Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

FREEDOM OF INFORMATION ACT/PRIVACY PROGRAM

June 5, 2014

In reply refer to: D-B1

C.V. Chung

Ex 6

FOIA #BPA-2014-01160-F

Dear Mr. Chung:

Thank you for your request for records that you made to the Bonneville Power Administration (BPA), under the Freedom of Information Act, 5 U.S.C. 552. Your request was officially received in this office on Tuesday, May 27, 2014, and has been assigned control number BPA-2014-01160-F. Please use this number in any correspondence with the Agency about your request.

You requested:
1. A one-line schematic/drawing from Custer Substation down to Raver Substation – West of the Cascades.
2. A geographic transmission map from Monroe Substation down to Raver Substation – West of the Cascades.

We have reviewed your letter and have determined that it addresses all of the criteria of a proper request under the FOIA, DOE, and BPA regulation that implements the FOIA at Title 10, Code of Federal Regulations, Part 1004.

Final response:
BPA is releasing the requested maps and drawings in their entirety on the enclosed CD.

This is a final response. Pursuant to 10 CFR 1004.8, if you are dissatisfied with this determination, or the adequacy of the search, you may appeal in writing within 30 calendar days of receipt of a final response letter. The appeal should be made to the Director, Office of Hearings and Appeals, HG-I, Department of Energy, 1000 Independence Avenue, SW, Washington, DC 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA Appeal is being made.

There are no fees associated with this request.

Thank you for your interest in the Bonneville Power Administration. I appreciate the opportunity to assist you. Please contact Kim Winn, FOIA Public Liaison, at 503-230-5273 with any questions about this letter.

Sincerely,

/s/Christina J. Munro
Christina J. Munro
Freedom of Information/Privacy Act Officer

Enclosure: CD

Monroe-Custer No. 1 Drawing 151866 sheets 1 and 2

Monroe-Custer No. 2 Drawing 156239 sheets 1 and 2

Murray-Custer No. 1 Drawing 256888 sheets 1, 2, and 3

Bellingham-Custer No. 1 Drawing 85472 sheet 1

Snohomish-Murray No. 1 Drawing 78244 sheet 1

Monroe-Snohomish No. 1 and 2 Drawing 151538 Sheet 1

Chief Joe-Snohomish No. 3 Drawing 78256 sheets 1 and 2

Chief Joe-Snohomish No. 4 Drawing 78257 sheets 1, 2, and 3

Echo Lake-Monroe No. 1 Drawing 256687 sheet 1

Shultz-Echo Lake No. 1 Drawing 270022 sheet 1

Raver-Echo Lake No. 1 Drawing 256686 sheet 1

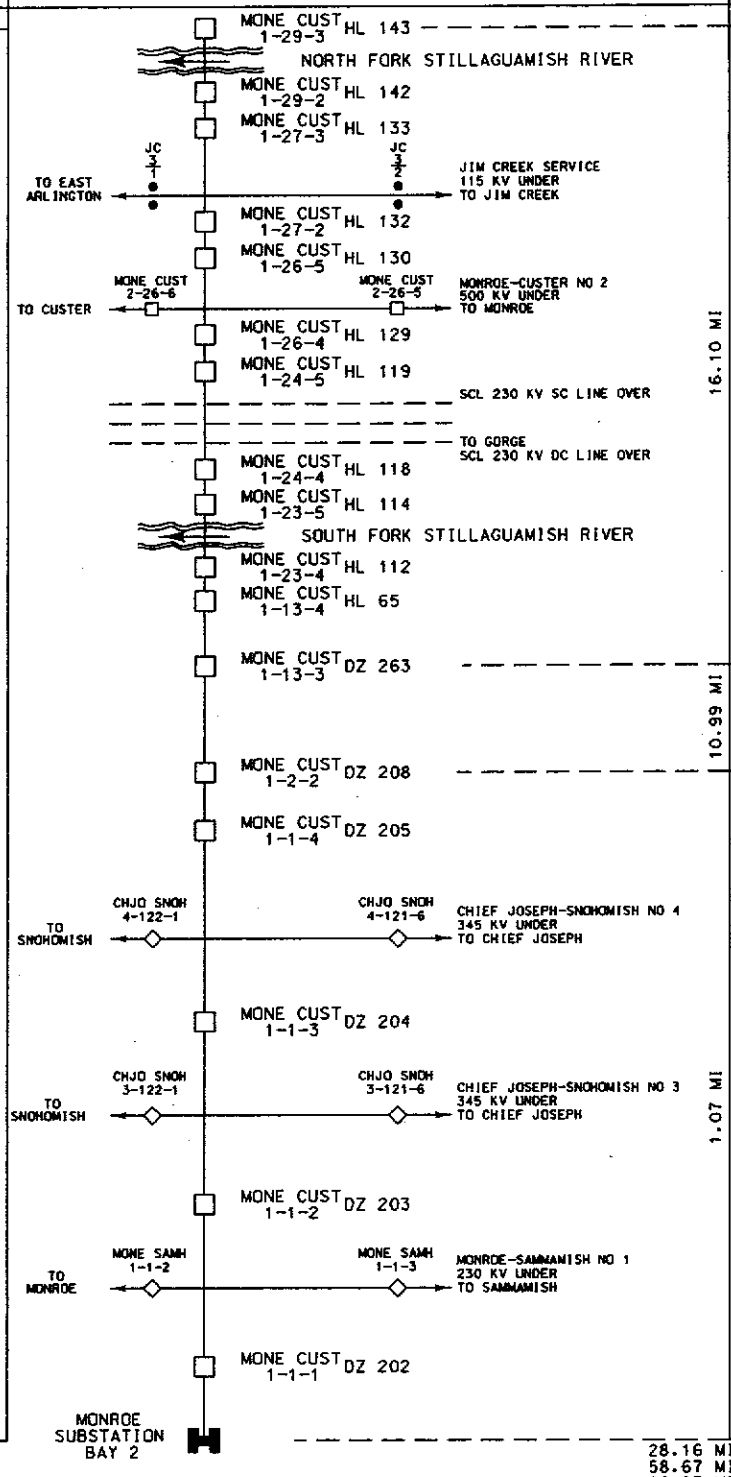
Schultz-Raver No. 1 Drawing 256682 sheet 1

Schultz-Raver No. 3 Drawing 256684 sheets 1 and 2

Schultz-Raver No. 4 Drawing 256685 sheets 1, 2, and 3

Raver Tap to Schultz-Echo Lake No. 1 Drawing 271651 sheet 1

PATROL	DIAGRAM	DESIGN	REFERENCE



28.16 MI SHEET 1
58.67 MI SHEET 2
86.83 MI TOTAL LENGTH

NOTES:

NO.	*	PL6	COMPUTER REVISION ONLY	BY	DATE	APPROVED
9			FORMAT AND PATROL CHANGES	FRM	8/28/10	EDR
8			SPLIT SHEET 1 INTO SHEET 1 & SHEET 2	FRM	6-16-04	LLC
7			CHG. P. SOUND AREA TO SNOHOMISH REGION. ADD SERIAL NO'S & ADNO NO. DRAWING FORMAT CHANGES REVISION 6 REDRAWN	GM FRM	6/28/00	BEE JLR
			ORIGINAL DRAWING DATED 9-19-68			

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 151866-1-9

APPROVED

COMPILED KHC
DRAWN KHC
CHECKED HWE
APPROVED FWF/AFW/WRB
DATE 9-19-66

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

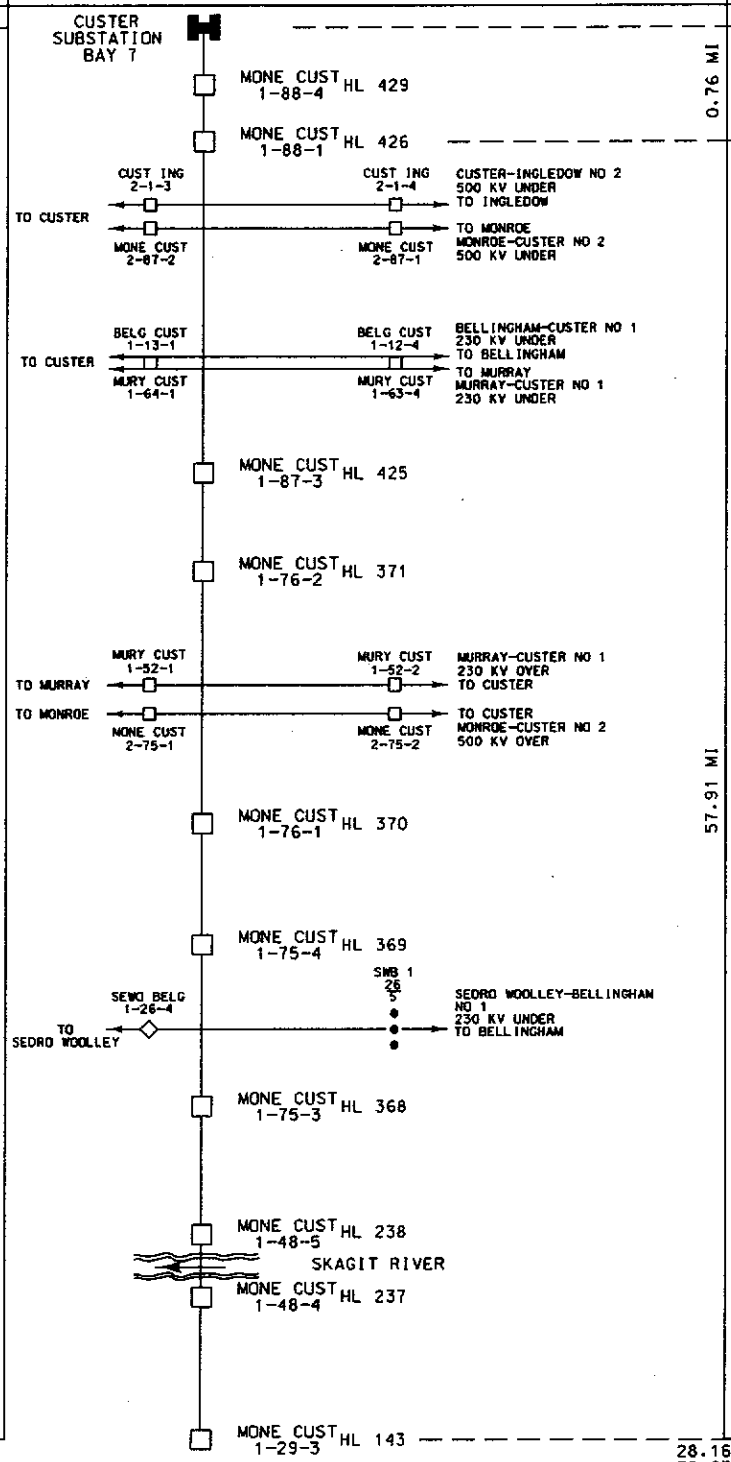
MONROE - CUSTER NO 1

500 KV MONE-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
151866	ELC	A4V	1 OF 2	9

BPA 1297K JUN 1978

PATROL	DIAGRAM	DESIGN	REFERENCE



DESIGN:

3-ACSR 1193 KCM BUNTING GW 7N08 ALUMOWELD 500 KV SC LATTICE STEEL

3-ACSR 1193 KCM BUNTING 500 KV SC LATTICE STEEL

REFERENCE:

LINE: CUSTER LOOP SOUTH TO SNOHOMISH - BLAINE

MONROE - CUSTER NO 2 W.O. 142-15

PHASING SCHEME SERIAL 154861
STRIP MAP SERIAL 141690

SNOHOMISH DISTRICT (58.67 MI)

SNOHOMISH TLM ADNO-8426 (58.67 MI)

WASHINGTON

28.16 MI SHEET 1
58.67 MI SHEET 2
86.83 MI TOTAL LENGTH

NOTES:

1. FIBER OPTIC CABLE FROM 76/1 (HL 370) TO 87/3 (HL 425) REFERENCE BELLINGHAM-INTALCO-CUSTER FIBER SYSTEM ONE-LINE DIAGRAM 269642

2. FIBER OPTIC CABLE FROM 88/1 (HL 426) TO 88/4 (HL 429) REFERENCE BELLINGHAM-CUSTER FIBER SYSTEM ONE LINE DIAGRAM 269756

NO.	*	PLG		BY	DATE	APPROVED
9			FORMAT AND PATROL CHANGES	FRM	12/18/10	CDC
8			SPLIT SHEET 1 INTO SHEET 1 & SHEET 2 ADDED FIBER NOTE	FRM	6-16-04	LLC
7			CHG. P. SOUND AREA TO SNOHOMISH REGION. ADD SERIAL NO'S & ADNO NO. DRAWING FORMAT CHANGES REVISION 6 REDRAWN	GN FRM	6/28/00	BEE JLR
			ORIGINAL DRAWING DATED 9-19-68			
			COMPUTER REVISION ONLY			

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 151866-2-9

APPROVED

COMPILED KHC

DRAWN KHC

CHECKED HWE

APPROVED FWF/AFW/WRB

DATE 9-19-66

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

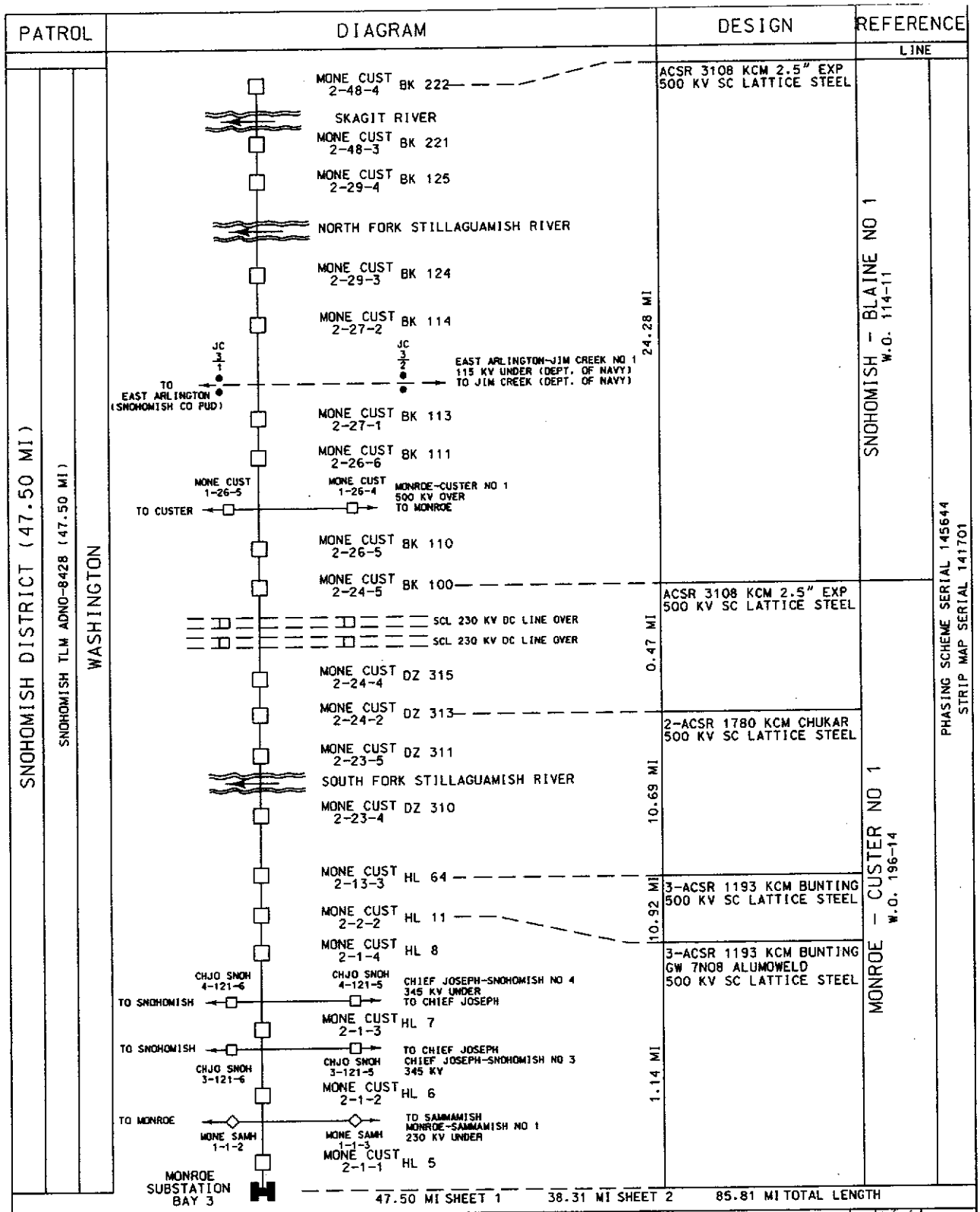
TRANSMISSION LINE ONE-LINE DIAGRAM

MONROE - CUSTER NO 1

500 KV MONE-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
151866	ELC	A4V	2 OF 2	9

BPA 1297K JUN 1976



NOTES:

NO.	*	PLG	COMPUTER REVISION ONLY	BY	DATE	APPROVED
5			FORMAT AND PATROL CHANGES	FRM	10/18/10	CDC
4			NAME, SPELLING & DESIGN CHANGES	FRM	6-16-04	LLC
3			CHANGE PUGET SOUND AREA TO SNOHOMISH REGION. ADD ADNO NO. ADD SERIAL NO'S. SPLIT DWG INTO 2 SHTS. DWG FORMAT CHANGES REVISION 2 REDRAWN	FRM	12-10-01	AHK JLR

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD, FILE NAME: 156239-1-5

APPROVED

COMPILED RLM

DRAWN RLM

CHECKED RWG

APPROVED WJ/FG/MC

DATE 8-21-75

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

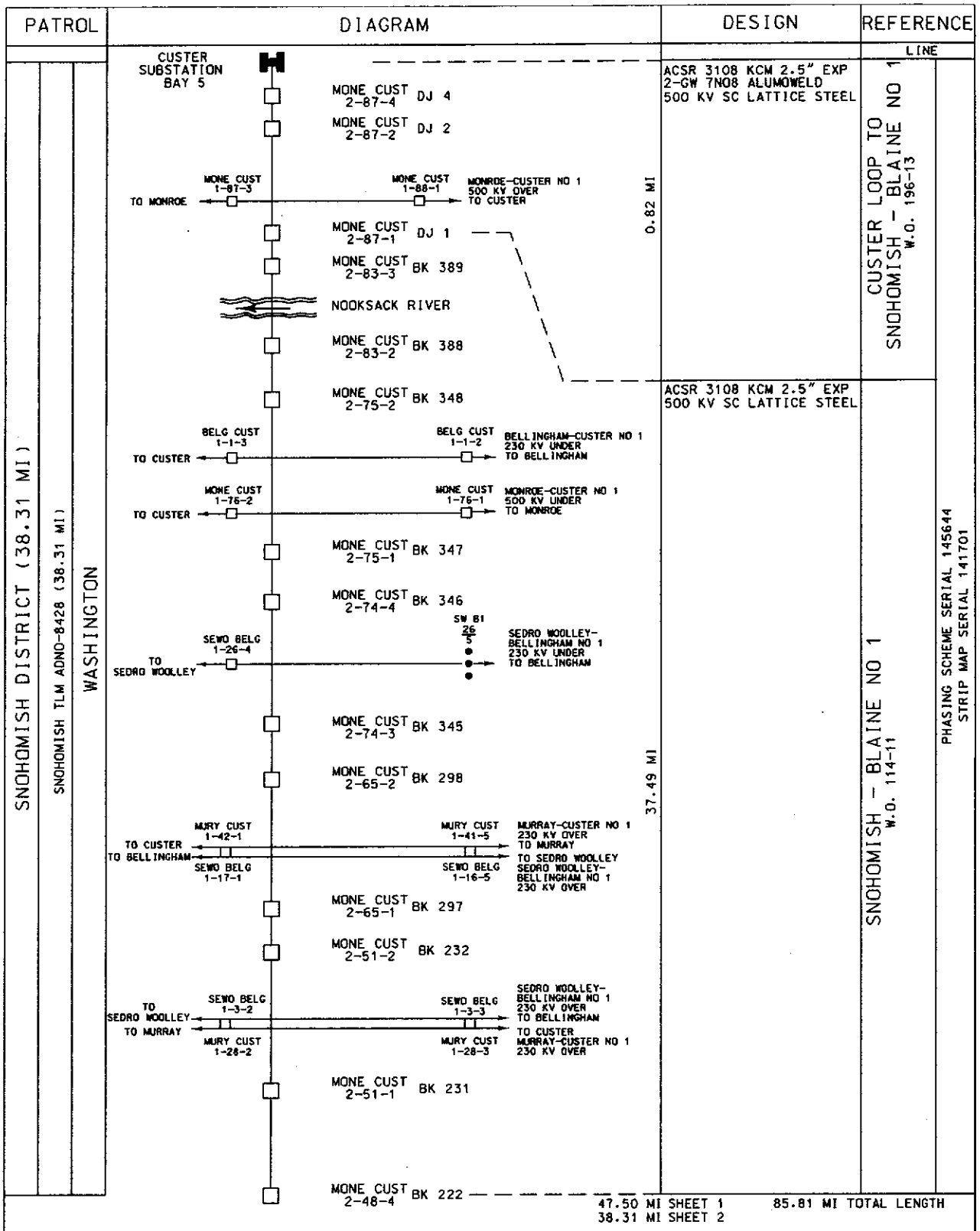
TRANSMISSION LINE ONE-LINE DIAGRAM
FRM

MONROE - CUSTER NO 2

500 KV MONE-CUST-2

SERIAL	SOURCE	SIZE	SHEET	REVISION
156239	ELC	A4V	1 OF 2	5

BPA 1297K JUN 1978



NOTES:

1. FIBER OPTICAL CABLE ON 75/1 (BK347). REFERENCE BELLINGHAM-INTALCO-CUSTER FIBER SYSTEM ONE-LINE DIAGRAM 269642

NO.	*	PL#	COMPUTER REVISION ONLY	BY	DATE	APPROVED
5			FORMAT AND PATROL CHANGES	FRM	12/18/10	GDC
4			ADDED FIBER NOTE 1. CROSSLINE (MONROE-CUSTER NO 1). TOWER (DJ2) & VOLTAGE AT MURRAY-CUSTER	FRM	6-16-04	LLC

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD. FILE NAME: 156239-2-5

APPROVED

COMPILED RLM

DRAWN RLM

CHECKED RWG

APPROVED WJ/FG/MC

DATE 8-21-75

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

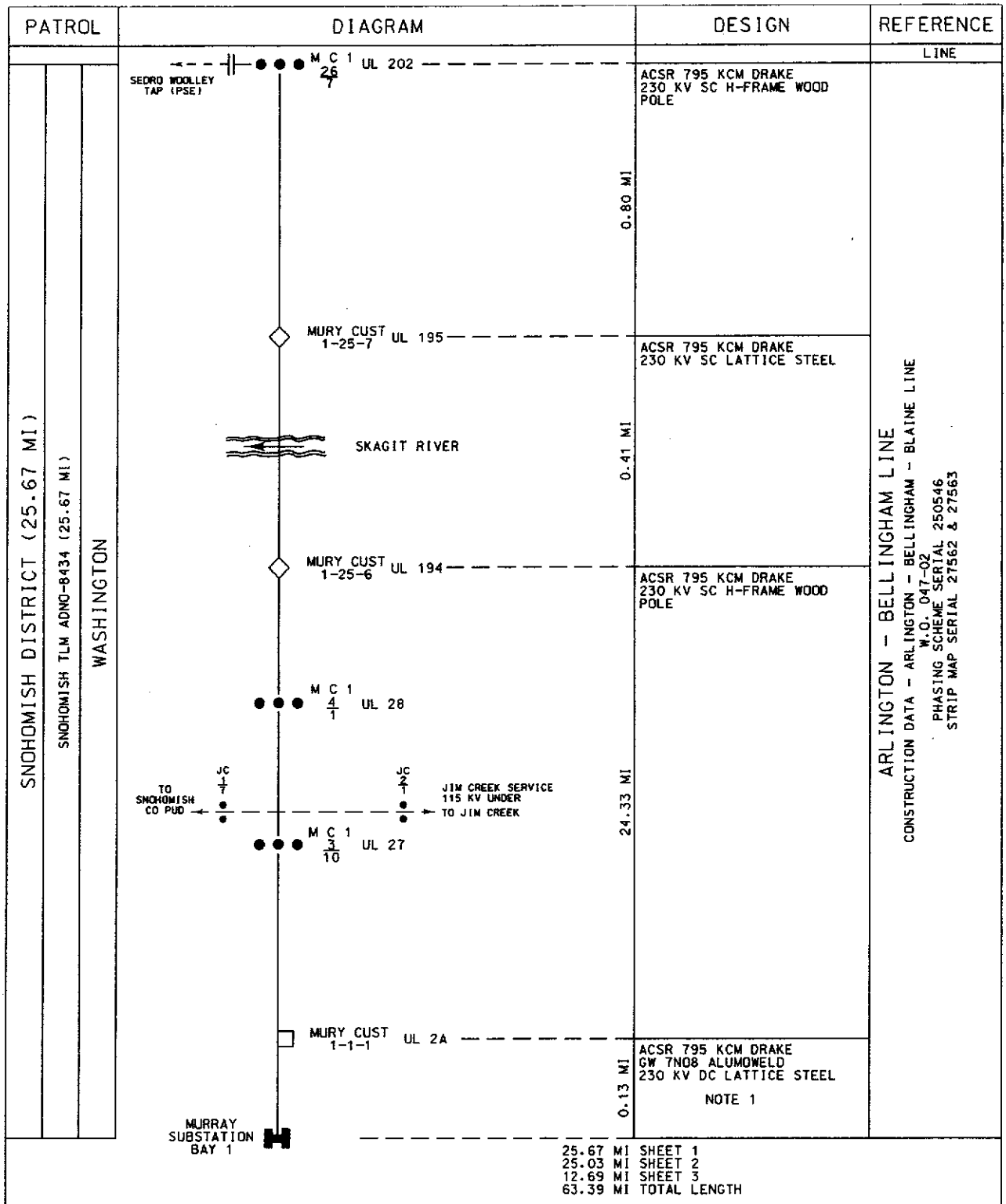
TRANSMISSION LINE ONE-LINE DIAGRAM

MONROE - CUSTER NO 2

500 KV MONE-CUST-2

SERIAL	SOURCE	SIZE	SHEET	REVISION
156239	ELC	A4V	2 OF 2	5

BPA 1297K JUN 1976



NOTES:
1. RIGHT CIRCUIT OPERATES AS SNOHOMISH-MURRAY NO 1

NO.	*	PLA	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2			FORMAT AND PATROL CHANGES	FRM	10/18/10	EDC
1			FORMAT CHANGES AND CHANGED NOTE 1	FRM LMS	2-18-00	LLC
0			SUPERSEDES DRAWING 153190 SHT 1	DAR	2-18-00	JLR/JG

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 256888-1-2

APPROVED
COMPILED JG
DRAWN
CHECKED SUL
APPROVED JL REDING
DATE 2-18-00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

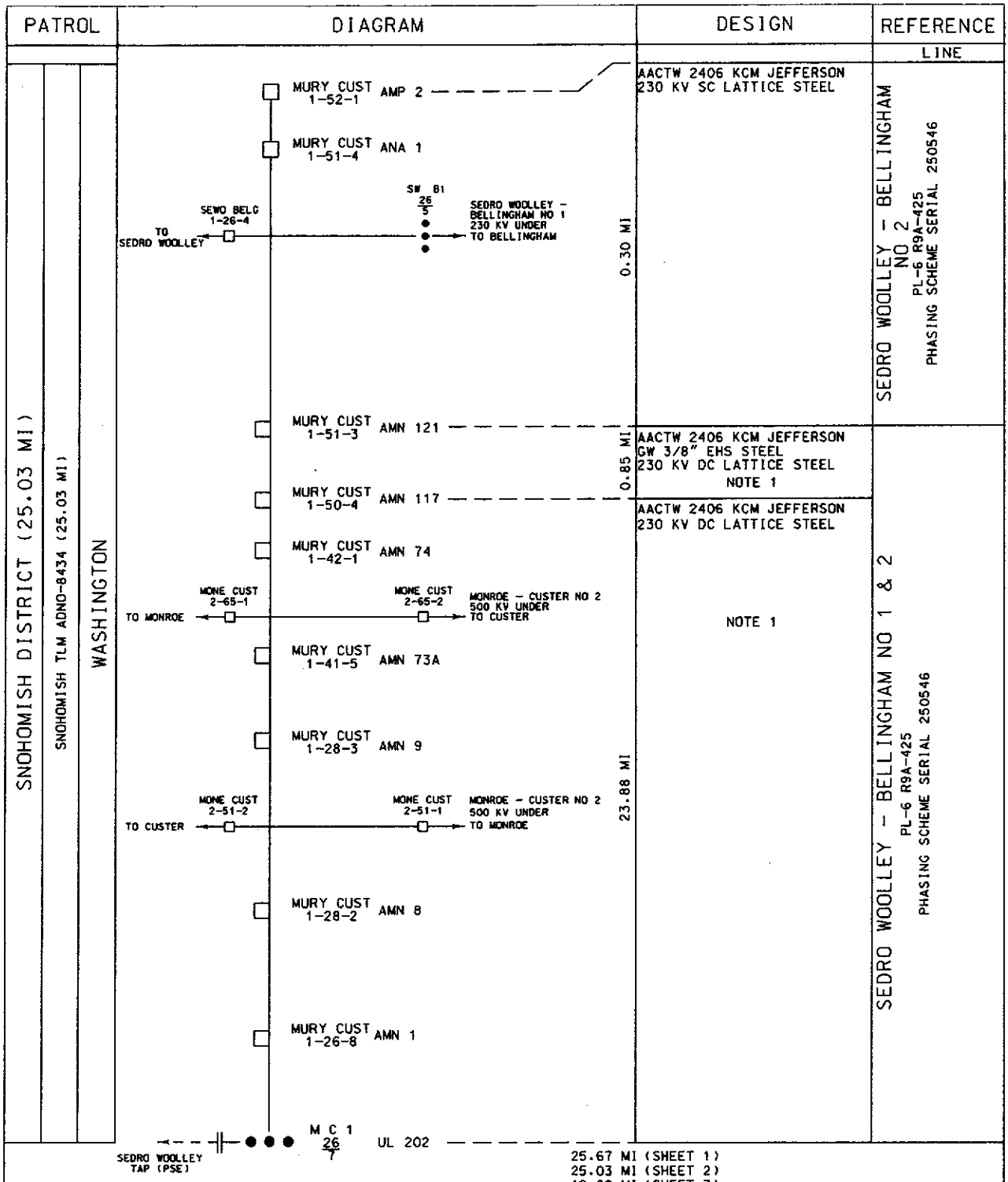
TRANSMISSION LINE ONE-LINE DIAGRAM

MURRAY - CUSTER NO 1

230 KV MURY-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256888	ELC	A4V	1 OF 3	2

BPA 1297K JUN 1978



NOTES:

1. LEFT CIRCUIT OPERATES AS SEDRO WOOLLEY-BELLINGHAM NO 1

NO.	*	PLE		BY	DATE	APPROVED
2			FORMAT AND PATROL CHANGES	FRM	12/12/16	CDC
1			FORMAT CHANGES AND CHANGED NOTE 1	FRM LMS	8-24-04	LLC
0			SUPERSEDES DRAWING 153190 SHT 2	DAR	2-18-00	JLR/JG
			COMPUTER REVISION ONLY			

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD, FILE NAME: 256888-2-2

APPROVED

COMPILED DCG

DRAWN DCG/FRM

CHECKED JG/SUL

APPROVED JL REDING

DATE 2-18-00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

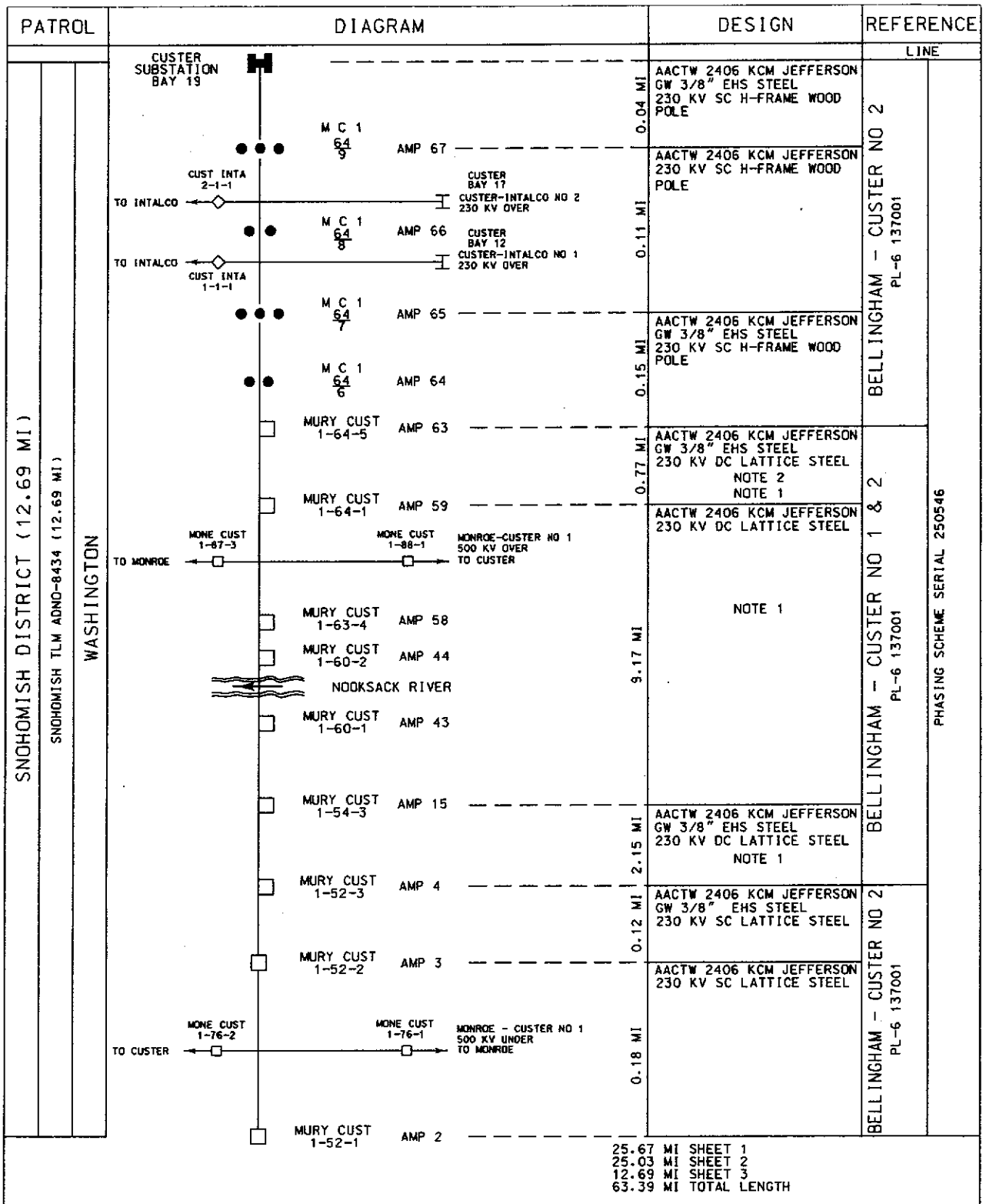
TRANSMISSION LINE ONE-LINE DIAGRAM

MURRAY - CUSTER NO 1

230 KV MURY-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256888	ELC	A4V	2 OF 3	2

BPA 1297K JUN 1978



25.67 MI SHEET 1
25.03 MI SHEET 2
12.69 MI SHEET 3
63.39 MI TOTAL LENGTH

NOTES:

1. RIGHT CIRCUIT OPERATES AS BELLINGHAM-CUSTER NO 1
2. FIBER OPTIC CABLE FROM 64/1 (AMP59) TO 64/7 (AMP65) REFERENCE BELLINGHAM-INTALCO-CUSTER FIBER SYSTEM ONE-LINE DIAGRAM 269642

NO.	*	PLG	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2			FORMAT AND PATROL CHANGES	FRM	1/13/10	CDC
1			FORMAT CHANGES, CHANGED NOTE 1, ADDED NOTE 2	FRM LMS	8-24-04	LLC
0			SUPERSEDES DRAWING 153190 SHT 3	DAR	2-18-00	JLR/JG

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD. FILE NAME: 256888-3-2

APPROVED
COMPILED JG
DRAWN FRM
CHECKED SUL/JLR
APPROVED JL REDING
DATE 2-18-00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

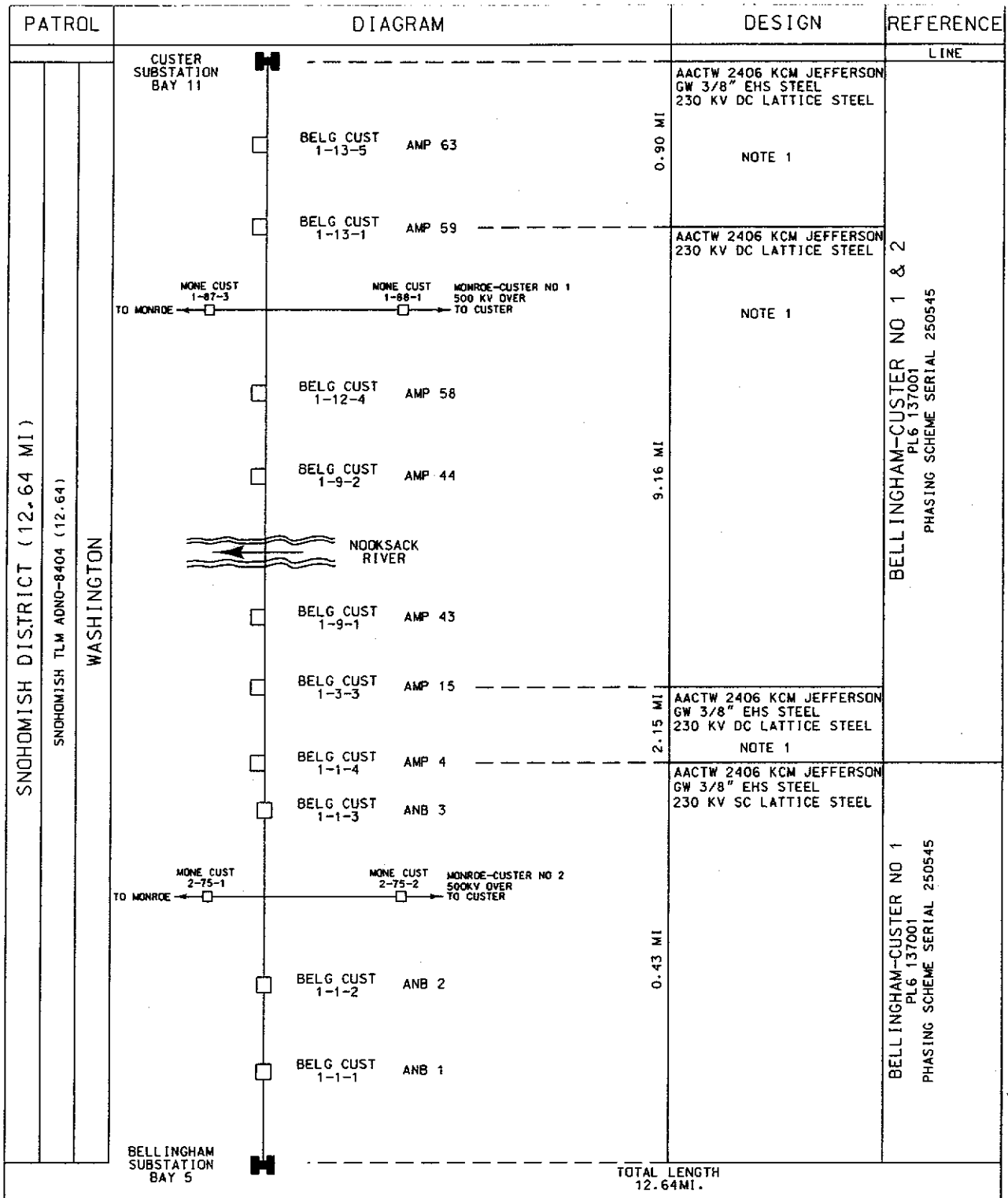
TRANSMISSION LINE ONE-LINE DIAGRAM

MURRAY - CUSTER NO 1

230 KV MURY-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256888	ELC	A4V	3 OF 3	2

BPA 1297K JUN 1978



NOTES:

1. LEFT CIRCUIT OPERATES AS MURRAY - CUSTER NO 1

NO.	#	PL6	COMPUTER REVISION ONLY	BY	DATE	APPROVED
10			FORMAT AND PATROL CHANGES	FRM	9/10/10	CDC
9			STRUCTURES AMP 59 & AMP 63 CHGD TO SHOW DBL CIRCUIT. GENERAL FORMAT UPDATED.	LMS	2-22-01	JS-JLR
8			LINE REBUILT. CHG STRUC TYPES & CONDUCTOR. ADD ADNO NO. SERIAL NO'S & GW CHG P. SOUND AREA TO SNOHOMISH REGION. DRAWING FORMAT CHGES. ORIGINAL DRAWING DATED T-15-55 REVISION 7 REDRAWN	SUL FRM DCG	2-18-00	JG/JLR

C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 85472-1-10

APPROVED

COMPILED FHG

DRAWN DCG/FRM

CHECKED RWM/SUL

APPROVED FWF/CJS/JDS

DATE 7-15-55

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

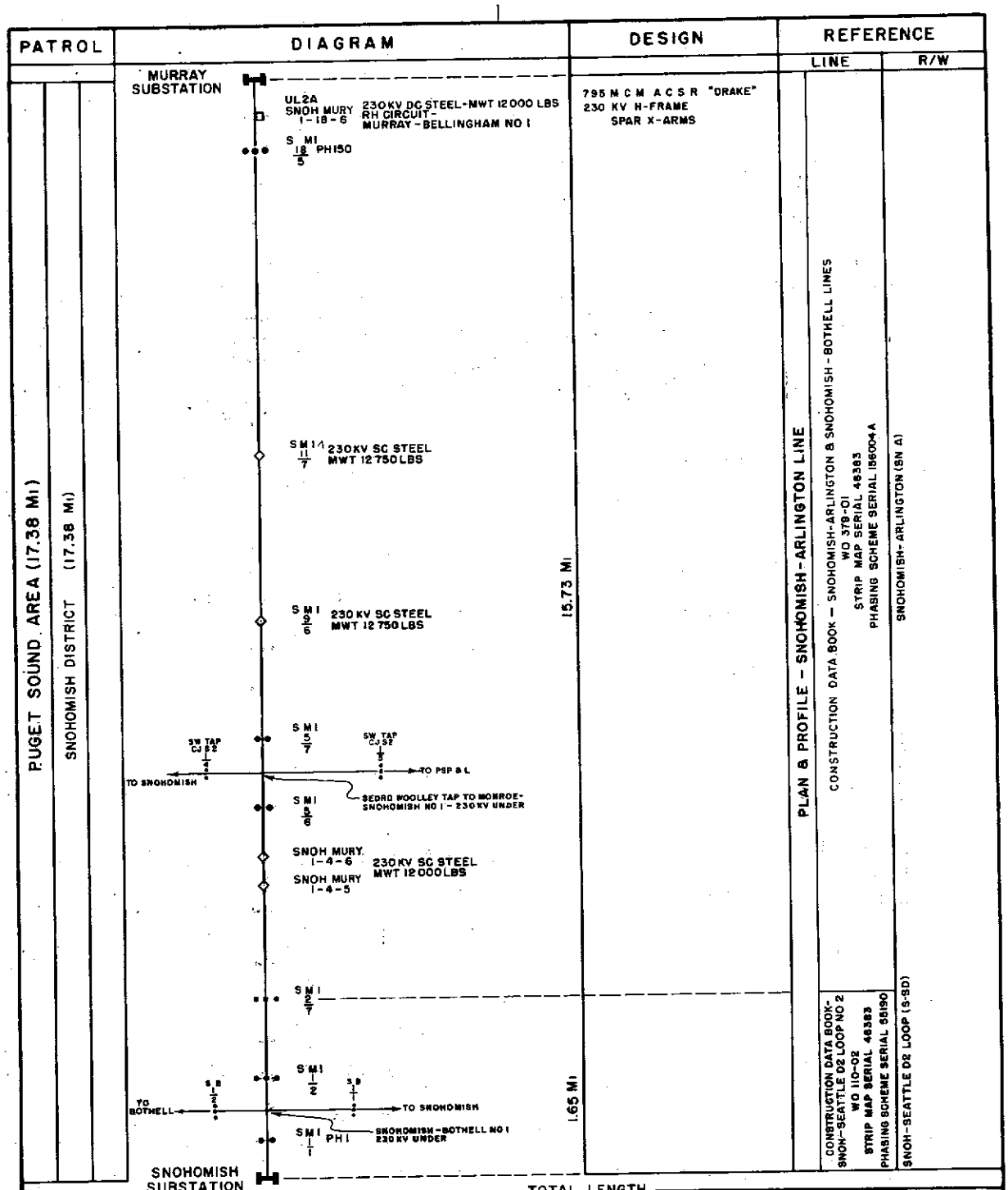
TRANSMISSION LINE ONE-LINE DIAGRAM

BELLINGHAM - CUSTER NO 1

230 KV BELG-CUST-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
85472	ELC	A4V	1 OF 1	10

BPA 1297K JUN 1978



UNITED STATES DEPARTMENT OF THE INTERIOR
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

SNOHOMISH-MURRAY NO 1

230 KV SNOH MURY 1

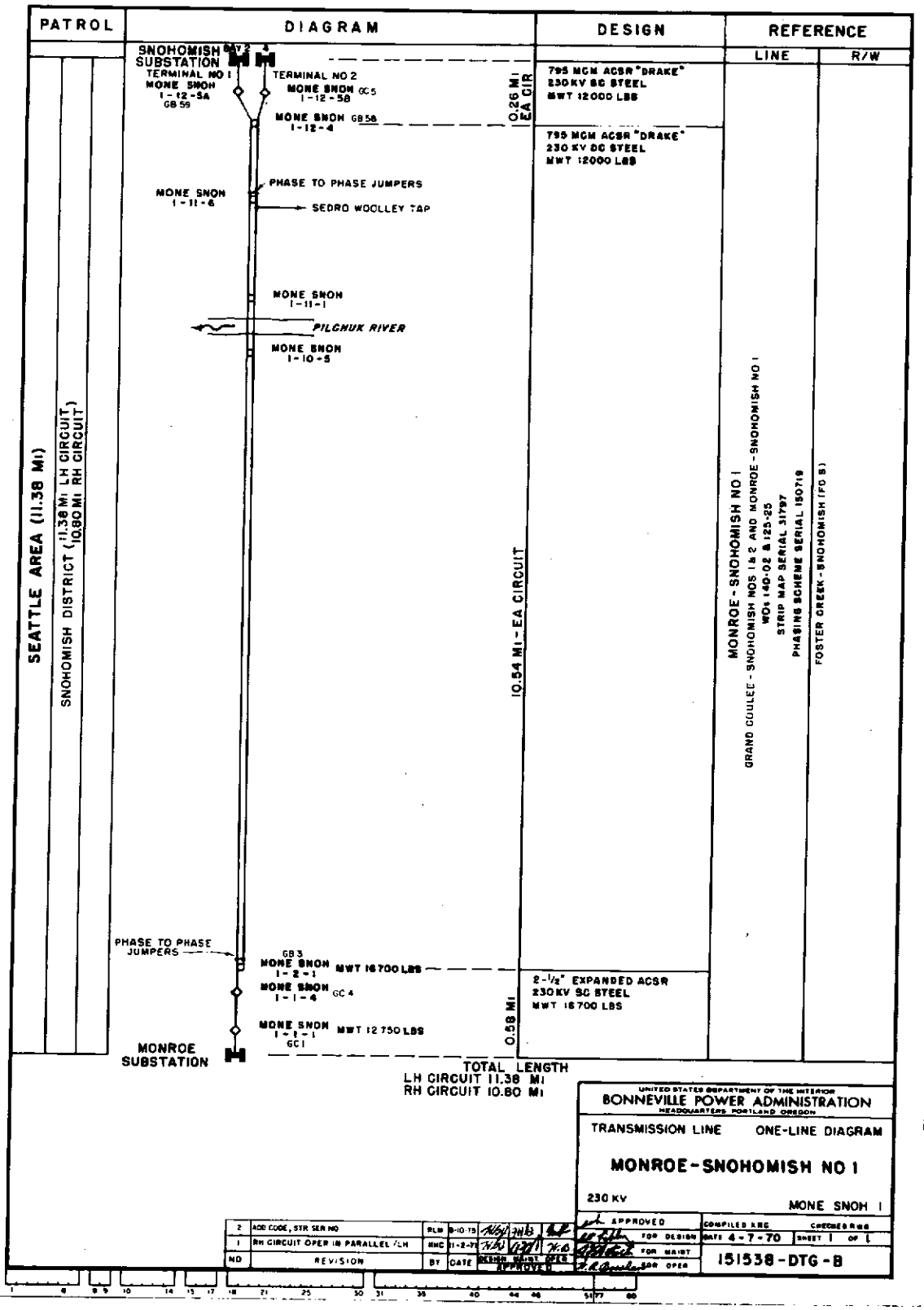
NO	REVISION	BY	DATE	DESIGN	MAINT	OPER	APPROVED
7	AREA NAME, STR MARKING	RLM	4-27-64	[illegible]	[illegible]	[illegible]	[illegible]
6	STR CHGS IN MI 4, SER NOS	KHC	12-5-72	[illegible]	[illegible]	[illegible]	[illegible]
5	NAME CHG FROM SNOH-BELLINGHAM	KHC	10-8-70	[illegible]	[illegible]	[illegible]	[illegible]
4	LINE RELOC AT SNOH	KHC	9-17-68	[illegible]	[illegible]	[illegible]	[illegible]
3	SEDRO WOOLLEY TAP ADDED	KHC	9-21-68	[illegible]	[illegible]	[illegible]	[illegible]
2	XINGS, R/W REF ADD, GULL COND REV	KHC	9-10-68	[illegible]	[illegible]	[illegible]	[illegible]
1	REFERENCE REV & X-ING ADDED	KHC	3-30-66	[illegible]	[illegible]	[illegible]	[illegible]

APPROVED FOR DESIGN, FOR MAINT, FOR OPER

COMPILED KHC CHECKED GLH
DATE 11-26-57 SHEET 1 OF 1
Sw. 78244 Dwg.

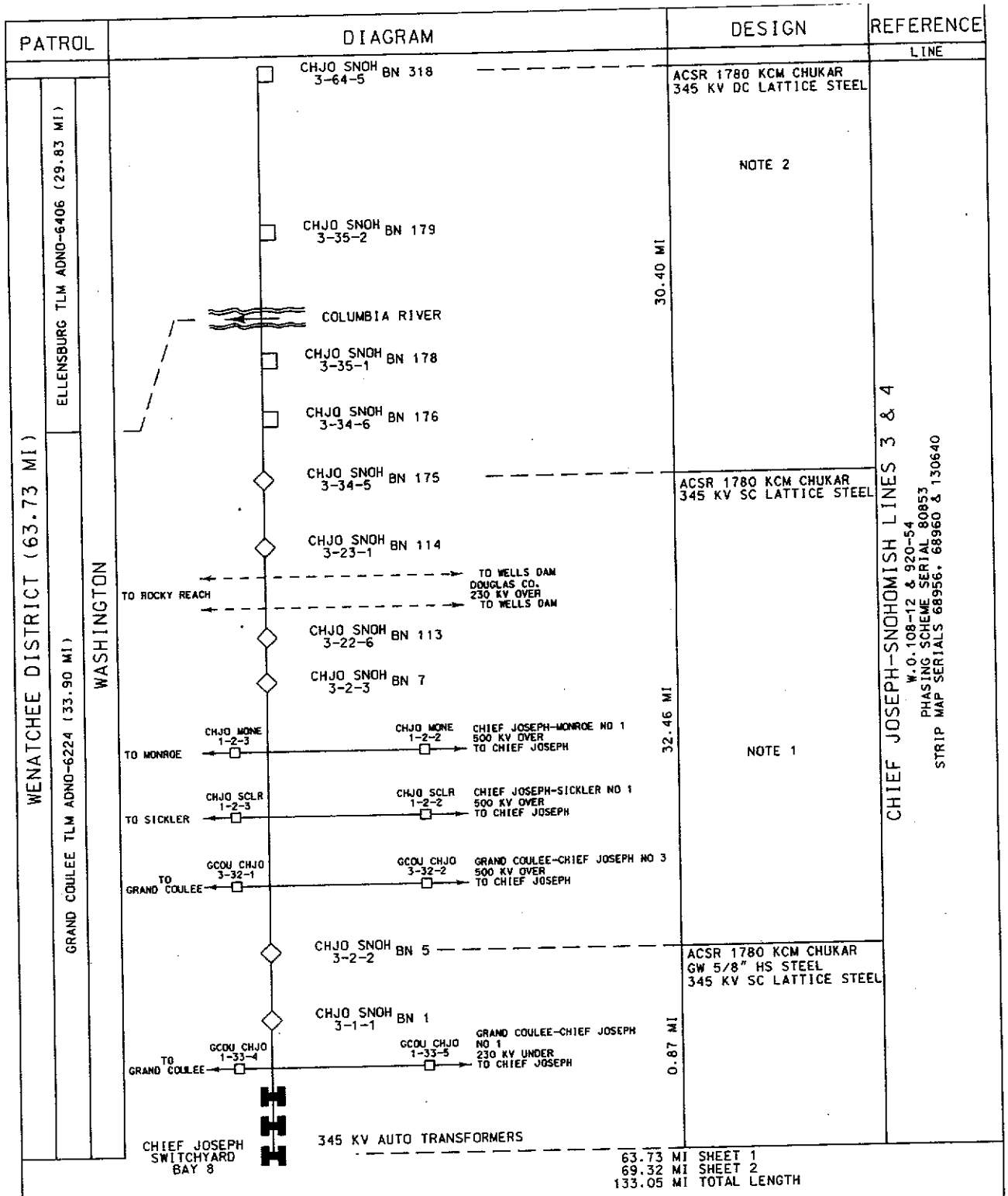
JAN 23 1985

78244 | 573906020 | SNOH BELG 78244-DTG-B



Note: If The Microfilmed Drawing Is Less Clear Than The Review, It Is Due To The Quality Of The Original Drawing.

31 DECEMBER 1984



NOTES:

1. 3-4-5A (BN 20A) AND 3-6-4B (BN 30A) ARE SINGLE WOOD POLE STRUCTURES.
2. RIGHT CIRCUIT OPERATES AS CHIEF JOSEPH-SNOHOMISH NO 4.

NO.	#	PL4	COMPUTER REVISION ONLY	BY	DATE	APPROVED
9			FORMAT AND PATROL CHANGES	FRM	9/21/10	CDC
8			CHG U. COLUMBIA AREA TO SPOKANE REGION: ADD ADNO NO & SERIAL NO'S: ADD GW SPANS: SPLIT DWG INTO 2 SHT'S: ADJUST MILEAGES: DWG FORMAT CHG'S	PLC MJL GM FRM	7-10-01	BEE-JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 78256-1-9

APPROVED

COMPILED DWM

DRAWN DWM

CHECKED CPL

APPROVED FWF-CJS-JOS

DATE 12-23-57

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

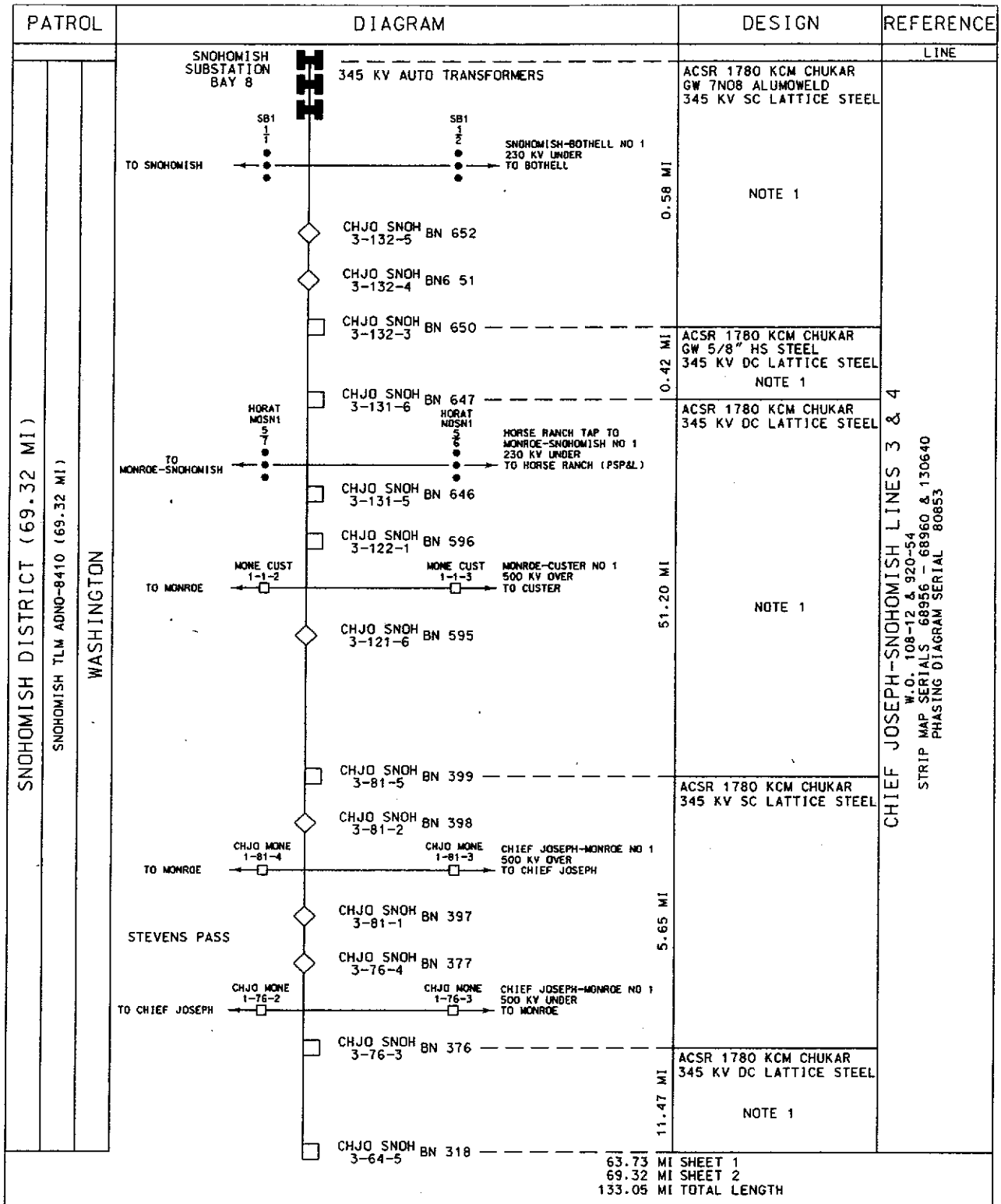
TRANSMISSION LINE ONE-LINE DIAGRAM

CHIEF JOSEPH-SNOHOMISH NO 3

345 KV CHJO-SNOH-3

SERIAL	SOURCE	SIZE	SHEET	REVISION
78256	ELC	A4V	1 OF 2	9

BPA 1297K JUN 1978



NOTES:

1. RIGHT CIRCUIT OPERATES AS CHIEF JOSEPH-SNOHOMISH NO 4

NO.	*	PLS	COMPUTER REVISION ONLY	BY	DATE	APPROVED
9			FORMAT AND PATROL CHANGES	FRM	9/6/10	CDC
8			CHG P. SOUND AREA TO SNOHOMISH REGION; ADD ADNO NO & SERIAL NO'S; ADD GW SPANS; SPLIT DWG INTO 2 SHT'S; ADJUST MILEAGES; DWG FORMAT CHGES	FRM	8-24-01	BEE-JLR

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD. FILE NAME: 78256-2-9

APPROVED

COMPILED DWM

DRAWN DWM

CHECKED CPL

APPROVED FWF/CS/JOS

DATE 12-23-57

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

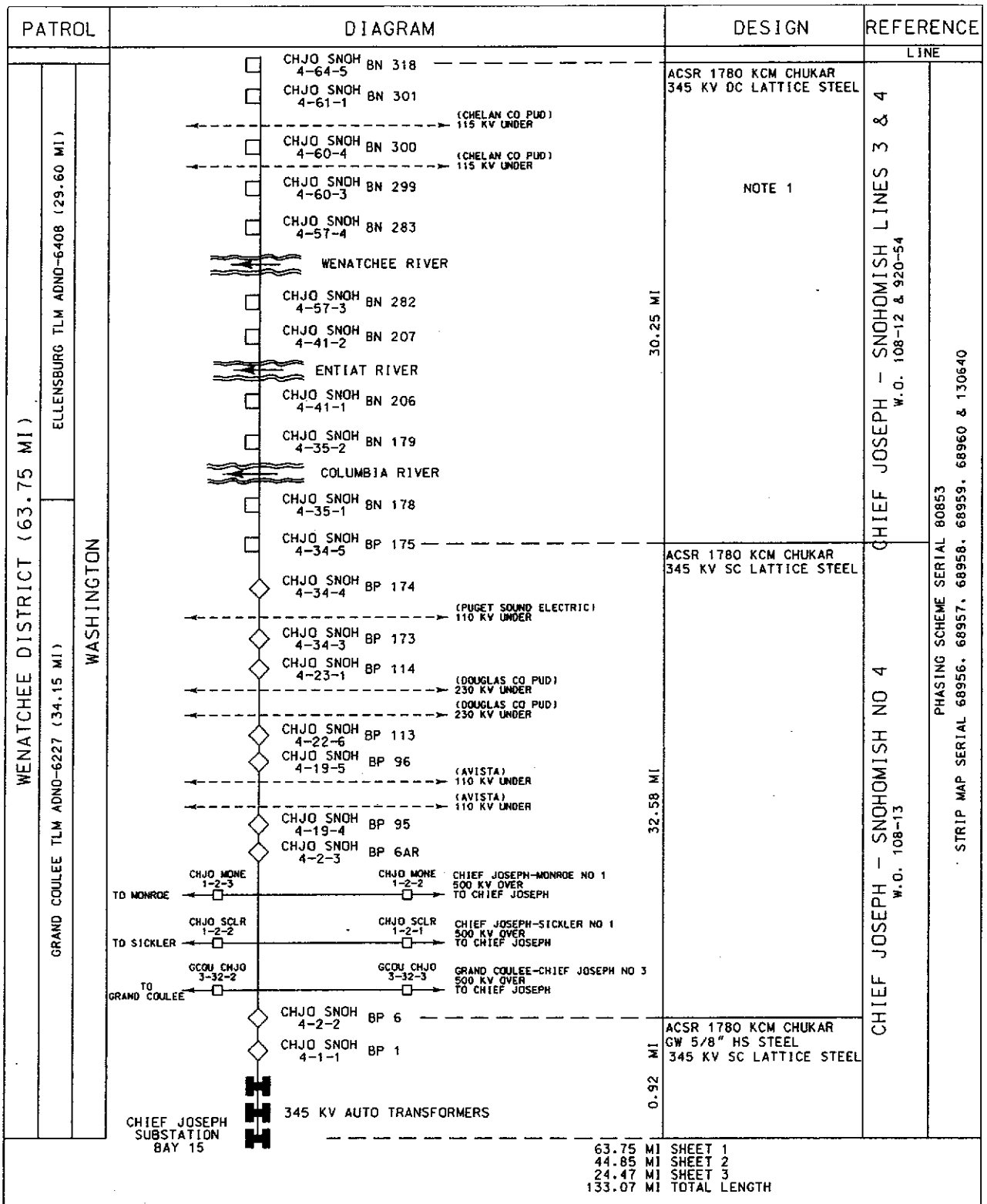
TRANSMISSION LINE ONE-LINE DIAGRAM

CHIEF JOSEPH-SNOHOMISH NO 3

345 KV CHJO-SNOH-3

SERIAL	SOURCE	SIZE	SHEET	REVISION
78256	ELC	A4V	2 OF 2	9

BPA 1297K JUN 1978



NOTES:

1. LEFT CIRCUIT OPERATES AS CHIEF JOSEPH-SNOHOMISH NO 3

NO.	*	PLS	COMPUTER REVISION ONLY	BY	DATE	APPROVED
10			FORMAT AND PATROL CHANGES	FRM	11/2/10	CDC
9			SPLIT SHEETS 1 & 2 INTO SHEETS 1 ,2 & 3 ADDED RIVERS & FOREIGN CROSSINGS	FRM	8/15/06	BEE LMS
8			CHANGED AREA TO REGION REMOVED REFERENCE "R/W",CHANGED LINE & TITLE BLOCK. REVISION 7 REDRAWN	FRM	10-16-00	BEE JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 78257-1-10

APPROVED

COMPILED CPL

DRAWN CPL

CHECKED WES

APPROVED FWF-CJS-JOS

DATE 12-23-57

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

CHIEF JOSEPH-SNOHOMISH NO 4

345 KV CHJO-SNOH-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
78257	ELC	A4V	1 OF 3	10

BPA 1297K JUN 1978

PATROL	DIAGRAM	DESIGN	REFERENCE LINE
SNOHOMISH DISTRICT (44.85 MI) / SNOHOMISH TLM ADND-8412 (44.85 MI) / WASHINGTON	CHJO SNOH 4-105-4 BP 515 — (PUGET SOUND ELECTRIC) 115 KV UNDER; CHJO SNOH 4-105-3 BP 514; NORTH FORK SKYKOMISH RIVER; CHJO SNOH 4-105-2 BP 513; SOUTH FORK SKYKOMISH RIVER; CHJO SNOH 4-105-1 BP 512; SOUTH FORK SKYKOMISH RIVER; CHJO SNOH 4-104-8 BP 511 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-104-7 BP 510; CHJO SNOH 4-89-1 BP 439 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-88-5 BP 438; CHJO SNOH 4-81-5 BP 399	ACSR 1780 KCM CHUKAR 345 KV DC LATTICE STEEL NOTE 1 (27.77 MI)	CHIEF JOSEPH - SNOHOMISH LINES 3 & 4 W.O. 108-12 & 169-11
	CHJO SNOH 4-81-4 BP 196; CHJO SNOH 4-81-2 BP 194; CHJO MONE 1-81-4 — CHJO MONE 1-81-3 CHIEF JOSEPH-MONROE NO 1 500 KV UNDER TO CHIEF JOSEPH; TO MONROE; CHJO SNOH 4-81-1 BP 193; CHJO SNOH 4-76-4 BP 175; CHJO MONE 1-76-2 — CHJO MONE 1-76-3 CHIEF JOSEPH-MONROE NO 1 500 KV UNDER TO MONROE; TO CHIEF JOSEPH	ACSR 1780 KCM CHUKAR 345 KV SC LATTICE STEEL (5.54 MI)	CHIEF JOSEPH - SNOHOMISH NO 4 W.O. 108-13
	CHJO SNOH 4-76-3 BN 376; CHJO SNOH 4-74-1 BN 362 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-73-6 BN 361; CHJO SNOH 4-73-3 BN 358 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-73-2 BN 357; CHJO SNOH 4-72-2 BN 354 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-72-1 BN 353; CHJO SNOH 4-71-1 BN 349 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-70-5 BN 348; CHJO SNOH 4-70-3 BN 346 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-70-2 BN 345; CHJO SNOH 4-68-4 BN 337 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-68-3 BN 336; CHJO SNOH 4-65-1 BN 319 — (PUGET SOUND ELECTRIC) 110 KV UNDER; CHJO SNOH 4-64-5 BN 318	ACSR 1780 KCM CHUKAR 345 KV DC LATTICE STEEL NOTE 1 (11.54 MI)	CHIEF JOSEPH - SNOHOMISH LINES 3 & 4

PHASING SCHEME SERIAL 80853
STRIP MAP SERIAL 689565, 68957, 68958, 68959, 68960 &130640

63.75 MI SHEET 1
44.85 MI SHEET 2
24.47 MI SHEET 3
133.07 MI TOTAL LENGTH

NOTES:
1. LEFT CIRCUIT OPERATES AS CHIEF JOSEPH-SNOHOMISH NO 3

NO.	*	PLA	COMPUTER REVISION ONLY	BY	DATE	APPROVED
10			FORMAT AND PATROL CHANGES	FRM	9/21/90	LPC
9			SPLIT SHEETS 1 & 2 INTO SHEETS 1 2 3. ADDED RIVERS AND FOREIGN CROSSINGS	FRM	8/15/06	BEE LMS
8			CHANGED AREA TO REGION REMOVED REFERENCE "R/W". CHANGED LINE & TITLE BLOCK. REVISION 7 REDRAWN	FRM	10-17-00	BEE JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 78257-2-10

APPROVED
COMPILED CPL
DRAWN DCG/FRM
CHECKED WES
APPROVED FWF/CJS/JOS
DATE 12-23-57

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

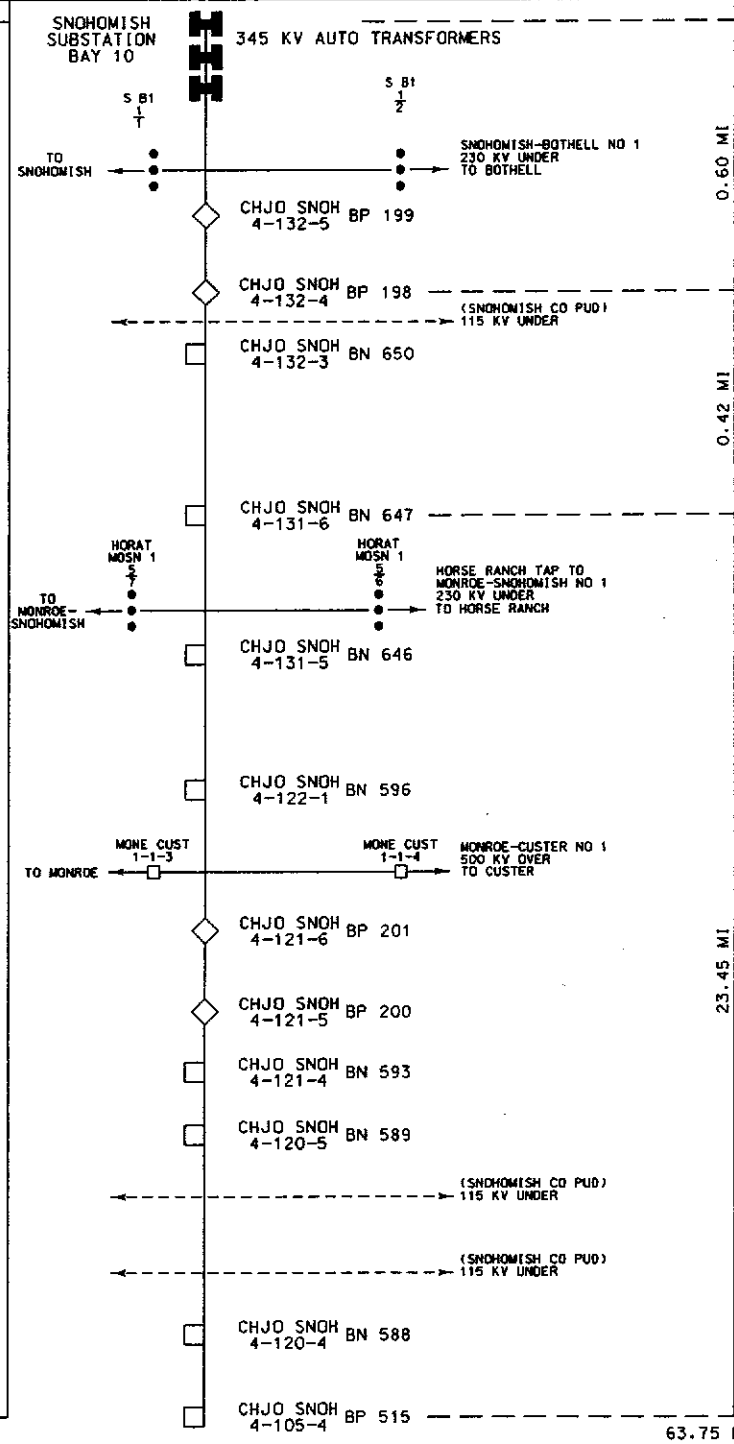
CHIEF JOSEPH-SNOHOMISH NO 4

345 KV CHJO-SNOH-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
78257	ELC	A4V	2 OF 3	10

BPA 1297K JUN 1978

PATROL	DIAGRAM	DESIGN	REFERENCE



63.75 MI SHEET 1
44.85 MI SHEET 2
24.47 MI SHEET 3
133.07 MI TOTAL LENGTH

NOTES:

1. LEFT CIRCUIT OPERATES AS CHIEF JOSEPH-SNOHOMISH NO 3
2. TOWERS 4-121-1 (BP 197), 4-121-5 (BP 200) AND 4-121-6 (BP 201) ARE SINGLE CIRCUIT LATTICE STEEL

NO.	*	PLS	COMPUTER REVISION ONLY	BY	DATE	APPROVED
10			FORMAT AND PATROL CHANGES	FRM	9/21/10	PAC
9			SPLIT SHEETS 1 & 2 INTO SHEETS 1, 2 & 3 ADDED RIVERS & FOREIGN CROSSINGS	FRM	8/15/06	BEE LMS
8			CHANGED AREA TO REGION REMOVED REFERENCE "R/W". CHANGED LINE & TITLE BLOCK. REVISION 7 REDRAWN	FRM	10-17-00	BEE JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 78257-3-10

APPROVED

COMPILED CPL
DRAWN DCG/FRM
CHECKED WES
APPROVED FWF/CJS/JOS
DATE 12-23-57

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

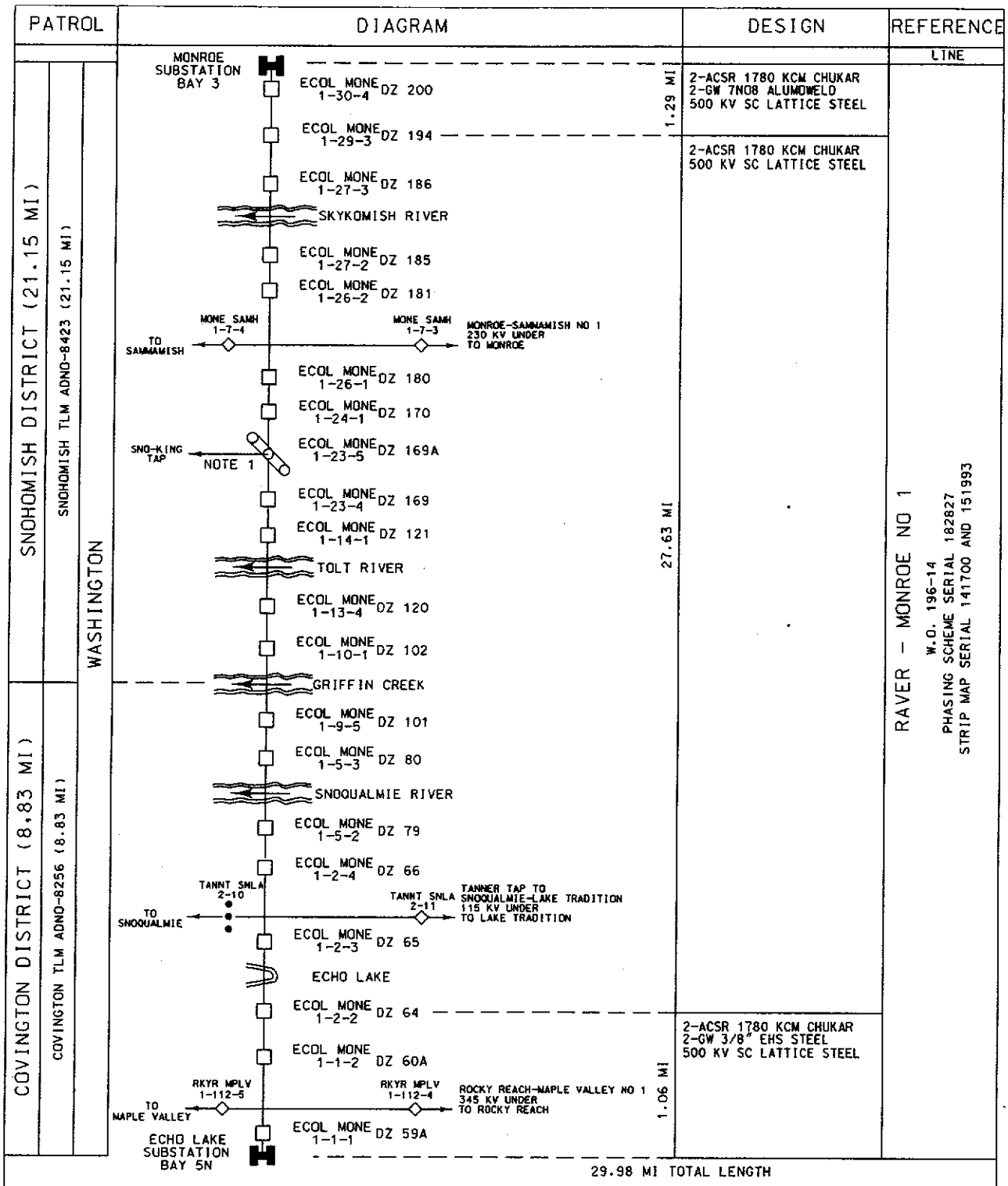
TRANSMISSION LINE ONE-LINE DIAGRAM

CHIEF JOSEPH-SNOHOMISH NO 4

345 KV CHJO-SNOH-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
78257	ELC	A4V	3 OF 3	10

BPA 1297K JUN 1978



NOTES:

1. TUBULAR STEEL POLES

NO.	*	PLG	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2			FORMAT AND PATROL CHANGES	FRM	9/27/10	ELC
1			ADDED GROUND WIRE. FORMAT CHANGES & SNO-KING TAP	FRM	6-16-04	LLC
0			SUPERSEDES DRAWING 157127 SHEET 2		3-30-00	JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 256687-1-2

APPROVED

COMPILED JJG

DRAWN FRM

CHECKED JLR

APPROVED JL REDING

DATE 3-30-00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

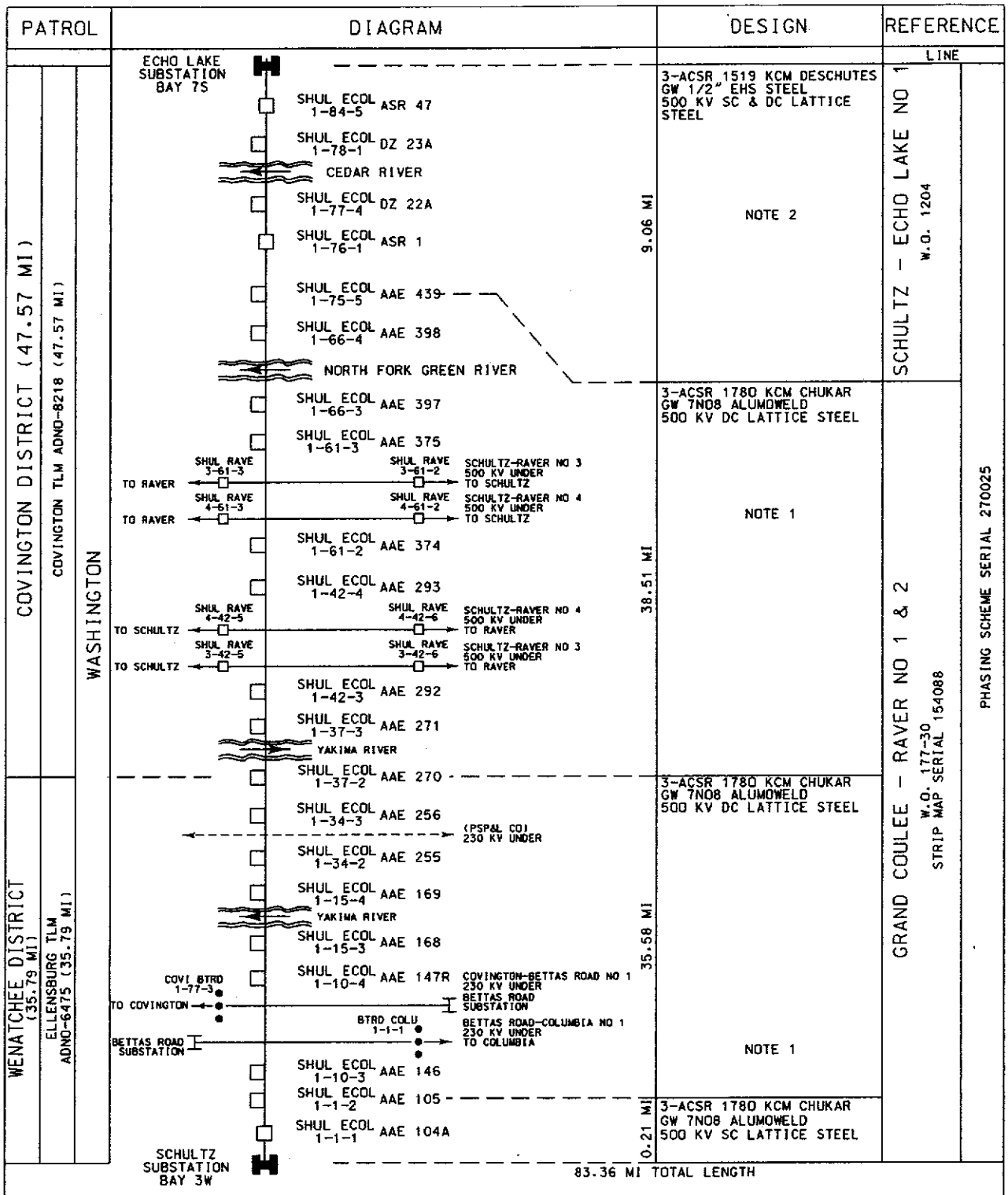
ECHO LAKE - MONROE NO 1

500 KV

ECHO-MONE-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256687	ELC	A4V	1 of 1	2

BPA 1297K JUN 1978



NOTES:

1. LEFT CIRCUIT OPERATES AS SCHULTZ-RAVER NO 1
2. LEFT CIRCUIT OPERATES AS RAVER-ECHO LAKE NO 1
3. FIBER OPTIC CABLE FROM 76/1 (ASR 1) TO ECHO LAKE SUBSTATION. REFERENCE RAVER-ECHO LAKE FIBER SYSTEM ONE-LINE DIAGRAM 273314.

NO.	#	PL6	STD	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2				FORMAT AND PATROL CHANGES. ADDED BETTAS ROAD INFORMATION	FRM	12/27/10	CDC
1				MILEAGE CORRECTED. FIBER NOTE ADDED	FRM	8-18-06	BEE-LMS
0				OPERATING NAME CHANGE SUPERSEDES DRAWING 256683-ELC-A2V.SHT 1	FRM	6-24-04	LLC

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 270022-1-2

APPROVED

COMPILED LMS

DRAWN FRM

CHECKED PLC

APPROVED LL CUSTER

DATE 6-24-04

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

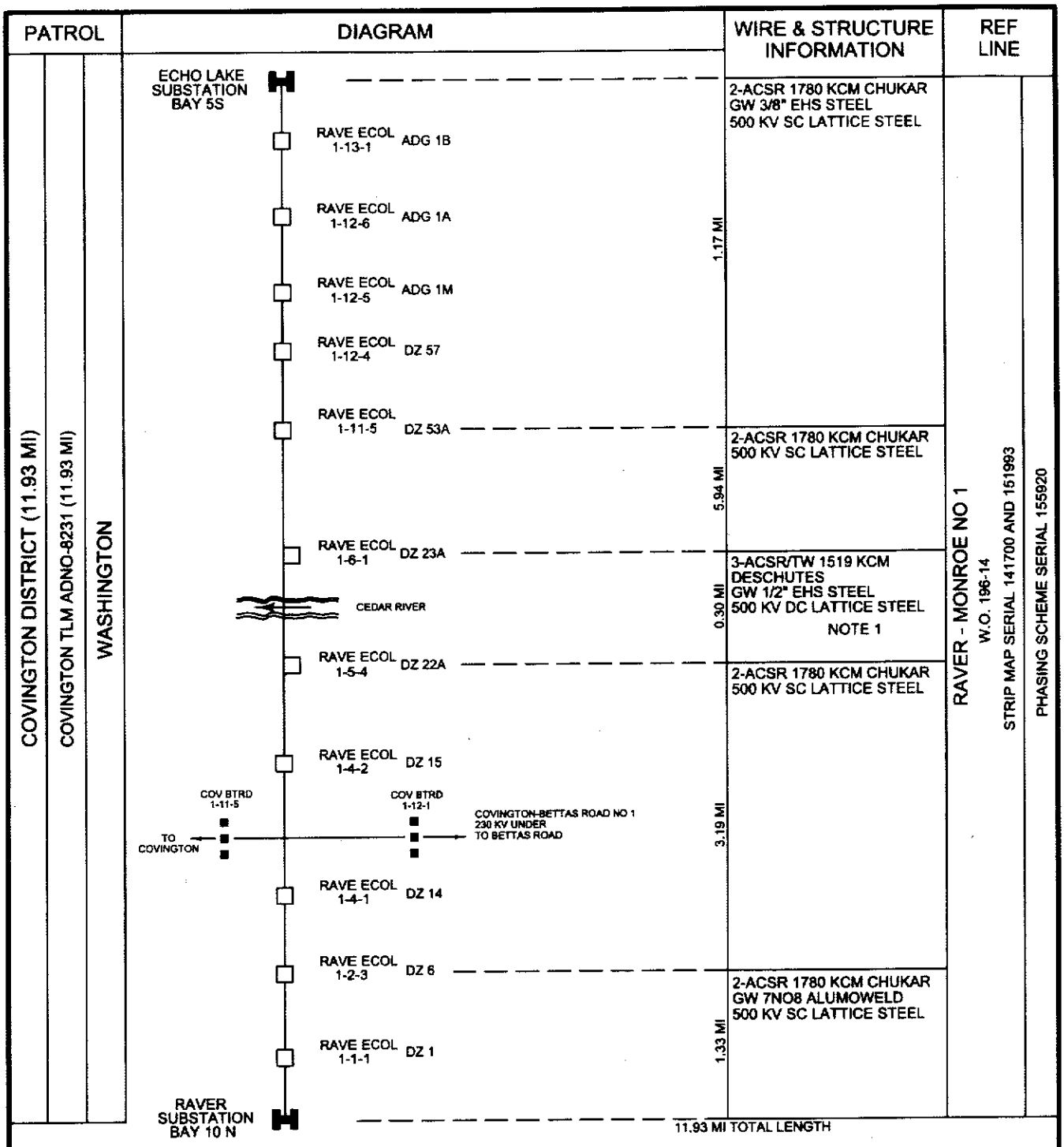
TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ - ECHO LAKE NO 1

500 KV SHUL-ECOL-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
270022	ELC	A4V	1 OF 1	2

BPA 1297K JUN 1978



NOTES:

1. RIGHT CIRCUIT CEDAR RIVER CROSSING OPERATES AS SCHULTZ-ECHO LAKE NO 1

NO.	NO	COMPUTER REVISION ONLY	BY	DATE	APPROVED
3		NOTE CORRECTION AND FORMAT UPDATE	MLL	11/26/13	CDC
2		FORMAT AND PATROL CHANGES. CHANGE CROSSING FOR BETTAS ROAD	FRM	10/25/10	CDC

C=CONTRACT CONSTR.. FA=FORCE ACCOUNT CONSTR.. R=RECORD. FILE NAME: 256686-1-3

APPROVED

COMPILED JLR

DRAWN FRM

CHECKED

CHECKED

APPROVED JL REDING

DATE 2-18-00

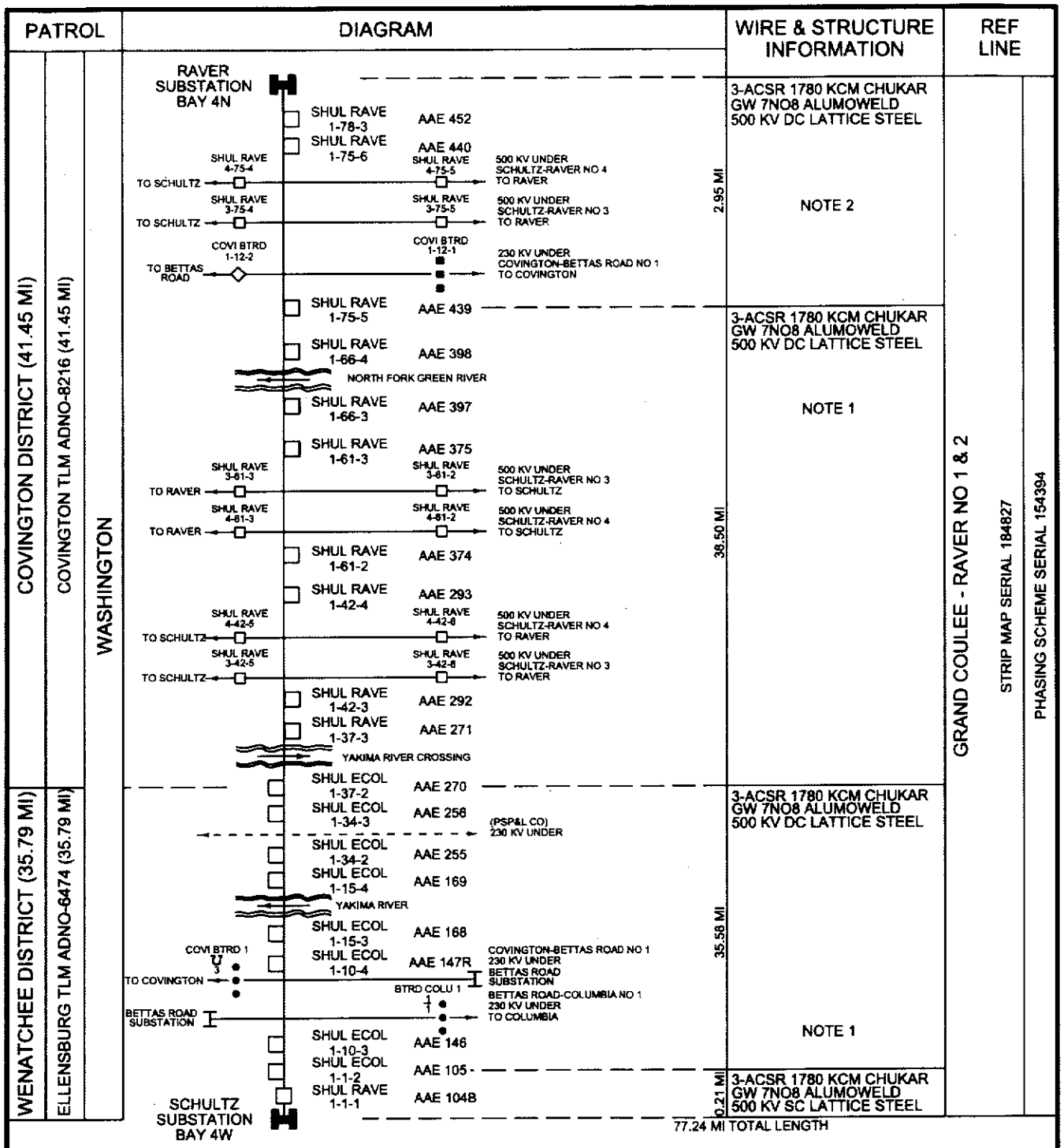
UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS. PORTLAND. OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

RAVER - ECHO LAKE NO 1

500 KV RAVE-ECOL-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256686	LBL	ANSI A	1 OF 1	3



NOTES:

1. RIGHT CIRCUIT OPERATES AS SCHULTZ-ECHO LAKE NO 1
2. RIGHT CIRCUIT OPERATES AS RAVER TAP TO SCHULTZ-ECHO LAKE NO 1

NO.		WO	COMPUTER REVISION ONLY	BY	DATE	APPROVED
4			CORRECTED BAY NUMBER.UPDATED FORMAT	MLL	1/13/14	CDC
3			FORMAT AND PATROL CHANGES.ADDED BETTAS ROAD INFORMATION	FRM	10/27/10	CDC

C=CONTRACT CONSTR., FA=FORCE ACCOUNT CONSTR., R=RECORD. FILE NAME: 256682-1-4

APPROVED

COMPILED DCC
DRAWN FRM
CHECKED JLR
CHECKED
APPROVED J.L.REDING
DATE 6/28/00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

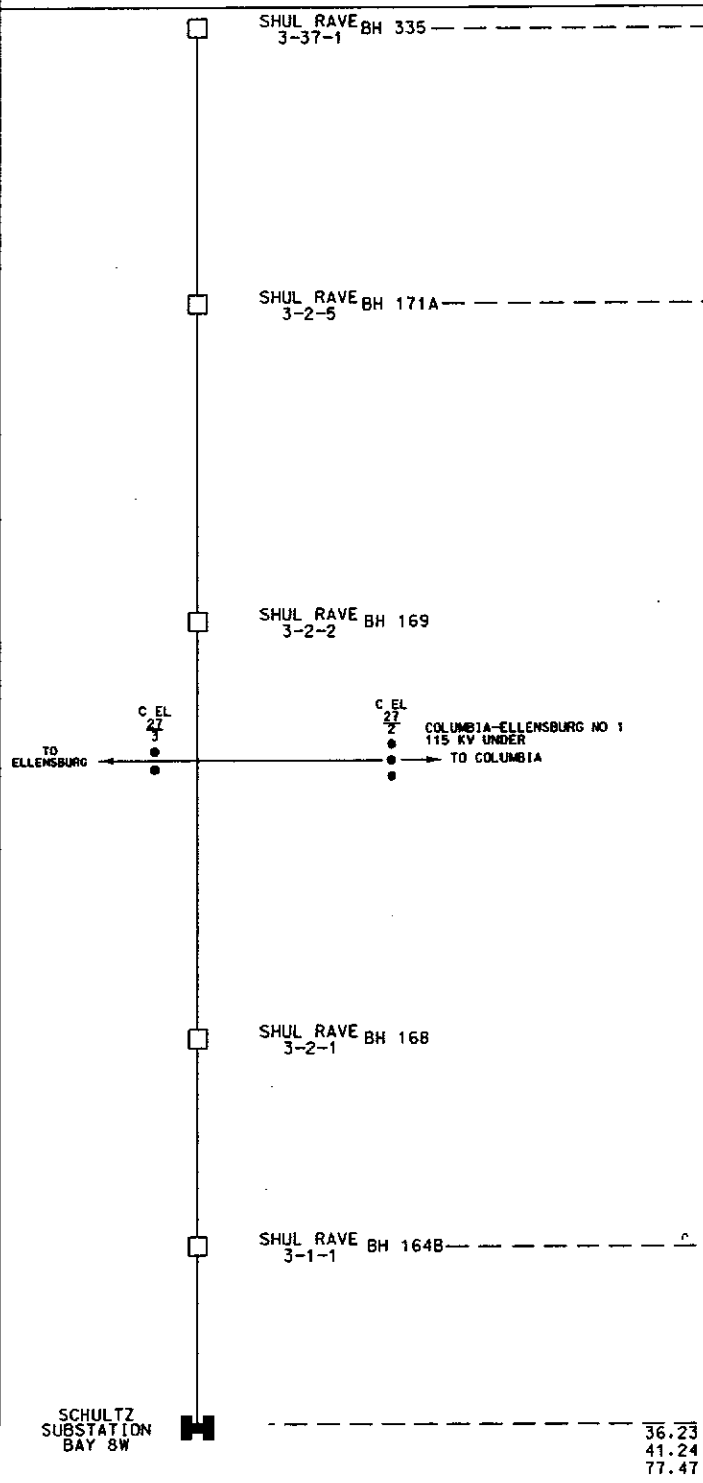
TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ - RAVER NO 1

500 KV SHUL-RAVE-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
256682	LBL	ANSI A	1 OF 1	4

PATROL	DIAGRAM	DESIGN	REFERENCE
			LINE



ACSR 3108 KCM 2.5" EXP
500 KV SC LATTICE STEEL

ACSR 3108 KCM 2.5" EXP
GW 3/8" EHS STEEL
500 KV SC LATTICE STEEL

2-ACSR 1780 KCM CHUKAR
GW 3/8" EHS STEEL
500 KV SC LATTICE STEEL

WENATCHEE DISTRICT (36.23 MI)

ELLENSBURG TLM ADNO-6472 (36.23 MI)

WASHINGTON

VANTAGE-COVINGTON NO 1
W.O. 133-19
PHASING SCHEME SERIAL 183103
STRIP MAP SERIAL 128335

36.23 MI SHEET 1
41.24 MI SHEET 2
77.47 MI TOTAL LENGTH

NOTES:

NO.	*	FLS	COMPUTER REVISION ONLY	BY	DATE	APPROVED
1			FORMAT AND PATROL CHANGES	FRM	10/27/10	eoc
0			SUPERCEDES DRAWING 135876-FDH-A2V	JLR FRM	6/28/00	BEE JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 256684-1-1

APPROVED

COMPILED DCG

DRAWN FRM

CHECKED JLR/BEE

APPROVED J.L.REDING

DATE 6/28/00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

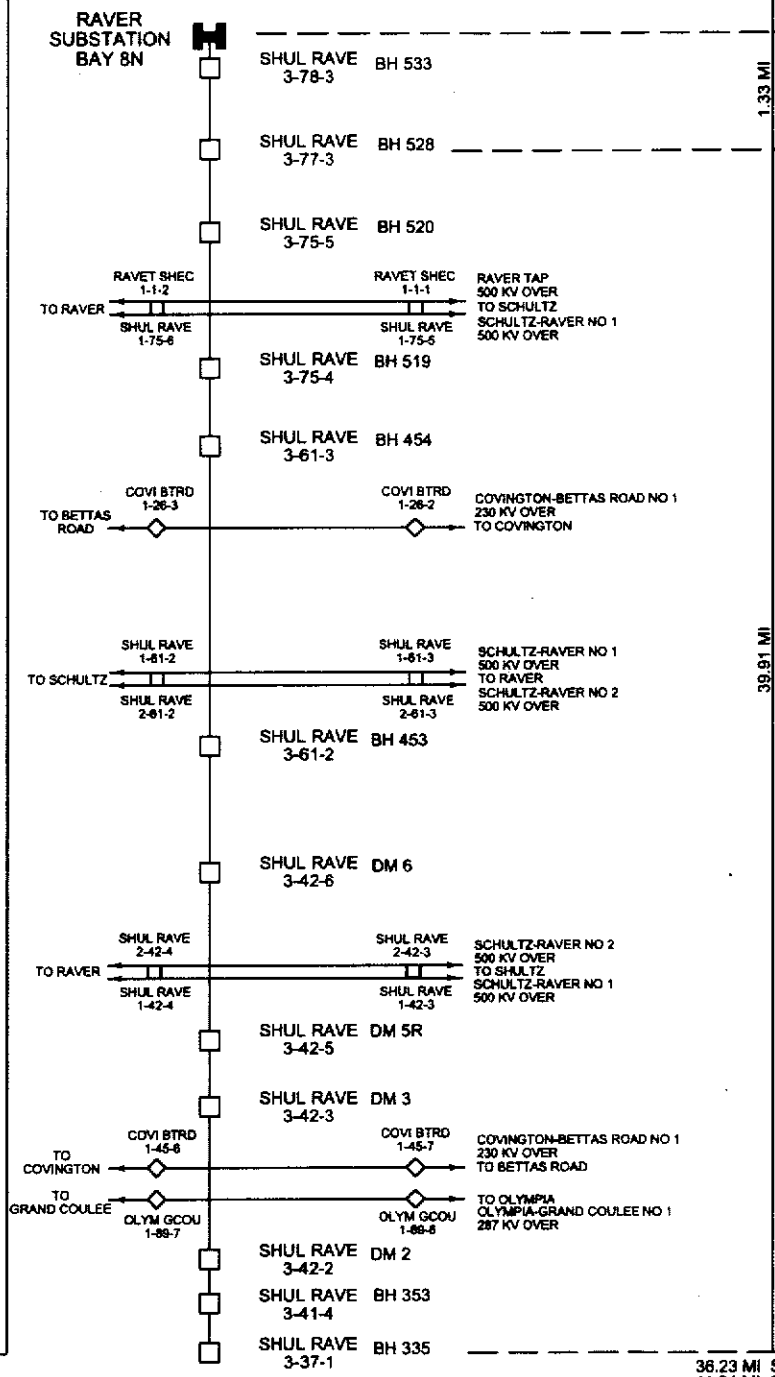
SCHULTZ-RAVER NO 3

500 KV SHUL-RAVE-3

SERIAL	SOURCE	SIZE	SHEET	REVISION
256684	ELC	A4V	1 OF 2	1

BPA 1297K JUN 1978

PATROL	DIAGRAM	WIRE & STRUCTURE INFORMATION	REF LINE



WIRE & STRUCTURE INFORMATION

ACSR 3108 KCM 2.5" EXP
GW 7NO8 ALUMOWELD
500 KV SC LATTICE STEEL

ACSR 3108 KCM 2.5" EXP
500 KV SC LATTICE STEEL

REF LINE

VANTAGE-COVINGTON NO 1
W.O. 133-19 AND 111-15
STRIP MAP SERIAL 128335

PHASING SCHEME SERIAL 183103

COVINGTON DISTRICT (41.24 MI)
COVINGTON TLM ADNO-8252 (41.24 MI)
WASHINGTON

36.23 MI SHEET 1
41.24 MI SHEET 2
77.47 MI TOTAL LENGTH

NO.	NO	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2		CORRECTED BAY NUMBER. UPDATED FORMAT	MLL	3/7/14	CDC
1		FORMAT AND PATROL CHANGES. ADDED BETTAS ROAD INFORMATION	FRM	10/27/10	CDC

C=CONTRACT CONSTR., FA=FORCE ACCOUNT CONSTR., R=RECORD. FILE NAME: 256684-2-2

APPROVED

COMPILED JLR
DRAWN FRM
CHECKED JLR/BEE
CHECKED
APPROVED J.L. REDING
DATE 6/28/00

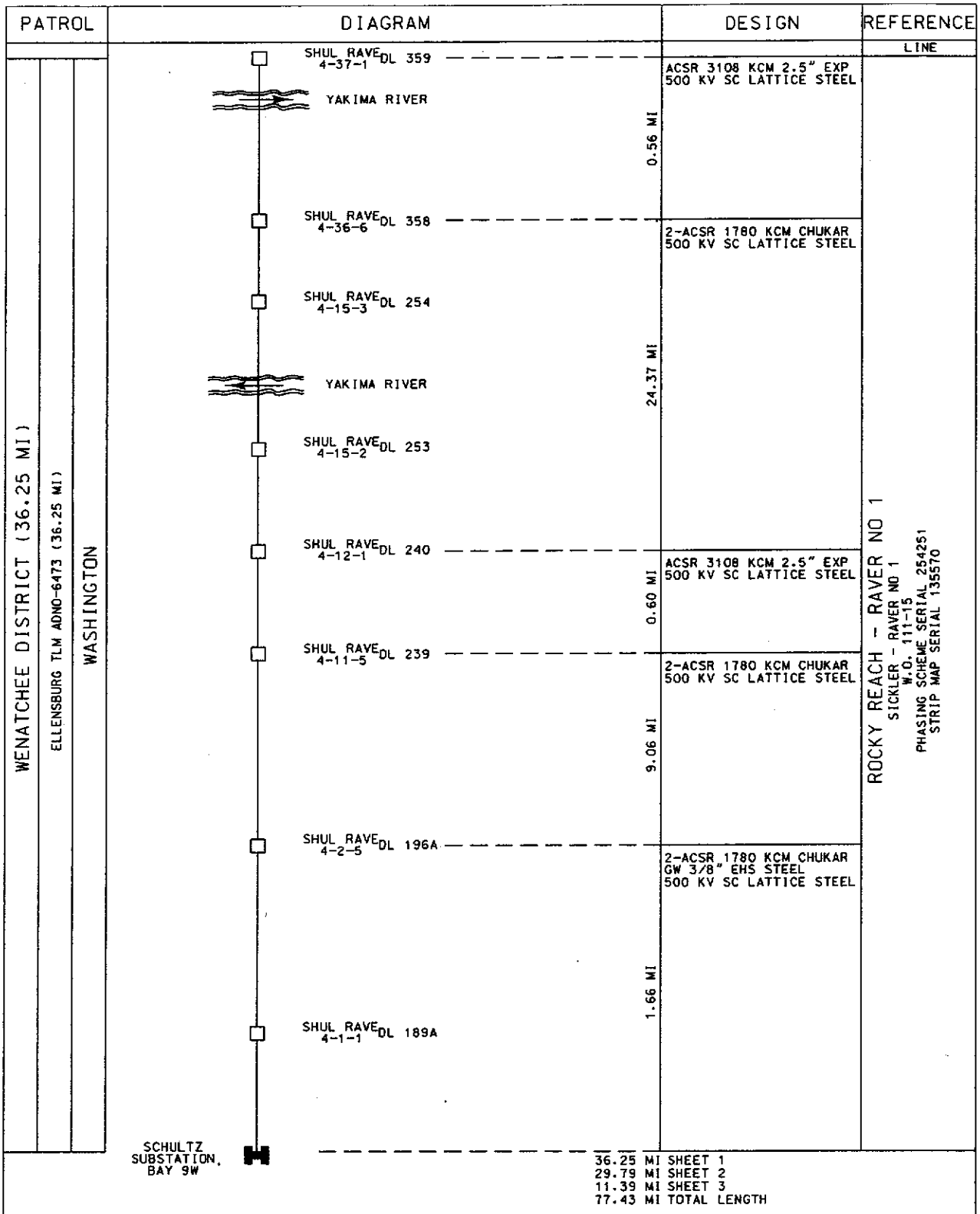
UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ-RAVER NO 3

500 KV SHUL-RAVE-3

SERIAL	SOURCE	SIZE	SHEET	REVISION
256684	LBL	ANSI A	2 OF 2	2



NOTES:

NO.	*	PL*	COMPUTER REVISION ONLY	BY	DATE	APPROVED
1			FORMAT AND PATROL CHANGES	FRM	12/27/10	EDC
0			SUPERSEDES DWG. 155919-DTG-B. SHEET 1	JLR FRM	6/28/00	BEE JLR

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD. FILE NAME: 256685-1-1

APPROVED

COMPILED DCG

DRAWN FRM

CHECKED JLR

APPROVED J.L.REDING

DATE 6/28/00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

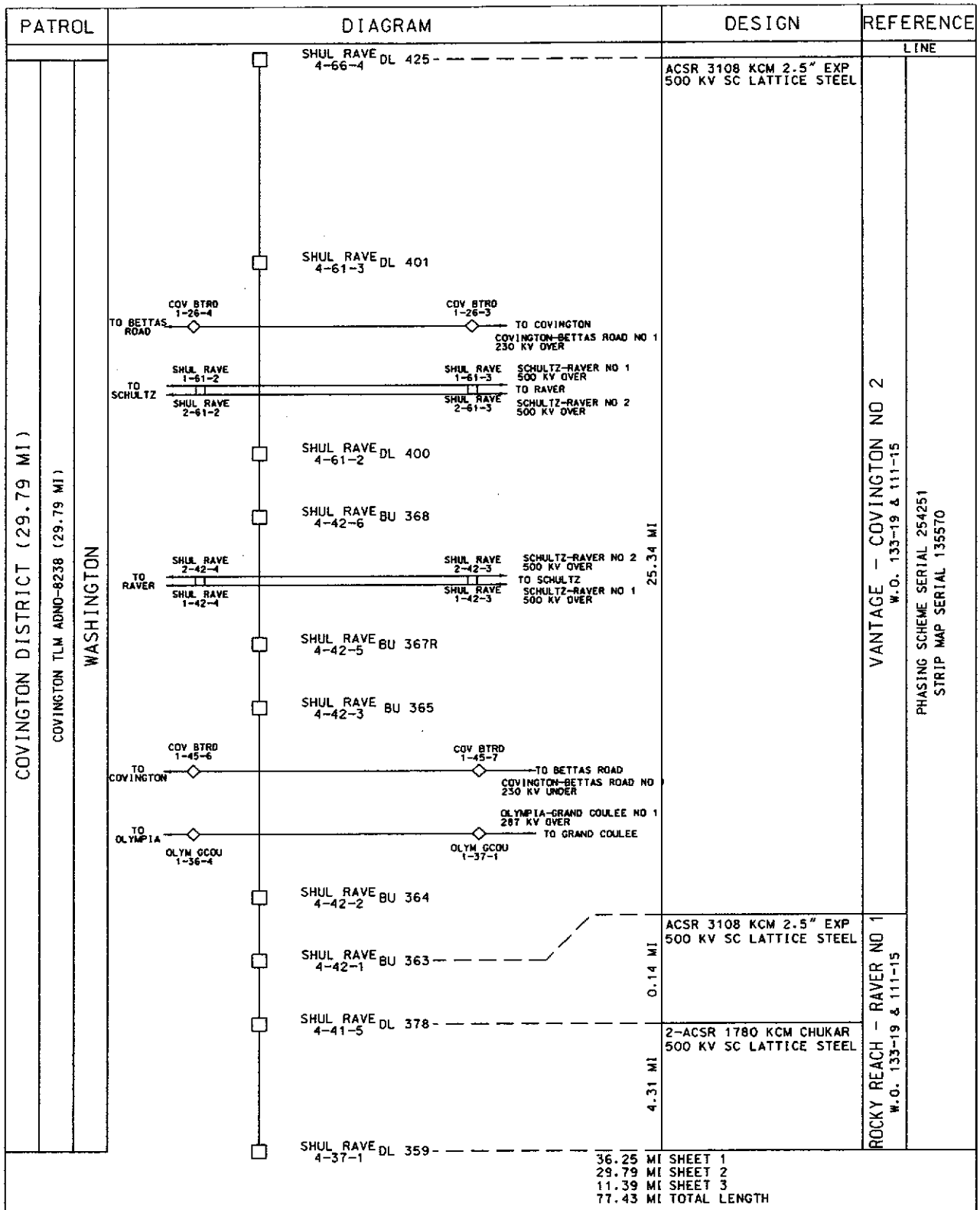
TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ - RAVER NO 4

500 KV SHUL-RAVE-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
256685	ELC	A4V	1 OF 3	1

BPA 1297K JUN 1978



36.25 MI SHEET 1
29.79 MI SHEET 2
11.39 MI SHEET 3
77.43 MI TOTAL LENGTH

NOTES:

NO.	*	PL#		BY	DATE	APPROVED
1			FORMAT AND PATROL CHANGES, ADDED BETTAS ROAD INFORMATION	FRM	10/27/00	eDC
0			SUPERSEDES DRAWING 155919-DTG-B, SHT 2	JLR FRM	6/28/00	BEE JLR
			COMPUTER REVISION ONLY			

* C=CONTRACT CONSTRUCTION, FA=FORCE ACCOUNT, R=RECORD. FILE NAME: 256685-2-1

APPROVED

COMPILED DCG/JLR

DRAWN FRM

CHECKED BEE

APPROVED J.L.REDING

DATE 6/28/00

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

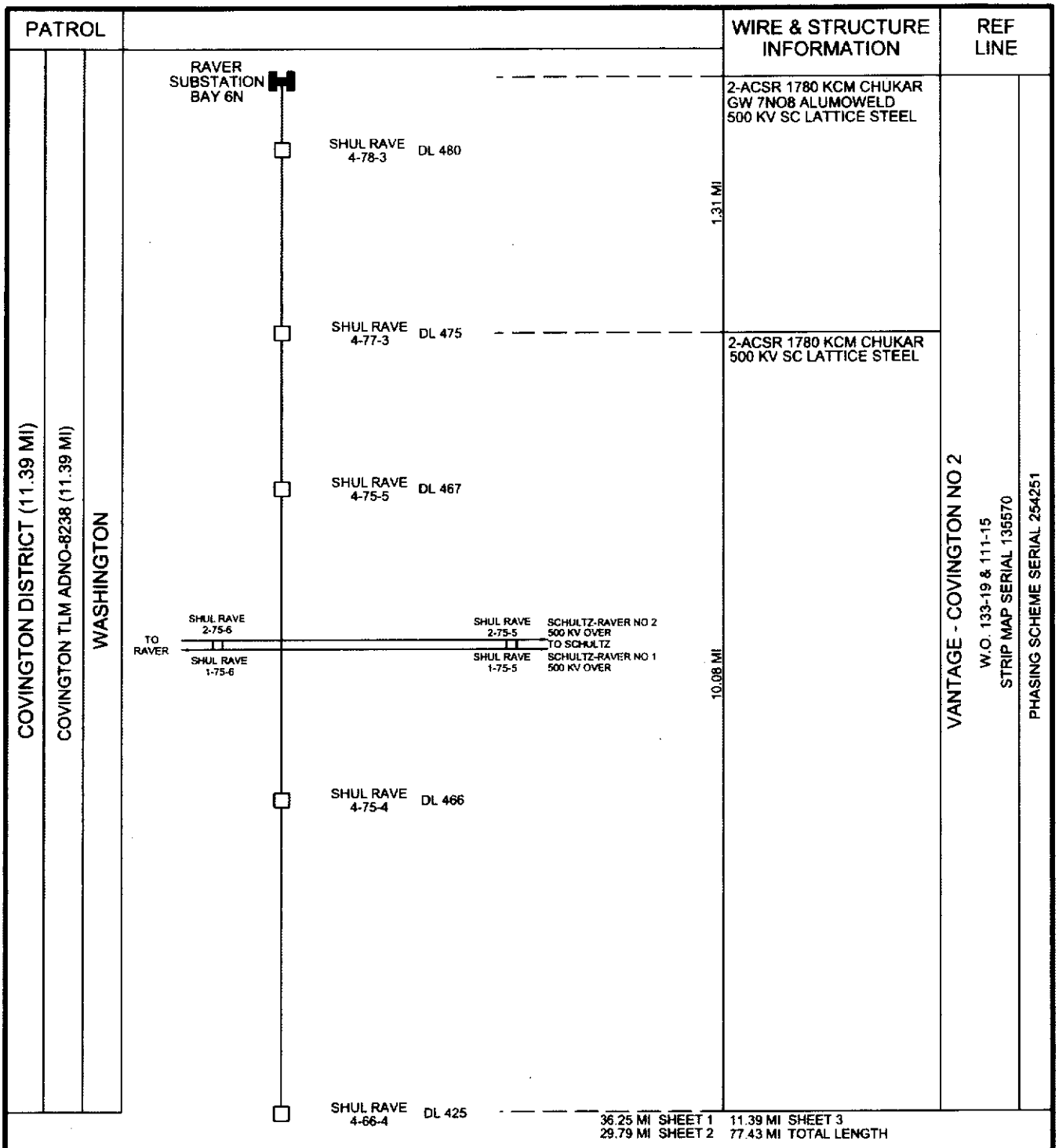
TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ - RAVER NO 4

500 KV SHUL-RAVE-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
256685	ELC	A4V	2 OF 3	1

BPA 1297K JUN 1978



NO.	WO	COMPUTER REVISION ONLY	BY	DATE	APPROVED
2		CORRECT BAY NUMBER. UPDATE FORMAT	MLL	1/13/14	CDC
1		FORMAT AND PATROL CHANGES	FRM	10/27/10	CDC

C=CONTRACT CONSTR., FA=FORCE ACCOUNT CONSTR., R=RECORD. FILE NAME: 256685-3-2

APPROVED

COMPILED DCC/JLR
DRAWN FRM
CHECKED BEE
CHECKED
APPROVED J.L. REDING
DATE 6/28/00

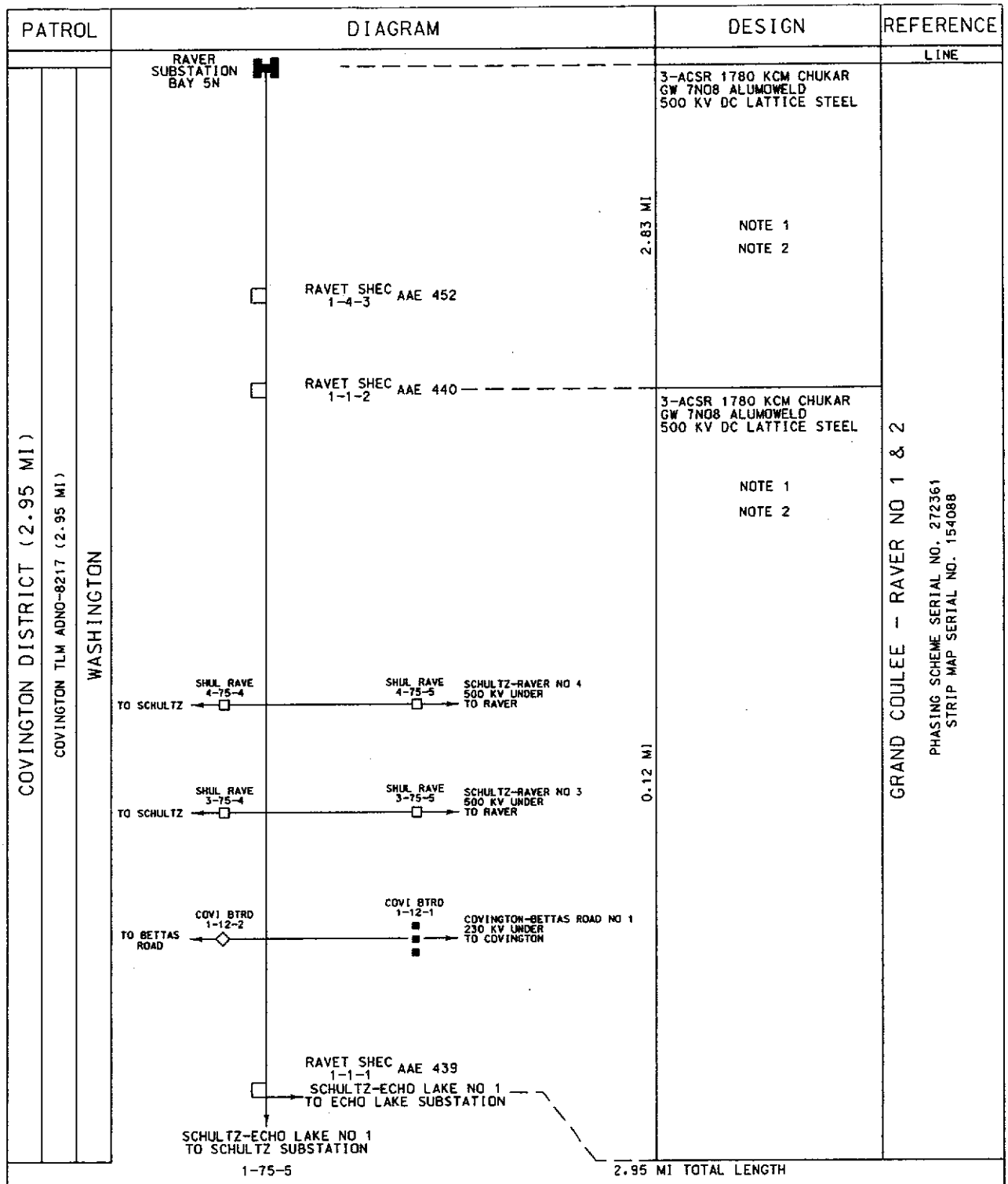
UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

SCHULTZ - RAVER NO 4

500 KV SHUL-RAVE-4

SERIAL	SOURCE	SIZE	SHEET	REVISION
256685	LBL	ANSI A	3 OF 3	2



NOTES:

1. LEFT CIRCUIT OPERATES AS SCHULTZ-RAVER NO 1
2. THIS LINE IS DE-ENERGIZED

NO.	*	PLG	STD	COMPUTER REVISION ONLY	BY	DATE	APPROVED
1				FORMAT AND PATROL CHANGES. CHANGE CROSSING FOR BETTAS ROAD	FRM	10/24/10	CC
0				OPERATING NAME CHANGE SUPERSEDES DRAWING 256683	FRM	8-31-04	LLC

* C=CONTRACT CONSTRUCTION. FA=FORCE ACCOUNT. R=RECORD FILE NAME: 271651-1-1

APPROVED

COMPILED LWS

DRAWN FRM

CHECKED PLC

APPROVED LL CUSTER

DATE 8-31-04

UNITED STATES DEPARTMENT OF ENERGY
BONNEVILLE POWER ADMINISTRATION
HEADQUARTERS, PORTLAND, OREGON

TRANSMISSION LINE ONE-LINE DIAGRAM

RAVER TAP TO SCHULTZ-ECHO LAKE NO 1

500 KV RAVET-SHEC-1

SERIAL	SOURCE	SIZE	SHEET	REVISION
271651	ELC	A4V	1 OF 1	1

BPA 1297K JUN 1978

BPA Transmission Facilities in the Snohomish District and Vicinity

BPA TLM Districts
- Snohomish
- Covington
- Ellensburg

BPA Substations
Non-BPA Substations

County Boundary
Indian Reservation
Urban Area

N W E S

0 2.5 5 10 15 20 Miles

GEOSPATIAL SERVICES · GIS · PHOTOGRAMMETRY · REMOTE SENSING

This product was made for informational and display purposes only and was created with best available data at time of production. It does not represent any legal information or boundaries. BPA GIS Database, 2013.

Map Date: 2/6/2013

File Path: \\bud.bpa.gov\wg\gis\gis_data2\work\RebeccaW\Facilities\TLMDistricts\Snoh_Dist.mxd

Map Area

CANADA
WHATCOM
SAN JUAN
SKAGIT
OKANOGAN
ISLAND
SNOHOMISH
JEFFERSON
CHELAN
KITSAP
KING
KITTITAS

Custer-Ingledow No 1 & No 2
Custer-Intalco No 2
Custer-Intalco No 1
Bellingham-Custer No 1
Murray-Custer No 1
Monroe-Custer No 1 & No 2
Sedro Woolley-Bellingham No 1
Snohomish-Murray No 1
Snohomish-Bothell (SCL) No 1
Monroe-Snohomish No 1 & No 2
Chief Joseph-Snohomish No 3 & No 4
Jim Creek Service No 1
Sno-King Tap to Echo Lake-Monroe No 1
Echo Lake-Monroe No 1
Chief Joseph-Monroe No 1
Chief Joseph-Snohomish No 3 and No 4

Custer
Intalco
Bellingham
Fidalgo
Sedro Woolley
Murray
East Arlington
Jim Creek
Snohomish
Monroe
Bothell
Sno-King
Beverly Park
Everett
Kitsap
Station X
Station H
Station FG
Bangor
South
Sammamish
Novelty Hill

40N 01E
40N 02E
39N 01E
39N 02E
39N 03E
38N 03E
38N 04E
37N 04E
37N 05E
36N 05E
35N 05E
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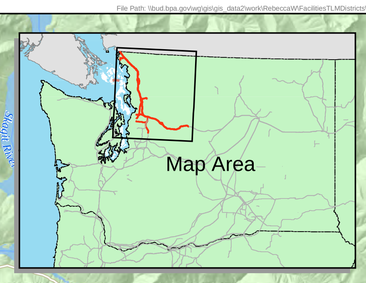
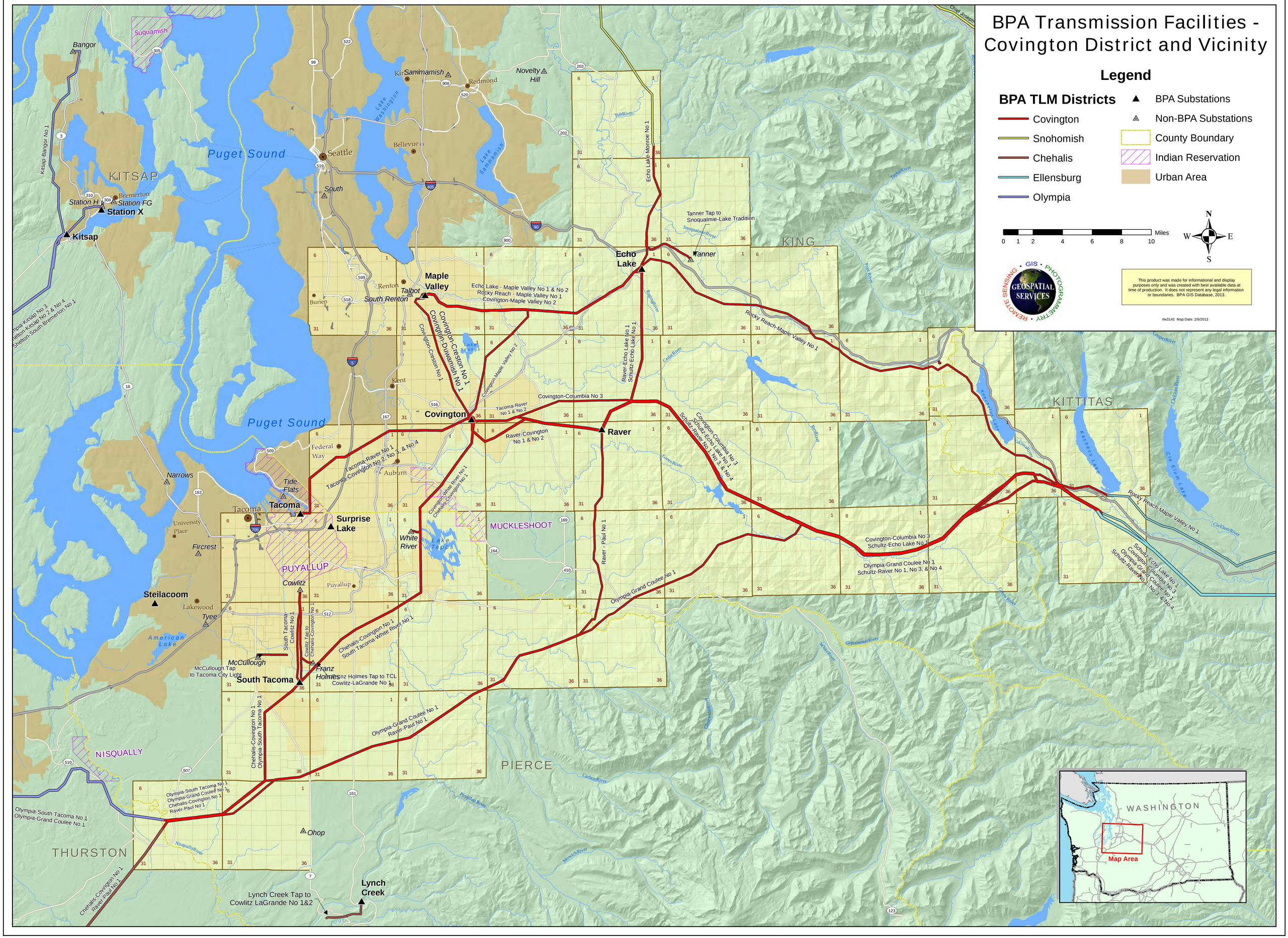
27N 09E
27N 10E
26N 07E
26N 10E
26N 11E
26N 12E
26N 13E
26N 14E
26N 15E
26N 16E
25N 07E

Lummi
Bellingham Bay
Swinomish
Tulalip
Puget Sound
Port Gamble S'Kallam
Suquamish
Lynnwood
Edmonds
Richmond Highlands
Kirkland
Redmond
Bellevue
Seattle
Sumas River
Nooksack River
Baker River
Skagit River
Cascade River
Stehekin River
Stillaguamish River
Boulder River
Sauk River
White Chuckar River
Suiattle River
Entiat River
Chiwawa River
White River
Napeequa River
Sultan River
Wallace River
Skykomish River
Little Wenatchee River
Rapid River
Beckler River
Tolt River
Tolt Reservoir
Snoqualmie River
Sammamish River
Tye River
Mill River
Foss River
Wenatchee River
Samish River
Nooksack River




BPA Transmission Facilities - Covington District and Vicinity
Legend
BPA TLM Districts
Covington
Snohomish
Chehalis
Ellensburg
Olympia
BPA Substations
Non-BPA Substations
County Boundary
Indian Reservation
Urban Area
Miles
0 1 2 4 6 8 10
N
W
E
S
GEOSPATIAL SERVICES
REMOTE SENSING · GIS · PHOTOGRAMMETRY
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rlw3142 Map Date: 2/6/2013
KITSAP
KING
KITTITAS
PIERCE
THURSTON
MUCKLESHOOT
PUYALLUP
NISQUALLY
Puget Sound
Bangor
Suquamish
Sammamish
Redmond
Novelty Hill
Seattle
Bellevue
South
Bremerton
Station H
Station FG
Station X
Kitsap
Kitsap-Bangor No 1
Maple Valley
Talbot
South Renton
Renton
Burien
Kent
Covington
Federal Way
Auburn
Tacoma
Tide Flats
Narrows
University Place
Fircrest
Steilacoom
Lakewood
Tyee
American Lake
McCullough
McCullough Tap to Tacoma City Light
South Tacoma
Franz Holmes
Cowlitz
Puyallup
Surprise Lake
White River
Lake Tapps
Lake Washington
Lake Sammamish
Echo Lake
Tanner
Tanner Tap to Snoqualmie-Lake Tradition
Echo Lake - Maple Valley No 1 & No 2
Rocky Reach - Maple Valley No 1
Covington-Maple Valley No 2
Covington-Creston No 1
Covington-Duwamish No 1
Covington-Creston No 1
Covington-Maple Valley No 2
Raver-Echo Lake No 1
Schultz-Echo Lake No 1
Rocky Reach-Maple Valley No 1
Covington-Columbia No 3
Tacoma-Raver No 1 & No 2
Raver-Covington No 1 & No 2
Raver
Tacoma-Raver No 1
Tacoma-Covington No 2, No 3, & No 4
Covington-White River No 1
Chehalis-Covington No 1
Covington-Columbia No 3
Schultz-Echo Lake No 1
Schultz-Raver No 1, No 3, & No 4
Raver - Paul No 1
Olympia-Grand Coulee No 1
Covington-Columbia No 3
Schultz-Echo Lake No 1
Olympia-Grand Coulee No 1
Schultz-Raver No 1, No 3, & No 4
Rocky Reach-Maple Valley No 1
Schultz-Echo Lake No 1
Covington-Columbia No 3
Olympia-Grand Coulee No 1
Schultz-Raver No 1, No 3, & No 4
Chehalis-Covington No 1
South Tacoma-White River No 1
South Tacoma-Cowlitz No 1
Cowlitz Tap to Chehalis-Covington No 1
Franz Holmes Tap to TCL
Cowlitz-LaGrande No 1
Olympia-Grand Coulee No 1
Raver-Paul No 1
Chehalis-Covington No 1
Olympia-South Tacoma No 1
Olympia-South Tacoma No 1
Olympia-Grand Coulee No 1
Chehalis-Covington No 1
Raver-Paul No 1
Olympia-South Tacoma No 1
Olympia-Grand Coulee No 1
Ohop
Lynch Creek
Lynch Creek Tap to Cowlitz LaGrande No 1&2
Chehalis-Covington No 1
Raver-Paul No 1
Echo Lake-Monroe No 1
Tanner Tap to Snoqualmie-Lake Tradition
Kitsap-Bangor No 1
Olympia-Kitsap No 3
Shelton-Kitsap No 2 & No 4
Shelton-South Bremerton No 1
Cle Elum Lake
Kachess Lake
Keechelus Lake
WASHINGTON
Map Area