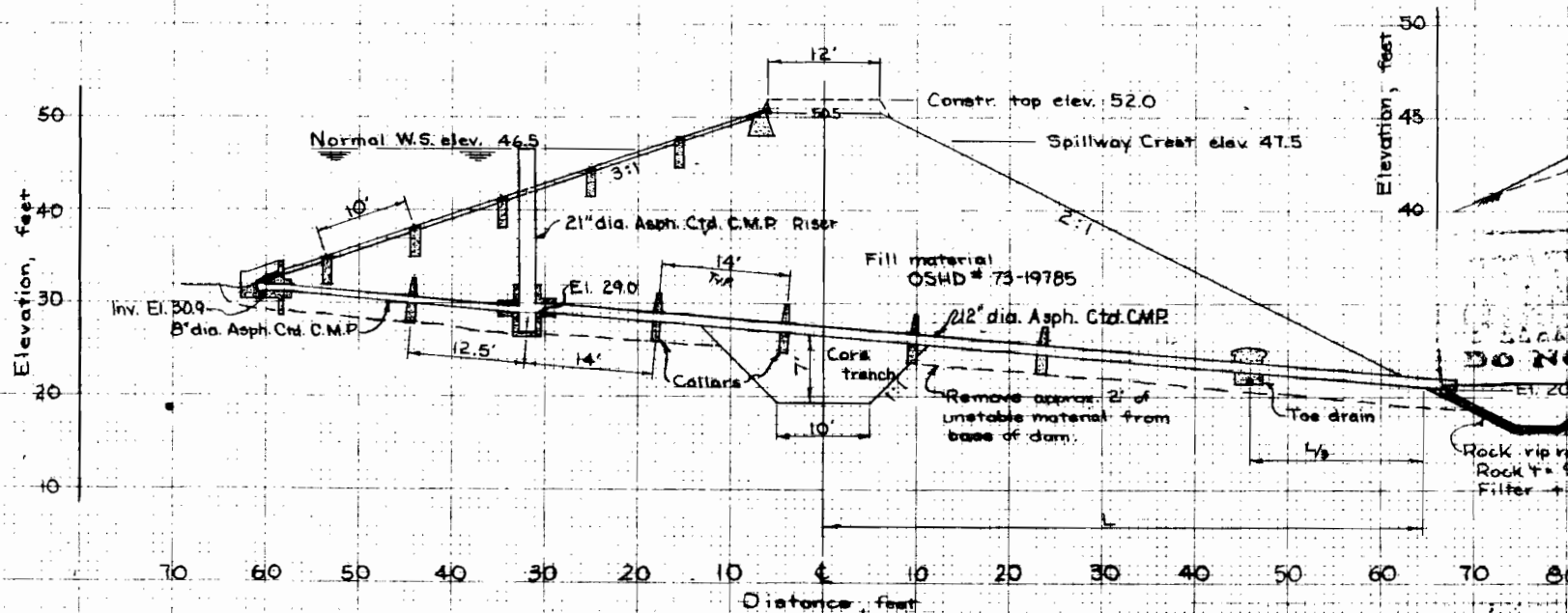
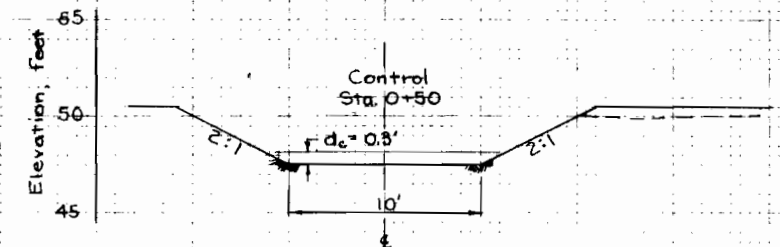
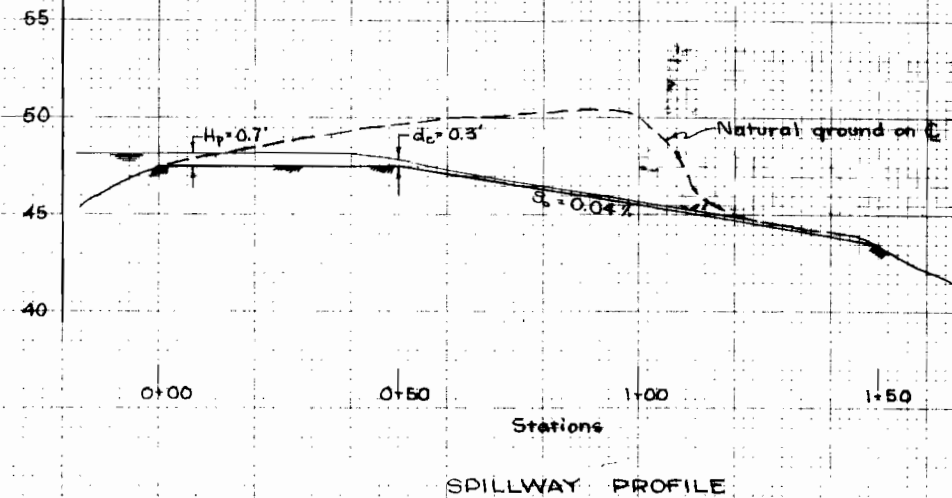


Application No. R-52058
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37349

PLAN	
FRED HELLER DAM	
COLUMBIA SWCD	OREGON
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed: WYE & NDW	Approved by: <i>Handwritten Signature</i> AREA ENGINEER

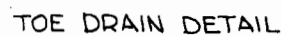
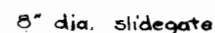


SPILLWAY CHARACTERISTICS	
Q_{50}	= 17.6 cfs
Q_{100}	= 8.6 cfs
Q_{500}	= 10.0 cfs
b	= 10 ft
d_c	= 0.3 ft
H_p	= 0.7 ft
V_c	= 3.2 fps
S_o	= 4.4 fps
S_b	= 0.036 ft/ft.
L	= 0.04 ft/ft.
L	= 50 ft
n	= 0.040
Z	= 2

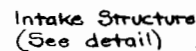


Application No. R-52058
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SECTIONS	
FRED HELLER DAM	
COLUMBIA SWCD	OREGON
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
WYE & NDW	Approved by: <i>[Signature]</i>



FILTER GRADATION	
SIEVE SIZE	% PASSING
3"	100
# 4	65-100
# 10	44-100
# 40	18-100
# 100	0-80
# 200	0-5



CONDUIT-RISER DETAILS
Not to scale

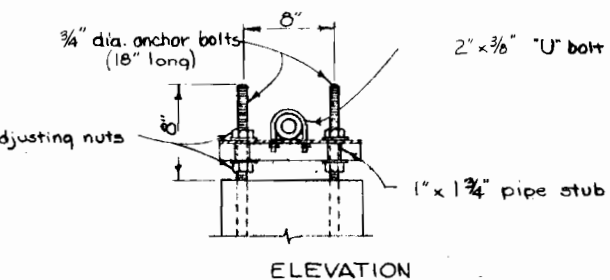
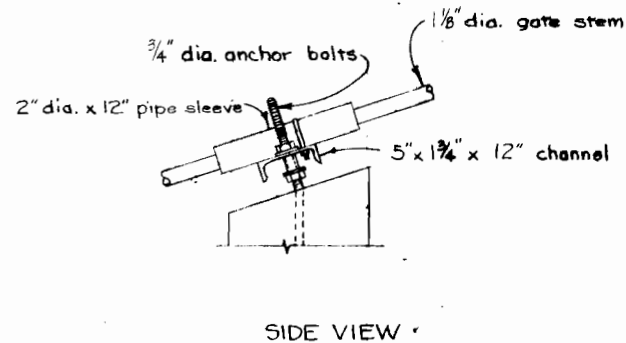
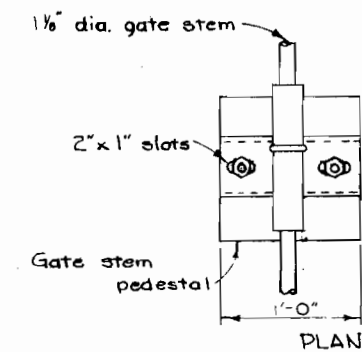
June 24, 1974

Chas. L. Hubbs

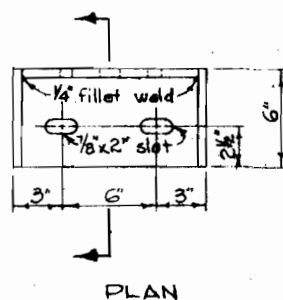
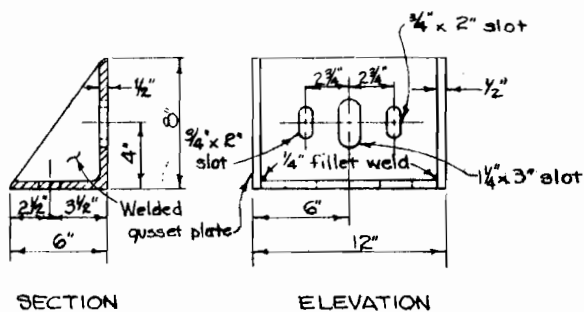
Application No. R-52058
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37349

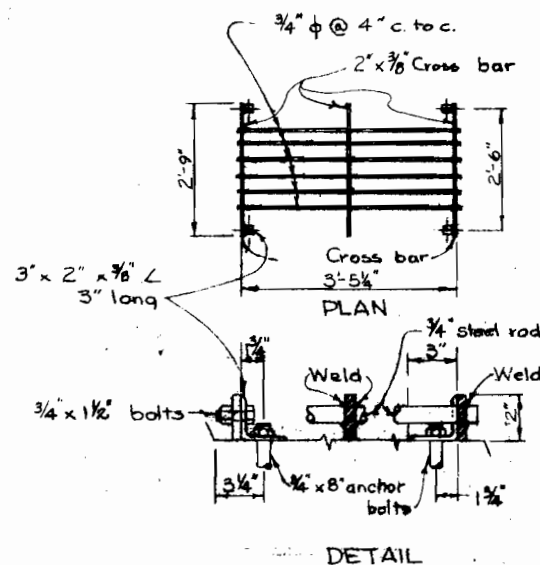
DETAILS	
FRED HELLER DAM	
COLUMBIA SWCD	OREGON
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed <u>WYE & NW</u>	Date <u>1-74</u>
Drawn <u>NDW</u>	Approved by <u>John W. D. [Signature]</u> Title <u>AREA ENGINEER</u>
	<u>W. F. [Signature]</u>



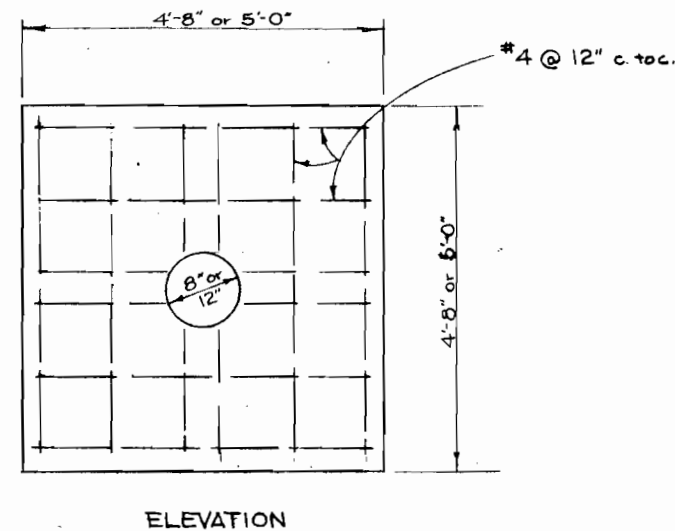
GATE STEM GUIDE
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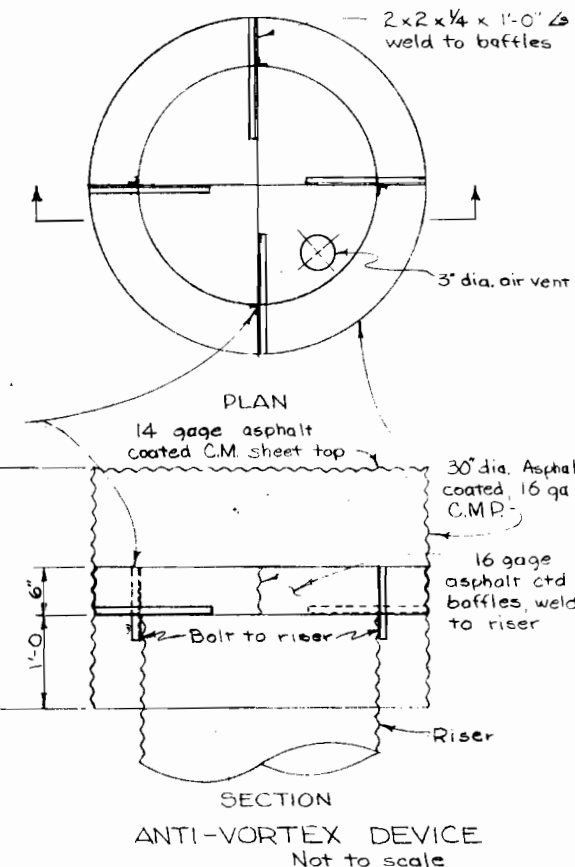
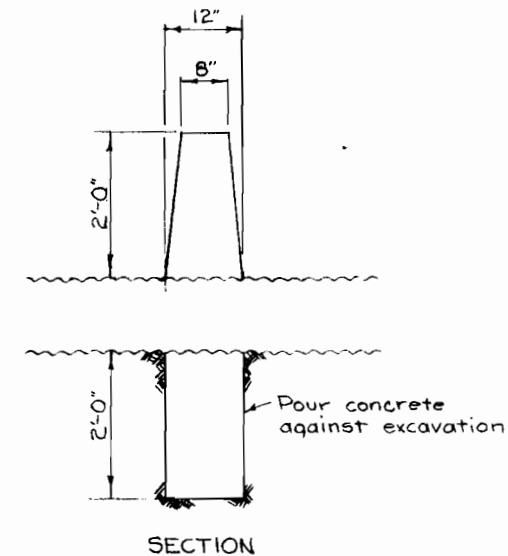
HANDWHEEL BRACKET



TRASH RACK
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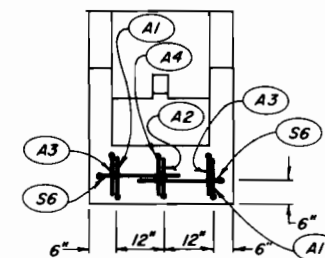
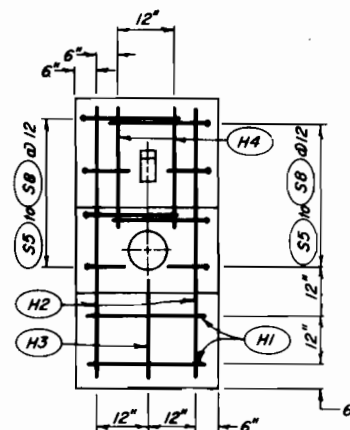
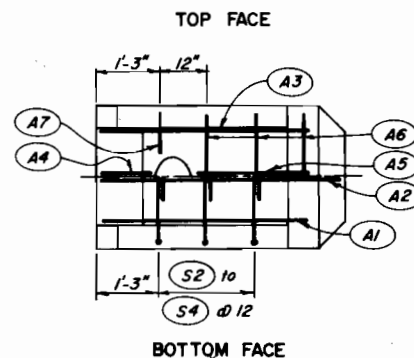
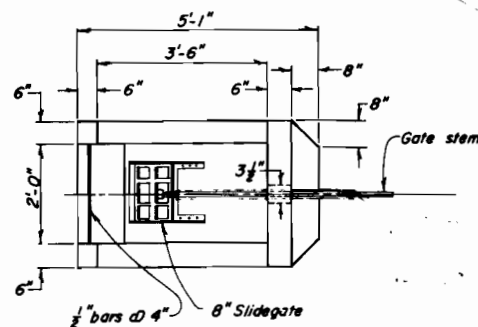
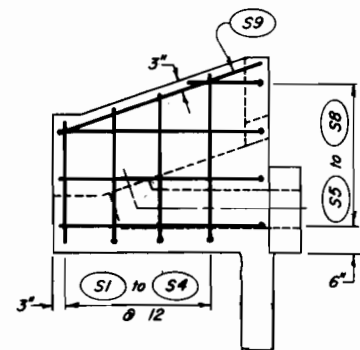
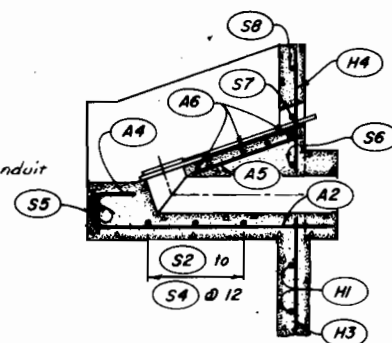
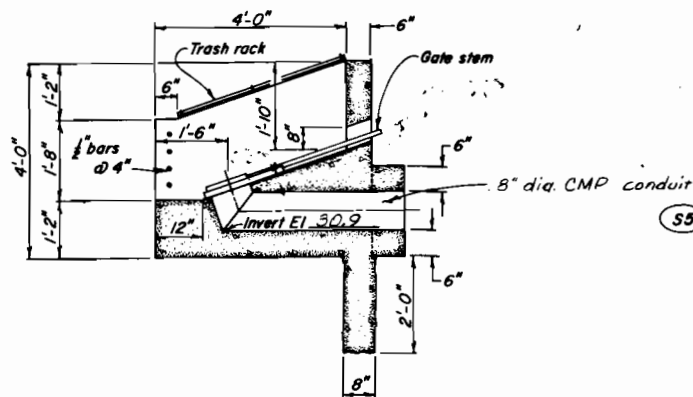
ANTI-SEEP COLLARS
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Handwritten signatures and stamps:
"APPROVED" stamp
"DESIGNED BY" stamp
"CHECKED BY" stamp
"DATE" stamp
"SCALE" stamp

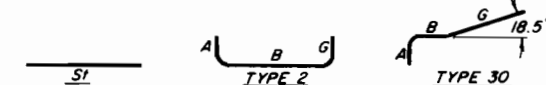
Application No. R-52058

DETAILS	
FRED HELLER DAM	
COLUMBIA SWCD OREGON	
U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	
Designed by WYE & NDW	Date 1-74
Approved by [Signature]	Area Engineer



STEEL SCHEDULE

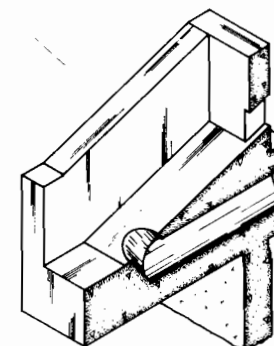
Location	Mark	Size	Quan.	Length	Type	A	B	G	Total Length
Apron	A1	4	2	5'-3"	2	9"	4'-6"		10'-3"
	A2	4	1	5'-6"	2	9"	4'-9"		5'-4"
	A3	4	2	5'-0"	30	10"	9"	3'-5"	10'-4"
	A4	4	1	1'-6"	2	9"	9"		1'-4"
	A5	4	1	2'-3"	SI				2'-4"
	A6	4	3	2'-6"	SI				7'-4"
	A7	4	2	9"	SI				1'-4"
Sidewall	S1	4	2	2'-6"	SI				5'-0"
	S2	4	2	4'-6"	2	1'-10"	2'-8"		9'-4"
	S3	4	2	4'-9"	2	1'-9"	3'-0"		9'-6"
	S4	4	2	5'-0"	2	1'-8"	3'-4"		10'-4"
	S5	4	2	6'-6"	2	1'-9"	4'-0"	9"	13'-6"
	S6	4	2	5'-9"	2	1'-9"	4'-0"		11'-6"
	S7	4	2	5'-0"	2	1'-0"	4'-0"		10'-4"
	S8	4	2	3'-0"	2	1'-4"	1'-8"		6'-4"
	S9	4	2	4'-3"	SI				8'-6"
Headwall	H1	4	2	2'-6"	SI				5'-0"
	H2	4	2	5'-6"	SI				11'-0"
	H3	4	1	2'-0"	SI				2'-0"
	H4	4	2	2'-6"	SI				5'-0"



BAR TYPES

TABLE OF QUANTITIES

Concrete	1.3 Cu. Yds. (Class 3000)
Reinforcing Steel	96 Lbs.
Total Bar Length	144'-3" (No. 4 bars)



Application No. R-52058

INLET STRUCTURE 7-E-20465 SIZE A

E & WP UNIT PORTLAND, OREGON

DETAILS

FRED HELLER DAM

COLUMBIA SWCD OREGON

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by WYE & NDW 1-74 Approved by T. W. D. W. AREA ENGINEER