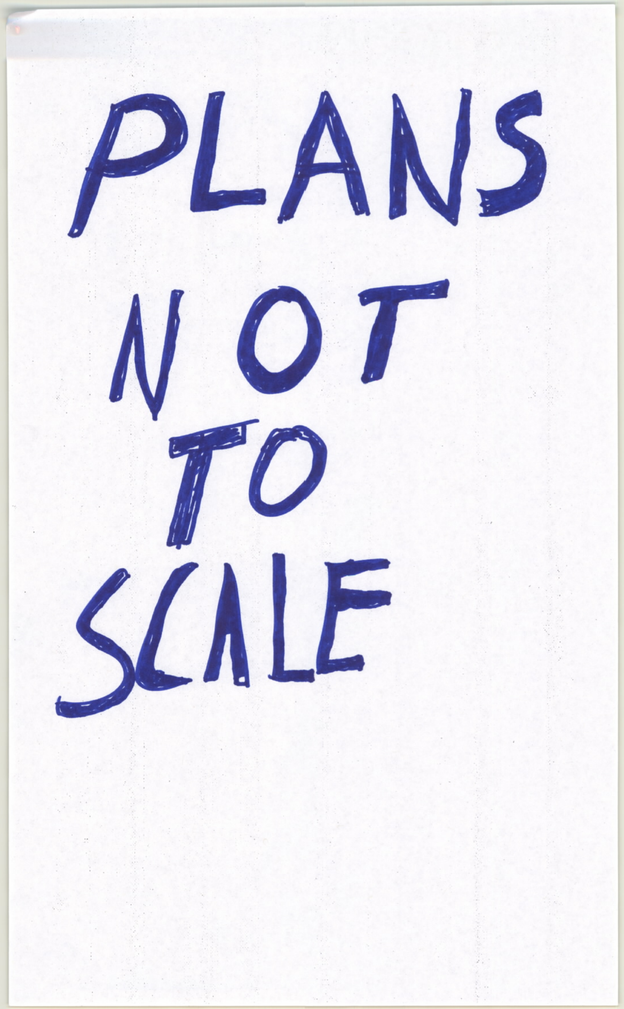
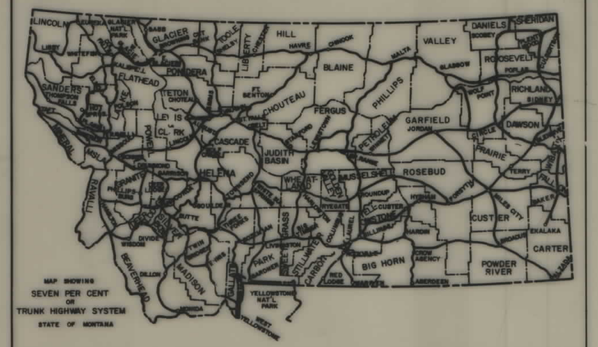

PLANS
NOT
TO
SCALE

R/W NO.	SHEET NO.	TOTAL SHEETS
F145	1	116

File under 37



CONVENTIONAL SIGNS

- RIGHT OF WAY LINE
- CENTERLINE (℄) OR PROJECTED LINE
- STK'D. CENTERLINE
- PARCEL NUMBER ②
- OWNERSHIP BOUNDARY
- R/W USE EXISTING R/W LT OR RT.
- PRESENT TRAVELED WAY (PTW.)
- R/W LINE FENCED
- RAILROAD R/W
- CONSTRUCTION LIMITS CUT — FILL
- FENCE LINE
- CONTROL OF ACCESS WITH FENCE
- CONTROL OF ACCESS WITHOUT FENCE
- GATE IN FENCE
- CATTLE GUARD=24'
- STATE & NATIONAL BORDER LINES
- CITY OR TOWN LIMITS LINE
- COUNTY LINE
- RESERVATION LINE
- TOWNSHIP & SECTION LINE
- 1/2 SECTION LINE
- 1/4 SECTION LINE
- SECTION CORNER FOUND UNFOUND
- 1/4 SECTION COR.
- 1/16 SECTION COR.
- CENTER OF SECTION
- TELEPHONE OR TELEGRAPH POLES IN PLACE
- POWER POLES IN PLACE
- TEL. OR TEL. OR POWER POLES TO BE MOVED
- NEW PIPES
- OLD PIPES IN PLACE
- OUTLET DITCH
- INLET DITCH
- DITCHES
- CHANNEL CHANGES CH. CH.
- BRIDGE
- RAILROADS

RELATED PROJECTS

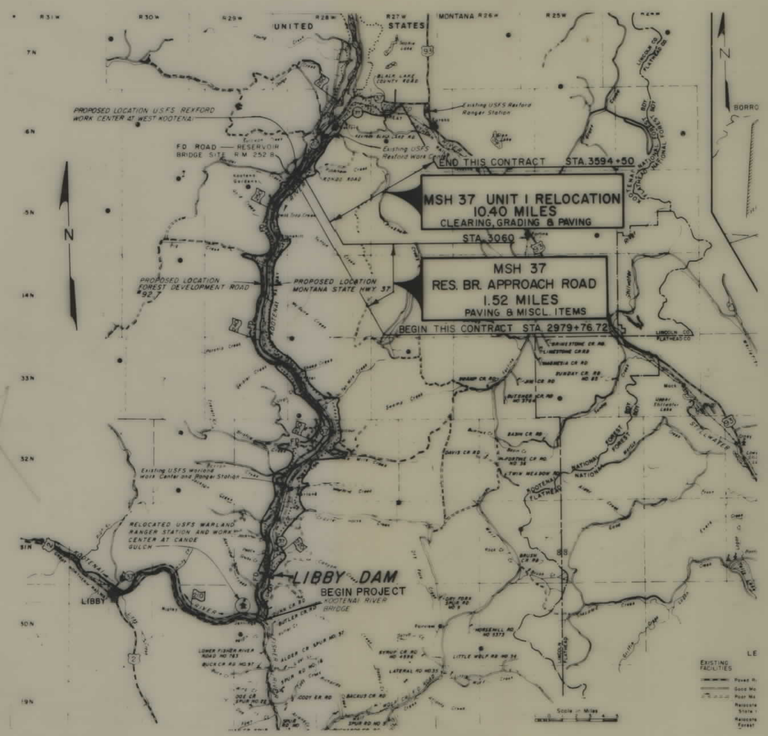
ASSOCIATED PROJECT AGREEMENT NUMBERS

STATE OF MONTANA

DEPARTMENT OF HIGHWAYS

RIGHT OF WAY PLAN OF FEDERAL AID PROJECT NO. F-145

RELOCATION-MONTANA-H.W.Y. 37



INDEX

PARCEL NO.	OWNERSHIPS	SHEET NO.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

APPROVED:

_____ 19 ____

DIRECTOR OF HIGHWAYS

BY _____

ADMINISTRATOR
ENGINEERING DIVISION

MONTANA PROFESSIONAL SURVEYOR
JACK R. BECKERT
205 ES
REGISTERED ENGINEER & LAND

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

_____ _____

DIVISION ENGINEER DATE

R/W NO	SHEET	TOTAL
F145	2	116

REVISIONS			
SYMBOL	DESCRIPTION	DATE	BY
A	(1) ADDED SHEET 61.1	3DEC69	
B	(1) ADDED SHEET 52.1		
C	(1) ADDED SHEET 71.1	70 SEP 2	

LIBBY DAM PROJECT

KOOTENAI RIVER, MONTANA

RELOCATION - MONTANA HIGHWAY 37 UNIT 1 & RESERVOIR BRIDGE APPROACH ROAD

SAFETY PAYS

INDEX TO DRAWINGS
DRAWING NO. E-53-31-85

SHEET NO.	UNIT 1					
1	INDEX TO DRAWINGS					
2	GENERAL PLAN & VICINITY MAP					
3T	TOPOGRAPHY	STA.	3060	TO	STA.	3085
3	PLAN & PROFILE	STA.	3060	TO	STA.	3085
4T	TOPOGRAPHY	STA.	3085	TO	STA.	3110
4	PLAN & PROFILE	STA.	3085	TO	STA.	3110
5T	TOPOGRAPHY	STA.	3110	TO	STA.	3135
5	PLAN & PROFILE	STA.	3110	TO	STA.	3135
6T	TOPOGRAPHY	STA.	3135	TO	STA.	3165
6	PLAN & PROFILE	STA.	3135	TO	STA.	3165
7T	TOPOGRAPHY	STA.	3165	TO	STA.	3195
7	PLAN & PROFILE	STA.	3165	TO	STA.	3195
8T	TOPOGRAPHY	STA.	3195	TO	STA.	3225
8	PLAN & PROFILE	STA.	3195	TO	STA.	3225
9T	TOPOGRAPHY	STA.	3225	TO	STA.	3255
9	PLAN & PROFILE	STA.	3225	TO	STA.	3255
10T	TOPOGRAPHY	STA.	3255	TO	STA.	3285
10	PLAN & PROFILE	STA.	3255	TO	STA.	3285
11T	TOPOGRAPHY	STA.	3285	TO	STA.	3315
11	PLAN & PROFILE	STA.	3285	TO	STA.	3315
12T	TOPOGRAPHY	STA.	3315	TO	STA.	3345
12	PLAN & PROFILE	STA.	3315	TO	STA.	3345
13T	TOPOGRAPHY	STA.	3345	TO	STA.	3375
13	PLAN & PROFILE	STA.	3345	TO	STA.	3375
14T	TOPOGRAPHY	STA.	3375	TO	STA.	3405
14	PLAN & PROFILE	STA.	3375	TO	STA.	3405
15T	TOPOGRAPHY	STA.	3405	TO	STA.	3435
15	PLAN & PROFILE	STA.	3405	TO	STA.	3435
16T	TOPOGRAPHY	STA.	3435	TO	STA.	3465
16	PLAN & PROFILE	STA.	3435	TO	STA.	3465
17T	TOPOGRAPHY	STA.	3465	TO	STA.	3495
17	PLAN & PROFILE	STA.	3465	TO	STA.	3495
18T	TOPOGRAPHY	STA.	3495	TO	STA.	3525
18	PLAN & PROFILE	STA.	3495	TO	STA.	3525
19T	TOPOGRAPHY	STA.	3525	TO	STA.	3555BK
19	PLAN & PROFILE	STA.	3525	TO	STA.	3555 BK

SHEET NO.	UNIT 1					
20T	TOPOGRAPHY	STA.	3555BK	TO	STA.	3570
20	PLAN & PROFILE	STA.	3555BK	TO	STA.	3570
21T	TOPOGRAPHY	STA.	3570	TO	STA.	3594 + 75
21	PLAN & PROFILE	STA.	3570	TO	STA.	3594 + 75
22	PLAN & PROFILE - ROAD APPROACHES STA. 3108+60 &3291+27					
23	PLAN & PROFILE - ROAD APPROACHES STA. 3326+00 &3374+60					
24	PLAN & PROFILE - ROAD APPROACHES STA. 343E+80. 3438+88 &3537					
25	PLAN & PROFILE - ROAD APPROACHES STA. 3545+00AH & 3585+65					
25A	REXFORD TOWNSITE ROAD					
26	TYPICAL SECTIONS & DETAILS					
27	ROAD APPROACHES - SECTIONS & DETAILS					
28	CULVERT SCHEDULE					
29	CULVERT SCHEDULE & DETAILS					
30	CULVERT DETAILS I					
31	CULVERT DETAILS II					
32	CULVERT DETAILS III					
33	BIN RETAINING WALL					
34	BIN RETAINING WALL DETAILS I					
35	BIN RETAINING WALL DETAILS II					
35A	STOCK DRIVE TRAIL DETAILS I					
35B	STOCK DRIVE TRAIL DETAILS II					
36	FENCE & GATE DETAILS					
36A	CATTLEGUARD & DETAILS					
37	PAINTED CATTLEGUARD DETAILS					
38	SIGN SUMMARY & DETAILS					
39	GUIDE POST & R/W MONUMENT DETAILS					
40	GUARD RAIL DETAILS I					
41	GUARD RAIL DETAILS II					
42	GUARD RAIL DETAILS III					
43	LOGS OF EXPLORATION STA. 3060 TO STA. 3150					
44	LOGS OF EXPLORATION STA. 3150 TO STA. 3274					

SHEET NO.	UNIT 1
45	LOGS OF EXPLORATION STA. 3274 TO STA. 3547
46	LOGS OF EXPLORATION STA. 3547 TO STA. 3544+50AH
47	LOGS OF EXPLORATION STA. 3544+50AH TO 3594-75
48	BORROW AREA - BORING LOCATION PLAN
49	LOGS OF EXPLORATION & GRADATION CURVES - BORROW AREA
	CADETTE CREEK BRIDGE
50	PLAN. ELEVATION AND SECTION
51	SUPERSTRUCTURE PLAN AND SECTION
52	ABUTMENT NO. 1 (B1)
52.1	ABUTMENT NO. 2
	PINKHAM CREEK BRIDGE
53	PLAN. ELEVATION AND SECTION
54	SUPERSTRUCTURE PLAN
55	SUPERSTRUCTURE SECTIONS
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57	ABUTMENT NO. 2
58	PIERS
	TOBACCO RIVER BRIDGE
59	PLAN. ELEVATION AND SECTIONS
60	SUPERSTRUCTURE PLAN AND SECTIONS
61	ABUTMENT NO. 1 - I (A1)
61.1	ABUTMENT NO. 1 - II
62	ABUTMENT NO. 2
63	PIERS
	BRIDGE DRAWINGS
64	STANDARD PRESTRESSED CONCRETE BEAMS
65	STANDARD STEEL BRIDGE RAIL-TYPE NO. 5
66	DETAILS I
	RESERVOIR BRIDGE APPROACH ROAD
67	PLAN & PROFILE STA. 2979+76.72 TO STA. 2990
68	PLAN & PROFILE STA. 2990 TO STA. 3020
69	PLAN & PROFILE STA. 3020 TO STA. 3050
70	PLAN & PROFILE STA. 3050 TO STA. 3060
71	GRADING PLAN OF PARKING AREA
71.1	VISTA POINT PARKING AREA
72	TYPICAL PAVING & TURNOUT DETAIL
73	SIGN SUMMARY & DETAILS

APPROVED: 27 MARCH 1969
Lewis M. Sullivan
STATE HIGHWAY ENGINEER

APPROVED: 20 MARCH 1969
C. O. Sorkel
ASST. CHIEF ENGINEER
G.N. RAILWAY COMPANY

DACW67-69-C-0039 AS BUILT

SHEET 1

MICROFILMED OCTOBER 1972

R/W NO	SHEET NO	TOTAL SHEET NO
F145	3	116

CANADA
BRITISH COLUMBIA
UNITED STATES
MONTANA

R31W R30W R29W R28W R27W R26W R25W R24W

T37N T36N T35N T34N T33N T32N T31N T30N T29N

N

PROPOSED LOCATION U.S.F.S. REXFORD WORK CENTER AT WEST KOOTENAI

FD ROAD — RESERVOIR BRIDGE SITE R.M. 252.8

PROPOSED LOCATION FOREST DEVELOPMENT ROAD #92.7

PROPOSED LOCATION MONTANA STATE HWY. 37

Existing USFS Rexford Ranger Station

Existing USFS Rexford Work Center

RELOCATED USFS WARLAND RANGER STATION AND WORK CENTER AT CANOE GULCH

Existing USFS Warland Work Center and Ranger Station

LIBBY DAM

KOOTENAI RIVER BRIDGE

END THIS CONTRACT STA. 3594+50

MSH 37 UNIT I RELOCATION
10.40 MILES
CLEARING, GRADING & PAVING

STA. 3060

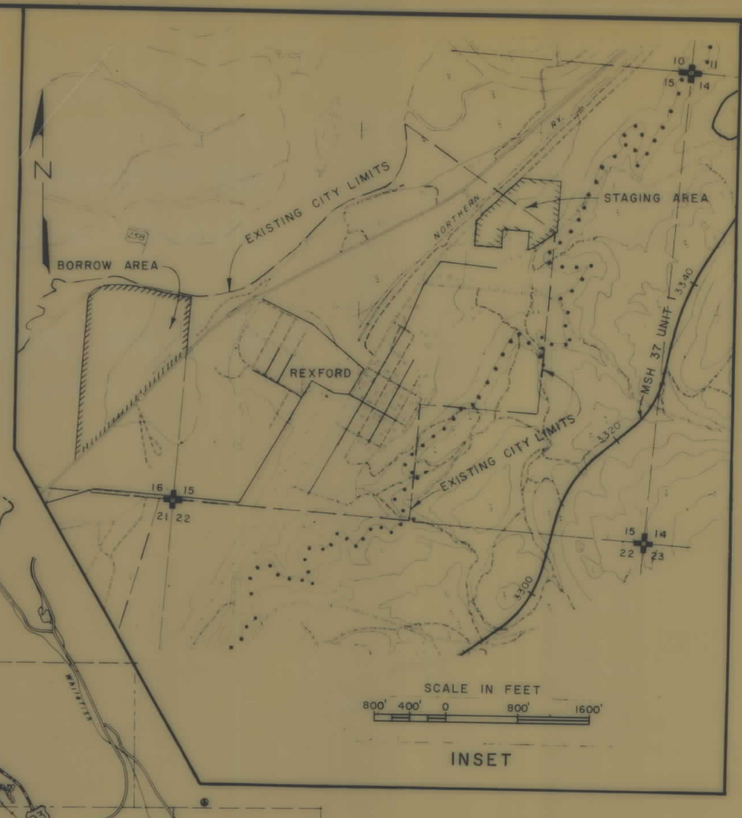
MSH 37
RES. BR. APPROACH ROAD
1.52 MILES
PAVING & MISCL. ITEMS

BEGIN THIS CONTRACT STA. 2979+76.72

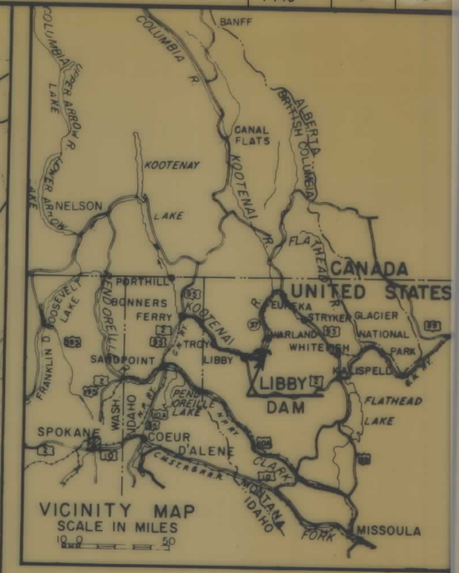
STA 3594+00
STA 3067+00
STA 2979+00
STA 2263+00
STA 1850+00
STA 1586
STA 934+00
STA 868+00
12+00

Scale in Miles 0 1 2 3 4 5

GENERAL PLAN



INSET



VICINITY MAP
SCALE IN MILES 0 50

LEGEND

EXISTING FACILITIES	PROPOSED FACILITIES
Paved Road	
Good Motor Road	
Poor Motor Road	
Relocated Montana State Hwy. 37	37
Relocated U.S.F.S. Forest Development Road	FD
Railroad	
Campground	
Ranger Station	
Lookout Tower	
River Mile	
Reservoir	
Dam	
Power Line	
Telephone Line	

DACW67-69-C-0039

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: HALL
CHECKED BY: CLEMENHAGEN
PREPARED: CHIEF HIGHWAY SECTION
APPROVED: COLONEL, CORPS OF ENGINEERS — DATE: 69 MAR 03
SUBMITTED: CHIEF, RELOCATIONS BRANCH
RECOMMENDED: CHIEF, ENGINEERING DIVISION

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
GENERAL PLAN & VICINITY MAP

SCALE: AS SHOWN
SPEC. NO. DACW67-69-C-0039
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 2

MICROFILMED OCTOBER 1972

R/W NO	SHEET NO	TOTAL SHEETS
F145	4	116

REVISIONS

SYMBOL	DESCRIPTION	DATE	BY
A	(1) REVISED NOTES (2) DELETED NOTES (3) ADDED NOTE (4) DELETED & REVISED GUIDE POSTS (5) ADDED NOTES (6) ADDED TYP. SECTION III	76JUN14	

PLAN — SURVEYED; PLOTTED; NOTE BOOK; NO.; DRAWING CHECKED; GRADES CHECKED; R/W NOTED; STRUCTURES SPOTTED ON MAP; BY; DATE

EXIST. HWY. BRIDGE — P.S.C. 735+49.21 — 735+50 — TRANSITION ZONE — 737+00 — DECELERATION LANE — 737+75 — 738+50 M.S.H. 37 = 11+71.04 FISHER RIVER ROAD — 60'R — ℄ FISHER RIVER ROAD — ACCELERATION LANE — 740+00 — TRANSITION ZONE — 742+00

EXIST. BRIDGE — FISHER RIVER — FLOW — End of R.R. Bridge (FISHER RIVER) 86+95 — NEW LOCATION FOR BUMPING POST STA. 94+90 — ℄ R.R. Spur — CONSTRUCT TO EL. 2138.0 For Unloading Area — P.C. 16+82.86 — END FISHER RIVER ROAD — Δ = 15°11'49" RT. D = 9°00' T = 84.92' R = 636.62' L = 168.85' S = 4% — MEET EXISTING ALINEMENT — FISHER RIVER Road — 18"ø C.S.P. — P.I. 15+68.03 — P.I. 16+82.86

Δs = 11°15'00" Ls = 300' — 735+33.1 BEGIN CONSTRUCTION THIS CONTRACT — P.S.C. 735+49.21 — WIDEN LEFT SHOULDER ONE FOOT WITH ROCKFILL. SEE TYPICAL SECTION III THIS SHEET. — 50' TRANSITION Δ = 82°17'31" LT. D = 7°30' R = 763.94' Ts = 816.65' T = 672.46' L = 947.23' S = 8% — NO INSIDE CURVE WIDENING REQUIRED — KOOTENAI RIVER FLOW — 737+00 — SEE NOTE 1, THIS SHEET CULTURAL RESOURCES AREA LEFT BETWEEN HWY. & EDGE OF WATER — EDGE OF WATER — P.I. 744+96.44 — SEE PLAN FOR DECEL. ACCEL. & APPROACH PLAN THIS SHEET — P.O.C. 738+50.00 ℄ M.S.H. 37 = 11+71.04 BEGIN FISHER RIVER RD. — 74-BH-817 — N 19° 13' 10" E — GUIDE POST NOTES:

1. FOR PROTECTION OF CULTURAL RESOURCES AREA, ALL CONSTRUCTION EQUIPMENT TRAVEL RIVERWARD IS LIMITED TO 60 FEET LEFT OF HIGHWAY CENTERLINE BETWEEN: (1) STATION 737+00 TO 756+00.
2. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT PACIFIC POWER & LIGHT CO. & DETERMINE THE DEPTH & THE EXTENT OF BURIED POWER CABLE BETWEEN STATIONS 738 & 774. CONTRACTOR'S OPERATIONS SHALL AVOID THIS CABLE.

W2-2 — R1-1 — STOP — M3-1 — M1-6 — G7 — LIBBY DAM — LIBBY — 737 — RIBBON — FISHER River Road — 783 — 740 — ℄ M.S.H. 37 — 742+30 — 745 — 100 — R/W — BP — P.P.L. Sign — Entry Over Mound, Stop Approach — 741 — 742 — SEE GRADING PLAN SHT. 9 — P.P.L. Co. High Voltage Line (Underground Cable Approximate Location) — LIBBY DAM 3 MILES — BUCKFORD 48 EUREKA 55 — G-6 — STOP AHEAD — W3-1 — PROJECT BOUNDARY

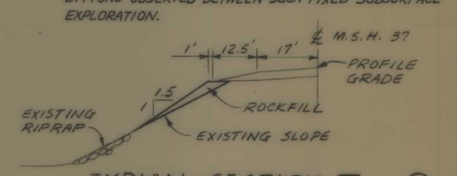
1" = 100' — 100' 50' 0 100' 200'

STA. 735+50 TO STA. 742+00
PLAN OF DECELERATION & ACCELERATION LANES
SCALE: 1" = 50'

LEGEND

EXISTING		THIS CONTRACT
	ROAD OR HIGHWAY	740
	℄ ROAD OR HIGHWAY	
	CULVERT	
	CULVERT – TO BE REMOVED UNLESS OTHERWISE NOTED	
	SPUR TRACK	
	SPUR TRACK – TO BE REMOVED	
	RIGHT OF WAY UNLESS OTHERWISE NOTED	R/W
	R/W MONUMENTS	

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.



TYPICAL SECTION III — ROCKFILL
STA. 735+33.1 TO STA. 736+50

PROFILE — SURVEYED; PLOTTED; NOTE BOOK; NO.; DRAWING CHECKED; GRADES CHECKED; R/W NOTED; STRUCTURES SPOTTED ON MAP; BY; DATE

STA. 11+71.04 BEGIN FISHER RIVER ROAD EL. 2145.40 — V.P.I. 12+00.04 EL. 2146.36 — STA. 15+20 FISHER RIVER ROAD CONSTR. APPROACH: W = 24' SURFACE SAME AS EXISTING RD. — STA. 16+55 FISHER RIVER ROAD EXTEND EXIST. APPROACH W = 24' SURFACE SAME AS EXISTING RD. — END FISHER RIVER ROAD STA. 16+52.95 EL. 2148.20 MEET EXISTING GRADE — 0.00% — PROFILE GRADE +0.43% — 140' V.C. — EXISTING GROUND SURFACE — ℄ R.R.

PROFILE FISHER RIVER ROAD

12 13 14 15 16

175 L.F. NEW GUARD RAIL RT. — 1-NEW GUIDE POST DESIGN "F" RT. — RD. APPROACH RT. — 1-NEW GUIDE POST DESIGN "F" LT. — HWY. MAINT. ROAD APPROACH LEFT — 1-NEW GUIDE POST DESIGN "C"

STA. 735+33.1 BEGIN CONSTRUCTION THIS CONTRACT BRIDGE END — EL. 2146.40 — V.P.I. 737+50 EL. 2145.50 — ℄ FISHER RIVER ROAD — -0.448% — PROFILE GRADE -0.818% — ℄ EXIST. SPUR TRACK 200' V.C. -0.202% — 200' V.C. — EXIST. GROUND SURFACE — 741+94.9 427.5 FT X 123 — V.P.I. 743+00 EL. 2141.00 — STA. 743+50 – STA. 752+20 DAYLIGHT CUT LT.

231 L.F. GUARD RAIL RT. REMOVE & RE-SET — 50 L.F. NEW GUARD RAIL RT.

231 L.F. GUARD RAIL LT. — 720 L.F. NEW GUARD RAIL LT.

10 – GUIDE POSTS RT. (REMOVE & RE-SET DESIGN "F") — 6-NEW GUIDE POSTS RT., DESIGN "F"

FISHER RIVER RD. APPROACH RT.

B.M. 745 - 5/8" REBAR 110' LT. STA. 744+36.44 ELEV. 2125.89

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1) AS BUILT	78 JUN 7	

REVISIONS

V.T.N., INC. HELENA, MONTANA

U.S. ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS SEATTLE, WASHINGTON

RELOCATION-MONTANA HIGHWAY 37 UNIT 3A
PLAN AND PROFILE STA. 735 TO STA. 745
LIBBY DAM AND LAKE KOOCANUSA PROJECT
KOOTENAI RIVER MONTANA

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 76MAY14	E-53-31-124 AS BUILT	
DSGN. HARLOW	CHK. TANGEN	SHEET 3	

735 740 745

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-76-C-0084

MICROFILMED JUN '78

R/W JOB	SHEET NO	TOTAL SHEETS
F145	5	116

REVISIONS			
SYMBOL	DESCRIPTION	DATE	BY
A	(1) DELETED DITCH PLUG (2) REVISED CSP TO RCP (3) REVISED STA. (4) ADDED SUBGRADE DRAINAGE FILL 3 PLACES (5) DELETED GUIDE POSTS (6) RELOCATE NOTE & ADDED NOTE 2. (7) ADDED NOTE.	76JUN14	

CULTURAL RESOURCES AREA LEFT BETWEEN HWY. & EDGE OF WATER, SEE NOTE 1 SHEET 3 (A7)

KOOTENAI RIVER

W1-2 W13-1 50 MPH

SUBGRADE DRAINAGE FILL. SEE TYPICAL SECTION SHT. 13

FLOW

ROCK FILL LT. SEE TYPICAL SECTION I SHEET 10

SUBGRADE DRAINAGE FILL. SEE TYP. SECT. SHT. 13

48" Conc. Pipe (Ex.st.) See Section SHT. 12

ROCK FILL LT. SEE TYPICAL SECTION II SHEET 10 (A3)

CULTURAL RESOURCES AREA LEFT BETWEEN HWY. & EDGE OF WATER. SEE NOTE 2 THIS SHEET. (A7)

P.O.C. CONSTRUCTION END CONSTRUCTION OVERLAY PAVING BEGIN OVERLAY THIS CONTRACT

Edge of Water

R/W

74-BH-817 74-BH-816 74-BH-815 74-BH-814 74-BH-813 74-BH-812 74-BH-811 74-BH-810 74-BH-809 74-BH-808 74-BH-837 74-BH-828 74-BH-838 74-BH-839 74-BH-827 74-BH-826 74-BH-825 74-BH-824 74-BH-823 74-BH-822 74-BH-821 74-BH-840 74-BH-820 74-BH-841 74-BH-842 74-BH-819 74-BH-818

74-BH-836 74-BH-835 74-BH-834 74-BH-833 74-BH-832 74-BH-831 74-BH-830 74-BH-829

745 750 760 770 774

80' 80' 100' 100' 100' 100'

P.I. 752+02.37

N 19°13'10" E (A1)

N 20°51'00" E

BP BP BP BP

P.P.L. Co. Sign P.P.L. Co. Sign

Pacific Power & Light Co. High Voltage Line (Buried Cable, Approximate Location)

SUBGRADE DRAINAGE FILL SEE TYPICAL SECTION SHT. 13 (A4)

EXPLORATION PIT AT 100'

DITCH PLUG, SEE DETAIL SHT. 13

42" C.S.P. SEE SECTION SHT. 12

DITCH PLUG, SEE DETAIL SHT. 13

BK. AH.

P.C. 747+52.19

PT. 756+52.19 BK.
756+50.18 AH.

1162.10'

758+10.73

N 85°00'23" W

EQUATION

PROJECT BOUNDARY

Δ = 1°37'50" RT.
D = 0°10'52"
R = 31,635.71'
T = 450.18'
L = 900.31'
S = NORMAL CROWN SLOPE

Δ = 27°51'00" LT.
D = 1°30'
R = 3819.72'
T = 947.05'
L = 1856.67'
S = 3%

1" = 100' 100' 50' 0 100' 200'

NOTES:
1. FOR LEGEND, SEE SHEET 3. (A6)
2. FOR PROTECTION OF CULTURAL RESOURCES AREA, ALL CONSTRUCTION EQUIPMENT TRAVEL RIVERWARD IS LIMITED TO 60 FEET LEFT OF HIGHWAY CENTERLINE OR TO 10 FEET LEFT OF RAILROAD CENTERLINE BETWEEN STATIONS 771+50 AND 776+00.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R/W DRAWN, NOTE BOOK, NO. — DATE, BY

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R/W DRAWN, NOTE BOOK, NO., STRUCTURE NOTATIONS OK'D — DATE, BY

ROCK EXCAV. LT.

EQUATION

756+52.19 BK.
756+50.18 AH.

ROCK EXCAV. LT.

ROCK EXCAV. RT.

STA. 766+75 TO STA. 770+75 LT. DAYLIGHT CUT LT.

774+00 END CONSTRUCTION BEGIN OVERLAY THIS CONTRACT

SAW CUT EXIST. PAVEMENT

STA. 743+50 TO STA. 752+20 DAYLIGHT CUT LT.

-0.202%

200' V.C.

PROFILE GRADE +0.125%

PROFILE GRADE +0.125%

400' V.C.

+1.30%

STA. 771+15 EXIST. 42" C.S.P. EXTEND 64 L.F. 17°30' ± SKEW RT. FORWARD SEE SECTION SHEET 12

EXIST. GROUND SURFACE

EXISTING GROUND SURFACE

STA. 754+50 - STA. 757+50 DAYLIGHT CUT LT.

STA. 747+00 36" C.S.P. x 115.1' SEE SECTION SHEET 12

V.P.I. 750+00 EL. 2139.59

STA. 763+57. 36" CULV. W/CATCH BASIN (REMOVE)

STA. 763+63 - UNPLUG & EXTEND 44 L.F. LT. 48" CULV.

763+63 (A2) 48" R.C.P. x 44° SEE SECTION SHEET 12

K.A.I. 766+38.40 EL. 2141.68

ABANDON & PLUG EXIST. RISER PLUG OUTLET END EXIST. 48" CONC. BOX CULVERT. SEE SECTION SHEET 12

3 - GUIDE POSTS RT., DESIGN "F" (A5)

NEW GUARD RAIL, 500 L.F.

GUARD RAIL - RE-SET 2502 L.F. LT.

B.M. 755, 58" RE-BAR 60' LT. STA. 755+00 ELEV. 2131.60

B.M. 765, 58" RE-BAR 58' LT. STA. 765+00 ELEV. 2136.10

2160 2150 2140 2130 2120

745 750 755 760 765 770

B	(1) AS BUILT	78 JUN 7	KKJ
SYMBOL	DESCRIPTION	DATE	APPROVAL

REVISIONS

V.T.N., INC. HELENA, MONTANA	U.S. ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS SEATTLE, WASHINGTON

RELOCATION - MONTANA HIGHWAY 37 UNIT 3A

PLAN AND PROFILE STA. 745 TO STA. 774

LIBBY DAM AND LAKE KOOCANUSA PROJECT

KOOTENAI RIVER MONTANA

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 76 MAY 14	E-53-31-124 AS BUILT	
DSGN. HARLOW	CHK. TANGEN	SHEET 9	

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-76-C-0084 MICROFILMED JUN '76

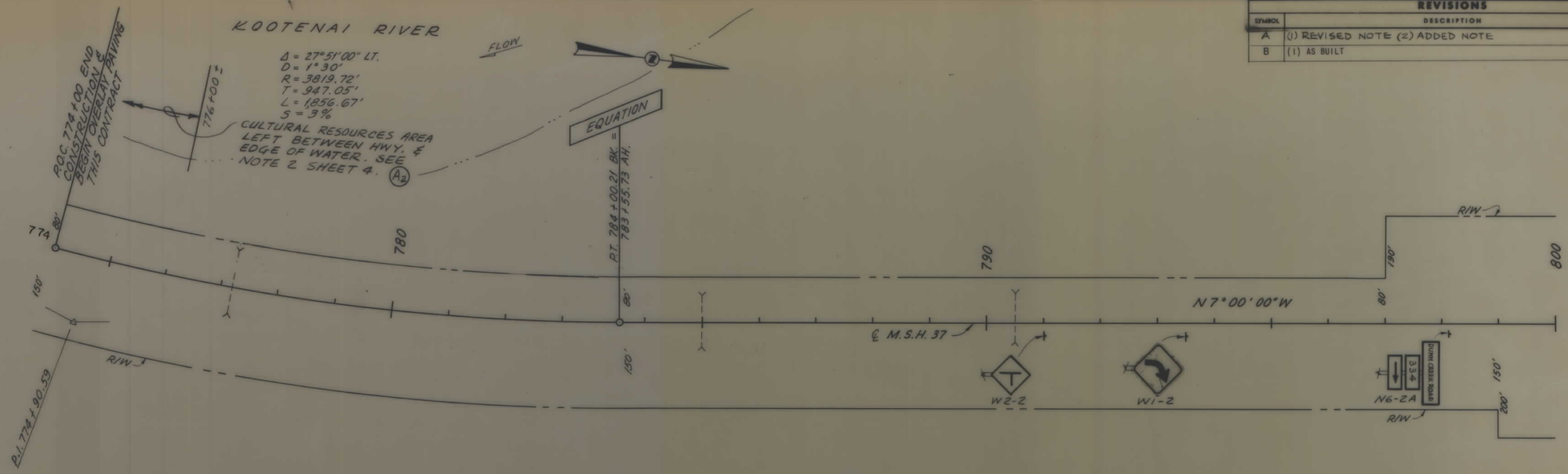
R/W NO	SHEET NO	TOTAL SHEETS
F 145	6	116

REVISIONS

SYMBOL	DESCRIPTION	DATE	BY
A	(1) REVISED NOTE (2) ADDED NOTE	76 JUN 14	
B	(1) AS BUILT	78 JUN 7	

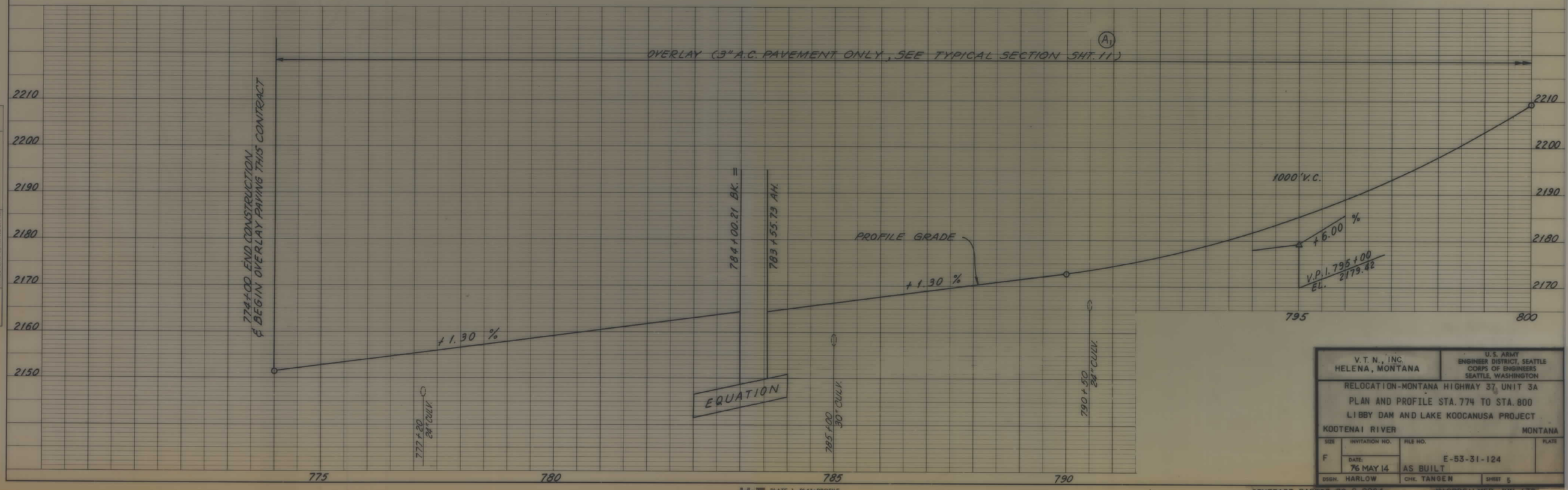
PLAN — SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED / NOTE BOOK / NO. / BY / DATE

PROFILE — PLOTTED / GRADES CHECKED / E. H. NOTED / STRUCTURE QUANTITIES CHECKED / NOTE BOOK / NO. / BY / DATE



1" = 100' 100' 50' 0 100' 200'

NOTE:
FOR LEGEND SEE SHEET 3



V.T.N., INC. HELENA, MONTANA	U.S. ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS SEATTLE, WASHINGTON

RELOCATION-MONTANA HIGHWAY 37, UNIT 3A
PLAN AND PROFILE STA. 774 TO STA. 800
LIBBY DAM AND LAKE KOOCANUSA PROJECT
KOOTENAI RIVER — MONTANA

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 76 MAY 14	E-53-31-124 AS BUILT	
DSGN. HARLOW	CHK. TANGEN	SHEET 5	

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-76-C-0084 MICROFILMED JUN '78

CORPS OF ENGINEERS)

R/W NO	SHEET NO	TOTAL SHEETS
F145	7	116

KOOTENAI RIVER

N

EQUATION 783+55.73 AHD. = RT. 784+00.21 BK.

Δ = 27°51'
D = 1° 30'
R = 3,819.72'
T = 947.05'
L = 1856.67'

797 L.F. 4-WIRE FENCE

GREAT NORTHERN TRACK

EXISTING 36" CONCRETE PIPE CULVERT NO. 1320.99 GN 71+77

71+19

DAYLIGHT ON LEFT

R/W

℄ MSH 37

DUNN CREEK ROAD

R/W (FUTURE)

N 07°00' W

780 785 790 795 800

797.00

1/16th LINE

10+00 BEGIN DUNN CREEK RD. = 800+10 MSH 37

P.C. 800+69.37

801

P.C. 10+91.73

Δ = 49° 30'
D = 19° 05' 55"
R = 300.00'
T = 138.30'
L = 259.18'

N 82°57' E

D-35

R/W

PROJECT BOUNDARY

N. 7°00' W. 1391.15'

Δ = 27°43'
R = 4069.72'
L = 1968.715'

150'

80'

N 1/2 NW 1/4 SEC 9
Clapper Motor Co.

E 1/2, SW 1/4 & SE 1/4, NW 1/4 SEC 9
St. Regis Paper Company

SCALE IN FEET
100 0 100 200 300

N 83°00' E

104±

EASTERLY TO 1/16th CORNER

BORROW AREA SEE SHEET 8

739+00

220'

100'

60'

P.I. 12+30.03

P.T. 13+50.91

100'

50'

1.5%

N 33° 27' E

R/W

R/W

B

C2

P.I. 19+16.40

60'

PC. 18+68.17

P.T. 19+63.81 END DUNN CREEK ROAD MEET EXIST. ROAD

N 51°43' E

℄ DUNN CREEK ROAD

Δ = 18° 16'
D = 19° 05' 55"
R = 300.00'
T = 48.23'
L = 95.64'

DUNN CREEK ROAD TABLE FOR SUPERELEVATION & SUPERELEVATION TRANSITION

STATION	CONDITION OF ROADWAY SECTION	REMARKS
10+17	MEET GRADE OF MSH 37	
11+00	4% SUPER	TRANSITION
13+51	4% SUPER	
14+51	2% CROWN	TRANSITION
17+68	2% CROWN	
18+68	4% SUPER	TRANSITION
19+00	4% SUPER	
19+63.81	MEET EXISTING ROAD GRADE	TRANSITION

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

APPROVED: 10 NOV. 1966

ASST. CHIEF ENGINEER
G.N. RAILWAY COMPANY

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, R/W & RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R/W & RT. OF WAY CHECKED, NOTE BOOK, NO., STRUCTURE NOTATNS CH'KD, BY, DATE

DUNN CREEK RD.

10+00 BEGIN DUNN CK. RD. = 800+10 MSH 37-SA

2209.68 -1.0% -2.0% 200' V.C. EXISTING GROUND PROFILE GRADE

V.P.I. 11+80 2208.05

FOR GUARDRAIL SEE PERM. MSH 37 PROFILE

C2 15+50 36" PIPE CULVERT 90'-6" LG.

V.P.I. 17+40 EL. 2185.66

+4.0% 200' V.C. +0.2%

19+63.81 END DUNN CK. RD. MEET EXISTING GRADE

EXISTING GRADE

10+00 15+00 20+00

2220.02

2210 2200 2190 2180

SILTY SANDY GRAVEL TO SANDY GRAVEL W/COBBLES & BOULDERS & BEDS OF SAND W/GRAVEL

GUARDRAIL GUIDE POST

C4 376' LT. 4 POSTS RT.

EQUATION 783+55.73 AHD. = 784+00.21 BK.

C3 878' LT.

EXISTING GROUND

PROFILE GRADE

+1.30%

+1.30%

AM 7-981 REBAR 120 LT. STA. 787+00 ELEV. 2142.61

PERM. MSH 37

C3 790+50 24" PIPE CULVERT 85' LG.

785+00 30" PIPE CULVERT 87'-9" LG. C3

SANDY SILTY GRAVEL W/COBBLES & BOULDERS 100'

2180 2170 2160 2150

780 785 790

A2 D-35

SILTY GRAVEL

SANDY GRAVEL W/ COBBLES & BOULDERS

SANDY GRAVEL

1000' V.C.

GRAVEL W/COBBLES & BOULDERS

SILTY SAND & W/ GRAVEL

SANDY GRAVEL W/ C & B

SANDY CLAYEY GRAVEL W/ C & B

V.P.I. 795+00 2179.42

ROCK @ EL. 2128

BOTTOM EL. 2099.9

SILTY SAND TO SANDY SILTY GRAVEL W/ COBBLES, BOULDERS & BLOCKS 60'

C4 A1 206' LT. GUARD RAIL LT.

4 - GUIDE POSTS

C4 124' RT. GUARD RAIL SHALL BE CONTINUOUS ALONG LT. SIDE OF DUNN CRK. ROAD & TERMINATE AT STA. 11+30 APPROX. SEE PROFILE FOR "DUNN CRK. RD." THIS SHT.

2230 2220 2210 2200 2190 2180 2170 2160

795 800

SYMBOL	DATE	DESCRIPTION	STATE OF MONTANA	G.N.	C. OF E.
B	17 JAN 67	REVISED DUNN CREEK ROAD	D&J	J.G.R.	
A	20 DEC 66	(R)CORRECTED LOCATION OF HOLE D-35 REVISED GUARDRAIL REQUIREMENTS			

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLEMENHAGEN
DRAWN BY: JOHNSON
CHECKED BY: CLEMENHAGEN
PREPARED:
REVIEWED: M E Buckman
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: H. Dale Buckholder CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3A
PLAN & PROFILE STA. 780 TO STA. 801

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION — DATE: 22 NOV. 66

SCALE: AS SHOWN — SPEC. NO.

DRAWING NUMBER: AS BUILT E-53-31-82
SHEET B5

53/31/82 5

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

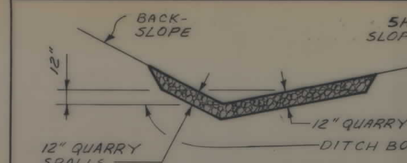
CONTRACT DACW67-67-C-0056

R/W NO	SHEET NO	TOTAL SHEETS
F 145	8	116

REVISIONS

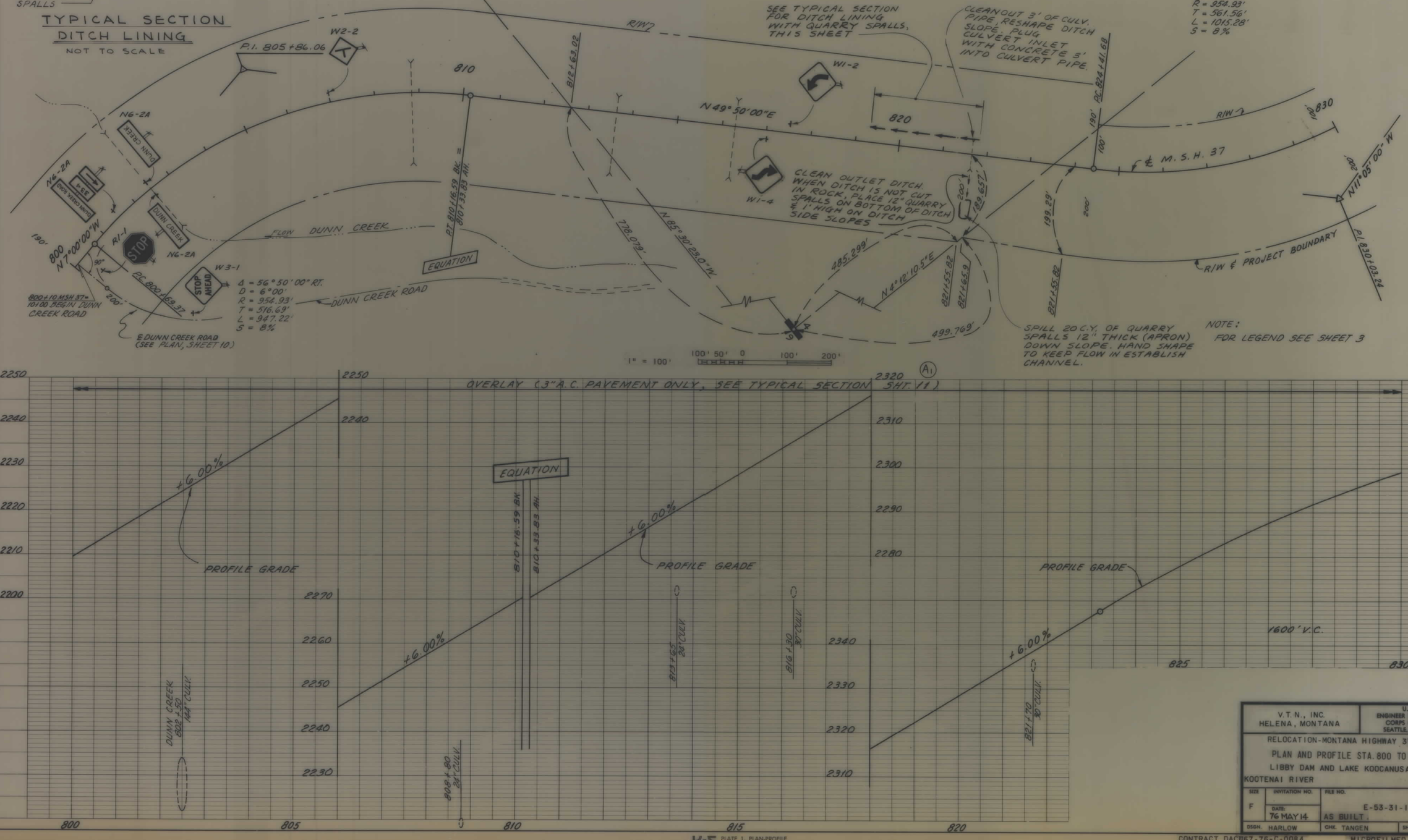
SYMBOL	DESCRIPTION	DATE	BY
A	(1) REVISED NOTE	78 JUN 14	KW
B	(1) AS BUILT	78 JUN 7	KWU

PLAN — SURVEYED, PLOTTED, DRAWN, GRADES CHECKED, R. W/S NOTED, STRUCTURE NOTATING CHKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE



TYPICAL SECTION DITCH LINING

NOT TO SCALE



PROFILE — SURVEYED, PLOTTED, DRAWN, GRADES CHECKED, R. W/S NOTED, STRUCTURE NOTATING CHKED, NOTE BOOK, NO., BY, DATE

V.T.N., INC. HELENA, MONTANA	U.S. ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS SEATTLE, WASHINGTON

RELOCATION-MONTANA HIGHWAY 37 UNIT 3A

PLAN AND PROFILE STA. 800 TO STA. 830

LIBBY DAM AND LAKE KOOCANUSA PROJECT

KOOTENAI RIVER MONTANA

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 76 MAY 14	E-53-31-124 AS BUILT.	
DSGN. HARLOW	CHK. TANGEN	SHEET 6	

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

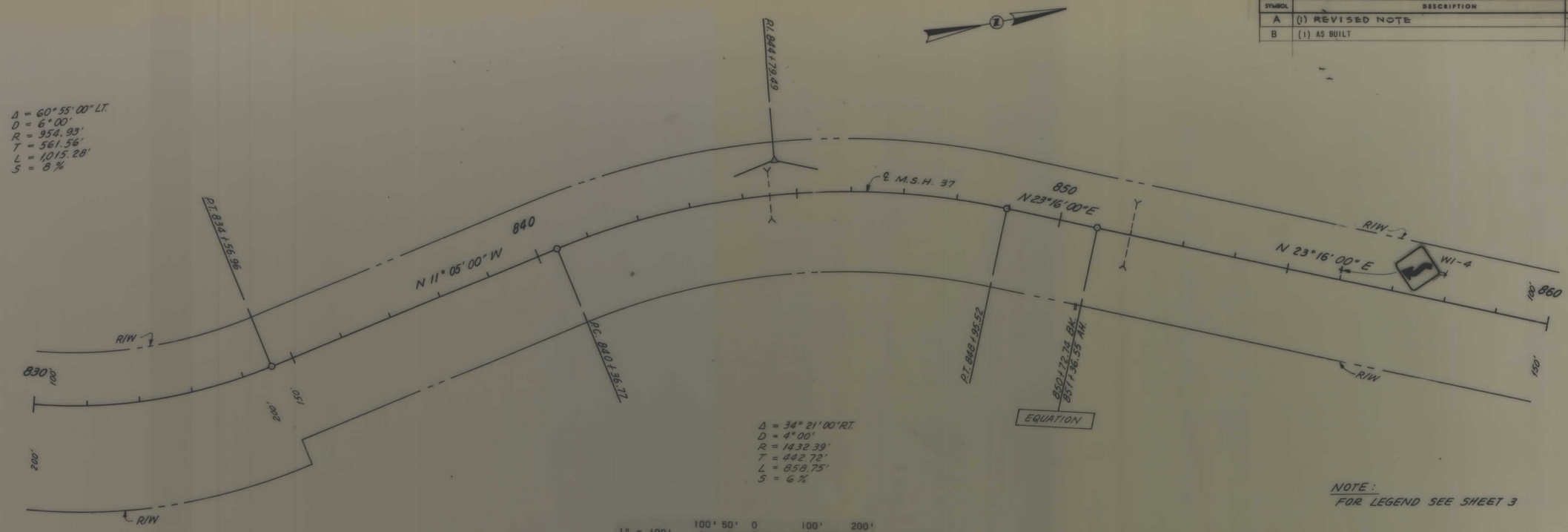
CONTRACT DACW67-76-C-0084 MICROFILMED JUN '78

R/W NO	SHEET NO	TOTAL SHEETS
F145	9	116

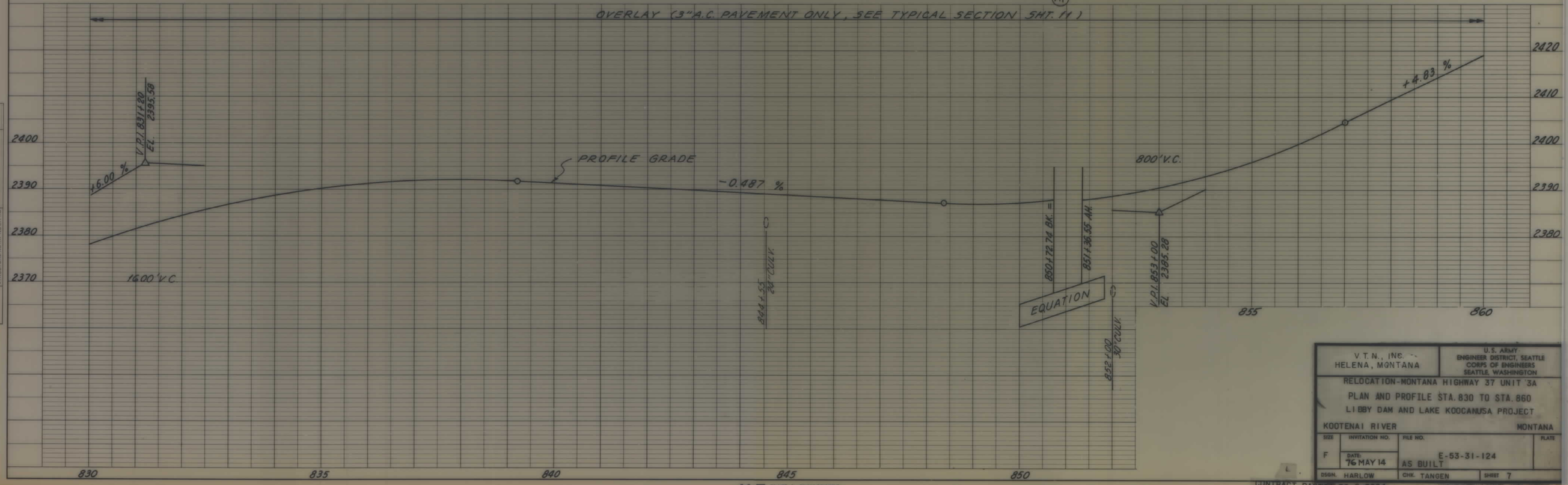
REVISIONS

SYMBOL	DESCRIPTION	DATE	BY
A	(1) REVISED NOTE	76 JUN 14	[illegible]
B	(1) AS BUILT	78 JUN 7	MKJ

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, NOTE BOOK, RT. OF WAY CHECKED, NO. — BY, DATE



PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, NO. — BY, DATE



V.T.N., INC. HELENA, MONTANA	U.S. ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS SEATTLE, WASHINGTON

RELOCATION-MONTANA HIGHWAY 37 UNIT 3A
PLAN AND PROFILE STA. 830 TO STA. 860
LIBBY DAM AND LAKE KOOCANUSA PROJECT
KOOTENAI RIVER — MONTANA

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 76 MAY 14	E-53-31-124 AS BUILT	
DSGN. HARLOW	CHK. TANGEN	SHEET 7	

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-76-C-0084 MICROFILMED JUN '78

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	10	116

REVISIONS			
SYMBOL	DESCRIPTION	DATE	BY
A	(1) REVISED PROFILE GRADE & EXISTING GROUND (2) REVISED NOTE 1 (3) ADDED STAGING AREA	73 NOV 1	

NOTES:

1. BETWEEN STATIONS 908+00± TO 934+19.72 GRADING WILL BE COMPLETED BY OTHERS TO THE SUBGRADE LINE.
2. WORK BETWEEN STATIONS 868+00 AND 934+19.72 INCLUDES PAVING, R/W MONUMENTS, GUIDE POSTS, AND SIGNS. FOR DETAILS SEE SHEETS 30, 31, 32, 39.4, 39.5, 39.6, 39.7, 39.10, 39.11, 39.12, 39.13, & 95.

State of Montana
W. ½, E. ½ Sec. 4

St. Regis Paper Co.
S. ½ Sec. 33

E MSH 37
N 23°16' E

D-42A

P.C. 861+86.60

R/W

R/W AND PROJECT BOUNDARY

STA 860+61.47

Δ = 15°24'16.3"
R = 3969.72'
1067.298'

P.T. 870+30.50

Δ = 24°55'
D = 1°30'
R = 3819.72'
T = 843.90'
L = 1661.11'

785.102'

904.261'

868+00 BEGIN PAVING THIS CONTRACT

866+00

N 85°48'56.9" W

870+85.26

AGGREGATE STOCKPILE & STAGING AREA, SELECTIVE WITHDRAWAL STRUCTURE III CONTRACT

878+47.71

P.T.

N. 01° 39' W.

N. 00°30'E.

PROJECT BOUNDARY

510.083'

S. 89°30'E.

N 00° 30' E

FUTURE R/W

Δ = 7°21'43.7"
R = 3969.72'

V.P.I. 872+30.86
EL. 2478.54

T.30N., R.29W.
T.31N., R.29W.

SCALE IN FEET
100 0 100 200 300

855 860 865 870 875 880

855 860 865 870 875

2480 2470 2460 2450 2440 2430 2420 2410 2400 2390 2380

GUARDRAIL

700' RT. 175' LT.

868+00 BEGIN PAVING THIS CONTRACT

-0.84%

EXISTING GROUND (FIELD SURVEYED)

1200' VC

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SEE SHEETS 837 883 FOR LEGEND

GRAVELLY SAND TO SILTY SAND W/GRAVEL

D-42A

+4.83%

SAND

SANDY GRAVEL

PROFILE GRADE

EXISTING GROUND

NOTE: MAT'L BELOW PROFILE GRADE IS AN OUTWASH DEPOSIT OF GRAVELS & SANDS W/OCC BOULDERS.

NOTE: ROCK ELEV. @ 2296.6

8 W. DM. 102' 24" FIR TREE 150' LT. OF 853+60 ELEV. 2418.09

861+50
24" PIPE CULVERT 146' LG.
SKEW 35° LT FWD.

866+50
30" PIPE CULVERT 90' LG
SKEW 30° RT FWD.

8 W. DM 100 RR SPIKE IN 30" PINE TREE 150' RT. OF 873+65, ELEV. 2470.10

M.S.H. 37

GRAVELLY SAND TO SILTY SAND W/GRAVEL

REVISIONS		
SYMBOL	DESCRIPTION	DATE

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLEMENHAGEN
DRAWN BY: JOHNSON
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3A
PLAN & PROFILE STA. 868 TO STA. 880

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 | DATE: 71 JUN 7
SHEET 91 AS BUILT

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

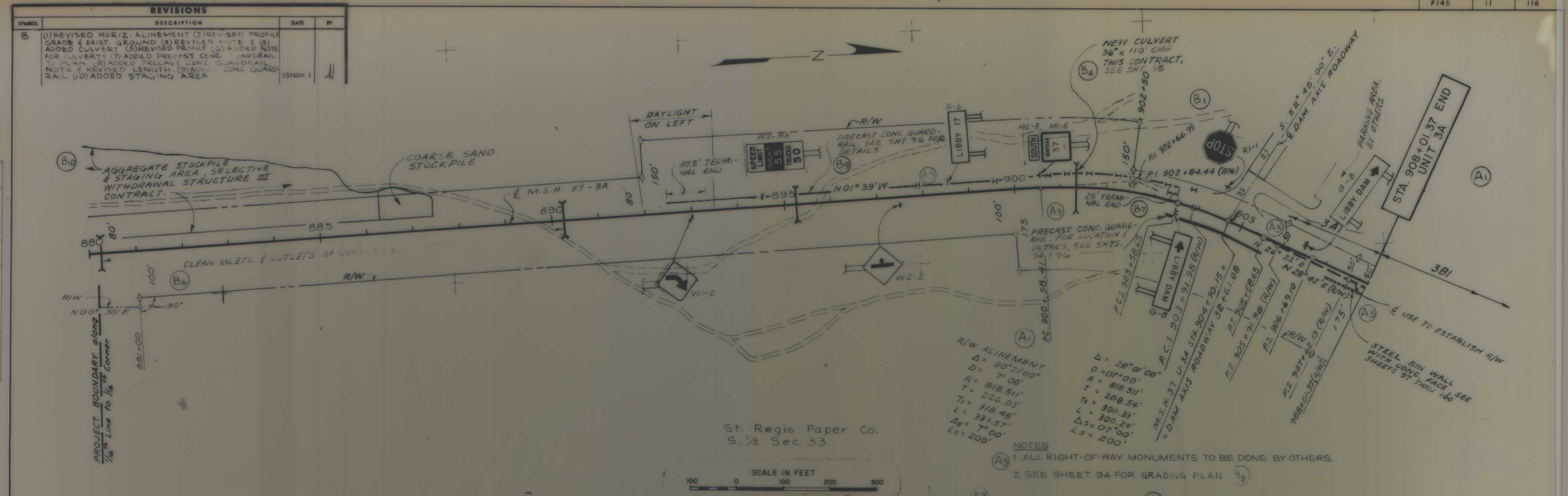
R/W NO	SHEET NO	TOTAL SHEETS
F145	11	116

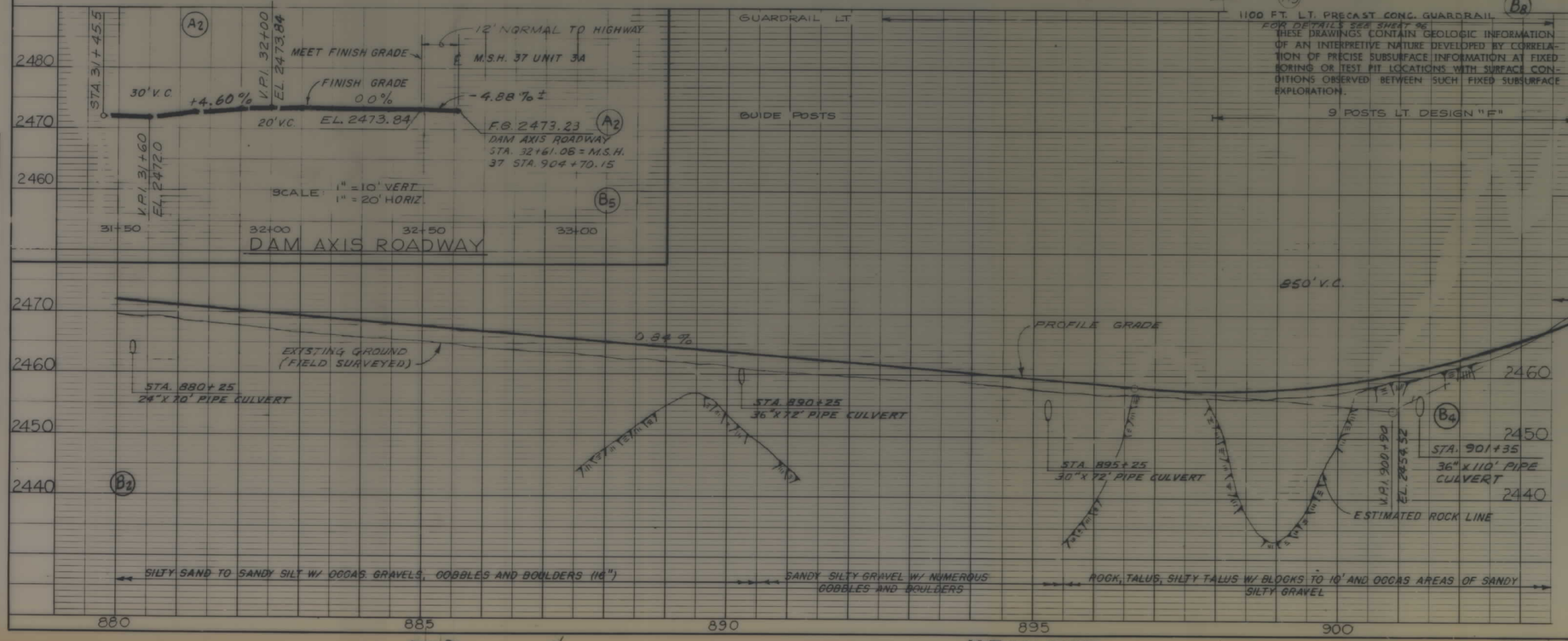
REVISIONS

SYMBOL	DESCRIPTION	DATE	BY
B	(1) REVISED HORIZ. ALINEMENT (2) REVISED PROFILE GRADE & EXIST. GROUND (3) REVISED NOTE 2 (4) ADDED CULVERT (5) REVISED PROFILE (6) ADDED NOTE FOR CULVERTS (7) ADDED PRECAST CONC. GUARDRAIL TO PLAN (8) ADDED PRECAST CONC GUARDRAIL NOTE & REVISED LENGTH (9) ADDED CONC GUARD RAIL (10) ADDED STAGING AREA	73NOV.1	AH

PLAN — DRAWN, PLOTTED, ALIGNMENT CHECKED, R/W OF WAY CHECKED, NOTE BOOK, NO., DATE, BY

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, NO., STRUCTURE NOTATIONS CHKD





SYMBOL	DATE	DESCRIPTION	STATE OF MONTANA	C. OF E.
A	71 NOV 1	AND GUIDE POSTS OF DAM AXIS ROADWAY, (3) ADDED GUARDRAIL (1) REVSD. HWY. ALIGNMENT & (2) REVSD PROFILE		11

REVISIONS — APPROVAL

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLEMENHAGEN	KOOTENAI RIVER, MONTANA
DRAWN BY: LARKIN	LIBBY DAM PROJECT
CHECKED BY: CLEMENHAGEN	RELOCATION - MONTANA HIGHWAY 37
PREPARED: SPEARMAN	UNIT 3A
REVIEWED: SHADDUCK	PLAN & PROFILE STA. 880 TO STA. 908+01.37
SUBMITTED: CHIEF, CIVIL DESIGN SECTION	APPROVED FOR THE DISTRICT ENGINEER: CHIEF ENGINEERING DIVISION — DATE: 71 JUN 7
RECOMMENDED: CHIEF, DESIGN BRANCH	SCALE: AS SHOWN — SPEC. NO. — DRAWING NUMBER E-53-31-117 — SHEET 92 AS BUILT

53/31 11 1.0'

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	12	116

NOTES

1. THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.
2. ALL RIGHT OF WAY MONUMENTS TO BE LOCATED BY OTHERS.

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, GRADES CHECKED, R/W NOTED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B.M.'S NOTED, CROSS-SECTIONS CHECKED, NOTE BOOK, NO., BY, DATE

R/W ALINEMENT & CONTRACT
Δ = 14°37'00" LT.
D = 03°00'
R = 1,909.86'
T = 320.00'
L = 337.22'

(C1) Δ = 21° 27' 00" LT.
D = 4° 00'
R = 1,432.39'
T = 271.42'
L = 536.25'
Δc = 3° 00'
Ls = 150'

R/W ALINEMENT
Δ = 19°07'00 RT.
D = 04°00'
R = 1,432.39'
T = 316.30'
L = 327.92'
Δs = 3° 00'
Ls = 150'

STA. 908+01.37
BEGIN PAVING UNIT 38-1

STEEL BIN WALL WITH CONCRETE FACE. SEE SHT. 97 FOR DETAILS

& USE TO ESTABLISH R/W

N 26° 22' 52" E

N 26° 43' 00" E (R/W)

N 47° 49' 00" E.

P.I. 910+15.52

P.I. 910+78.43 (R/W)

W-2

M6-1

M1-6

37 MONTANA

SPEED LIMIT 55 MPH TRUCKS 50

67-DD-3007

67-DD-3006

66-DD-991

P.I. 917+97.20 (R/W)

R2-8b

ST. REGIS PAPER Co

SCALE IN FEET
100 0 100 200 300

Δs = 02° 15'
Ls = 150'

P.S. 914+77.20 (R/W)
P.S.C. 916+27.20 (R/W)
P.S. 914+79.53
P.S.C. 916+29.53

Δs = 02° 15'
Ls = 150'

P.C.S. 919+64.42 (R/W)
P.C.S. 919+66.75
67-DD-3008
P.T. 921+14.42 (R/W)
P.T. 921+16.75
P.O.T. 921+51.29 BK. = P.O.T. 921+65.69 AHD

EQUATION

SECTION 28
SECTION 33

Δ = 12° 32' 45" RT.
D = 03° 30'
R = 1,637.02'
T = 255.00'
L = 208.45'

P.O.S. 927+95.091

P.I. 926+43.54

N. 33° 12' E.

N. 45° 46' 42" E.

P.S.C. 923+38.54
P.S. 923+38.54
P.S.C. 925+38.54
P.C.S. 927+46.99

N. 41° 33' 2" W.
71.733

P.T. 928+86.99

Δs = 2° 37' 30"
Ls = 150'

Δs = 01° 07' 30"
Ls = 150'

P.S. 929+93.97
P.S.C. 931+43.97
P.C.S. 932+95.64
69-DD-3104
69-DD-3100
69-DD-3101
69-DD-3102
69-DD-3103

Δs = 01° 07' 30"
Ls = 150'

P.T. 934+45.64 BK. = P.O.T. 934+25.92 AHD.
EQUATION
150' R/W
N. 41° 13' 15" E.

STA. 934+17.92
END PAVING UNIT 38-1

Δ = 04° 31' 30"
D = 01° 30'
R = 3819.72'
T = 225.92'
L = 151.67'

Δs = 2° 37' 30"
Ls = 150'

2520 GUARDRAIL LT RT

STA. 908+01.37 BEGIN PAVING, UNIT 38-1 EL. 2488.80

K.P.I. 905+77.10 EL. 2491.10

6:1 SLOPE PROFILE GRADE FILL RT.

+4.087%

-4.851%

EXISTING GROUND (FIELD SURVEY)

908+70
30" x 250' PIPE CULVERT

911+90
24" x 158' PIPE CULVERT

400' V.C.

915+20
36" x 180' PIPE CULVERT

2616' LT.

6:1 FILL SLOPE

6:1 FILL RT.

+4.087% PROFILE GRADE

EXISTING GROUND (FIELD SURVEY)

921+59.03 BK. = 921+65.69 AHD.

EQUATION

SURVEY GROUND LINE

475' RT.

6:1 SLOPE FILL RT.

DRAINAGE FILL CONSTRUCTED OF RANDOM GRANULAR GRAVEL OR ROCK FILL

K.P.I. 925+65.19 EL. 2561.18

+3.326% PROFILE GRADE

-0.6% -0.5%

EL. 2510

400' V.C.

926+25
24" x 104' PIPE CULV.

929+30
36" x 308' PIPE CULV.

933+75
24" x 186' PIPE CULVERT

STA. 934+45.64 BK. = STA. 934+25.92 AHD. EQUATION

+3.326%

STA. 934+17.92
END PAVING
UNIT 38-1

2520 2510 2500 2490 2480 2470 2460 2450 2440 2430 2420

2600 2590 2580 2570 2560 2550 2540 2530 2520 2510 2500 2490 2480 2470 2460 2450

910+00 915+00 920+00 925+00 930+00

SYMBOL	DESCRIPTION	DATE
A	(1) ADDED GUARD RAIL (2) CHANGED EXIST. TO "DESIGN" GRD. LINE	71JUN24
B	TO "SURVEY" GROUND LINE. (5) ADDED NOTES & GUARD RAIL NOLES. (3) RELOCATED VERT. P.I. STA. (4) CHANGED DESIGN (2) ADDED CULVERTS, R/W, FILL SLOPES, SECTION COR & LOG (1) REVISED ALIGNMENT, FROM STA. 908+01.37 TO 921+56.7	71 NOV 1
C	CULVERT BY OTHERS (3) ADDED STEEL BIN WALL (2) REVISED STATIONING (3) REVISED GRADES (4) ADDED (1) REVISED HORIZ. ALINEMENT & EXIST. NG GROUND.	73NOV.1

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY CLEMENHAGEN
DRAWN BY VON BESCHWITZ
CHECKED BY CLEMENHAGEN
REVIEWED SHADDUCK
PREPARED CHIEF, CIVIL DESIGN SECTION
SUBMITTED CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 38 I
PLAN & PROFILE
STA. 908 + 01.37 TO STA. 934 + 17.92

SCALE AS BROWN | SPEC NO
DRAWING NUMBER E-53-31-117 | DATE 71 JUN 7
SHEET 93 AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	13	116

Δ = 4°31'30"
D = 1°30'00"
R = 3,819.72'
T = 225.92'
L = 151.67'

EQUATION

68-BT-2303
68-BT-2300
TO BE ABANDONED
68-BT-2305
FOR TYPICAL SECTION IMPERVIOUS DITCH SEE DETAIL ON SH. 5A
SECTION 28
SECTION 27
68-BT-2301
R/W
FOR CUT SLOPE DRAINAGE PATH AT STA 939+50 SEE DETAIL ON SH. 5A
OBLITERATE EXIST. ROAD WITHIN HWY R/W
2594.7 STA. 937+50 36" 70.2 CMP
P.I. 947+01.01
2613.8 STA. 947+50 24" 72.5 CMP
2571.9 STA. 953+80 42" 170.5 CMP
2606.90
2615.0
2596.07
37°01'17"
N 41°13'15" E
N. 49°53'15" E.
N. 13°13'15" E.
Δ = 36°40'00" LT.
D = 06°00'
R = 954.93'
T = 416.97'
L = 411.11'
Δs = 06°00'
Ls = 200'
P.S. 929+93.97
P.S.C. 931+43.97
P.C.S. 932+95.64
P.T. 934+45.64 BK. = 934+25.92 AHD.
P.I. 932+19.89
P.S. 952+05.05
P.C.S. 954+05.05
P.C.S. 958+16.16
P.I. 956+22.02
P.T. 959+66
BEGIN GRADING THIS CONTRACT STA. 934+17.92
69-BT-3105
69-BT-3107
69-BT-3106
69-BT-3146
69-BT-3145
69-BT-3144
T.B.M. RJ-3
N1-4
1:1 OVERBURDEN CUT SLOPE
COMMON-CUT SLOPES @ SEE TYP. SECTION
1¼:1
4:1 FILL SLOPE RT.
TBM RJ4
OREN K. KELSON
U. S. F. S.
970.27'
N. 4°11'57.9" E
T 31 N., R. 29 W., M.P.M.
Δ = 08°40'00" RT.
D = 01°30'
R = 3,819.72'
T = 364.46'
L = 427.78'
Δs = 01°07'30"
Ls = 150'
P.S. 943+36.55
P.S.C. 944+06.55
P.C.S. 949+14.33
P.T. 950+64.33
P.S. 952+05.05
P.C.S. 954+05.05
P.C.S. 958+16.16
P.T. 959+66
230'
180'
200'
150'
190'
SCALE IN FEET 100 0 100 200 300

TYPICAL SECTION
℄ M.S.H. 37
17' 21' 10' 1 1.25 6:1

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

UNSTABLE FOUNDATION SUB-EXC 36" MINUS SHOT ROCK BACKFILL STA. 958+00 – 959+16

LEGEND

EXISTING OR BY OTHERS		THIS CONTRACT
	ROAD	
	FENCE	
	CULVERT	
	SWALE OR DITCH	
OR	R/W OR MONUMENT	
	BUILDINGS	
	GUIDE POSTS	
	SECTION CORNER FOUND	
	1/4 SECTION CORNER FOUND	
	LAND LINES	
	LAND LINE W/ COMMON OWNERSHIP	
X TBM RJ9	TEMPORARY BENCH MARK W/ NUMBER	
	POWER LINE	

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. CUT SLOPE LT. RT.
Z WIDTH = 7'
BEGIN GUARD RAIL LT.
69-BT-3105
69-BT-3106
69-BT-3107
69-BT-3146
GM
932+00
905+50
11 POSTS RT. DESIGN F
-1.164% PROFILE GRADE
T.B.M. RJ4 BOAT SPIKE 0.3' ABOVE GROUND UPHILL SIDE 18" FIR 165' RIGHT OF STA. 953+80
953+80 42" X 170.5 PIPE CULVERT

EQUATION
BEGIN GRADING STA. 934+17.92 ELEV. 2589.55
P.T. 934+45.64 BK. = 934+25.92 AHD.
DESIGN GROUND LINE
PROFILE GRADE
+3.326%
937+50 36" X 70.2' PIPE CULVERT
T.B.M. RJ3 EL. 2679.53 BOAT SPIKE 0.3' ABOVE GROUND, UPHILL SIDE 8" FIR TREE, 95' RIGHT OF STA. 944+50
1600' V.C.
P.I. 945+00 EL. 2626.75
W = 20' RT. VERT. SLOPE OVERBURDEN 1:1
SEE TYPICAL SECTION THIS SHEET
Z = 7' LT.
1400' RT DOUBLE BEAM GUARD RAIL
-1.164% DESIGN GROUND LINE
947+50 24" X 72.5 PIPE CULVERT

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1) ADDED SCHEDULE 'B' (3) REV. ROCK EXC. CUT SLOPE.	70 JUL 31	
A	(1) ADDED SURVEYED GROUND LINE (2) ADDED NOTE	70 JULY 8	
F	CUT & FILL SLOPES 3 PLACES. (3) ADDED TYP. SECTION. (4) REVISED (2) CORRECTED BEGINNING STATION. ALIGNMENT & PROFILE GRADE. (1) STA. 937 TO 950, REVISED HWY.	71 NOV 1	
E	DESIGN ROCK LINE," GRD. LINE" & "APPROX. ROCK LINE" TO CALL-OUT "EXIST. GROUND" TO "DESIGN (1) ADDED ROAD SIGN. (2) CHANGED	71 JUN 24	
D	(5) CHANGED BEGINNING STA. & REV. ALIGNMENT. NOTE & CULVERT, (4) REV. ROCK CUT SLOPE GUARDRAIL, & GUIDE POSTS. (3) MOVED (2) ADDED LEGEND, BEGIN GRADING, (1) CHANGED TITLE "FILE NO.	71 JUN 7	
C	(2) MOVED R/W DISTANCE (1) ADDED GRADE TO PROFILE.	70 AUG 5	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: VON BESCHWITZ LALIKOS LONDON
CHECKED BY: PHARR
REVIEWED: SHADDUCK
PREPARED:
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, ENGINEERING BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION – MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 934+17.92 TO STA. 960+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER E-38-31-117
DATE: 70 JULY 10
AS BUILT

PLAN: SURVEYED, PLOTTED, AUTOMATICALLY CLOCKED, BY OF ARE CHECKED, NOTE BOOK, NO., DATE, BY

PROFILE: SURVEYED, PLOTTED, BY, NOTE BOOK, NO., STRUCTURES, DATE

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC 1761

R/W NO	SHEET NO	TOTAL SHEET
F 145	14	116

P.I. 970+35.99

FOR CULVERT INLET PAVING SEE DETAIL ON SH 5A

2564.0
STA. 963+30
24" 142.5' CMP

2570.3
STA. 969+30
24" 132.5' CMP

2602.2

2605.70
STA. 975+30
24" 66.3' CMP

2605.80

2608.2

2608.5
STA. 982+30
24" 64.5' CMP

2609.8

2590.10
STA. 989+00
24" x 102.5'

2610.19

CANYON CREEK RECREATION AREA

$\Delta = 11°46'45"$ LT.
$D = 03°15'$
$R = 1,762.95'$
$T = 256.91'$
$L = 212.44'$

$\Delta s = 02°26'15"$
$L s = 150'$

$\Delta = 47°00'00"$ RT.
$D = 03°30'$
$R = 1,637.02'$
$T = 787.04'$
$L = 1,192.86'$

$\Delta s = 02°37'30"$
$L s = 150'$

$\Delta s = 06°30'$
$L s = 200'$

N. 13°13'15" E.
N. 60°13'15" E.
N. 48°26'30" E.

P.T. 960+16.16
P.S. 962+40.95
P.S.C. 963+98.95
P.C.S. 975+91.81
P.T. 977+41.81
P.S. 982+16.16
P.S.C. 983+66.16
P.C.S. 985+78.60
P.T. 987+28.60
P.S. 989+10.26

P.I. 984+73.07

FOR BACK SLOPE, SEE SPECIAL SECTION BELOW

FOR CLEARING AT STA. 982+50 SEE DETAIL ON SH 5A

SCENIC TURNOUT SEE SHEET 31 FOR DETAILS

TBM RJ5

TBM RJ6

U.S.F.S.

T 31 N., R. 29 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

EXISTING GROUND
℄ M.S.H. 37
VERTICAL CUT
3'
1½:1

STA. 981+00 TO STA. 984+00
SPECIAL SECTION-CUT

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, TRACED, CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, TRACED, CHECKED, B. M.'S NOTED, STRUCTURE NOTATIONS ON PLAN, NOTE BOOK, NO., BY, DATE

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT. 11 POSTS RT. DESIGN F
ROCK EXC. CUT SLOPE LT. RT.
Z=WIDTH = 7'

9702' LT.

W=20' RT. 1½:1 SLOPE
W=20' RT. VERT. SLOPE
Z = 7' LT.

12 POSTS LT. DESIGN F

2630
2620
2610
2600
2590
2580
2570
2560

600' V.C.
-1.164%
+0.305% PROFILE GRADE
DESIGN GROUND LINE
DESIGN ROCK LINE
963+30 24"x138' PIPE CULVERT
969+30 24"x132.5' PIPE CULVERT
975+30 24"x66.3' PIPE CULVERT
982+30 24"x70' PIPE CULVERT
989+00 24"x100' PIPE CULVERT

V.A. 961+50
EL. 2607.0

T.B.M. RJ-6, EL. 2677.26
BOAT SPIKE 0.6' ABOVE GROUND, DOWNHILL SIDE 22" PONDEROSA PINE, RIGHT OF STA. 982+50'

TBM RJ5
EL. 2687.74
BOAT SPIKE 0.4' ABOVE GROUND, DOWNSTREAM SIDE 14" LARCH, 210' RT. OF STA. 967+60

960 965 970 975 980 985 990

SYMBOL	DESCRIPTION	DATE	APPROVAL
F	(2) CHANGED STATIONING BY 0.01 FEET. STA. 975+91.81 TO 990+00 AND ADDED "SPECIAL SEC." (1) REVISED ALIGNMENT, PROFILE GRADE & R/W FROM	72JAN10	
E	(2) ADDED DESIGN ROCK-LINE. (1) REVISED ALIGNMENT, PROFILE GRADE, & CULVERTS.	71 NOV 1	
D	LINE & ESTIMATED ROCK LINE TO DESIGN ROCK LINE. (1) CHANGED EXIST. GROUND LINE TO DESIGN GROUND	71JUN24	
C	-AVATION CUT SLOPE & CULVERT LENGTHS. GUARDRAIL, AND GUIDE POSTS (3) REVISED ROCK EXC- (1) CHANGED TITLE & FILE NO. (2) ADDED CULVERT.	71JUN7	
B	(1) CORRECTED CULVERT LENGTH (2) REPAIRED HWY. CENTER LINE	10 AUG 5	

AREA (3) ADDED SCENIC TURNOUT (4) REV. EXC. CUT SLOPES
A (1) ADDED SURVEYED GROUND LINE (2) ADDED CANYON CR. REC. 70 JUL 31

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: W. VON BESCHWITZ, LALIKOS LONDON
CHECKED BY: PHARR & HALL
REVIEWED: SHADDUCK
PREPARED:
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3 2
PLAN AND PROFILE
STA. 960+00 TO STA. 990+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER E-63-31-117
DATE '70 JULY 10
5

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

CONTRACT DACW67-72-C-0025

K·E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

R/W NO	SHEETS NO	TOTAL SHEETS
F 145	15	116

REVISIONS

SYMBOL	DESCRIPTION	DATE	BY
F	(1) ADDED SIGNS	74 MAY 28	

STATE OF MONTANA

SECTION 22
SECTION 27

F.S. ROAD NO. 531.2

CANYON CREEK FLOW

CANYON CREEK RECREATION AREA

Δ = 116°37'00"
D = 7°30'
R = 763.94'
T = 1340.81'
L = 1354.89'

FOR CANYON CR DITCH REPAIR RT AT APPROX STA 1011 SEE DETAIL ON SHEET 6A

TO BE ABANDONED

OBLITERATE EXISTING ROAD WITHIN HWY R/W

EQUATION P.S.C. 991+10.26 BK = 990+79.02 AH.

P.I. 992+90.86 BK

Δ = 35°15'00"
D = 6°30'
R = 881.47'
T = 380.60'
L = 342.31'

P.C.S. 994+21.33

N. 83° 41' 30" E.

Δ = 6°30'
L = 200'

STA. 994+00
BEGIN R/W FENCE

PT 996+21.33

PS 996+78.02

Δ = 7°30'
L = 200'

P.C.S. 998+78.02

FOR CULVERT RIPRAP EXTENSION SEE DETAIL ON SH 6A

N6-2A

CANYON CREEK

2572.4 INV

N. 83° 41' 30" E.

N. 32° 55' 30" W.

P.I. 1010+18.83
PROJECTED LOC.

2471.1 INV

STA 1010+88
120" x 312' SSP

67-DD 3019

FOR SLOPE STABILIZATION FIGURES AND DATA SEE SH 6A

U.S.F.S.

TBM RJ7

STA 100+00
48" x 115.3' CMP

T. 31 N., R. 29 W., M.P.M.

2581.9 INV

FOR INLET PAVING SEE DETAIL ON SH 6A

132.380' TO SECT COR.

38° 41' 04.2"

SCALE IN FEET
100 0 100 200 300

STA. 1007+00
END R/W FENCE

116.24

2492.5 INV

CANYON CREEK

P.I. 1020+05.43

P.C.S. 1020+49.17

Δ = 3°00'
L = 150'

PT 1021+99.17

STA. 1020+00
BEGIN R/W FENCE

P.C.S. 1019+61.04

Δ = 3°00'
L = 150'

P.S. 1018+11.04

Δ = 9°31'30"
D = 4°00'
R = 1,432.39'
T = 194.39'
L = 88.13'

Δ = 7°30'
L = 200'

PT 1014+32.91

PC.S. 1012+32.91

N. 32° 55' 30" W.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

CANYON CREEK RECREATION AREA

ROCK CUT SLOPE
W = 15' LT. 1 1/2 : 1 SLOPE
W = 20' RT. 1 1/2 : 1 SLOPE

GUARD RAIL
LT. GUIDE
RT. POSTS

V.P.I. 1019+00
EL. 2587.30

+0.522%

SURVEY GROUND LINE

800' V.C.

PROFILE GRADE

+3.702%

DESIGN ROCK LINE

2600
2590
2580
2570

V.P.I. 394+30.76
EL. 2617.16

+0.305%

SURVEY GROUND LINE

1600' V.C.

DESIGN ROCK LINE

DESIGN GROUND LINE

PROFILE GRADE

-4.077%

V.P.I. 1010+00
EL. 2554.00

DESIGN GROUND LINE

937.5' LT.
675.0' RT.

2610
2600
2590
2580
2570
2560
2550
2560

TBM RJ7
EL. 2606.52
BOAT SPIKE 0.2' ABOVE GROUND, DOWNHILL SIDE 10" LARCH. 90' RT OF STA. 999+35.

STA. 1001+00
48" x 115.3' PIPE CULVERT
SKEW NO. 42

1702' LT.

GUARD-LT
RAIL RT

GUIDE-LT
POSTS RT.

12 POSTS ℄ DESIGN "F"

100' ± 5 END GUARDRAIL

29 POSTS RT. DESIGN "F"

1007.00

1001.75

1013.73

1014+12

1010+88
120" x 312.5' SPP
CULVERT
SKEW NO. 123

ROCK EXC. - LT.
CUT SLOPE RT.

Z WIDTH = 7'

W = 20' RT., VERT. SLOPE

Z = 7' LT.

Z = 7' RT.

Z = 7' LT.

Z = 7' RT.

990 995 1000 1005 1010

SYMBOL	DESCRIPTION	DATE	APPROVAL
E	BK (2) REVISED PROFILE AND VPI (1) REVISED ALIGNMENT FROM STA. 990+00 TO 991+10.26	72 JAN 10	
D	EXC. CUT SLOPE ACTUALLY LOCATED BEYOND DWG. LIMITS (5) RVSD. ROCK STA. 998+60 & 1000+00. (6) ADDED PROJECTED VIEW OF P.I. (2) ADDED CULV. AT STA. 1002+50 (3) DELETED CULVS. AT (1) REVISED PROFILE GRADE FROM STA. 990 TO 1005.	71 NOV 1	
C	"ROCK LINE" "GROUND LINE" AND "APPROX. ROCK LINE" TO "DESIGN (1) CHANGED CALL-OUT "EXIST. GROUND" TO "DESIGN	71 JUN 24	
B	-ISED ROCK EXC. CUT SLOPE, GUIDE POSTS, GUARDRAIL, & ROAD SIGNS (3) REV- (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE,	71 JUN 7	
A	R/W MARKER (5) REVISED ROCK EXC. CUT SLOPES CREEK RECREATION AREA (3) ADDED NOTE (4) DELETED (1) ADDED SURVEYED GROUND LINE (2) ADDED CANYON	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: W. VON BESCHWITZ, LONDON, CALIFOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 990+00 TO STA. 1022+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 70 JULY 10
SHEET 6 AS BUILT (B1)

PLAN: SURVEYED, PLOTTED, DESIGN CHECKED, ALIGNMENT CHECKED, R.M.S. NOTED, STRUCTURE NO'S AT NS (CH'KD), NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, DESIGN CHECKED, R.M.S. NOTED, STRUCTURE NO'S AT NS (CH'KD), NOTE BOOK, NO., BY, DATE

K-E PLATE 1, PLAN-PROFILE

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEETS NO	TOTAL SHEETS
F 145	16	116

U.S.F.S.

CANYON CREEK RECREATION AREA

CANYON CREEK RECREATION AREA

$S\Delta = 3°00'$ $L = 150'$

$S\Delta = 3°00'$ $L = 150'$

$\Delta = 23°17'15"$ $D = 4°00'$ $R = 1,432.39'$ $T = 370.30'$ $L = 432.19'$

STA. 1022.50 36"x92.3' CMP 16GA. SKEWG5°

INV. 2553.6

STA. 1028+19 48"x143'

INV. 25793

P.I. 1027+90.38

OBLITERATE EXIST ROAD WITHIN HWY R/W

FOR DETAIL OF RIP-RAPPED CULVERT & DITCH PAVING - SEE DETAIL ON SHEET 12A

x TBM RJ9

FOR CULVERT INLET RIRRAP PAVING SEE DETAIL ON SH. 12A

P.I. 1038+85.55

TO BE ABANDONED

STA 1044+00 MSH 37 = STA 10+00 RD APPROACH, FOR DETAILS SEE SHEETS 27,39

x TBM RJ 10

$\Delta = 33°22'45"$ $D = 4°00'$ $R = 1,432.39'$ $T = 504.64'$ $L = 684.48'$

$S\Delta = 3°00'$ $L = 150'$

$S\Delta = 2°15'$ $L = 150'$

$\Delta = 16°18'45"$ $D = 3°00'00"$ $R = 1909.86'$ $T = 348.79'$ $L = 393.75'$

N 13°18'30" W

OBLITERATE EXIST ROAD WITHIN HIGHWAY R/W

P.I. 1049+72.75

SCENIC TURNOUT 1/2 MI

N8-1

STATE OF MONTANA

ST. REGIS PAPER CO.

T 31 N., R. 29 W., M.P.M.

SCALE IN FEET 100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, R. M.'S NOTED, STRUCTURE LOCATING (N+W) — BY, DATE, NOTE BOOK, NO.

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. CUT SLOPE Z WIDTH = 7'
W=20' RT. 1½:1
Z = 7' LT.
Z = 7' RT.
10 POSTS RT. DESIGN F
525' RT.
13 POSTS LT. DESIGN F
W=15' LT SLOPE 1½:1
W=15' RT
W=15' LT 2% DAYLIGHT

TBM RJ 9
EL. 2628.33
BOAT SPIKE 0.2' ABOVE GROUND, DOWNHILL SIDE
14" PINE 155' RT OF STA 1025+70

TBM RJ10
EL. 2638.94
BOAT SPIKE 0.3' ABOVE GROUND, UPHILL SIDE
12" PINE 40' RT OF STA 1040+00

C2 DESIGN GROUND LINE
PROFILE GRADE
A1 SURVEY GROUND LINE
C1 DESIGN ROCK LINE
800' V.C.
1200' V.C.
+4.30%
+0.52%
VPI 1028+00 EL. 2592.00
VPI 1040+00 EL. 2641.56
1028+19 48" x 143' PIPE CULVERT
1022+50 36" X 92.3' CMP

℄ APPROACH ROAD STA. 10+00 = M.S.H. STA. 1044+00

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R. M.'S NOTED, STRUCTURE LOCATING (N+W) — BY, DATE, NOTE BOOK, NO.

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(5) REVISED ROCK EXC. CUT SLOPE. RECREATION AREA (3) ADDED NOTE (4) ADDED ROAD R/W (1) ADDED SURVEYED GROUND LINE (2) ADDED DESIGN LINE	70 JUL 31	
C	"DESIGN ROCK LINE" & (2) "EXIST. GRD." TO DESIGN GRD (1) CHANGED CALL-OUT "APPROX. ROCK LINE" TO	71JUN24	
B	POSTS & ROAD SIGNS (3) REV. ROCK EXC. CUT SLOPE (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE, GUARDRAIL, GUIDE	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS.. SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS LONDON
CHECKED BY: PHARR & HALL
REVIEWED: SHADDUCK
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1022+00 TO STA. 1052+00

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER E-53-31-117 | DATE '70 JULY 10
SHEET 7 AS BUILT (B1)

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	17	116

REVISIONS (CONTINUED)

SYMBOL	DESCRIPTION	DATE	BY
B	(1) CORRECTED P.S. STATIONING CALLOUT	78MAY24	KKO

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

P.I. 1072+40.88
FOUNDATION EXCAVATION WITH ROCK BACKFILL TO BE ABANDONED
68-BT-2192
68-BT-2188
68-BT-2189
68-BT-2190
68-BT-2191
68-BT-2187
68-BT-2186
68-BT-2185
68-BT-2184
68-BT-2193
68-BT-2194
3' ROCKFILL PROTECTION ON EXISTING GROUND OR EMBANKMENT TOE. FOR DETAIL SEE SECTION BELOW.
2459 MAX. POOL ELEVATION
OBLITERATE EXISTING ROAD WITHIN HIGHWAY R/W
W1-5
W1-2
2583.5 INV.
2583.3 INV.
2584.6 INV.
2594.1 INV.
2578.4 INV.
2580.1 INV.
2574.1 INV.
2575.7 INV.
2573.9 INV.
2508.3 INV.
66° 35' 52"
Sa = 2°15' L = 150
Sa = 21° 45' 00" L = 1450'
Sa = 7° 30' L = 500'
N 29° 37' 15" W
N 85° 43' 37.4" W 1,249.59' TO 1/4 CORNER
SECTION 22 SECTION 15
STA. 1053+00 END FENCE
STA 1069+74 24"X88.9' CMP
STA 1059+75 24"X62.7' CMP
STA 1073+00 24"X76.5' CMP
STA 1078+20 30"X70' CMP
P.S. 1053+36.74
P.S.C. 1068+86.74
P.S.C. 1079+11.74
1064+42.70
1052
1055
1060
1065
1070
1075
1080
1082
240'
190'
140'
110'
100'
200'
U. S. F. S.
ST. REGIS PAPER CO.
A = 60°00'
D = 3°00'
T1 = 180+14.14' LT
T2 = 1402.06' RT
L = 1025.00'
R = 1909.86'
CRITICAL ENVIRONMENTAL AREA

EXISTING GROUND OR TOE OF EMBANKMENT
ELEV. 2465.0
MAX. POOL ELEV 2459.0
ROCKFILL SLOPE PROTECTION
ELEV. 2440.0
EXIST GROUND APPROX 1½:1
3' MIN.
M.S.H. 37
FOUNDATION EXCAVATION TO ROCK TO POINT DIRECTLY (10') BENEATH TOE PLAN 1½:1 SLOPE

ROCK FILL PROTECTION FOR EXISTING GROUND
STA. 1069+50 TO 1072+50

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, STRUCTURE ROTATIONS CHKD., NOTE BOOK, NO., BY, DATE

GUARDRAIL LT. RT.
ROCK EXC. CUT SLOPE LT. RT.
2 WIDTH = 1' LT. RT.
W = 20' RT., VERT.
Z = 1' LT.
4550' LT
1000' V.C.
PROFILE GRADE
-0.586%
1052+50 VPI EL. 2593.08
1052+50 36"X97.5' PIPE CULVERT
1059+75 24"X62.7' PIPE CULVERT
1064+74 24"X88.9' PIPE CULVERT
1073+00 24"X76.5' PIPE CULVERT
DESIGN GROUND LINE
DESIGN ROCK LINE
68-BT-2186
ML
GM
2610 2600 2590 2580 2570 2560 2550 2540
1052 1055 1060 1065 1070 1075

W = 20' RT. @ 1:1 SLOPE
H = 20' RT. VERT.
1078+20 30"X70' PIPE CULVERT
DESIGN GROUND LINE
DESIGN ROCK LINE
2580 2570 2560 2550 2540
1080 1082

SYMBOL	DESCRIPTION	DATE
A	(2) ADDED ROCKFILL PROTECTION (1) ADDED 2459 POOL EL. (2) CORRECTED GROUND LINE & PROFILE GRADE	71 NOV 1

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: KUBO
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1052+00 TO STA. 1082+00

PREPARED: Ted M Yoon
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER E-53-31-117 | DATE: 71 JUNE 24
AS BUILT
SHEET 8.1 | MICROFILMED MAY '78

CONTRACT DACW67-72-C-0017

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

THIS SHEET SUPERSEDES DWG E 53-31-117, SHEET 8 DATED 70 JULY 10

R/W NO	SHEET NO	TOTAL SHEETS
F 145	18	116

68-BT-2182

TO BE ABANDONED

68-BT-2181

TO BE ABANDONED

68-BT-2180

68-BT-2179

2584.3

2567.7

120'

STA. 1086+45
36" x 78.4' CMP

P.I. 1093+47.72

STA. 1096+00
42" x 67.2' CMP

2617.6

STA. 1102+00
24" x 82.4' CMP

SCENIC TURNOUT
1/2 MI

N8-1

2643.1

STA. 1110+00
30" x 71.7' CMP

2644.5

2604.8

2620.5

1082 1085 1090 1095 1100 1105 1110 1112

N 30°22'45" E

N 42°20'45" E

2577.8

RT 1084+11.74
190'

PS 1086+72.19
140'

PSC 1088+22.19

PCS 1098+68.86

140'

PT 1100+18.86 BK =
POT 1099+80.32 AHD

90'

140'

100'

100'

Δ = 11°58'
D = 1°00'
T_S = 675.53'
L = 1,046.67'
R = 5,729.58'

S_Δ = 7°30'
L = 500'

S_Δ = 0°75'
L = 150'

S_Δ = 0°45'
L = 150'

FOR CULVERT INLET PAVING SEE DETAIL ON SHEET 12A

EQUATION

U.S.F.S.

SECTION 15
T.31N., R29W., M.P.M.

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO.
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROFILE
PLOTTED
NOTE BOOK
NO.
GRADES CHECKED
B.M. NOTED
STRUCTURES (CATWALKS CHKD)
BY
DATE

GUARDRAIL LT. / RT.
ROCK EXC. LT. / RT.
CUT SLOPE RT.
Z WIDTH LT. / RT.

4550' LT.

W = 20' RT 1-1/2:1 SLOPE
W = 20' RT 1-1/2:1
Z = 7' LT.
W = 20' RT VERT.
W = 20' RT 1/4:1
Z = 7' LT.
W = 20' RT VERT.
Z = 7' LT.
TRANSITION RT.

2025' LT.

W = 15' RT. VERT.

2630 2620 2610 2600 2590 2580 2570

1600' V.C.

DESIGN GROUND LINE

PROFILE GRADE

DESIGN ROCK LINE

+2.965%

ML
GM
ML, GRAV.

1085+00 V.P.I.
EL 2574+00

1086+45
36" X 78.4' PIPE CULVERT

1096+00
42" X 67.2' PIPE

68-BT-2179

EQUATION

PT 1100+18.86 BK =
POT 1099+80.32 AHD

1102+00
24 X 82.4' PIPE CULVERT

168 BT 2.80

GM
GM, SANDY

1085 1090 1095 1100 1100 1105 1110 1112

CONTRACT DACW67-72-C-0017

SYMBOL	DESCRIPTION	DATE
	REVISIONS	

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED: Ted M Uomoto
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1082+00 TO STA. 1112+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 71 JUNE 24
AS BUILT
SHEET 9.1
MICROFILMED DEC '75

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

THIS SHEET SUPERSEDES DWG E 53-31-117, SHEET 9 DATED 70 JULY 10

R/W NO	SHEET NO	TOTAL SHEETS
F 145	19	116

TO BE ABANDONED

ST. REGIS PAPER CO.

$\Delta = 32°06'30"$
$D = 3°30'00"$
$R = 1,637.02'$
$T = 546.24'$
$L = 767.38'$

STA. 1113+35
24"x 86.9 CMP

2644.7 INV.

2656.8 INV.

2661.90 INV.

2666.60 INV.

STA. 1118+00
24" 70.5 CMP

SCENIC TURNOUT, SEE SHEET 31 FOR DETAILS

STA. 1122+70
36"x 80.2 CMP

2663.8 INV

2673.0 INV

$51°10'56"$

P.S. 1124+36.15
$S_A = 1°30'$
$L = 150'$

P.S.C. 1125+86.15

1125+59.99

P.I. 1129+58.96

$\Delta = 17°46'00"$
$D = 2°00'00"$
$R = 2,864.79'$
$T = 522.81'$
$L = 738.33'$

1379.96' TO SECTION CORNER
$S85°27'08"E$

SECTION 10
SECTION 15

STA. 1133+12
24"x 104' CMP

2663.8 INV

P.C.S. 1133+24.48
$S_A = 1°30'$
$L = 150'$

P.T. 1134+74.48

P.S. 1136+09.57
$S_A = 2°37'30"$
$L = 150'$

P.S.C. 1137+59.57

STA. 1137+64.8
24"x 64.8' CMP

2664.2 INV

2665.7 INV

2667.7 INV

N 42°20'45"E

N 6°E

P.I. 1141+55.81

U.S.F.S.

T 31 N. R. 29 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED: PLOTTED: GRADES CHECKED: ALIGNMENT CHECKED: RT. OF WAY CHECKED: NOTE BOOK: NO.: BY: DATE:

GUARDRAIL LT. RT. — 2025 LT. — 1127+50 — 1131+00 — 3050 LT.

ROCK EXC. CUT SLOPE LT. RT. — Z WIDTH = 7'

W=15' RT. VERT. SLOPE — Z = 7' LT. — TRANSITION RT. — W=20' RT. VERT. — Z = 7' LT. — W=20' RT VERT SLOPE — W=20 LT. VERT. SLOPE — W=15 LT — W=20' LT — 2° DAYLITE — W=20' RT 1/4:1 SLOPE — W=20' RT. VERT SLOPE — Z = 7' LT — SLOPE 1/4:1 W=15' RT — W=20' RT. VERT. SLOPE

VPI 1123+40 EL. 2689.00

-1.381%

2.995%

SURVEY GROUND LINE

PROFILE GRADE

DESIGN GROUND LINE (C2)

DESIGN ROCK LINE (C1)

2000' V.C.

1118+00 24"-70.5' PIPE CULVERT

1122+70 36"-80.2' PIPE CULVERT

1113+35 24"x86.9 PIPE CULVERT

1133+12 24"x104" PIPE CULVERT

1137+62 24"x64.8' PIPE CULVERT

DESIGN ROCK LINE

DESIGN GROUND LINE

2700 2690 2680 2670 2660 2650

1112 1115 1120 1125 1130 1135 1140 1142

PROFILE — SURVEYED: PLOTTED: GRADES CHECKED: ALIGNMENT CHECKED: STRUCTURE NO'S ATTN'S CHKD: NOTE BOOK: NO.: BY: DATE:

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	ROCK EXC. CUT SLOPE, DELETED R/W MARKER (4) ADDED SCENIC TURNOUT (5) REVISED (1) ADDED OWNERSHIP (2) ADDED SURVEYED GROUND LINE (3)	70 JUL 31	
C	LINE: "DESIGN ROCK LINE, & (2) "EXIST. GRD." TO "DESIGN GRD. (1) CHANGED CALL-OUT, "APPROX. ROCK LINE" TO	71JUN24	
B	(3) REV. ROCK EXC. CUT SLOPE & CULVERT LENGTHS. (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE & GUARDRAIL	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: HALL LALIKOS
CHECKED BY: BROOKS
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 382
PLAN AND PROFILE
STA. 1112+00 TO STA. 1142+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
SHEET 10 AS BUILT (B)
DATE: 70 JULY 10

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '75

R/W NO	SHEET NO	TOTAL SHEETS
F145	20	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., DATE, BY

CRIPPLE HORSE HILL RECREATION AREA

ST. REGIS PAPER CO.

SECTION 10
SECTION 11

N

P.I. 1171+69.16

Δ = 32°06'30"
D = 3°30'00"
R = 1,637.02'
T = 546.24'
L = 767.38'

S_d = 2°37'30"
L = 150'

1144+86.78
95° P.C.S.
1145+26.95

P.T. 1146+76.95

STA 1150+50
36" x 68.3' CMP

STA 1156+20
36" x 229.9' CMP

STA 1165+00
24" x 74.4' CMP

2624.0 INV
2643.6 INV
2645.3 INV
2646.6 INV
2570.5 INV
2612.0 INV
2620.7 INV
2627.6 INV

1142 1145 1150 1155 1160 1165 1170 1172

N 28°00'15" E

S 04°19'W
27°43'06"

1325.21'
SECTION CORNER

P.S. 1157+70.40

P.S.C. 1159+20.40

S_Δ = 1°52'30"
L = 150'

Δ = 60°00'45"
D = 2°30'00"
R = 2291.83'
T = 1398.76'
L = 2,250.50'

U.S.F.S.

T 31 N., R 29 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., DATE, BY, S. M.I. NOTED, STRUCTURE NOTATIONS ON KO

1141+50 1144+50 1154+25 1159+00 1161+50

GUARDRAIL LT 3050' LT
RT. 300' RT. 375' RT. 1325 LT

ROCK EXC. CUT SLOPE Z WIDTH = 7'
LT VERT. W=20' RT.
RT Z = 7' LT W = 20' RT. VERT. SLOPE Z = 7' LT Z = 7' RT. Z = 7' LT Z = 7' LT

2670 2660 2650 2640 2630 2620 2610 2600

SURVEY GROUND LINE
PROFILE GRADE
-1.38 %
DESIGN GROUND LINE (C1)
DESIGN ROCK LINE (C2)

1143+00
36" x 171.4' PIPE CULVERT

1150+50
36" x 68.3' PIPE CULVERT

1156+20
225° x 36" PIPE CULVERT
SKEW NO. 56

1142 1145 1150 1155 1160 1165 1170 1172

2640 2630 2620 2610

-1.38 %
PROFILE GRADE
1165+00
24" X 74.4' PIPE CULVERT
DESIGN GROUND LINE (C1)
SURVEY GROUND LINE

SYMBOL	DESCRIPTION	DATE	APPR.
A	R/W MARKER (4) REVISED ROCK EXC CUT SLOPE (1) ADDED SURVEY GROUND LINE (2) ADDED REC AREA (3) DELETED	70 JUL 31	
C	ROCK LINE" GROUND LINE" & (2) "APPROX. ROCK LINE" TO DESIGN (1) CHANGED CALL-OUT, "EXIST. GRD. LINE" TO "DESIGN	71 JUN 24	
B	CUT SLOPE & CULVERT LENGTH. CULVERT & GUARDRAIL (3) REVISED ROCK EXCAVATION (1) CHANGED TITLE & FILE NO (2) ADDED R/W FENCE,	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: HALL
CHECKED BY: LONDON
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 382
PLAN AND PROFILE
STA. 1142+00 TO STA. 1172+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
DRAWING NUMBER: E-53-31-117
SHEET 11 AS BUILT (B1)
DATE: 70 JULY 10

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	21	116

CRIPPLE HORSE HILL RECREATION AREA

EQUATION

TO BE ABANDONED

$S_a = 01°52'30"$
$L = 150'$

STA 1175+80
36" X 132.6 CMP

OBLITERATE EXIST. ROAD WITHIN HWY R/W

STA 1187+00
MSH 37+10.00
APPROACH ROAD
SHEET 28

PT 1183+20.90 BK = 1184+38.56 AHD

PCS 1181+70.90

PCS 1188+02.07

$S_a = 5°00'$
$L = 200'$

PSC 1190+02.07

$\Delta = 42°48'00"$
$D = 5°00'$
$R = 1,145.92'$
$T = 549.62'$
$L = 656.00'$

$S_a = 5°00'$
$L = 200'$

PT 1198+58.07

TO BE ABANDONED

STA 1200+23
24" X 112.7 CMP

STA 1192+90
30" X 201.2 CMP

STA 1189+20
66" X 122.5 PIPE

TBM PAT 1

TBM PAT 2

$\Delta = 60°00'45"$
$D = 2°30'$
$R = 2,291.83'$
$T = 1,398.76'$
$L = 2,250.50'$

F.S. ROAD NO. 5312

U.S.F.S.

INSTALL CATTLE GUARD SEE SHEET 39.7 FOR DETAILS.

FOR CULVERT INLET PAVING SEE DETAIL ON SH 12A

T.31N., R.29W., M.P.M.

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. CUT SLOPE Z WIDTH = 7' LT. RT.

1325 LT
350 RT
Z = 7' LT

TBM PAT 1
EL 2627.07
SPIKE IN BASE OF 30" FIR TREE 25' LT OF STA 1182+50

EQUATION

1183+20.90 BK = 1184+38.56 AHD

600' V.C.

SURVEY GROUND LINE
PROFILE GRADE
DESIGN GROUND LINE

-1.38%

K.P.I. 1177+00
EL. 2615.00

1175+80
36" X 132.8' PIPE CULVERT

APPROACH ROAD
STA 10+00
MSH STA 1187+00

+2.51%

1189+20
122.5' x 66" PIPE CULVERT

1192+90
201.2' x 30" PIPE CULVERT
SKEW NO. 42

SURVEY GROUND LINE
PROFILE GRADE
DESIGN ROCK LINE
DESIGN GROUND LINE

1200+23
24" x 112.7' PIPE CULVERT

3400' V.C.

TBM PAT 2
EL. 2666.6
SPIKE IN BASE OF 20" FIR 25' LT OF STA 1194+65
(SIDE SHOT NOT RELIABLE)

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(3) INDICATED, SURVEY GROUND LINE. LINES (2) APPROX. ROCK LINE, TO DESIGN ROCK LINE (1) CHANGED CALL-OUT, EXIST. GRD., TO DESIGN GROUND	71 JUN 24	
B	GUARD, GUIDE POSTS, GUARDRAIL, CULVERT & ROAD SIGN (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE, CATTLE (2) CORRECTED CULVERT LENGTH. (4) ADDED NOTE (4) DELETED R/W MARKER (5) ADDED CULVERT	71 JUN 7	
A	(1) ADDED SURVEYED GROUND LINE (2) ADDED RECREATION AREA	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1172+00 TO STA. 1202+00

PREPARED: E. K. Kloss Jr.
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: '70 JULY 10
SHEET 12 AS BUILT (B1)

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, STRUCTURE (LOCATION) NO. CHECKED; NOTE BOOK; NO.; BY; DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, STRUCTURE (LOCATION) NO. CHECKED; NOTE BOOK; NO.; BY; DATE

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	22	116

STATE OF MONTANA

SECTION 2
SECTION 11

U.S.F.S.

CRIPPLE HORSE CREEK RECREATION AREA

$S\Delta = 3°00'$
$L = 150'$

$\Delta = 104°10'00"$
$D = 4°00'$
$R = 1,432.39'$
$T = 1,914.72'$
$L = 2,454.17'$

SECTION 2
SECTION 1

FOUNDATION EXCAVATED (3') BELOW BOTTOM OF ROCK CAP GRADE AND BACKFILLED WITH 36" MINUS SHOT ROCK

FOUNDATION EXCAVATION EXTENDED

FOUNDATION EXCAVATION

FOUNDATION EXCAVATION EXTENDED ALONG DITCH LINE 12' WIDTH RT. & TO DAYLITE TO PROVIDE SUB-DRAIN CONSTRUCTED W/ SHOT ROCK

FOUNDATION EXCAVATION BACKFILLED WITH SHOT ROCK

WI-2

OBLITERATE EXIST. RD. WITHIN HWY R/W

49°08' 15.9"

68-BT-2176

68-BT-2177

68-BT-2178

1209+50

1222+19.65

1226+71.08

1225+21.08

PSC 1225+90

PT 1225+00

N 45°13'E

STA. 1217+50
48" X 98.3' CMP

2602.2 INV.

2609.5 INV.

STA. 1221+94
48" X 131.2' CMP

TBM PAT 3

TBM PAT 4

A(1) FOUNDATION EXCAVATION FULL WIDTH

B(1) FOUNDATION EXCAVATION IN FILL SECTION ONLY

WI-4

631.916' TO SECTION CORNER
S 85°38' 44.7" E

952.958' TO SECT CORNER
N 3°53'59" E

TO BE ABANDONED

V.P.I. 1204+00
EL. 2682.50

SCALE IN FEET
100 0 100 200 300

T 31 N., R. 29 W. M.P.M.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL LT RT
GUIDE POSTS LT RT
ROCK EXC LT RT
CUT SLOPE LT RT

W=20' LT. 2:1 SLOPE
W=20' RT. 2:1 SLOPE

DESIGN ROCK LINE

DESIGN GROUND LINE

SURVEY GROUND LINE

ML
GM
ML
SM
SP
SM
GP
ML
SM
SP-SM
GP-GM

2400' V.C.

PROFILE GRADE

-5.000%

-6.900%

400' LT

31 POSTS RT DESIGN

1221+94
48"x131.2" PIPE CULVERT

1217+50
48"x98.3' PIPE CULVERT

10.00' V.C.

TBM PAT 3
EL. 2678.47
BOAT SPIKE 0.3' ABOVE GROUND, UPHILL SIDE
8" FIR TREE 68' RT
STA. 1206+95

TBM PAT 4
EL. 2630.22
BOAT SPIKE 0.3' ABOVE UPHILL SIDE 18" FIR
120' RT OF
STA. 1220+52

2680 2660 2650 2640 2630 2620 2610 2600 2590

2600 2590 2580 2570 2560 2550

1202 1205 1210 1220 1225 1230 1232

PLAN: SURVEYED, PLOTTED, GRADES CHECKED, R/W NOTED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, N. TIE BOOK, EL. M.S. NOTED, STRUCTURE LOCATIONS SHOWN, NO., BY, DATE

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(1) REVISED LIMITS OF EXC (2) ADDED SURVEYED GND LINE (3) ADDED REC AREA (4) ADDED NOTE (5) ROCK EXC CUT SL...	70 JUL 31	ENG
B	ROCK EXCAVATION CUT SLOPE GUIDE POSTS, GUARDRAIL & ROAD SIGNS (3) REVISED (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE.	71 JUN 7	
C	ROCK LINE. "(3) IDENTIFIED SURVEY GRD. LINE. - IGN GROUND LINE, & (2) APPROX. ROCK LINE TO "DESIGN (1) CHANGED "CALL-OUT" EXIST. GROUND LINE TO "DES-	71 JUN 24	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: LONDON
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3&2
PLAN AND PROFILE
STA. 1202+00 TO STA. 1232+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 | DATE: '70 JULY 10
SHEET 13 | B1 AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	23	116

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

U.S.F.S.

JEROME H. SVORE et al

HORSE CREEK

CRIPPLE HORSE CREEK RECREATION AREA

CRIPPLE HORSE CREEK

F.S. ROAD NO 3341

Δ = 104° 10' 00"
D = 4° 00'
R = 1,432.39'
T = 1,914.72'
L = 2,454.17'

Δ = 3° 00'
L = 150'

Δ = 2° 15'
L = 150'

Δ = 70° 16' 00
D = 3° 00
R = 1,909.86'
T = 1,419.27'
L = 2,192.22'

67-BT&DD-3012
67-BT-3018
67-BT&DD-3013

STA 1239+50 MSH 37 = STA 15+00 ROAD APPROACH SEE SHEET 28

STA 1241+00 36" X 90.7' CMP

STA. 1250+00 24" X 86.1' CMP

STA. 1255+30 36" X 140.7' CMP

PCS 1251+25.25
PT 1252+25.25
PCS 1254+60.98
PST 1256+10.98

N 58° 57' 00" W

TO BE ABANDONED

SEE SHEET 40 FOR DETAILS

SEE SIGN DETAILS, SHT. 391 I N6-2

INSTALL CATTLE GUARD

OBLITERATE EXIST. ROAD WITHIN HWY R/W

SEE SHEET 39 FOR DETAILS

TBM PAT 6

TBM PAT 7

15 KV UG CABLE

FOR EXACT PATH OF 15 KV UG CABLE SEE CABLE PATH DATA I ON SHEET 50 A

TO CONTRACTOR STAGING AREA, SEE SHEET 398

2983.084 TO SECTION CORNER N 39° 33' 59.0" E

SCALE IN FEET 100 0 100 200 300

T 31 N., R 29 W., M.P.M.

GUARDRAIL RTH 265' LT. 227' RT. 258' LT. 258' RT. 662.5' LT.

GUIDE POSTS LT RT

31 POSTS RT. DESIGN F

ROCK EXC. LT RT
CUT SLOPE
Z WIDTH

TBM PAT 6
EL 2542.11
BOAT SPIKE 0.6' ABOVE GROUND, DOWNHILL SIDE
22" PONDEROSA PINE 40' RT OF STA 1240+52

℄ APPROACH ROAD
STA. 10+00 =
MSH STA 1239+50

+ 2.189%

1250+00
24" x 86.1' PIPE CULVERT

1241+00
36" X 90.7' PIPE CULVERT

1255+30
36" x 140.7' PIPE CULVERT
SKEW NO. 107

TBM PAT 7
EL 2569.56
BOAT SPIKE 0.2' ABOVE GROUND, DOWNHILL SIDE
10" LARCH, 10' RT OF
STA. 1248+90

1000' V.C.

2000' V.C.

SURVEY GROUND LINE

DESIGN GROUND LINE

DESIGN ROCK LINE

PROFILE GRADE

V.P.I. 1234+50 EL. 2530.0

V.P.I. 1256+00 EL. 2577.0

67-BT&DD-3012
67-BT-3018
67-BT&DD-3013

GM, SANDY
ML
GM
GM, GRAV.
BEDROCK
REFUSAL ON BEDROCK

2475.8
2483.0

2570
2560
2550
2540
2530
2520
2510
2500

1232 1235 1240 1245 1250 1255 1260 1262

NOTES:

1. PACIFIC POWER & LIGHT COMPANY WILL PLACE BURIED POWER CABLE WITHIN THE HIGHWAY RIGHT-OF-WAY BETWEEN STATIONS 1250 AND 1350 DURING 1971 CONSTRUCTION SEASON

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(5) CORRECTED TOWNSHIP. (3) ADDED RECREATION AREA (4) REVISED NOTE (1) ADDED OWNERSHIP. (2) ADDED SURVEYED GROUND LINE	'70 JUL 31	
D	(1) ADDED SIGNS	'71 MAY 28	
C	℄ IDENTIFIED PROFILE GRADE & DESIGN ROCK LINE, CALL-OUT EXIST. GROUND TO DESIGN GROUND LINE (1) ADDED NOTE 1 (2) CHANGED SIGNS (3) CHANGED	'71 JUN 24	
B	(3) DELETED CULVERTS (4) DELETED INSET (5) REV. NOTE CATTLEGUARD, GUARDRAIL, GUIDE POSTS, CULVERT & ROAD SIGNS (1) CHANGED TITLE & FILE NO. (2) ADDED R|W FENCE &	'71 JUN /	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS LONDON
CHECKED BY: PHARR & HALL
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1232+00 TO STA. 1262+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: '70 JULY 10
SHEET 14
AS BUILT

PLAN / PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, ST. HWY. CHECKED, STRUCTURE NO. (AT ℄ SCHOOL), NOTE BOOK, NO., BY, DATE

K-Σ PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	24	116

TO BE ABANDONED

P.I 1268+80.26

CRIPPLE HORSE CREEK RECREATION AREA

SECTION 2 / SECTION 35

89° 19' 59.8"

STA. 1269+50 24"ø 131.7' CMP

2539.9

2551.7

Δ = 70°16'00"
D = 3°00'
R = 1909.86'
T = 1,419.27'
L = 2,192.22'

JEROME H. SVORE, et al

TBM PAT 8

1262.001

1265.001

1270

1275

1276+61.022

STA. 1279+30 36"ø 115' CMP

2542.0

TBM PAT 9

2560.0

PCS 1278+0320

PT 1279+5320

Δ = 2°15'
L = 150'

1280

1285

1290

1292

2563.0

STA. 1287+00 24" 93.3' CMP

15 KV UG CABLE

2570.1

FOR EXACT PATH OF 15KV UG CABLE SEE CABLE PATH DATA II ON SH. 50A

FOR CULVERT INLET PAVING SEE DETAIL ON SH. 40A

LD-15-1

N 11° 19' 00" E

W1-4

15 KV UG CABLE

15+10.490 TO SECT. CORNER
N 85° 51' 57.8" W

U.S.F.S.

NOTES:
1. POWER CABLE, SEE NOTE 1, SHEET 14

T 31 N., R 29 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

T 32 N., R 29 W., M.P.M.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

1267+00 | 1273+75 | 1278+00 | 1280+25 | 1287+87.5

6.76' LT | 225' LT | 762.5' LT

GUARDRAIL LT RT

ROCK EXC. CUT SLOPE Z WIDTH = 1'

SURVEY LINE GROUND

TBM PAT 8 EL 2589.34
BOAT NAIL IN BASE OF 8" STUMP
78' RIGHT OF STA. 1263+18

W=20' RT. VERT. SLOPE

W=15' LT. 2% SLOPE

TBM PAT 9 EL 2563.61
SPIKE IN BASE OF 12" FIR
2' RIGHT OF STA. 1277+70

W=15' LT. 1 1/2:1 SLOPE
W=20' RT. VERT. SLOPE

600' V.C.

400' V.C.

-1.166%

+1.107%

+1.758%

DESIGN GROUND LINE

PROFILE GRADE

DESIGN ROCK LINE

V.P.I. 1273+00
EL. 2557.25

1269+50 24"x131.7' PIPE CULVERT

1279+30 36"x115' PIPE CULVERT

1287+00 24"x73.3' PIPE CULVERT

V.P.I. 1287+50
EL. 2573.30

2590 | 2580 | 2570 | 2560 | 2550 | 2540

1262 | 1265 | 1270 | 1275 | 1280 | 1285 | 1290 | 1292

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	AREA (3) REVISED ROCK EXC. CUT SLOPE. (1) ADDED SURVEYED GROUND LINE (2) ADDED RECREATION	10 JUL 31	
C	TO "DESIGN ROCK LINE." TO "DESIGN GROUND LINE" AND "APPROX. ROCK LINE" (1) ADDED NOTE 1, (2) CHANGED CALL-OUT "EXIST. GROUND"	71 JUN 24	
B	CUT SLOPE RAIL & ROAD SIGNS (3) REVISED ROCK EXCAVATION (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE, GUARD-	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS PHARR
CHECKED BY: LONDON
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1262+00 TO STA. 1292+00

PREPARED: E.K. Kloss Jr. — CHIEF, CIVIL DESIGN SECTION
SUBMITTED: — CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 | DATE: 70 JULY 10
SHEET 15 | B1 AS BUILT

PLAN: SURVEYED, DATUM, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO.

PROFILE: SURVEYED, DATUM, GRADES CHECKED, B. M.'s NOTED, NOTE BOOK, NO.

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	25	116

CRIPPLE HORSE CREEK RECREATION AREA

15 KV UG Cable

TBM PAT 10

2578.6

2582.9

STA 1295+00
30" X 84.8' CMP

2541.3

STA 1307+50
30" X 224' CMP

2599.5

15 KV UG Cable

LD-16

LD-15-2

N 11°19'00" E

FOR EXACT PATH OF 15 KV UG CABLE SEE CABLE PATH DATA III ON SH 50A

WI-2

TBM PAT 11

NOTES:
1. POWER CABLE, SEE NOTE 1, SHEET 14.

U.S.F.S.

T 32 N., R. 29 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL LT. RT. 762.5 LT.

ROCK EXC. CUT SLOPE Z WIDTH = 7'

SLOPE = 1 1/2" W = 20' RT

TRANSITION RT.

W = 15' LT. SLOPE 7 1/2 : 1

W = 15' RT. VERT.

625' LT.

SLOPE = 1/2" W = 15' RT.

W = 15' LT. VERT. SLOPE

W = 15' RT. VERT. SLOPE

950' LT.

W = 20' LT. SLOPE VERT.

TBM PAT 11
EL 2661.43
BOAT SPIKE IN BASE OF 30" PINE
225' RT OF
STA 1313+55

TBM PAT 10
EL 2563.82
SPIKE IN BASE OF 20" TREE. 115' LT OF STA 1293+80

DESIGN GROUND LINE

DESIGN ROCK LINE

PROFILE GRADE

+17.58 %

SURVEY. GROUND LINE

1295+00
84.8' X 30" PIPE CULVERT

1307+50
30" PIPE X 224' CULVERT
SK. NO. 70

V.P.I. 1313+50
EL. 2619.00

SURVEYED GROUND LINE

-1.500 %

1000' V.C.

2630 2620 2610 2600 2590 2580 2570 2560

1292 1295 1300 1305 1310 1315 1320

1295+50 1304+25 1310+50 1313+75

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(5) MOVED CULVERT. (3) REVISED ROCK EXC CUT SLOPE (4) REV. R/W LINE (1) ADDED SURVEYED GROUND LINE (2) ADDED REC AREA	70 JUL 31	
C	DESIGN GROUND LINE & DESIGN ROCK LINE. (1) ADDED NOTE 1. (2) ADDED CALL-OUT DESIGNATING	71 JUN 24	
B	CULVERT LENGTHS. GUIDE POST & ROAD SIGN (3) REV. ROCK EXC. CUT SLOPE & (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE, GUARDRAIL.	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1292+00 TO STA. 1320+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1) | DATE: 70 JULY 10 AS BUILT
SHEET 16

PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC 76

R/W NO.	SHEET NO.	TOTAL SHEET
F 145	26	116

CRIPPLE HORSE CREEK RECREATION AREA

P.I. 1328+10.18

STA. 1320+70 30"x 159.3' CMP

STA. 1327+50 30"x 829 CMP

STA. 1335+00 24"x 675 CMP PIPE CULVERT

SUB EXC STA. 1329+00 TO 1340+85 BACKFILL WITH 36" MINUS SHOT ROCK FROM EXCAVATION. EXAVATION DEPTH = 2' MIN.

U.S.F.S.

U.S. GOVT.

FOR EXACT PATH OF 15KV UG CABLE SEE PATH DATA II ON SH. 50A

15KV UG CABLE

$\Delta = 59°04'30"$
$D = 5°30'$
$R = 1,041.74'$
$T = 691.17'$
$L = 874.09'$

$\Delta = 5°30'$, $L = 200'$

$\Delta = 7°15'$, $L = 200'$

$\Delta = 134°38'45"$
$D = 7°15'$
$R = 790.29'$
$T = 1996.36'$
$L = 1657.18$

FRANCIS MASON, ET AL.

REX R. O'CAIN

EXIST PACIFIC POWER & LIGHT COMPANY

TO BE ABANDONED REX R. O'CAIN

PROPERTY LINE

JOHN FURR JR.

TO BE ABANDONED

FENCE

OBLITERATE EXIST. RD. WITHIN HIGHWAY R/W

INSTALL CATTLE GUARD SEE SHEET 39.7 FOR DETAILS.

MSH 37 STA 1342+80 = APPROACH ROAD STA. 10+00. SEE SHEET 27

WARLAND ROAD

WARLAND CREEK

IRRIGATION DITCH

NOTES:
1. POWER CABLE, SEE NOTE 1, SHEET 14.

IT HAS BEEN DETEREMINED THAT, IN VIEW OF THE FACT THAT UNSTABLE SOIL CONDITIONS REQUIRE RESLOPING OF OVERBURDEN CUTSLOPE BETWEEN STATIONS 1327+00 AND 1341+00 AND SAID RESLOPING REQUIRED RELOCATION OF EXISTING PACIFIC POWER AND LIGHT COMPANY BURIED POWERLINE, AND IN ACCORDANCE WITH RESIDENT CONTRACTING OFFICER'S LETTER DIRECTIVE, SERIAL LETTER NO. 209, 73MAY29, IT IS NECESSARY AND IN THE BEST INTERESTS OF THE GOVERNMENT TO MODIFY THIS CONTRACT AS FOLLOWS:

SCALE IN FEET
100 0 100 200 300

T 32 N., R 29 W., M.P.M.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, LINES CHECKED, NOTE BOOK, NO., DATE, BY

PROFILE — SURVEYED, PLOTTED, CURVES CHECKED, B. M.'s NOTED, STRUCTURE (NOT) NO CHANGE, NOTE BOOK, NO., DATE, BY

ROCK EXC. CUT SLOPE Z WIDTH = 1'

1000' V.C.

800' RT

PROFILE GRADE

APPROACH RD. 1342+80

1,637.5' LT

1,537.5' LT

31 POSTS RT DESIGN F

V.P.I. 1348 EL 2518.70

DESIGN GROUND LINE

SURVEY LINE GROUND

1346+40 102"X 220' SPP CULVERT SKEW NO. 84

GUARDRAIL LT RT
GUIDE POSTS LT RT
ROCK EXC. CUT SLOPE Z WIDTH = 1' LT RT

350.0 LT

1328+25

SURVEY LINE GROUND

16 POSTS LT DESIGN F

V.P.I. 1330+50 EL 2593.50

DESIGN GROUND LINE

DESIGN ROCK LINE

1320+70 30" x 159.3' PIPE CULVERT

1327+50 30" x 829' PIPE CULVERT

1000' V.C.

PROFILE GRADE

STA. 1335+00 675 24 PIPE CULVERT

-4.27%

M.S.H. 37 STA. 1342+80 = ℄ APPROACH RD. STA. 10+00

SYMBOL	DESCRIPTION	DATE	APPROVAL
E	(1) ADDED SIGNS	74 MAY 22	
D	(1) REVISED GUIDE POSTS	73 MAR. 1	
C	ROCK LINE" TO "DESIGN ROCK LINE", "GROUND" TO "DESIGN GROUND LINE", AND "APPROX. (1) ADDED NOTE NO 1 (2) CHANGED CALL-OUT, "EXISTING	71JUN24	
B	WITH PROFILE. SHIP.(4) DELETED NOTE.(5) REV. HWY. PLAN TO AGREE GUARD, GUARDRAIL GUIDE POSTS & RD. SIGNS.(3) CORRECTED OWNER- (1) CHANGED TITLE & FILE NO. (2) ADDED R/W FENCE, CATTLE.	71 JUN 7	

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	AREA. (3) ADDED REC AREA (4) NOTE. (5) & LIMITS OF RESTRAINT (1) REVISED OWNERSHIP (2) ADDED SURVEYED GROUND LINE	70JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LONDON LALIKOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2

PLAN AND PROFILE
STA. 1320+00 TO STA. 1351+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 70 JULY 10
SHEET 17 (B1)

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC 76

R/W NO.	SHEET NO	TOTAL SHEETS
F145	27	116

U.S. GOVT.

(B3) TO BE ABANDONED

1927.94' TO SECT. CORNER N 40° 54.3' E

EUGENE BAKER, ET. AL.

U.S.F.S.

RONALD B. JOHNSON

P.I. 1377+07.57

N6-2A (E1)

HARLAND ROAD

SEE SIGN DETAILS, SHT. 39.11

U.S. GOVT.

EXIST. PACIFIC POWER & LIGHT CO LINE

WM. J. ANDERSON ET. UX.

REX R. O'CAIN

Δ = 134°38'45"
D = 7°15'
R = 790.29'
T = 1,996.36'
L = 1,657.18'

SA = 7°15'
L = 200'

PCS 1357+42.44

EQUATION

POT 1358+73.83 AH
PT 1359+42.44 BK

STA 1360+92.86

68°21'09.3"

N65°15'15"W

OBLITERATE EXIST. RD 100' R/W WITHIN HWY

2510.1

MSH 37 STA 1352+25 = APPROACH ROAD STA. 15+00, SEE SHT 29A FOR DETAILS

STA. 1355+50
36" x 186.7' CMP

REX R. O'CAIN

SCENIC TURNOUT

N8-1

INSTALL CATTLEGUARD SEE SHEET 39.7 FOR DETAILS

2532.4

T. 32 N., R. 29 W., M.P.M.

WM. J. ANDERSON, ET. UX.

SCALE IN FEET
100 0 100 200 300

2633.9

STA 1365+50
36" x 232.8' CMP

W1-2

PSC 1369+15.55

PS 1367+15.55

Δ = 7°30'
L = 200'

TO BE ABANDONED

U.S.F.S.

SECTION 26
SECTION 25

Δ = 98°41'15"
D = 7°30'
R = 763.94'
T = 992.02'
L = 1115.83'

CRITICAL ENVIRONMENTAL AREA

END FENCE AT ROCK FACE

SCENIC TURNOUT

N8-2

1378+00

1379+00

SCENIC TURNOUT SEE SHEET 31 FOR DETAILS

N8-2

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, ET OF MAT CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B. M.'S NOTED, STRUCTURE NO. AT BEGINNING, NO., BY, DATE

GUARD LT
RAIL RT

℄ APPROACH ROAD 1352+25

GUIDE LT
POSTS RT

31 POSTS RT. DESIGN F

ROCK EXC. LT
CUT SLOPE RT
Z WIDTH = 1'

(B3)

(C1) DESIGN GROUND LINE

PROFILE GRADE

+4.878 %

(C2) DESIGN ROCK LINE

SURVEY GROUND LINE

1359+42.44 BK

EQUATION

1358+73.83 AH

(B4) 1355+50
36" x 186.7' PIPE CULVERT

2580
2570
2560
2550
2540
2530
2520
2510

1351 1355

W = 20' RT. 1/2:1 SLOPE

+4.878 %

825' LT

575' RT

PROFILE GRADE

SURVEY GROUND LINE (C3)

DESIGN ROCK LINE (C2)

DESIGN GROUND LINE (C1)

1365+50
36" x 232.8' PIPE CULVERT

1360 1365

20 POSTS LT. DESIGN F

W = 20' LT. 1/4:1 SLOPE

W = 20' RT. 1½:1

2600
2590

DESIGN GROUND LINE (C1)

+4.878 %

PROFILE GRADE

SURVEY GROUND LINE (C3)

DESIGN ROCK LINE (C2)

1370

W = 20' LT. 1/4:1 SLOPE

W = 15' LT. 2% DAYLIGHT

60' LT.

P.I. 1377+00
EL. 2663.50

1.500

800' V.C.

2680
2670
2660
2650
2640

1375 1380

SYMBOL	DESCRIPTION	DATE	APPROVAL
E	(1) ADDED SIGNS. (2) CORRECTED LOCATION RD. APPROACH.	74 MAY 28	
D	(1) ADDED APPROACH ROAD 1352+25 (2) REV. GUIDE POSTS	73 MAR. 1	
C	SIGN ROCK LINE "(1) DESIGNATED SURVEY GRD. LINE GROUND LINE & (2) "APPROX. ROCK LINE" TO "DESIGN" (1) CHANGED CALL-OUT, "EXIST. GRD. LINE" TO "DESIGN"	71 JUN 24	
B	FILE AND CULVERT. OWNERSHIP, ROCK EXC. CUT SLOPE, HWY PLAN TO AGREE W/ PROFENCE, GUARDRAIL, GUIDE POSTS, OWNERSHIP & RD. SIGNS (4) REV. (1) CHANGED TITLE & FILE NO. (2) DELETE NOTE 1. (3) ADDED R/W	71 JUN 7	
A	ENVIRONMENTAL AREA. RESTRAINT AREA (7) REV ROCK EXC CUT SLOPE (8) ADDED CRITICAL (4) DELETED R/W MARKER (5) ADDED SCENIC TURNOUT (6) LIMITS OF (1) REVISED OWNERSHIP (2) ADDED SURVEYED S.H.D. LINE (3) ADDED N.E.	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS, LONDON
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1351+00 TO STA. 1380+00

PREPARED: E. H. Klaas Jr. (B4)
CHIEF, CIVIL DESIGN SECTION

SUBMITTED: E. Irvin Daniel
CHIEF, DESIGN BRANCH

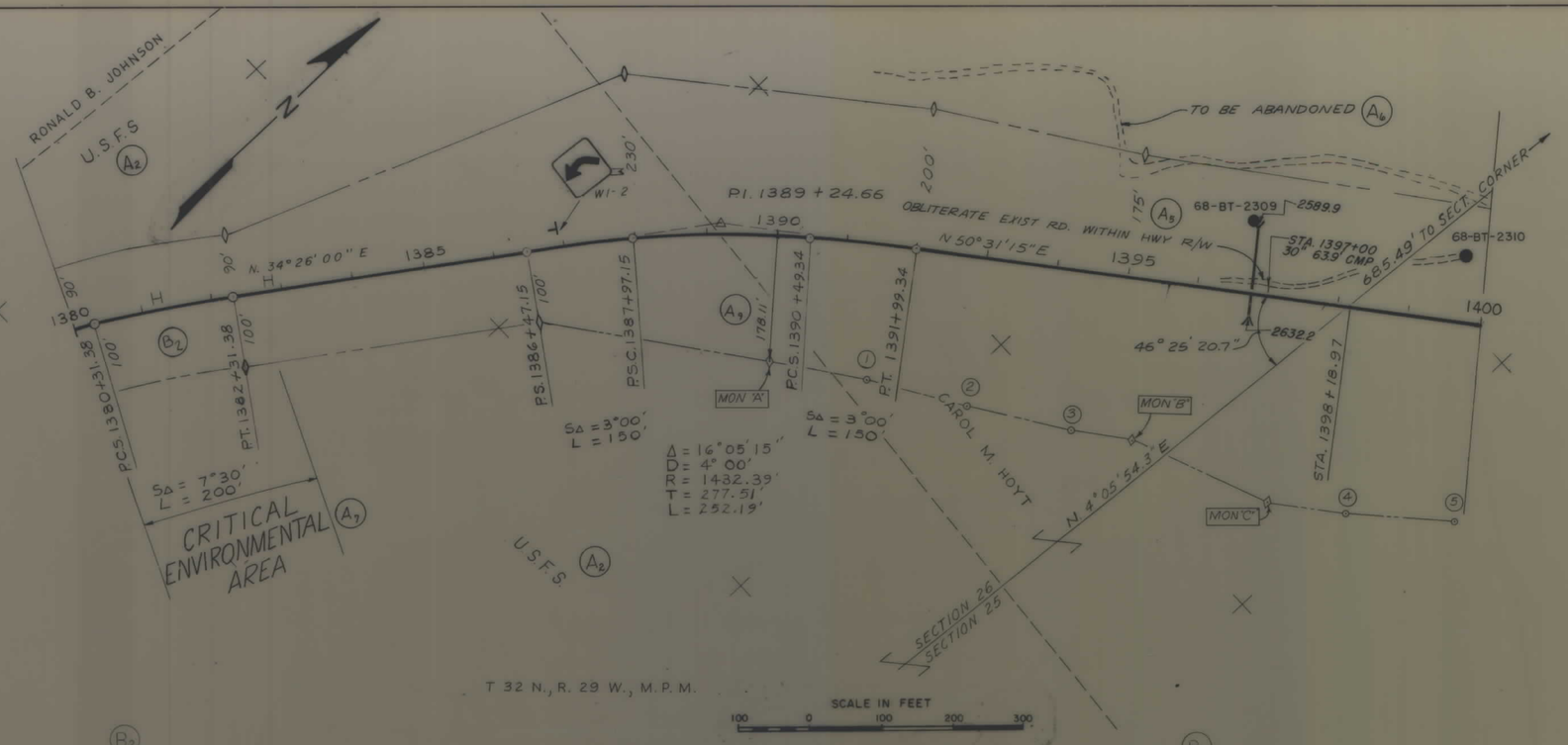
SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1)
DATE: '70 JULY 10
SHEET 18 OF SHEETS

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	28	116



RIGHT-OF-WAY MEANDER TABLE

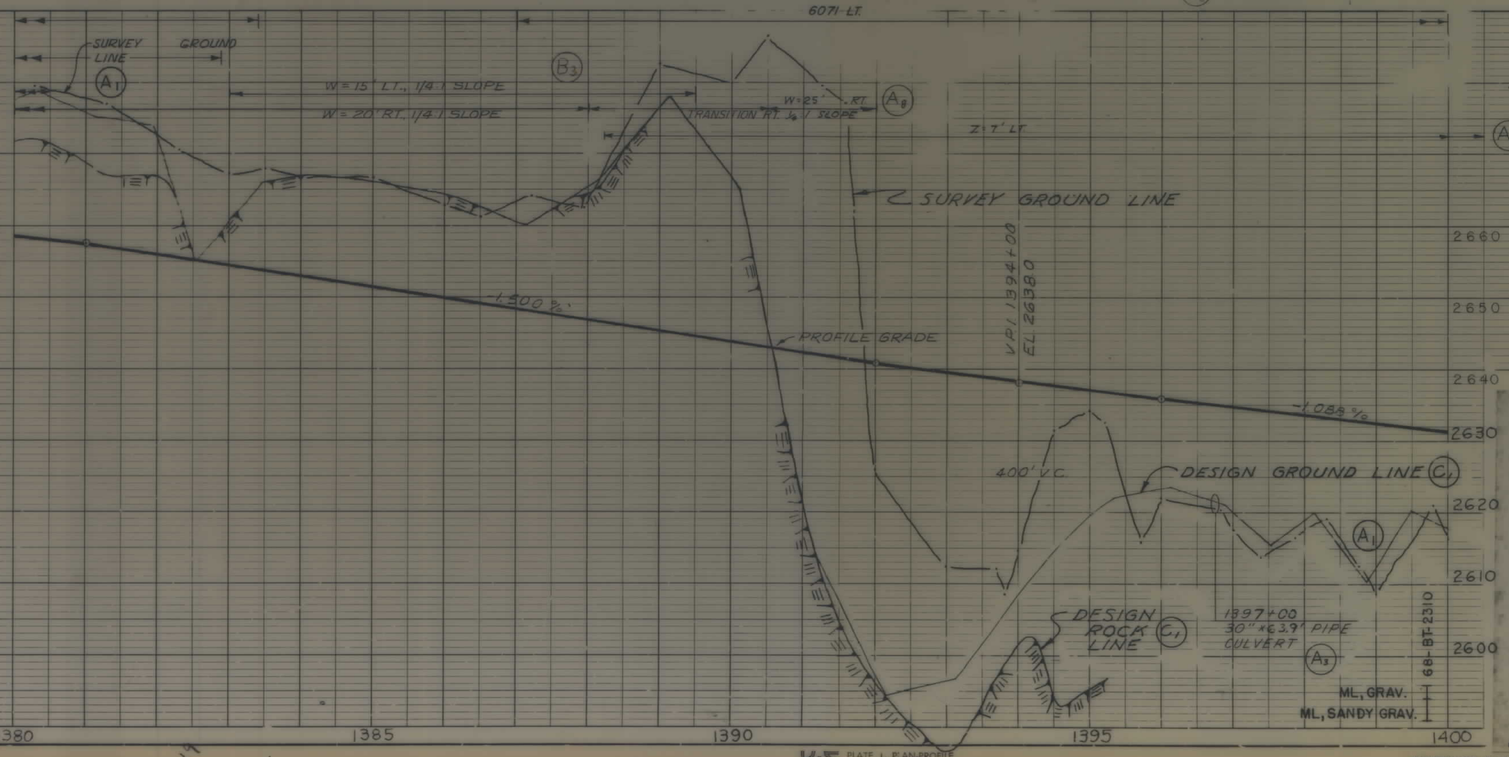
POINT TO POINT	BEARING	DISTANCE
MONUMENT A TO 1	N. 54°18'42.8"E.	135.781
1 TO 2	N. 56°12'03.1"E.	149.641
2 TO 3	N. 56°00'51.6"E.	150.693
3 TO B	N. 55°03'18.6"E.	85.126
B TO C	N. 67°19'03.7"E.	213.176
C TO 4	N. 49°38'08.2"E.	111.073
4 TO 5	N. 47°06'00.8"E.	150.268
5 TO D	N. 44°41'37.3"E.	100.519
D TO 6	N. 42°16'24.8"E.	151.567
6 TO 7	N. 39°37'29.0"E.	160.234
7 TO E	N. 38°18'40.7"E.	171.236

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, QUANTITIES CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, QUANTITIES CHECKED, B. M.'s NOTED, STRUCTURE QUANTITIES CHKD, NOTE BOOK, NO., BY, DATE

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. LT.
CUT SLOPE RT.
Z WIDTH = 7'



SYMBOL	DESCRIPTION	DATE	APPROVAL
C	ROCK LINE. GROUND LINE" AND "APPROX. ROCK LINE" TO "DESIGN (1) CHANGED CALL-OUT, "EXIST. GROUND" TO "DESIGN	71JUN24	
B	ROAD SIGNS (3) REV. ROCK EXC. CUT SLOPE (1) CHANGED TITLE & FILE NO. (2) ADDED GUIDE POST, GUARDRAIL & EXC CUT SLOPE (9) ADDED DIMENSION. (6) ADDED NOTE (7) CRITICAL ENVIRONMENTAL AREA (8) REVISED ROCK REVISED CULVERT LENGTH (4) REVISED SHOULDER WIDTH (5) REVISED NOTE	71JUN7	
A	(1) ADDED SURVEYED GROUND LINE (2) REVISED OWNERSHIP (3)	70JUL31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: PHARR
CHECKED BY: LALIKOS
REVIEWED: SHADDUCK
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1380+00 TO STA. 1400+00

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1) | DATE: '70 JULY 10
SHEET: 19 | AS BUILT

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO.	SHEET NO	TOTAL SHEETS
F145	29	116

PLAN — SURVEYED, PLOTTED, DETAIL CHECKED, R/W OR MAP CHECKED; NOTE BOOK; NO.; BY; DATE

PROFILE — SURVEYED, PLOTTED, CURVES CHECKED, B. M.'S NOTED, STRUCTURE NOTATIONS CHKD; NOTE BOOK; NO.; BY; DATE

OBLITERATE EXIST. RD. WITHIN HWY R/W

CAROL M. HOYT

HARRY W. PRIESTER

TO BE ABANDONED

N4°05'54.3"E 650.45' TO SECTION COR. 23 24 25 74 N85°44'21.9"W

2625.7 STA. 1401+00 24"x67.5 CMP

1400 N 50°31'15"E

PS 1402+75.78 150'

PSC 1404+25.78 Δ=2°48'45" L=150'

PCS 1405+27.22 SCENIC TURNOUT ½ MI

PT 1406+77.22 150'

STA 1407+64.71

25749

N41°05'30"E 1410

1405

STA. 1406+10 24"x67.6

P.I. 1404+76.83

2681.1 2621.2

69-BT-3125 69-BT-3126

196.12'

Δ = 9°25'45" D = 3°45'00" R = 1527.89' T = 201.05' L = 101.44'

200'

53°10'08.1"

P.I. 1414+85.21

Δ 1415

2585.2

STA. 1413+12 36"x150.6 CMP

N 48°9'15"E 1420

120'

PS 1410+48.26 175'

PSC 1411+98.25

69-BT-3127

2615.2 TBM PAT 18

WI-2

69-BT-3128

Δ = 7°13'45" D = 1°00' R = 5729.58' T = 436.95' L = 572.92'

SΔ = 0°45'00" L = 150'

PCS 1417+71.18

PT 1419+21.18 175'

P.O.T. 1418+80.41

SΔ = 0°45'00" L = 150'

EQUATION 1419+21.18 BK = 1418+80.41 AH

MON "D"

MON "E"

SEE SHEET 19 FOR R/W MEANDER TABLE

1405+50

T 32N., R 29W., M.P.M.

SECTION 24 SECTION 25

SCALE IN FEET 100 0 100 200 300

69-BT-3125 ML

ML, GRAV.

69-BT-3126 ML

ML, GRAV.

GM

ROCK EXC. CUT SLOPE LT RT

N=20' RT. 1½:1 SLOPE

Z=7' LT.

W=20' RT 1½:1 SLOPE

V=20' RT VERT

W=20' RT VERT SLOPE

PROFILE GRADE -1.088%

600' V.C.

+0.280%

+0.280%

2620 2610 2600 2590 2580 2570 2560

C1 DESIGN GROUND LINE

C2 DESIGN ROCK LINE

C3 SURVEY GROUND LINE

1401+80 30"X69.8 PIPE CULVERT

1406+10 24"X67.6 PIPE CULVERT

1413+12 36"X150.6 PIPE CULVERT

V.A.I. 1411+00 EL. 2619.50

EQUATION 1419+21.18 BK = 1418+80.41 AH

GUARDRAIL LT RT 607' LT

2620 GUARDRAIL LT RT

1420

TBM PAT 18 EL. 2629.75 SPIKE IN BASE OF 10" FIR. 55' RIGHT OF STA. 1412+05

1400 1405 1410 1415 1418 1418

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SYMBOL	DESCRIPTION	DATE	APPROVAL
C	APPROX. ROCK LINE TO DESIGN ROCK LINE. (5) "SURVEY GRD." ADDED (1) CHANGED CALL-OUT, EXIST. GRD. TO DESIGN GRD. LINE. (2)	71 JUN 24	
B	GUIDE POST & ROAD SIGNS. (1) CHANGED TITLE & FILE NO. (2) ADDED GUARDRAIL, CULVERT,	71 JUN 7	
A	MON "E" (7) CORRECTED R/W LINE. ROCK EXC CUT SLOPE (6) ADDED STATION AND DISTANCE TO (3) REVISED SHOULDER WIDTH (4) ADDED NOTES (5) REVISED (1) REVISED OWNERSHIP. (2) ADDED SURVEYED GROUND LINE	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: PHARR
CHECKED BY: LONDON
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1400+00 TO STA. 1420+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER E-53-31-117 | DATE: 70 JULY 10
SHEET 20 (B1) AS BUILT

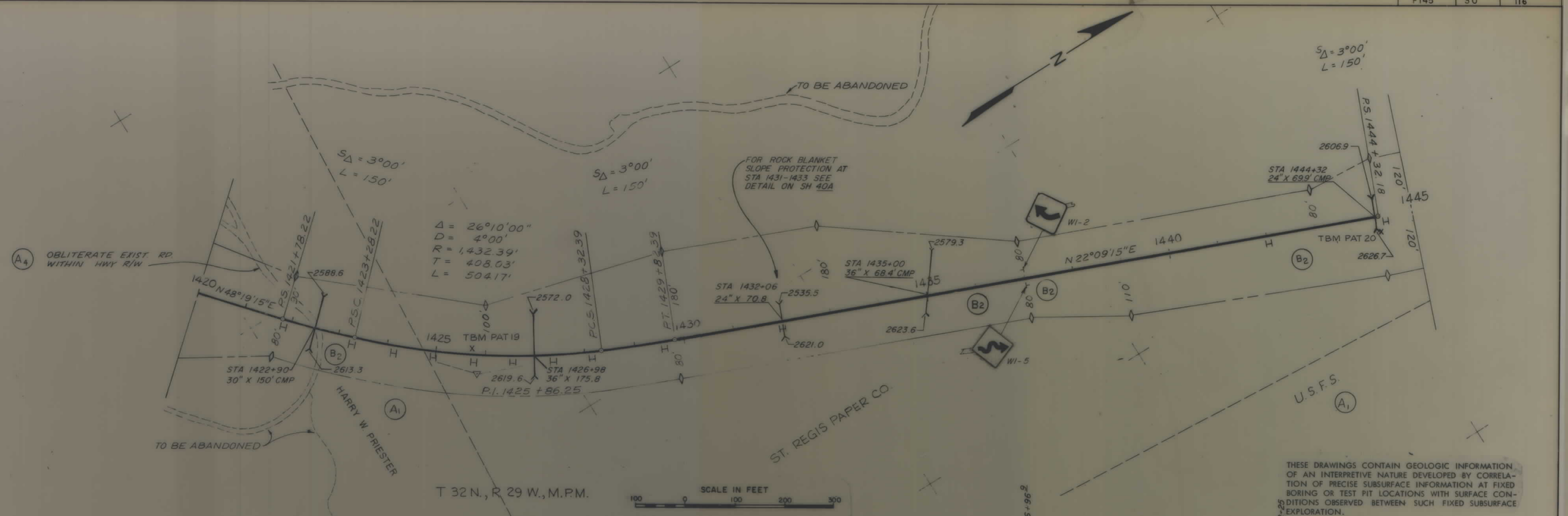
K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	30	116

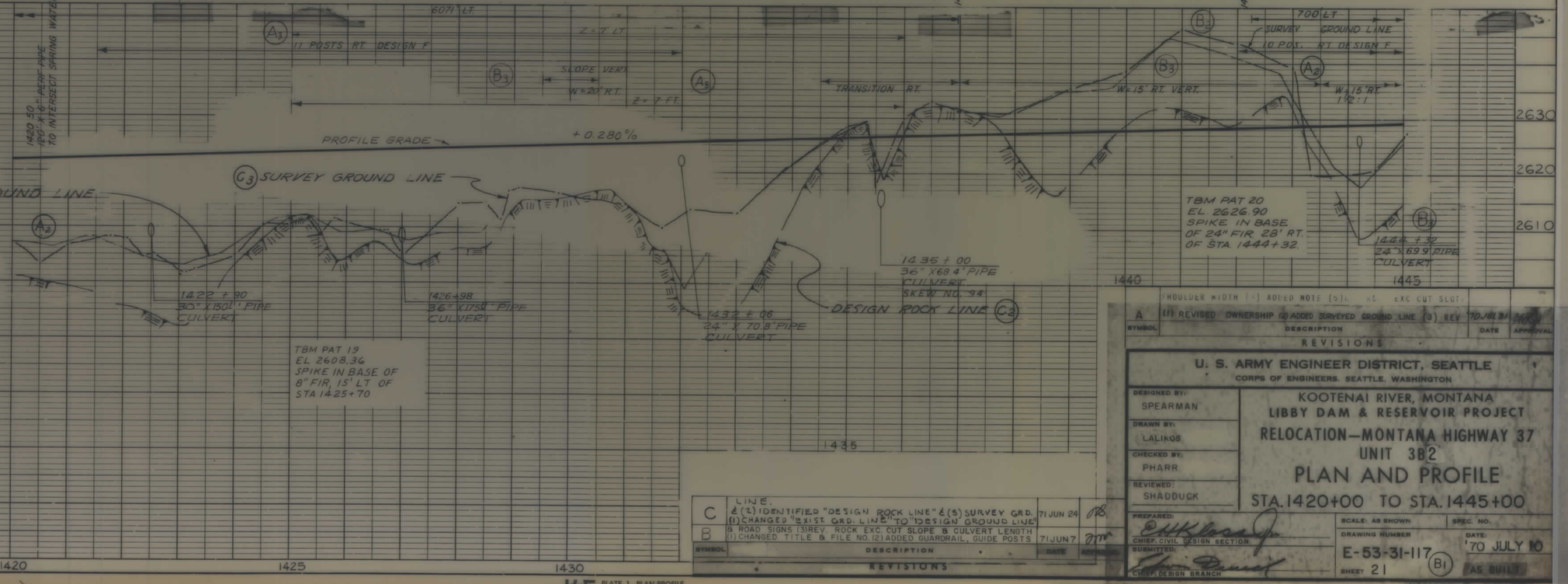
PLAN — SURVEYED, PLOTTED, GRADES CHECKED, R/W OF WAY CHECKED, NOTE BOOK, NO., BY, DATE



PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B. M.'S NOTED, STRUCTURE ROTATIONS CHKD, NOTE BOOK, NO., BY, DATE

	LT / RT
GUARDRAIL	LT / RT
GUIDE POSTS	LT / RT
ROCK EXC. CUT SLOPE	LT / RT

Z = 2630 / 2620 / 2610 / 2600 / 2590



SYMBOL	DESCRIPTION	DATE	APPROVAL
C	LINE. & (2) IDENTIFIED "DESIGN ROCK LINE" & (3) SURVEY GRD. (1) CHANGED "EXIST GRD. LINE" TO "DESIGN GROUND LINE"	71 JUN 24	
B	ROAD SIGNS (3) REV. ROCK EXC. CUT SLOPE & CULVERT LENGTH (1) CHANGED TITLE & FILE NO. (2) ADDED GUARDRAIL, GUIDE POSTS	71 JUN 7	
A	(1) REVISED OWNERSHIP (2) ADDED SURVEYED GROUND LINE (3) REV	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1420+00 TO STA. 1445+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1) SHEET 21
DATE: '70 JULY 10 AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEET
F 145	31	116

ST. REGIS PAPER CO.

U.S.F.S.

N

P.I. 1456+91.51

S Δ = 3°00'00" L = 150'

Δ = 21°24'15" LT. D = 4°00'00" R = 1432.39' T = 345.82' L = 386.10'

PSC 1445+82.18

STA. 1447+88 36" X 190.5' CMP

PT 1451+17.28

PSC 1449+67.28

P.I. 1447+78.00

N. 22°09'15" E. 2621.3

2574.5

1445 1450 1455

OBLITERATE EXIST. ROADS WITHIN HWY R/W

CRITICAL ENVIRONMENTAL CONTROL AREA

T 32N., R 29W., M.P.M.

N. 0°45'00" E.

68-BT-2162 68-BT-2163 68-BT-2164

PS 1452+51.57

PSC 1454+51.57

S Δ = 7°30'00" L = 200'

Δ = 47°51'45" RT D = 7°30'00" R = 763.94' T = 439.94' L = 638.17'

TBM PAT 21 X 68-BT-2165

68-BT-2166 PCS 1458+89.74

68-BT-2167

68-BT-2168

68-BT-2169

P.T. 1460+89.74

OVERBURDEN CUT SLOPE RT 1-1/4:1

R.S. 1463+71.67

68-BT-2170

68-BT-2171 P.S.C. 1465+71.67

Δ = 27°30'00" RT D = 07°30'00" R = 763.94' T = 287.41' L = 166.67'

Δ = 07°30' L = 200

P.C.S. 1467+38.34 (68-BT-2172) (68-BT-2173)

68-BT-2174 68-BT-2175

P.T. 1469+38.34

N. 76°06'45" E. 19°03'05" R. 1472+87.34

TBM PAT 22

MON. F

MON. G

EXISTING ROAD TO BE ABANDONED

1002' 238°10 ¼ CORNER N. 85°38'39" W.

P.I. 1466+59.08

2609.1

STA. 1465+21 24" x 104.7' CMP

2611.2

N. 48°36'45" E.

2618.4

STA. 1459+20 24" x 88.5' CMP

2618.4

P.I. 1460+89.74

BETWEEN STATIONS 1472+50 & 1475+00 THE EMBANKMENT SHALL BE CONSTRUCTED OF ROCK FILL. THE EMBANKMENT SLOPE SHALL BE 1-1/4:1

Δs = 07°30' Ls = 200'

P.S. 1470+51.50

STA. 1471+17.10 SECTION LINE X-ING W/ E HWY

STA. 1472+51 24" x 88.6' SKEW NO 90

P.S.C. 1472+31.50

P.C.S. 1473+19.72

P.C. 1473+43.21

Δ = 20°07'00" LT D = 07°30'00" R = 763.94' T = 235.84' L = 268.22'

N. 55°59'45" E.

2619.5

112.31

1475

SEE SHEET 23 FOR R/W MEANDER TABLE

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SECTION 13 SECTION 24

1441+25 1451+25 1469+75 1471+00

GUARDRAIL LT. RT. 700' LT. 1852' LT. 17.50' LT.

GUIDE POSTS LT. RT. 10 POSTS RT DESIGN F 13 POSTS LT. DESIGN F 8 POSTS LT. DESIGN F 6 POSTS RT. DESIGN F

ROCK EXC CUT SLOPE Z WIDTH LT RT

W=15' RT. 1½:1 SLOPE W=20' RT 1:1 SLOPE TRANSITION RT. Z=7' LT. 2% DAYLITE LT. W=20' LT. W=30' RT. 1:1 SLOPE TRANSITION RT. Z=7' LT.

SURVEY GROUND LINE +0.280% PROFILE 800' V.C. GRADE -1.695% 800' V.C. +1.002% DESIGN GROUND LINE

ESTIMATED ROCK LINE

SURVEYED GROUND LINE

1447+88 36" X 190.5' PIPE CULVERT SKEW NO. 74

1459+20 24" x 88.5' PIPE CULVERT

TBM. PAT 21 EL. 2681.07 SPIKE IN BASE OF 48" PINE 115' RT. OF STA. 1457+40

1465+21 24" X 104.7' PIPE CULVERT

1472+31 24" X 92.6' SKEW NO 90

SURVEYED GROUND LINE

V.P.I. 1465+00 EL. 2613.00

TBM. PAT 22 EL. 2668.58 SPIKE IN BASE 10" FIR 50' RT. OF STA. 1473+25

2650 2640 2630 2620 2610 2600 2590 2580 2570

1460 1465 1470 1475

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(4) ADDED NOTES. (5) DELETED GUARD-RAIL RT. (5) REVISED GUIDE POSTS, ROCK CUT SLOPES & DITCH WIDTHS. (2) REVISED PROFILE FROM STATION 1450 TO 1475. (1) REVISED ALIGNMENT FROM STATION 1483 TO 1475	71 NOV 1	
B	CULVER (3) REVROCK EXC. CUT SLOPE (1) CHANGED TITLE & FILE NO. (2) ADDED GUARDRAIL, GUIDE POSTS, & (4) REVISED ROCK EXC CUT SLOPE. (3) CORRLCTED SECTION AND DISTINCE TO 1/4 CORNER	71 JUN 7	
A	(1) ADDED, SURVEYED GROUND LINE (2) ADDED NOTES (3)	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LONDON
CHECKED BY: LONDON
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2

PLAN AND PROFILE

STA. 1445+00 TO STA. 1475+00

PREPARED: E. H. Klosa Jr. CHIEF, CIVIL DESIGN SECTION

SUBMITTED: Sidney Knutson CHIEF, DESIGN BRANCH

SCALE: AS SHOWN SPEC. NO.

DRAWING NUMBER: E-53-31-117 (B1) AS BUILT

DATE: '70 JULY 10

SHEET 22

K-E PLATE 1, PLAN-PROFILE

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	32	116

EQUATION BK. # AHD.
PT. 1475 + 19.72
POT 1475 + 23.07

SCENIC T.O. SEE SHEET 31 FOR DETAILS

STA. 1479+50 24"x 69.7 CMP

P.I. 1480 + 47.17
S. 81° 42' 00" E.

Δ = 25° 10' 15"
D = 5° 00' 00"
R = 1145.92'
T = 356.14'
L = 303.42'

HERBERT S. DANIELS

ST. REGIS PAPER CO.

STA. 1497+31 48" x 346' CMP W1-5
N. 73° 07' 45" E. 150'

2502.3

2597.8

2619.0

2547.8

2599.0

N. 55° 59' 45" E.

MON 'H'

P.I. 1489 + 82.20
94° 22' 13"

STA. 1489+46 42" X 141.7' CMP

Δ = 42° 18' 15" RT.
D = 6° 00' 00"
R = 954.93'
T = 470.11'
L = 505.07'

SΔ = 6° 00' 00"
L = 200'

SΔ = 5° 00' 00"
L = 200'

SΔ = 1° 07' 30"
L = 150'

PS 1475 + 77.06
PCS 1477 + 77.06
PS 1482 + 82.13
PCS 1482 + 82.13
PT 1484 + 82.13
PS 1486 + 26.06
PCS 1488 + 26.06
PT 1488 + 91.09
PCS 1491 + 29.48
PT 1493 + 29.48
PS 1504 + 50.41

N. 23° 45.1" E.

CRITICAL ENVIRONMENTAL CONTROL AREA

ST. REGIS PAPER CO.

S. 85° 38' 39.1" E.

417.47' TO SECTION CORNER

U.S.F.S.

T 32 N., R 29 W., M.P.M.

T 32 N., R 28 W., M.P.M.

FOR CUT SLOPE RESLOPING AT STA. 1494+50 SEE DETAIL ON SHEET 40A

N

SCALE IN FEET
100 0 100 200 300

RIGHT-OF-WAY MEANDER TABLE

POINT TO POINT	BEARING	DISTANCE
MONUMENT F TO G	S85°38'39.0E	127,386'
G TO 8	N54°52'14.8E	164,387'
8 TO 9	N50°05'53.2E	180,975'
9 TO H	N49°37'45.4E	85,983'

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, DESIGNED, GRADES CHECKED, R/W OF WAY CHECKED, ALIGNMENT CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, DESIGNED, GRADES CHECKED, B. M.'s NOTED, STRUCTURAL (W) ATTHS. (CMP'S), NOTE BOOK, NO., BY, DATE

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. LT.
CUT SLOPE RT.
Z WIDTH = 7'

W = 20' RT. 1:4:1 SLOPE

B5

+1.002%

-1.444%

1000' V.C.

1800' V.C.

EQUATION
PT. 1475 + 19.72 BK. =
POT 1475 + 23.07 AHD.

1479+50 24"K 69.7' PIPE CULVERT

1489+46 42" X 141.7' PIPE CULVERT

1497+31 48" X 346' PIPE CULVERT SKEW NO. 60

ESTIMATED ROCK LINE

DESIGN GROUND LINE

SURVEYED GROUND LINE

EL. 2627.00 V.P.I. 1479+00

EL. 2601.00 V.P.I. 1497+00

+2.584%

1750' LT.
12 POSTS LT. DESIGN "F"

6 TRANSITION RT.
Z = 7' LT.

9 POSTS RT. DESIGN "F"

W = 25' RT. 1/4:1

Z = 7' LT.

W = 15' RT. 2% SLOPE

550' LT.
500' RT.

W = 20' RT. 1:1 1/2:1 SLOPE

1475 1480 1485 1490 1495 1500 1505

2640 2630 2620 2610 2600 2590 2580 2570 2560

C	TO "DESIGN" GROUND LINE. CULVERT LGTH. & PROFILE GRADE. (3) CHANGED "EXISTING" (1) ADDED EQUATION. (2) REVD. ROCK EXC. CUT SLOPE.	71 NOV 1	
B	CULVERTS & ROAD SIGN (3) REVISED ROCK EXCAVATION CUT (1) CHANGED TITLE & FILE NO. (2) ADDED GUARDRAIL, GUIDE POSTS,	71 JUN 7	
SYMBOL	DESCRIPTION	DATE	APPROVAL

REVISIONS

CUT SLOPE (3) ADDED SCENIC TURNOUT (B) REVISED ROCK EXC.
(1) ADDED SURVEYED GROUND LINE (2) REVISED OWNERSHIP

A — SYMBOL — DESCRIPTION — REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LONDON
CHECKED BY: PRARP
REVIEWED: SHADDUCK
PREPARED:
CHIEF, PMP, DESIGN & CPT.
SUBMITTED:
CHIEF, ENGINEERING DIVISION

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION — MONTANA HIGHWAY 37
UNIT NO. 2
PLAN AND PROFILE
STA. 1475+00 TO STA. 1505+00

SCALE AS SHOWN | SPEC. NO.
DRAWING NUMBER 57-83-31-117
SHEET 23
DATE 70 JULY 10

CONTRACT DACW67-72-C-0017

MICROFICHED DEC '72

K•E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.
48 7024 HERCULENE

EL. BOTTOM OF CULV. 2537

R/W NO	SHEET NO	TOTAL SHEETS
F145	33	116

STA. 1510+00 TO STA. 1535+00 STRIP TOPSOIL

ST REGIS PAPER CO

FIVE-MILE CREEK RECREATION AREA

TO BE ABANDONED

STA 1506+50 24"X 98.7 CMP

2613.0

P.I. 1508 +85.66

STA 1511+34 24" X 156.7 CMP

2607.8

1505 N 73° 07' 45" E 1510

100'

120'

P.S.C. 1506+00.41

2620.8

U.S.F.S.

SPRINGS

2622.8

1510+00

UNSTABLE FOUNDATION DUE TO SPRING WATER SUB-EXCAVATED ± 4' & ROCK BLANKET INSTALLED

1512+20

P.C.S. 1511+68.74

P.T. 1513+18.74

120'

100'

1515 N 83° 54' 15" E 1520

2616.0

120'

10+00 END APPROACH ROAD MSH 37 STA. 1526+00

1525

STA 1522+37 30" X 212.2'

2636.6

OBLITERATE EXISTING ROAD WITHIN HWY R/W

90°

1530

2632.7

TO BE ABANDONED

2649.70

STA. 1530+09 24" X 142.4 CMP

100'

120'

1535

2621.7

2645.5

$S\Delta = 1°07'30"$
$L = 150'$

$S\Delta = 1°07'30"$
$L = 150'$

$\Delta = 10°46'30"$
$D = 1°30'00"$
$R = 3819.72'$
$T = 435.25'$
$L = 568.33'$

68-BT-2195

TBM PAT 24

FIVE MILE CREEK RECREATION AREA

SEE THIS SHEET FOR PROFILE

7+90 ± BEGIN APPROACH ROAD

ST. REGIS PAPER CO.

U.S.F.S.

U.S.F.S.

N

V.P.I. 1529+50 EL. 2685.0

TBM PAT 25

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SECTION 18; T 32 N., R 28 W., M.P.M.

SCALE IN FEET 100 0 100 200 300

W=20' RT.

ROCK EXC. LT.
CUT SLOPE RT.
2 WIDTH =?'
GUARDRAIL LT. RT.

TBM PAT 24
EL. 2643.31
SPIKE IN BASE OF 6" FIR 320' RT. OF STA. 1515+70

68-BT-2195

ML
ML, SANDY
GL
GM
REFUSAL ON BEDROCK

PROFILE GRADE

+2.58% DESIGN GROUND LINE

1800 V.C.

1506 + 50
24" X 98' PIPE CULVERT

1511 + 34
24" X 156.7' PIPE CULVERT

1515 1520

RIM 120

APPROACH ROAD STA. 10+00 = MSH 37 STA. 1526+00

97.20 D.P.

EL. 2666.43

+1.00%

HIGHWAY EMB.

7+90 ± BEGIN GRADING, MEET EXIST. GRADE

+8.0%

100' V.C.

PROFILE GRADE

EXISTING GROUND

97.30
24" X 80.3 PIPE CULVERT

APPROACH ROAD AT STA 1526+00

1505 1510 1515 1520 1525 1530 1535

2660 2650 2640 2630 2620 2610 2600

369+00 526+50 527+00 528+00 529+00 530+00 531+00 531+48

3400' LT 377' RT. 475' RT.

2000' V.C. 5.50%

SURVEY GROUND LINE

1530+09
24" X 142.4 PIPE CULVERT

1522+37
30" X 212.2' PIPE CULVERT
SKEW NO. 52

1535+04
36" X 120.2 PIPE CULVERT

TBM PAT 25
EL. 2688.27
SPIKE IN TOP OF 10" STUMP 520' RT. OF STA. 1533+35

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(3) ADDED RECREATION AREA (4) REVISED NOTE. (1) ADDED SURVEYED GROUND LINE (2) REVISED OWNERSHIP	70 JUL 3	
C	AND DESIGN GROUND LINE (1) ADDED HWY EMB. (2) IDENTIFIED PROFILE GRADE	71 JUN 24	
B	(4) ADDED APPROACH RD 1526+00. & GUARDRAIL (3) REVISED ROCK EXCAVATION CUT SLOPE (1) CHANGED TITLE & FILE NO. (2) ADDED SECTION 18, CULVERTS,	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: HALL
CHECKED BY: PHARR & HALL
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN AND PROFILE
STA. 1505+00 TO STA. 1535+00

PREPARED: E.H. Klein Jr.
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1) | DATE: 70 JULY 10
SHEET 24 | AS BUILT

CONTRACT DACW67-72-C-0017

K+E PLATE 1, PLAN AND PROFILE KEUFFEL & ESSER CO.

MICROFILMED DEC '76

PLAN — SURVEYED, PLOTTED, LAYOUT CHECKED, R/T. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B. M.'s NOTED, STRUCTURE NOTATIONS CHKD., BY, DATE

R/W NO	SHEET NO	TOTAL SHEETS
F145	34	116

ST. REGIS PAPER CO.

$\Delta = 10°07'00"$
$D = 1°00'00"$
$R = 5729.58'$
$T = 582.17'$
$L = 861.67'$

$S\Delta = 0°45'00"$
$L = 150'$

P.S. 1535 + 28.64

P.S.C. 1536 + 78.64

U.S.F.S. A_2

STA. 1542+00
24" 108.8 CMP
2600.9
2612.8

STA. 1543 + 63.66

815.77' TO 1/4 CORNER

N 3°52'01.6" E

72°26'12.7"

P.C.S. 1545 + 40.31

P.T. 1546 + 90.31 BK =
1545 + 81.21 AH.

EQUATION

FIVE MILE CREEK RECREATION AREA

TO BE ABANDONED

FIVE MILE CREEK

F.S. ROAD NO. 48.3

$S\Delta = 2°48'45"$
$L = 150'$

N6-2A D1 FIVEMILE ROAD
SEE SIGN DETAILS SHT. 39.11

ST. REGIS PAPER CO.

P.S. 1554 + 97.70

P.S.C. 1555 + 97.70

OBLITERATE EXIST. ROAD WITHIN HWY R/W

N 8.3° 54'15" E

P.I. 1541 + 10.81

N 73° 47'15" E

FIVEMILE CREEK N6-2 D2

71-RD-3471
71-RD-3470

67-DD-3026
67-DD-3025
67-DD-3021
67-DD-3027

2548.3
2548.9

FOR DETAILS SEE SHEET 50

W1-2

FIVE MILE CREEK RECREATION AREA

U.S.F.S. A_2

A_3

SECTION 18
SECTION 17

ST. REGIS PAPER CO.

MSH 37 STA. 1557+00 =
APPROACH ROAD STA. 10+00
SEE SHEET 29

FIVE MILE CREEK RECREATION AREA

$\Delta = 110°00'00"$
$D = 3°45'00"$
$R = 1527.89'$
$T = 2257.92'$
$L = 2783.33'$

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

T 32 N., R. 28 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

FIVEMILE ROAD N6-2A D1
SEE SIGN DETAILS SHT. 39.11

1554.51 LG

GUARD-LT RAIL RT.
3400' LT.
1543+00
1549+20
231' LT.
251.16' RT.
306.37' LT.
225' RT.
1556+52.88
1557+34.25

2000' V.C.
1200' V.C.

DESIGN GROUND LINE C_2
PROFILE GRADE C_2 -5.500%
SURVEY GROUND LINE A_1

1542+00
24"ϕ 108.8' PIPE CULVERT

EQUATION
= 1545 + 81.21 AH
PT. 1546 + 90.31 BK.

67-DD-3026
67-DD-3027
V.P.I. 1555 + 90
2536.00

ML, SANDY GRAVEL
GM, SANDY
GP, SANDY
GM
GP, SANDY
BEDROCK

2492.0
2487.1
2460.0
2481.0
2447.5

PROFILE GRADE C_2 +4.531%

A_1 SURVEY GROUND LINE

ℓ APPROACH ROAD STA. 10+00 = MSH STA. 1557+00

1535 1540 1545 1550 1555 1560 1565

2660 2650 2640 2630 2620 2610 2600 2590 2580 2570 2560 2550 2540 2530 2520 2510 2500

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	(1) ADDED SIGNS (2) REVISED SIGN NOS. & SIGN AND DESIGN GROUND LINE.	74 MAY 28	A1
C	(1) CHANGED RD. SIGN, (2) IDENTIFIED PROFILE GRADE	71 JUN 24	
B	(3) ADDED HOLES 71-RD-3470 & 71-RD-3471 (1) CHANGED TITLE & FILE NO. (2) ADDED GUARDRAIL & ROAD SIGN	71 JUN 7	
A	(1) ADDED SURVEYED GROUND LINE (2) REVISED OWNERSHIP (3) ADDED REC. AREA (4) ADDED NOTE	70 JUL 31	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LONDON
CHECKED BY: PHARR
REVIEWED: SHADDUCK
PREPARED:
CHIEF, ENGR. DESIGN SECT.
SUBMITTED:
CHIEF, ENGINEERING DIVISION

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 38.2
PLAN AND PROFILE
STA. 1535+00 TO STA. 1565+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
SHEET 25
DATE: 70 JULY 10
AS BUILT

PLATE 1, PLAN-PROFILE
KRUPPEL & ESSER CO.

CONTRACT DACW87-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	35	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., EQUIPMENT CHECKED, BL. M. NOTED, SET OF MAY CHECKED, DATE, BY

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., EQUIPMENT CHECKED, BL. M. NOTED, STRUCTURE NOTATIONS CHKD, DATE, BY

1565 140'
150'
2658.1
2674.7
B2
STA 1567+08
24" X 143' CMP
FIVE MILE CREEK RECREATION AREA
A2
ST. REGIS PAPER CO.
1570
N6-2
D1
STENERSON MTN. ROAD
4886
SEE SIGN DETAILS SHT 39.11
EXIST. F.S. ROAD NO. 856.5
Δ = 2°48'45"
L = 150'
EQUATION
PT 1585 + 31.03 BK.
1585 + 83.99 AHD
TO BE ABANDONED
B1
1586+50 END GRADING THIS CONTRACT
W1-2
1325.159 TO SECTION CORNER
S. 86°03'16.0" E.
1595
TBM PAT 30
1590
49°50'31"
1593+05.077
N. 36°12'45" W.
FIVE MILE CREEK RECREATION AREA
A1
ST. REGIS PAPER CO.
1575
SEE SIGN DETAILS SHT 39.11
N6-2
D1
2593.5
2626.9
PCS 1583+81.03
1585
140'
150'
1580
STA 1576+35
48" X 156.2
2613.5
M.S.H. 37 STA. 1576+00
APPROACH ROAD
STA. 10+00
SEE SHEET 29
B3
STA 1583+00
30" X 147.3
2649.3
C1
Δ = 110° 00' 00"
D = 3° 45' 00"
R = 1527.89'
T = 2257.92'
L = 2783.33'
80'
80'
A2
SCALE IN FEET
100 0 100 200 300
T. 32 N., R. 28 W., M.P.M.
FIVE MILE CREEK RECREATION AREA
℄ APPROACH ROAD STA. 10+00 = MSH STA. 1576+00

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

ROCK EXC. CUT SLOPE Z WIDTH = 1'
GUARDRAIL LT RT
2640
2630
2620
2610
2600
2590
2580
2570
1565
1570
1575
1580
1569+75
1578+25
B2
1100' LT
250' RT
180' RT
+4.5% 1576+35
48" X 156' PIPE CULVERT
C2 DESIGN GROUND LINE
PROFILE GRADE
SURVEY GROUND LINE C2
A1
1567+08
24" X 143' PIPE CULVERT
B2

1580+75
1581+50
1585+31.03 BK. = 1585+83.99 AHD
547' LT
SURVEY GROUND LINE
C2
DESIGN GROUND LINE
+4.57%
PROFILE GRADE
1583+00
30" X 147' PIPE CULVERT
1585
EQUATION
1587+50
1588+00
V.P.I. 1588+14
EL. 2682.14
DESIGN GROUND LINE C2
1590+67.5
1281' LT
+0.34%
TO 1604+67.5
PROFILE GRADE
800' VC
B1
1586+50 END GRADING THIS CONTRACT EL. 2673.63
A1
SURVEY GROUND LINE
2690
2680
2670
1590
1595
TBM PAT 30
EL. 2691.50
SPIKE IN BASE OF 24" FIR 8' LT OF STA. 1591+85

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(1) ADDED SURVEYED GROUND LINE (2) ADDED RECREATION AREA	70 JUL 31	
D	(1) ADDED SIGNS.	74 MAY 28	
C	AND CHANGED EXISTING GROUND TO DESIGN GRD. LINE. (1) ADDED R/W MON. (2) IDENTIFIED SURVEY GROUND LINE	71 JUN 24	
B	RECREATION AREA BOUNDARY (2) ADDED GUARDRAIL, CULVERT & ROAD SIGN (3) REVISED (1) REVISED TITLE, FILE NO., & CONSTRUCTION TO GRADING	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: HALL, LALIKOS
CHECKED BY: PHARR
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3 (2)
PLAN AND PROFILE
STA 1565+00 TO STA. 1586+50

PREPARED:
CHIEF, CIVIL DESIGN SECTION
APPROVED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
SHEET: 26
DATE: 70 JULY 10
(B1)

K-E PLATE 1, PLAN-PROFILE KRUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC 78

R/W NO	SHEET NO	TOTAL SHEETS
F 145	36	116

FIVE MILE RECREATION AREA

ST REGIS PAPER CO.

END CONTRACT MSH 37 UNIT 3B (BY OTHERS)
BEGIN CONTRACT MSH 37 UNIT 3C-D

17 18 / 8 7 FD.

R.I.W.

2608.3

STA. 1595+00 TO 1603+00 WASTE AREA SL 337

PSC 1598+82.88 R/W ALINEMENT

PS 1596+82.88 R/W

200'

80'

CRITICAL ENVIRONMENTAL CONTROL AREA

P.I. 1606+18.86

P.I. 1606+53.86 (R/W)

N 61° 07' 15" E (R/W)

N 59° 40' 00" E

2688.6

1600

℄ USED TO ESTABLISH R/W

2705.0

1603+75 24"X 79' C.M.P.

1605

2690.6

1600+00 30"X 114.9' C.M.P.

FOR BACKSLOPE SEE SPECIAL SECTION SHEET 30

2707.0

130'

FOR TURNOUT DETAIL SEE SHEET 31

1589+00

1590+00

2668.6

1590

1595

1594+00 24"X 248.5' C.M.P.

N. 36° 12' 45" W.

2680.4

1587

1587+40 24"X 75.2' C.M.P.

2670.6

140'

150'

R/W

1593+18.29

1286.12'

N 86° 03' 16" W

PSC 1598+82.88

PS 1596+69.85

Δ = 95° 52' 45" RT
D = 7° 30'
R = 763.94
T = 949.01
L = 1078.39

Sa = 07° 30' 00"
Ls = 200

STA 1604

EL. 2900

STA 1607

EL 2850

SCALE EXISTING GROUND FROM TOP OF CUT TO THE ELEVATION INDICATED

R/W ALINEMENT
Δ = 97° 20' 00" RT.
D = 07° 30' 00"
R = 763.94'
T = 970.98'
L = 1097.78'

PCS 1609+48.24

STA 1610

PCS 1609+80.66 (R/W)

200'

R/W

STA. 1586+50

T. 32 N. R. 28 W.

17 18 / 8 7 FD.

ST. REGIS PAPER CO.
E½ SW¼ SEC 8

DOROTHY M. HUSICK
N.W. ¼ S.W. ¼
SEC. 8

NOTE: R/W MONUMENTS FROM STA. 1595 TO STA. 1628 SHALL BE SET BASED ON THE ℄ DESIGNATED, "℄ USED TO ESTABLISH R/W."

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SEE THIS SHEET FOR LEGEND.

LEGEND

EXISTING	THIS CONTRACT
EMBANKMENT	TURNOUT 1589+00 1590+00
ROAD	
R/W MON.	
CULVERT	
BRIDGE	
FOUND SECTION OR QUARTER CORS.	17 18 / 8 7 — 17 / 8
UNFOUND SECTION OR QUARTER CORS.	17 16 / 20 21 — 16 / 21

SCALE IN FEET
100 0 100 200 300

AS BUILT NOTES:

FOR RESLOPING (STA. 1604+00 TO 1609+48) SEE DETAIL ON 7A

FOR SLOPE LAYBACK (STA. 1601+50 TO 1609+10) SEE DETAIL ON SHT. 7A

2760
2750
2740
2730
2720
2710
2700
2690
2680
2670
2660

ROCK EXC. LT. CUT SLOPE RT.

W = 15'

W = 15' RT VERT

1.4:1 FILL SLOPE LT.

TRANSITION W = 20' RT.

W = 15' LT 1/4:1 SLOPE

TRANSITION W = 30' RT.

W = 25' RT.

STA. 1586+50 EL. 2673.63

BEGIN CONSTRUCTION

V.P.I. 1598+00 EL. 2682.14

+4.870%

1587+40 24"X 75.2' PIPE CULVERT

800' V.C.

ESTIMATED ROCK LINE

+0.344%

PROFILE GRADE

1594+00 24"X 248.5' PIPE CULVERT

EXISTING GROUND SURFACE

V.P.I. 1598+00 EL 2685.58

700' V.C.

1600+00 30"X 114.9' PIPE CULVERT

V.P.I. 1605+00 EL. 2720.58

+5.00%

-0.754%

700' V.C.

1603+75 24"X 79.0' PIPE CULVERT

1585 1590 1595 1600 1605 1610

SYMBOL	DESCRIPTION	DATE
B	(3) ADDED REFERENCE NOTE. LGTHS., LOCATION OF ROCK EXC. WIDTHS & FILL SLOPES. SPECIAL SECTIONS. (2) RVS'D PROFILE GRADE, CULV. (1) RVS'D HORIZ. ALIGNMENT & LOCATION OF BACKSLOPE	71NOV30
A	(1) ADDED NOTE.	71JUL30

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(2) CORRECTED STATIONING CALLOUT OF P.S.C. (1) CHANGED P.S.C. TO P.C.S. AT STA 1609+48.24	78MAY24	

CONTINUED REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: JOHNSON
DRAWN BY: WYON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED:
PREPARED:
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1586+50 TO STA. 1610

SCALE: AS SHOWN | SPEC. NO
DRAWING NUMBER E-53-31-103 | DATE 71 JUN 9
SHEET 3 AS BUILT

PLAN: CURVED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, DRAWING CHECKED, R/W NOTED, STRUCTURE NO'S ATTN'S CHKD, RT. OF WAY CHECKED, BY, DATE

PROFILE: CURVED, PLOTTED, NOTE BOOK, NO., BY, DATE

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0020

MICROFILMED MAY '78

R/W NO	SHEET NO	TOTAL SHEETS
F145	37	116

DOROTHY M. HUSICK
N.W. 1/4 S.W. 1/4
SEC. 8

ST. REGIS
PAPER CO.

U.S.F.S.

DOROTHY M. HUSICK
N.E. 1/4 N.W. 1/4
SEC. 8

CENTER LINE USED TO ESTABLISH R/W

Δ = 36°16'30" LT
D = 07°30'
R = 763.94'
T = 350.91'
L = 283.67'

Δs = 07°30'
Ls = 200'

Δs = 05°30'
Ls = 200'

S 88° 11' 02" E
2007.24'

EXISTING ROAD

R/W

P.I. 1623+09.75
R/W ALINEMENT

P.I. 1622+12.40

W1-4 W13-1 50 MPH

W1-4

P.T. 1611+80.65 R/W
P.S. 1612+30.74 R/W
P.S. 1612+15.12

P.S.C. 1614+30.74 R/W
P.S.C. 1614+15.12

P.S.C. 1617+12.35 R/W
P.S.C. 1616+98.79

P.T. 1619+12.35 R/W
P.T. 1618+98.79

P.S.C. 1623+14.93

P.S.C. 1624+45.08 R/W

P.T. 1624+64.93 BK
= 1624+17.45 AHD

P.T. 1625+95.08 R/W

P.S. 1636+56.61

P.S.C. 1638+56.61

N. 61° 07' 15" E. R/W

N. 39° 40' 00" E.

N. 25° 00' E R/W

N. 23° 23' 30" E.
P.I. 1615+66.03

P.I. 1615+80.51 R/W

N. 37° 40' 30" E.

P.S. 1619+57.86

P.S. 1620+22.58 R/W

P.S.C. 1621+07.86

P.S.C. 1621+72.58 R/W

1610 1615 1620 1625 1630 1635 1639

200' 275' 350' 300' 250' 320'

Δs = 07°30'
Ls = 200'

Δs = 03°00'
Ls = 150'

Δs = 2°15' R/W
Ls = 150'

R/W ALINEMENT
Δ = 36°07'15" LT
D = 70°30'00"
R = 763.94'
T = 349.77'
L = 281.71'

R/W ALINEMENT
Δ = 12°40'30" RT
D = 3°00'
R = 1909.86'
T = 287.17'
L = 272.50'

EQUATION
Δ = 14°17'00" RT
D = 04°00'
R = 1432.39'
T = 254.54'
L = 207.07'

SCALE IN FEET
100 0 100 200 300

5,200 LT

ST. REGIS
PAPER CO.

U.S.F.S.

SEE SHEET 3 FOR LEGEND

GUARDRAIL
GUIDE POSTS

25 POSTS LT. DESIGN "F"
10 POSTS RT. DESIGN "F"

EXISTING GROUND LINE
ESTIMATED ROCK LINE
-0.764%
PROFILE GRADE
1000' V.C.
+4.804%

EQUATION
1624+64.99 BK
= 1624+17.45 AHD

1614+75
30" X 70' PIPE CULVERT

1625+00
36" X 78' PIPE CULVERT

V.P.I. 1627+50
EL. 2703.61

1633+00
30" X 68' PIPE CULVERT

1630+00
36" X 140' PIPE CULVERT

EXISTING GROUND SURFACE
+1.804% PROFILE GRADE

1633+00
30" X 68' PIPE CULVERT

1638+00
36" X 62' PIPE CULVERT

ESTIMATED ROCK LINE

2760 2750 2740 2730 2720 2710 2700 2690 2680

1610 1615 1620 1625 1630 1635 1640

2720 2710 2700 2690 2680

PLAN

PROFILE

NOTE BOOK NO.

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1610 TO STA. 1639

SIZE	INVITATION NO.	FILE NO.	PLATE
F		E-53-31-117 AS BUILT	
	DATE: 74 FEB 28		
DSGN. OKURA	CHK. HANSON	SHEET 102	

MICROFILMED DEC '76
CONTRACT DACW67-72-C-0017

K&S PLATE 1. PLAN-PROFILE

THIS SHEET SUPERSEDES DWG. E-53-31-117 SHT. 102 DATED 71 JUL. 7

R/W NO	SHEET NO	TOTAL SHEETS
F145	38	116

DOROTHY M. HUSICK
N.E. 1/4 S.W. 1/4
SEC. 8

CLAUDE C. NORRIS
N. 1/2 OF SE. 1/4
SEC. 5

CLAUDE C. NORRIS
N. 1/2 S.E. 1/4
SEC. 5

U. S. F. S.

EXISTING ROAD

R/W

Δ = 17°45'45" LT.
D = 05°30'
R = 1041.74'
T = 263.00'
L = 122.95'

Δ = 26°00'00" LT.
D = 05°30'
R = 1041.74'
T = 340.84'
L = 272.73'

Δ = 25°33'30" LT.
D = 05°00'
R = 1145.92'
T = 360.21'
L = 311.17'

Δ = 12°31'45" RT.
D = 05°00'
R = 1145.92'
T = 225.93'
L = 50.58'

Δs = 05°30'
Ls = 200'

Δs = 05°00'
Ls = 200'

P.C.S. 1639 + 79.56
P.T. 1641 + 79.56
P.I. 1644 + 67.55
P.S. 1648 + 02.46
P.S.C. 1650 + 02.46
P.C.S. 1652 + 75.19
P.T. 1654 + 75.19
P.S. 1660 + 61.53
P.S.C. 1662 + 61.53
P.C.S. 1665 + 72.70
P.T. 1667 + 72.70
P.I. 1639 + 19.6
P.S. 1642 + 41.72
P.S.C. 1644 + 41.72
P.C.S. 1644 + 92.30
P.T. 1646 + 92.30
P.I. 1651 + 43.30
P.I. 1664 + 21.74
P.S. 1669 + 42.62

1639 1640 1645 1650 1655 1660 1665 1670

N. 19° 54' 45" E.
N. 32° 26' 30" E. H
N. 06° 26' 30" E. H
N. 19° 07' 00" W.

200' 120'

W1-4

SCALE IN FEET
100 0 100 200 300

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
60 ROCK EXC. LT.
CUT SLOPE RT.

W = 15' LT. 2% DAYLITE
W = 25' RT.
W = 20' RT.

DESIGN GROUND (A1)
DESIGN ROCK LINE (A2)

9 POSTS RT. DESIGN F

V.P.I. 1650 + 00
EL. 2744.20

+1.804% PROFILE GRADE
-3.450% PROFILE GRADE

1644 + 40
24" x 70' PIPE CULVERT

1650 + 00
42" x 94' PIPE CULVERT

1654 + 75
24" x 102' PIPE CULVERT

1665 + 30
72" x 92' PIPE CULVERT

1669 + 00
24" x 66' PIPE CULVERT

2400' V.C.

1640 1645 1650 1655 1660 1665 1670

2700 2750 40 30 20 10 90 80 70

1658 + 00 1660 + 75 5200 LT 12,845 LT

2700 2710 00 90 80 70 60

SYMBOL	DESCRIPTION	DATE
	REVISIONS	
A	ROCK LINE. LINE 2 (2) ESTIMATED ROCK LINE TO DESIGN (1) CHANGED CALL-OUT, EXIST. GRD. TO DESIGN GRD.	71 JUN 24

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1639 TO STA. 1670

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 71 JUN 7
SHEET 103
AS BUILT

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

PLAN
PROFILE

R/W NO	SHEET NO	TOTAL SHEETS
F145	39	116

CLAUDE C. NORRIS, S.E. 1/4 N.W. 1/4 SEC. 5

ST. REGIS PAPER Co.

ST. REGIS PAPER Co.
S.W. 1/4 N.E. 1/4
SEC. 5

CLAUDE C. NORRIS
N. 1/2 S.E 1/4
SEC. 5

CLAUDE C. NORRIS

ST. REGIS PAPER Co.

ST. REGIS PAPER Co.

R/W

R/W

EXISTING RD.

70-DD-3297

70-DD-3462

P.I. 1672+02.49

P.I. 1683+55.80

P.I. 1688+78.35

P.S.C. 1671+60.24

P.G.S. 1672+42.99

P.T. 1674+42.99

P.C. 1678+32.52

P.S. 1696+53.85

P.S.C. 1698+03.85

N. 19°07'00" W.

N. 0°58'45" N.

N. 00°15'00" E.

120'

180'

180'

275'

275'

200'

200'

200'

1670

1675

1680

1685

1690

1695

1700

Δs = 05°00'
Ls = 200'

Δs = 05°00'
Ls = 200'

Δs = 00°56'15"
Ls = 150'

Δ = 14°08'15" RT.
D = 05°00'
R = 1145.92'
T = 242.25'
L = 82.75'

Δ = 05°13'45" RT.
D = 00°30'
R = 1,459.16'
T = 523.28'
L = 1,045.83'

SCALE IN FEET
100 0 100 200 300

SYMBOL	DESCRIPTION	DATE
A	1) GN. ROCK LINE, GROUND LINE & (2) APPROX. ROCK LINE TO DES-IGN CHANGED CALL-OUT, EXIST. GRD. LINE TO DESIGN	71 JUN 24 JTB

REVISIONS

PLAN
DATE | BY | REVISIONS | NOTE BOOK | CONST. DETAILS | NO. | PI OR BAY NUMBERS

PROFILE
DATE | BY | REVISIONS | NOTE BOOK | (GRADES CHECKED) (S. RT. PLOTTED) (STRUCTURES NOTED ON PLAN) | NO.

2700
2690
2680
2670
2660
2650
2640
2630
2620
2610
2600

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.
ROCK EXC. LT. RT.
CUT SLOPE LT. RT.

6 POSTS DESIGN "F"

W = 20' RT

12,849' LT.

1200' V.C.

-3.450% PROFILE GRADE

DESIGN GROUND LINE (A1)

DESIGN ROCK LINE (A2)

-0.591%

+0.591% PROFILE GRADE

350' LT

1676+00
24"x66' PIPE CULVERT

1682+00
36"x68' PIPE CULVERT

1686+65
30"x68' PIPE CULVERT

1694+65
36"x74' PIPE CULVERT

V.P.I. 1677+00
EL 2651.05

1670 1675 1680 1685 1690

1695 1700

2700 2650

SYMBOL	DESCRIPTION	DATE

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA	KOOTENAI RIVER, MONTANA
DRAWN BY: W VON BESCHWITZ	LIBBY DAM & RESERVOIR PROJECT
CHECKED BY: CLEMENHAGEN	RELOCATION-MONTANA HIGHWAY 37
REVIEWED: SHADDUCK	UNIT 3C-D
	PLAN AND PROFILE
	STA. 1670 TO STA. 1700
PREPARED: Fred M Unruh, CHIEF, CIVIL DESIGN SECTION	SCALE: AS SHOWN; SPEC. NO.
SUBMITTED: Edwin Dimel, CHIEF, DESIGN BRANCH	DRAWING NUMBER E-53-31-117; DATE 71 JUN 7
	SHEET 104; AS BUILT

K-E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	40	116

ST. REGIS PAPER Co

Δ = 14° 55' 45" LT.
D = 01° 15'
R = 4,583.66'
T = 675.59'
L = 1,044.33'

FD. 3 1/2 H

ST. REGIS PAPER CO.
S. 1/2 NE. 1/4 E
N.W. 1/4 SEC. 5

EQUATION

Δs = 00° 56' 15"
Ls = 150'

P.C.S. 1708+48.18

P.T. 1709+98.18 BK. =
= 1710+03.03 AHD.

ROCK FILL BERM

70-BT-3269
70-BT-3270
EL 2463
70-BT-3264
70-BT-3265
70-BT-3263

E X I S T I N G R O A D

70-BT-3259
70-BT-3251
70-BT-3249
70-BT-3262
70-BT-3261
70-BT-3260
70-DD-3266

Δs = 02° 37' 30"
Ls = 150'

70-BT-3250

Δ = 17° 09' 30" LT.
D = 03° 30'
R = 1637.02'
T = 322.05'
L = 340.24'

U. S. F. S.

70-DD-3273
70-DD-3281
70-BT-3271
70-DD-3272

P.I. 1721+52.70

R/W

70-BT-3267
70-BT-3268
70-BT-3255
70-BT-3256
70-BT-3257

RETAINING WALL

DAYLIGHT CUT
STA. 1710+00 TO STA. 1714+50
N. 14° 40' 45" W.

1715
1720
1725
1730
1700
1705

N. 00° 15' 00" E.

EXISTING ROAD

N. 10° 35' 45" E.

P.S. 1726+74.21
P.S.C. 1728+24.21
70-DD-3258
70-DD-3268

P.S. 1717+95.47
P.S.C. 1719+95.47

Δs = 05° 00'
Ls = 200'

P.C.S. 1723+00.97
P.T. 1725+00.97

Δs = 05° 00'
Ls = 200'

Δ = 25° 16' 30" RT.
D = 05° 00'
R = 1145.92'
T = 357.23'
L = 305.50'

P.I. 1703+29.44

T. 32 N. R. 29 W. M.P.M.
T. 33 N. R. 28 W. M.P.M.

ST. REGIS PAPER Co

U. S. F. S.

P.I. 1729+96.26

SCALE IN FEET
100 0 100 200 300

12,845 LT.

GUARD LT
RAIL RT
GUIDE LT
POSTS RT
ROCK LT
EXC. CUT
SLOPE RT

2660
2640
2630
2620
2610
2600
2590
2580
2570
2560

-0.591%
-0.635%

20' WIDE DRAINAGE DITCH RIGHT
2% 2% 2%

400' V.C.

P.I. 1705+00
EL. 2634.50

1702+25 25 H.P.
EL 2629.5

1704+75 H.P.
EL 2629.5

1701+00
60" X 112' PIPE CULVERT

1703+50
60" X 88' PIPE CULVERT

1706+00
60" X 78' PIPE CULVERT

1709+97
24" X 80' PIPE CULVERT

A2 DESIGN ROCK LINE

EQUATION

1709+98.18 BK. =
= 1710+03.03 AHD.

DESIGN GROUND LINE 9 POSTS LT. DESIGN F

A1

W = 30' RT 1/2 : 1 SLOPE

TRANSITION RT.

W = 25' RT 1/2 : 1 SLOPE

P R O F I L E G R A D E

-0.635%

1715+65
24" X 70' PIPE CULVERT

DESIGN ROCK LINE A2

1723+80
24" X 74' PIPE CULVERT

-0.635% PROFILE GRADE

W = 20' RT.

1729+65
84" X 66' PIPE CULVERT

1727+15
42" X 122' PIPE CULVERT

DESIGN GROUND LINE A1

1700 1705 1710 1715 1720 1725 1730

SYMBOL	DESCRIPTION	DATE	
A	LINE & (2) "APPROX. ROCK LINE" TO "DESIGN ROCK LINE" (1) CHANGED CALL OUT "EXIST. GRD. LINE TO" DESIGN GRD.	71 JUN 24	DB

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: SHADDUCK
PREPARED: Ted M. Yamasaki
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edwin Dimmick
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE

STA. 1700 TO STA. 1730

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 71 JUN 7
SHEET 105
AS BUILT

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEET
F 145	41	116

PLAN — SURVEYED / PLOTTED / NOTE BOOK / NO. / GRADES CHECKED / ALIGNMENT CHECKED / ST. OF WAY CHECKED / STRUCTURE LOCATIONS CHECKED / BY / DATE

$\Delta = 17°09'30"$ LT.
$D = 03°30'$
$R = 1637.02'$
$T = 322.05'$
$L = 340.24'$

$\Delta s = 02°37'30"$
$Ls = 150'$

U. S. F. S.

P.C.S. 1731+64.45

P.T. 1733+14.45

175'

R/W

150'

17+30

1735

N. 10°35'45" E.

N. 06° 33' 45" W.

WI-4

LIBBY G-

REXFORD EUREKA G-

1740

1745

1750

P.I. 1729+96.26

P.I. 1748+45.62

P.C. 1744+07.64

160'

260'

EXISTING ROAD

ROLLIN W. MAHER N. 1/2 N.W. 1/4 SEC. 34

$\Delta = 06°33'45"$ RT.
$D = 00°45'$
$R = 7639.44'$
$T = 437.98'$
$L = 875.00'$

P.T. 1752+82.64

$\Delta s = 03°00'$
$Ls = 150'$

P.S. 1754+90.33

P.S.C. 1756+40.33

N. 00°00'00" E.

1755

1760

$\Delta = 49°08'15"$ LT.
$D = 04°00'$
$R = 1432.39'$
$T = 730.15'$
$L = 1078.44'$

SCALE IN FEET
100 0 100 200 300

12,845 LT.

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / NO. / GRADES CHECKED / ALIGNMENT CHECKED / STRUCTURE LOCATIONS CHECKED / BY / DATE

GUARD RAIL LT. RT.
GUIDE POSTS 2640 LT. RT.
ROCK EXC. CUT SLOPE LT. RT.

2630 2620 2610 2600 2590 2580 2570 2560

W = 20' RT.

20' RT. 1/2:1

-0.635%

PROFILE GRADE

800' V.C.

(A2) DESIGN ROCK LINE

1732+00 24"X66' PIPE CULVERT

1736+15 24"X64' PIPE CULVERT

1740+15 24"X64' PIPE CULVERT

1743+40 42"X70' PIPE CULVERT

M.R.I. 1746+00 EL. 2608.50

1747+15 24"X66' PIPE CULVERT

W = 20' RT. 3:1

(A1) DESIGN GROUND LINE

+1.500%

18 POSTS RT. DESIGN F

1751+15 36"X70' PIPE CULVERT

1755+13 30"X64' PIPE CULVERT

1759+40 36"X72' PIPE CULVERT

1730 1735 1740 1745 1750 1755 1760

SYMBOL	DESCRIPTION	DATE
A	LINE "1 & (2) "APPROX. ROCK LINE" TO "DESIGN ROCK LINE" (1) CHANGED CALL-OUT "EXIST. GRD. LINE" TO "DESIGN GRD.	71 JUN 24

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W.F. VON BESCHWITZ
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1730 TO STA. 1760

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 | DATE: 71 JUN 7
SHEET 106 AS BUILT

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	42	116

N

U. S. F. S.

EXISTING ROAD

P.I. 1782 + 19.19

N. 49° 08' 15" W.

R/W

W1-6

1775

1780

N. 62° 40' 15" E.

2459 POOL EL.

TEN MILE CREEK

EXISTING RD.

U. S. F. S.

W1-6

1785

1770

150'

P.C.S. 1771 + 87.51

P.T. 1768 + 68.77

Δs = 03° 00'
Ls = 150'

Δ = 111° 48' 30" RT.
D = 07° 30'
R = 763.94'
T = 1231.68'
L = 1290.78'

U. S. F. S.

P.C.S. 1784 + 78.29

W1-2

Δs = 07° 30'
Ls = 200'

EQUATION

R.T. 1786 + 78.29 BK. =
= 1785 + 25.93 AHD.

160'

150'

& CHANNEL CHANGE No 2

DIKE

BACK-FILL EXIST. CRK. TO TOP OF BANK

TEN-MILE CREEK RECREATION AREA (A3)

Δ = 49° 08' 15" LT.
D = 04° 00'
R = 1432.39'
T = 730.15'
L = 1078.44'

STA. 1764 + 50 TO 1766 + 50 SURFACE DAY-LIGHT CUT IN ACCORD-ANCE W/REQUIREMENTS FOR TURNOUTS.

P.C.S. 1767 + 18.77

P.C.S. 1769 + 87.51

Δs = 07° 30'
Ls = 200'

1765

N. 49° 08' 15" W.

W1-4

W13-1

50 MPH

1790

150'

950' LT

1760

P.I. 1762 + 20.48

N. 00° 00' 00" E.

160'

800' V.C.

EQUATION

+3.986%

GUARD-RAIL
GUIDE POSTS
ROCK EXC.
CUT SLOPE

2540
2530
2520
2510
2500

-4.498%

1784+90
24"X76' PIPE CULVERT

V.P.I. 1785 + 70
EL. 2525.90

1786 + 78.29 BK. =
= 1785 + 25.93 AHD.

PROFILE GRADE

DESIGN GROUND LINE (A1)

1789+87.62

178'X50

45° RT. 061 BEAM

1785

1790

2650
2640
2630
2620
2610
2600
2590

V.P.I. 1762 + 00
EL. 2632.50

+1.500%

PROFILE GRADE

-4.498%

1763 + 60
30"X70' PIPE CULVERT

1400' V.C.

1768 + 75
30"X66' PIPE CULVERT

DESIGN ROCK LINE (A2)

GUARD-RAIL
2580
GUIDE POSTS
ROCK EXC. LT.
CUT SLOPE RT

18 POSTS RT DESIGN F

W = 20' RT.

1760
1765
1770

90
80
70
60
2550
40

DESIGN GROUND LINE (A1)

-4.498%

PROFILE GRADE

1774+65
24"X70' PIPE CULVERT

1778+75
24"X74' PIPE CULVERT

DESIGN ROCK LINE (A2)

12,845 LT.

28 POSTS LT DESIGN F

W = 20' VERT.

W = 20' RT.

1775
1780
2500

30
20
10

SCALE IN FEET
100 0 100 200 300

SYMBOL	DESCRIPTION	DATE
A	(3) REVISED CALL OUT FOR REC. AREA. LINE (℄) APPROX ROCK LINE TO DESIGN ROCK LINE. (1) CHANGED CALL-OUT, EXIST. GRD. LINE TO DESIGN GRD.	71 JUN 24

REVISIONS

PLAN — TRACED — DRAWN — TRACES CHECKED — R.P. NUMBER — NOTE BOOK — NO.

PROFILE — TRACED — DRAWN — TRACES CHECKED — R.P. NUMBER — NOTE BOOK — NO.

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W VON BESCHWITZ
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED: Fred M Vonno
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edwin Duncan
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1760 TO STA. 1790

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 71 JUN 7
SHEET 107
AS BUILT

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	43	116

TEN-MILE CREEK RECREATION AREA

N

Δ = 142° 09' 45" LT.
D = 07° 00' 00"
R = 818.51'
T = 2494.01'
L = 1830.89'

P.S. 1790+53.53
P.S.C. 1792+53.53
P.T. 1812+84.42
P.C.S. 1810+84.42
Δs = 07° 00' 00"
Ls = 200'

150' 200' 150' 200'

U. S. F. S.

EXISTING R/W

TEN-MILE CRK.

℄ CHANNEL CHANGE #1

M W1-6

STA. 1802+00 M.S.H. 37 = 10+00 ℄ TEN-MILE CRK. RD. APPROACH. SEE SHEET 111

B1 TEN-MILE CREEK N6-2

A3

1815 1810 1805 1800 1795

N. 62° 40' 15" E.

N. 79° 29' 30" W.

TEN-MILE CRK. BRIDGE

100' ASPHALT SURFACING

℄ TEN-MILE CRK. RD. APPROACH

P.I. 1815+47.54

1220 LT.

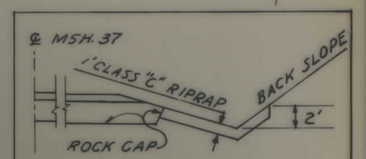
1810+97.5

180(+35.08

267.7 RT.

SCALE IN FEET
100 0 100 200 300

DITCH PROTECTION
STA. 1811 - 1819
(RIGHT DITCH ONLY)
INSET



GUARDRAIL LT. 950' LT. 350' LT. 150 25' RT. RT. 450 RT 081 BEAM
GUIDE POSTS LT. RT.
2600
ROCK EXC. CUT SLOPE LT. RT. W = 20' RT.

1792+00 1792+97 1794+97 1796+47

STA. 1796+47.00 ABUT. No. 1
STA. 1798+77.42 ABUT. No. 2

600' V.C.

+5.000 %

29 POSTS RT. DESIGN F

1802+50
30"x102' PIPE CULVERT

PROFILE GRADE

+3.986 %

V.P.I. 1798+00
EL. 2581.00

A1 GROUND LINE

DESIGN

TEN MILE CRK.

1792+00
24"x72' PIPE CULVERT

+5.000 %

1811+00
24"x78' PIPE CULVERT

PROFILE GRADE

DESIGN ROCK LINE A2

1809+00
24"x74' PIPE CULVERT

1807+00
24"x72' PIPE CULVERT

2590 2580 2570 2560 2550 2540 2530 2520 2510

2690 2680 2670 2660 2650

26.40 26.30 26.20 26.10 26.00

1790 1795 1800 1805 1810 1815

SYMBOL	DESCRIPTION	DATE	
B	(1) ADDED SIGNS	74 MAY 28	AI
A	ROCK LINE TO DESIGN ROCK LINE. (2) NVSD. REC. AREA CALL-OUT. (1) CHANGED CALL-OUT, EXIST. GRD. TO DESIGN GRD. LINE & (2) APPROX.	71 JUN 24	RCB

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED: Jack M Komoto
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edgar Dunn
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1790 TO STA. 1815

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 | DATE: 71 JUN 7
SHEET 108 AS BUILT

PLAN / PROFILE — INVERTED, PLOTTED, CHECKED, TRUCKING NOTES

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEET
F 145	44	116

TEN-MILE CREEK RECREATION AREA

(A3)

U. S. F. S.

STA. 1820 TO 1823; 4 FT. THICK ROCK-FILL SHALL BE PLACED ON EXISTING GROUND BENEATH EMBANKMENT.

STA. 1830 TO 1834, SURFACE DAYLIGHT CUT IN ACCORDANCE WITH REQUIREMENTS FOR TURNOUTS

N

R/W

℄ R/W

150'

1815

N. 79° 29' 30" W.

70-DD-3209

1820

P.I. 1818+99.69

Δs = 01° 30'
Ls = 150'

P.S. 1815+67.94

P.S.C. 1817+17.94

200'

Δ = 10° 14' 30" RT.
D = 02° 00' 00"
R = 2864.79'
T = 331.75'
L = 362.08'

R/11

P.C.S. 1820+80.02

P.T. 1822+30.02

Δs = 01° 30'
Ls = 150'

P.S. 1824+94.77

P.S.C. 1826+44.77

Δ = 11° 30' 00" LT.
D = 02° 00' 00"
R = 2864.79'
T = 363.50'
L = 425.00'

N. 69° 15' 00" W.

1825

250'

1830

P.C.S. 1830+69.77

Δs = 01° 30'
Ls = 150'

P.T. 1832+19.77

1835

1840

N. 80° 45' 00" W.

70-DD-3455

℄ NORTH TEN MILE CREEK ROAD APPROACH, SEE SHEET 111

70-DD-3208

P.I. 1828+58.27

U. S. F. S.

SCALE IN FEET
100 0 100 200 300

GUARD RAIL LT RT

1817+50

1819+50

1824+37.5

3250' LT.

487.5' RT.

V.P.I. 1819+00
EL. 2686.00

PROFILE GRADE +3.500%

+5.000%

1819+40
24" x 88' PIPE CULVERT
SKEW NO. 120

600' V.C.

1821+25
54" x 178' PIPE CULVERT
SKEW NO. 120

1824+03
24" x 86' PIPE CULVERT

1827+05
24" x 68' PIPE CULVERT

1829+05
24" x 74' PIPE CULVERT

(A1) DESIGN GROUND LINE

(A2) DESIGN ROCK LINE

V.P.I. 1837+00
EL. 2749.00

-1.762%

+3.500%

PROFILE GRADE

1836+06
24" x 64' PIPE CULVERT

2000' V.C.

1832+05
30" x 78' PIPE CULVERT

(A1) DESIGN GROUND LINE

(A2) DESIGN ROCK LINE

2730 2720 2710 2700 2690 2680 2670 2660 2650

30 20 10 2700 90 80 70 60 2650 10 20 2700 90 80 70

1815 1820 1825 1830 1835

2750 2740 2730 2720 2710

SYMBOL	DESCRIPTION	DATE
A	RECREATION AREA. (2) APPROX. ROCK TO DESIGN ROCK LINE. (3) RVSD. CALL-OUT FOR (1) CHANGED CALL-OUT, "EXIST. GRD." TO "DESIGN GRD. LINE" AND,	71 JUN 24

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1815 TO STA. 1840

PREPARED: Ted M Uomoto
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-117
DATE: 71 JUN 7
SHEET 109
AS BUILT

PLAN — TRACED, DESIGN CHECKED, DETAIL CHECKED, P. M. NOTED, CHECKED BY L. S. SURVEY DATE, PT. OF MAP CHECKED, NOTE BOOK, NO.

PROFILE — TRACED, DESIGN CHECKED, DETAIL CHECKED, P. M. NOTED, CHECKED BY L. S. SURVEY DATE, PT. OF MAP CHECKED, NOTE BOOK, NO.

R/W NO	SHEET NO	TOTAL SHEETS
F 145	45	116

PLAN

PROFILE

TEN MILE RECREATION AREA U.S.F.S.

STA. 1850 BEGIN PAVING THIS CONTRACT

EXISTING R/W

BY OTHERS

P.I. 1851+54.52

N. 80° 45' 00" W.

N. 54° 56' 15" W.

ROAD R/W

250'

150'

STA. 1847+00 M.S.H. 37= 10+00 NORTH TEN MILE CRK. ROAD APPROACH.
Δ = 25° 48' 45" RT.
D = 01° 15' 00"
R = 4583.66'
T = 1125.37'
L = 1915.00'

℄ NORTH TEN MILE CRK. ROAD APPROACH

P.C. 1840+29.15
Δs = 00° 56' 15"
Ls = 150'

P.S.C. 1841+79.15

R/W

U.S.F.S.

28 21 FD. R/W

SCALE IN FEET
100 0 100 200 300

MYRTLE O. MOE
N.W. 1/4, SEC. 28

NOTE:
BETWEEN STATIONS 1850 & 2263 MSH 37 WILL BE COMPLETED, BY OTHERS, TO THE SUBGRADE LINE SHOWN ON SHEETS 29, 30 & 31

EQUATION

P.C.S. 1860+94.15
Δs = 00° 56' 15"
Ls = 150'

P.T. 1862+44.14 BK. = 1862+37.50 AHD.

Δs = 01° 30' 00"
Ls = 150'

P.S.C. 1865+61.05

P.C.S. 1869+16.88

Δ = 08° 07' 00" LT.
D = 02° 00' 00"
R = 2864.79'
T = 278.20'
L = 255.83'

Δs = 01° 30' 00"
Ls = 150'

AY. 1867+89.33

N. 54° 56' 15" W.

N. 63° 03' 15" W.

SEE SHEET 3 FOR LEGEND

2000' LT.

GUARDRAIL

STA. 1850 BEGIN PAVING THIS CONTRACT

NO END ANCHOR REQUIRED. GUARDRAIL SHALL BE CONTINUOUS

800' K.C.

BY OTHERS

EXISTING GROUND SURFACE

PROFILE GRADE -1.762%

+1.462%

1846+30
24"x66' PIPE CULVERT

1840+50
72"x276' PIPE CULVERT
SKEW NO. 83

1847+90
24"x66' PIPE CULVERT

1852+00
30"x124' PIPE CULVERT
SKEW NO. 70

P.I. 1853+00
EL. 2720.81

ESTIMATED ROCK LINE

1859+06
24"x64' PIPE CULVERT

EQUATION

1862+44.14 BK. = 1862+37.50 AHD.

1863+23 - 1865+73 RT

PROFILE GRADE +1.462%

EXISTING GROUND

1864+35
30"x76' PIPE CULVERT
SKEW NO. 83

1865+90
36"x88' PIPE CULVERT
SKEW NO. 62

2750 2740 2730 2720 2710 2700 2690 2680 2670 2660

1840 1845 1850 1855 1860 1862 1862 1865 1870

SYMBOL	DESCRIPTION	DATE
A	(1) CORRECTED STATIONS	71 APR 9

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: JOHNSON
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: B Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1840 TO STA. 1870

PREPARED: CHF Lloyd Jr.
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edwin Durnal
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-115
DATE: 71 MAR 9
SHEET 57
AS BUILT

PLATE 1 - PLAN-PROFILE

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	46	116

MYRTLE O. MOE N.W.1/4 SEC. 28

CHARLES S HUSICK
S.1/2 OF S.E 1/4 SEC. 20

WILLIAM SMALL

EXISTING ROAD

FD. 28 29 21 20

N

U. S. F. S.

R/W

PT 1870+66.88

1870

1875

1880

1885

1890

1895

1900

150'

220'

320'

350'

FOR CULVERT REPAIR SEE SH. 25A

W1-4

N. 63° 03' 15" W.

PS 1884+36.55

PS 1884+98.86 (R/W)

1885+18.943

PSC 1886+36.55

PS 1886+98.86(R/W)

PI 1889+28.68

PI 1889+88.69 R/W

Δ = 14°01'00" LT
D = 5°00'00"
R = 1145.92'
T = 241.02'
L = 80.33'

Δs = 05°00'00"
Ls = 200'

Δs = 05°00'00"
Ls = 200'

℄ USED TO ESTABLISH R/W

N 25° 31' 15" W (R/W)

PS 1895+04.58 (R/W)

PS 1895+91.16

PSC 1897+04.58 (R/W)

PSC 1897+91.16

PCS 1898+70.91 (R/W)

PCS 1898+11.49

N 28° 51' 00" W

N 42° 52' 00" W R/W

Δ = 18°19'00" LT
D = 5°00'
R = 1145.92'
T = 284.95'
L = 166.33'

PI 1897+89.53 R/W

PI 1898+32.18

R/W
Δ = 37°32'00"
D = 5°00'00"
R = 1145.92'
T = 489.83'
L = 550.67'

PCS 1891+96.64

PCS 1892+49.53 (R/W)

PT 1893+96.64 (R/W)

PT 1894+49.53 BK
= 1897+53.06 AHD

R/W
Δs = 5°00'00"
Ls = 200'

Δs = 04°30'00"
Ls = 200'

R/W
Δs = 5°00'00"
Ls = 200'

Δs = 04°30'00"
Ls = 200'

Δ = 34°12'15" RT
D = 04°30'00"
R = 1273.24'
T = 492.13'
L = 560.09'

1637957

CHARLES S. HUSICK
NE 1/4 OF S.E 1/4
SEC. 20

NOTE: R/W MONUMENTS FROM STA. 1885 TO STA. 1910 SHALL BE SET BASED ON THE CENTER-LINE DESIGNATED, "℄ USED TO ESTABLISH R/W."

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

PROFILE GRADE +1.247%

497.5' RIGHT

EXISTING GROUND SURFACE

3000' LT.

13 POSTS LT. DESIGN "F"

GUARDRAIL

GUIDE POSTS

PROFILE GRADE +1.462%

V PI 1890+00
EL 2775.00

600' V.C.

1873+00
42" X 136' PIPE CULVERT

1875+00
24" X 160' PIPE CULVERT

1882+00
24" X 76' PIPE CULVERT

1887+00
24" X 70' PIPE CULVERT

1895+70
42" X 436' PIPE CULVERT

ESTIMATED ROCK LINE

2800 2790 2780 2770 2760 2750 2740 2730 2720 2710 2700

2790 2780 2770 2750

1870 1875 1880 1885 1890 1895 1900

PLAN

PROFILE

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1870 TO STA. 1900

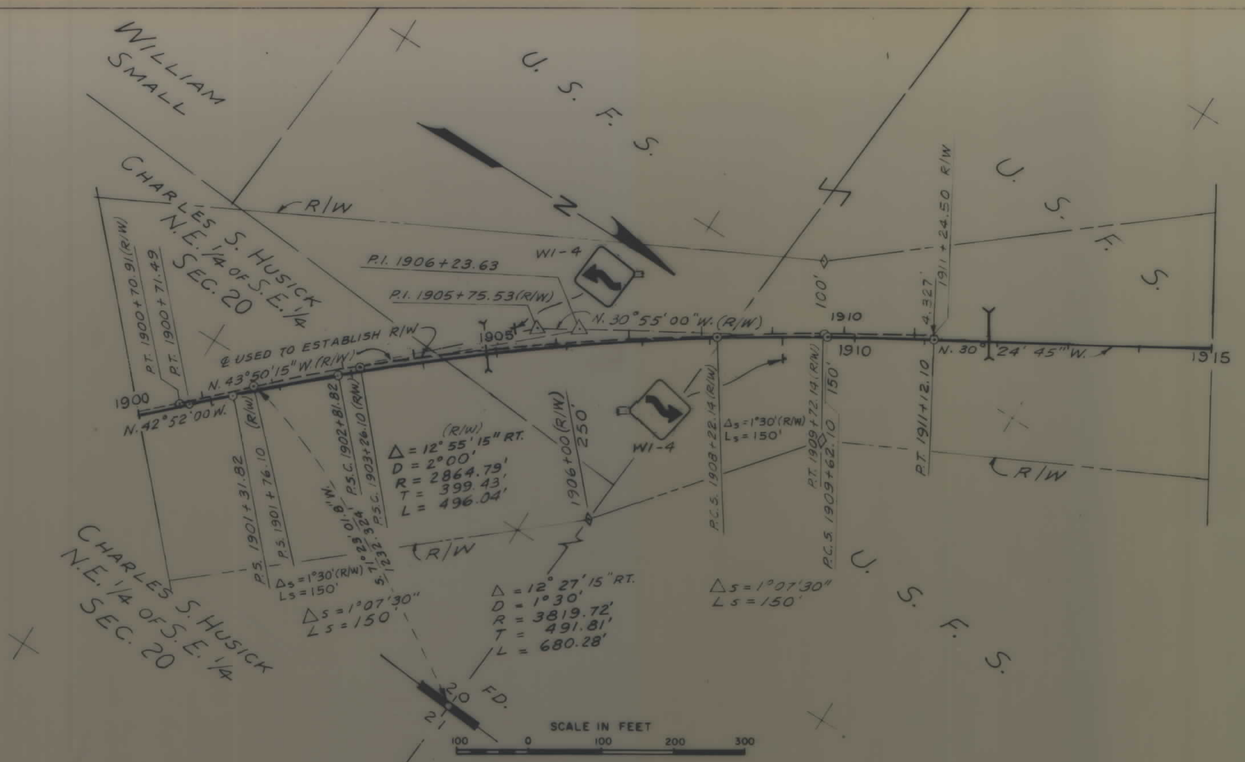
SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 58	

K-E

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 58 DATED 71 MAR. 9

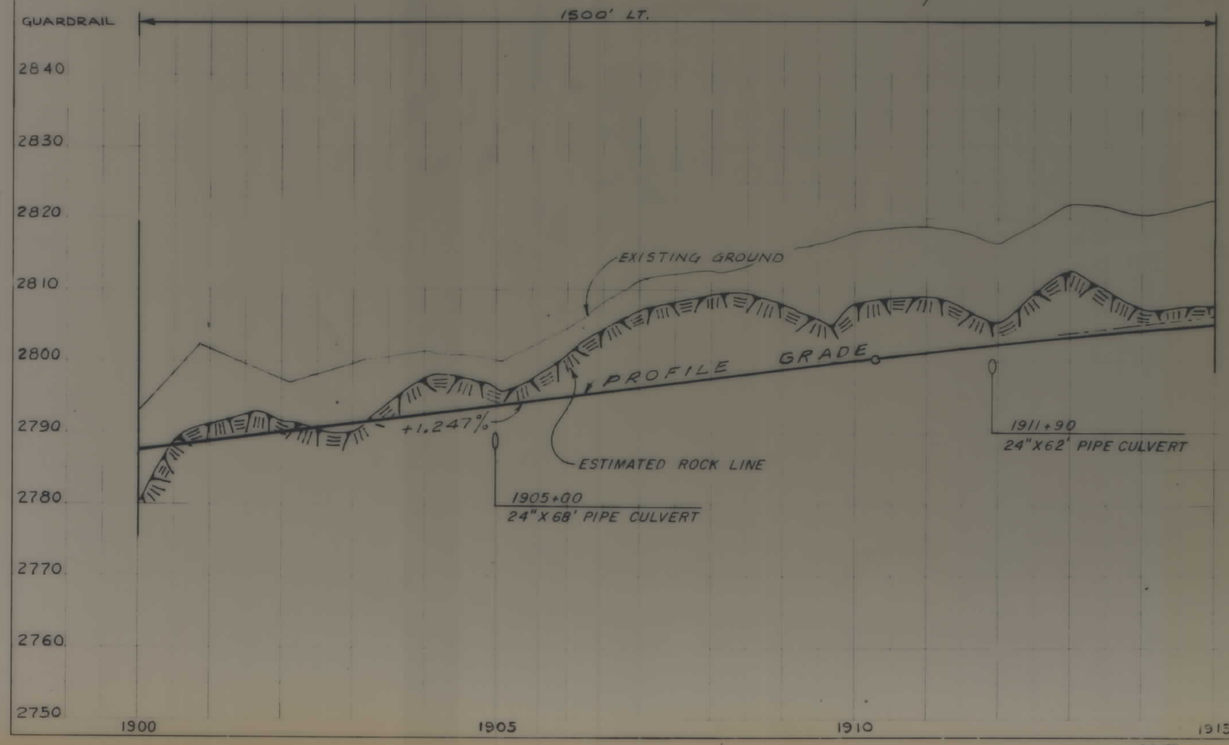
R/W NO	SHEET NO	TOTAL SHEETS
F145	47	116

PLAN



SEE SHEET 3 FOR LEGEND

PROFILE



CONTRACT DACW67-71-C-0071

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1900 TO STA. 1915

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 59	

MICROFILMED DEC '76

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 59 DATED 71 MAR. 9

R/W NO	SHEET NO	TOTAL SHEETS
F 145	48	116

PLAN

AGNES E. FRITCH
S.E. 1/4 OF N.W. 1/4
SEC. 20

Δ = 20°33'30" LT.
D = 05°00'00"
R = 1145.92'
T = 308.06'
L = 211.17'

R/W

U.S.F.S.

Δs = 05°00'00"
Ls = 200'

450'

P.I. 1918 + 77.52

1915

N. 30° 24' 45" W.

P.S. 1916 + 21.91

200'

Δs = 05°00'00"
Ls = 200'

P.S.C. 1918 + 21.91

P.C.S. 1919 + 30.91

Δs = 05°00'00"
Ls = 200'

1920

EQUATION

N. 14° 57' 45" W.

P.S. 1923 + 07.69

P.S.C. 1925 + 07.69

1925

P.C.S. 1927 + 18.86

P.T. 1929 + 18.86

1930

P.I. 1926 + 15.75

STA. 1932 TO 1935 SURFACE DAYLIGHT-CUT IN ACCORDANCE WITH REQUIREMENTS FOR TURNOUTS, SEE SHEET 31.

W1-4

1935

N. 35° 31' 15" W.

1938

200'

Δ = 15°27'00" RT.
D = 05°00'
R = 1,145.92'
T = 255.61'
L = 109.00'

P.T. 1921 + 30.91
= 201 / 1921 + 44.61

BK. = AHD.

200'

200'

200'

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

GUARDRAIL
GUIDE POSTS

2830
2820
2810
2800
2790
2780
2770
2760
2750

2286.3' LT.

500'

EXISTING GROUND

+1.247%

P.I. 1936 + 31.28
EL. 2832.60

-3.800%

9 POSTS LT. DESIGN "F"

EXISTING GROUND

PROFILE GRADE

1917 + 00
36" X 72' PIPE CULVERT

ESTIMATED ROCK LINE

1921 + 30.91 BK. =
= 1921 + 44.61 AHD.

EQUATION

2750
2740
2730

1923 + 75
60" X 392' PIPE CULVERT

1930 + 00
36" X 108' PIPE CULVERT

ESTIMATED ROCK LINE

1936 + 00
24" X 66' PIPE CULVERT

5200' V.C.

1915 1920 1925 1930 1935 1938

2830
2820
2810
2800

CONTRACT DACW67-71-C-0071

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1915 TO STA. 1938

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 60	

MICROFILMED DEC '76

K-E

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 60 DATED 71 MAR. 9

R/W NO	SHEET NO	TOTAL SHEETS
F145	49	116

PLAN

N

U.S.F.S.

EXISTING ROAD

Δ = 17°00'45" LT.
D = 07°00'00"
R = 818.51'
T = 222.67'
L = 43.04'

EQUATION

R/W

P.I. 1941+59.28

P.S. 1948+01.14

P.S.C. 1950+01.14

P.C.S. 1950+44.18

P.T. 1952+44.18

P.I. 1950+23.81

N. 19°03'00"W.

N. 36°03'45"W.

W1-4

NB-1

TURNOUT AHEAD SIGN

RETAINING WALL LT

P.I. 1966+94.40

N. 08°18'00"W.

P.S. 1962+65.26

P.S.C. 1964+15.26

P.C.S. 1969+59.32

Δ = 27°45'45" RT.
D = 04°00'00"
R = 1432.39'
T = 429.14'
L = 544.06'

Δs = 03°00'00"
Ls = 150'

Δs = 03°00'00"
Ls = 150'

Δ = 16°28'15" RT.
D = 04°00'00"
R = 1432.39'
T = 282.40'
L = 261.77'

P.S. 1938+76.88
N 56°52'04"W
166.36'
P.S.C. 1940+26.88
1941+47.968
P.C.S. 1942+88.65
P.T. 1944+38.65 BK =
= 1946+49.56 AHD.

20 FD.

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

GUARD RAIL
GUIDE POSTS

925' LT.
9 POSTS LT. DESIGN "F"
300' LT.
300' LT.
375' LT.
13 POSTS LT. DESIGN "F"

EXISTING GROUND
-3.800%
PROFILE GRADE
1942+00
24"x66' PIPE CULVERT
5200' V.C.
STA. 1944+38.65 BK =
= STA. 1946+49.56 AHD
EXISTING GROUND
ESTIMATED ROCK LINE
-3.800%
PROFILE GRADE
1949+70
36"X70' PIPE CULVERT
1958+55
30" X 96' PIPE CULVERT
SKEW NO. 130
1961+85
24"x 66'
PIPE CULVERT
EXISTING GROUND
PROFILE GRADE
-3.800%
1967+00
24"X 74' PIPE CULVERT

1938 1940 1944 1947 1950 1955 1960 1965 1970

2830 2820 2810 2800 2790 2780 2770 2760 2750 2740 2730 2720

CONTRACT DACW67-71-C-0071

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1938 TO STA. 1970

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 61	

MICROFILMED DEC '76

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 61 DATED 71 MAR. 9

R/W NO	SHEET NO	TOTAL SHEETS
F 145	50	116

PLAN

PROFILE

Δ = 30°35'00" LT.
D = 07°00'
R = 818.51'
T = 324.30'
L = 236.90'

2459 POOL ELEVATION

Δs = 07°00'
Ls = 200'

Δs = 07°00'
Ls = 200'

EXISTING ROAD

Δ = 09°24'30" LT.
D = 03°00'
R = 1909.86'
T = 232.20'
L = 163.61'

Δs = 02°15'
Ls = 150'

Δs = 02°15'
Ls = 150'

N

R/W

U.S.F.S.

1970

1975

1980

1985

1990

1995

N. 08°18'00"W.

N. 38°53'00"W.

N. 48°17'30"W.

P.T. 1972+09.32

P.S. 1972+97.21

Δs = 03°00'00"
Ls = 150'

P.C.S. 1977+36.74

N 02°38'45"E
485.34'

P.T. 1979+36.74

1980+06.32

P.I. 1976+24.14

STA. 1975-1976+50
SCENIC TURNOUT
SEE SHEET 31

P.S. 1986+62.80

P.S.C. 1988+12.80

P.C.S. 1989+76.41

P.T. 1991+26.41

STA. 1991 TO 1994, SURFACE DAYLIGHT-CUT IN ACCORDANCE WITH REQUIREMENTS FOR TURNOUTS, SEE SHEET 31

P.I. 1988+95.00

P.S. 1992+89.72

P.S.C. 1994+39.72

Δs = 02°15'
Ls = 150'

300'

W1-4

SCENIC TURNOUT
NS-2

SHEEP CREEK
A1
NS-2

SHEEP CREEK
A
NS-2

EQUATION
1975+45
540' CREEP

P.S.C. 1974+37.21
P.C.S. 1974+39.84

1975+50

390'

410'

200'

18

17

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND.

2497.4' LT.

GUARDRAIL
2750 GUIDE POSTS

2700

-3.800%

500' RT.

13 POSTS LT. DESIGN "F"

4 POSTS RT. DESIGN "F"

1000' V.C.

+1.804%

PROFILE GRADE

EXIST. GROUND

EQUATION

-3.800% PROFILE GRADE

ESTIMATED ROCK LINE

STA. 1974+37.21 BK. =
STA. 1974+39.84 AHD.

V.P.I. 1981+32.03
EL. 2669.69

1973+82
96" x 206' PIPE CULVERT

1982+90
36" x 84' PIPE CULVERT

1985+60
24" x 108' PIPE CULVERT

1989+00
30" x 80' PIPE CULVERT

EXISTING GROUND

ESTIMATED ROCK LINE

2740 2730 2720 2710 2700 2690 2680 2670 2660 2650 2640 2630 2620 2610 2600 2590 2580 2570 2560 2550

1970 1975 1980 1985 1990 1995

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(1) ADDED SIGN & REVISED SIGN STA. (2) ADDED SIGN	74 MAY 31	

CONTRACT DACW67-71-C-0071 REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 1970 TO STA. 1995

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 62	

MICROFILMED DEC '76

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 62 DATED 71 MAR. 31

R/W NO	SHEET NO	TOTAL SHEETS
F 145	51	116

AGNES E. FRITCH
S.W. 1/4 of N.E. 1/4
SEC. 18

EXISTING ROAD

N8-1

SCENIC TURNOUT ½ MI

ROCK GUT BRIDGE (BY OTHERS)

P.I. 1995 +12.62

N. 48° 17' 30" W. 1995

N. 39° 26' 15" W.

P.I. 2011 +87.82

N. 23° 45' 00" W.

N. 38° 40' 45" W.

P.I. 2021 +66.83

REUBAN A. ALLEN
S.W. 1/4 of SEC. 7

P.C.S. 1995 +84.86

P.T. 1997 +34.86

Δ = 02° 15'
L s = 150'

Δ = 08° 51' 15" RT.
D = 03° 00'
R = 1909.86'
T = 222.90'
L = 145.14'

FOR ROCK RETENTION FENCE
SEE SH. 11 A

P.S. 2008 +49.65

P.S.C. 2009 +99.65

P.C.S. 2013 +72.57

P.T. 2015 +22.57

Δ = 02° 15'
L s = 150'

Δ = 15° 41' 15" RT.
D = 03° 00'
R = 1909.86'
T = 338.17'
L = 372.92'

Δ = 01° 41' 15"
L s = 150'

P.S. 2017 +58.13

P.S.C. 2019 +08.13

STA. 2017 +50 TO 2020 +00;
SURFACE DAYLIGHT-CUT IN
ACCORDANCE WITH THE RE-
-QUIREMENTS FOR TURNOUTS

Δ = 14° 55' 45" LT.
D = 02° 15'
R = 2,546.48'
T = 408.70'
L = 513.52'

P.C.S. 2024 +21.65

ANCHOR GUARDRAIL TO EXISTING BRIDGE PARAPET (4 PLACES). ANCHOR DETAILS FOR THE ROCK-GUT BRIDGE ARE SIMILAR TO THOSE SHOWN FOR THE SUTTON CREEK BRIDGE ON DWG. E-53-32-40, SHEET 27.

(A2)

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

(A1)

2001+50 FLARE RT. — 2002+48 — 2005+18 — DOUBLE BEAM — 2011+50 FLARE

1973' LT.

V.P.I. 2016+50
EL. 2733.15

EXISTING GROUND SURFACE

ROCK GUT BRIDGE

PROFILE GRADE

+1.8036%

-1.7232%

2001 + 35
24" x 62' PIPE CULVERT

1996 +95
24" x 72' PIPE CULVERT

2009+20
36" X 70' PIPE CULVERT

2013+20
24" X 64' PIPE CULVERT

2020+85
42" x 78' PIPE CULVERT
SKEW NO 82

1400' V.C.

ESTIMATED ROCK LINE

2650
40
30
20

2740 2730 2720 2710 2700 2690 2680 2670 2660 2650

1995 2000 2005 2010 2015 2020 2025

2750

SYMBOL	DESCRIPTION	DATE
A	(1) ADDED GUARDRAIL LIMITS & (2) DIRECTIVE NOTE.	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLEMENHAGEN
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: B Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 1995 TO STA. 2025

PREPARED: C H Kloss Jr
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edwin Daniel
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC NO.
DRAWING NUMBER: E-53-31-115 | DATE: 71 MAR. 31
SHEET 63 | AS BUILT

PLAN — NOTE BOOK — NO.

PROFILE — NOTE BOOK — NO.

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	52	116

PLAN
NOTE BOOK
NO

EQUATION
P.T. 2025+71.65 BK. = 2025+89.57 AHD.
2026+24.17
250'
R/W
2025
2030
N. 38°40'45" W.
2035
2040
2045
2050
2054
N 46°57'15" W.
P.I. 2044+45.48
Δ = 08°16'30" LT.
D = 01°00'00"
R = 5729.58'
T = 414.47'
L = 827.50'
P.C. 2040+31.01
P.T. 2048+58.51
REUBAN A. ALLEN S.W. 1/4 SEC. 7
GULCH
275'
PETERS GULCH
NG-2
200'
150'
ALLEN GULCH
T 33 N.
R. 29 W. M.P.M.
R. 28 W. M.P.M.
F.
S.
J.
300'
220'
SCALE IN FEET
100 0 100 200 300
B1
A1

PROFILE
NOTE BOOK
NO

A1 GUARD RAIL LT. RT.
3000' LT.
SEE SHEET 3 FOR LEGEND
V.A1. 2051+90
EL. 2690.50
+0.500%
-6.000%
PROFILE GRADE
EXIST GROUND SURF.
800' V.C.
2052+20
72"X 98' PIPE CULVERT
2740
2730
2720
2710
2700
2690
2680
2670
2660
2650
-1.722%
2025+20
24"X 68' PIPE CULVERT
EXIST GROUND SURFACE
ESTIMATED ROCK LINE
2031+20
24"X 68' PIPE CULVERT
PETERS GULCH
600' V.C.
+0.500%
2044+25
30"X 78' PIPE CULVERT
V.A1. 2043+80
EL. 2686.45
2035+20
30"X 70' PIPE CULVERT
2039+60
48"X 238' PIPE CULVERT
SKEW NO. 35
P.T. 2025+71.65 BK. = 2025+89.57 AHD.
EQUATION
2025
2030
2035
2040
2045
2050
2054

SYMBOL	DESCRIPTION	DATE
B	(1) ADDED SIGNS	74 MAY 31
A	(1) ADDED GUARD RAIL LIMITS.	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED:
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2025 TO STA. 2054

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-115
DATE: 71 MAR 31
SHEET: 64
AS BUILT

K-E PLATE 1. PLAN-PROFILE

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	53	116

ROCKY GORGE RECREATION AREA

Δ = 07°26'15" LT.
D = 01°00'00"
R = 5729.58'
T = 372.40'
L = 743.75'

R/W
150'
SEC. 12
SEC. 7
T. 33 N
T. 33 N
2054
2055
2060
N. 46° 57' 15" W.
2065
2070
2074+52.88 P.C.
2075
2078+25.28 P.I.
2080
2081+50
2081+96.63 P.T.
2083+00
2084
120'
TURNOUT
N. 54° 23' 30" W.
R. 29 W.
R. 28 W.
M.P.M.
M.P.M.

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

2680
2670
GUARDRAIL LT. RT.
2350' LT.
FLARE
2054+05
24"x126' PIPE CULVERT
SKEW N° 120
-6.000%
PROFILE GRADE
EXISTING GROUND SURFACE
ESTIMATED ROCK LINE
2059+20
30"x70' PIPE CULVERT
2062+10
36"x80' PIPE CULVERT
1000' V.C.
V.P.I. 2073+50
EL. 2560.90'
2072+20
36"x96' PIPE CULVERT
-0.2690%
V.P.C.
2080+20
24"x68' PIPE CULVERT

2660 2650 2640 2630 2620 2610 2600 2590 2580
2580 2570 2560 2550 2540 2530 2520 2510
2590 2580 2570 2560

2054 2055 2060 2065 2070 2075 2080 2084

SYMBOL	DESCRIPTION	DATE
A	(1) ADDED GUARDRAIL	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: B. C. Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2054 TO STA. 2084

PREPARED: E. H. Klossner Jr. CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Edwin Dewis CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO
DRAWING NUMBER: E-53-31-115
DATE: 71 MAR 31
SHEET 65
AS BUILT

K05 PLATE 1 PLAN-PROFILE

R/W NO	SHEET NO	TOTAL SHEETS
F145	54	116

ROCKY GORGE RECREATION AREA

U. S. F. S.

ST. REGIS PAPER S.W. 1/4 SEC. 1

ST. REGIS PAPER Co. S.W. 1/4 SEC. 1

U. S. F. S.

R/W

FD.

N. 54° 23' 30" W.

P.I. 2113+61.70

P.S.C. 2112+47.01

P.S. 2110+47.01

$\Delta_s = 02°30'$
$L_s = 200'$
$\Delta = 10°42'00"$ RT.
$D = 02°30'$
$R = 2291.83'$
$T = 314.69'$
$L = 228.00'$

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

PROFILE

(B1) GUARDRAIL { LT. / RT.

2084+00 SQUARE END LT.

2091+75 LT. FLARE

FLARE 2094+25 LT.

2105+25 FLARE

2110+90 FLARE

2111+25 LT. FLARE

2112+77 FLARE

V.P.I. 2109+00
EL. 2597.00

EXIST. GROUND SURFACE

PROFILE GRADE

800' V.C.

+1.905%

-0.2690%

-4.816%

V.P.I. 2088+00
EL. 2557.0

2087+50
36"x126' PIPE CULVERT

2098+85
48"x128' PIPE CULVERT

2103+85
24"x74' PIPE CULVERT

2111+90
54"x90' PIPE CULVERT

ESTIMATED ROCK LINE

2620 2610 2600 2590 2580 2570 2560 2550 2540

2085 2090 2095 2100 2105 2110 2114

SYMBOL	DESCRIPTION	DATE
B	(1) ADDED GUARDRAIL LIMITS.	
A	(1) CORRECTED REAL ESTATE (2) CORRECTED GRADIENT	71 APR 9

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED:
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2084 TO STA. 2114

SCALE AS SHOWN | SPEC. NO
DRAWING NUMBER: E-53-31-115 | DATE: 71 MAR 31
SHEET 66 | AS BUILT

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	55	116

PLAN

ROCKY GORGE RECREATION AREA

ST. REGIS PAPER CO. S.W. 1/4 SEC. 1

ST. REGIS PAPER CO. S.W. 1/4 SEC. 1

$\Delta = 16°27'00"$ LT.
$D = 02°30'$
$R = 2291.83'$
$T = 431.38'$
$L = 458.00'$

$\Delta s = 02°30'$
$Ls = 200'$

2129+00 M.S.H. 37
0+00 ROCKY GORGE RECREATION AREA ROAD APPROACH PROFILE GRADE WILL BE MINUS 1% FROM EDGE OF PAVEMENT TO R/W SEE SHT 31 FOR DETAIL

EQUATION

P.I. 2135+38.55

(A1) 37FA 2139+30.03 BK = 2139+30.48 AHD.

P.I. 2122+16.44

N. 43°41'30"W.

N. 60°08'30"W.

N. 27°32'15"W.

$\Delta = 32°36'15"$ RT.
$D = 06°00'00"$
$R = 954.93'$
$T = 379.75'$
$L = 343.40'$

$\Delta s = 06°00'00"$
$Ls = 200'$

$\Delta s = 05°00'00"$
$Ls = 200'$

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

PROFILE

GUARDRAIL (B1) 1300' LT. 1/4 FLARE

-4.816%

EXISTING GROUND SURFACE

2120+00
48"x78' PIPE CULVERT

2123+85
24"x88' PIPE CULVERT

2127+10
30"x90' PIPE CULVERT

ESTIMATED ROCK LINE

3000' V.C.

EQUATION

EXISTING GROUND SURFACE

GRADE TO DRAIN

2133+25
24"x96' PIPE CULVERT

+3.963%

2138+30
36"x68' PIPE CULVERT

2139+30.03 BK = 2139+30.48 AHD.

V.P.I. 2132+40
EL. 2484.30

-4.816%

SYMBOL	DESCRIPTION	DATE	
B	(1) REDUCED LGTH. OF GUARDRAIL.		
A	ADJUSTED STATION	71 APP 3	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: B. Clemenhagen
PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2114 TO STA. 2144

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-115 | DATE: 71 MAR 9
SHEET 67 | AS BUILT

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	56	116

PLAN

ROCKY GORGE RECREATION AREA

U. S. F. S.

PAUL L. TOTTEN

Δ = 15° 46' 30" LT.
D = 05° 00' 00"
R = 1145.92'
T = 258.93'
L = 115.50'

Δs = 05° 00' 00"
Ls = 200'

Δs = 05° 00' 00"
Ls = 200'

P.T. 2148 + 34.72

P.C.S. 2146 + 34.72

P.S.C. 2145 + 19.22

2144 2145

N. 27° 32' 15" W.

P.I. 2145 + 78.15

WI-2

N. 43° 18' 45" W.

P.I. 2154 + 16.90

2150 2155 2160 2165

N. 19° 54' 00" W.

ROCKY GORGE N6-Z A1

R/W

WI-2

P.S.C. 2152 + 79.19

P.C.S. 2155 + 47.44

P.T. 2157 + 47.44

Δs = 05° 00' 00"
Ls = 200'

Δs = 05° 00' 00"
Ls = 200'

Δ = 23° 24' 45" RT.
D = 05° 00' 00"
R = 1145.92'
T = 337.71'
L = 268.24'

ROCKY GORGE N6-Z

R/W

WI-2

Δs = 01° 30' 00"
Ls = 150'

P.S.C. 2166 + 46.08

P.S.C. 2167 + 96.08

Δ = 07° 20' 30" LT.
D = 02° 00' 00"
R = 2864.79'
T = 258.81'
L = 217.08'

P.C.S. 2170 + 13.16

Δs = 01° 30' 00"
Ls = 150'

P.I. 2169 + 04.89

2170 2173 2174

P.T. 2171 + 63.16 BK. = 2172 + 25.58 AHD.

N. 27° 14' 30" W.

EQUATION

SEE SHEET 3 FOR LEGEND

T. 33 N. R. 29 W.

T. 34 N. R. 29 W.

SCALE IN FEET
100 0 100 200 300

GUARDRAIL

V.P.I. 2157 + 50
EL. 2583.75

1912.6' LT.

FLARE

200' RT.

FLARE

EXISTING GROUND SURFACE

EQUATION
2171 + 63.16 BK. = 2172 + 25.58 AHD.

PROFILE GRADE

+3.963%

-2.280%

1200' V.C.

2144 + 50
30" X 98' PIPE CULVERT

2150 + 50
24" X 104' PIPE CULVERT

2154 + 80
24" X 80' PIPE CULVERT

2156 + 75
24" X 76' PIPE CULVERT

2158 + 70
24" X 74' PIPE CULVERT

2159 + 70
60" X 90' PIPE CULVERT

2164 + 35
24" X 114' PIPE CULVERT

2171 + 35
24" X 66' PIPE CULVERT

ESTIMATED ROCK LINE

2580 2570 2560 2550 2540 2530 2520 2510 2500

2145 2150 2155 2160 2165 2170 2174

PROFILE

SYMBOL	DESCRIPTION	DATE
A	(1) ADDED SIGNS	74 MAY 31

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED: B. C. Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2144 TO STA. 2174

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-115
DATE: 71 MAR 9
SHEET 68
AS BUILT

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	57	116

PAUL L. TOTTEN

U. S. F. S.

PAUL L. TOTTEN
E. 1/2 OF N.W. 1/4 SEC. 35
T. 34 N., R. 29 W. M.P.M.

MAX. POOL EL. 2459

PI 2179+12.84

2180

R/W

100'

2185

N 22° 34' 30" E

W1-2

Δ = 12°57'00" LT.
D = 4° 00'
R = 1,432.39'
T = 237.64'
L = 173.75'

SA = 3°00'
Ls = 150'

PT S 2189+90.39

PSC 2191+40.39

PCS 2193+14.14

2193+25

2194+25

PST 2194+14.14

2190

PI 2192+28.03

2195

N. 09° 37' 30" E.

80'

2200

PI 2202+07.40

N. 19° 48' 00" E

2204

FOR TURNOUT DETAIL SEE SHEET 31

210'

150'

PSC 2199+42.32

PT S 2197+92.32

Δ = 10° 10' 30" RT
D = 01° 30'
R = 3819.72'
T = 415.08'
L = 528.33'

Δs = 01° 07' 30"
Ls = 150'

PAUL L. TOTTEN

2174

N. 27° 14' 30" W

PSC 2174+57.14

PT S 2176+21.21

SA 07° 30'
Ls = 200'

PCS 2181+21.36

PT 2183+21.36

200'

Δ = 49° 49' 00" RT
D = 07° 30'
R = 763.94'
T = 455.70'
L = 464.22'

U. S. F. S.

SCALE IN FEET
100 0 100 200 300

SEE SHEET 3 FOR LEGEND

2590
2580
2570
2560
2550
2540
2530
2520
2510
2500

GUARDRAIL
GUIDE POSTS

2175+87 FLARE
14 POSTS LT. DESIGN "F"

2178+12.5 FLARE 934' LT. LT.

2187+25 FLARE

2188+50 FLARE 1452' LT.

1600' V.C.

EXIST GROUND

PROFILE GRADE +00.509%

-2.280%

-01.000%

800' V.C.

V.P.I. 2176+00
EL. 2543.00

V.P.I. 2197+00
EL. 2553.68

2180+00
24"x 72' PIPE CULVERT

2185+60
24"x 124' PIPE CULVERT

ESTIMATED ROCK LINE

2192+25
36"x 74' PIPE CULVERT

2175 2180 2185 2190 2195 2200 2204

CONTRACT DACW67-71-C-0071

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 2174 TO STA. 2204

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 74 FEB 28	E-53-31-115 AS BUILT	
DSGN. OKURA	CHK. HANSON	SHEET 69	

MICROFILMED DEC '76

K-E

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 69 DATED 71 MAR. 9

PLAN

PROFILE

R/W NO	SHEET NO	TOTAL SHEETS
F145	58	116

PAUL L. TOTTEN
E. 1/2 OF N.W. 1/4, SEC. 35

PAUL L. TOTTEN
S.E. 1/4 OF S.W. 1/4
SEC. 26

N

ELEV 2465

BERM EL 2425

2:1

2:1

1½:1

LL 2465 GAME TRAIL

80' R/W

150'

2204

2205

2210

2215

2220

N. 19°48 00 E

PAUL L. TOTTEN

U. S. F. S.

Δs = 02°15'00"
Ls = 150'

Δ = 26°36'30" LT.
D = 03°00'
R = 1909.86'
T = 526.73'
L = 736.94'

Δs = 02°15'00"
Ls = 150'

EQUATION

P.C.S. 2204+70.65

P.T. 2210+20.65 BK. =
2206+21.13 AHD.

P.C.S. 2212+50.98

P.S. 2214+00.98

P.C.S. 2217+37.92

P.T. 2222+87.92 BK. =
2223+01.97 AHD.

2217+50

2219+00

R/W

FOR TURNOUT DETAIL, SEE SHEET 31

P.I. 2217+77.71

EQUATION

Δs = 01°07'30
Ls = 150'

MAX. POOL EL. 2459

2224+00

2225

2230

2234

N. 06°48 30" W.

N 86°48 13.2" W
80.981'

35
26

220

P.I. 2231+86.71

N. 01°39'00"W.

P.S. 2229+82.65

P.S.C. 2231+32.65

P.C.S. 2232+40.57

P.T. 2233+90.57

Δs = 01°30'00"
Ls = 150'

Δs = 01°30'00"
Ls = 150'

Δ = 05°09'30" RT.
D = 02°00'00"
R = 2864.79
T = 204.06
L = 107.92

SEE SHEET 3 FOR LEGEND

SCALE IN FEET
100 0 100 200 300

GUARDRAIL

2985.5' LT.

EXISTING GROUND

-1.000%

800 VC

PROFILE GRADE

+1.347%

2210+80
36"x83' PIPE CULVERT

2216+20
48"x84' PIPE CULVERT

2229+85
24"x78' PIPE CULVERT

2206+20.65 BK. =
=2206+21.13 AHD.

V.P.I. 2209+50
EL 2541.8

ESTIMATED ROCK LINE

2222+87.92 BK. =
2223+01.97 AHD.

1600' VC

V.P.I. 2224+50
EL 2561.9

-4.540%

V.P.C. 2234

EQUATION

2560
2550
2540
2530
2520
2510
2500
2490
2480

2205 2210 2215 2220 2225 2230

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 3C-D

PLAN AND PROFILE
STA. 2204 TO STA. 2234

SIZE	INVITATION NO.	FILE NO.	PLATE
F	DATE: 74 FEB 28	E-53-31-115 AS BUILT	
DSGN OKURA	CHK. HANSON	SHEET 70	

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 70 DATED 71 MAR 9

R/W NO	SHEET NO	TOTAL SHEETS
F 145	59	116

PLAN

PAUL L. TOTTEN
S.E. 1/4 OF S.W. 1/4
SEC. 26

U. S. F. S.

TWEED CRK.

N6-2 TWEED CREEK A1

R/W 80'

2234 2235 N. 01° 39' 00" W. 330'

PAUL L. TOTTEN

U. S. F. S. R/W

WI-2

N6-2 TWEED CREEK

P.I. 2242+64.62

Δ = 17°24'00" RT.
D = 04°00'00"
R = 1432.39'
T = 294.28'
L = 285.00'

Δs = 03°00'00"
Ls = 150'

25 2239+70.34

PSC 2241+20.34

PCS 2241+05.34

PTS 2245+55.34

150'

Δs = 03°00'00"
Ls = 150'

2240 2245 2250 2255

EXISTING ROAD

2249+00 2249+00

(SEE P.31 FOR DETAIL)
TURNOUT R/W

WI-2

MAX. POOL EL. 2459

N. 15° 45' 00" E.

U. S. F. S.

270°

WI-2

PC 2258+33.38

Δ = 02°35'15" RT.
D = 01°00'00"
R = 5729.58'
T = 129.40'
L = 258.75'

PT 2260+92.13 BK =
= 2260+89.74 AHD.

EQUATION

END M.S.H. 37 UNIT 3C-D
BEGIN M.S.H. 37 UNIT 3E FOR
CONTINUATION SEE SHEET 3

R/W 80'

P.I. 2259+62.78

2260 2265

N. 18° 20' 15" E.

STA. 2263+00

100' R/W

U. S. F. S.

SEE SHEET 3 FOR LEGEND

SCALE IN FEET
100 0 100 200 300

PROFILE

GUARD-RAIL

2235+15 FLARE RT 223+025 FLARE

3000' LT.

TO STA. 2274+00 FLARE

2260+92.13 BK =
= 2260+89.74 AHD.

STA. 2263+00

2540 2530 2520 2510 2500 2490 2480 2470 2460

600' V.C.

EXISTING GROUND SURFACE

-4.540%

2236+20
72"x84' PIPE CULV.
SKEW N°110

VAI. 2237+00
EL. 2504.44

2238+35
24"x68' PIPE CULVERT

ESTIMATED ROCK LINE

-0.425%

PROFILE GRADE

2244+55
24"x80' PIPE CULVERT

2250+70
24"x72' PIPE CULVERT

400' V.C.

2256+10
24"x64' PIPE CULVERT

VAI. 2237+00
EL. 2496.95

2260+02
24"x64' PIPE CULVERT
+2.000%

EQUATION

+2.000%

2260 2265

2235 2240 2245 2250 2255

SYMBOL	DESCRIPTION	DATE
A	(1) ADDED SIGNS	74 MAY 31

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: CLEMENHAGEN
REVIEWED:
PREPARED:
CHIEF CIVIL DESIGN SECTION
SUBMITTED:
CHIEF DESIGN BRANCH

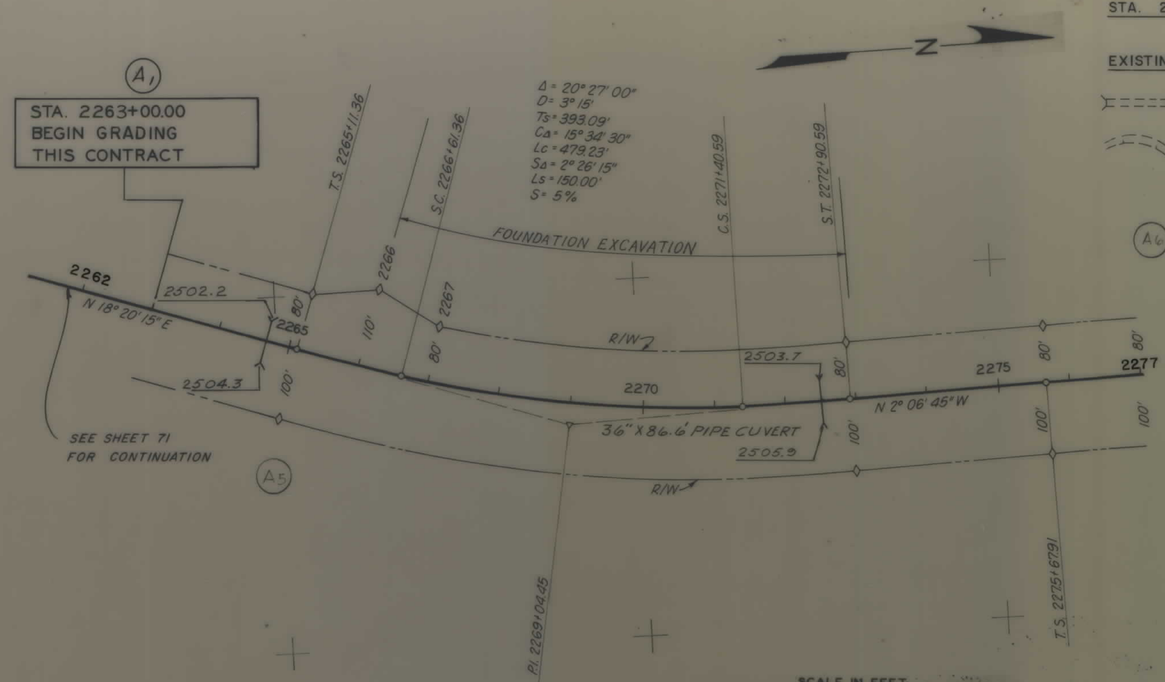
KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3C-D
PLAN AND PROFILE
STA. 2234 TO STA. 2263

SCALE AS SHOWN | SPEC NO
DRAWING NUMBER E-53-31-115 | DATE 71 MAR 9
SHEET 71 | AS BUILT

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	60	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, BY, DATE



SCALE IN FEET
100 0 100 200 300

LEGEND

STA. 2263 TO 2979+50.32

EXISTING	THIS CONTRACT	
		CULVERTS
		ROAD
		M.S.H. 37
		R/W & MONUMENT
A6		BRIDGE
H		GUIDE POSTS
⊢		SIGN

STA. 1850 TO 2263 & STA. 2979+50.32 TO 3017+20

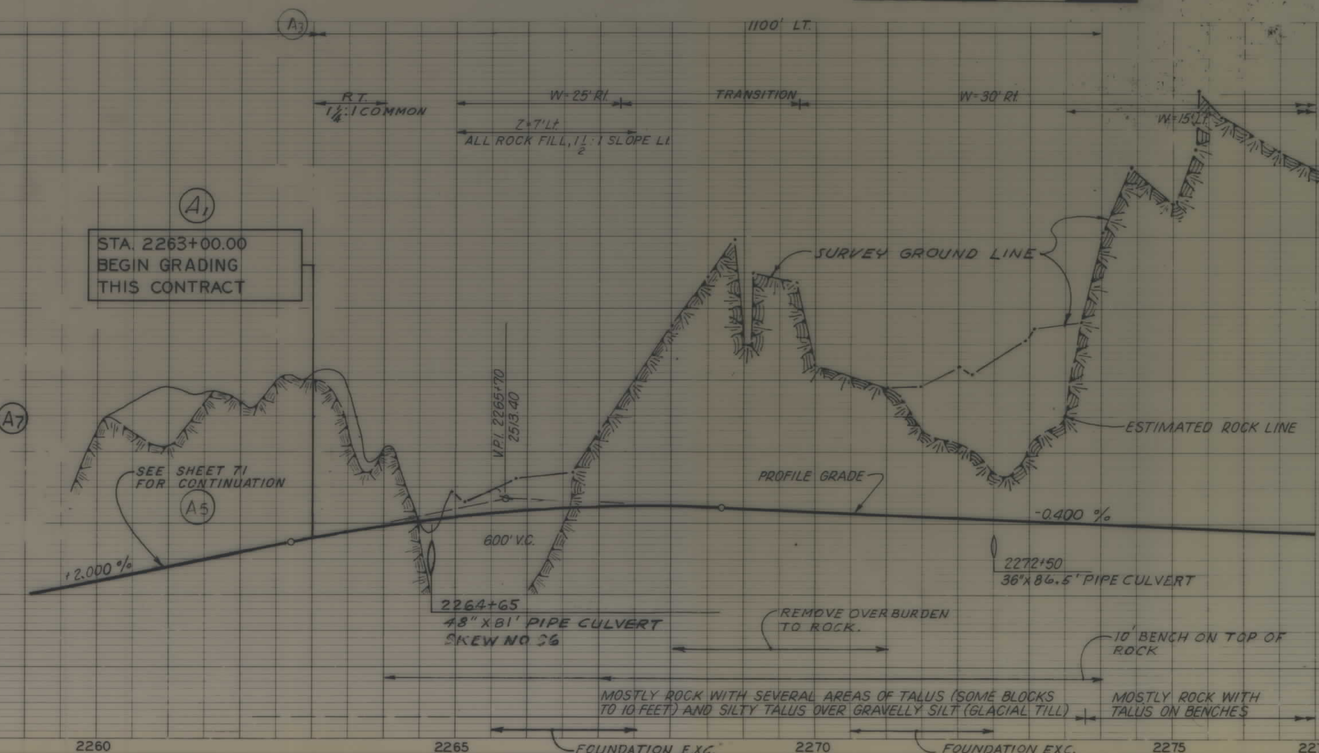
EXISTING	THIS CONTRACT
	H
A2	⊢

NOTE: See Sheet 3T for additional legend.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, BY, DATE, (S. M.) NOTED, STRUCTURE NOTATING CHECKED

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS



SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(7) DELETED EXISTING GROUND & ADJUSTED ROCK-LINE ALINEMENT & PROFILE (5) ADDED REFERENCE (6) REV. LEGEND. (2) DELETED NOTE (3) REVISED GUARDRAIL (4) DELETED (1) REVISED NOTE IN PLAN & PROFILE	71 MAR 9	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: Chief, Design Branch
REVIEWED: Chief, Design Section
SUBMITTED: Chief, Relocation Section
RECOMMENDED: Chief, Design Branch
APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2263 TO STA. 2277

DATE: 70 JUN 26
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

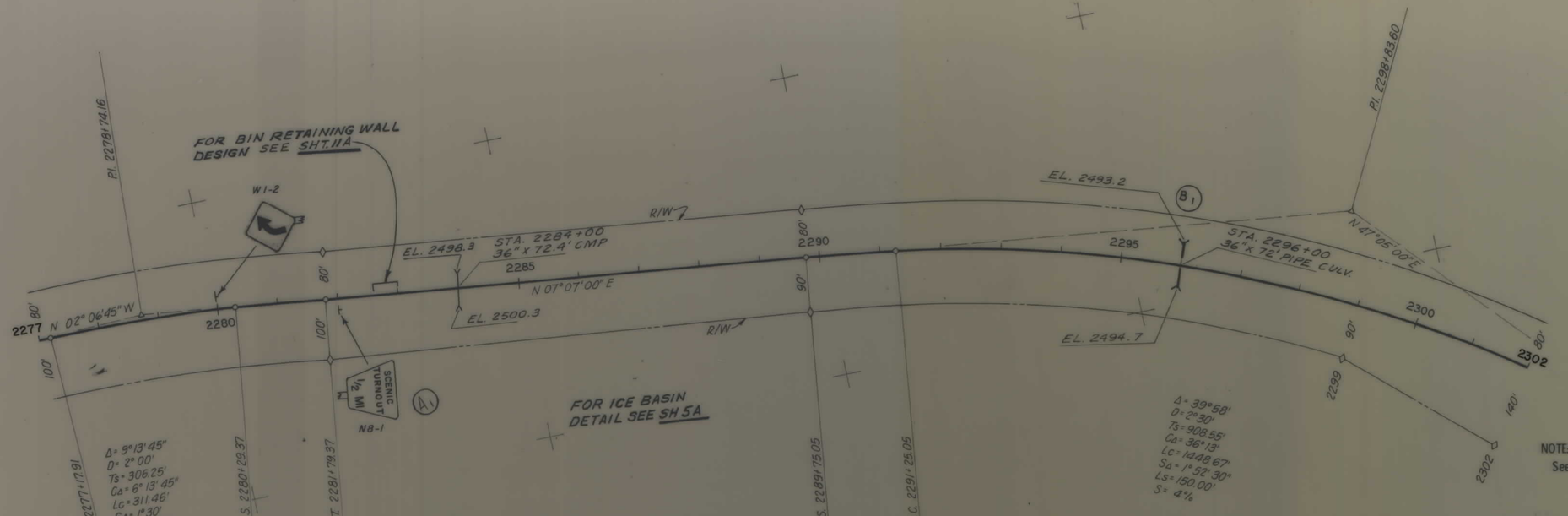
K&E PLATE 1, PLAN-PROFILE KUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	61	116

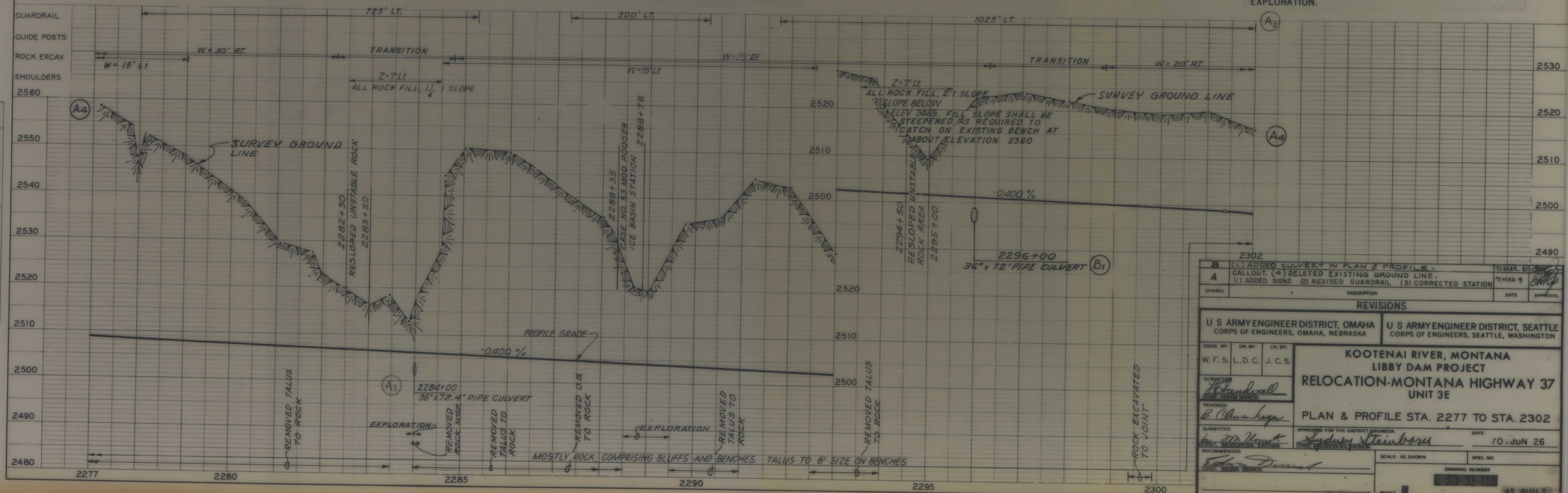
PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT. OF WAY CHECKED, BY, DATE



NOTE:
See Sheets 3 and 3T for Legend

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300



PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., GRADES CHECKED, R. R.'S NOTED, STRUCTURAL NOTATIONS DRAWN, BY, DATE

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1.) ADDED CULVERT IN PLAN & PROFILE.	'71 MAR. 3	
A	CALLOUT. (4) DELETED EXISTING GROUND LINE. (1) ADDED SIGNS (2) REVISED GUARDRAIL (3) CORRECTED STATION	'71 MAR 9	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W. F. S. | DR. BY: L. D. C. | CK. BY: J. C. S.

SUBMITTED: CHIEF, DESIGN BRANCH

REVIEWED:

SUBMITTED: CHIEF, RELOCATION SECTION

RECOMMENDED: CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2277 TO STA. 2302

APPROVED FOR THE DISTRICT ENGINEER: Sydney A. Steinborn, CHIEF, ENGINEERING DIVISION
DATE: 70 JUN 26

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
SHEET | AS BUILT

PLATE 1, PLAN-PROFILE

CONTRACT DACW67-71-C-0071

R/W NO	SHEET NO	TOTAL SHEETS
F145	62	116

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, R/W CHECKED, NOTE BOOK, NO., BY, DATE

ROCKFILL EMBANKMENT SEE SHEET 5T FOR ADDITIONAL INFORMATION

FOR GRADING PLAN AT McGUIRE CR. SEE SH. 5A

TOE OF FILL

Δ = 39°58'
D = 2°30'
Ts = 908.55'
Ca = 36°13'
Lc = 1448.67'
Sa = 1°52'30"
Ls = 150.00'
S = 4%

MAXIMUM POOL LINE

FOUNDATION EXCAVATION

MOVED TURNOUT BETWEEN STA. 2309+50 AND 2311+50

TURNOUT SEE SHEET 31 FOR DETAILS

REVISED TURNOUT LOCATION

SEE SHEET 28A FOR GRADING PLAN AND SECTIONS

SEE NOTE No 5

FOR TURNOUT GRADING DETAIL, SEE THIS SHT.

Δ = 41°52'
D = 6°00'
Ts = 465.92'
Ca = 29°52'
Lc = 497.78'
Sa = 6°00'
Ls = 200.00'
S = 8%

S.T. 2312+29.62

S.C. 2320+29.62

2322+00 M.S.H. 37 UNIT 3E
=10+00 McGUIRE CREEK ROAD APPROACH

ROCKFILL PROTECTION FOR EXISTING GROUND. See SHEET 30 FOR DETAIL.

CULV. OUTLET TO BE PLACED ON EXIST. ROCK OUTCROP, SEE SHT. 5T

SP PIPE 102+39

CUT SLOPE LT

UNIT 3E

℄ M.S.H. 37

N 05°13'00" E

McGUIRE CREEK ROAD APPROACH SEE SHEET 26 A

RIPRAP DITCH SEE TYP. SEC. SHEET 26-A

6. STATION 2315 TO 2320 - STRIP TOPSOIL

5. TREES MARKED WITH THE WORD "SAVE" PAINTED ON A 10" WIDE METAL BAND 10 FEET ABOVE THE GROUND AND A 1 1/2" WIDE METAL BAND AROUND THE BASE, SHALL NOT BE CLEARED UNLESS THEY FALL WITHIN THE LIMITS OF THE EARTHWORK.

FURROW DITCH SEE SHT. 26A EXISTING ROAD

REVISED TURNOUT LOCATION

68-BT & DD-2126A AND 68-BT-2126B

68-BT & DD-2138

McGUIRE CREEK

SCALE IN FEET

NOTE:
1. Clear area in the McGuire Creek drainage right of roadway centerline to elevation 2462'
2. Clearing shall be to the limits as shown below, except that no areas above elevation 2462 shall be cleared unless required for construction of roadway.

CLEARING LIMITS LEFT OF CENTERLINE	
STA. TO STA.	DISTANCE
2303-2315	500 ft.
2315-2323	350 ft.

3. See Sheets 3 and 3T for Legend.
4. See Sheets 44, 45 and 46 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

1325' LT. 2307+62 FLARE RT.
END GUARDRAIL AT STATION 2308+75 WITH TERMINAL END SECTION
W=20' Rt.
650' RT. (USE 6.25' POST SPACING FOR ENTIRE 650 FT.)
3' PEDESTRIAN GATE, RT. SIDE
813' LT.
2315+75 FLARE RT.
125' LT.
2316+50 SQ. END
W=15' Rt.
475 LT.
2318+25 FLARE

Z=7' Lt. ALL ROCK FILL, 2:1 SLOPE
Z=7' Rt. ALL ROCK FILL, 2:1 SLOPE
Z=7' Lt. ALL ROCK FILL, 2:1 SLOPE Lt.

SURVEY GROUND LINE
ESTIMATED ROCK LINE
PROFILE GRADE
400' V.C.
800' V.C.
-3.00%
+0.35%
-0.50%
V.P.I. 2303+40 2458.32
V.P.I. 2311+00 2475.51
V.P.I. 2322+00 2479.36
2307+10 36"x86' PIPE CULVERT
2320+25 36"x96.5' PIPE CULVERT
2311+75 102"x391' PIPE CULVERT (12-GAUGE, 166.2') (12-GAUGE, 224.8') SKEW NO. 123

68-BT-3144
68-BT-2159

ML, SILT W/ COBS & BLDRS
ML, SA SI GRAV, SILT W/ COBS & BLDRS
GM, SA SI GRAVEL W/NUM COBS & OCC BLDRS
GM, SA SI GRAVEL
GP-GM COBBLE GRAVEL
GM, SILTY GRAVEL & SANDY SILTY GRAVEL W/COBBLES
SP SAND W/SOME GRAVEL & BOULDERS
SM, SILTY SAND W/COBBLES
CLASS "A" RIPRAP INLET
CLASS "B" RIPRAP INLET DITCH

SILT, SILTY GRAVEL, SANDY GRAVEL, SANDY SILT SURFACE WITH OCC. BLOCKS TO 2 FEET ON SURFACE; LOOSE-MED, OVERLYING DENSE-VERY DENSE SANDY SILTY GRAVEL + SILTY SANDY GRAVEL SILTY SAND, WITH COBBLES AND BOULDERS (GLACIAL OUTWASH) SCATTERED ROCK OUTCROPS ON NORTH SIDE OF CREEK

MOSTLY ROCK WITH TALUS ON BENCHES

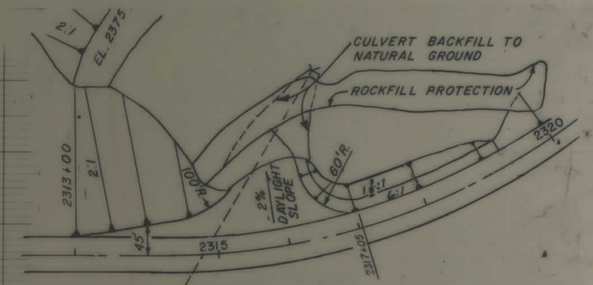
FOUNDATION EXC.

ROCK

2302 2305 2310 2315 2320 2323

2500 2490 2480 2470 2460 2450 2440 2430 2420

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R. M. NOTED, STRUCTURE NOTATIONS CHKD, NOTE BOOK, NO., BY, DATE



TURNOUT GRADING DETAIL AT McGUIRE CREEK

SCALE: 1" = 100'

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	(1) DELETED EXIST. GROUND LINE & ADJUSTED ROCK LINE. (CONT'D)	71 MAR 31	
C	(4) ADDED MAXIMUM POOL LINE (5) ADDED SKEW NO. (1) ADDED SIGNS & GUIDE POSTS (2) REVISED GUARDRAIL (3) ADDED NOTE 6	71 MAR 9	
B	2300 & 2400 (1) CLARIFIED McGUIRE CRK. TRAIL PLAN & SEC'S AT STA.	70 JUL 14	
A	-ED WORD "CROP" TO READ "OUTCROP (3) RVSD CULV. ELEV. (1) ADDED NOTE No 5 & REF. TO SAME. (2) CORRECT-	70 JUL 13	

REVISIONS

E (1) ADDED SIGNS AND CORRECTED GRADING TRAIL SECTION-B DETAILS (5) ADDED REFERENCE (3) REVISED GUARDRAIL (4) DELETED McGUIRE CREEK — 71 MAY 31

D (2) ADDED McGUIRE CRK. RD. APPROACH. — 71 MAR 31

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: Chief, Engineering Division

REVIEWED: Chief, Design Branch

SUBMITTED: Chief, Relocation Section

APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division — DATE: 70 JUN 26

RECOMMENDED: Chief, Design Branch

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2302 TO STA. 2323

SCALE: AS SHOWN | SPEC. NO.

DRAWING NUMBER

SHEET [redacted] AS BUILT

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	63	116

SEC. 23
T 34 N R 29 W

SEC. 14
T 34 N R 29W

Δ= 08° 34' 15"
D= 04° 00'
Ts= 182.38'
Ca= 02° 34' 15"
Lc= 64.27'
Sa= 03° 00'
Ls= 150.00'
S= 6%

FOUNDATION EXCAVATION

EQUATION

EQUATION

68-BT-2161

69-CD-3135

69-BT-3136

68-CD-3134

PI 2571+93.94

SCENIC TURNOUT ½ MI

PROTECT DOWNHILL SLOPE

NO REQUIREMENTS TO

W1-2

PI 2327+09.90

TS 2331+18.60

SC 2332+68.60

CS 2333+32.87

ST 2334+82.87 BK = 2512+86.18 AHD.

2469.3

2463.1

R/W

POT. 2514+37.46

2514+50

40' L.F. EXT. PER MOD 23

2515

2516+40

2516+80

BIN WALL

N8-1
2518+45

2520+70

2520

BIN WALL

2522+10

2522+20

2524

2520+90

N. 11° 03' 30" E.

2517+70

2516+40

BIN WALL

2519+55

2519+75

2323

2325

2330

N 05° 13' 00" E

N 09° 44' 00" E

N 01° 09' 45" E

30"X78' C.M.P

2471.85

2466.6

93° 37' 12"

68-BT-2146

68-BT-2147

R/W

1000.54' to P.O.T.

T.S. 2513+88.24

S.C. 2515+38.24

PI 2333+00.92

STATION 2334 TO 2515+50 USE 6:1 FILL SLOPE ON RIGHT

T.S. 2325+21.91

S.C. 2326+71.91

C.S. 2327+47.74

S.T. 2328+97.74

Δ= 04° 31' 00"
D= 02° 00'
Ts= 187.99'
Ca= 01° 30' 00"
Lc= 75.33'
Sa= 01° 30'
Ls= 150.00'
S = 4%

Δ= 09° 53' 45"
D= 01° 30'
Ts= 405.70'
Ca= 07° 38' 45"
Lc= 509.72'
Sa= 01° 01' 30"
Ls= 150.00'
S= 3%

C.S. 2520+47.96

S.T. 2521+97.26 = 2521+98.92 BK = AHD.

EL. 2750

SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATED PRIOR TO BEGINNING OF ROADWAY EXCAVATION

STA 2520+00

2540

2530

2520

EXISTING GROUND SURFACE (DESIGN)

SCALE IN FEET
100 0 100 200 300

200' LT.

2326+75 LT. FLARE

1650' LT.

2330+00 FLARE

SURVEY GROUND LINE

TRANSITION

W= 30' RT.

W= 20' LT.

Z = 7' LT.
ALL ROCK FILL, 2:1 SLOPE

400' V.C.

+0.500%

2331+60
30"x120' PIPE CULVERT

EXC. BACK TO PARALLEL JOINT 1ST. LIFT

ESTIMATED ROCK LINE

ST 2334+82.87 BK = 2512+86.18 AHD.

EQUATION

68-BT-2147

68-BT-2146

252.2 C.Y. CLASS B RIPRAP AT OUTLET

2513+25
36"x140.3' L.F. PIPE CULVERT
SKEW NO. 110

REMOVAL OF OVERBURDEN

ML, SILT W/BLOCKS
GM, SI GRAVEL W/COBS & BLDRS

TALUS
GM, SI GRAVEL W/NUM COBS & BLDRS

GP, SA GRAVEL W/COBS & BLDRS

BREAK

V.P.I. 2330+80 2474.92

V.P.I. 2518+20 2479.60

PROFILE GRADE

-0.505%

-0.457%

400' V.C.

EQUATION

ESTIMATED ROCK LINE

EXISTING GROUND SURFACE (DESIGN)

REMOVE TALUS TO ROCK

REMOVE TALUS TO ROCK

SUBSURFACE EXPLORATION

MOSTLY ROCK WITH TALUS ON THE BENCHES. SEVERAL INTERVENING AREAS OF SILT, GRAVELLY SILT - SILTY GRAVEL W/COBBLES AND BOULDERS OVERLYING DENSE TO VERY DENSE, SILTY GRAVEL - GRAVELLY SILT, SILTY SANDY GRAVEL WITH NUMEROUS COBBLES & BOULDERS (GLACIAL TILL)

FDN. EXC.

FDN. EXC.

FOUNDATION EXC.

2323 2325 2330 2334 2513 2515 2520

2540 2530 2520 2510 2500 2490 2480 2470 2460 2410

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

PLAN — SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, GRADE CHECKED, R/W, STRUCTURE NO. — DATE, BY

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADE CHECKED, R/W, STRUCTURE NO. — DATE, BY

NOTES: 1. Clearing shall be to the limits as shown below, except that no areas above elevation 2462 shall be cleared unless required for construction of roadway.

CLEARING LIMITS LEFT OF CENTERLINE	
STA. TO STA.	DISTANCE
2323-2330	350 ft.
2330-2515	450 ft.
2515-2524	350 ft.

2. See Sheets 3 and 3T for Legend

3. See Sheets 46, 47 & 48 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	CALL-OUT, "SLOPE ON LEFT" TO "SLOPE ON RIGHT" (5) INDICATED "FOUNDATION EXCAVATION" LIMITS. (6) CHANGED (4) DELETED EXIST. GRD. LINE AND ADJSTD. ROCK LINE GRD. LINE & ADDED EQUATION. (3) RVSD LIMITS FOR 2:1 FILL (1) RVSD & MSH-37 ALIGNMENT & ADDED EQUATION. (2) RVSD	71 MAR 31	
B	(6) ADDED SKEW NO (4) EXTENDED 2:1 FILL SLOPE (5) ADDED NOTE "DOWN-HILL SLP" (1) ADDED SIGNS (2) REVISED GUARDRAIL (3) ADDED 6:1 FILL SLOPE &	71 MAR 9	
A	1) ADDED SURVEY GROUND LINE.	70 JUL 15	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: [signature]
REVIEWED: [signature]
SUBMITTED: [signature] CHIEF, DESIGN SECTION
APPROVED FOR THE DISTRICT ENGINEER: [signature] CHIEF, ENGINEERING DIVISION
DATE: 70 JUNE 26
RECOMMENDED: [signature] CHIEF, [illegible]

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2323 TO STA. 2524

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

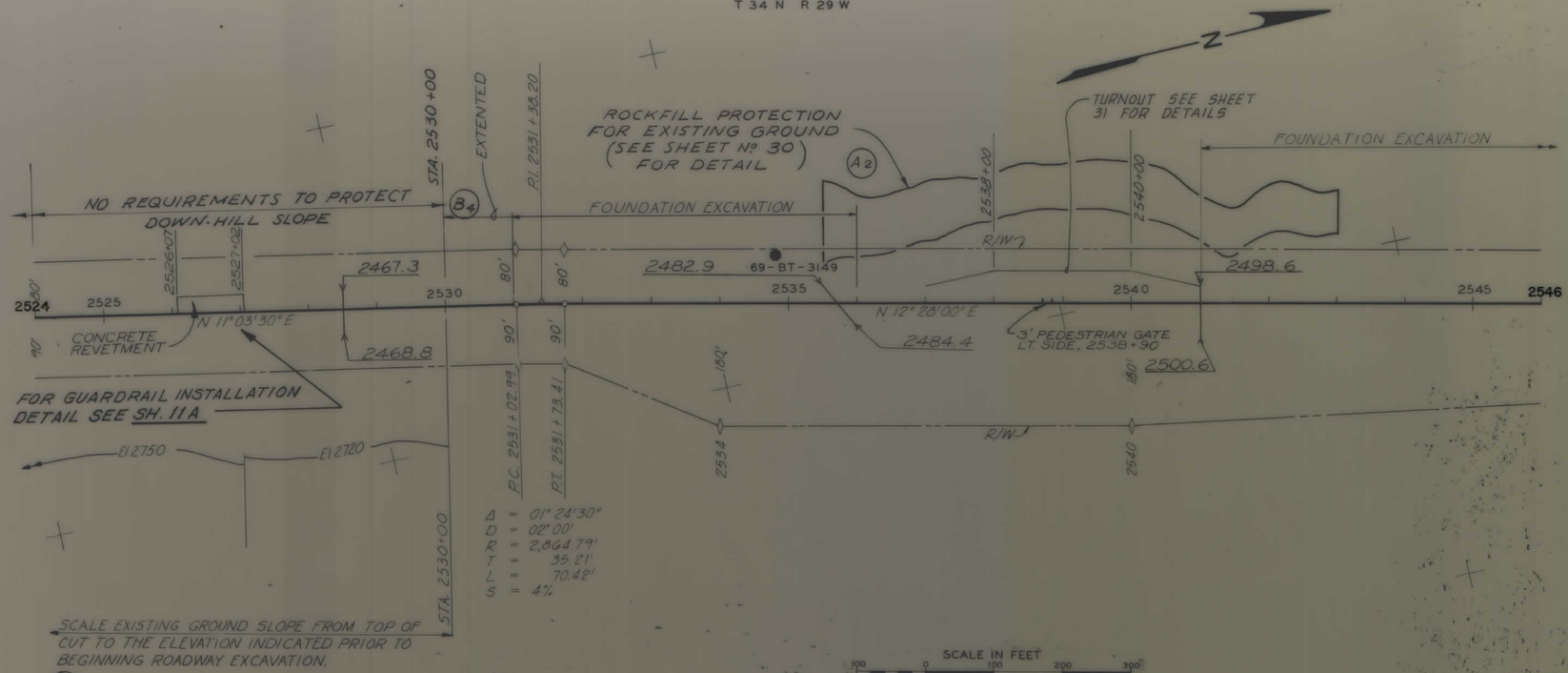
K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC 76

R/W NO	SHEET NO	TOTAL SHEETS
F145	64	116

SEC. 14
T 34 N R 29 W



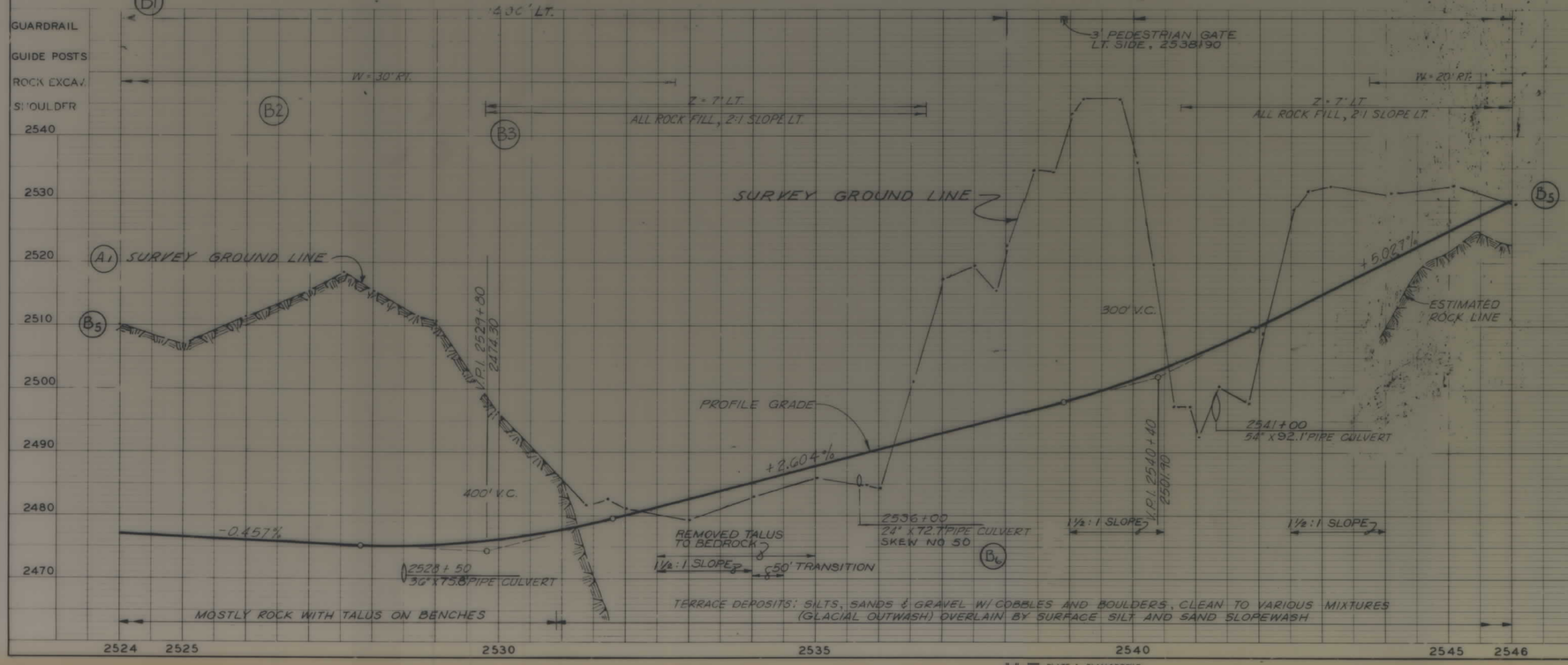
NOTE:

1. Clearing shall be to the limits as shown below, except that no areas above elevation 2462 shall be cleared unless required for construction of roadway.

CLEARING LIMITS LEFT OF CENTERLINE	
STA. TO STA.	DISTANCE
2524-2546	

2. See Sheets 3 and 3T for Legend.
3. See Sheet 48 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.



SYMBOL	DESCRIPTION	DATE	APPROVED
	(6) ADDED SKEW NO		
	(5) DELETED EXIST. GROUND & ADJUSTED ROCK LINE		
	(3) EXTENDED Z=7' & 2:1 FILL (4) ADDED NOTE		
	(1) REVISED GUARDRAIL (2) DELETED FILL &	TIMAR 3	RMH 3
	ROCKFILL PROTECTION LIMITS IN PLAN	'70 JUL 13	
A	(1) ADDED SURVEY GROUND LINE. (2) ADDED		

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA CORPS OF ENGINEERS, OMAHA, NEBRASKA	U S ARMY ENGINEER DISTRICT, SEATTLE CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
J.C.S.	L.D.C.	W.F.S.

SUBMITTED: B. Vandivall, CHIEF, DESIGN BRANCH
RECOMMENDED: B. Ulmer Sage, CHIEF, ENGINEERING DIVISION
APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinborn, CHIEF, ENGINEERING DIVISION
DATE: 70 JUN 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2524 TO STA. 2546

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, PT. OF INT. CHECKED, NOTE BOOK, NO., DATE, BY
PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, STRUCTURE NOTATIONS CHKD, NOTE BOOK, NO., DATE, BY

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	65	116

SEC. 14
T 34 N R 29 W

SEC. 11
T 34 N R 29 W

N

Δ = 10°21'30"
D = 2°00'
T_S = 359.71'
C_Δ = 6°21'30"
L_C = 317.92'
S_Δ = 2°00'
L_S = 200.00'
S = 4%

T.S. 2547+42.80 · S.C. 2549+42.80 · C.S. 2552+60.72 · S.T. 2554+60.72

69-BT-3150

FOUNDATION EXCAVATION EL. 2462

EL. 2542.6 · EL. 2566.95 · EL. 2620.8 · EL. 2620.1 · EL. 2750 · EL. 2547.3 · EL. 2569.0

SLP. VARIES · 2:1 · 1.6:1 · 1.65:1 · 1.75:1

CRITICAL ENVIRONMENTAL CONTROL AREA (B3)

FOR GUARDRAIL INSTALLATION SEE SH. 11A

CONCRETE REVETMENT WALL

P.I. 2558+88.54

2556+00 · 2561+00

R/W

N 12°28'00"E DAYLIGHT CUT

N 02°06'30"E · N 09°54'00"E · 95°28'22"

CRITICAL ENVIRONMENTAL CONTROL AREAS (B4)

W1-4 (B1)

T.S. 2556+18.42 · S.C. 2557+68.42 · C.S. 2560+02.01 · P.I. 2561+02.51

T.S. 2563+66.40 · S.C. 2566+66.40 · T.S. 2564+66.40

P.O.T. 2565+14.15 · P.O.T. 575.30' to P.O.T.

2546 · 2548+50 · 2549+43 · 2550 · 2555 · 2560 · 2565 · 2567

140' · 80' · 150' · 120' · 160' · 266'

EQUATION 2561+59.21 BK = 2559+27.41 AHD

Δ = 07°47'30"
D = 2°00'
T_S = 270.11
C_Δ = 04°47'30"
L_C = 239.58'
S_Δ = 01°30'
L_S = 150.00'
S = 4%

SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATED PRIOR TO BEGINNING ROADWAY EXCAVATION.

SCALE IN FEET
100 0 100 200 300

NOTES:

1. Clearing shall be to the limits as shown below, except that no areas above elevation 2462 shall be cleared unless required for construction of roadway.

CLEARING LIMITS LEFT OF CENTERLINE STA. TO STA.	DISTANCE
2546-2557	350 ft.

2. See Sheets 3 and 3T for Legend
3. See Sheet 48 for Boring Log.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL · GUIDE POSTS · ROCK EXCAV. · SHOULDER

W = 26' Rt. TRANSITION · Z = 11:1 · ALL ROCK FILL SLOPE 2:1 Lt.

REMOVED UNSTABLE ROCK TO PROMINENT JOINT

SURVEY GROUND LINE (A1) · PROFILE GRADE · ESTIMATED ROCK LINE

2555+00 24'x72.9' PIPE CULVERT

2550+50 42"X 79.6' PIPE CULVERT SKEW NO 100 (B6)

REMOVED ROCK OVERHANG

SILTY TALUS AND TALUS OVER ROCK. TALUS AVG. 6'-2', MAX 10'

MOSTLY ROCK W/SMALL AREAS OF SILTY TALUS AND TALUS 6'-18' AVERAGE SIZE, MAX. 6'

3,237.5' Lt. · W = 25' Rt. · W = 15' Lt. · Z = 7:1

ALL ROCK FILL SLOPE 2:1 Lt.

SURVEY GROUND LINE (A1) · PROFILE GRADE · ESTIMATED ROCK LINE

VPI 2565+00 EL 2637.5 · +1.000 % · -5.027 % · +5.027 %

2563+00 24"x 68.9' PIPE CULVERT · 600' V.C.

EQUATION 2561+58.01 BK = 2559+27.41 AHD

SCATTERED ROCK OUTCROPS, TALUS AND SILTY TALUS, 6'-18' AVG. SIZE, WITH SCATTERED BLOCKS TO 20 FEET ON SURFACE

2546 · 2550 · 2555 · 2560 · 2561 · 2560 · 2565

2600 · 2590 · 2580 · 2570 · 2560 · 2550 · 2540 · 2530 · 2520

2600 · 2590 · 2580 · 2570 · 2560 · 2650 · 2640 · 2630 · 2620 · 2610

2660 · 2650 · 2640 · 2630

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	SKEW NO. EXISTING GROUND LINE & ADJUSTED ROCK-LINE. (6) ADDED TO 2556+00. (4) ADDED GRADING DETAIL (5) DELETED (1) ADDED SIGN & (2) RVSD. GUARD-RAIL. (3) CHANGED STA. 2555+00	71 MAR 9	
A	1) ADDED SURVEY GROUND LINE	70 JUL 13	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGN BY: J.C.S. · DET. BY: L.D.C. · CK. BY: W.F.S.

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2546 TO STA. 2567

SUBMITTED · RECOMMENDED · APPROVED FOR THE DISTRICT ENGINEER · DATE 70 JUN 26

SCALE: AS SHOWN · SPEC. NO. · SHEET · AS BUILT

PLAN — SURVEYED · PLOTTED · GRADES CHECKED · QUANTITIES CHECKED · RT. OF WAY CHECKED · NOTE BOOK · NO. · BY · DATE

PROFILE — SURVEYED · PLOTTED · GRADES CHECKED · QUANTITIES CHECKED · STRUCTURAL NOTATING OK'ED · NOTE BOOK · NO. · BY · DATE

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

R/W NO	SHEET NO	TOTAL SHEETS
F145	66	116

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R/W OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

SEC 11
T34N R29W

Z

Δ=11°55'15"
D=4°00'
Ts=249.66'
Ca=3°55'15"
Lc=98.02'
Sa=4°00'
Ls=200.00'
S=6%

2567 — 2568 — 2570 — 2575 — 2580 — 2585 — 2587 — 2589 — 2590

C.S. 2567+64.42 — 240' — S.T. 2569+64.42 — 80' — P.I. 2574+52.22 — 240' — 300' — R/W

2631.6 — 2633.5 — 2651.3 — 2653.3

N 02° 01' 15" W — N 21° 14' 45" E

100' — 100' — 80' — 80' — 100' — 150' — 120'

P.I. 2567+16.06 — T.S. 2571+55.30 — S.C. 2573+55.30 — C.S. 2575+43.08 — S.T. 2577+43.08 — T.S. 2589+04.32

B1 — W1-4 — B5 — C1

R/W — G:1 FILL SLOPE RT.

Δ=23°16'00"
D=6°00'
Ts=296.92'
Ca=11°16'00"
Lc=187.78'
Sa=6°00'
Ls=200'
S=8%

SCALE IN FEET
100 0 100 200 300

NOTE: See Sheets 3 and 3T for Legend.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R. W. NOTED, STRUCTURE NOTATNS CHKD, NOTE BOOK, NO., BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

FLARE — W=25' Lt. — W=15' — TRANSITION — W=20' Rt. — FLARE — 1100' Lt. — FLARE — W=20' Rt. — W=15' Lt. — FLARE

2:7 Lt. ALL ROCK FILL SLOPE 1½:1 (B2)

(B4) ℓ ALL ROCK FILL SLOPE 1.4:1

2:7 Lt.

SURVEY GROUND LINE (A1)

PROFILE GRADE

+1.000 %

1000' V.C.

+3.740 %

ESTIMATED ROCK LINE

EXISTING GROUND (DESIGN)

2580+00
42"x 986' PIPE CULVERT
466.7 C.Y. CLASS A
RIPRAP OUTLET

2568+20
48"x 68' PIPE CULVERT
SKEW NO 105
SILTY TALUS & TALUS, MAX. 20'

V.P.I. 2577+00
2649.15

ROCK, WITH SEVERAL SMALL AREAS OF TALUS, ANGULAR, 1'-2' AVERAGE, 10' MAX.

MOSTLY ROCK OVERLAIN BY SILT, SILTY GRAVEL, SILTY SANDY GRAVEL, SILTY TALUS & TALUS. OVERBURDEN 0'-7' THICK ON BENCHES

SILTY GRAVEL-GRAVELLY SILT SILTY SANDY GRAVEL (GLACIAL TILL) W/NUM. ANG. BLOCKS UP TO 12' & COBBLES

WRAP AROUND ACCESS RD & END AT 8+00 W/SQ END. LT SIDE

WRAP AROUND ACCESS RD & END AT W/SQ END. RT SIDE

2700 — 2690 — 2680 — 2670 — 2660 — 2650 — 2640 — 2630 — 2620 — 2610 — 2600

2567 — 2570 — 2575 — 2580 — 2585 — 2590

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(1) REVISED ALINEMENT (2) DELETED GROUNDLINE & ADJUSTED ROCK LINE	71 MAR 31	
B	ADDED SKEW NO. CULVERT (4) ADDED ROCK FILL & (5) 6:1 FILL SLOPE. (5) (1) ADDED: SIGN & GUIDE POSTS, & (2) ROCK FILL SLOPE (5) REVISED	71 MAR 5	
A	(1) ADDED SURVEY GROUND LINE	70 JUL 15	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SUBMITTED: Chief, Design Branch

REVIEWED: Chief, Design Section

SUBMITTED: Chief, Relocation Section

APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinbora, Chief, Engineering Division — DATE: 70 JUN 26

RECOMMENDED: Chief, Design Branch

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2567 TO STA. 2590

SCALE: AS SHOWN | SPEC. NO.

DRAWING NUMBER

SHEET | AS BUILT

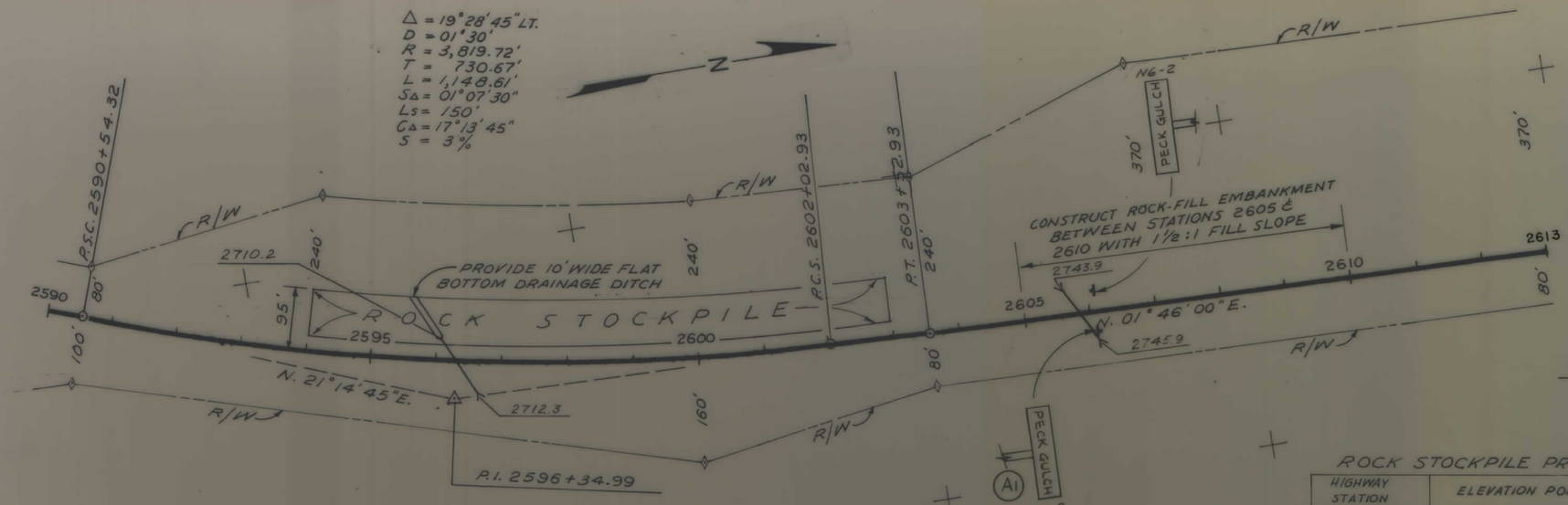
K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

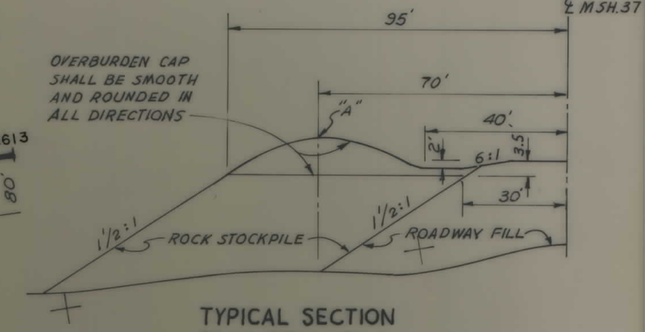
CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	67	116

$\Delta = 19°28'45"$ LT.
$D = 01°30'$
$R = 3,819.72'$
$T = 730.67'$
$L = 1,148.61'$
$S\Delta = 01°07'30"$
$Ls = 150'$
$C\Delta = 17°13'45"$
$S = 3\%$





TYPICAL SECTION
ROCK STOCKPILE

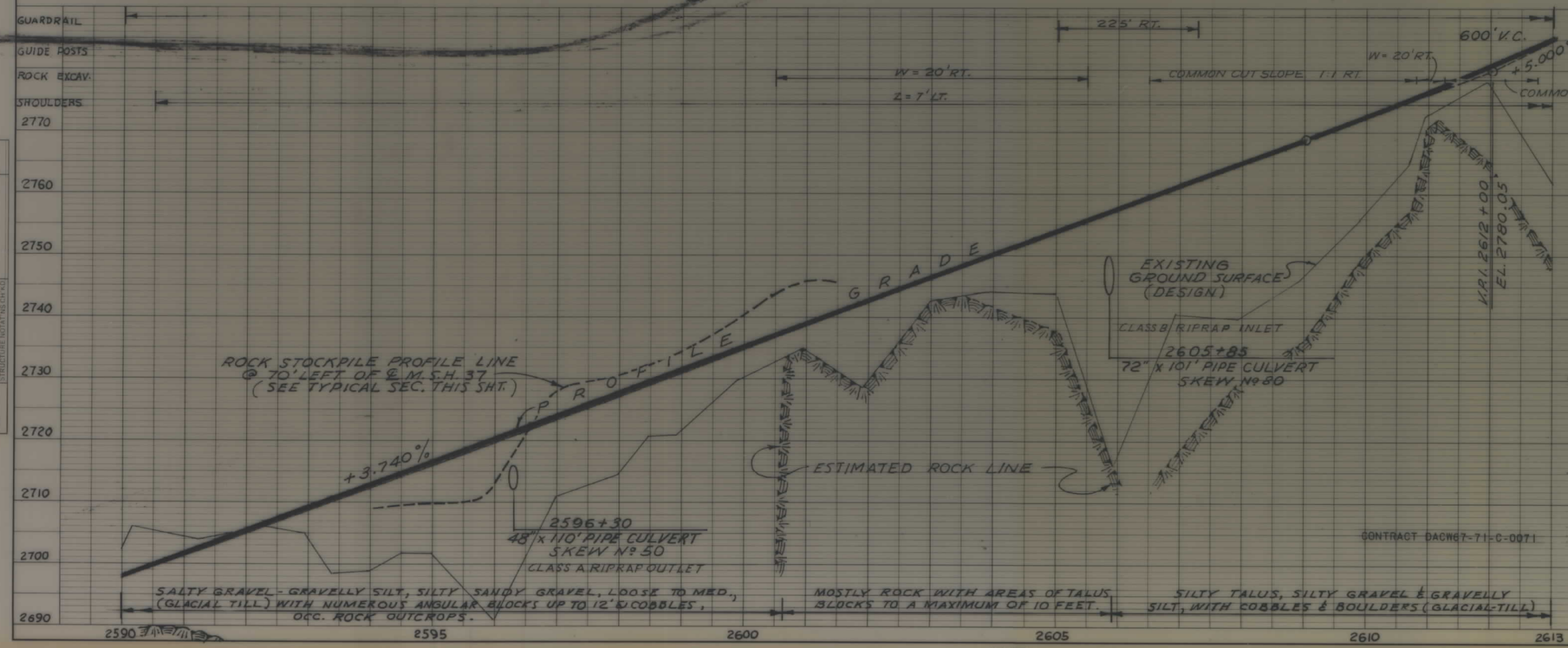
NOTE: SEE SHTS. 3 & 3T FOR LEGEND

ROCK STOCKPILE PROFILE

HIGHWAY STATION	ELEVATION POINT "A"
2594+00	2709.5
2595+80	CULVERT INVERT MINUS 0.5 FEET
2597+00	2728.5
2598+50	2732.0
2601+00	2746.0
2602+00	2740.0

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300



SYMBOL	DESCRIPTION	DATE
A	(1) ADDED SIGNS	74 MAY 31

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: D. THOMPSON
DRAWN BY: W.F. VON BESCHWITZ
CHECKED BY: B. CLEMENHAGEN
REVIEWED: B. Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN AND PROFILE
STA. 2590 TO STA. 2613

PREPARED: CHK Ives Jr
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-115 | DATE: 71 MAR. 31
SHEET 10 | AS BUILT

CONTRACT DACW67-71-C-0071

PLAN: SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO.
PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, STRUCTURE NOTATNS CHCKD, NOTE BOOK, NO.

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

THIS SHEET SUPERSEDES DWG. E-53-31-115 SHT. 10, DATED 70 JUNE 26

MICROFILMED DEC '78

R/W NO	SHEET NO	TOTAL SHEETS
F 145	68	116

PLAN — SURVEYED, DRAWN, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

Δ = 25°11'45"
D = 7°30'
Ts = 271.16
C_Δ = 10°11'45"
Lc = 135.94
S_Δ = 7°30'
Ls = 200.00
S = 8%

EQUATION

ST 2626+38.29 BK
2626+42.68 AHD

PI 2630+90.82

CRITICAL ENVIRONMENTAL CONTROL AREA

RETAINING WALL LT. FOR DETAILS SEE SHEETS 37, 40 & 41

FOR CULVERT PLUG DETAIL SEE SH. 25A

TS 2621+02.35

SC 2623+02.35

CS 2624+38.29

2623+50

EL 2785.1

EL 2826.9

EL 2788.4

EL 2832.6

W1-5

2613 N 01°46'00"E 2615 2620 2625 2630 2635 2636

N 23°25'45"W

N 06°25'30"E

R/W

370' 310' 80' 80' 90' 90' 110' 100' 60'

PI 2623+73.51

TS 2627+86.64

SC 2629+86.64

CS 2631+84.70

ST 2633+84.70

Δ = 29°51'15"
D = 7°30'
Ts = 304.18'
C_Δ = 14°51'15"
Lc = 198.06
S_Δ = 7°30'
Ls = 200.00'
S = 8%

SCALE IN FEET
100 0 100 200 300

NOTE: See Sheets 3 and 3T for Legend

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — DIRECTED, PLOTTED, GRADES CHECKED, R.L. PROFILES, STRUCTURE QUANTITIES CHECKED, NOTE BOOK, NO., BY, DATE

GUARDRAIL 2600' Lt. 1 FLARE | 350' Lt. 1 FLARE | 1 FLARE 225' Lt.

GUIDE POSTS W=15' Rt. Z=7' Lt. | W=20' Lt. W=25' Rt. TRANSITION W=20' Rt. Z=7' Lt.

ROCK EXCAV. ALL ROCK FILL SLOPE 1-1/4:1 Lt. | ALL ROCK FILL SLOPE 1:1 Lt.

SHOULDERS

2623+00 30"x77.5' PIPE CULVERT (CLASS B RIPRAP OUTLET)

PROFILE GRADE +5.000%

EXISTING GROUND SURFACE (DESIGN)

2614+95 24"x98.9' PIPE CULVERT (CLASS B RIPRAP OUTLET)

ESTIMATED ROCK LINE

SURVEY GROUND LINE

REMOVED ROCK OVERHANG

EQUATION

RETAINING WALL LT FOR DETAILS SEE SHEETS 37, 40 & 41

2626+38.29 BK
2626+42.68 AHD

REMOVED TALUS TO BEDROCK

2628+44

2630+04

PROFILE GRADE +5.000%

2629+60 24"x78' PIPE CULVERT

CONTRACT DACW67-71-C-0071

TALUS, SILTY TALUS AND SILTY GRAVEL, TALUS AVERAGES 2'-3' IN SIZE, 10' MAXIMUM, WITH ADJACENT AREAS OF ROCK OUTCROP

ROCK COMPRISING HIGH BLUFFS AND BENCHES WITH 0'-7' THICK TALUS ON BENCHES AND SEVERAL ISOLATED AREAS OF SILTY TALUS AND TALUS

2840 2830 2820 2810 2800 2790 2780 2770 2760 2750 2930 2920 2910 2860 2850 2840

2613 2615 2620 2625 2630 2635 2636

SYMBOL	DESCRIPTION	DATE

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: THOMPSON
DRAWN BY: LALIKOS, PIMENTEL
CHECKED BY: CLEMENHAGEN
REVIEWED:

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2613 TO STA. 2636

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E 53-31-115 | DATE: 71 MAR 31
SHEET 11 | AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

THIS SHEET SUPERSEDES DWG. E 53-31-115 SHT. 11 DATED 70 JUNE 26

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	69	116

CRITICAL ENVIRONMENTAL CONTROL AREA

RETAINING WALL LT FOR DETAILS SEE SHEETS 37, 40 & 41.

EXTENDED TO 2639+60

ORIG 2639+40

N 06° 25' 30" E

2640

Pl. 2641+17.04

2642+00

T.S. 2646+13.38

S.C. 2648+13.38

Δ = 48° 20' 15"
D = 7° 30'
Ts = 443.75'
Ca = 33° 20' 15"
Lc = 444.50'
Sa = 7° 30'
Ls = 200.00'
S = 8%

C.S. 2652+57.88

S.T. 2654+57.88

Pl. 2658+83.90

2659

N 62° 02' 15" E

2645

R/W

2648

2649

250'

2660

2661

N 43° 59' 15" E

N 13° 42' 00" E

B1

2655

2658

2852.7

2650

2855.5

R/W

ORIG 2637+70

2636

2639

Δ = 55° 36' 45"
D = 7° 30'
Ts = 503.98'
Ca = 40° 36' 45"
Lc = 541.50'
Sa = 7° 30'
Ls = 200.00'
S = 8%

2642

T.S. 2636+13.06

S.C. 2638+13.06

C.S. 2643+54.56

S.T. 2645+54.56

Δ = 30° 17' 15"
D = 6° 45"
Ts = 330.21'
Ca = 16° 47' 15"
Lc = 248.70'
Sa = 6° 45"
Ls = 200.00'
S = 8%

C.S. 2660+02.39

S.C. 2657+53.69

T.S. 2655+53.69

P.I. 2650+57.13

SCALE IN FEET
100 0 100 200 300

NOTE: See Sheets 3 and 3T for Legend.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, GRADES CHECKED, STRUCTURE NOTATING CHKD, NOTE BOOK, NO., BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

W = 20' Rt.
Z = 7' Lt.
2639+00
2915.05
V.P.I.
SURVEY GROUND LINE (A1)
+5.000 %
1000' V.C.
PROFILE GRADE
-4.000 %
2637+30
2639+40
RETAINING WALL LT FOR DETAILS SEE SHEETS 37, 40 & 41.

2500' Lt.
2647+00 - 2651+50 RT. FLARE
W = 20' Rt.
Z = 7' Lt.
PROFILE GRADE
SURVEY GROUND LINE (A1)
-4.000 %
CLASS B RIPRAP OUTLET
2649+85
36"X115.5' L.F. PIPE CULVERT
ESTIMATED ROCK LINE
REMOVE UNSTABLE ROCK TO PROMINENT JOINT
-4.000 %
2661

2930 2920 2910 2900 2890 2880 2870 2860 2850
2880 2870 2860 2840 2830
2860 2850 2840 2830

2636 2640 2645 2650 2655

ROCK COMPRISING HIGH BLUFFS AND BENCHES WITH 0'-7' THICK TALUS ON BENCHES.

GRAVELLY SILT TO SILTY GRAVEL (ANGULAR) WITH NUMEROUS COBBLES AND BLOCKS TO 8 FEET ON SURFACE (GLACIAL TILL), WITH SCATTERED ROCK OUTCROPS

FOUNDATION EXC.

ROCK COMPRISING SMALL BLUFFS AND BENCHES WITH ADJACENT AREAS OF GRAVELLY SILT TO SILTY GRAVEL WITH NUMEROUS COBBLES AND BOULDERS

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(1) DELETED EXISTING GROUND & ADJUSTED ROCK LINE	71 MAR 31	
B	(1) ADDED GUIDE POSTS & (2) REVISED GUARD RAIL	71 MAR 9	
A	(1) ADDED SURVEY GROUND LINE	70 JUL 13	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. DR. BY: L.D.C. CK. BY: J.C.S.

SUBMITTED: H. Randall, CHIEF, LANDS BRANCH

REVIEWED: B. Vonderhaar

SUBMITTED: for Phillips, CHIEF, RELOCATION SECTION

RECOMMENDED: Elton Dennis, CHIEF, DESIGN BRANCH

APPROVED FOR THE DISTRICT ENGINEER: Sydney Stenbors, CHIEF, ENGINEERING DIVISION

DATE: TO JUNE 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2636 TO STA. 2661

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	70	116

Δ = 8° 08' 15"
D = 3° 00'
Ts = 210.88'
Ca = 3° 38' 15"
Lc = 121.25'
Sa = 2° 15'
Ls = 150.00'
S = 5%

TS 2662+63.14
SC 2664+13.14
CS 2665+34.39
ST 2666+84.39
ST 2662+02.39
PI 2664+74.02

6' MIN. ROCKFILL BLANKET TO BE PLACED ON NATURAL GROUND BENEATH FILL BETWEEN STA. 2665+50 AND 2667+00. SEE SHEET Nº 20 FOR TYPICAL SECTION.

WI-5
WI-4
C2
B1
R/W
2793.1
2795.1
2661
2665
2670
2675
N 43° 59' 15" E
N 35° 51' 00" E
170'
320'
310'
120'
130'
110'
80'
100'

Δ = 21° 39' 00"
D = 5° 00'
Ts = 319.37'
Ca = 11° 39' 00"
Lc = 233.00'
Sa = 5° 00'
Ls = 200.00'
S = 7%

CS 2676+00.59
ST 2678+00.59
TS 2671+67.59
SC 2673+67.59
PI 2674+86.96

B2
CONSTRUCT 3' HIGH x 30' LONG DIKE TO DIVERT FLOW AWAY FROM ROAD FILL AS DIRECTED BY THE CONTRACTING OFFICER. DIKE SHALL HAVE 1' WIDE TOP W/ 1½:1 SIDE SLOPES.

FOR CULVERT PAVING DETAILS SEE SH. 16A

2760.1
2766.1

DELETED 1 1/4:1 FILL AND CONSTRUCTED BINWALL
EXTENDED 20'
PI 2682+18.73
N 46° 27' 00" E
2683
2680
2680-80
2683.30
2683.50
N 14° 12' 00" E

TS 2678+97.29
SC 2680+97.29

Δ = 32° 15' 00"
D = 7° 30'
Ts = 321.44'
Ca = 17° 15' 00"
Lc = 230.00'
Sa = 7° 30'
Ls = 200.00'
S = 8%

NOTE: See Sheets 3 and 3T for Legend

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300

2669+25 FLARE
8.75' LT.
2671+12.5 FLARE
587.5' LT.
2677+00 FLARE
2679+25 FLARE
B3
1600' LT.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV
SHOULDERS

W=26' Rt
W=15' Lt
Z=7' Lt
W=15' Lt
Z=7' Lt
ALL ROCK FILL, SLOPE 1¼:1 LT.
W=30' Rt
W=15' Lt

2820
2810
2800
2790
2780
2770
2760
2750
2740

SURVEY GROUND LINE
A1
-4.900 %
CLASS "A" RIPRAP OUTLET
600' V.C.
ESTIMATED ROCK LINE
2666+50
54" X 11.2' L.F. PIPE CULVERT CMP
SKEW NO. 80
B4
A2
V.P.I. 2677+00
2783.05
PROFILE GRADE
-3.141 %
REMOVED ROCK OVERHANG
2681'-6"
2681'-6"
C1
2676+00
36" X 90.7' PIPE CULVERT CMP
SKEW NO 120
RETAINING WALL LT FOR DETAILS SEE SHEETS 39, 40 & 41
B2

SILTY GRAVEL (ANGULAR) WITH BLOCKS TO 4 FEET AND SILTY TALUS WITH NUMEROUS ROCK OUTCROPS
MOSTLY ROCK OVERLAIN WITH 0'-7' SILTY GRAVEL, SILTY TALUS AND TALUS

2661 2665 2670 2675 2680 2683

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(2) ADDED ROCK-FILL BLANKET, (1) DELETED EXISTING GROUND LINE & ADJUSTED ROCK LINE.	71MAR 31	
B	(4) ADDED SKEW NO. ADDED DIKE & (3) REVISED GUARD RAIL. (1) ADDED SIGNS & GUIDE POSTS. (2) REVISED CULVERT & CULVERT LENGTH & ELEV.	71MAR 9	
A	(1) ADDED SURVEY GROUND LINE. (2) REVISED	70 JUL 13	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W F S | DR. BY: L D C | CK. BY: J C S

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2661 TO STA. 2683

SUBMITTED: CHIEF, DESIGN BRANCH
REVIEWED: CHIEF, RELOCATION SECTION
SUBMITTED: CHIEF, RELOCATION SECTION
APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 70 JUNE 26
RECOMMENDED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
SHEET | AS BUILT

PLAN / PROFILE
SURVEYED
PLOTTED
QUANTITIES CHECKED
R/W CHECKED
NOTE BOOK
NO.
BY
DATE

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	71	116

SEC. 36
T 35N R 29W

Δ = 9°00'45"
D = 2°00"
Ts = 300.80'
Ga = 6°00'45"
Lc = 300.62'
Sa = 1°30'
Ls = 150.00'
S = 4%

CRITICAL ENVIRONMENTAL CONTROL AREA

EQUATION

S.T. 2693+16.34 BK = S.T. 2694+83.15 AHD.

C.S. 2683+27.29
S.T. 2685+27.29
P.I. 2690+16.32
C.S. 2687+65.72
S.C. 2689+65.72
T.S. 2687+15.12
2686+90
2687+80
2690+00
C.S. 2691+66.34

W 46°27'00"E
N 37°26'15"E

DELETED BIN WALL & CONSTRUCTED 1½:1 FILL

RETAINING WALL LT. FOR DETAILS SEE SHEETS 39, 40 & 41

2719.3
2720.3
2692

R/W

2705+00
360'

2683 2685 2690 2695 2700 2705 2706

SCALE IN FEET
100 0 100 200 300

NOTE:
See Sheets 3 and 3T for Legend

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

W = 30' RT. TRANSITION Z = 7' LT. W = 25' RT. TRANSITION Z = 7' LT. W = 20' RT. W = 15' LT.

2695+75 FLARE
2701+25 LT. FLARE
Z = 7' LT. ALL ROCK FILL, 1½:1 SLOPE LT.

SURVEY GROUND LINE (A1)
RETAINING WALL LT. FOR DETAILS SEE SHEETS 39, 40 & 41
2686+05
2689+55
800' V.C.
2689+90
2690+46
2692+20
36"x72.9' PIPE CULVERT
V.P.I. 2690+00
2726.5
-3.141 %
PROFILE GRADE
-0.495 %
REMOVAL OF OVER BURDEN TO ROCK
ROCK OVERHANG (A2)
1000' V.C.
V.P.I. 2706+00
2719.41
MOSTLY ROCK OVERLAIN WITH 0'-7' GRAVEL (ANGULAR), SILTY TALUS AND TALUS

2810 2800 2790 2780 2770 2760 2750 2740 2730 2720 2710

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(1) DELETED EXISTING GROUND & ADJUSTED ROCK LINE.	71 MAR 31	
B	(6) CORRECTED BEGINING OF 7' SHLDR. (7) LENGTHENED BIN WALL GUARDRAIL (4) DELETED RETAINING WALL (5) ADDED ROCK FILL (1) ADDED GUIDE POST & SIGN (2) REVISED CULVERT (3) DELETED RETAINING WALL 20' TO LFT. & TERMINATED AT STA. 2706 TO RT.	71 MAR 9 70 JUL 13	
A	1.) ADDED SURVEY GROUND LINE. (2) EXTENDED		

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W. F. S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SUBMITTED: E. Standwall, CHIEF, DESIGN SECTION
REVIEWED: B. Clemenhagen
SUBMITTED: Jim M. Ward, CHIEF, RELOCATION SECTION
APPROVED FOR THE DISTRICT ENGINEER: Sydney L. Stenborn, CHIEF, ENGINEERING DIVISION — DATE: 70 JUNE 26
RECOMMENDED: Edwin Dunn, CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2683 TO STA. 2706

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

PLAN: SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT. OF WAY CHECKED, BY, DATE

PROFILE: COMPUTED, PLOTTED, NOTE BOOK, NO., GRADES CHECKED, N. NOTED, STRUCTURE NOTATIONS CHECKED, BY, DATE

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	72	116

REVISIONS

SYMBOL		DESCRIPTION	DATE	BY
B		(1) REVISED CULVERT LOCATION (2) ADDED STOCK-PILE ROAD APPROACH (3) ADDED CALLOUT.	70 JUL 16	
C		(1) ADDED SIGNS & GUIDE POSTS (2) DELETED GUARD-RAIL (3) ADDED REQUIRMENT TO STRIP TOPSOIL (4) ADDED ROCK FILL (5) ADDED SKEW NO.	71 MAR 9	
D		(1) DELETED EXISTING GROUND AND ADJUSTED ROCK LINE.	71 MAR 31	

PLAN — SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, PT. OF BGN CHECKED, NO., BY, DATE

FOR STOCKPILE LOCATION SEE SHEET 15T

FOR HAUL ROAD LOCATION SEE SHEETS 15T & 16T.

SEC. 36 T 34 N R 29 W (B3)

67-DD-3010

℄ STOCKPILE ROAD APPROACH

P.I. 2720+62.69

T.S. 2727+28.79

S.C. 2729+28.79

2591.5

R/W

2709 2712 2721 2723 2720 2725 2730 2732 2731 2710 2715 2706

2701.9 2703.1 2672.5 2674.0

180' 180' 100' 120' 100' 120' 100' 125' 125' 170' 200'

N 37° 26' 15" E

N 49° 42' 30" E

2617.2

STA. 2726+50 M.S.H. 37 STOCKPILE ROAD APPROACH, SEE SHEET 28

18" X 60' C.M.P.

(A2) (B1) (B2) (C1)

Δ = 12° 16' 15"
D = 2° 00'
Ts = 382.98'
Ca = 9° 16' 15"
Lc = 463.54'
Sa = 1° 30'
Ls = 150.00'
S = 4%

W1-4

T.S. 2716+79.71

S.C. 2718+29.71

C.S. 2722+93.25

S.T. 2724+43.25

(C3)

STATION 2722 TO 2732 – STRIP TOPSOIL

FOR INTERCEPTOR DITCH DETAIL SEE SH. 16A

NOTE: See Sheets 3 and 3T for Legend
See Sheet 48 for Boring Log.
See Sheet 15T for Haul Road

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET 100 0 100 200 300

GUARDRAIL
GUIDE POSTS W = 20' Rt
ROCK EXCAV
SHOULDERS

P.I. 2706+00 2719.41

1600' Lt

(C2) TRANSITION W=15' Rt W=20' Rt W=15' Lt

2:1 Lt 2:1 Lt 2:1 Lt

1000' V.C.

ALL ROCK FILL 1¼:1 SLOPE Lt

(C4) (A2)

2708+00 42"X75.7' Lt. PIPE C CULVERT CLASS A RIPRAP OUTLET PAVED INLET

SURVEY GROUND LINE (A1)

EXPLORATION

-4.070 %

ESTIMATED ROCK LINE

2716+00 24"X71.4' PIPE CULVERT CLASS B RIPRAP OUTLET

PROFILE GRADE

400' V.C.

P.I. 2722+00 2652.29

2725+50 LT. FLARE

425' Lt

INSTALLED 60' OF 18" C.M.P. 2726+51 ON ACCESS ROAD

-4.970 %

2724+90 72"X 293' PIPE CULVERT SKEW NO. 37 CLASS C RIPRAP INLET CLASS A RIPRAP OUTLET PAVED RIPRAP INLET

(B1) (C5) (D1)

EXPLORATION

2730 INTERCEPTOR DITCH

2710 2700 2690 2680 2670 2660 2650 2640 2630 2620 2610 2600

2706 2710 2715 2720 2725

SANDY SILTY GRAVEL WITH COBBLES AND BOULDERS, DENSE TO VERY DENSE, (GLACIAL TILL) OVERLAIN BY SILTY SANDY GRAVEL AND SOME SILT, BOTH WITH NUMEROUS ANGULAR BLOCKS TO 10"

ROCK

ROCK OVERLAIN WITH 0'-2' SILTY SANDY GRAVEL

FOUNDATION EXC.

TERRACE DEPOSITS: SILTY SAND & SAND WITH SCATTERED BLOCKS, LOOSE, OVERLYING DENSE TO VERY DENSE, SILTY GRAVEL & GRAVEL WITH LARGE COBBLES & BOULDERS. (GLACIAL OUTWASH)

PROFILE — SURVEYED, PLOTTED, DRAWING CHECKED, B. M.: NOTED, STRUCTURE NOTATIONS CHECKED, SITE BOOK, NO., BY, DATE

SYMBOL		DESCRIPTION	DATE	APPROVAL
A		(1) ADDED SURVEY GROUND LINE. (2) DELETED RETAINING WALL & REF. NOTE IN PLAN & PROFILE.	70 JUL 12	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. DR. BY: L.D.C. CK. BY: J.C.S.

SUBMITTED: Chief, Design Branch

REVIEWED: Chief, Relocation Section

SUBMITTED: Chief, Engineering Division

APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division

RECOMMENDED: Chief, Design Branch

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2706 TO STA. 2732

DATE: 70 JUNE 26

SCALE: AS SHOWN SPEC. NO.

DRAWING NUMBER

SHEET AS BUILT

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	73	116

FOR HAUL ROAD LOCATION SEE SHEETS 15T & 16T

CLEARING NOTE:

CLEAR AREA IN THE SUTTON CREEK DRAINAGE, EAST OF A NORTH - SOUTH LINE RUNNING SOUTH FROM STA. 2747+50, TO AN ELEVATION OF 2462.0 OR HIGHER AS REQUIRED FOR CONSTRUCTION OF THE STABILITY BERM AND/OR ROADWAY.

STA. 2758+00 M S H 37
SUTTON CREEK ROAD APPROACH
U. S. F. S. 619
SEE SHEET NO. 27

NOTE: See Sheets 3 and 3T for Legend
See Sheets 49 50 & 51 for Boring Logs.
See Sheet 16T for Haul Road.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

STATION 2745 TO 2758, INCLUDING THE SUTTON CREEK ROAD APPROACH
OPPOSITE STATIONS 2754 TO 2758 - STRIP TOPSOIL

SCALE IN FEET

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

TERRACE DEPOSITS:
SILT, SILTY SAND - SANDY SILT SURFACE W/SOME GRAVEL, LOOSE - MED., OVER DENSE TO VERY DENSE, SANDY GRAVEL, SANDY SILTY GRAVEL W/ COBBLES & BOULDERS (GLACIAL OUTWASH). SCATTERED ROCK OUTCROPS OCCUR ON BOTH SIDES OF SUTTON CREEK.

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	TOPSOIL (5) DELETED INCORRECT REF. (6) ADDED MAX. POOL LINE. SLOPE (3) ADDED REFERENCE (4) ADDED REQUIREMENT TO STRIP (1) ADDED SIGNS & GUIDE POSTS (2) DELETED 1¼:1 ROCK FILL (7) DELETED EXIST. GROUND LINE (8) ADDED ROCK FILL PROTECTION	71 MAR 9	
	CHANGED ℄ HWY. FROM BROKEN TO SOLID LINE.	70 JUL 13	
A	(1) ADDED SURVEY GROUND LINE (2) IN PLAN,		

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. DR. BY: L.D.C. CK. BY: J.C.S.

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2732 TO STA. 2758

SUBMITTED: Chief, Relocation Section
APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division
DATE: 70 JUNE 26
RECOMMENDED: Chief, Design Section
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
SHEET
AS BUILT

CONTRACT DACW67-71-C-0071

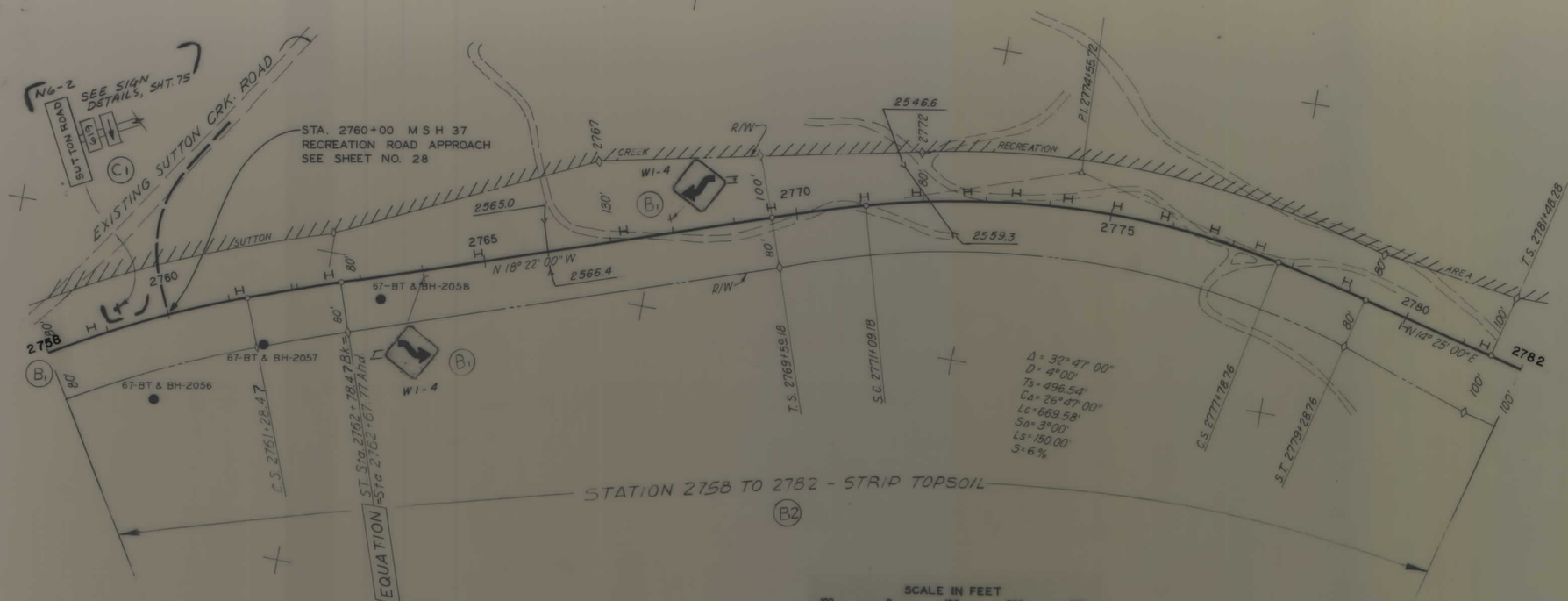
MICROFILMED DEC '76

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

R/W NO	SHEET NO	TOTAL SHEETS
F145	74	116

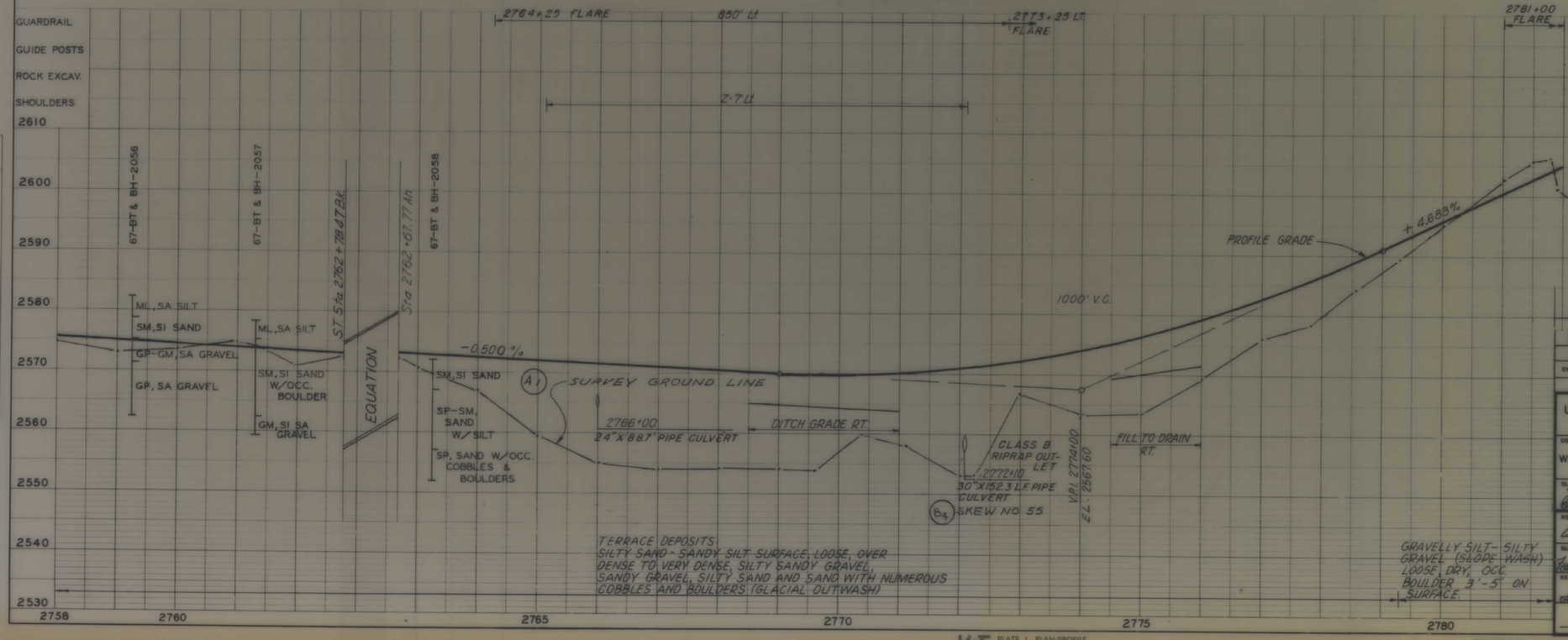
PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, NOTE BOOK, ALIGNMENT CHECKED, NO., PT. OF WAY CHECKED, BY, DATE

PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, NOTE BOOK, NO., STRUCTURE NOTES CHECKED, BY, DATE



NOTE: See Sheets 3 and 3T for Legend.
See Sheet 51 for Boring Log.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.



SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(1) ADDED SIGNS.	74 MAY 31	
B	(3) DELETED EXIST. GROUND LINE. (4) ADDED BREW NO (1) ADDED GUIDE POSTS & SIGNS, & (2) REQUIREMT TO STRIP TOPSL	71 MAR 9	BHK
A	(1) ADDED SURVEY GROUND LINE.	70 JUL. 13	BHK

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: L. Vandivall, CHIEF, DESIGN BRANCH
REVIEWED: B. Crosslogle
SUBMITTED: Ted McKevett, CHIEF, RELOCATION SECTION
RECOMMENDED: Chief, Design Branch
APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinborn, CHIEF, ENGINEERING DIVISION, DATE: 70-JUNE 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2758 TO STA. 2782

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
SHEET | AS BUILT

K•E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	75	116

SEC. 25
T 35 N R 29 W

N

Δ = 30° 51' 15"
D = 5° 00'
Ts = 416.60'
Ca = 20° 51' 15"
Lc = 417.08'
Sa = 5° 00'
Ls = 200.00'
S = 7%

Δ = 21° 44' 15"
D = 2° 00'
Ts = 625.11'
Ca = 18° 44' 15"
Lc = 936.87'
Sa = 1° 30'
Ls = 150.00'
S = 4%

B1
2782
100'
H
H 14° 25' 00" E
2785
2609.4
2613.1
P.I. 2785+64.88
S.C. 2783+48.28
S.T. 2787+65.36
S.T. 2789+65.36
2623.0
CREEK
67-BT & BH-2059
67-BT & BH-2060
2790
67-BT & BH-2061
N 16° 26' 15" W
2624.5
T.S. 2792+20.66
S.C. 2793+70.66
2795
R/W
100'
SUTTON
RECREATION
AREA
W1-4
B1
2609.3
2800
2613.9
C.S. 2803+07.53
2804
N 38° 10' 30" W
P.I. 2798+45.77

FOR CULVERT
PAVING IMPROVEMENT
SEE SH. 25 A.

FOR IMPERVIOUS DITCH
TYPICAL SECTIONS SEE SH. 25A.

STATION 2782 TO 2804 - STRIP TOPSOIL

B2

NOTE: See Sheets 3 and 3T for Legend
See Sheets 51 & 52 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., DATE, BY, ALIGNMENT CHECKED, R/W CHECKED

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., DATE, BY, PROFILE CHECKED, SI. INT. NOTED, STRUCTURE NOTATIONS CHECKED

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

600' LT.
2784+25 FLARE
B3
2787+50 FLARE
2787+75 FLARE
2798+50 LT. FLARE
2794+75 LT. FLARE
2791+75 FLARE
2796+25 FLARE
2801+25 FLARE
2802+00 FLARE
2' - 7' Lt.

2650
2640
2630
2620
2610
2600
2590
2580
2570

V.P.I. 2787+50
2630.82
67-BT & BH-2059
67-BT & BH-2060
67-BT & BH-2061

GM, SA SI GRAVEL W/COBBLES
ML, GRAVELLY SILT W/COBBLES
PROFILE GRADE
-0.300%
GM, SANDY SILTY GRAVEL W/NUM COBBLES, OCC. BOULDERS
SURVEY GROUND LINE (A1)
B4

ML, SA GRAV. SILT
GM, SA SI GRAVEL W/NUM COBBLES & BOULDERS
GM, SA SI GRAVEL W/NUM COBBLES & BOULDERS

+4.683%
600' V.C.
B4
2782+50
30" X 83.6' PIPE CULVERT
CLASS A RIPRAP OUTLET
2785+80
42" X 152.3' PIPE CULVERT
SKEW NO. 60
B5
2791+10
36" X 102.6' PIPE CULVERT
CLASS B RIPRAP OUTLET
2799+35
24" X 130' L.F. PIPE CULVERT

TERRACE DEPOSITS
GRAVELLY SILT - SANDY SILTY GRAVEL (SLOPE WASH) W/NUM. COBBLES & BOULDERS, OVER DENSE TO VERY DENSE SANDY SILTY GRAVEL, SILTS, SAND & GRAVEL (GLACIAL OUTWASH) WITH COBBLES AND BOULDERS. OCC. BOULDERS 3' - 5' ON SURFACE

TERRACE DEPOSITS
2' - 3' SANDY SILT - SILTY SAND, SANDY SILTY GRAVEL SURFACE OVER DENSE TO VERY DENSE, SILTS, SAND AND GRAVEL (GLACIAL OUTWASH) WITH COBBLES AND BOULDERS

2782 2785 2790 2795 2800 2804

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	EXISTING GROUND LINE. (5) ADDED SKEW NO. & (3) ADDED GUARD RAIL LENGTH. (4) DELETED (1) ADDED SIGNS & GUIDE POSTS, & (2) REQUIREMT TO STRIP TOPSOIL	71 MAR 9	CHK'd
A	(1) ADDED SURVEY GROUND LINE.	70 JUL 13	CHK'd

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SUBMITTED: Chief, Design Branch

REVIEWED: Chief, Design Section

SUBMITTED: Chief, Relocation Section

RECOMMENDED: Chief, Design Section

APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinborn, Chief, Engineering Division — DATE: 70 JUNE 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2782 TO STA. 2804

SCALE: AS SHOWN | SPEC. NO.

DRAWING NUMBER

SHEET 1

AS BUILT

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	76	116

FOR STOCKPILE AND PAVING - PLANT AREA, SEE SHEET 19T. ROAD APPROACH TO AREA SHALL BE LOCATED AT STA. 2803+50 UNLESS OTHERWISE APPROVED BY THE CONTRACTING OFFICER.

SEC. 25
T 35 N R 29 W

SEC. 24
T 35 N R 29 W

EQUATION
S.T. 2804+53.58 BK =
2797+42.39 AH

SULTAN CREEK

RECREATION AREA

R/W

2607.6

P.O.T. 2801+24.11

1367.73

2-47°27'21"

N. 38° 10' 30" W.

2616.1

2810+03.77

2818

2650.3

N. 19° 58' 00" W.

2621.9

2613.7

1158.02

W1-2

STATION 2804 TO 2810 - STRIP TOPSOIL

APPROX. ¼ SEC. LINE

Δ	18°12'30"
D	3°00'
T_a	406.18'
C_a	12°12'30"
L_c	406.94'
S_a	3°00'
L_s	200.00'
S	5%

T.S. 2805+97.59
S.C. 2807+97.59
C.S. 2812+04.53
S.T. 2814+04.53
P.S.C. 2815+07.06
P.S.C. 2817+07.06
STA. 2818+50
STA. 2819+50
(L 2800')

SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATED PRIOR TO BEGINNING ROADWAY EXCAVATION.

NOTE: See Sheets 3 and 3T for Legend.

SCALE IN FEET
100 0 100 200

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, GRADES CHECKED, R. N.S. NOTED, STRUCTURE INSTATION CHKD., NOTE BOOK, NO., BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

7000' LT.

W=25' RT.
W=20' LT.
TRANSITION
Z=7' LT.
SURVEY GROUND LINE
2000' V.C.
+5.710 %
2817+90
30"x73.3' PIPE CULVERT
RF. & RESLOPED
2813+30
2815+00
REMOVED ROCK OVERHANG
ESTIMATED ROCK LINE
MOSTLY ROCK WITH 0'-3' ANGULAR TALUS ON BENCHES
V.P.I. 2813+00
2821.08
PROFILE GRADE
-0.300 %
SURVEY GROUND LINE
2798+94
42" x 134' PIPE CULVERT (CLASS A RIPRAP OUTLET)
2810+10
30" x 126' PIPE CULVERT (CLASS B RIPRAP OUTLET)
EQUATION
S.T. 2804+53.58 BK =
S.T. 2797+42.39 AH

TERRACE DEPOSITS:
2'-3' SANDY SILT, SILTY SAND SURFACE WITH GRAVEL (ROUNDED), WITH OCC BLOCK TO 6', LOOSE, OVER DENSE TO VERY DENSE SANDY GRAVEL, SILTY SAND AND SAND, WITH COBBLES AND BOULDERS (GLACIAL OUTWASH).

2680 2670 2660 2650 2640 2630 2620 2610 2600

2804 2797 2800 2805 2810 2815 2820

SYMBOL	DESCRIPTION	DATE	APPROVAL
C	(2) RELOCATED PIPE CULVERT IN PLAN & PROFILE. (1) REVISED ALIGNMENT FROM STA. 2815 TO 2820, AND	71 SEP 14	
B	(5) DELETED EXIST. GRD. LINE & ADJSTD ROCK LINE. (3) REQUIREMENT TO STRIP TOPSOIL. (4) DELETED GUARDRAIL ADDED (1) SIGN & GUIDE POSTS, (2) STOCKPILE & PAVING PLANT AREA	71 MAR 9	
A	(1) ADDED SURVEY GROUND LINE.	70 JUL 13	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SUBMITTED: Chief, Design Branch

REVIEWED: Chief, Engineering Division

SUBMITTED: Chief, Relocation Section

RECOMMENDED: Chief, Design Branch

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2804 TO STA. 2820

APPROVED FOR THE DISTRICT ENGINEER: Sydney Stainbrook — DATE: 70 JUN 26

SCALE: AS SHOWN — SPEC. NO.

DRAWING NUMBER: E63-31-115

SHEET 76 — AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	77	116

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R.M.S. PLOTTED, PT. OF INT. CHECKED, NOTE BOOK, NO. — BY, DATE

SEC. 23 / SEC. 24

SEC. 24
T.35N. R.29W.

CRITICAL ENVIRONMENTAL CONTROL AREA

P.I. 2823+01.66

STA. 2824+50

STA. 2826+50

R/W

N. 19° 58' 00" W.

2675.5

2677.9

2760

STA. 2822+40

STA. 2824+45

STA. 2827+99.66

P.T. 2829+99.66

2711.5

2712.9

EXISTING ROAD MAY BE USED AS AN ACCESS ROAD

W1-2

EXISTING ROAD

67-BT-2096

67-BT-2095

N. 31° 44' 15" E.

BEAR TRAP CREEK

P.S. 2841+43.56

P.S.C. 2842+93.56

2735.0

2737.9

6' MIN. ROCKFILL BLANKET TO BE PLACED ON NATURAL GROUND SURFACE BENEATH FILL, BETWEEN STA. 2840+85 AND STA. 2842+35. SEE TYPICAL SECTION THIS SHEET.

4:1 SLOPE FILL RT.

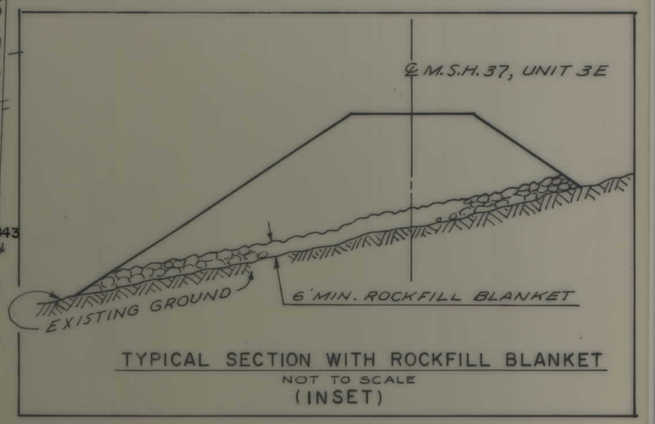
STA. 2841+00

STA. 2842+50

$\Delta = 51°42'15"$ RT.
$D = 04°00'$
$R = 1432.39'$
$T = 794.60'$
$L = 1032.60'$
$\Delta s = 04°00'$
$Ls = 200'$
$S = 6.00\%$

SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATED PRIOR TO BEGINNING ROADWAY EXCAVATION.

SCALE IN FEET



TYPICAL SECTION WITH ROCKFILL BLANKET
NOT TO SCALE
(INSET)

NOTE: SEE SHEETS 3 & 3T FOR LEGEND.
SEE SHEET 52 FOR BORING LOG.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R.M.S. PLOTTED, NOTE BOOK, NO. — BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

2300' LT.

W = 20' LT. | Z = 7' LT. | W = 25' RT. | TRANSITION | W = 20' RT. 2750 | Z = 7' LT. | Z = 7' LT. | Z = 7' LT.

GROUND LINE (DESIGN)
ESTIMATED ROCK LINE
P R O F I L E G R A D E
+4.700%
+5.710%
600' V.C.
K.P.I. 2827+00
EL. 2700.97

2822+90
30"x93.7' PIPE CULVERT

2830+90
30"x71.6' PIPE CULVERT

REMOVED TALUS TO BEDROCK

MOSTLY ROCK WITH 0'-5' OF ANGULAR TALUS ON BENCHES.

TALUS GM, SI SA GRAVEL W/COBS & BROKEN ROCK. REFUSAL ON BEDROCK

67-BT-2095

67-BT-2096

GM, SI SA GRAVEL W/COBS & BLDRS. REFUSAL ON BEDROCK

2841+38
60"x136.5' PIPE CULVERT
SKEW No 83 BEAR TRAP CRK.

PAVED INLET
CLASS "C" RIPRAP INLET
CLASS "A" RIPRAP OUTLET

SILTY TALUS (ANGULAR) WITH NUMEROUS BLOCKS (ANGULAR) AVERAGE 2', MAX. 25' AND SILTY SANDY GRAVEL (SLOPE WASH) WITH NUMEROUS COBBLES & BOULDERS.

2820 2825 2830 2835 2840 2843

2780 2770 2760 2750 2740

2740 2730 2720 2710 2700 2690 2680 2670

SYMBOL	DESCRIPTION	DATE
	REVISIONS	

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: G. TERUI, T. NEHL
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: G. TERUI
REVIEWED:
PREPARED:
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN AND PROFILE
STA. 2820+00 TO STA. 2843+00

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-115 | DATE: 71 SEP. 14
SHEET 20.1 | AS BUILT

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

SUPERSEDES SHEET 20

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	78	116

PLAN — SURVEYED / PLOTTED / ALIGNMENT CHECKED / GRADES CHECKED / ST. RT. NOTED / RT. OF WAY CHECKED — NOTE BOOK — NO. — BY — DATE

SLOPES TO BE 1½ : 1, EXCEPT OVERSTEEPEN, TO CATCH NO MORE THAN 250' LEFT OF ℄.

N

EXISTING ROAD

Δ = 29°41'15" LT.
D = 03°30'
R = 1,637.02'
T = 509.00'
L = 698.21'
Δs = 02°37'30"
Ls = 150'
S = 6%

Δ = 19°21'30" LT.
D = 03°30'
R = 1,637.02'
T = 354.30'
L = 403.10'
Δs = 02°37'30"
Ls = 150'
S = 6%

R/W

2845 2843 120' 300' 2755.0 N. 31°44'45" E. 2757.5

TURNOUT-SEE DETAILS - SH. 31

P.C.S. 2849+91.77

P.T. 2851+41.77 170'

2850 2788.8

P.S. 2856+06.06 67-BT-2093

P.S.C. 2857+56.06

2855 N. 02°03'00" E. 2790.2 120' 100'

STA. 2854+90

P.I. 2846+52.56

2808.7 2860 2812.8 EL. 2960

P.I. 2859+60.36

STA. 2861+50 P.C.S. 2861+59.16

67-BT-2094 +09.16

P.T. 2863+300' STA. 2864+00

2834.3 2865 2867 N. 17°18'30" W. 100' 2835.9

STA. 2866+00

H1-4

SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATED PRIOR TO BEGINNING ROADWAY EXCAVATION

NOTE: SEE SHEETS 3 & 3T FOR LEGEND.
SEE SHEET 52 FOR BORING LOG.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300

PROFILE — SURVEYED / PLOTTED / GRADES CHECKED / ST. RT. NOTED / STRUCTURE SCATTER DIAGS. — NOTE BOOK — NO. — BY — DATE

GUARD RAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDERS

2400' LEFT FLARED

PROFILE GRADE +4.700%

1¼:1 SLOPE LT. ROCKFILL

Z = 7' LT.

GROUND LINE (DESIGN)

2852+85 36"x74' PIPE CULVERT

2844+90 24"x84' PIPE CULVERT

ESTIMATED ROCK LINE

REMOVE TALUS TO BEDROCK

SILTY SANDY GRAVEL AND SILTY GRAVEL W/COBBLES & BLOCKS AVERAGE 2', MAX. 25'

SILT, SILTY SANDY GRAVEL WITH COBBLES AND BOULDERS. SILTY TALUS WITH SUB-ANGULAR BLOCKS, 6'-8', OCC. TO 10' AND TALUS, BLOCKY TO ANGULAR, 1'-4' AVERAGE WITH SMALL AREAS OF ROCK-OUTCROP.

FLARED

PROFILE GRADE +4.700%

1¼:1 SLOPE LT. ROCKFILL

2865+00 24"x86.6' PIPE CULVERT

2859+90 36"x80' PIPE CULVERT

GROUND LINE (DESIGN)

ESTIMATED ROCK LINE

2830 2820 2810 2800 2790 2780 2770 2760 2750 2740

2880 2870 2860 2850 2840

2843 2845 2850 2855 2860 2865

SYMBOL	DESCRIPTION	DATE
	REVISIONS	

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: G. TERUI, T. NEHL
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: G. TERUI
REVIEWED: B. Clarence Kuyper

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN AND PROFILE
STA. 2843+00 TO STA. 2867+00

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-115 | DATE: 71 SEP. 14
SHEET 21.1 | AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071 SUPERSEDES SHEET 21 MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEET
F145	79	116

CRITICAL ENVIRONMENTAL CONTROL AREA

N

P.I. 2876+68.91

TURNOUT SEE SHEET 31 FOR DETAILS

2877+50

2879+50

PLACE GUARDRAIL ANCHOR POST AP-1 AT THIS LOCATION. FACE OF RAIL SHOULD BE EVEN WITH EDGE OF TURNOUT PAVEMENT.

Δ = 11°18'00" LT.
D = 04°00'
R = 1,432.39'
T = 216.77'
L = 132.50'
Δs = 03°00'
Ls = 150'
S = 6%

EQUATION

67-BT-2090

P.T. 2887+90.85 BK. = 2888+43.67 AHD.

P.S. 2883+58.35

220'

2884+24

STA. 2885+00

P.S.C. 2885+08.35

PC.S. 2886+40.85

R/W

2875

2880

100'

N. 41°32'15"E.

2885

A1

80'

2890

N. 30°34'15"E.

2868+00 STA

2.1%

2870

N. 17°18'30"W.

2867

100'

R/W

2872+67.35

P.S.C.

P.S. 2870+67.35

PC.S. 2879+77.80

P.T. 2881+77.80

170'

2884+10

190'

P.I. 2885+75.12

Δ = 59°10'45" RT.
D = 06°30'
R = 881.47'
T = 601.56'
L = 710.45'
Δs = 06°30'
Ls = 200'
S = 8%

SCALE IN FEET
100 0 100 200 300

NOTE: SEE SHEETS 3 AND 3T FOR LEGEND. SEE SHEET 52 FOR BORING LOG.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R.I.D. PLOTTED, STRUCTURE NOTATIONS CK'KD, NOTE BOOK, NO., BY, DATE

GUARD RAIL: 425' LT. — 2871+00 FLARE — 2876+50 FLARE — 1080' LT.
GUIDE POSTS
ROCK EXCAV.: W = 15' LT. — W = 20' LT. — TRANSITION — W = 15' LT. — W = 20' RT. — W = 20' RT.
SHOULDERS: Z = 7' LT. — Z = 7' LT.
ROCK FILL SLOPE LT. 1¼:1

V.P.I. 2870+96.20
EL. 2907.61'

+4.700%

PROFILE GRADE

-4.302%

1400' V.C.

GROUND LINE (DESIGN)

2870
2860
2850
2900
2890
2880
2870

-4.302% PROFILE GRADE

ESTIMATED ROCK LINE

GROUND LINE (DESIGN)

2884+10
36"X84.4' PIPE CULVERT

REMOVE TALUS TO BED ROCK

EQUATION

2887+90.85 BK. = 2888+43.67 AHD.

2850
2840
2820
2810

-4.302%

ALL ROCK WITH SEVERAL AREAS OF TALUS 2'-5' ANGULAR

SILT, GRAVELLY SILT & SILTY SANDY GRAVEL, NUMEROUS COBBLES & BOULDERS, AND SILTY TALUS WITH ISOLATED ROCK OUTCROPS

2867 2870 2875 2880 2885 2890

2880
2870
2860
2850

SYMBOL	DESCRIPTION	DATE	
A	(1) CHANGED "P.C.S." TO "P.S.C." AT STATION 2885+08.35	78MAY24	KKU

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: G. TERUI, T. NEHL
DRAWN BY: W. VON BESCHWITZ
CHECKED BY: G. TERUI
REVIEWED: B. Thomas Hogan
PREPARED: Paul Hansen
CHIEF, CIVIL DESIGN SECTION
SUBMITTED: Sidney Knutson
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN AND PROFILE
STA. 2867+00 TO STA. 2890+00

SCALE: AS SHOWN — SPEC. NO
DRAWING NUMBER: E-53-31-115 — DATE: 71 SEP. 14
SHEET 22.1 — AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071 SUPERSEDES SHEET 22

MICROFILMED MAY '78

R/W NO	SHEET NO	TOTAL SHEETS
F145	80	116

CRITICAL ENVIRONMENTAL CONTROL AREA

$\Delta = 17°27'00"$ LT.
$D = 4°00'$
$T_S = 294.92'$
$C_A = 11°27'00"$
$L_C = 286.25$
$S_\Delta = 3°00'$
$L_S = 150.00'$
$S = 6\%$

T.S. 2891+05.26
S.C. 2892+55.26
C.S. 2895+41.51
S.T. 2896+91.51
2900+00
P.I. 2903+21.34
2165.1
2167.6
67-BT-2091
67-BT-2792
2818.4
2890
N. 30°34'15" E.
2819.7
2794.2
2796.9
P.I. 2894+00.18
N. 13°07'15" E.
2895
2894
2909
2905
2910
2912
N. 46°15'30" E.
EL 2880
EL 2980
S.C. 2901+36.75
STA. 2901+93
T.S. 2899+36.75
STA. 2899+87
C.S. 2904+89.04
STA. 2902+00
S.T. 2906+89.04
STA. 2907+00
P.C. 2909+07.74
$\Delta = 33°08'15"$ RT.
$D = 6°00'00"$
$T_S = 384.59'$
$C_A = 21°08'15"$
$L_C = 352.29'$
$S_\Delta = 6°00'00"$
$L_S = 200.00'$
$S = 8\%$
SCALE EXISTING GROUND SLOPE FROM TOP OF CUT TO THE ELEVATION INDICATION PRIOR TO BEGINNING ROADWAY EXCAVATION.
CONSTRUCT 3' HIGH BY 50' LONG DIKE TO DIVERT FLOW AWAY FROM ROAD FILL AS DIRECTED BY THE CONTRACTING OFFICER. DIKE SHALL HAVE 1' WIDE TOP WITH 1½:1 SIDE SLOPES AND SHALL BE CONSTRUCTED OF ROCK FILL. (C4)
SLOPE VARIES
1½:1
450' R/W
300
240'
150'
110'
80'
100'
2901
2893.00 24' LT. SPINNER PT.
W1-4
W1-2
R/W
N

NOTE: See Sheets 3 and 3T for Legend
See Sheets 52 & 53 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET 0 100 200 300

GUARDRAIL
GUIDE POSTS
ROCK EXCAV
SHOULDERS
W=20' Rt
W=30' Rt
Z=7' Lt
TRANSITION
W=15' Lt
OMITTED
1:1 BACK SLOPE Rt
2200' Lt
2820
2840
2830
2810
2800
2790
2780
2770
2740
2730
2890
2895
2900
2905
2910
2912

EXISTING GROUND SURFACE (DESIGN)
ESTIMATED ROCK LINE
ALIGNMENT CHANGE
PROFILE GRADE
SURVEY GROUND LINE (A1)
PAVED INLET
289+100 24"X13' PIPE CULVERT
PAVED INLET CLASS "B" RIPRAP INLET CLASS "A" RIPRAP OUTLET
289+75 24"X82.5' PIPE CULVERT SKEW NO. 65
PAVED INLET CLASS "B" RIPRAP OUTLET 2896+75 24" X 90.5' PIPE CULVERT (C5)
2903+60 24"x84.5' PIPE CULVERT
-4.302%
REMOVED TALUS TO BEDROCK
SILT, GRAVELLY SILT & SILTY SANDY GRAVEL W/COBBLES AND BOULDERS, AND SILTY TALUS WITH ISOLATED ROCK OUTCROPS.
TALUS, SILTY GRAVEL & SILTY TALUS, OCC. ROUNDED BLOCKS 25'
MOSTLY ROCK WITH NUMEROUS AREAS OF SILTY TALUS AND TALUS 6" TO 8' ANGULAR

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	(3) DELETED EXISTING GROUND SURFACE (DESIGN) (1) REVISED ALIGNMENT (2) REVISED EXIST. GROUND & ROCK LINE	71 MAR 31	
C	(3) ADDED CULVERT AT 2896+75 (4) REVISED NOTE (1) ADDED GUIDE POSTS & SIGNS. (2) REVISED GUARDRAIL	71 MAR 2	
B	TO ESTB. (1) ADDITIONAL SURVEY GRD LINE LOCATED, FROM STA. 2907	70 AUG 28	
A	2893+00 ENVD. R/W LIMITS (1) ADDED SURVEY GRD. LINE, (2) ADDED SPINNER AT STA	70 JUL 13	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

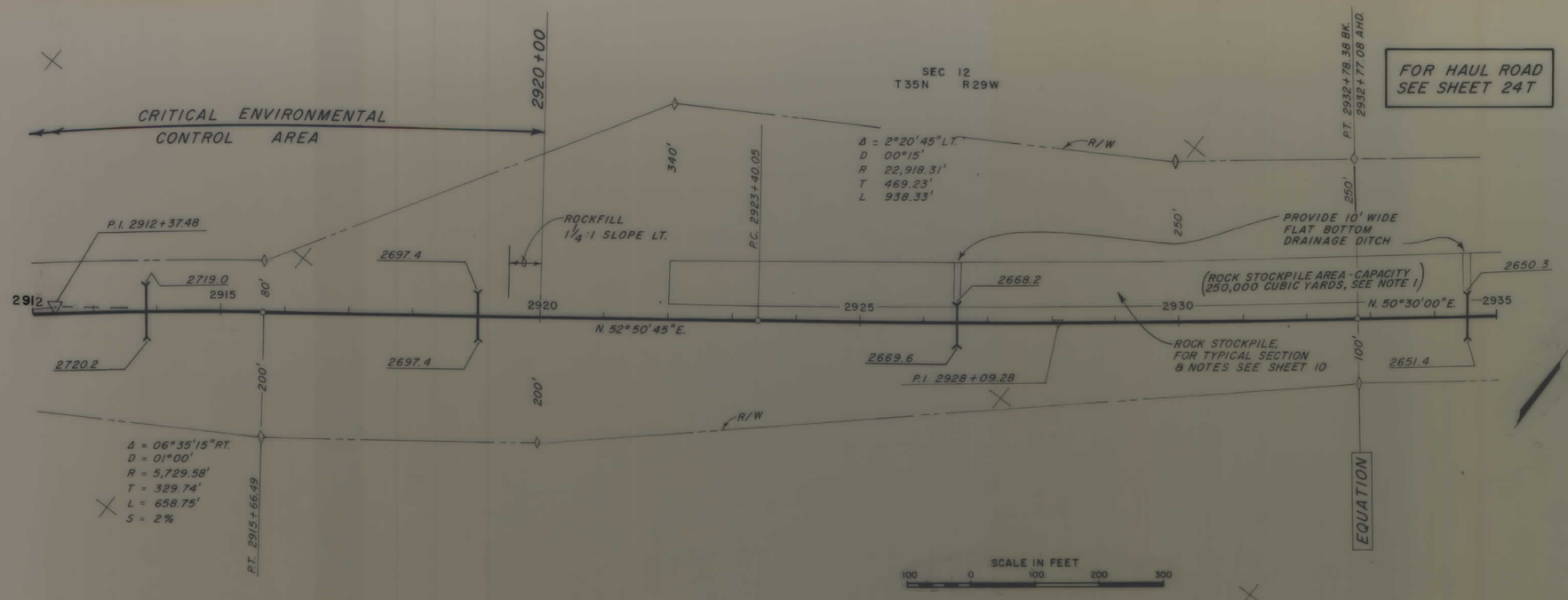
SUBMITTED: L. Bandrowski
REVIEWED: B. Bowlegs
SUBMITTED: for M. Kent, CHIEF, DESIGN SECTION
RECOMMENDED: CHIEF, ENGINEERING DIVISION
APPROVED FOR THE DISTRICT ENGINEER: Sydney J. Steinborn, CHIEF, ENGINEERING DIVISION
DATE: 70 JUNE 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2890 TO STA. 2912

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
SHEET | AS BUILT

PLAN: SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, QUANTITIES CHECKED, NO., STRUCTURE NOTATNS CHKD, DATE, BY
FILE: SURVEYED, PLOTTED, NOTE BOOK, QUANTITIES CHECKED, NO., STRUCTURE NOTATNS CHKD, DATE, BY

R/W NO	SHEET NO	TOTAL SHEETS
F 145	81	116



ROCK STOCKPILE (SEE NOTE 1)

PROFILE

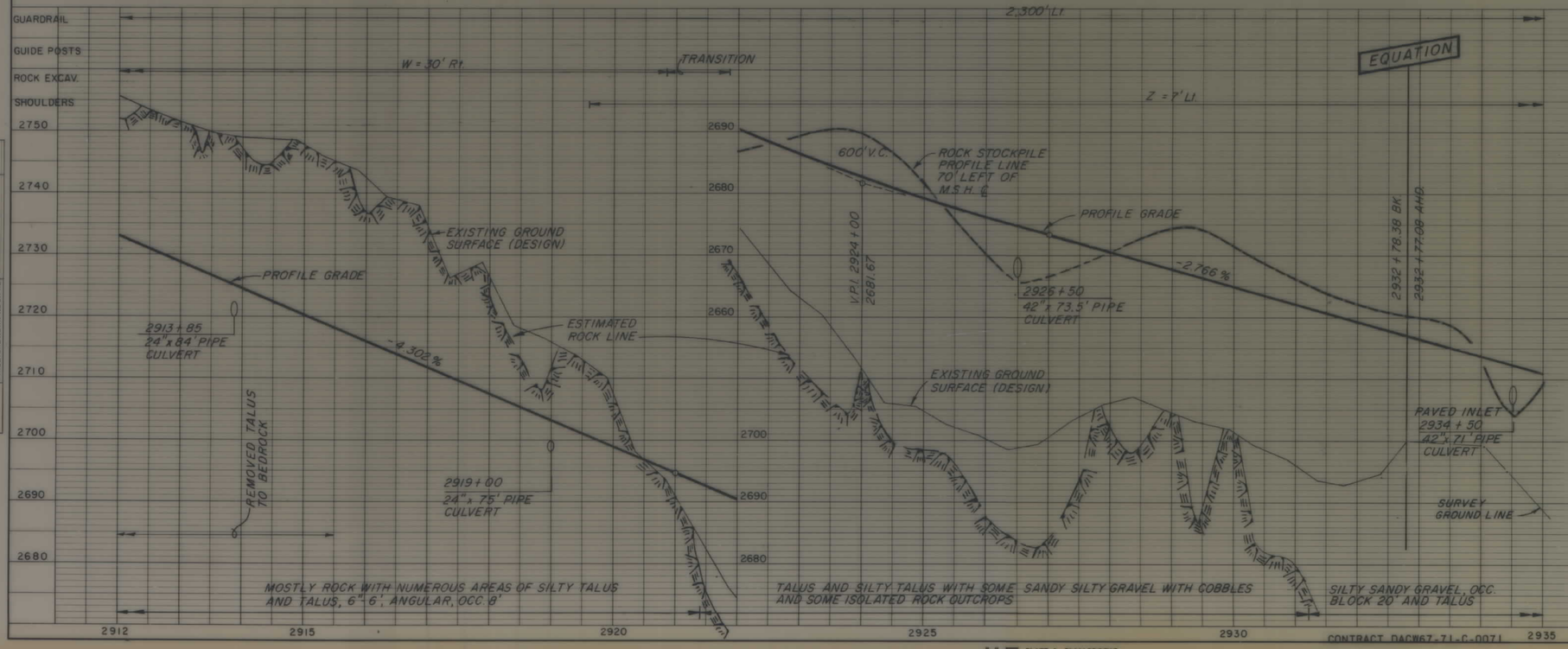
HIGHWAY STATION	ELEVATION POINT "A"
2922+00	2686.5
2923+70	2690.5
2926+50	CULVERT INVERT MINUS 0.5 FT
2929+00	2674.5
2931+70	2663.0
2933+50	2659.0
2934+50	CULVERT INVERT MINUS 0.5 FT
2935+50	2656.5
2936+00	2645.0

Note: (1) This rock stockpile area shall be used only to stockpile rock in excess of that required for the two stockpiles south of Sutton Creek (Station 2594 to 2602 and Station 2715 to 2720) and the surfacing stockpile Station 2799 to 2810.

NOTE: See Sheet 3 and 3T for Legend
See Sheet 24T for Haul Road

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — DRAWN, TRACED, PLOTTED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE



PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, ALIGNMENT CHECKED, STRUCTURE NOTATNS CHKD, NOTE BOOK, NO., BY, DATE

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: OKURA
DRAWN BY: KERFOOT, LALIKOS
CHECKED BY: CLEMENHAGEN
REVIEWED: B Clemenhagen

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2912 TO STA. 2935

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-115
SHEET 24
DATE: 71 MAR 31
AS BUILT

CONTRACT DACW67-71-C-0071

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

THIS SHEET SUPERSEDES DWG. E 53-31-115 SHEET 24 DATED 70 JUNE 26

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	82	116

PLAN — SURVEYED: PLOTTED: ALIGNMENT CHECKED: RT. OF WAY CHECKED: NOTE BOOK: NO.: DATE: BY:

SEC. 12 T 35 N R 29 W

STA. 2941+00 (D2) (C4) — EQUATION — STA. 2946+00

EL. 2425 — EL. 2462

ROCK-FILL PROTECTION FOR EXISTING GROUND SEE SHEET 30 (C4)

STA. 2952+50 — APPROX ¼ SEC. LINE — R 29 W / R 28 W — SEC. 12 / SEC. 7 — EL. 2425 — EL. 2462 (C4)

Δ = 11° 20' 45"
D = 2° 00"
Ts = 359.61'
Ca = 8° 20' 45"
Lc = 417.29'
Sa = 1° 30'
Ls = 150.00'
S = 4%

ROCK STOCKPILE SEE SHEETS 10 & 24 FOR DETAILS (A1)

T.S. 2935+96.45 — 250' — S.C. 2937+46.45 — C.S. 2941+63.74 — 2622.10 — S.T. 2943+13.74 BK. = 2944+15.68 AH. — 160' — P.I. 2950+29.60 — R/W — 110' — 2950 — 2945 — 2940 — 2935

N 50° 30' 00" E — N 39° 09' 15" E — 2623.5

P.I. 2939+56.06 — 200' — 2940 — 100' — 150 — T.S. 2945+87.83 — 240' — S.C. 2947+37.39

FOR TREE REMOVAL DETAIL SEE SH. 25A.

G-6 — LIBBY 52 MI. (C1) — P.O.T. 2953+55.73 — 2955 — 200' — 200' — 110' — 160.50' — 2608.2 — 49° 22' 14" — 2955 — 2958 — 200' — 2610.9 — 69-BT-3186 — N 53° 44' 30" E — APPROX ¼ SEC. LINE — 80' — 190' — C.S. 2953+17.26 — S.T. 2954+67.26 — R/W — 2,510.00'

Δ = 14° 35' 15"
D = 2° 00'
Ts = 441.71'
Ca = 11° 35' 15"
Lc = 579.37'
Sa = 1° 30'
Ls = 150.00'
S = 4%

SCALE IN FEET: 100 0 100 200 300

NOTE: See Sheets 3 and 3T for Legend. See Sheet 53 for Boring Log.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PROFILE — SURVEYED: PLOTTED: ALIGNMENT CHECKED: R. M.S. NOTED: STRUCTURE NOTATIONS CHKD: NOTE BOOK: NO.: DATE:

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

1450' LT. — FLARE LT. — FLARE LT. — 550' LT. (C2)

(D1) W=20' RT. — 2:1 — 7' LT. — ½:1 BACK SLOPE RT. (OVERBURDEN CUT) — W=20' RT. — TRANSITION — W=30' RT. — W=20' LT. — TRANSITION — W=20' RT. — 2:1 — 7' LT. — ½:1 BACK SLOPE RT. (OVERBURDEN CUT)

ROCK STOCKPILE PROFILE LINE 70 FT. LEFT OF MSH ℄ (B2) — PROFILE GRADE — -2.767% — SURVEY GROUND LINE (B1) — REMOVED O/B TO BED ROCK (C3) — 2943+13.74 BK. = 2944+15.68 AH. — EQUATION — SURVEY GROUND LINE (B1) — REMOVED O/B TO PROMINENT JOINT — 800' VC — ESTIMATED ROCK LINE — PROFILE GRADE — -0.300% — (D1)

ESTIMATED ROCK LINE — PAVED INLET 2943+10 30"x80.9' PIPE CULVERT — P.I. 2948+00 — 2948.00 — 2954+00 42"x91.4' PIPE CULVERT

2670 — 2660 — 2650 — 2640 — 2630 — 2620 — 2610 — 2600

SILTY SANDY GRAVEL, OCC BLOCK 20', SUB ANGULAR AND TALUS

TALUS 2'-4' ANGULAR, OCC 5' AND SILTY TALUS WITH NUMEROUS SMALL ROCK OUTCROPS

MOSTLY ROCK W/0-5' TALUS

TALUS 2'-5' ANGULAR, OCC BLOCK 5' AND SILTY TALUS

2935 — 2940 — 2945 — 2950 — 2955 — 2958

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	STA. 2901+00 TO 2941+00. (1) DELETED EXISTING GROUND & ADJUSTED ROCK LINE, (2) CORRECTED LINE FROM STA. 2935 TO 2943.(4) ADDED ROCK-FILL PROTECTION.	71 MAR 31 / 31-MAR-9	
C	(1) ADDED SIGN, (2) RVSD. GUARD-RAIL, (3) RVSD SURVEY GRD.		
B	STOCKPILE PROFILE LINE (1) ADDED SURVEY GROUND LINE. (2) ADDED ROCK.	70 AUG 28	
A	(1) ADDED ROCK STOCKPILE	70 JUL 16	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA — CORPS OF ENGINEERS, OMAHA, NEBRASKA
U S ARMY ENGINEER DISTRICT, SEATTLE — CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SUBMITTED: H. Landwall — CHIEF, DESIGN BRANCH
RECOMMENDED: B Clemenhagen — CHIEF, ENGINEERING DIVISION
SUBMITTED: — CHIEF, CONSTRUCTION DIVISION
RECOMMENDED: — CHIEF, ENGINEERING DIVISION
APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinhorn — CHIEF, ENGINEERING DIVISION — DATE: 30 JUNE 76

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE STA. 2935 TO STA. 2958

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER:
SHEET: [redacted] AS BUILT

K-E PLATE 1, PLAN-PROFILE — KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	83	116

ROCK-FILL PROTECTION FOR EXISTING GROUND SEE SHEET 30

EL. 2425

EL. 2462

Δs = 00°45'
Ls = 150'

STA. 2961+00

2963+00

2964+00

Δs = 00°45'
Ls = 150'

67-BH-2089

Δ = 4°41'00"
D = 1°00'
R = 5,729.58'
L = 309.30'
S = 2%

T.S. 2959+35.32

200'

S.C. 2960+85.32

C.S. 2964+03.65

S.T. 2965+53.65

130'

P.S. 2970+82.54

130'

2602.7

TURNOUT, SEE SHT. 31 FOR DTL'S

67-BH-2086

2958

2960

2965

2970

N 53°44'30"E

N 49°03'30"E

67-BH-2087

67-BH-2088

2607.1

69-BT-3184

190'

180'

170'

120'

W1-4

R/W

P.I. 2962+44.62

R2-8B

SPEED LIMIT 55 TRUCKS 50

R/W M6-3 MI-6

SOUTH MONTANA 37

S.C. 2972+82.54

260'

2923

10H

Δ = 30°58'00"
D = 06°00'
Ts = 364.97'
R = 954.93'
Lc = 316.11'
Sa = 6°00'
Ls = 200.00'
S = 8%

2573.5

C.S. 2975+98.65

HOLDUP GULCH

N6-2

6' MIN. ROCK FILL BLANKET TO BE PLACED ON NATURAL GROUND BENEATH FILL BETWEEN STA. 2971+50 TO 2975+50. SEE SHEET 20 FOR TYPICAL SECTION.

EQUATION

STA. 2977+69.65 BK = STA. 2977+71.21 AHD.

S.T. 2977+21.21

110'

60'

2980

N 18°05'30"E

67-BT-2085

2975

2577.5

P.I. 2974+47.51

GULCH

N6-2

HOLDUP GULCH

2976

R/W

P.I. 2982+11.06

CONTRACTOR MAY USE EXISTING ROAD GRADE FROM END OF THIS CONTRACT 1,000 FEET UPSTREAM AS A STAGING AREA.

N. 56°01'00" E.

FOR CONTINUATION SEE SHEET 72

Δ = 37°55'30" RT.
D = 07°00'
R = 818.51'
T = 281.24'
L = 541.79'
S = 8%

P.C. 2979+29.82

P.T. 2984+71.61

STA. 2979+50.32
END GRADING
THIS CONTRACT

NOTE: See Sheets 3 and 3T for Legend. See Sheet 53 for Boring Logs.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300

GUARDRAIL
GUIDE POSTS
ROCK EXCAV
SHOULDER

2150' LT.

350' RT. FLARED

4' - 15' RT.

W-20' RT.

2:1 FILL

1:1 BACK SLOPE (IN OVERBURDEN CUT)

PROFILE GRADE

-0.300%

67-BH-2087
ML, SA SILT
GM, SI GRAVEL W/SAND REFUSAL ON LARGE BOULDERS

67-BH-2088
ML SILT W/BROKEN ROCK
GM, SA SI GRAVEL W/COBBLES
ML, SA SILT
GP-GM, SA GRAVEL

SURVEY GROUND LINE

2966+00
36" X 1026' PIPE CULVERT

TALUS, 2'-3' ANGULAR, OCC BLOCKS 8', AND SILTY TALUS

EXPLORATION

EXPLORATION

TERRACE DEPOSITS: SILT, SILTY SANDY GRAVEL, SANDY GRAVEL AND GRAVEL (GLACIAL OUTWASH) WITH NUMEROUS COBBLES, OCCASIONAL ROCK BLOCKS UP TO 20 FEET, AND FEW SMALL ROCK OUTCROPS

P.I. 2973+65.66
EL. 2610.58

67-BT-2085
ML, GRAVELLY SILT
GP-GM, SA GRAVEL, OCC COBBLES & BOULDERS
GP, GRAVEL, OCC COBBLES & BOULDERS
FINE SAND BETWEEN ROCK BLOCKS

2.750%

1200' V.C.

ESTIMATED ROCK LINE

EQUATION

STA. 2979+50.32
END GRADING
THIS CONTRACT

HOLDUP GULCH

2974+70
72" X 159.5' PIPE CULVERT SKEW NO. 80

STA. 2977+98.65 BK =
STA. 2977+99.72 AHD.

2620
2610
2600
2590
2580
2570
2560
2550
2540

2958 2960 2965 2970 2975 2980

SYMBOL	DESCRIPTION	DATE	APPROVAL
E	(1) ADDED SIGNS	71 MAY 31	
D	(1) DELETED GROUND LINE & ADJUSTED ROCK LINE.	71 MAR 31	
C	ROCK-FILL PROTECTION AREA (11) ADDED SKEW NO. (8) REVISED GUARDRAIL (9) REVISED R/W. (10) ADDED (6) DELETED "AFTER 1 OCT 1970" (7) ADDED NOTE. W.R.I. STA. (5) ADDED SIGNS & GUIDE POSTS. EQUATION IN PLAN & PROFILE. (4) REVISED STA. 2970+82 TO 2984+71 (3) ADDED STA. (1) RVS'D. NOTE 2 PLCS. (2) RVS'D. ALIGNMENT	71 MAR 9	
B	STA. 2972+00 TO 2975+25 (1) ADDED 6' MIN. ROCK FILL BLANKET BETWEEN	70 AUG 28	
A	LENGTH & ELEV. (1) ADDED DATE. (2) REVISED CULVERT	70 JUL 15	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY: W.F.S. | DR. BY: L.D.C. | CK. BY: J.C.S.

SURVEYED BY:
DESIGNED BY:
REVIEWED BY: B. Thompson
SUBMITTED:
RECOMMENDED:
APPROVED:

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E

PLAN & PROFILE STA. 2958 TO STA. 2979+50.32

APPROVED FOR THE DISTRICT ENGINEER
CHIEF, ENGINEERING DIVISION
DATE: 70 JUNE 26

SCALE: AS SHOWN
SPEC. NO
SHEET
AS BUILT

PLAN: SURVEYED, PLOTTED, ALIGNMENT DRAFTED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, EL. AS NOTED, STRUCTURE NO'S (SPANS) NO, BY, DATE

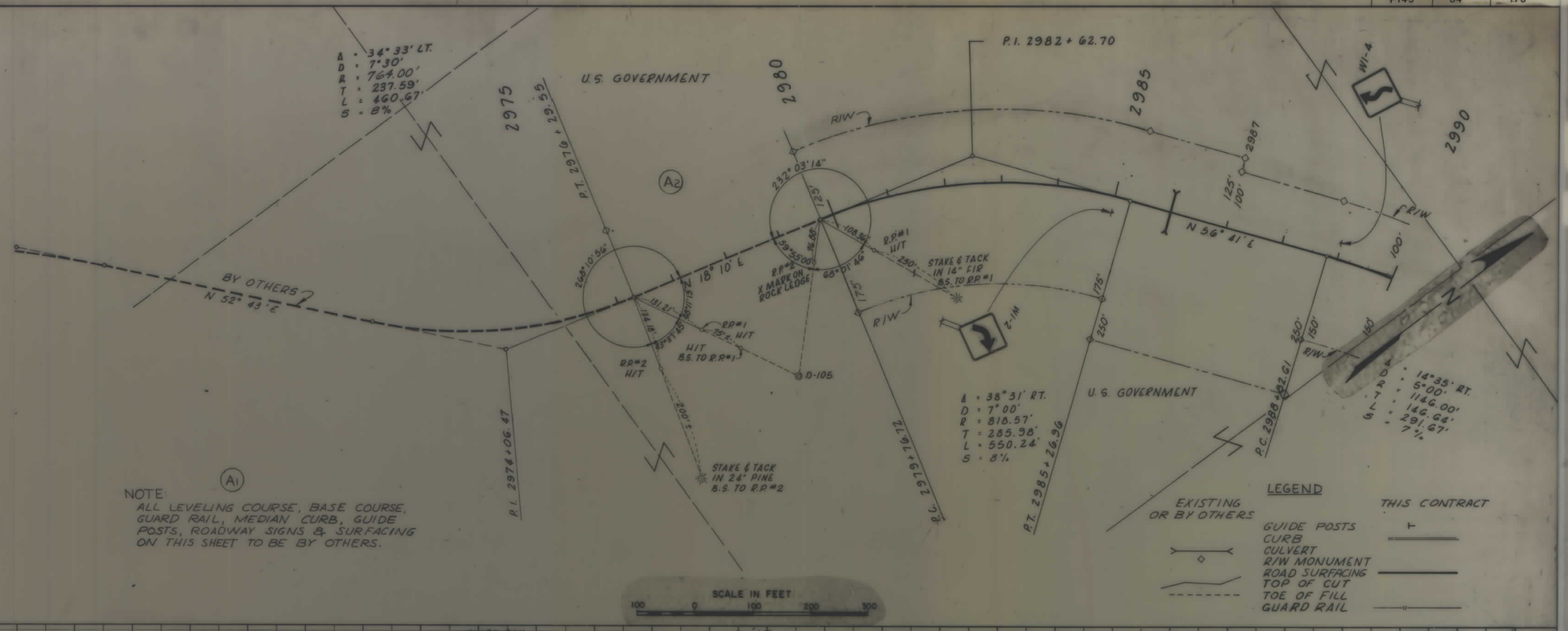
PLATE 1. PLAN-PROFILE
KOUTED & SLOAN CO.

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	84	116

PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, R/W MAP CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, (L.M.S. NOTED), STRUCTURE NOTATIONS CHECKED, NOTE BOOK, NO., BY, DATE



SYMBOL	DATE	DESCRIPTION	BY
A	70 JAN 6	(1) ADDED NOTE (2) DELETED NOTES.	ERC

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SONNICHSEN
DRAWN BY: LARKIN
CHECKED BY: CLAPPER
REVIEWED: O.F. Braddock
SUBMITTED: [illegible] CHIEF, HIGHWAY SECTION
RECOMMENDED: [illegible] CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
RESERVOIR BRIDGE APPROACH ROAD
PLAN & PROFILE STA. 2979+76.72 TO STA. 2990

APPROVED FOR THE DISTRICT ENGINEER: [illegible] CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: AS BUILT E-53-31-85
SHEET 67

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	85	116

PLAN — SURVEYED: PLOTTED: NOTE BOOK: NO. — CROSS CHECKED: ALIGNMENT CHECKED: RT. OF WAY CHECKED: BY

PROFILE — SURVEYED: PLOTTED: NOTE BOOK: NO. — GRADES CHECKED: R. M.'S PLOTTED: STRUCTURE NO. (ATTN) CHKD: BY: DATE:

Sec. 6 / Sec. 7

2990 — P.I. 2990+29.25

W1-2

R/W 100'

2992+42.45 N 71°16'E 158.32'

385'18 39"E

25°29'21"

R/W 150'

Δ = 14°35' RT.
D = 5°00'
R = 1146.00'
T = 146.64'
L = 291.67'
S = 7%

P.T. 2991+74.28

P.I. 2996+07.64

2995

Δ = 11°04' LT.
D = 3°30'
R = 1637.14'
T = 158.60'
L = 316.19'
S = 6%

P.C. 2994+49.04

P.T. 2997+65.23

3000

Δ = 5°01' LT.
D = 2°00'
R = 2865.00'
T = 125.50'
L = 250.84'
S = 4%

P.C. 3000+37.05

P.I. 3001+62.55

P.T. 3002+87.89

3005

U.S. GOVERNMENT

Reservoir Bridge Parking Area 1/4 MILE

MG-3 MI-6 SOUTH 37

G-4

3009

SCENIC TURNOUT (SEE DETAIL-SHEET 72)

E.M.S.H. 37

N 60°12'L

N. 55°11' E.

222°39'27"

121.24'

120.40'

87°11'05"

R.P.#2 H/T

R.P.#1 H/T

FLASHER IN 8" LARCH B.S. TO R.P.#2

FLASHER IN 6" ASPEN B.S. TO R.P.#1

W1-2

U.S. GOVERNMENT

SCALE IN FEET
100 0 100 200 300

3010

P.C. 3011+74.30

234°58'47"

42°09'04"

125.34'

117.07'

82°52'09"

R.P.#2 H/T

R.P.#1 H/T

FLASHER IN 30" LARCH B.S. TO R.P.#2

FLASHER IN 30" LARCH B.S. TO R.P.#1

S-1M

P.I. 3013+89.89

3015

EQUATION
3015+94.52 BK =
3015+92.80 AH
+1.72'

P.T. 3015+92.80 AH

Δ = 31°31' LT.
D = 7°30'
R = 764.00'
T = 215.59'
L = 420.22'
S = 8%

SCENIC TURNOUT (SEE DETAIL-SHEET 72)

3020

P.T. 3018+26.05

R/W 300'

R/W 125'

W 23°40'E

3017+20 BEGIN PAVING THIS CONTRACT

A3

S/L 93 PERMANENT BARRICADE PPM-2

P.C. 3018+26.05

Δ = 37°20' RT.
D = 5°00'
R = 1146.00'
T = 387.16'
L = 746.67'
S = 7%

NOTE:

1. FOR NOTES AND LEGEND SEE SHEET 67
2. ALL LEVELING COURSE, GUARD RAIL, BASE COURSE, MEDIAN CURB, GUIDE POSTS, ROADWAY SIGNS & SURFACING, TO STA. 3017+20 TO BE BY OTHERS. PPM-2
3. DO NOT PROVIDE FLARE END ANCHOR. GUARDRAIL WILL BE CONTINUED BY OTHERS.

(A1)

SURFACED PATH
GUIDE POSTS

3420' LT. SEE NOTE 2 17 POSTS LT. (TYPE B)

2540 -1.86%

SUBGRADE EXISTING OR BY OTHERS

PROFILE GRADE

2590 2580 2570 2560 2550 2540

-1.85%

2990 2995 3000 3005 3010

(A2)

SEE NOTE 2 9 POSTS RT. (7 TYPE C, 2 TYPE F) 16 POSTS LT. (TYPE B)

800' V.C.

PROFILE GRADE

EQUATION
3015+94.52 BK =
3015+92.80 AH
+1.72'

-0.36% -0.36%

SEE NOTE 2 325' GUARDRAIL LT. AT 16 POSTS LT. (TYPE B) GUIDE POSTS 3 POSTS RT. (2 TYPE C, 2 TYPE F)

362.5' GUARD RAIL

(B1)

2530 2520 2510

3015 3020

VPI 3011+00 2530.07

SYMBOL	DATE	DESCRIPTION		
B	10 Sep 71	(1) ADDED GUARD RAIL DIM.		BRC
A	70 JAN 6	(1) ADDED NOTES 2 & 3 (2) ADDED BREAK IN GUARDRAIL & GUIDE POST LINE, REVISED QUANTITY. (3) ADDED NOTE.		BRC

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SONNICHSEN
DRAWN BY: LARKIN
CHECKED BY: CLAPPER

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
RESERVOIR BRIDGE APPROACH ROAD
PLAN & PROFILE STA. 2990 TO STA. 3020

REVIEWED: O F Shadrick
APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR 03
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 68

K-E PLATE 1. PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	86	116

FOR PLAN & ELEV. OF RESERVOIR BRIDGE & ROAD APPROACH SEE SHEET # 70

RESERVOIR BRIDGE

Δ = 14° 03' LT.
D = 7° 30'
R = 764.00'
T = 94.15'
L = 187.33'
S = 8%

P.I. 3022 + 13.21

R/W 3023+29.0

S 49° 45' 40" E

300'

30'

PPM 23
CASE 35
DROP INLET
& DRAIN

P.O.C. 3024 + 05.05 M.S.H. #37
2G + 24.95 RES. BR. ℄

P.C. 3028 + 20.41

P.T. 3030 + 07.74

SEC. 6
SEC. 5

3020

3025

3030

3035

3040

3045

3050

P.I. 3035 + 51.32

U.S. GOVERNMENT

P.C. 3040+91.70

Δ = 10° 39' LT.
D = 3° 00'
R = 1910.00'
T = 178.03'
L = 355.00'
S = 5%

P.T. 3044 + 46.70

PROPERTY LINE

R/W

160'

150'

115'

PARKING AREA

R/W 3023 + 47.6

10'

SCENIC TURNOUT (SEE DETAIL - SHEET 72)

℄ M.S.H. 37

N 46° 57' E

N 71° 37' E

N 60° 58' E

3043+04

3046+50

ROADWAY TURNOUT S/L 174

N 23° 40' E

N 61° 00' E

N 16° 30' E

218° 02' 59"

227° 37' 54"

36° 43' 22"

70° 24' 59"

54° 44' 23"

171.54'

131.85'

118.07'

152.50'

62° 35' 04"

R.P. #2 U/T

R.P. #1 H/T

R.P. #2 H/T

R.P. #1 H/T

300'

FLASHER IN 10" FIR - B.S. TO R.P. #2

FLASHER IN 18" LARCH B.S. TO R.P. #2

FLASHER IN 8" LARCH B.S. TO R.P. #1

NOTE: FOR DETAILS OF ROADWAY WIDENING AND PARKING AREA SEE SHT. #72

PPM 20
CASE 33
ALSO SHEET 71.1
STABILIZE CURB

S L T R D A = 37° 20' RT.
" " " = 5° 00'
" " " = 1146.00'
" " " = 387.16'
" " " = 746.67'
" " " = 7%

R.P. #1 X-MARK ON ROCK

D-107 B.S. TO R.P. #1

P.T. 3025 + 72.72

24 + 32.0 BRIDGE END

P.I. 3029 + 14.50

3030+01.74

U.S. GOVERNMENT

P.C. 3033 + 84.28

P.T. 3037 + 13.17

Δ = 24° 40' RT.
D = 7° 30'
R = 764.00'
T = 167.04'
L = 328.89'
S = 8%

G-4

Reservoir Bridge Parking Area 1/4 MILE

3031 + 81.24 ANCHOR

G/R LT
S/L 150
ADD 3031+50
TO 3031+25
ITEM 1

G/R LT
S/L #140
ITEM 1

SCALE IN FEET
100 0 100 200 300

G/R LT
S/L 140
ITEM 2

3037+25.17 ANCHOR

S/L 150
ADD G/R LT
3037+00 TO
3037+50
ITEM 2

P.I. 3042 + 69.73

NOTE:
FOR NOTES AND LEGEND SEE SHEET 67

G/R LT.
S/L #140
ITEM 3

P.C. 3047 + 02.28 ANCHOR

3047+85.76 ANCHOR

G/R LT
S/L #140
ITEM 4

Δ = 35° 02' RT.
D = 5° 00'
R = 1146.00'
T = 361.70'
L = 700.67'
S = 7%

S/L 150
ADD G/R
3048+00 - 3048+50
ITEM 3

3020+3

GUARD RAIL

GUIDE POSTS

OK 925' LT.

OK 24 POSTS LT. (1 TYPE B) SEE SHT. 71 FOR SPACING

DELETED 10 POSTS LT. (1 TYPE B)

8 POSTS RT (5 TYPE C, 3 TYPE F)

8 POSTS LT. (7 TYPE C, 2 TYPE F)

OK 900' LT. PARKING AREA

DELETED 27 POSTS LT. (1 TYPE B)

9 POSTS LT (8 TYPE C, 1 TYPE F)

GUARD RAIL LT.

GUARD RAIL

GUIDE POSTS

2580
2570
2560
2550
2540
2530
2520
2510
2500

2600
2590
2580

3024+05.05
ELEV 2528.17

V.P.I. 3032+75
2556.35

+1.60%

PROFILE GRADE

600' V.C.

-0.34%

+4.00%

800' V.C.

SUBGRADE EXISTING OR BY OTHERS

V.P.I. 3023+00
2515.33

2570

PROFILE GRADE

+1.60%

SUBGRADE EXISTING OR BY OTHERS

3020
3025
3030
3035
3040

PLAN
SURVEYED
PLOTTED
NOTE BOOK
NO
DRAWN CHECKED
E. M. L. POSTED
STRUCTURE NOTATIES CH+KO
BY
DATE

PROFILE
SURVEYED
PLOTTED
NOTE BOOK
NO
DRAWN CHECKED
E. M. L. POSTED
STRUCTURE NOTATIES CH+KO
BY
DATE

SYMBOL	DATE	DESCRIPTION
B	70 Sept	(1) DELETED GUARD RAIL AT PARKING AREA
A	70 JAN 6	(1) REVISED GUARD RAIL & GUIDE POST QUANTITY.

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SONNICHSEN
DRAWN BY: LARKIN
CHECKED BY: C. LAPPER

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
RESERVOIR BRIDGE APPROACH ROAD
PLAN & PROFILE STA. 3020 TO STA. 3050

REVIEWED: O.F. Sheldrick
APPROVED FOR THE DISTRICT ENGINEER: Lyle Duncan, Jr., CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH
SCALE: AS SHOWN
SPEC. NO.
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 69

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

R/W NO	SHEET NO	TOTAL SHEETS
F145	87	116

U.S. GOVERNMENT

U.S. GOVERNMENT

3050

3055

3060

P.I. 3050+82.48

W1-5

W1-2

PROPERTY LINE

SCENIC TURNOUT (SEE DETAIL-SHEET 72)

R/W

115'

250°32'17"

℄ M.S.H. 37

N 60° 58' E

S 84° 00' E

41°23'39"

260°01'18"

150'

W1-4

R.P.#2 H/T

R.P.#1 H/T

139.38'

65.27'

66°04'04"

79'±

75'±

150'

200'

FLASHER IN 18" PINE B.S. TO R.P.#2

FLASHER IN 8" LARCH B.S. TO R.P.#1

R.P.#2 H/T

R.P.#1 H/T

25°59'04"

74.62'

54°19'38"

204.74'

60'±

200'

FLASHER IN 16" LARCH B.S. TO R.P.#2

FLASHER IN 8" LARCH B.S. TO R.P.#1

P.O.T. 3060+00.0 END PAVING THIS CONTRACT

Δ = 35° 02' RT.
D = 5° 00'
R = 1146.00'
T = 361.70'
L = 700.67'
S = 7 %

G/R LT. SIL 150 ITEM 4

G/R LT. SIL #140 ITEM 5 ITEM 6

P.T. 3054+21.45 BK = 3054+49.77 AH

EQUATION

U.S. GOVERNMENT

SCALE IN FEET
100 - 0 100 200 300

N

B.E. 24+32.0

BRIDGE BY OTHERS

℄ ABUTMENT NO. 7

2.5'

CURB

PAVE TO BRIDGE ABUTMENT

EXPANSION JOINT

STEEL CONDUIT

TELEPHONE WIRES

CONNECT GUARD RAIL TO BRIDGE ABUTMENTS SEE SHEET 42 FOR DETAIL.

A1

12'

17'

℄ ROADWAY

UTILITY POLES (BY OTHERS)

CURB

PARKING AREA
SEE SHEET 71

60'R

GUARD RAIL ON SHOULDER

ROADWAY SHOULDER

15' 10:1 TAPER

FILLET

OUTSIDE EDGE OF TRAFFIC LANE

12' 12'

POC 3024+05.05 MSH 37
STA 26+24.95 RES. BR. ℄

MONTANA STATE HIGHWAY #37

℄ MONTANA

CONNECTION BRIDGE TO M S H 37

SCALE 1" = 20'

NOTE:
FOR NOTES AND LEGEND SEE SHEET 67

GUARD RAIL

GUIDE POSTS

1000' LT.

GUARDRAIL LT 2662.5

3056+91.27 ANCHOR

14 POSTS LT (TYPE B)

EQUATION
STA. 3054+21.45 BK
= STA. 3054+49.77 AH
(-28.32')

3060+00.0 END PAVING THIS CONTRACT EL. 2593.84

PVI 3061+00 2601.11

PROFILE GRADE

+1.60%

+1.60%

1000' V.C.

SUBGRADE EXISTING OR BY OTHERS

2620
2610
2600
2590
2580
2570
2560
2550
2540

3050 3055 3060

PROFILE
BRIDGE TO M.S.H. 37 CONNECTION

℄ ABUTMENT NO. 7
EL. 2532.0
2528.16

PROFILE GRADE

100' V.C.

-0.50%

+1.255%

-7.00%

℄ FOR SOUTHBOUND LANE

PVI 3061+00
2601.55

PVI 3061.00
2529.55

PVI 3061.00
2527.91

2530
2520
2510
2500
2490
2480
2470

24 25 26 27

SYMBOL	DATE	DESCRIPTION
A	70-12-21	(1) DELETED GUARD RAIL FROM PARKING AREA

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SONNICHSEN	KOOTENAI RIVER, MONTANA
DRAWN BY: LARKIN	LIBBY DAM PROJECT
CHECKED BY: CLAPPER	RELOCATION-MONTANA HIGHWAY 37
	RESERVOIR BRIDGE APPROACH ROAD
	PLAN & PROFILE STA.3050 TO STA.3060
REVIEWED:	APPROVED FOR THE DISTRICT ENGINEER: DATE: 69 MAR. 03
SUBMITTED: CHIEF, HIGHWAY SECTION	CHIEF, ENGINEERING DIVISION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH	SCALE: AS SHOWN SPEC. NO.
	DRAWING NUMBER AS BUILT E-53-31-85 SHEET 70

PLAN — SURVEYED, PLOTTED, GRADES CHECKED, R. W. RIGHT OF WAY CHECKED, NOTE BOOK, NO.

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, R. W. PLOTTED, STRUCTURE (WITH ING GRADE), NOTE BOOK, NO., BY, DATE

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

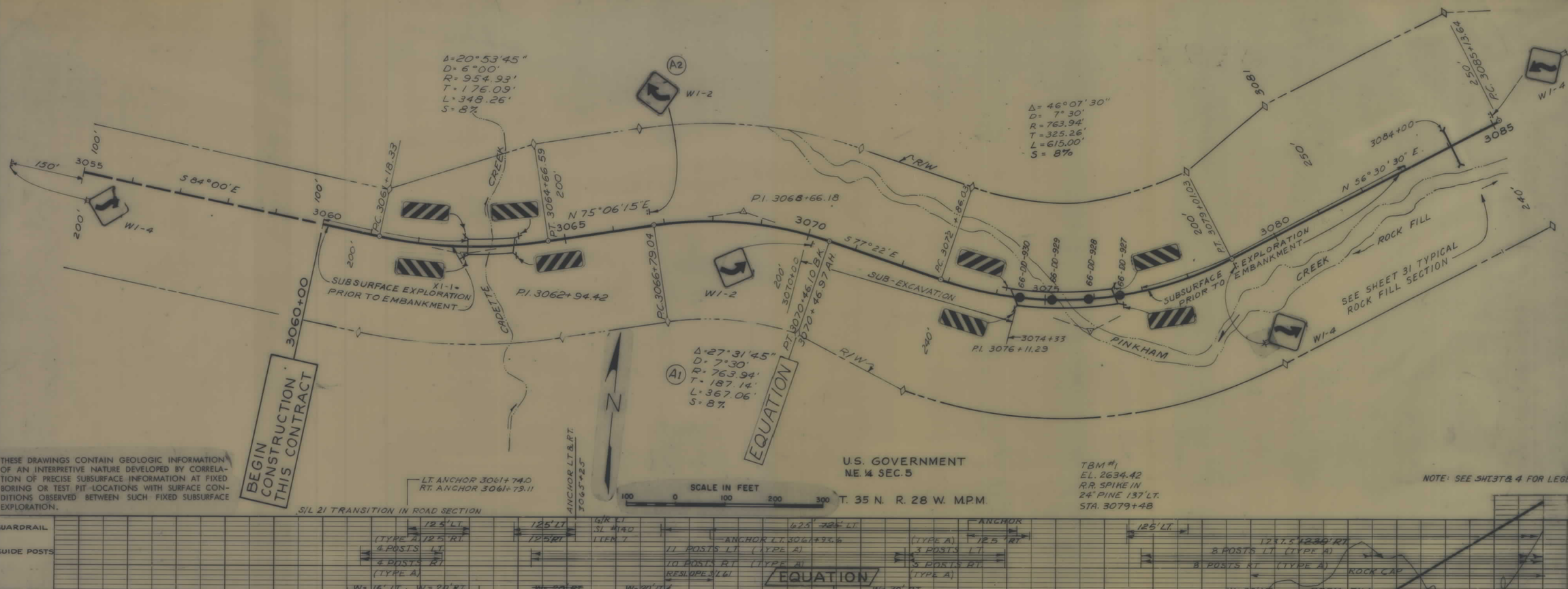
MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

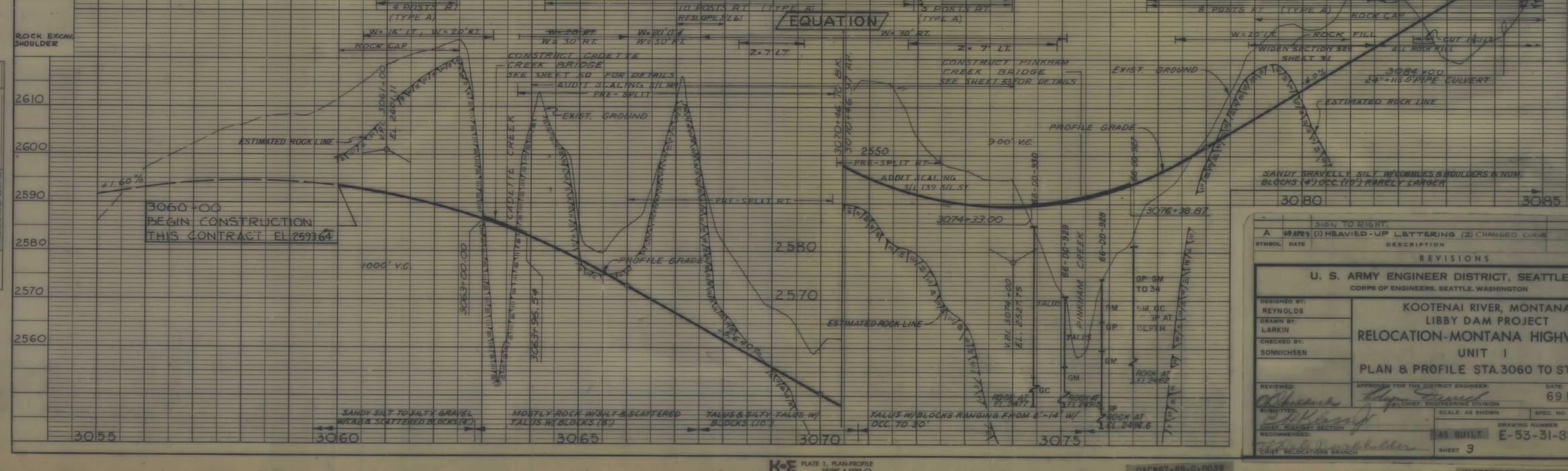
R/W NO	SHEET NO	TOTAL SHEET
F 145	88	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT OF WAY CHECKED, BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, NO., STRUCTURE NOTATIONS CHKD, BY, DATE



THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.



SYMBOL	DATE	DESCRIPTION
A	69 APR 9	(1) HEAVIED-UP LETTERING (2) CHANGED CURVE

SIGN TO RIGHT

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3060 TO STA. 3085

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-85
AS BUILT
SHEET 3

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	59	116

SEE SHEET 31
TYPICAL ROCK
FILL SECTION

3085

P.I. 3086 +27.13

N. 4°06'05"E.
1381.81'

3086+46.27

P.C. 3085+13.64
240'

LINKHAM CREEK

P.T. 3087+38.97

N 73°24'30"E

Δ = 16°54'
D = 7°30'
R = 763.94'
L = 225.33'
S = 8%

Δ = 121° 48' 30"
D = 7° 30'
R = 763.94'
T = 1,372.77'
L = 1,624.11'
S = 8%

U.S. GOVERNMENT

3090

P.C. 3090+33.65
120'

120'

TO BE ABANDONED

3095

3100

R/W

R/W

GIR RT
S/L #140
ITEM B

GIR
S/L 150
ITEM 5

GIR LT
S/L #140
ITEM 9

P.I. 3104+06.42

SCALE IN FEET
100 0 100 200 300

STA. 3108+60 MSH 37 =
15+00 RONDO ROAD U.S.F.S.
RD. 7182
SEE SHEET 22

EQUATION
= 3106+57.21 AH
P.T. 3106+57.76 BK.

376.11'

N 48° 28' W

STOP

STOP

R1-1

R1-1

3110

120'

3105

3105+22.90

W1-2

RONDO ROAD U.S.F.S. RD. 7182

T. 36 N. R. 28 W. M.P.M.
T. 35 N. R. 28 W. M.P.M.

S 45° 20' 17" E

LEGEND

EXISTING		THIS CONTRACT
	ROAD	
	RAILROAD	
x—x—x	BARBED WIRE FENCE	x—x—x
	FENCE TO BE REMOVED	—x——x——
	CULVERT	
	BRIDGE	
	SWALE OR DITCH	
	R/W & MONUMENT	
—T—T—	TELEPHONE LINE	
—P—	POWER LINE	
	WOOD PLANK FENCE	(A1)
+	SECTION CORNER FOUND	
+	SECTION CORNER NOT FOUND	
	SECTION LINE	
	1/4 SECTION LINE	

NOTE: SEE SHEET 26 FOR 2:7 DETAIL & NOTE.
SEE SHEET 37 FOR ADDITIONAL LEGEND.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, R/W CHECKED, DATE, BY

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., GRADES CHECKED, R/W CHECKED, STRUCTURE NOTATIONS CHKD, DATE, BY

GUARDRAIL
GUIDE POSTS
ROCK EXCAV. SHOULDER

OR 5 POSTS LT (5 TYPE C, 1 TYPE F)

ROCK FILL

EXIST GROUND

PROFILE GRADE

+6.0%

2620
2610
2600
2590
2580
2570
2560

GRAVELLY SILT TO SILTY SANDY GRAVEL W/COBBLES & BOULDERS & ANGULAR BLOCKS (8")

0.5%

DITCH, RT

SANDY TO GRAVELLY SILT W/OCC. COBBLES & BOULDERS W/AREAS OF NUM. BLOCKS (8")

3085 3090 3095 3100 3105

RT ANCHOR 3099+70

3094+73

612.5' LT.

662.5' RT.

LT ANCHOR 3101+70

37 POSTS RT. (30 TYPE C, 2 TYPE F)

ROCK CAP

VPI 3103+00
EL 2701.75

3200' V.C.

EXIST GROUND

PROFILE GRADE

3098+00
24"X144.2' PIPE CULVERT

3106+57.76 BK.

EQUATION

3106+57.21 AH

SANDY SILT W/SCATTERED GRAVEL & COBBLES

2660
2650
2640
2630
2670

2 POSTS LT (1 TYPE D,) OR
2 POSTS RT (1 TYPE D)

PROFILE GRADE

3110

SYMBOL	DATE	DESCRIPTION	BY
A	70 JAN 6 (1)	REVISED LEGEND	BRL

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3085 TO STA. 3110

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO:
DRAWING NUMBER: E-53-31-85
AS BUILT
SHEET 4

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEET
F145	90	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., BY, DATE, ALIGNMENT CHECKED, RT. OF WAY CHECKED

N

W1-2

R/W

Pl. 3128+57.38

N 85° 30' 36" W

Pl. 3115+70.96

TO BE ABANDONED

65-WB-901

W1-4

3115

3120

N 4° 06' W

3125

3130

3135

P.T. 3119+20.56

R/W

3123+65

P.C. 3124+70.89

CULVERT 3130

N 26° 06' E

90'

100'

P.T. 3132+25.89

Δ = 30° 12'
D = 4° 00'
R = 1,432.39'
T = 386.49'
L = 755.00'
S = 6%

90'

100'

P.C. 3111+82.23

Δ = 44° 18'
D = 6° 00'
R = 954.93'
T = 388.73'
L = 738.33'
S = 8%

N 45° 24' W

297.14'

N 3110+07.76

U. S. GOVERNMENT

N 85° 20' 17" W

N 4° 30' 50" E

LT ANCHOR 3111+82.23

G/R S/L #150 ITEM 6

G/R LT S/L #140 ITEM 10

G/R S/L #150 ITEM 7

G/R LT S/N #140 ITEM 11

G/R S/L #150 ITEM 8

G/R S/L #150 ITEM 9

G/R RT S/L #140 ITEM 12

SCALE IN FEET 100 0 100 200 300

T. 36 N. R. 28 W. M.P.M.

G/R LT S/L #140 ITEM 13

ANCHOR LT 3131+0

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., BY, DATE, ALIGNMENT CHECKED, ELEVATIONS CHECKED, STRUCTURE NOTATIONS CHECKED

GUARDRAIL — 275.0 LT — 3550' LT — ANCHOR RT 3121+80.5 — 400.00 RT — 1393.75 LT — ANCHOR RT 3128+80.57

GUIDE POSTS — 17 POSTS LT. (15 TYPE C, 2 TYPE E) — 16 POSTS LT. (12 TYPE C, 4 TYPE E)

ROCK EXCAV SHOULDER — W = 15' RT. — W = 15' RT. — W = 15' RT.

2660 2650 2640 2630 2620 2610 2600

65-WB-901

PROFILE GRADE

ROCK CAP

600' V.C.

3111+50 30"x119' PIPE CULVERT

ML GP

EXIST. GROUND

ESTIMATED ROCK LINE

3123+00 EL 2621.75

3123+65 30"x178.8' PIPE CULVERT

PRE-SPLIT

0.4% — 2630 — 2620 — 2610

3130+00 24"x58.8' PIPE CULVERT 98.8

TBM #2 EL 2664.33 RR SPIKE IN 9" FIR 150' RT STA. 3125+04

2630 PROFILE GRADE ROCK CAP 0.4%

EXIST GROUND 2620

ESTIMATED ROCK LINE

3135

SANDY SILT W/TALUS PATCHES, GRAVEL, C&B & OCC. BLOCKS (?) — ROCK — SANDY SILT W/OCC. COBBLES — ROCK — GRAVELLY SILT W/OCC. COBBLES & TALUS PATCHES

3110 3115 3120 3125 3130

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3110 TO STA. 3135

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 5

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO.	SHEET NO	TOTAL SHEETS
F145	91	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, RT. OF WAY CHECKED, BY, DATE

U.S. GOVERNMENT

$\Delta = 10°01'$
$D = 2°30'$
$R = 2,291.83'$
$T = 200.85'$
$L = 400.67'$
$S = 4\%$

N 26° 06' E

PC 3143+41.60

PT 3147+42.27

3146+76.52

P.I. 3145+42.45

1023.66'

1626.79'

3152+00

WIDENING LEFT S/L 132

TURNOUT LEFT S/L 127, SL 132

N 4° 47' 20" E

N 16° 05' E

SUBSURFACE EXPLORATION PRIOR TO EMBANKMENT

PERFORATED PIPE 80' PLACED 21 APR. '70

PERFORATED PIPE 140' PLACED 20 & 21 APR. '70

3157+50

P.I. 3157+63.29

SPRINGS IN THIS AREA CHECK FOR PERFORATED PIPE

541.78'

S 85° 27' 33" E

N 34° 59' 15" E

3160+00

PC 3154+45.33

PT 3160+75.47

3164+09.61

$\Delta = 18°54'15"$
$D = 3°00'$
$R = 1,909.86'$
$T = 317.96'$
$L = 630.14'$
$S = 5\%$

U.S. GOVERNMENT
NE ¼ SEC. 33

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

G/R LT. S/L #149 ITEM 14
G/L S/L #150 ITEM 10

SCALE IN FEET 100 0 100 200 300

T. 36 N., R. 28 W., M.P.M.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, B. M.'S NOTED, STRUCTURE INSTAT'NS CHKD, BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

ANCHOR LT. 3139+64

W = 15' RT.

S/L 149 ADDIT SCALING

0.41%

PROFILE GRADE

ROCK CAP

EXIST. GROUND

ESTIMATED ROCK LINE

DRE-SPLIT RT.

3138+00
30" X 105.1' PIPE CULVERT

3145+50
24" X 23.1' PIPE CULVERT

3151+00
24" X 17.3' PIPE CULVERT

3160+00
30" X 7.9.1' PIPE CULVERT

P.I. 3150+69.95
EL. 2629.95

P.I. 3158+00
EL. 2636.70

S/L 86 ADDITIONAL SCALING

ADDIT SCALING S/L 149 W = 20' RT.

400' V.C.

Z = 1' / 1'

W = 20' RT.

L.T.G/R CONT'D.

T.B.M. # 3
EL. 2613.91
RR SPIKE IN 12" FIR 87' LT. STA 3139+32

NUMEROUS TO SCATTERED ROCK OUTCROPS W/INTERVENING AREAS OF GRAVELLY SILT W/ COBBLES & BOULDERS, TALUS & SILTY TALUS W/BLOCKS (15') NEAR OUTCROPS

GRAVELLY SILT W/NUM. COBBLES & BOULDERS (2') W/TALUS & SILTY TALUS W/BLOCKS (20') NEAR ROCK OUTCROPS

3135 3140 3145 3150 3155 3160 3165

2630 2620 2610 2600 2590 2580 2570 2640

SYMBOL	DATE	DESCRIPTION
		REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3135 TO STA. 3165

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 6

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

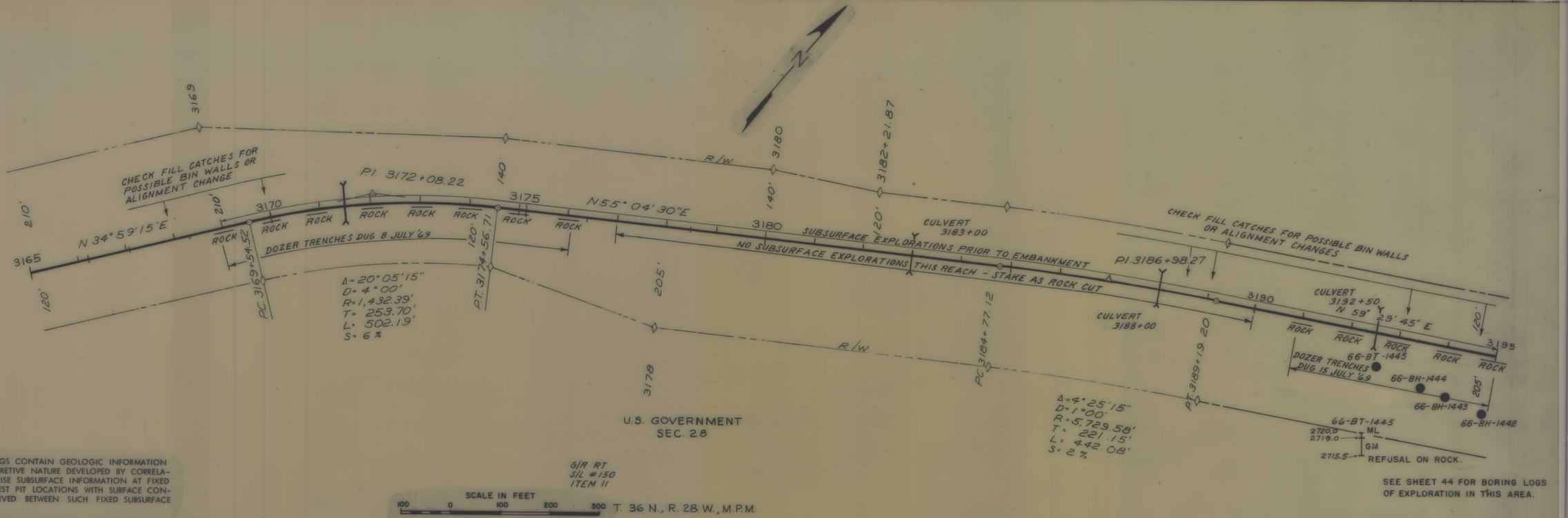
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	92	116

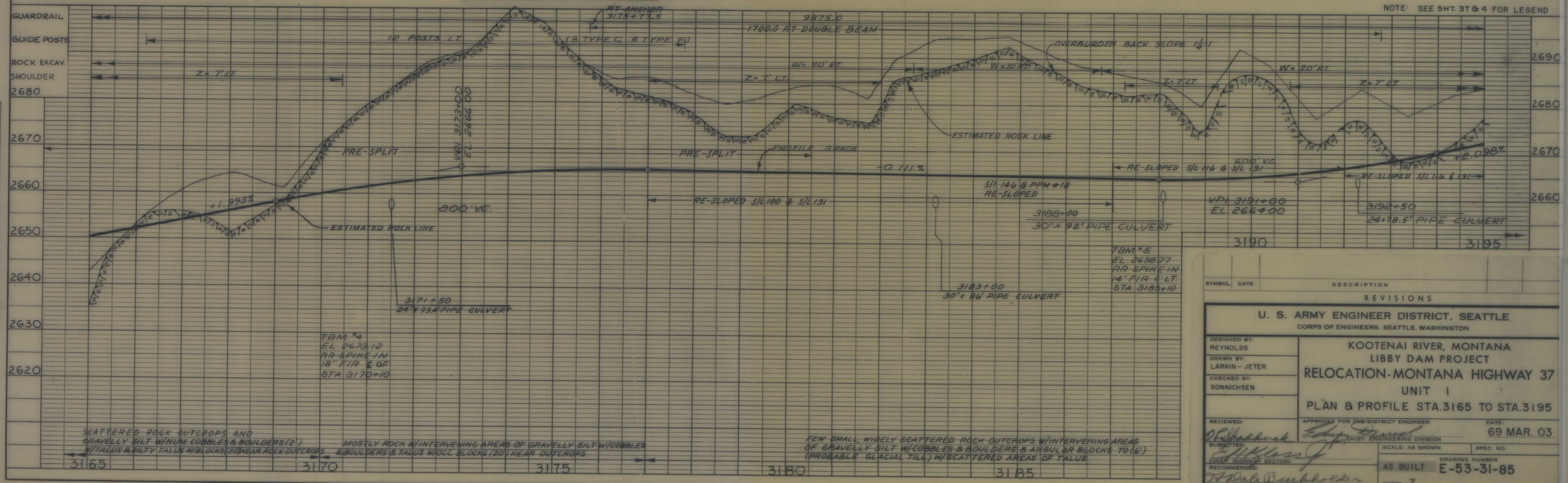
PLAN — SURVEYED; PLOTTED; ALIGNMENT CHECKED; R/W OF WAY CHECKED; NOTE BOOK; NO.; BY; DATE



THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SEE SHEET 44 FOR BORING LOGS OF EXPLORATION IN THIS AREA.

NOTE: SEE SHT. 3T & 4 FOR LEGEND



PROFILE — SURVEYED; PLOTTED; GRADES CHECKED; ALIGNMENT CHECKED; STRUCTURE NO(TATIONS CHKD); NOTE BOOK; NO.; BY; DATE

SYMBOL	DATE	DESCRIPTION
		REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN - JETER
CHECKED BY: SONNICHSEN
REVIEWED:

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3165 TO STA. 3195

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: AS BUILT E-53-31-85
SHEET 7

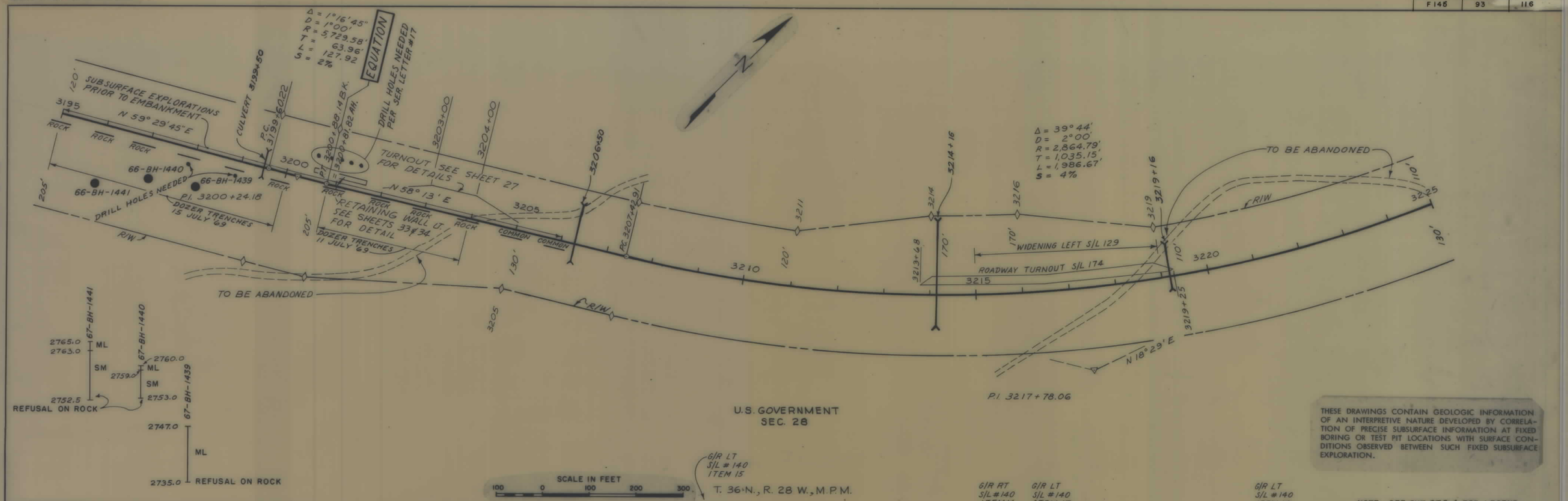
K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	93	116



PLAN — SURVEYED: PLOTTED: ALIGNMENT CHECKED: RT. OF WAY CHECKED: NOTE BOOK: NO.: BY: DATE:

PROFILE — SURVEYED: PLOTTED: ALIGNMENT CHECKED: B. M.'S NOTED: STRUCTURE NOTATIONS CHKD: NOTE BOOK: NO.: BY: DATE:

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN - JETER
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3195 TO STA. 3225

REVIEWED: [signature]
APPROVED FOR THE DISTRICT ENGINEER: [signature] CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: [signature] CHIEF, HIGHWAY SECTION
SCALE: AS SHOWN
SPEC. NO.
RECOMMENDED: [signature] CHIEF, RELOCATIONS BRANCH
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 8

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

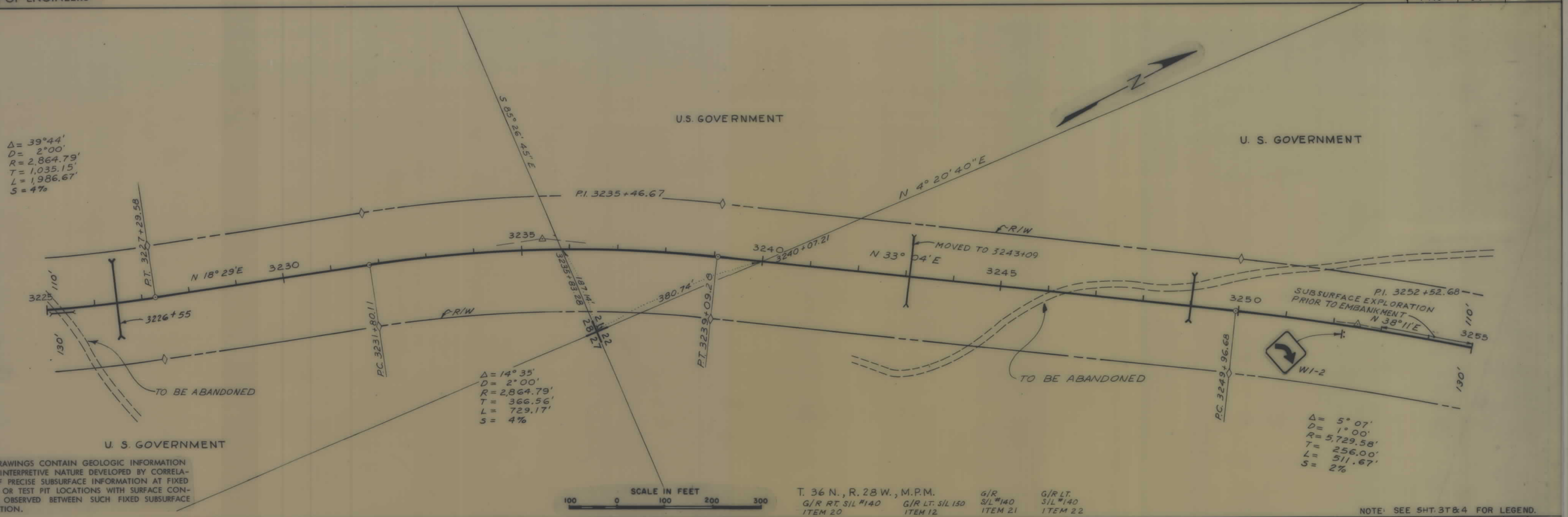
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	94	116

PLAN — SURVEYED, PLOTTED, LAYOUT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

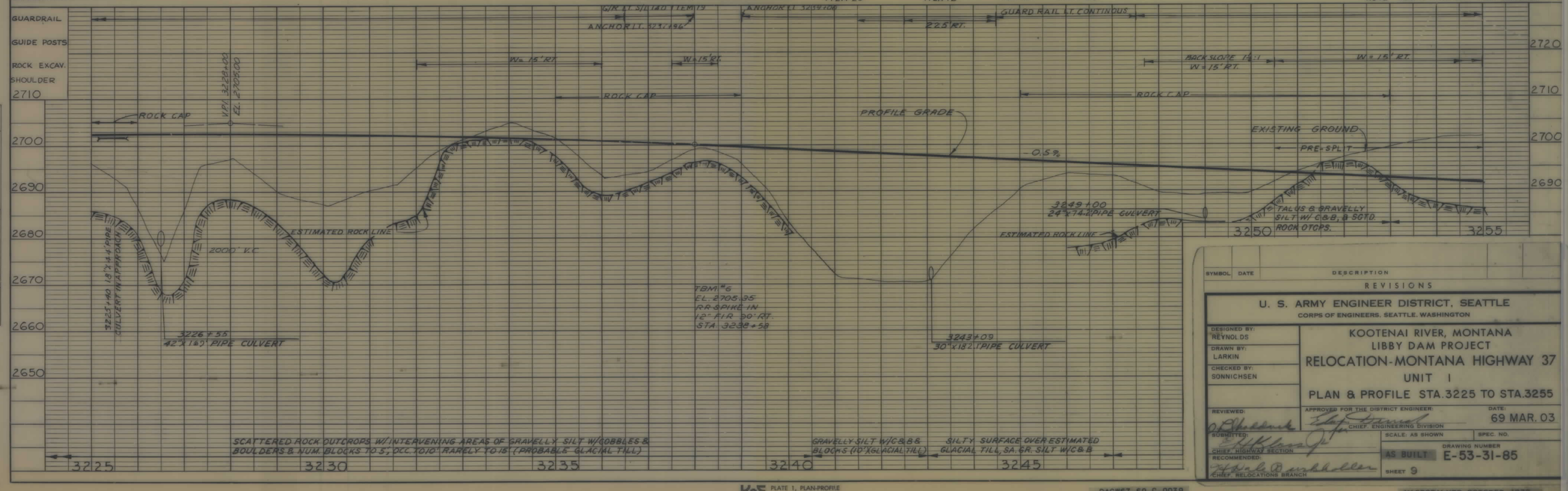


THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

T. 36 N., R. 28 W., M.P.M.

G/R RT. S/L #140 ITEM 20 — G/R LT. S/L 150 ITEM 12 — G/R S/L #140 ITEM 21 — G/R LT. S/L #140 ITEM 22

NOTE: SEE SHT. 3T&4 FOR LEGEND.



PROFILE — SURVEYED, PLOTTED, LAYOUT CHECKED, B. M.'S NOTED, STRUCTURE NOTATIONS CHKD., NOTE BOOK, NO., BY, DATE

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3225 TO STA. 3255

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 9

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

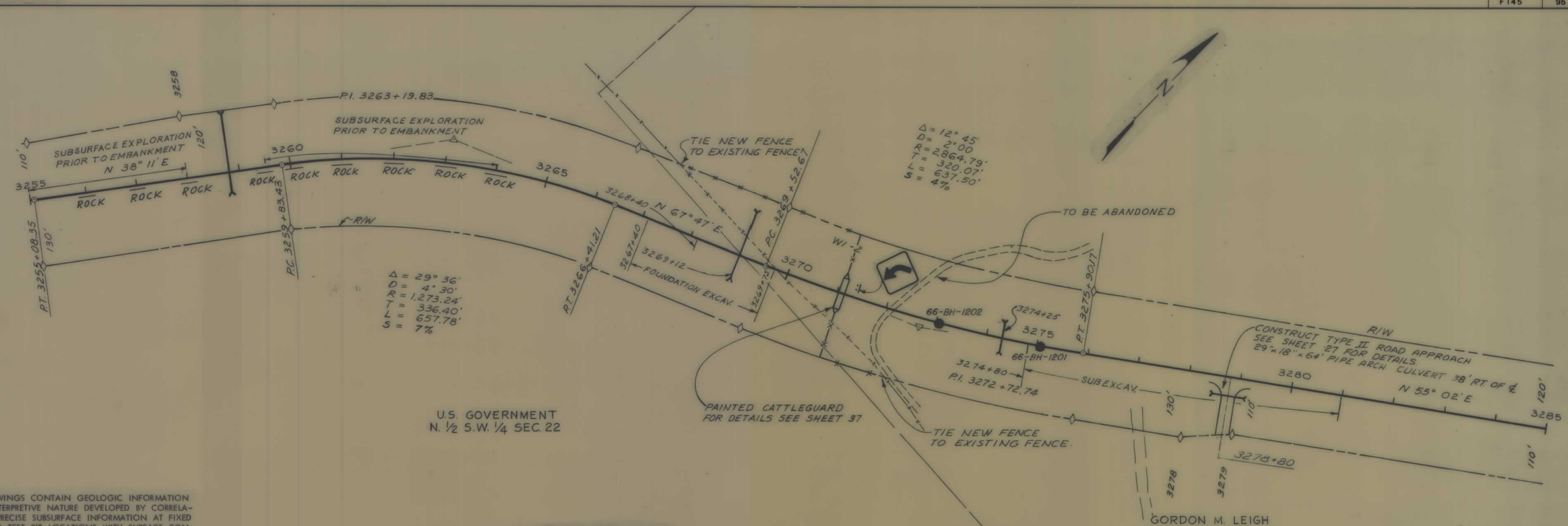
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	95	116

PLAN — SURVEYED · PLOTTED · NOTE BOOK · NO. · ALIGNMENT CHECKED · RT. OF WAY CHECKED · BY · DATE



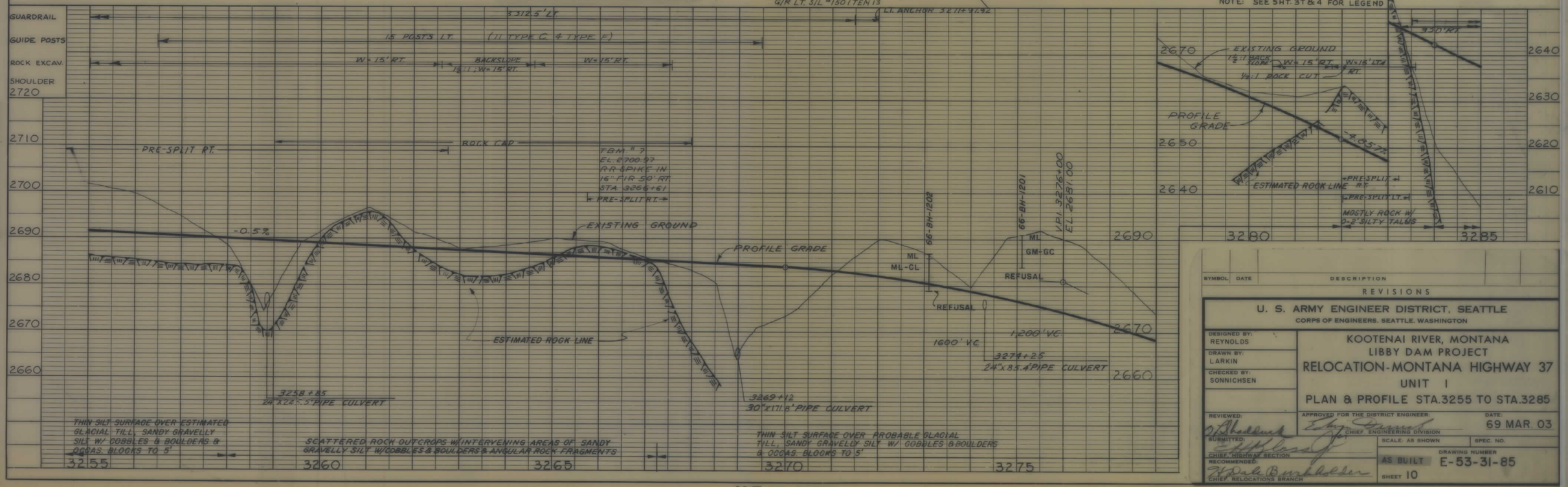
THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET 100 0 100 200 300

T. 36 N., R. 28 W., M.P.M.

G/R LT. S/L #1501 TEN 13

NOTE: SEE SHT. 3T & 4 FOR LEGEND



PROFILE — SURVEYED · PLOTTED · NOTE BOOK · NO. · STRUCTURE NOTATIONS CHKD. · BY · DATE

SYMBOL	DATE	DESCRIPTION
		REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3255 TO STA. 3285

REVIEWED: O. Reddell, CHIEF, HIGHWAY SECTION
SUBMITTED: H. Klass Jr.
RECOMMENDED: W. Dale Burkholder, CHIEF, RELOCATIONS BRANCH
APPROVED FOR THE DISTRICT ENGINEER: Libby Director, CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-85
AS BUILT
SHEET 10

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

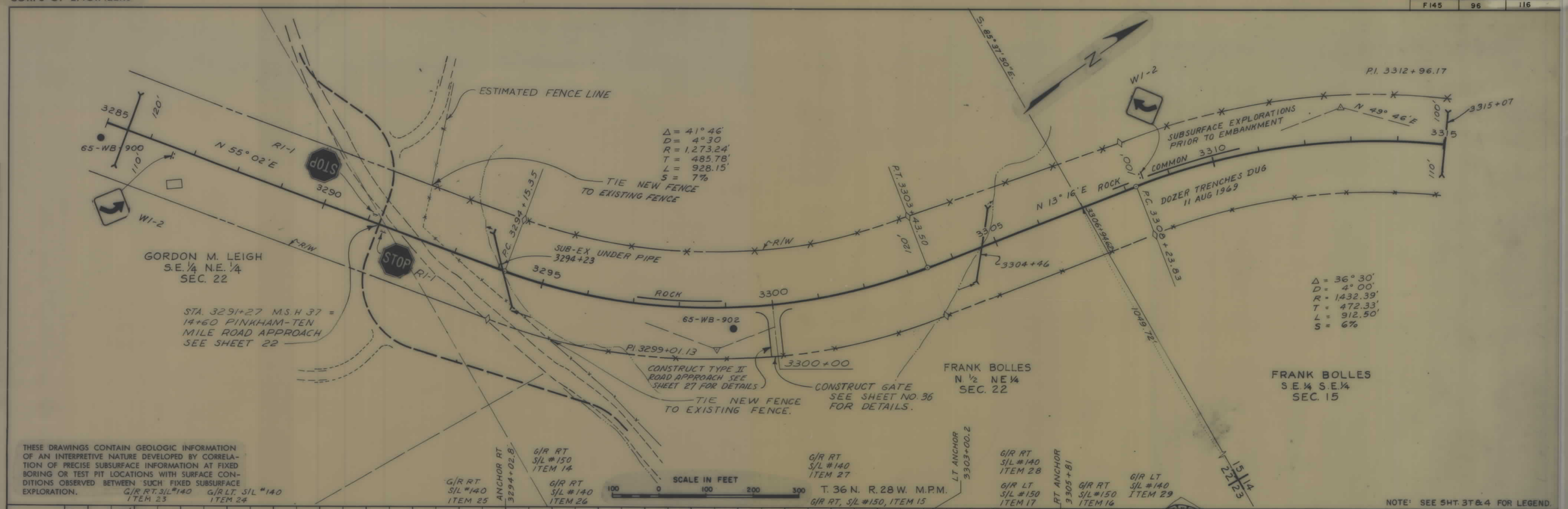
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	96	116

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R/W CHECKED, NOTE BOOK, NO., BY, DATE

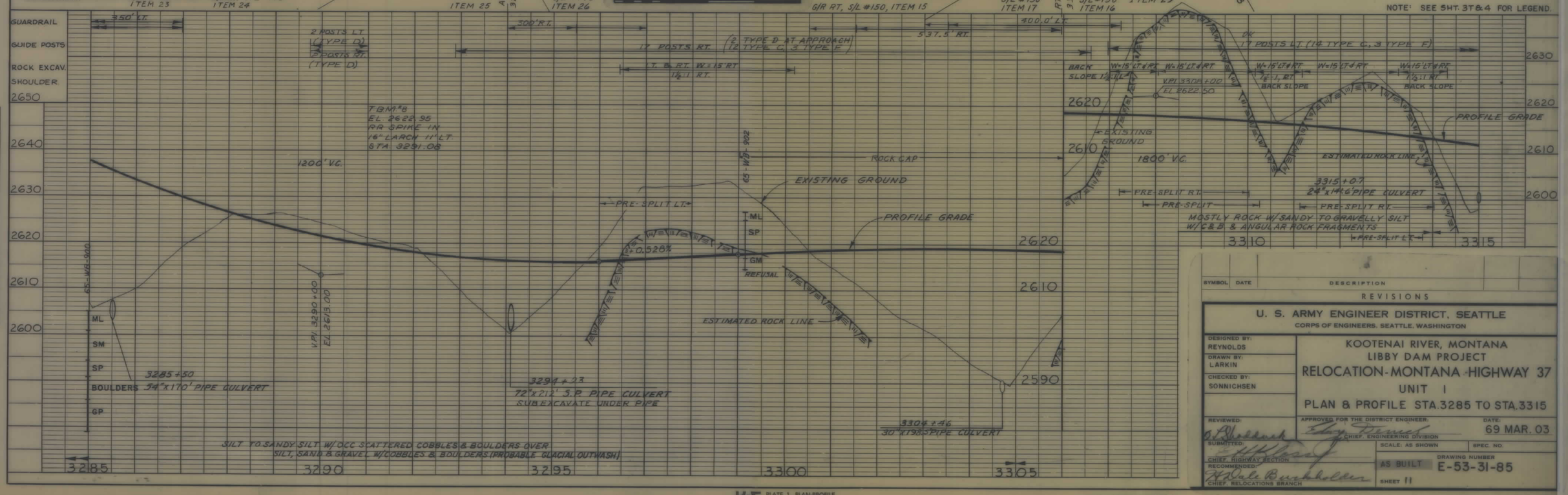


THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

G/R RT S/L #140 ITEM 23 — G/R LT S/L #140 ITEM 24 — G/R RT S/L #140 ITEM 25 — ANCHOR RT 3294+02.8 — G/R RT S/L #150 ITEM 14 — G/R RT S/L #140 ITEM 26 — G/R RT S/L #140 ITEM 27 — G/R RT, S/L #150, ITEM 15 — LT ANCHOR 3303+00.2 — G/R RT S/L #140 ITEM 28 — G/R LT S/L #150 ITEM 17 — RT ANCHOR 3305+81 — G/R RT S/L #150 ITEM 16 — G/R LT S/L #140 ITEM 29

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, B. M.: NOTED, STRUCTURE NO(FAT RES CH HD), NOTE BOOK, NO., BY, DATE



PROFILE — SURVEYED, PLOTTED, DRAWN, CHECKED, B. M.: NOTED, STRUCTURE NO(FAT RES CH HD), NOTE BOOK, NO., BY, DATE

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3285 TO STA. 3315

REVIEWED: [signature]
APPROVED FOR THE DISTRICT ENGINEER: [signature] CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: [signature] CHIEF, HIGHWAY SECTION
SCALE: AS SHOWN
SPEC. NO.
RECOMMENDED: [signature] CHIEF, RELOCATIONS BRANCH
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 11

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	97	116

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS 29"x18"x68' PIPE ARCH CULVERT 39' LT. OF ℄

SUBSURFACE EXPLORATION PRIOR TO EMBANKMENT

CONSTRUCT GATE SEE SHEET NO. 36 FOR DETAILS

Δ = 36° 43'
D = 5° 30'
R = 1,041.74'
T = 345.70'
L = 667.58'
S = 7%

TIE NEW FENCE TO EXISTING FENCE

STA. 3326+00 MSH-37 = 14+00 REXFORD - BLACK LAKE COUNTY ROAD APPROACH SEE SHEET NO. 23

CHARLES BEN CHISAM, et ux
N.E. 1/4 S.E. 1/4
SEC. 15

TIE NEW FENCE TO EXISTING FENCE

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS

CONSTRUCT GATE SEE SHEET NO. 36 FOR DETAILS.

Δ = 36° 30'
D = 4° 00'
R = 1,432.39'
T = 472.33'
L = 912.50'
S = 6%

P.I. 3338+26.65

Δ = 19° 20'
D = 2° 00'
R = 2864.79'
T = 487.97'
L = 966.67'
S = 4%

HELEN DOROTHY CHISAM
S.W. 1/4 N.W. 1/4
SEC. 14

COMMON

S.S. EXPLORATION DUG 12 AUG '69

65-WB-903

RELOCATING OF POWER LINE & T.V. CABLE, TO CLEAR THE CONSTRUCTION AREA, TO BE BY OWNERS.

FRANK BOLLES
S.E. 1/4 S.E. 1/4
SEC. 15

CONSTRUCT CATTLEGUARD & GATE, SEE SHEET 36 & 36A FOR DETAILS.

EXISTING CATTLEGUARD AND GATE

HELEN DOROTHY CHISAM
N.W. 1/4 S.W. 1/4
SEC. 14

TIE NEW FENCE TO EXISTING FENCE

LEO K. COLLAR
S 1/2 S.W. 1/4
SEC. 14

T. 36 N. R. 28 W. M.P.M.

SCALE IN FEET 100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

EXISTING GROUND

PRE-SPLIT

ESTIMATED ROCK LINE

600' V.C.

V.P.I. 3324+00
EL. 2598.50

2800' V.C.

3324+80
72"x162.8' PIPE CULVERT

3337+25
24"x133' PIPE CULVERT

SANDY SILT OVER ESTIMATED GRAVELLY SILT W/C&B

ROCK OUTCROPS, SANDY SILT W/SCATTERED COBBLES & BOULDERS OVER EST. GLACIAL OUTWASH SILTS, SAND & GRAVEL, W/NUM. C&B.

SANDY SILT W/SCATTERED COBBLES & BOULDERS OVER ESTIMATED GLACIAL OUTWASH SILT, SAND & GRAVEL, W/NUM. COBBLES & BOULDERS

GRAVELLY SANDY SILT W/NUM. COBBLES & BOULDERS (3') OCC. BLOCKS TO (5') (PROBABLE GLACIAL TILL)

FINE SANDY SILT W/SCATTERED C&B (2')

SYMBOL	DATE	DESCRIPTION
A	69 APR 9	(1) REVISED FENCE TIE (2) ADDED GATE

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3315 TO STA. 3345

REVIEWED:
APPROVED FOR THE DISTRICT ENGINEER:
CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03

SUBMITTED:
CHIEF, HIGHWAY SECTION
SCALE: AS SHOWN
SPEC. NO.

RECOMMENDED:
CHIEF, RELOCATIONS BRANCH
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 12

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	98	116

PLAN — SURVEYED, PLOTTED, CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

HELEN DOROTHY CHISAM

P.I. 3362+95.61

CLARA NELSON
E ½ S.W. ¼
SEC. 11

STA. 3374+60 MSH 37
COUNTY ROAD APPROACH
SEE SHEET NO. 23

3345 3346 3350 3355 3360 3365 3370 3375

N. 32° 23' E.

N. 67° 35' E.

100' 90' 100' 125' 110' 125' 110' 90'

R/W

P.C. 3351+86.85

3369+55.55

3373+50

R1-1 STOP

CONSTRUCT TYPE II ROAD APPROACH SEE SHT. 27 FOR DETAILS 29"x18"x66' PIPE ARCH CULVERT 38' RT. OF ℄

3357

3358+20

CONSTRUCT GATE SEE SHEET NO. 36 FOR DETAILS.

TIE NEW FENCE TO EXISTING FENCE

Δ = 35° 12'
D = 2° 00'
R = 2,864.79'
T = 908.76'
L = 1,760.00'
S = 4%

P.T. 3371+46.85

S 85° 08' 05" E
687.73'

HELEN DOROTHY CHISAM
S.W. ¼ N.W. ¼
SEC. 14

CLARA NELSON
N.E. ¼ N.W. ¼
SEC. 14

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

G/R RT & LT S/L #150 ITEMS 21, 22

G/R RT & LT S/L #140 ITEM 35

G/R RT & LT S/L #150 ITEM 23

LT ANCHOR 3352+07.6

T. 36 N., R. 28 W., M.P.M.

SCALE IN FEET 100 0 100 200 300

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PROFILE — SURVEYED, PLOTTED, CHECKED, S. M.I. NOTED, STRUCTURE NOTATNS CK'KD, NOTE BOOK, NO., BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

GR & LT & RT & LT ANCHOR 3346+75 #140 ITEM 34

225.0' LT
225.0' RT

1½:1 BACK SLOPE LT.

W = 15' LT & RT.
1½:1 BACKSLOPE

W = 15' RT. & LT.
1½:1 BACK SLOPE LT. & RT.

W = 15' RT.
BACK SLOPE BACK SLOPE BACK SLOPE 1½:1 RT.
1½:1 RT. 1½:1 RT.

GUARDRAIL LT 1312.50'

TBM #10
EL 2638.80
SPIKE IN 15" YELLOW PINE 95' RT.
STA. 3347+58

PRE-SPLIT RT.

TEMP. SLOPE 1½:1

EXISTING GROUND

PROFILE GRADE

ESTIMATED ROCK LINE

3348+18
24" x 146.7' PIPE CULVERT

3.82%

3361+00
24" x 130.6' PIPE CULV.

FINE SANDY SILT TO GRAVELLY SILT W/OCC. COBBLES OVER ROCK

SILT W/SCATTERED AREAS OF GRAVEL & COBBLES OVERLIES ESTIMATED GLACIAL TILL, SANDY SILT OR CLAY W/GRAVEL, COBBLES & BOULDERS

FINE SANDY SILT W/SCATTERED AREAS OF GRAVEL & COBBLES W/OCC. BOULDERS (E)

ROCK

1600' V.C. S/L 94

V.P.I. 3367+00
EL. 2579.50

TBM #11
EL. 2583.44
RR SPIKE IN 15" PINE 397' LT. STA. 3372+44

± 1.0 %

DR 2 POSTS LT. (TYPE DI)

3373+50
30" x 103.7' PIPE CULVERT

2660 2650 2640 2630 2620 2610 2600 2590 2580 2570

3345 3350 3355 3360 3365 3370 3375

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3345 TO STA. 3375

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03

SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 13

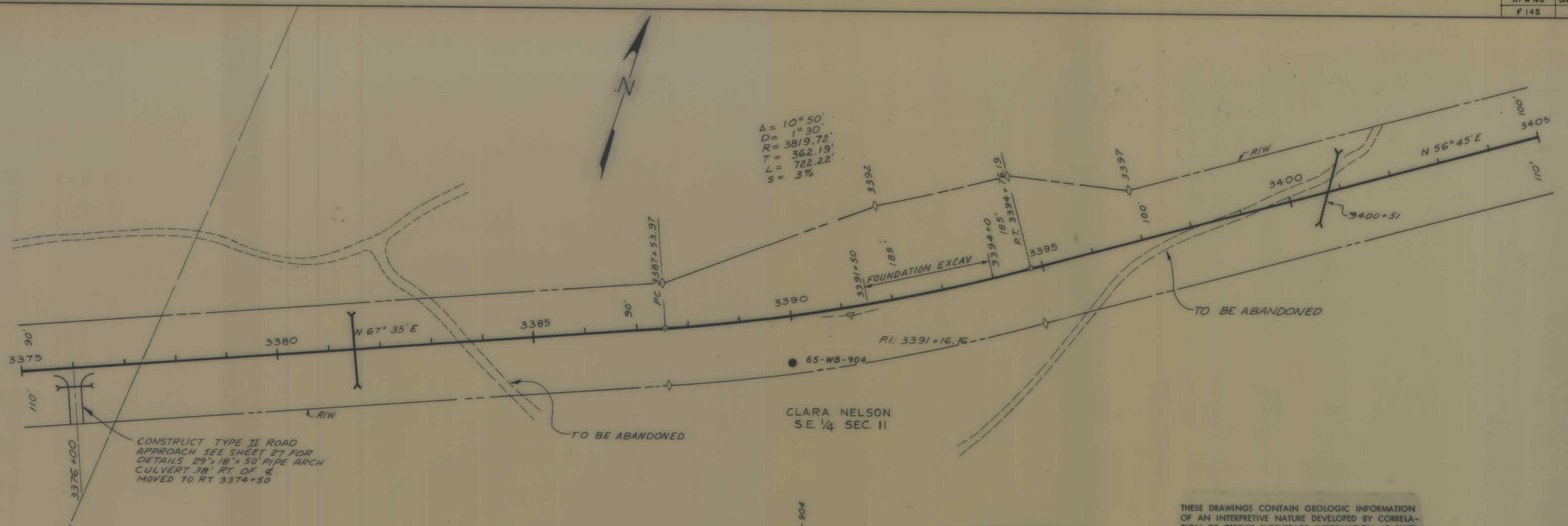
K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	99	116

PLAN — SURVEYED; PLOTTED; NOTE BOOK; NO.; ALIGNMENT CHECKED; RT. OF WAY CHECKED; BY; DATE

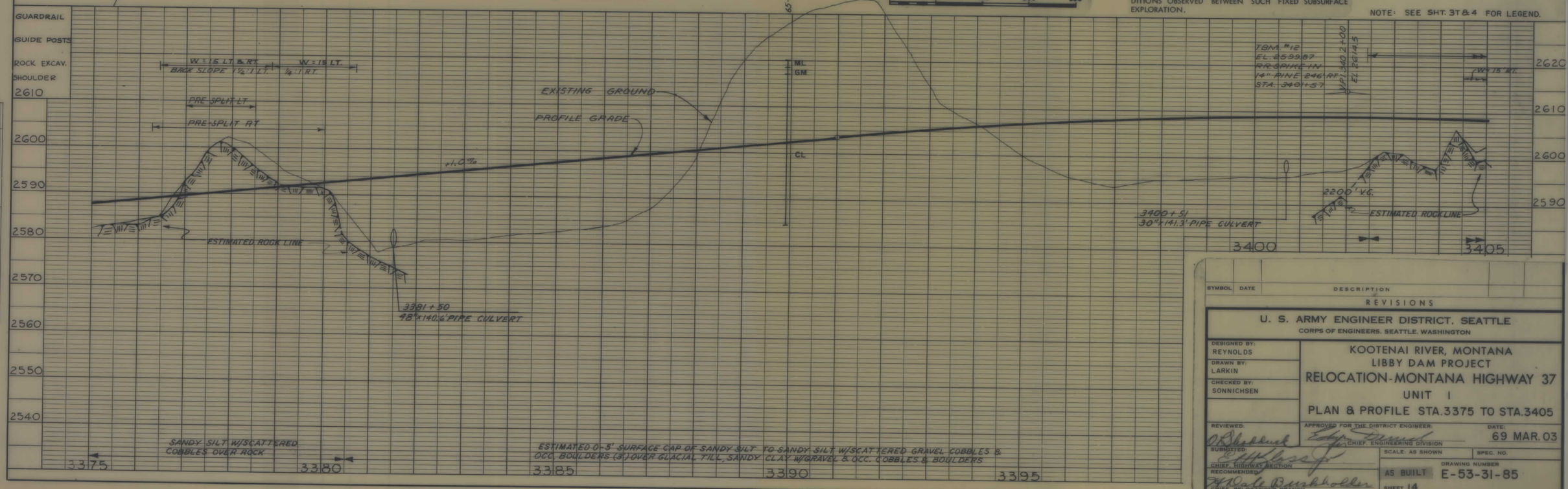


T. 36 N., R. 28 W., M.P.M.

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PROFILE — SURVEYED; PLOTTED; NOTE BOOK; NO.; CHECKED; B. M.'s NOTED; STRUCTURE NOTATING CHKD; BY; DATE



SYMBOL	DATE	DESCRIPTION
		REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3375 TO STA. 3405

REVIEWED: O. Bloedel
APPROVED FOR THE DISTRICT ENGINEER: Edgar Turner Jr., CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: CHIEF, HIGHWAY SECTION
SCALE: AS SHOWN
SPEC. NO.
RECOMMENDED: W. Dale Burkholder, CHIEF, RELOCATIONS BRANCH
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 14

K·E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	100	116

CLARA NELSON
S.E. 1/4
SEC. 11

ST. REGIS PAPER CO.
S.W. 1/4 N.W. 1/4
SEC. 12

U.S. GOVERNMENT
S.E. 1/4 N.W. 1/4
SEC. 12

U. S. GOVERNMENT
W 1/2 S.W. 1/4
SEC. 12

WILLIAM G. GWYNN, et ux
N.E. 1/4 S.W. 1/4
SEC. 12

N 4°06'55"E 382.6

P.I. 3408+07.47

SUBSURFACE EXPLORATION PRIOR TO EMBANKMENT

N 56°45 E

3405

3408+41.88

W1-4

3410

P.T. 3410+32.22

N 74° 53' E

3415

P.C. 3414+64.33

3415+77±

3416+16

P.I. 3416+56.01

138'L. x 10'DIA. UNDERPASS.
(B1) SEE DETAIL A, SH. 31
W2-2

Δ = 18°08'
D = 4°00'
R = 1,432.39'
T = 228.58'
L = 453.33'
S = 6%

P.C. 3405+78.89

100'
110'
R/W

Δ = 22°42'
D = 6°00'
R = 954.93'
T = 191.68'
L = 378.33'
S = 8%

P.T. 3418+42.66

TO BE ABANDONED

3420

P.C. 3421+29.75

100'

Δ = 71°32'
D = 7°30'
R = 763.94'
T = 550.30'
L = 953.78'
S = 8%

N 52° 11' E

STOP

3425

P.I. 3426+80.05

STA. 3426+00 MSH 37
REXFORD TOWNSITE ROAD
SEE SHEET 23 & 25A
FOR DETAILS
PPM 2, ROAD DELETED
OUTSIDE R/W 37-1

3430

R/W 2

P.T. 3430+83.53

S 56° 17' E

Rexford
G-1

Rexford
G-2
W2-2

A1

Δ = 8°11'
D = 2°00'
R = 2864.79'
T = 204.93'
L = 409.17'
S = 4%

P.C. 3433+91.25

100'

3435

G/R RT
S/L #150
ITEM 25

G/R LT
S/L #150
ITEM 24

SCALE IN FEET
100 0 100 200 300

T. 36 N. R. 28 W. M.P.M.

G/R LT S/L 140 ITEM 36

LT ANCHOR 3415+24.5
600' LT
175.0 RT

RT ANCHOR 3415+02
RT ANCHOR 3416+75
11 POSTS RT (8 TYPE C, 3 TYPE E)

G/R LT S/L #140 ITEM 37

LT ANCHOR 3421+29.9

G/R LT S/L #140 ITEM 38

LT ANCHOR 3428+96.5
900.0 LT
20 POSTS LT. (15 TYPE C, 3 TYPE E)
2 TYPE D AT APPROACH

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

11 POSTS LT. (8 TYPE C, 3 TYPE E)

W = 15' RT.
W = 15' LT & RT.
W = 15' RT.
W = 15' RT.
W = 15' RT.
BACK SLOPE 1½:1 RT.
BACK SLOPE 1½:1 RT.
W = 15' RT.
BACK SLOPE 1½:1 RT.

TBM #13
EL. 2609.68
RR SPIKE IN
14" FIR 20' RT.
STA. 3420+00

1000' V.C.

EXISTING GROUND

PROFILE GRADE

-4.0%

+1.62%

PRE-SPLIT RT.

ESTIMATED ROCK LINE

3415+77
10' DIA x 138' UNDERPASS
(B1)

3416+16
42" X 104' PIPE CULVERT

W.P.I. 3421+20
LT. 2895.50

ESTIMATED ROCK LINE

3430+60
24" x 123.0' PIPE CULVERT

NUM. SCATTERED ROCK OUTCROPS W/INTERVENING AREAS OF SANDY SILT W/ SCATTERED GRAVEL & COBBLES & TALUS, BLOCKS TO 3' NEAR OUTCROPS

SANDY SILT W/ SCATTERED GRAVELS & COBBLES OVER ESTIMATED GLACIAL TILL, SANDY SILT OR CLAY W/ GRAVEL

SHALLOW SILT & TALUS OVER ROCK

SANDY SILT W/ SCATTERED GRAVEL & COBBLES OVER ESTIMATED GLACIAL TILL, SANDY SILT OR CLAY W/ GRAVEL

3405 3410 3415 3420 3425 3430 3435

2620 2610 2600 2590 2580 2570 2560 2550 2630

SYMBOL	DATE	DESCRIPTION	BY
B	7 MAY 5	(1) ADDED VEHICLE UNDERPASS FOR REXFORD SIGNS.	WHITT
A	5 APRIL 9	(1) ADDED SIDE ROAD SIGNS, RELOCATED GUIDE	EMARY

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3405 TO STA. 3435

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR 03

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-85
AS BUILT
SHEET 15

PLAN — SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, R/T OF WAY CHECKED, NOTE BOOK, NO.

3FILE — SURVEYED, PLOTTED, DRAWN, CHECKED, B. M.'S NOTED, STRUCTURE NOTATING CHECKED, NO.

K·E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

DACW67-69-C-0039

INTRODUCED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	101	116

Δ = 8° 11'
D = 2°00'
R = 2864.79'
T = 204.93'
L = 409.17'
S = 4%

STOP

STA. 3436+80 M.S.H. 37 = 10+00 ROAD APPROACH SEE SHEET NO. 24

3436+06

WI-4

3435

S 56° 17' E

P.I. 3435+96.18

PT. 3438+00.42

3440

3441

3442

100'

120'

S 64° 28' E

R/W

P.I. 3450+92.55

3450

SUBSURFACE EXPLORATION PRIOR TO EMBANKMENT

3445

160'

PC. 3448+16.52

STA. 3438+88 M.S.H. 37 = 10+00 ROAD APPROACH SEE SHEET NO. 24

65-WB-905

3444

STOP

R1-1

WILLIAM G. GWYNN
N.E. 1/4 S.W. 1/4
SEC. 12

WILLIAM G. GWYNN
N.W. 1/4 S.E. 1/4 SEC. 12

Δ = 8° 16'
D = 1°30'
R = 3819.72'
T = 276.03'
L = 551.11'
S = 3%

LEW ALBERT CURTIS, et ux
N.E. 1/4 S.E. 1/4 SEC. 12

TO BE ABANDONED

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS 29"x18"x563' PIPE ARCH CULVERT 38' RT. OF ℄

3453+77

PT. 3453+46.63

120'

3455

S 56° 12' E

PC. 3459+86.25

3460+10

Δ = 22° 35'
D = 4° 00'
R = 1432.39'
T = 286.00'
L = 564.58'
S = 6%

3465

S 78° 47' E

P.I. 3462+72.25

TO BE ABANDONED

WILLIAM G. GWYNN, et ux
S.E. 1/4 S.E. 1/4 SEC. 12

N

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

T. 36 N., R. 28 W., M.P.M.

SCALE IN FEET
100 0 100 200 300

G/R LT. S/L #150 ITEM 26

LT. ANCHOR 3433+54

G/R LT. S/L #140 ITEM 39

LT. ANCHOR 3439+50

G/R LT. S/L #150 ITEM 27

G/R RT S/L #150 ITEM 28

RT. ANCHOR 3452+30.1

G/R RT S/L #140 ITEM 40

LT. ANCHOR 3454+63.9

RT. ANCHOR 3456+55.1

G/R LT. S/L #140 ITEM 41

LT. ANCHOR 3464+00.4

NOTE: SEE SHTS. 3 & 4 FOR LEGEND.

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

2 POSTS RT. TYPE D

2 POSTS LT. TYPE D AT APPROACH

65-WB-905

525.0' LT

ML
CL
ML

1000' V.C.

W=15' RT.

+4.11%

EXISTING GROUND

PROFILE GRADE

+1.62%

ESTIMATED ROCK LINE

V.P.I. 3444+60
EL. 2632.78

3444+60
30"x82.2' PIPE CULVERT

3436+08
30"x128.8' PIPE CULVERT

425' RT.

12 POSTS RT. (9 TYPE C, 3 TYPE F)

W=15' RT. & LT.
BACK SLOPE 1:1 RT. & LT.

EXISTING GROUND

ROCK CAP

W=15' LT.

FINE SANDY SILT W/SCTD. GRAVEL & OCC. COBBLES

3460

3465

PROFILE GRADE

+4.1%

PRE-SPLIT

ESTIMATED ROCK LINE

TBM 14
EL. 2681.98
RR SPIKE IN 16"ø TR. IN AT STA. 3457+00

3453+77
42"x150.9' PIPE CULVERT

2650

2660

2670

2680

2690

2700

2710

2720

2640

2630

2620

2610

2600

2590

2580

SANDY GRAVELLY SILT W/NUM COBBLES & OCC. BOULDERS (?), OVERLIES SANDY CLAY OR SILT W/GRAVEL (PROBABLE GLACIAL TILL)

ROCK OUTCROPS W/INTERVENING AREAS OF SANDY SILTY GRAVEL W/C.B.B. SILT & SCTD. TALUS

3435 3440 3445 3450 3455

PLAN
SURVEYED:
PLOTTED:
ALIGNMENT CHECKED:
R/W OF WAY CHECKED:
NOTE BOOK:
NO.
BY
DATE

PROFILE
SURVEYED:
PLOTTED:
GRADES CHECKED:
R/W NOTED:
STRUCTURE NO(S) & TYPE CHECKED:
NOTE BOOK:
NO.
BY
DATE

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3435 TO STA. 3465

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 16

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1979

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	102	116

CONSTRUCT TYPE II ROAD APPROACHES SEE SHEET 27

MOVED TO 3469+75 LT. 29"x18"x62.3 CMP

N4°19'05"E

3470+90

P.I. 3473+24.05

3469+16

3470

3475

3480

3485

3490

S 78° 47' E

S 53° 02' E

3465+50.83

3466+47.17

P.T. 3465+50.83

P.C. 3470+62.13

P.T. 3475+77.13

P.C. 3483+16.40

P.T. 3494+98.84

120'

130'

W1-2

W1-2

W1-2

℄ R/W

℄ R/W

Δ = 25° 45'
D = 5° 00'
R = 1,145.92'
T = 261.92'
L = 515.00'
S = 7%

Δ = 43° 41'
D = 7° 30'
R = 763.94'
T = 306.20'
L = 582.44'
S = 8%

BERT C. ROE, et al
S.W. 1/4 S.E. 1/4
SEC. 7

N 83° 17' E

P.I. 3492+22.60

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27
29"x18"x58' PIPE ARCH CULVERT 50' RT. OF ℄

3490+85

LEW ALBERT CURTIS, et ux
LOT 2
SEC. 7

WILLIAM G GWYNN, et ux
S.E. 1/4 S.W. 1/4
SEC. 7

T. 36 N R 28 W

T. 36 N. R. 27 W. M.P.M.

1232.28'

12 | 7 | 18

SCALE IN FEET
100 0 100 200 300

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, AT OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, NOTE BOOK, NO., STRUCTURE NOTATNS.CHKD., BY, DATE

GUARDRAIL			
GUIDE POSTS			
ROCK EXCAV.			
SHOULDER			

G/R-LT S/L #150 ITEM 29

G/R-LT S/L-#140 ITEM 42

W=15'RT. & LT. ROCK CUT 1:1 RT. & LT.

W=15'RT. BACK SLOPE 1½:1 RT.

W=15'RT. 1½:1 RT. BACK SLOPE

1092.75 'LT.

LT. ANCHOR - 3477+75.5
G/R-LT.-S/L #150 - ITEM 30

12 POSTS LT (9 TYPE C, 3 TYPE E)

W=15' RT. ROCK CUT 1:1 RT.

W=15' RT. BACK SLOPE 1½:1 LT. ROCK CUT 1:1 RT.

W=15' RT. ROCK CUT 1:1 RT.

2212.5 'LT.

17 POSTS RT. (12 TYPE C, 5 TYPE E)

TBM #15
EL. 2694.27
RR SPIKE IN
10" P/R 50' LT
STA. 3486+71

RE-SLOPED-S/L126

2400' V.C.

ESTIMATED ROCK LINE

ROCK CAP

PROFILE GRADE

EXISTING GROUND

-3.75%

-3.75%

PROFILE GRADE

EXISTING GROUND

ESTIMATED ROCK LINE

3469+16
24"x152' PIPE CULVERT

3477+00
24"x113.4 PIPE CULVERT

3491+60
30"x141.5' PIPE CULVERT

SANDY GRAVELLY SILT W/COBBLES & OCC. BOULDERS (PROBABLE GLACIAL TILL)

ROCK OUTCROPS W/INTERVENING AREAS OF SILT TO GRAVELLY SILT W/NUMEROUS ANGULAR ROCK FRAGMENTS, COBBLES & OCC. BOULDERS

2720 2710 2700 2690 2680 2670 2660 2650

3465 3470 3475 3480 3485 3490 3495

SYMBOL	DATE	DESCRIPTION
		REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3465 TO STA. 3495

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 17

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	103	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, P.T. OF INT. CHECKED, BY, DATE

APPROX. LOCATION OF EXISTING FENCE

TO BE ABANDONED

W1-2

3504+30

CONSTRUCT TYPE II ROAD APPROACHES SEE SHEET 27

P.I. 3503+12.36

3500+40

TIE NEW FENCE TO EXISTING FENCE

N 83°17' E

3500

3495

120'

130'

3505

W1-2

P.C. 3500+88.53

120'

S 70° 20' E

3496

W1-2

WILLIAM G. GWYNN, et ux
S.W. 1/4 S.E. 1/4
SEC. 7

Δ = 26° 23'
D = 6° 00'
R = 954.93'
T = 223.83'
L = 439.72'
S = 8%

P.T. 3505+28.25

3510+50

P.C. 3509+69.04

3510

CONSTRUCT GATES SEE SHEET NO. 36 FOR DETAILS.

Δ = 59° 37'
D = 7° 30'
R = 763.94'
T = 437.66'
L = 794.89'
S = 8%

R/W

3514+55

3515

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27

R/W

S 85° 02' 31" E

29"x18"x62' PIPE ARCH CULVERT 38' RT. OF ℄

P.I. 3514+06.70

P.T. 3517+63.93

3520

N 50° 03' E

120'

W1-2

TO BE ABANDONED

WILLIAM HOMER GARRISON
S.E. 1/4 S.E. 1/4
SEC. 7

N 4°17'28" E

675.03'

3520

3521+49.06

W1-2

.001

.011

.001

3525

P.C. 3522+64.75

Δ = 44° 46'
D = 6° 00'
R = 954.93'
T = 393.27'
L = 746.11'
S = 8%

WILLIAM HOMER GARRISON
S.W. 1/4 S.W. 1/4
SEC. 8

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

T 36 N, R 27 W, MPM

SCALE IN FEET
100 0 100 200 300

7 8
18 17

LT ANCHOR 3519+01.4

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, NO., GRADES CHECKED, BY, M.S. NOTED, STRUCTURAL NOTATIONS CHKD, BY, DATE

G/R LT S/L #150 ITEM 32

G/R LT S/L #140 ITEM 43

G/R LT S/L #140 ITEM 44

LT ANCHOR 3505+76.3

G/R LT S/L #140 ITEM 45

G/R LT S/L #150 ITEM 33

G/R RT S/L #140 ITEM 46

G/R RT S/L #150 ITEM 34

G/R RT S/L #140 ITEM 47

512.5' LT

180' RT

ANCHOR RT 3517+95.8

GUARDRAIL

GUIDE POSTS

ROCK EXCAV

SHOULDER

LT. 12 POSTS LT (9 TYPE C, 3 TYPE F)

18 POSTS RT (15 TYPE C, 3 TYPE F)

19 POSTS LT. (15 TYPE C, 4 TYPE F)

2630
2620
2610
2600
2590
2580
2570
2560

1000' V.C.

-3.75%

TBM # 16
EL. 2605.24
PK SPIKE IN
18" FIR CN ℄
STA. 3506+20

3500+40
30"x111.2' PIPE CULVERT

V.P.I. 3502+00
EL. 2607.75

PROFILE GRADE

EXISTING GROUND

-2.0%

3505+00
24"x84.1' PIPE CULVERT

ESTIMATED ROCK LINE

3511+76
24"x117.3' PIPE CULVERT

SANDY GRAVELLY SILT W/COBBLES & BOULDERS (PROBABLE GLACIAL TILL)

SANDY SILT OVERLYING ESTIMATED OUTWASH SILTS, SANDS & GRAVELS W/COBBLES & OCC. BOULDERS

3495
3500
3505
3510
3515

2590
2570

ESTIMATED ROCK

3517+36
36"x204.1' PIPE CULVERT

3514+55
30"x159.3' PIPE CULVERT

-2.0%

600 V.C.

-2.63%

V.P.I. 3520+00
EL. 2537.75

PROFILE GRADE

EXISTING GROUND

SANDY SILT TO SILTY SAND W/SCATTERED GRAVEL & COBBLES OVERLYING ESTIMATED GLACIAL OUTWASH COMPOSED OF SILTY SAND TO SANDY GRAVEL W/COBBLES & OCC. BOULDERS

3520
3525

2590
2580
2570
2560

SYMBOL	DATE	DESCRIPTION

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3495 TO STA. 3525

REVIEWED: O.E. Goodrich, CHIEF, ENGINEERING DIVISION
APPROVED FOR THE DISTRICT ENGINEER: Leroy Lane, DATE: 69 MAR 03
SUBMITTED: W. Klos Jr., CHIEF, HIGHWAY SECTION
SCALE: AS SHOWN
SPEC. NO.
RECOMMENDED: Dale Burkholder, CHIEF, RELOCATIONS BRANCH
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 18

K-E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

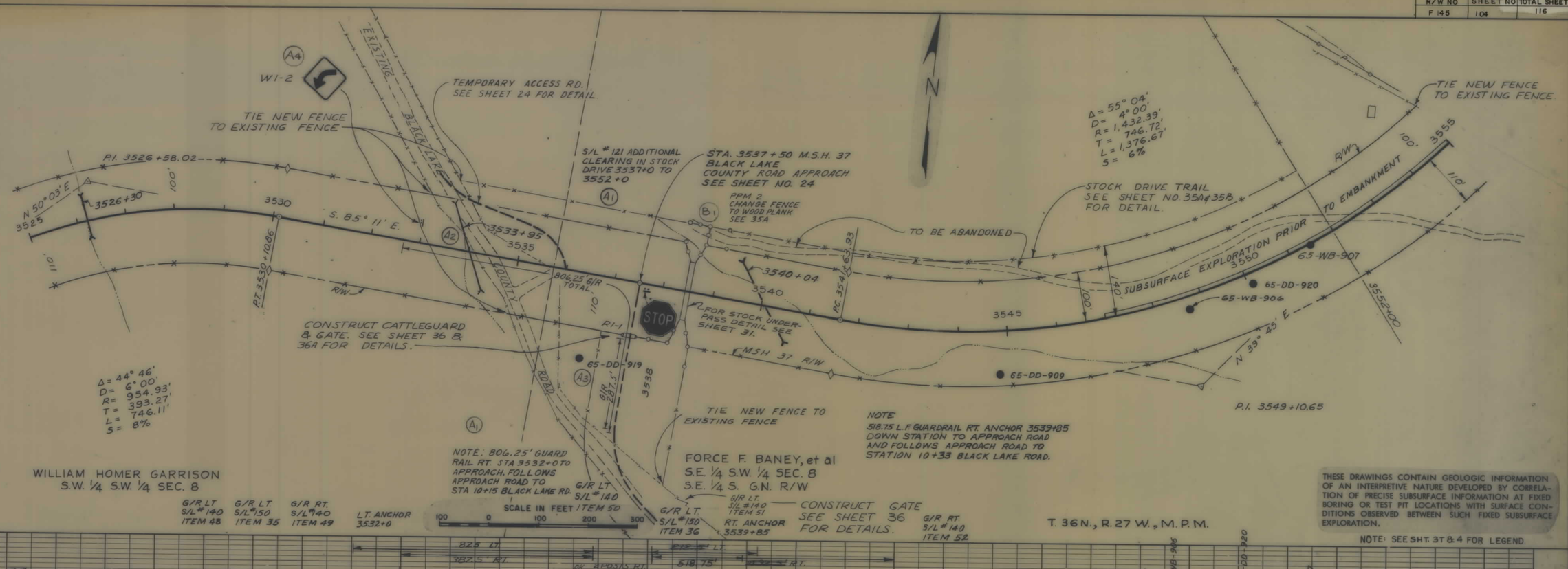
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

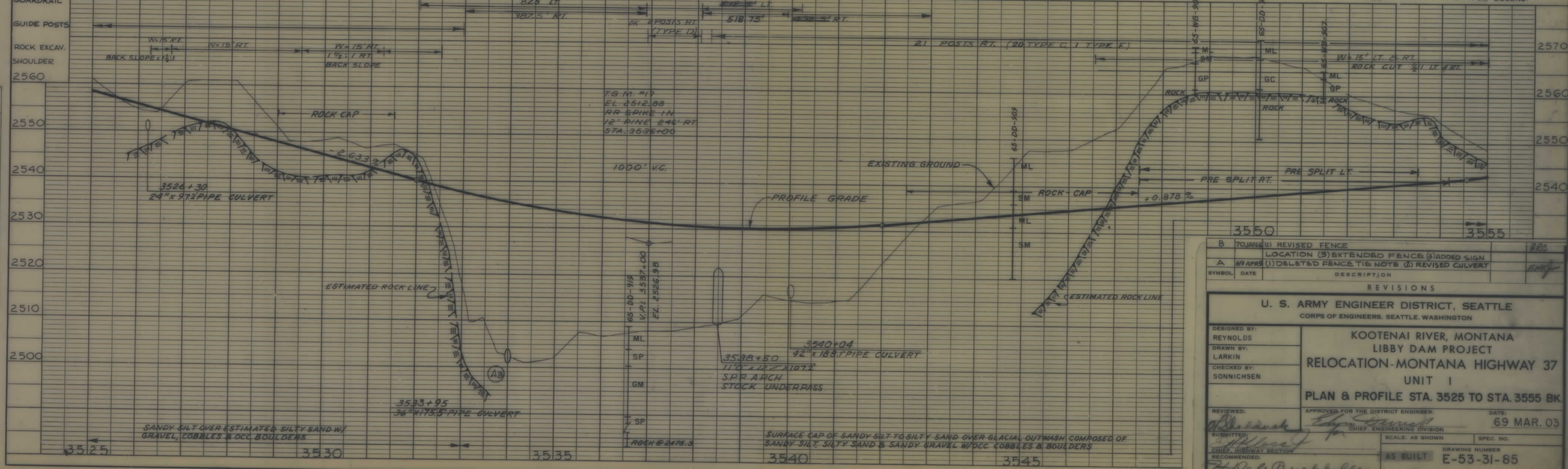
CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	104	116

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, RT OF WAY CHECKED, NOTE BOOK, NO., BY, DATE



PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B. M.'S NOTED, STRUCTURE NOTATIONS ON NOTE BOOK, NO., BY, DATE



SYMBOL	DATE	DESCRIPTION
B	70 JAN	(1) REVISED FENCE LOCATION (3) EXTENDED FENCE (4) ADDED SIGN
A	69 APR 9	(1) DELETED FENCE TIE NOTE (2) REVISED CULVERT

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT 1
PLAN & PROFILE STA. 3525 TO STA. 3555 BK.

REVIEWED:
APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-85
AS BUILT
SHEET 19

K•E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	105	116

EQUATION

SUB-SURFACE EXPLORATION TO FIND ROCK FOR ABUT. #1 FOOTING

STOCK DRIVEWAY SEE SHEETS 35D & 35B FOR DETAILS

(A3) TIE NEW FENCE TO EXISTING FENCE

(B1) CONSTRUCTION TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS MEET EXISTING GROUND

CONSTRUCT GATE SEE SHEET 36 FOR DETAILS

(A3) TIE FENCE INTO ROAD SIDE SLOPES 17' LT. & RT. OF CENTERLINE

STA. 3549+00 MSH 37 = STA. 10+00 COUNTY ROAD APPROACH SEE SHEET 25

RIVER

TOBACCO

STOP R1-1

N. 50°15' W.

℄ M.S.H. 37 R/W

℄ 3555 +40.60 BK = ℄ 3541+38.46 AH

66-DD-937 66-DD-940 66-DD-938 66-DD-939

A1 A2 A1

X1-1

3555 3545 3550

65-WB-908 3555 N 39°45' E 3560

3564 3565 3566 3570

STA. 3564+25 STA. 3565+00

100' 80' 110' 80' 80' 80'

FOR STOCK UNDERPASS DETAIL SEE SHEET 31 PPM #1

TO BE ABANDONED

MSH 37 R/W

CONSTRUCT GATE SEE SHT. 36 FOR DETAILS

STA. 3542+36.84 A.H. M.S.H. 37 = 3699+32.02 G.N. R.R.

EXISTING GREAT NORTHERN TELEPHONE LINE

ANGLE TIE 74°45'20"

TIE NEW FENCE TO EXISTING FENCE

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS 18" x 58.2 PIPE CULVERT 38' RT. OF ℄

SEE SHEETS 46 & 47 FOR BORING LOGS OF EXPLORATION IN THIS AREA.

BERT C. ROE, et ux
N. ½ S.E. ¼ SEC. 8 N. GN R/W

BERT C. ROE, et ux
N.E. ¼ SEC. 8

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET 100 0 100 200 300

T. 36 N., R. 27 W., M.P.M.

(A4) APPROVED 20 MARCH 1969
C. O. Sollenberger
ASST. CHIEF ENGINEER
G.N. RAILWAY COMPANY

NOTE: SEE SHT. 3T & 4 FOR LEGEND

PLAN — SURVEYED, PLOTTED, NOTE BOOK, ALIGNMENT CHECKED, NO., BY, DATE

GUARDRAIL
GUIDE POSTS
ROCK EXCAV.
SHOULDER

125' LT. 125' RT. 125' LT. 125' RT. 2 POSTS LT (TYPE D)

W= 100' ROCK CUT ½:1 SHLDR. ½ RT. ROCK CUT

℄ 3555 +40.60 BK = ℄ 3541+38.46 AH

EQUATION

EXISTING GROUND PROFILE GRADE +3.02% -0.54%

CONSTRUCT TOBACCO RIVER BRIDGE SEE SHEET 59 FOR DETAILS. 600' V.C.

3544+75.33

VPI 3543+50 EL 2545.0

TBM #18 EL. 2567.03 RR SPIKE IN 14" PINE 100' LT. STA. 3552+00

CL MS 966

ML SP GP SP

VPI 3562+00 EL 2601.0

1200' V.C.

3565+00 24" x 103.5' PIPE CULVERT

3564+25 24" x 111.6' PIPE CULVERT. SEE SH. 29 R.P.M. #1 (SLEEVE FOR IRRIGATION PIPE)

2560 2550 2540 2530 2520 2510 2500 2610 2600 2590 2580 2570

3555 3545 3550 3555 3560 3565 3570

ESTIMATED ROCK LINE

3541+70.00

TOBACCO RIVER

ROCK OUTCROPS, RAILROAD FILL & SANDY GRAVEL

RIVER GRAVELS OVER GLACIAL OUTWASH

SURFACE CAP OF FINE SANDY SILT W/OCC. SCATTERED GRAVEL OVER GLACIAL OUTWASH COMPOSED OF SANDY GRAVEL W/NUM. COBBLES & OCC. BOULDERS TO GRAVELLY SAND W/COBBLES

(E2) P.P.M. #1 3550+60 A.H. 5'-10"-7'7"x91' S.S.P. STOCK UNDER PASS

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, GRADES CHECKED, NO., BY, DATE, STRUCTURE NOTATNS.CK'KD.

SYMBOL	DATE	DESCRIPTION	
B	69 JUL 7	(1) ADDED RD APPROACH & GATE (4) CHANGED SIZE	
		(4) ADDED SIGNATURE	
A	69 APR 9	(1) ADDED FENCE (2) DELETED FENCE (3) ADDED NOTES	EHW

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3555 BK. TO STA. 3570

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER E-53-31-85
SHEET 20 OF SHEETS

K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F145	106	116

BERT C. ROE, et ux
N.E. 1/4
SEC. 8

M.O. STARK, et ux
S.W. 1/4 S.W. 1/4
SEC. 4

M.O. STARK, et ux
N.W. 1/4 N.W. 1/4
SEC. 9

STA. 3585+40± ANCHOR AT 170' OFFSET, END OF 275.9 L.F. G/R LT.

(PI 3585+32.35)

STA. 3585+70± ANCHOR AT 155' OFFSET, END OF 812.5 L.F. G/R LT.

STOP

RI-1

S 85° 33' 59" E

EXISTING TELEPHONE LINES TOO LOW THIS AREA

TIE NEW FENCE TO EXISTING FENCE

CONSTRUCT GATE SEE SHEET NO. 36 FOR DETAILS.

GUARD RAIL (LEFT)

R/W

EXIST. M.S.H. 37

EXIST. 24" C.M.P.

RAISING OF POWER AND TELEPHONE LINES, TO CLEAR THE CONSTRUCTION AREA, TO BE BY OWNERS.

EXISTING GATE

GUARD RAIL LT.

STA. 3585+65 M.S.H. 37 = 10+00 ROAD APPROACH TO EXISTING M.S.H. 37 WEST - SEE SHEET NO. 25

STA. 3583+90 G/R ANCHOR LT. BEGIN 275 L.F. G/R

STA. 3584+90 G/R P.C.

STA. 3586+40± G/R P.C.

Δ = 55° 08'
D = 3° 00'
R = 1909.86'
T = 997.04'
L = 1837.78'
S = 5%

STA. 3592+80 G/R ANCHOR LT. BEGIN 812.5 L.F. G/R

TRANSITION TO EXISTING GRADE AND WIDTH

359+47.11

3594+75

END CONSTRUCTION THIS CONTRACT

STA. 3594+05 M.S.H. 37 = 19+50 M.S.H. 37 (TEMP) SEE SHEET 25

EXIST. 18" C.M.P.

EXIST. GATE

CONSTRUCT GATE SEE SHEET NO. 36 FOR DETAILS.

CEMETERY

PI 3593+73.09

CONSTRUCT TYPE II ROAD APPROACH SEE SHEET 27 FOR DETAILS

TIE NEW FENCE TO EXISTING FENCE

DITCH, 10' BOTTOM WIDTH, 2:1 SIDE SLOPES, -0.3% GRADIENT

N 39° 45' E

N 4° 16' 09" E

PC 3571+31

3571+00

3574+00

3578+00

3578+65.53

5+41.80

3570

3575

3580

3585

3590

80'

THESE DRAWINGS CONTAIN GEOLOGIC INFORMATION OF AN INTERPRETIVE NATURE DEVELOPED BY CORRELATION OF PRECISE SUBSURFACE INFORMATION AT FIXED BORING OR TEST PIT LOCATIONS WITH SURFACE CONDITIONS OBSERVED BETWEEN SUCH FIXED SUBSURFACE EXPLORATION.

SCALE IN FEET
100 0 100 200 300

T. 36 N., R. 27 W., M.P.M.

10+87.5 LF TOTAL G/R LT S/L 172 CASE 36 PPM #24

NOTE: SEE SHT. 3T & 4 FOR LEGEND.

GUARDRAIL LT.
GUIDE POSTS LT. RT.
ROCK EXCAV
SHOULDER

2620
2610
2600
2590
2580
2570
2560
2550

3586+40± SEE PLAN

3588+90 ANCHOR

2 PSTD. LT. TYPE-D

2 LEFT 640' TO P.C. + 1726' TO APPROACH RD. ANCHOR (SEE PL AH)

ANCHOR 3592+80

MEET EXISTING GRADE

A1

3594 + 75 END CONSTRUCTION THIS CONTRACT

FBM. #19
EL. 2589.029
BOAT NAIL IN POLE
W/TRANS. SO. OF HWY 37, WEST OF CEMETERY

+3.0%

1000' V.C.

PROFILE GRADE

-0.545%

EXISTING GROUND

3576+95
24" x 89.2' PIPE CULVERT

3582+00
24" x 97.1' PIPE CULVERT

3571+00
24" x 87.3' PIPE CULVERT

VPI 3584+00
EL 2588.10

SURFACE CAP OF FINE SANDY SILT W/OCC. SCTD. GRAVEL OVER GLACIAL OUTWASH COMPOSED OF SANDY GRAVEL W/NUM. COBBLES & OCC. BOULDERS TO GRAVELLY SAND W/COBBLES

3570 3575 3580 3585 3590 3595 3600

SYMBOL	DATE	DESCRIPTION	
A	69 APR 9	(1) CORRECTED END OF CONSTRUCTION	EMP

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: REYNOLDS
DRAWN BY: LARKIN - JETER
CHECKED BY: SONNICHSEN
REVIEWED:
SUBMITTED: Chief, Highway Section
RECOMMENDED: Chief, Relocations Branch

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE STA. 3570 TO STA. 3594+75

APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 21

PLAN: SURVEYED, PLOTTED, DESIGN CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO.

PROFILE: SURVEYED, PLOTTED, DESIGN CHECKED, QUANT. CHECKED, S. M.'s NOTED, STRUCTURE NOTATIONS OFFICE, NOTE BOOK, NO.

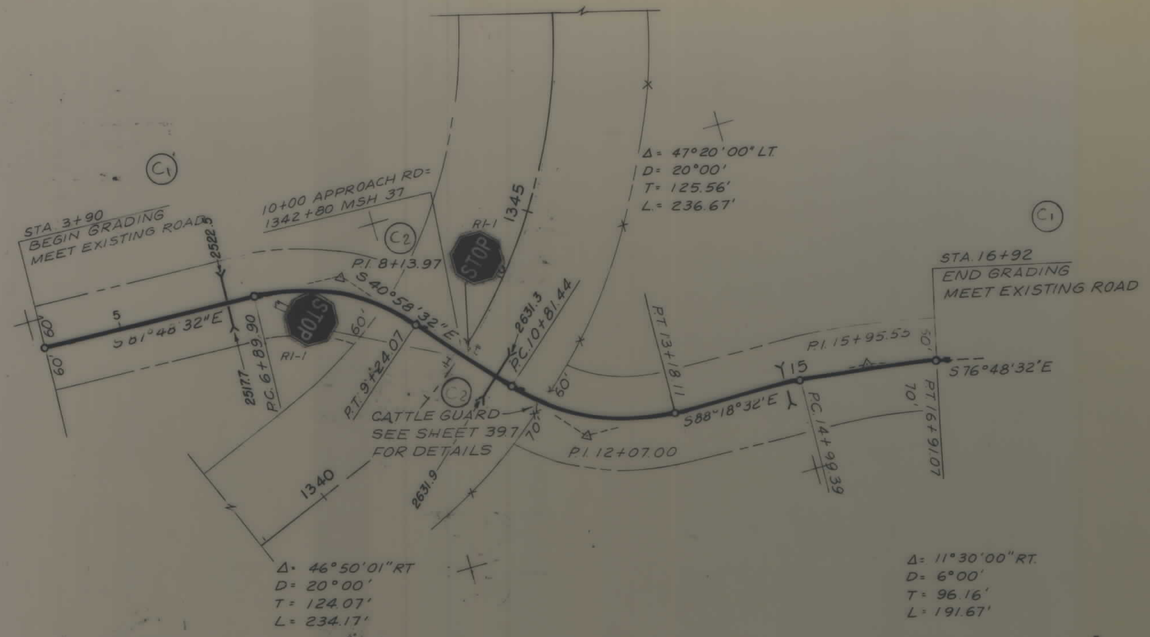
K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

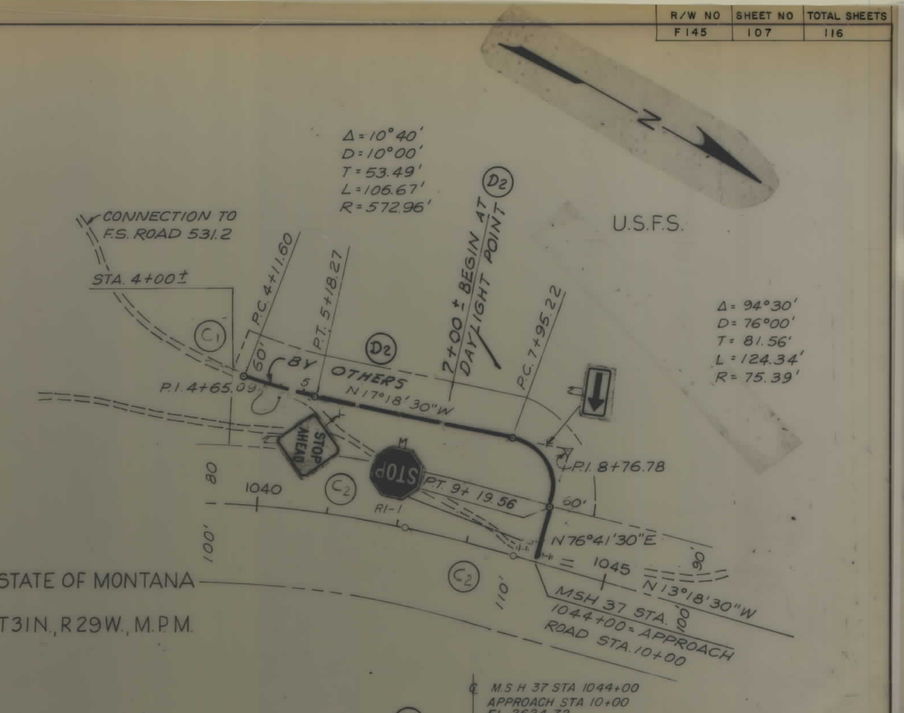
DACW67-69-C-0039

MICROFILMED OCTOBER 1972

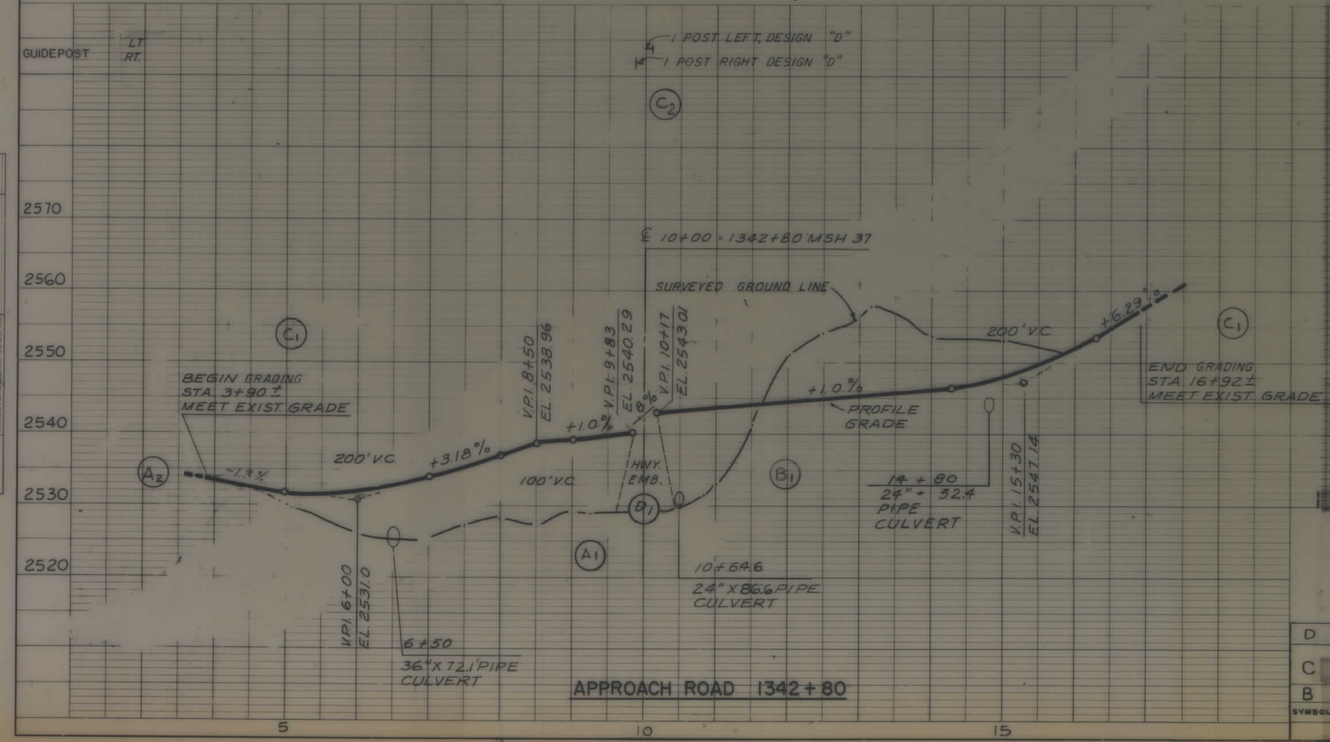
R/W NO	SHEET NO	TOTAL SHEETS
F145	107	116

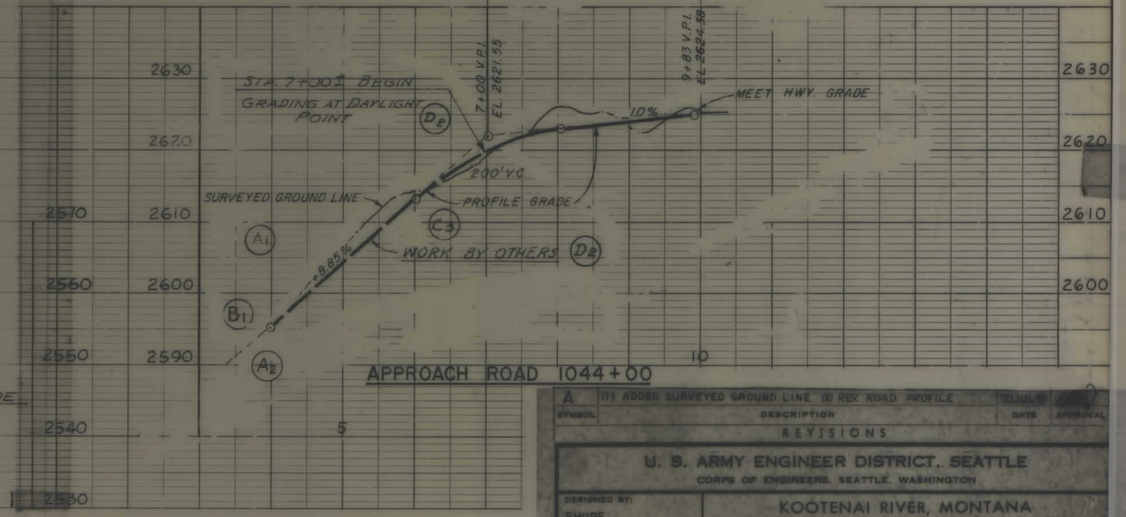
PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, R/W CHECKED, NOTE BOOK, NO., BY, DATE





SCALE IN FEET 100 0 100 200 300 — GUIDE POSTS





PROFILE — SURVEYED, PLOTTED, ALIGNMENT CHECKED, S. M.: NOTED, STRUCTURE AT STA OF KO, NOTE BOOK, NO., DATE

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	(1) OF APPROACH ROAD 1044+00 (1) ADDED HWY. EMBANKMENT. (2) DELETED PORTION	71 JUN 24	
C	(3) CORRECTED ROAD APPROACH PROFILE (2) ADDED GUIDE POST, CATTLE GUARD, R/W FENCE & RD. SIGNS (1) CHANGED TITLE, FILE NO. & CONSTRUCTION TO GRADING	71 JUN 7	
B	(1) DELETED A GROUND LINE.	70 AUG 5	
A	(1) ADDED SURVEYED GROUND LINE (2) REV. ROAD PROFILE	70 JUL 9	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SHUPE
DRAWN BY: LALIKOS - HALL
CHECKED BY: PEARMAN
REVIEWED: SHADDUCK
PREPARED:
CHIEF, CIVIL DESIGN SECTION
SUBMITTED:
CHIEF, DESIGN BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT [illegible] 2
PLAN & PROFILE APPROACH ROADS
STA 1044+00 & STA 1342+80

SCALE AS SHOWN — APPR. NO.
DRAWING NUMBER E-53-31-117 — DATE: '70 JULY 10
SHEET 27 — AS BUILT

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	108	116

STA. 0+90
BEGIN GRADING
MEET EXIST. RD

Δ = 20°00'00" LT
D = 10°00'
R = 572.96'
T = 101.03'
L = 200.00'

P.C. 0+94.01
P.I. 1+95.04
P.T. 2+94.01

STOP AHEAD W3-1

Δ = 89°20'00" RT.
D = 38°00'
T = 149.03'
L = 235.09'

N. 88°41'00" E.

W1-6

P.I. 8+30.98

P.C. 6+81.95

P.T. 9+17.04

STOP R1-1

STA. 10+00
APPROACH ROAD =
STA. 1187+00 M.S.H. 37
SEE SHEET 12

TO BE ABANDONED

STA. 15+90
END GRADING
MEET EXIST. RD.

P.T. 14+79.60

P.C. 13+44.73

P.C. 10+98.94

FOR CATTLE GUARD-SEE SHEET 39.7 FOR DETAILS

S. 01°59'00" E.

S. 80°01'00" W.

P.I. 12+30.01

P.T. 15+73.21

P.C. 13+78.21

F.S. ROAD NO. 5312

STOP AHEAD W3-1

Δ = 39°00'00" LT.
D = 20°00'
T = 101.45'
L = 195.00'

W1-6

Δ = 82°00'00" RT
D = 38°00'
T = 131.07'
L = 215.79'

TBM PAT 1
EL 2627.07
SPIKE IN BASE OF 30" FIR TREE 40' LT. OF STA. 1183+60

SCALE IN FEET
100 0 100 200 300

SECTION 2
SECTION 1

T. 31 N., R. 29 W., M.P.M.

N

STA. 3+30
BEGIN GRADING
MEET EXIST ROAD

P.I. 4+73.57

TO BE ABANDONED

N 73°33'34" E

P.C. 3+93.40

P.I. 5+40.77

S. 50°26'25" E

Δ = 56°00'01" RT
D = 38°00'
T = 80.17'
L = 147.37'

TBM PAT 6

STA. 10+00 APPROACH ROAD =
STA. 1239+50 M.S.H. 37
SEE SHEET 14

CATTLE GUARD - SEE SHEET 39.7 FOR DETAILS

P.C. 7+92.68

P.T. 9+27.31

STOP R1-1

P.I. 11+50.39

STA. 14+10.39
END GRADING
MEET EXIST. ROAD

EXIST F.S. RD. NO. 334.1

S. 66°56'25" E.

N 81°03'35" E
P.I. 8+67.60

P.C. 10+68.24

P.T. 12+28.24

STOP R1-1

Δ = 48°30'00" LT
D = 38°00'
T = 67.92'
L = 127.63'

Δ = 32°00'00"
D = 20°00'
T = 82.15'
L = 160.00'

GUARDRAIL LT RT
GUIDE POSTS LT RT

537.5' LT

2 POSTS LT DESIGN "D"
2 POSTS RT DESIGN "D"

SURVEY GROUND LINE

℄ 10+00 = STA. 1187+00
M.S.H. 37 = EL 2638.06

V.P.I. 8+70
EL 2636.59

V.P.I. 11+30
EL 2638.85

V.P.I. 1+60
EL 2596.0

HWY. EXC.

100' V.C.

+10%

+6.56%

LINED DITCH SEE SHEET 32 NOTE 5

PROFILE GRADE

10+30
24" X 80.9' PIPE CULVERT

DESIGN GROUND LINE

6+00
24" X 96.7' PIPE CULVERT

APPROACH ROAD 1187+00

STA. 0+90
BEGIN GRADING
ROAD MEET EXISTING GRADE

STA. 15+90
END GRADING, MEET EXISTING GRADE

V.P.I. 15+40
EL 2678.0

STA. 3+30
BEGIN GRADING
MEET EXIST. GRADE

V.P.I. 6+72.20
EL 2536.69

+6.44%

DESIGN GROUND LINE

APPROACH ROAD 1239+50

TBM PAT 6
EL 2542.11
BOAT SPIKE 0.6' ABOVE GROUND. DOWNHILL SIDE 22" PONDEROSA PINE 40' RT. OF STA. 1240+52.

2 POSTS LT DESIGN "D"
2 POSTS RT DESIGN "D"

℄ 10+00 = STA. 1239+50
M.S.H. 37

V.P.I. 1+34.60
EL 2559.0

STA. 14+10
END GRADING, MEET EXIST. GRADE

SURVEY GROUND LINE

V.P.I. 11+60
EL 2559.0

V.P.I. 10+17
EL 2542.44

V.P.I. 9+83
EL 2540.30

100' V.C.

+10%

+6.71%

LINED DITCH SEE SHEET 32 NOTE 5

2570
2560
2550
2540
2530
2520
2510
2500
2660
2650
2640
2630
2620
2610
2600
2590

0 5 10 15

SYMBOL	DESCRIPTION	DATE	APPROVAL
A	(1) ADDED SURVEYED GROUND LINE (2) REVISED RD. PROFILE	70 JUL 31	
C	GROUND" TO "DESIGN GROUND LINE." (1) ADDED HWY. EXC. (2) CHANGED CALL-OUT "EXISTING	71JUN24	
B	FENCE & CATTLE GUARD (3) DELETED EQUATION (2) ADDED GUARDRAIL, GUIDE POSTS, ROAD SIGNS, CULVERT, R/W (1) CHANGED TITLE, FILE NO. & CONSTRUCTION TO GRADING	71 JUN 7	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SHUPE
DRAWN BY: LALIKOS
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3B2
PLAN & PROFILE APPROACH ROADS
STA. 1187+00 & 1239+50

PREPARED: CHIEF, CIVIL DESIGN SECTION
SUBMITTED: CHIEF, DESIGN BRANCH

SCALE: AS SHOWN | SPEC. NO.
DRAWING NUMBER: E-53-31-117 (B1) | DATE: 70 JULY 10
SHEET 28 | AS BUILT

PLAN: SURVEYED, PLOTTED, DRAWN, CHECKED, ALIGNMENT CHECKED, RT. OF WAY CHECKED, NOTE BOOK, NO., DATE, BY

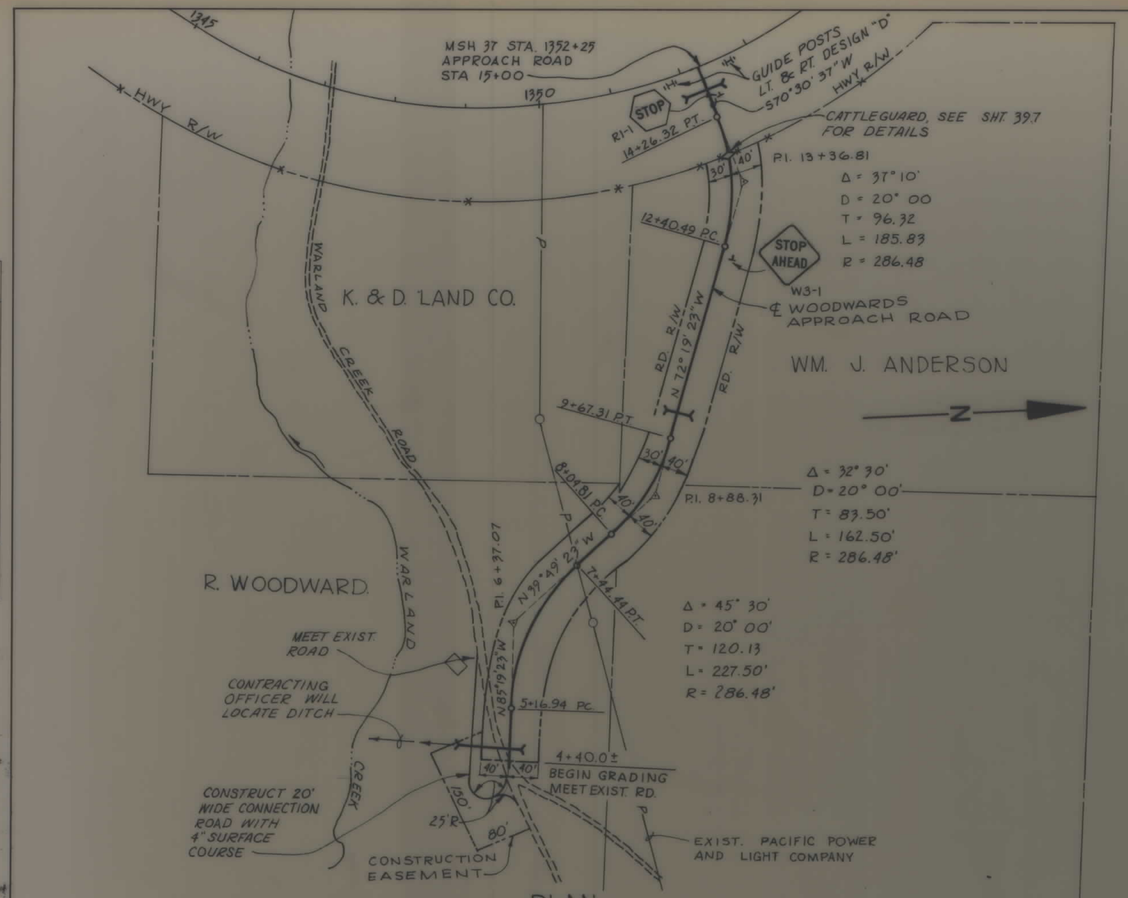
PROFILE: SURVEYED, PLOTTED, DRAWN, CHECKED, (L. & I. NOTED), STRUCTURE NO'S & TYPING, NOTE BOOK, NO., DATE, BY

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

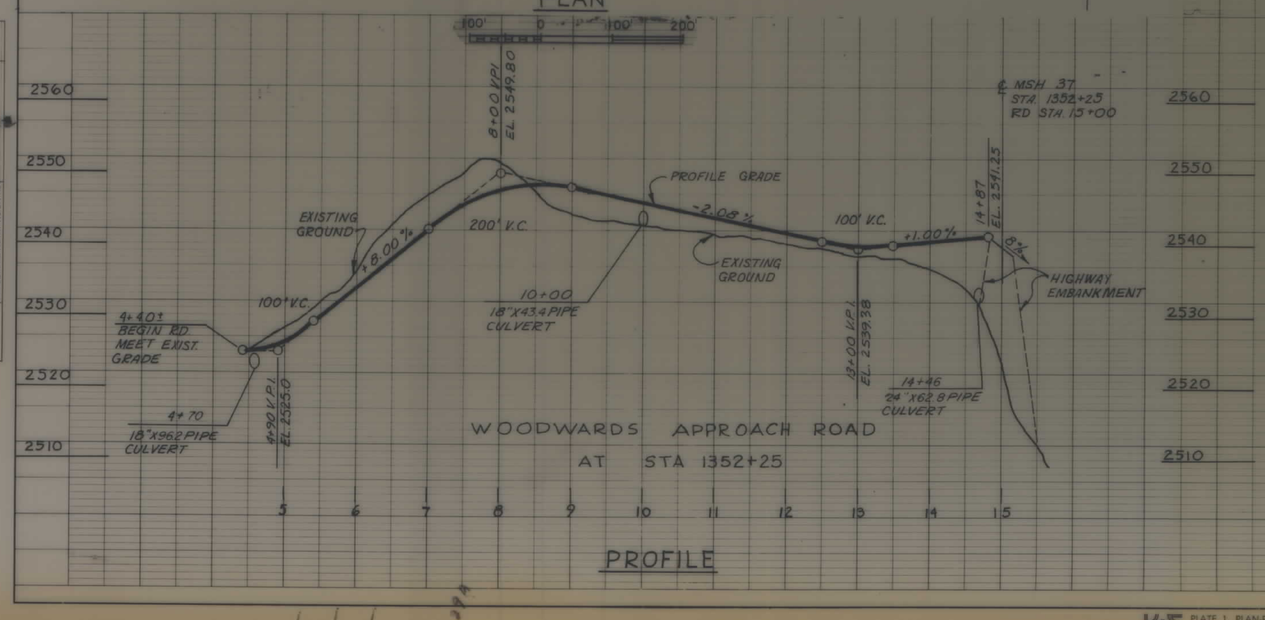
CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	109	116



PLAN



WOODWARDS APPROACH ROAD
AT STA 1352+25

PROFILE

SYMBOL	DESCRIPTION	DATE	APPROVAL

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY SPEARMAN	KOOTENAI RIVER, MONTANA
DRAWN BY BROWN	LIBBY DAM & RESERVIOR PROJECT
CHECKED BY CLEMENHAGEN	RELOCATION-MONTANA HIGHWAY 37 UNIT 3B2
REVIEWED	PLAN & PROFILE - APPROACH ROAD STA 1352+25
PREPARED Alan R Hanson CHIEF CIVIL DESIGN SECTION	SCALE: AS SHOWN; SPEC. NO.
SUBMITTED CHIEF DESIGN BRANCH	DRAWING NUMBER E-53-31-117; DATE 73 MAR 1
	SHEET 29A AS BUILT

PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	110	116

PLAN — SURVEYED: PLOTTED: GRADES CHECKED: R.T. OF WAY CHECKED: NOTE BOOK: NO.: BY: DATE:

PROFILE — SURVEYED: PLOTTED: GRADES CHECKED: C. N.S. NOTES: STRUCTURE LAYOUT CHECKED: NOTE BOOK: NO.: BY: DATE:

ST. REGIS PAPER CO.
TO BE ABANDONED

C1

BEGIN GRADING
STA. 1557+00
MSH 37 = STA 10+00 APPROACH RD.
SEE SHEET 25

1555 1560

C2 2548.3 2548.9

S22°51'41"

STOP R1-1

130'

PC. 12+19.55

Δ = 68°20'00"
D = 20°00'
T = 194.45'
L = 341.67'
R = 286.48'

60'

FIVE MILE CREEK

EXIST F S ROAD NO 48.3

P.I. 14+14.00

PT. 15+61.22

130'

15

60'

C2 2508.71

N 88°48'19" E

2508.76

60'

C1

END GRADING
STA. 18+50.02 ±
MEET EXIST. ROAD

NOTE:
SEE SHEET 24 FOR
APPROACH ROAD 1526+00

1580

MSH 37

STOP R1-1

C3

N 85°53'19" E

C1

BEGIN GRADING
MSH 37 STA. 1576+00 =
STA. 10+00 APPROACH RD

C2

P.I. 1'+60.00

W1-6

Δ = 72°00'
D = 38°00'
T = 109.55'
L = 189.47'
R = 150.78'

15.75

PC. 10+50.45

PT. 12+39.92

80'

STOP AHEAD W3-1

A2

S 22°51'41" E

*PC. 14+12.29

80'

C1

PT. 16+41.24

END GRADING
STA. 16+95 ±
MEET EXIST ROAD

80'

P.I. 15+55.37

Δ = 87°00'
D = 38°00'
T = 143.08'
L = 228.95'
R = 150.78'

N 15°37'19" E

W1-6

SCALE IN FEET
100 0 100 200 300

C2 225' LT. 225' LT.

GUARDRAIL LT. RT.
GUIDE POSTS LT. RT.

1 POST RT. DESIGN 'D'

℄ 10+00 = 1576+00
= MSH 37

PROFILE GRADE

VPI 16+70 EL 2663.5

STA 16+95 END GRADING
MEET EXIST GRADE

100' V.C.

VPI 10+17 EL 2631.19

10%

VPI 11+30 EL 2632.32

APPROACH ROAD 1576+00

HWY. EMB.

D1

A1 SURVEY GROUND LINE

2680 2660 2650 2640 2630 2620 2610 2600

2680 2610 2660 2650 2640 2630 2620 2610 2600

2550 2540 2530 2520 2510

10 15

C2 POST RT. DESIGN 'D'

VPI 11+30 EL 2551.62

HWY EMB. D1

100' V.C.

LINED DITCH SEE SHEET 32 NOTE 5

B1

-5.7% ±

10+38
24" 100.7' PIPE CULVERT

BEGIN GRADING
℄ 10+00 = 1557+00
= MSH 37

PROFILE GRADE

SURVEY GROUND LINE

A1

VPI 18+00 EL 2513.0

C1

END GRADING
STA 18+50.00 ±
MEET EXIST GRADE

APPROACH ROAD 1557+00

C2

18.00'

24" X 52.4' PIPE CULVERT

100' V.C.

2550 2540 2530 2520 2510

15 20 10

SYMBOL	DESCRIPTION	DATE	APPROVAL
D	(1) ADDED HWY. EMB.	71JUN24	
C	(3) ROTATED APPROACH RD PLAN. ADDED CULVERT GUIDE POSTS, GUARD RAIL & RD. SIGNS. (1) CHANGED TITLE, FILE NO. & CONSTRUCTION TO GRADING (2)	71 JUN 7	

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1) REVISED ROAD PROFILE	70 JUL 31	
A	(1) ADDED SURVEYED GROUND LINE (2) CHANGED ROAD PLAN & PROFILE	70 JUNE 30	

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: SPEARMAN
DRAWN BY: LALIKOS
CHECKED BY: SPEARMAN
REVIEWED: SHADDUCK
PREPARED:
CHIEF, CIVIL DESIGN SECT.
SUBMITTED:
CHIEF, DESIGN BR.

KOOTENAI RIVER, MONTANA
LIBBY DAM & RESERVOIR PROJECT
RELOCATION—MONTANA HIGHWAY 37
UNIT 3&2
PLAN & PROFILE APPROACH ROADS
STA 1557+00 & STA 1576+00

DRAWING NUMBER: E-53-31-117
SHEET 29
DATE: 7 JULY 10
C1 AS BUILT

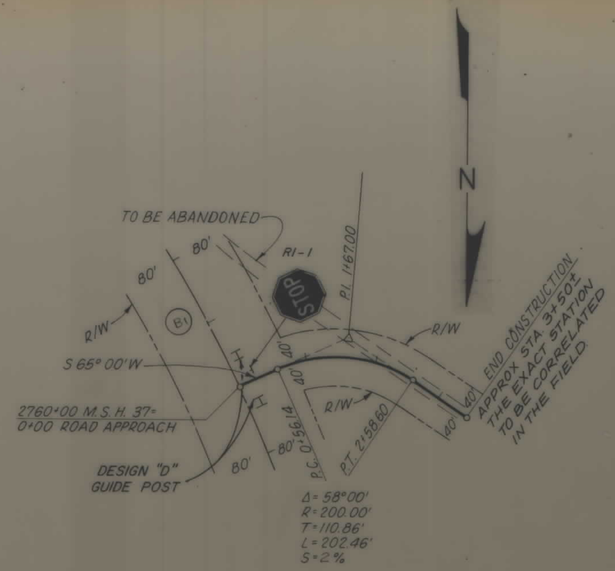
PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

CONTRACT DACW67-72-C-0017

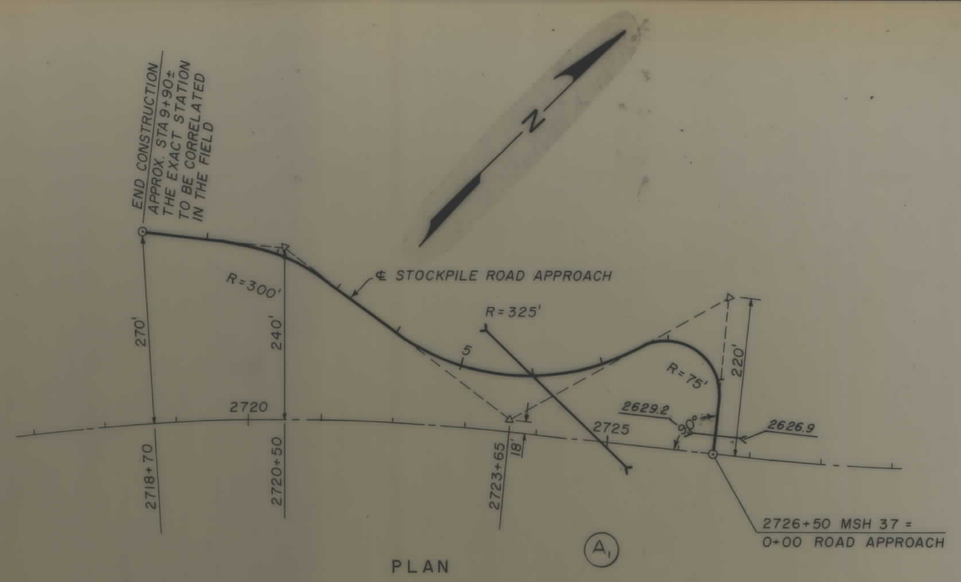
MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F 145	111	116

PLAN — SURVEYED, PLOTTED, NOTE BOOK, NO., ALIGNMENT CHECKED, PT. OF HWY CHECKED, BY, DATE



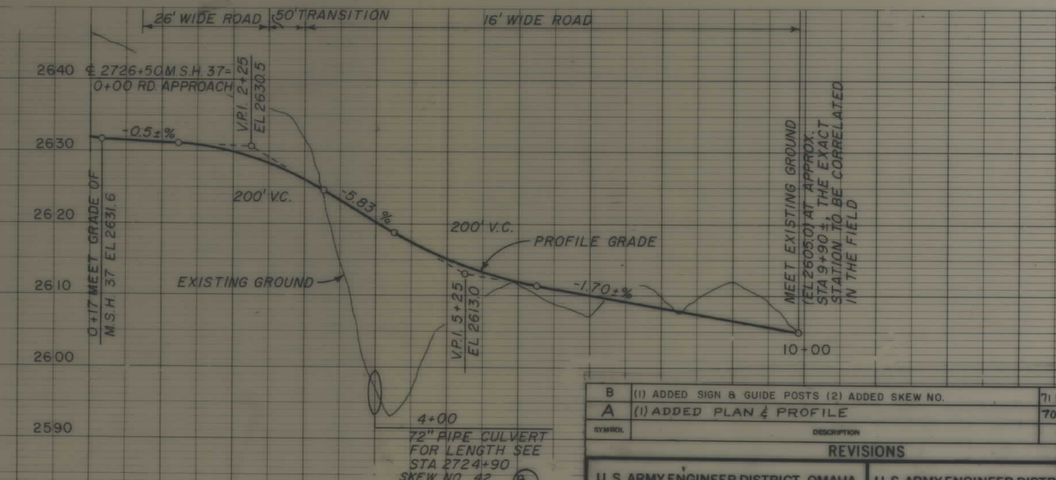
SCALE IN FEET
100 0 100 200 300



PLAN

NOTE.
ROAD APPROACH DETAIL SHALL BE AS SHOWN ON SHEET 31 EXCEPT THAT ROCK CAP IS NOT REQUIRED AND ROADWAY WIDTHS WILL BE AS INDICATED ON THIS SHEET

PROFILE — SURVEYED, PLOTTED, NOTE BOOK, DRAWN, CHECKED, NO., S. M.'s NOTED, STRUCTURE NO'S/ATN'S CHKD, BY, DATE



SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1) ADDED SIGN & GUIDE POSTS (2) ADDED SKEW NO.	71 MAR 9	CHM
A	(1) ADDED PLAN & PROFILE	70 JULI4	CHM

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: H. Standwell, CHIEF, ENGINEERING DIVISION
REVIEWED: B. Chamberlayer
SUBMITTED: W. M. Hunt, CHIEF, RELOCATION SECTION
RECOMMENDED: Chief, Design Section
APPROVED FOR THE DISTRICT ENGINEER: Sydney H. Saunders, CHIEF, CONSTRUCTION DIVISION, DATE: 70 JUNE 26

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE — ROAD APPROACH
STA. 2760+00

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: E-53-31-115 AS BUILT
SHEET 28

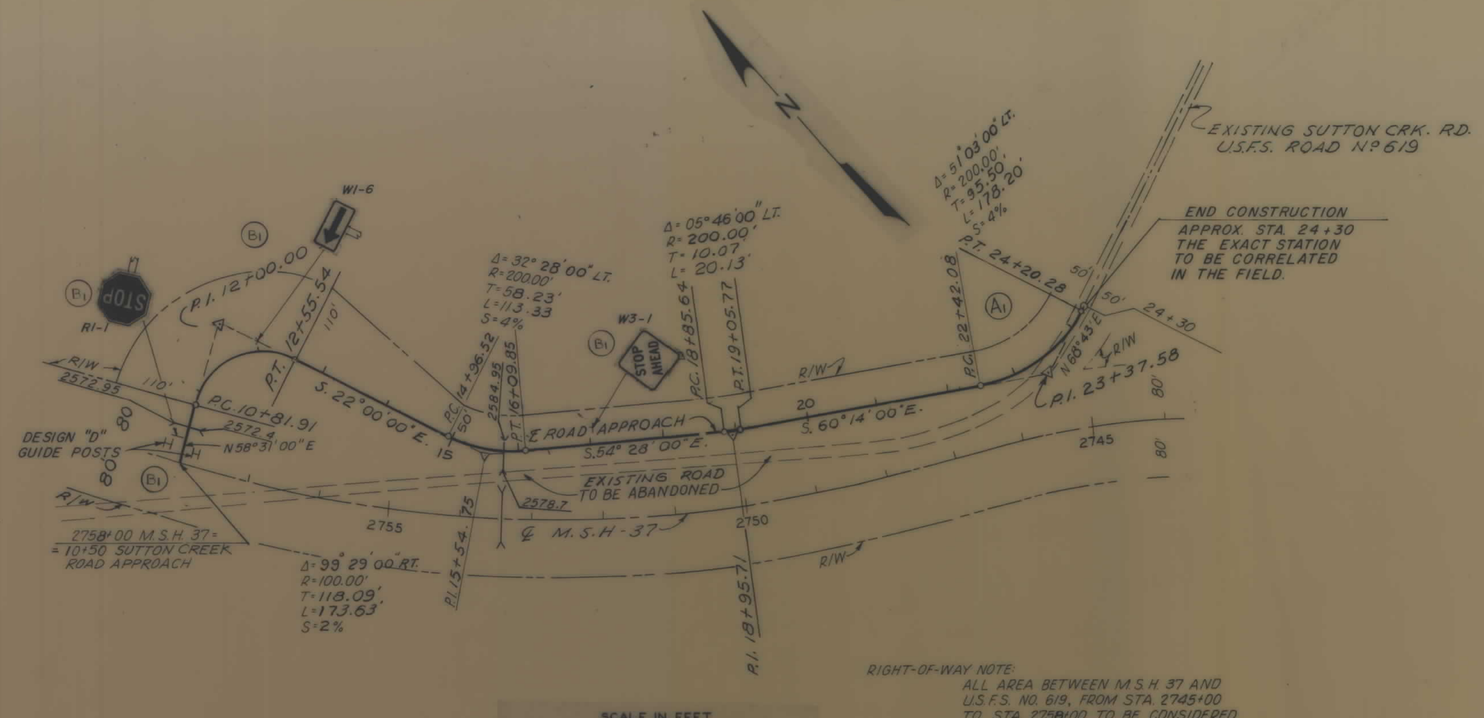
K+E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

CONTRACT DACW67-71-C-0071

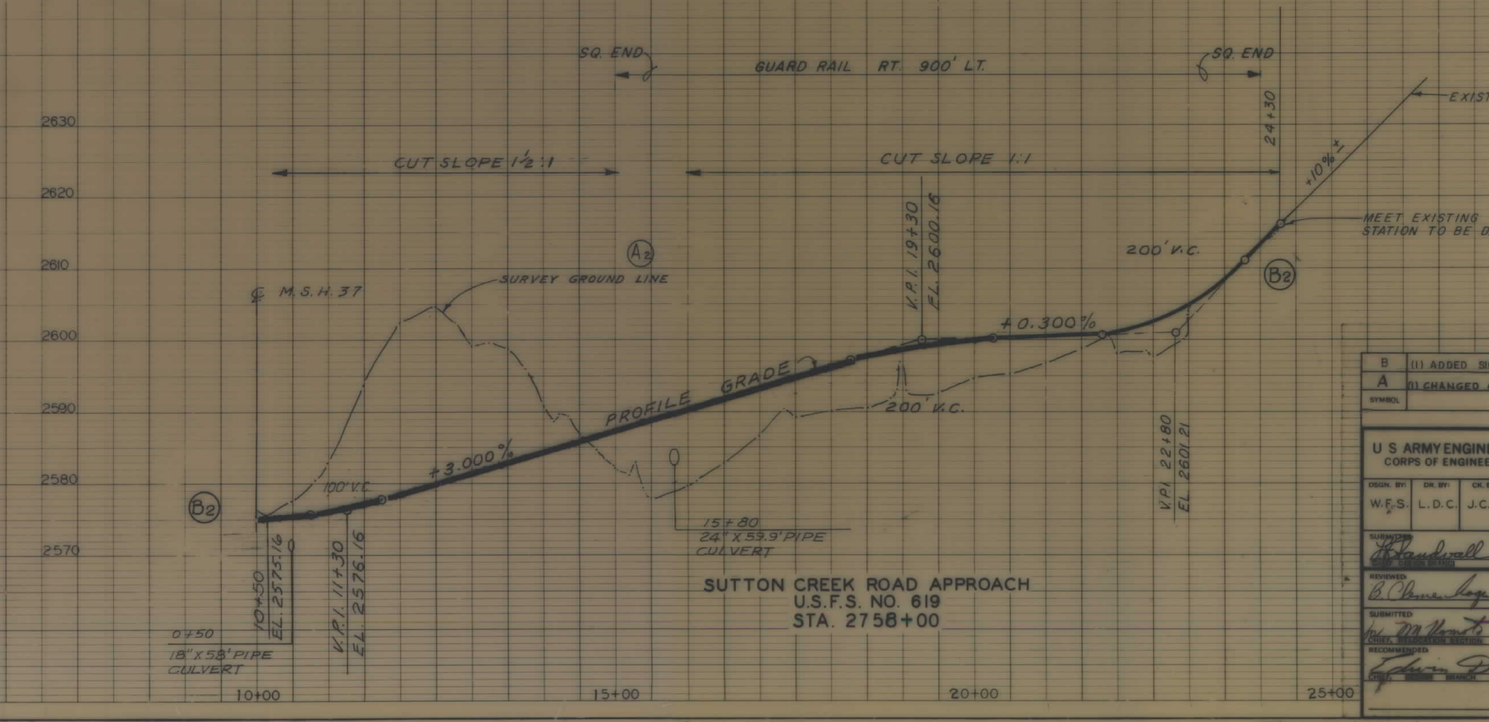
MICROFILMED DEC '76

R/W NO	SHEET NO	TOTAL SHEETS
F145	112	116

PLAN — SURVEYED, PLOTTED, TOPOGRAPHY CHECKED, R/W CHECKED, NOTES BOOK, NO., BY, DATE



PROFILE — SURVEYED, PLOTTED, TOPOGRAPHY CHECKED, R/W CHECKED, NOTES BOOK, NO., BY, DATE



SUTTON CREEK ROAD APPROACH
U.S.F.S. NO. 619
STA. 2758+00

SYMBOL	DESCRIPTION	DATE	APPROVAL
B	(1) ADDED SIGNS & GUIDE POSTS (2) DELETED EXIST. GRD LINE	71 MAR 9	
A	(1) CHANGED CURVE STATIONING (2) ADDED SURVEY GROUND LINE	70 AUG 28	

REVISIONS

U S ARMY ENGINEER DISTRICT, OMAHA
CORPS OF ENGINEERS, OMAHA, NEBRASKA

U S ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DSGN. BY:	DR. BY:	CK. BY:
W.F.S.	L.D.C.	J.C.S.

SUBMITTED: L. Sandwell, CHIEF, ENGINEERING DIVISION
REVIEWED: B. Chase Sage
SUBMITTED: for M. Monte, CHIEF, ENGINEERING DIVISION
APPROVED FOR THE DISTRICT ENGINEER: Sydney Steinbora, CHIEF, ENGINEERING DIVISION — DATE: 70 JUNE 26
RECOMMENDED: Clifton Durand, CHIEF, OPERATIONS DIVISION

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT 3E
PLAN & PROFILE — ROAD APPROACH
STA. 2758+00

SCALE: AS SHOWN — SPEC. NO.
DRAWING NUMBER: E-53-31-115 AS BUILT
SHEET 27

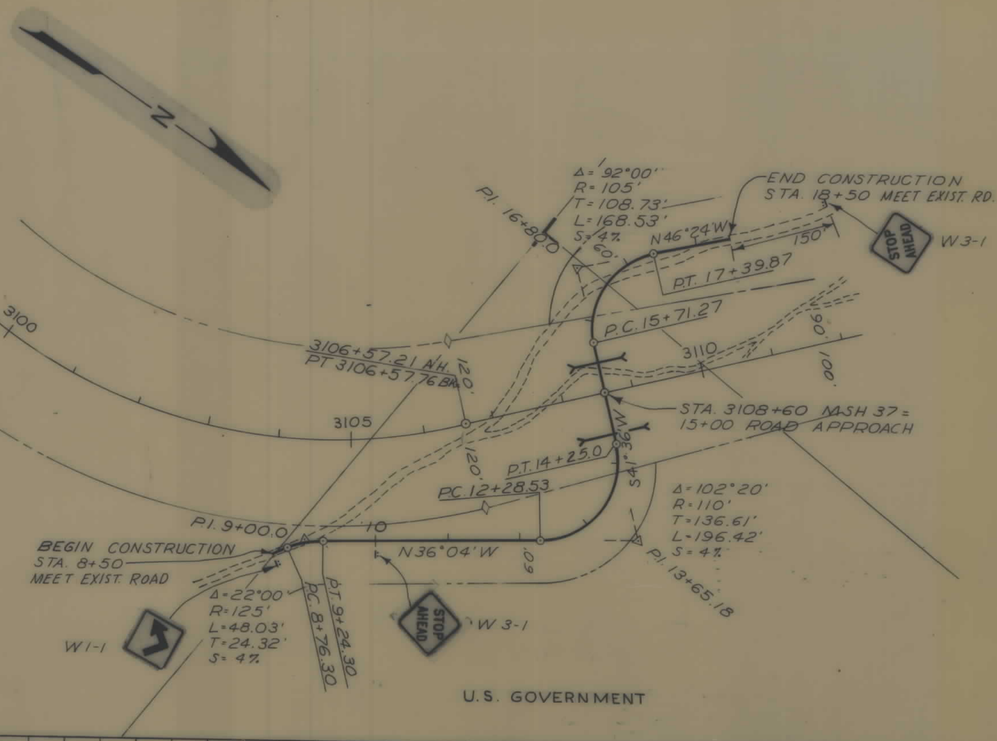
CONTRACT DACW67-71-C-0071

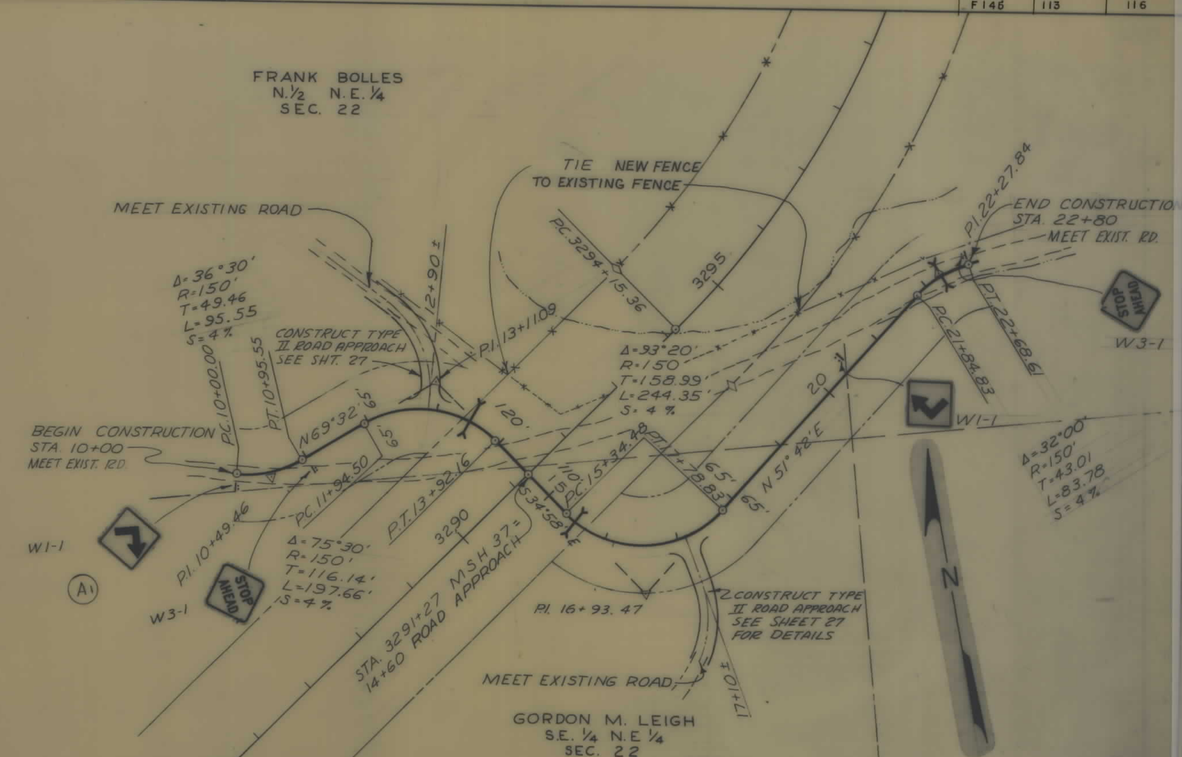
MICROFILMED DEC '76

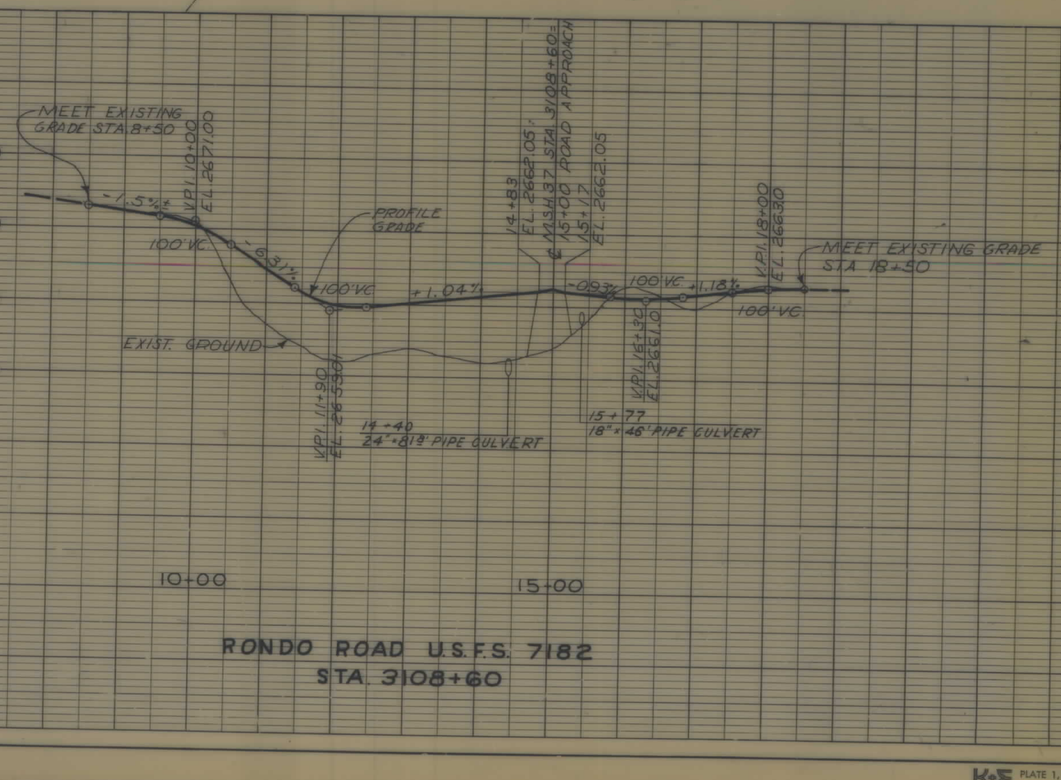
R/W NO	SHEET NO	TOTAL SHEETS
F145	113	116

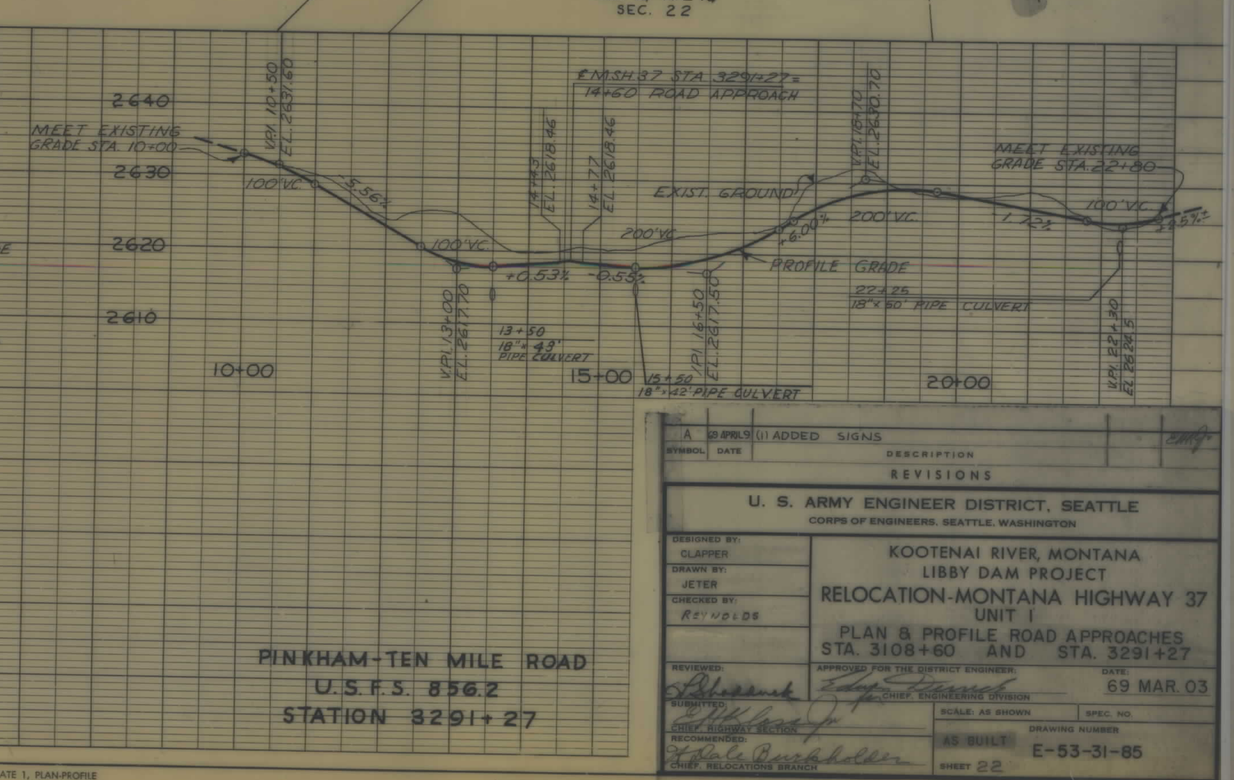
PLAN — SURVEYED: BY: DATE: PLOTTED: CHECKED: RIGHT OF WAY CHECKED: NOTE BOOK: INT. OF WAY CHECKED: NO.:

PROFILE — SURVEYED: BY: DATE: PLOTTED: CHECKED: R. M.'S NOTED: STRUCTURE NO'S AT NS CH NO:









SYMBOL	DATE	DESCRIPTION
A	69 APR 9	(1) ADDED SIGNS

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: JETER
CHECKED BY: REYNOLDS
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE ROAD APPROACHES
STA. 3108+60 AND STA. 3291+27

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT
E-53-31-85
SHEET 22

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

MICROFILMED OCTOBER 1972

R/W NO	SHEET NO	TOTAL SHEETS
F145	114	116

LEO K. COLLAR
S½ SW¼
SEC. 14

FRANK BOLLES
S.E.¼ S.E.¼
SEC. 15

HELEN DOROTHY CHISAM
NW¼ SW¼
SEC. 14

CHARLES BEN CHISAM, et ux
NE¼ SE¼
SEC. 15

CLARA NELSON
E½ S.W.¼
SEC. 11

BEGIN CONSTRUCTION 10+00 ± MEET EXIST. ROAD

TIE NEW FENCE TO EXISTING FENCE

EXISTING CATTLE GUARD & GATE (A1)

RELOCATING OF POWER LINE & TV. CABLE, TO CLEAR THE CONSTRUCTION AREA, TO BE BY OWNERS

S/L 96 CHANGE ALIGNMENT & SLOPES.

Δ = 15°00'
R = 150.00'
T = 19.75'
L = 39.27'
S = 4%

Δ = 12°00'
R = 300'
T = 31.53'
L = 57.60'
S = 4%

Δ = 23°00'
R = 150'
T = 30.52'
L = 60.21'
S = 4%

Δ = 11°00'
R = 150'
T = 14.44'
L = 28.80'
S = 4%

3326+00 M.S.H. 37 = 14+00 ROAD APP.

3374+60 M.S.H. 37 = 10+00 ROAD APPROACH

END CONSTRUCTION 12+40 MEET EXIST. ROAD

END CONSTRUCTION 21+20 MEET EXIST. ROAD

N 85°08'05" W

S 67°35' W

M.S.H. 37

EXIST. COUNTY RD.

R=40'

3426+00 M.S.H. 37 = 10+00 ROAD APPROACH SEE SHEET 25 A FOR DETAILS.

Δ = 71°32'
R = 763.94'
T = 550.30'
L = 953.78'
S = 8%

N 52°11' E

P.C. 3421+29.75

REXFORD TOWNSITE BOUNDARY

REXFORD TOWNSITE ENTRANCE ROAD

Δ = 142°00'
D = 22°00'
R = 260'
T = 755.09
L = 641.78

P.C. 11+78.16

P.T. 3430+83.53

HWY. # 37

END CONSTRUCTION STA. 17+25 ±

PPM2 ROAD DELETED OUTSIDE OF R/W 37-1

REXFORD BENCH RECREATION AREA

FOREST SERVICE RECREATION AREA ENTRANCE ROAD. (BY FOREST SERVICE)

℄ MSH-37 STA. 3426

REXFORD - BLACK LAKE COUNTY ROAD STATION 3326+00

EXISTING GROUND

PROFILE GRADE

MEET EXISTING GRADE 10+00 ± EL. 2609.00 ±

MEET EXISTING GRADE 21+20

200' V.C.

100' V.C.

150' V.C.

50' V.C.

VPI 11+00 EL. 2605.7

VPI 12+30 EL. 2600.0

VPI 13+50 EL. 2601.90

VPI 14+19 EL. 2606.75

VPI 15+19 EL. 2605.75

12+30 24"x60' PIPE CULVERT (A2) MOVED TO 11+50 24"x44.2'

℄ 3326+00 M.S.H. 37 EL. 2609.08

-12.94%

+1.5%

-11.0%

+10%

COUNTY ROAD APPROACH STATION 3374+60

℄ M.S.H. 37 3374+60, PG. 2587.10

VPI 10+17 EL. 2586.76

VPI 11+27 EL. 2585.66

VPI 12+05 EL. 2583.5

-1.8%

+9%

11+20 18"x52' PIPE CULVERT

REXFORD TOWNSITE ROAD STA. 3426+00

VPI 17+17 EL. 2605.6

VPI 17+25 EL. 2607.5

-5.50%

SYMBOL	DATE	DESCRIPTION
A	69 APR 9	PIPE CULVERT LENGTH (1) ADDED WORD GATE TO NOTE (2) CHANGED

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: LARKIN - HALL
CHECKED BY: REYNOLDS
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE ROAD APPROACHES
STA. 3326+00 AND STA. 3374+60

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03

SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER: AS BUILT E-53-31-85
SHEET 23

PLAN — SURVEYED, PLOTTED, ALIGNMENT CHECKED, ST. OF WAY CHECKED, NOTE BOOK, NO., BY, DATE

PROFILE — SURVEYED, PLOTTED, GRADES CHECKED, B. M.'S NOTED, STRUCTURE INVERTS NOTED, NOTE BOOK, NO., BY, DATE

K&E PLATE 1, PLAN-PROFILE KEUFFEL & ESSER CO.

DACW67-69-C-0039

R/W NO	SHEET NO	TOTAL SHEETS
F 145	115	116

END CONSTRUCTION MEET EXISTING ROAD 15+50

STOP AHEAD W3-1

W1-3

Δ = 50°00'
R = 150'
T = 69.95
L = 130.90

P.T. 11+60.95

P.C. 10+30.05

P.I. 11+00

3438+88 M.S.H. 37 = 10+00 ROAD APPROACH

3436+80 M.S.H. 37 = 10+00 ROAD APPROACH

S 64° 28' E

S 28° 32' W

R/W

120'

160'

100'

65'

80'

WILLIAM G. GWYNN
N.W. ¼ S.E. ¼ SEC. 12

400'

200'

15

3440

P.I. 14+30.56

15+50 END CONSTRUCTION MEET EXIST. ROAD

P.T. 14+69.04

P.C. 13+79.81

P.T. 12+17.81

P.C. 11+00

P.I. 11+75

Δ = 68°10'
R = 75'
T = 50.75
L = 89.23
S = 4%

Δ = 90°00'
R = 75'
T = 111.81'
L = 117.81'
S = 4%

3435

WILLIAM G. GWYNN
N.E. ¼ S.W. ¼
SEC. 12

WILLIAM HOMER GARRISON
S.W. ¼, S.W. ¼, SEC. 8

TIE NEW FENCE TO EXISTING FENCE

Δ = 55°00
R = 200'
T = 104.1
L = 192.0

BEGIN CONSTRUCTION STA. 8+00 MEET EXIST. ROAD

N 50°11' W

P.I. 10+47.1

TO BE ABANDONED

EXISTING BLACK LAKE COUNTY ROAD

P.C. 9+43.0

P.T. 11+35.0

S 54°49' E

F. R/W.

110'

60'

10

100'

400'

STOP AHEAD W3-1

W1-2

TIE NEW FENCE TO EXISTING FENCE

FORCE F. BANEY, et al
SE. ¼, S.W. ¼ SEC. 8
SE. ¼ S. G. N. R/W.

P.I. 13+01.91

(A1) TIE FENCE TO EXISTING FENCE

N 18°11' W

S 73°11' E

END CONSTRUCTION
STA. 13+43.68
MEET EXISTING ROAD

TIE FENCE INTO EMBANKMENT SLOPE 17' LT. & RT. OF CENTERLINE. AFTER TEMPORARY ROAD IS REMOVED FENCE SHALL BE COMPLETED.

(A2)

P.I. 10+70.00

Δ = 55°
R = 100'
T = 52.06'
L = 95.99

Δ = 40°
R = 125'
T = 45.50
L = 87.27

N 85° 11' W

STA. 3536+00 M.S.H. 37 = 10+00 ROAD APPROACH

3540

STA. 3537+50 M.S.H. 37 = 14+12.37 ROAD APPROACH

NOTE: (A3)

1. ROAD APPROACH LEFT OF STATION 3536+00 TO HAVE A 14' SHOULDER TO SHOULDER WIDTH WITH NO SURFACING. REMOVE ROAD AT THE END OF CONSTRUCTION.

SCALE IN FEET
100 0 100 200 300

PLAN
SURVEYED BY
PLOTTED BY
GRADES CHECKED BY
ALIGNMENT CHECKED BY
RT. OF WAY CHECKED BY
NOTE BOOK
NO.
DATE
BY

GUARDRAIL

MEET EXISTING GRADE STA. 15+50

V.P.I. 15+00
EL. 2687.10

100' V.C.

EXISTING GROUND

PROFILE GRADE

+18.81%

℄ M.S.H. 37 STA. 3436+80 = 10+00 ROAD APPROACH
10+17
EL. 2622.02
10+50
EL. 2622.00

100' V.C.

V.P.I. 11+50
EL. 2621.24

10+50
18" x62.1' PIPE CULV.

10+00

15+00

COUNTY ROAD APPROACH
STATION 3436+80

℄ M.S.H. 37 STA. 3438+88
EL. 2624.71

10+17 AT SHLDR.
EL. 2624.03

V.P.I. 11+20
EL. 2623.10

10%

100' V.C.

PROFILE GRADE

-14.21%

EXISTING GROUND

V.P.I. 15+00
EL. 2569.00

100' V.C.

MEET EXISTING GRADE 15+50 = EL. 2565

10+00

15+00

COUNTY ROAD APPROACH
STATION 3438+88

LEFT SIDE RESLOPED S/L 117

+25' LT.
+25' RT.

-13.4%

BEGIN CONSTRUCTION STA. 8+10 MEET EXIST. GRADE

300' V.C.

PROFILE GRADE

11.0%

V.P.I. 9+60
EL. 2526.28

EXISTING GROUND

STA. 3537+50 M.S.H. 37 = 14+12.37 ROAD APPROACH

19+95
EL. 2530.43

STA. 13+35
18" x116.3' PIPE CULVERT

(A4)

10+00

15+00

BLACK LAKE COUNTY ROAD
STATION 3537+50

℄ M.S.H. 37 STA. 3536+00 = 10+00 ROAD APPROACH

V.P.I. 10+37
EL. 2530.12

-2.5%

12+00

100' V.C.

0.50%

V.P.I. 12+40 EL. 2505.80

TEMPORARY ROAD APPROACH STATION 3536+00

PROFILE
SURVEYED BY
PLOTTED BY
GRADES CHECKED BY
R. R.'s NOTED
STRUCTURE MTS. NOTED
NOTE BOOK
NO.
DATE
BY

SYMBOL	DATE	DESCRIPTION
		PIPE CULVERT
		NOTE (3) ADDED NOTE 1 (4) CHANGED LENGTH OF
A	69 APR 9	(1) ADDED FENCE TIE NOTE (2) ADDED FENCE LINE

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: HALL-JETER
CHECKED BY: REYNOLDS
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION-MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE ROAD APPROACHES
STA. 3436+80, 3438+88 & 3537+50

APPROVED FOR THE DISTRICT ENGINEER:
CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03

SCALE: AS SHOWN
SPEC. NO.
AS BUILT
DRAWING NUMBER E-53-31-85
SHEET 24

K+E PLATE 1, PLAN-PROFILE
KEUFFEL & ESSER CO.

DACW67-69-C-0039

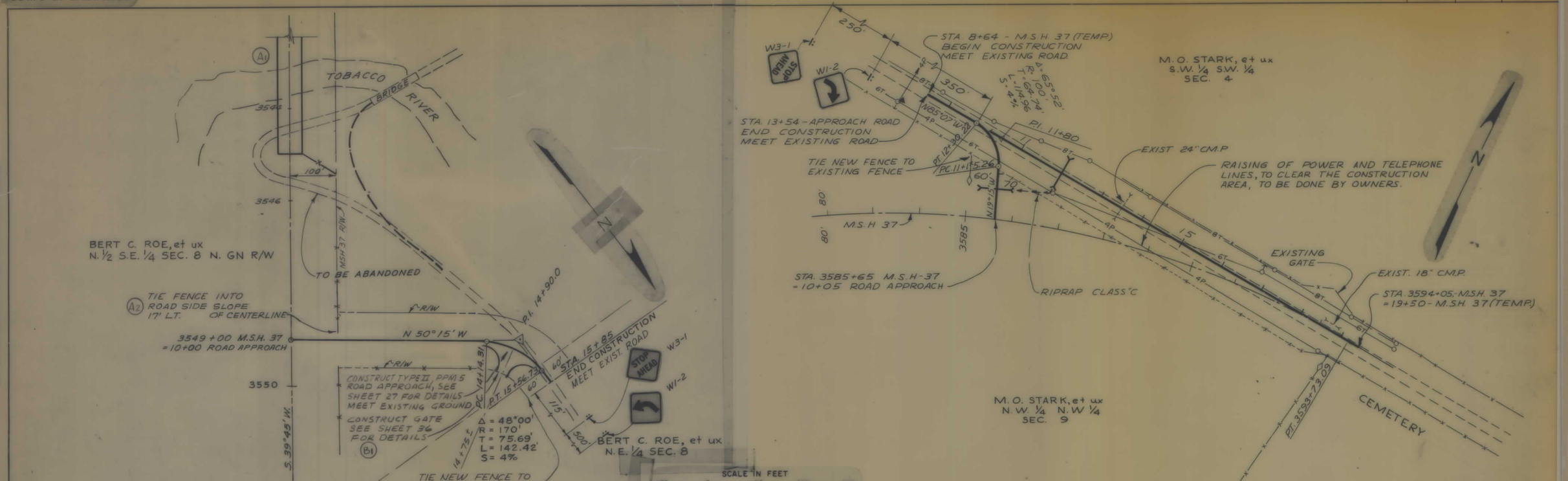
MICROFILMED OCTOBER 1972

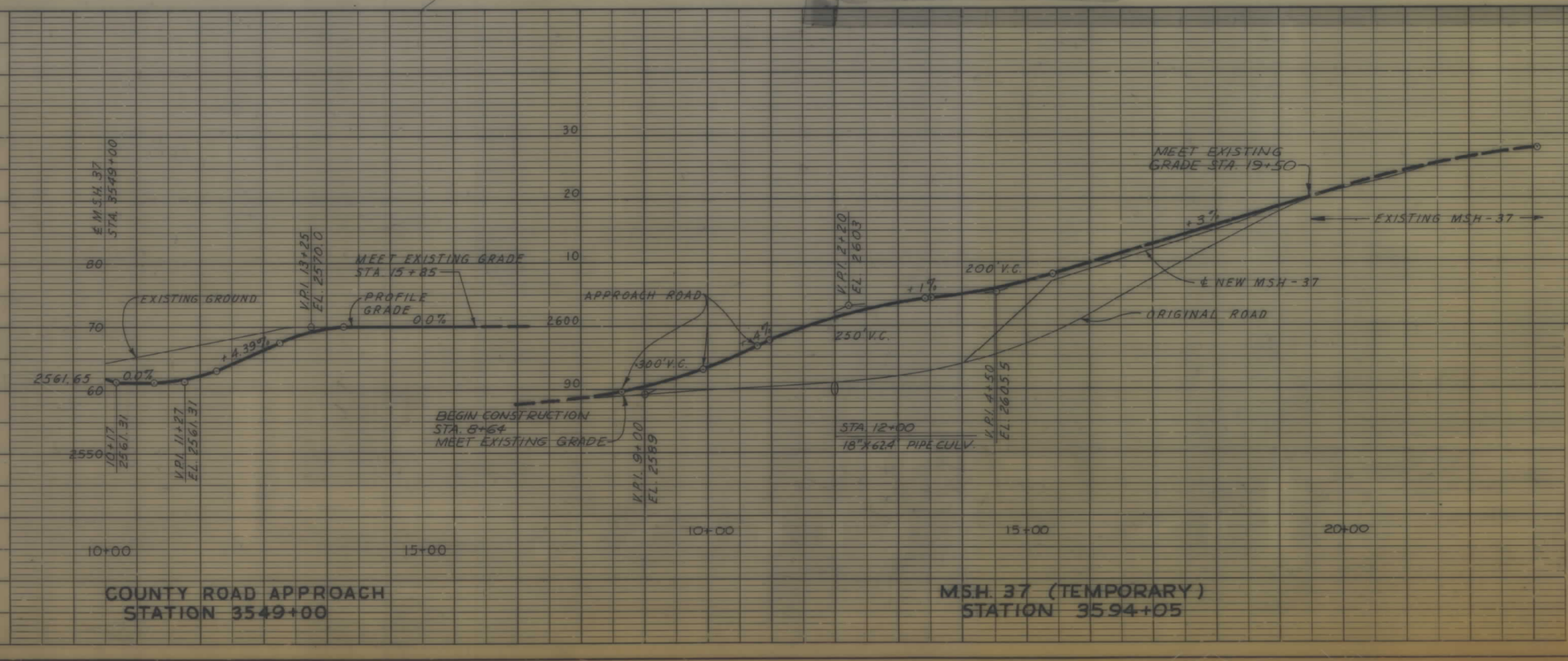
CORPS OF ENGINEERS

R/W NO	SHEET NO	TOTAL SHEETS
F 145	116	116

PLAN — SURVEYED, PLOTTED, DRAWN, TRACED, CHECKED, ST. OF WAY CHECKED, NOTE BOOK, NO.

PROFILE — SURVEYED, PLOTTED, DRAWN, TRACED, CHECKED, ST. OF WAY CHECKED, NOTE BOOK, NO., STRUCTURE NOTATIONS CHKD.





SYMBOL	DATE	DESCRIPTION	APP'D
B		ADDED ROAD APPROACH & GATE	
		TIE NOTE	
A	69 APR 9	(1) ADDED BRIDGE & FENCE LINE (2) ADDED FENCE	ENGR

REVISIONS

U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS, SEATTLE, WASHINGTON

DESIGNED BY: CLAPPER
DRAWN BY: KERFOOT - HALL
CHECKED BY: REYNOLDS
REVIEWED:
SUBMITTED: CHIEF, HIGHWAY SECTION
RECOMMENDED: CHIEF, RELOCATIONS BRANCH

KOOTENAI RIVER, MONTANA
LIBBY DAM PROJECT
RELOCATION - MONTANA HIGHWAY 37
UNIT I
PLAN & PROFILE ROAD APPROACHES
STA. 3549+00 AH. AND STA. 3585+65

APPROVED FOR THE DISTRICT ENGINEER: CHIEF, ENGINEERING DIVISION
DATE: 69 MAR. 03
SCALE: AS SHOWN
SPEC. NO.
DRAWING NUMBER
AS BUILT E-53-31-85
SHEET 25

K&S PLATE 1, PLAN-PROFILE

DACW67-69-C-0039

MICROFILMED OCTOBER 1972