

ODFW AQUATIC INVENTORY PROJECT
OREGON PLAN FOR SALMON & WATERSHEDS
STREAM RESTORATION HABITAT REPORT

STREAM: Klotchie Creek (#NC 119)
 BASIN: Necanicum River
 SURVEY TYPE: Post-Tx
 DATE: October 30, 2003
 REPORT PREPARED BY: Paul Jacobsen

The Klotchie Creek restoration project was treated in 1995, and then monitored in 1996 and again in 2001 for post-treatment conditions. There is also baseline information available from three years prior to treatment. This site has a companion reference reach located just downstream. This site has had a notable increase in pool area and complex pools over time. Riffle gravel has dropped, however, and riffle fines increased over the same period. Large wood pieces and volume are higher than pre-treatment conditions.

Habitat Variable	ODFW Benchmark		AQI Survey	Post Project	Post Project
	Desirable	Undesirable			
Pool Area	>35%	<10%	8/4/92	7/29/96	7/18/01
Pool Frequency	5-8	>20%	4.2	1.8	3.8
Residual Pool Depth	.5-1m	.2-.5m	.46	.56	.55
Complex Pools/km	>2.5	<1	0.0	15.5	9.6
Width/Depth Ratio	<15	>30	11.3	22.4	13.6
Riffle Gravel % area	>35%	<15%	40	45	28
Silt-Sand-Organic %	<8%	>15%	20	38	38
Shade %	>70%	< 60%	89	100	98
LWD - pieces/100m	>20	<10	6.7	17.6	19.9
LWD - Volume/100m	>30	<20	13.3	17.6	16.7
LWD - Key pieces/ 100m	>3	<1	0.4	0.0	0.4

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

Both the 1996 and 2001 crews recorded nine habitat structures.

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STREAM RESTORATION HABITAT REPORT

STREAM: Klotchie Creek (#NC 119)
 BASIN: Necanicum River
 SURVEY TYPE: Post-Tx
 DATE: September 9, 2002
 SURVEY CREW: Sean Allen, Rachel Werner
 REPORT PREPARED BY: Paul Jacobsen
 BASIN AREA: 13.0 km²
 USGS MAPS: Necanicum Junction
 ECOREGION: Coast Range Sitka Spruce

GENERAL DESCRIPTION:

The Klotchie Creek habitat survey extended 461 meters. The channel was unconstrained in a broad valley floor. The average valley width index was 17.0 (range: 10.0-30.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.0 percent. Scour pools (52%) and riffles (22%) dominated stream habitat.

	ODFW	Benchmark		AQI Survey	Post Project	Post Project	Post Project
Habitat Variable	Desirable	Undesirable		8/4/92	7/29/96	7/18/01	1/30/02
Pool Area	>35%	<10%		28.7	60.0	55.1	55.8
Pool Frequency	5-8	>20%		4.2	1.8	3.8	3.6
Residual Pool Depth	.5-1m	.2-.5m		.46	.56	.55	.60
Complex Pools/km	>2.5	<1		0.0	15.5	9.6	23.4
Width/Depth Ratio	<15	>30		11.3	22.4	13.6	16.6
Riffle Gravel % area	>35%	<15%		40	45	28	34
Silt-Sand-Organic %	<8%	>15%		20	38	38	20
Shade %	>70%	< 60%		89	100	98	
LWD - pieces/100m	>20	<10		6.7	17.6	19.9	27.2
LWD - Volume/100m	>30	<20		13.3	17.6	16.7	17.8
LWD - Key pieces/ 100m	>3	<1		0.4	0.0	0.4	0.2

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.

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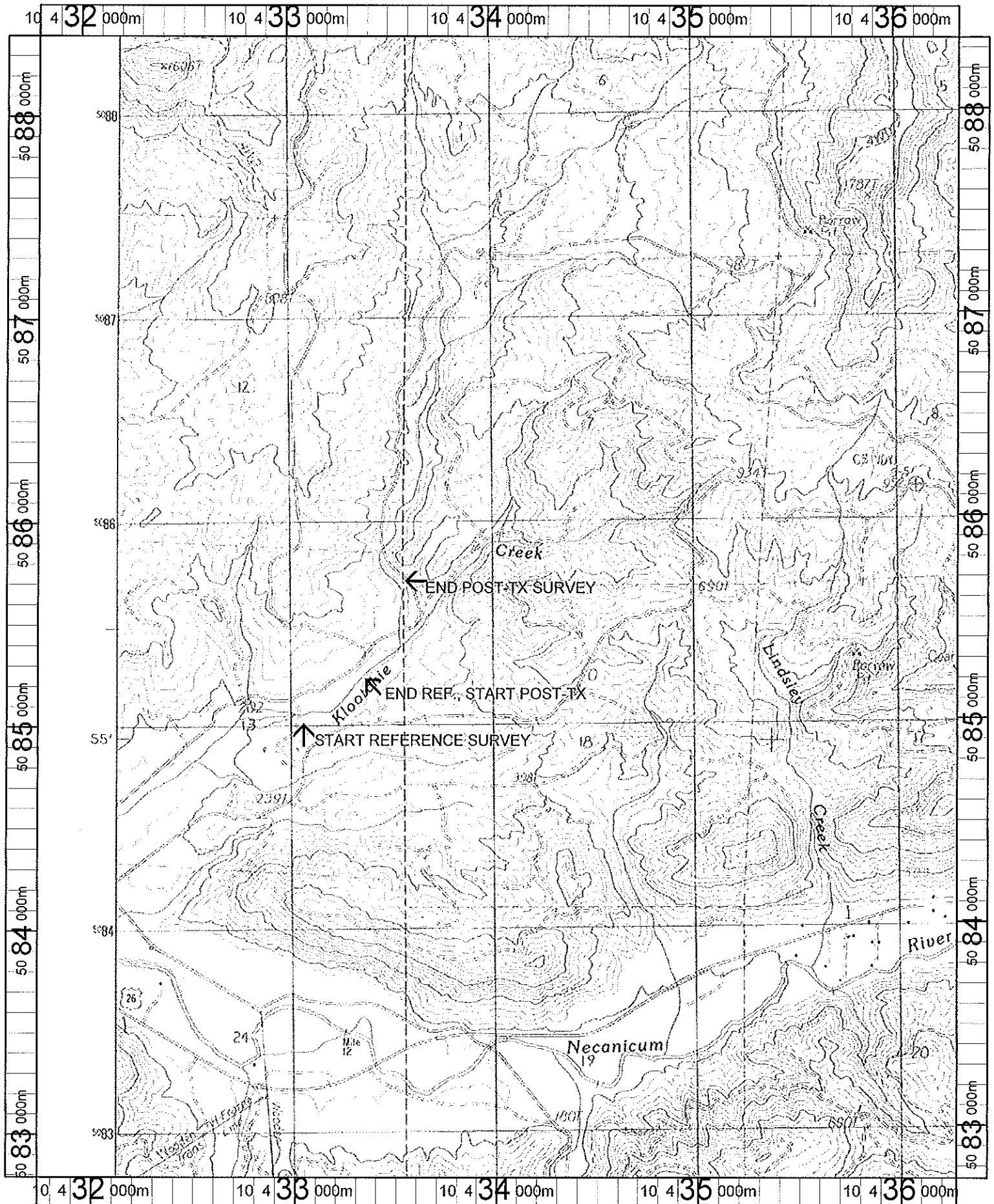
STREAM: Klotchie Creek (NC-119)
BASIN: Necanicum River
SURVEY TYPE: Post-Tx
DATE: July 18, 2001
SURVEY CREW: Rachel Werner, Sean Allen
REPORT PREPARED BY: Paul Jacobsen
BASIN AREA: 13.0 km²
USGS MAPS: Necanicum Junction
ECOREGION: Coast Range Sitka Spruce

GENERAL DESCRIPTION:

The Klotchie Creek habitat survey extended 461 meters. The channel was unconstrained in a broad valley floor. The average valley width index was 17.0 (range: 10.0 – 30.0). Land use for the reach was second growth (15-30 cm dbh) trees. The average unit gradient was 2.0 percent. Scour pools (52%) and riffles (22%) dominated stream habitat. Cobble (27%) and gravel (25%) dominated stream substrate. Wood volume was low at 16.7 m³/100m.

COMMENTS:

There were no potential barriers to upstream fish migration in the surveyed length.
The crew noted several habitat structures during the survey.



Name: NECANICUM JUNCTION
 Date: 1/10/2002
 Scale: 1 inch equals 2000 feet

Location: 10 434032 E 5085568 N
 Caption: 4-6 YEAR POST-TX AND REFERENCE SURVEYS -
 KLOOTCHIE CREEK - NECANICUM BASIN

REACH 1

T5N-R10W-S13NE

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

<u>Narrow Valley Floor</u>		<u>Broad Valley Floor</u>	
Steep V-shape	0	Constraining Terraces	0
Moderate V-shape	0	Multiple Terraces	100
Open V-shape	0	Wide Floodplain	0

Valley Width Index avg: 17.0 range: 10.0-30.0

Channel Morphology (Percent Reach Length)

<u>Constrained</u>		<u>Unconstrained</u>	
Hillslope	0	Single Channel	100
Bedrock	0	Multiple Channel	0
Terrace	0	Braided Channel	0
Alt. Terrace/Hill	0		
Landuse	0		

Channel Characteristics

<u>Type</u>	<u>Length(m)</u>	<u>Area (m2)</u>	<u>Dry Units</u>
Primary	461	2,383	0
Secondary	268	502	0

Channel Dimensions (m)

<u>Wetted</u>	<u>Active</u>	<u>Floodprone</u>	<u>First Terrace</u>
Width 3.9	9.6	22.5	21.0
Depth 0.32	Height 0.7	1.3	1.5
W:D ratio 13.6		Entrenchment 2.3	

Stream Flow Type: LF Water Temp: 12.0-12.0°C
 Avg. Unit Gradient: 2.0% Habitat Units/100m: 7.0

Riparian, Bank, and Wood Summary

	<u>Primary</u>	<u>Secondary</u>
Land Use:	ST	
Riparian Vegetation:	M15	

Bank Condition and Shade

<u>Bank Status</u>	<u>Percent Reach Length</u>	<u>Shade (% of 180)</u>
Actively Eroding	5%	Reach avg: 98%
Undercut Banks	9%	Range: 67-100

Large Woody Debris

	<u>Total</u>	<u>Total/100m</u>
All pieces ($\geq 3m \times 0.15m$)	92	19.9
Volume (m ³)	77	16.7
Key pieces ($\geq 10m \times 0.6m$)	2	0.4

REACH 1

T5N-R10W-S13NE

REACH 1

HABITAT DETAIL

Habitat Type	Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Large Boulders (#>0.5m)	Substrate Percent Wetted Area					
							S/O	Snd	Grvl	Cbbl	Bldr	Bdrk
CASCADE/BOULDERS	1	7	1.4	0.15	10	0	30	50	5	10	5	0
CULVERT CROSSING	1	19	3.5	0.30	65	0	10	30	30	20	10	0
POOL-ALCOVE	1	14	6.7	0.45	95	0	30	60	10	0	0	0
POOL-LATERAL SCOUR	13	246	4.6	0.60	1,155	3	11	23	27	24	10	5
POOL-PLUNGE	3	14	6.0	0.63	92	0	8	23	38	25	7	0
POOL-STRAIGHT SCOUR	3	39	5.1	0.83	248	0	13	32	25	25	5	0
RAPID/BOULDERS	7	102	4.7	0.12	483	14	1	3	23	50	23	1
RIFFLE	13	251	2.4	0.09	609	1	13	25	28	23	8	4
RIFFLE W/ POCKETS	1	14	2.5	0.35	35	0	5	25	65	5	0	0
STEP/BEDROCK	2	2	0.5	0.04	1	0	0	0	0	0	0	100
STEP/BOULDERS	4	13	4.8	0.11	65	35	0	4	18	23	55	0
STEP/COBBLE	2	8	3.4	0.15	27	0	0	0	30	63	8	0
Total:	51	729	3.9	0.32	2,885	53	Avg: 9	19	25	27	13	6

HABITAT SUMMARY

Habitat Group	No. Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Wetted Area (m ²)	Percent	Large Number	Boulders #/100m ²
Dammed & BW Pools	1	14	6.7	0.45	95	3.30	0	0.0
Scour Pools	19	300	4.9	0.64	1,495	51.83	3	0.2
Glides	0	0	-	-	0	0.00	0	0.0
Riffles	14	265	2.4	0.11	644	22.33	1	0.2
Rapids	7	102	4.7	0.12	483	16.74	14	2.9
Cascades	1	7	1.4	0.15	10	0.34	0	0.0
Step/Falls	8	23	3.4	0.10	93	3.21	35	37.8
Dry	0	0	-	-	0	0.00	0	0.0

POOL SUMMARY

All Pools	<u>Total</u>	<u>#/Km</u>
	20	27.4
Pools ≥1m deep:	3	4.1
Complex pools (LWD pieces ≥3):	7	9.6
Pool Frequency (channel widths/pool):	3.8	
Residual pool depth (avg)	0.55m	

STREAM SUMMARY

KLOOTCHIE CREEK POST-TX (#119)

Number Units	Total Length (m)	Avg Width (m)	Avg Depth (m)	Total Area (m ²)	Substrate Percent Wetted Area						Total Large Boulder
					S/O	Sand	Grvl	Cbbl	Bldr	Bdrk	
51	729	3.9	0.32	2,885	9	19	25	27	13	6	53

Wetted Area

Habitat Group	(m ²)	Percent
Scour Pool	1,495	51.8
Backwater Pools	95	3.3
Glide	0	0.0
Riffle	644	22.3
Rapid	483	16.7
Cascade	10	0.3
Step	93	3.2
Dry	0	0.0

REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) (3 transects)

Total hardwoods/1000 ft	711
Total conifers/1000 ft	752
Total conifers >20" dbh/1000 ft	81
Total conifers >35" dbh/1000 ft	0

Average number of trees in a 5-meter wide band

Diameter class (cm)	Zone 1 0-10 meters		Zone 2 10-20 meters		Zone 3 20-30 meters		Zones 1-3 0-30 meters	
	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood	Conifer	Hardwood
3-15cm	1.0	1.0	1.0	0.3	2.0	0.0	4.0	1.3
15-30cm	1.0	2.7	1.7	0.7	1.0	2.0	3.7	5.3
30-50cm	0.7	1.3	0.3	1.0	2.3	1.0	3.3	3.3
50-90cm	0.0	0.7	0.3	0.7	1.0	0.3	1.3	1.7
>90cm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total/100m ²	2.7	5.7	3.3	2.7	6.3	3.3	4.1	3.9

Canopy closure and ground cover

	Zone 1 0-10 meters	Zone 2 10-20 meters	Zone 3 20-30 meters
	(%)	(%)	(%)
Canopy closure	83	88	90
Shrub cover	1	1	1
Grass/forb cover	93	68	74

Predominant landform in each zone

	Zone 1 0-10 meters	Zone 2 10-20 meters	Zone 3 20-30 meters
	Hillslope	17	17
High terrace	33	33	67
Low terrace	33	17	17
Floodplain	17	17	0
Wetland/meadow	0	0	0
Stream channel	0	0	0
Roadbed/Railroad	0	17	0
Riprap	0	0	0
Surface slope (%)	10	5	7

Summary of Riparian Zone (0-30m) for all reaches (3 transects)

Summary of riparian zone (0-100ft) extrapolated to 1,000 feet along stream

Total hardwoods/1000 ft	711
Total conifers/1000 ft	752
Total conifers >20" dbh/1000 ft	81

Average number of trees in a 5-meter wide band

<u>Diameter</u> <u>class (cm)</u>	<u>Zones 1-3</u>	
	<u>Conifer</u>	<u>Hardwood</u>
3-15cm	4.0	1.3
15-30cm	3.7	5.3
30-50cm	3.3	3.3
50-90cm	1.3	1.7
>90cm	0.0	0.0

RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

VEGETATION DETAIL

Unit	Side	Zone	Surface	Slope	Cover (percent)			Diameter class (cm)					Notes	
					Canopy	Shrub	Grass	3-15	15-30	30-50	50-90	>90		
9	LF	1	LT	4.0	85	0	95	Conifer	0	2	2	0	0	
								Hardwood	0	2	0	0	0	
9	LF	2	LT	2.0	80	0	80	Conifer	1	0	0	0	0	
								Hardwood	1	0	0	0	0	
9	LF	3	LT	0.0	95	0	90	Conifer	0	1	2	1	0	
								Hardwood	0	1	0	0	0	
9	RT	1	FP	7.0	70	0	95	Conifer	2	0	0	0	0	
								Hardwood	0	1	0	1	0	
9	RT	2	FP	0.0	95	5	75	Conifer	1	2	0	0	0	
								Hardwood	0	2	3	1	0	SS AND ALCOVE THRU
9	RT	3	HT	13.0	90	5	85	Conifer	1	0	0	0	0	
								Hardwood	0	0	1	0	0	
37	LF	1	HT	5.0	85	0	100	Conifer	0	1	0	0	0	
								Hardwood	2	3	2	0	0	
37	LF	2	HT	4.0	85	0	95	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	1	0	
37	LF	3	HT	0.0	80	0	95	Conifer	1	0	0	0	0	
								Hardwood	0	5	0	1	0	
37	RT	1	LT	20.0	90	5	90	Conifer	0	0	0	0	0	
								Hardwood	1	0	0	0	0	
37	RT	2	RB	0.0	95	0	50	Conifer	0	0	0	0	0	
								Hardwood	0	0	0	0	0	
37	RT	3	HT	0.0	95	0	85	Conifer	1	1	0	0	0	
								Hardwood	0	0	0	0	0	
42	LF	1	HT	5.0	80	0	95	Conifer	1	0	0	0	0	
								Hardwood	0	2	0	1	0	
42	LF	2	HT	5.0	85	0	95	Conifer	1	0	0	0	0	
								Hardwood	0	0	0	0	0	
42	LF	3	HT	2.0	90	0	85	Conifer	3	1	3	1	0	
								Hardwood	0	0	2	0	0	
42	RT	1	HS	20.0	85	0	85	Conifer	0	0	0	0	0	
								Hardwood	0	0	2	0	0	
42	RT	2	HS	20.0	85	0	15	Conifer	0	3	1	1	0	
								Hardwood	0	0	0	0	0	
42	RT	3	HS	25.0	90	0	5	Conifer	0	0	2	1	0	
								Hardwood	0	0	0	0	0	

STREAM HABITAT STATUS SHEET

STREAM NAME Kloutchie Cr Post-ty **CONTRACT**
BASIN Wecanum **CREW** S. Allen, L. Wenz

DATE FILENAME COMMENTS

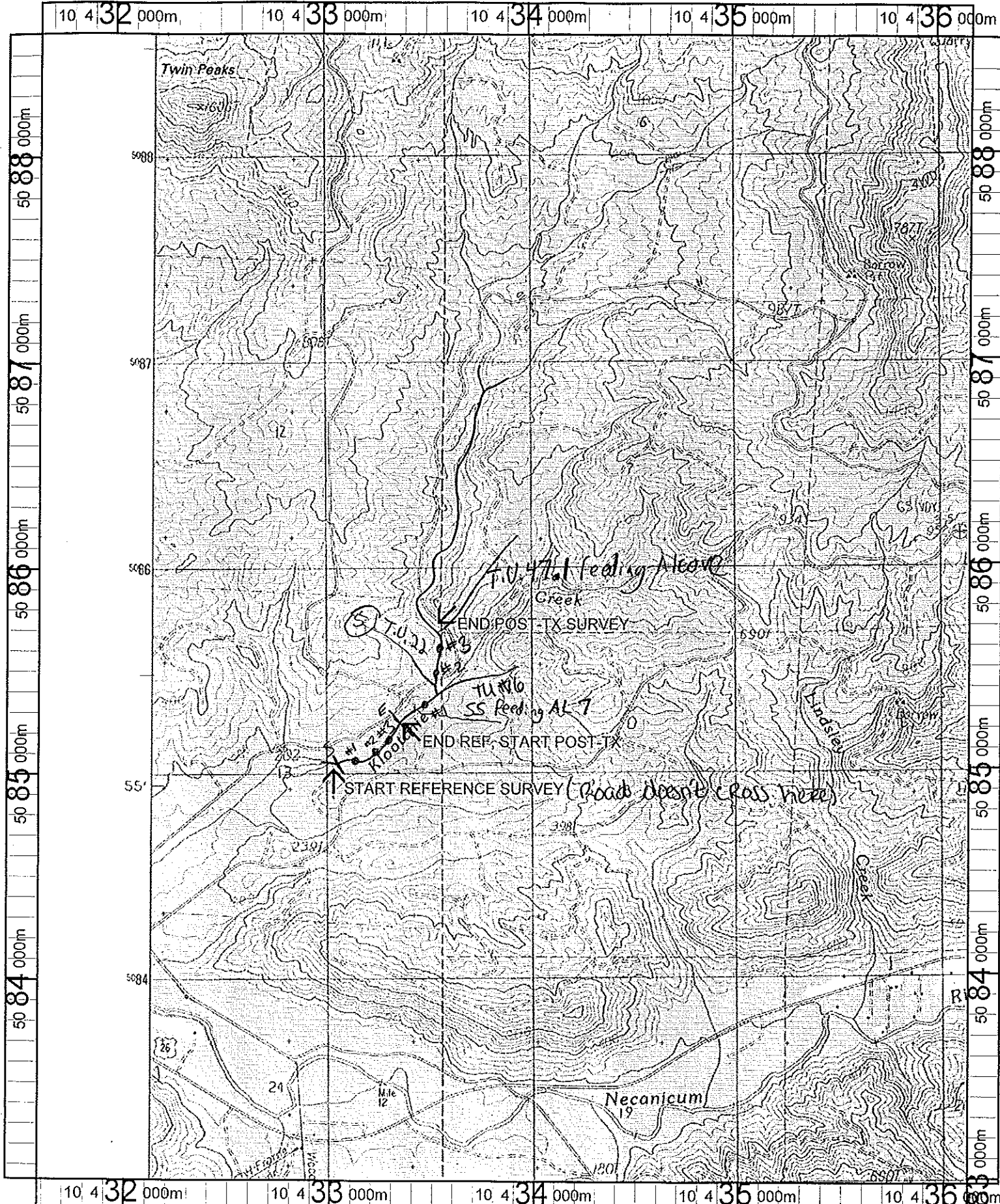
ENTRY			ENTERED BY:	
REACH	<u>11/5/01</u>	<u>Kloop</u>	HR.DBF	<i>[Signature]</i>
UNIT 1			U1.DBF	
UNIT 2			U2.DBF	
UNIT CHECK			CHK.DBF	
RIPARIAN			RP.DBF	
WOOD			WD.DBF	

ANALYSIS			ANALYZED BY:	
CALIBRATION			CAL.DBF	<i>[Signature]</i>
MAP SUMMARY/CORRECTIONS				
WOOD EXPAND			WE.DBF	
UNIT LINK			UX.DBF	
UNIT LINK WITH WOOD			UX2.DBF	
PROFILES + COMMENT SUMMARY			PRO.XLS	
HABITAT REPORT LINK			LNK.DBF	
RIPARIAN LINK			RLK.DBF	

FINAL REPORT			COMPLETED BY:	
BAR GRAPHS			BAR.XLS	<i>[Signature]</i>
COVER + REPORT			COV.DOC	
PHOTOS				
REPORT MAPS				
REACH ENTRY				

COMMENTS / NOTES

OREGON PLAN / REFERENCE SURVEYS					
BASIN AREA	BEAVER DAMS	#	MAJOR FAILURES	#	<u>1</u>
STREAM ORDER	BEAVER ACTIVITY	#	DEBRIS JAMS	#	<u>1</u>
JAMS FROM WOOD SHEETS	#	<u>3</u>	CULVERT CROSSINGS	#	<u>1</u>
			HABITAT STRUCTURES	#	<u>9</u>



Name: NECANICUM JUNCTION
 Date: 5/30/101
 Scale: 1 inch equals 2000 feet

Location: 10 433778 E 5085774 N
 Caption: 4 - 6 YEAR POST-TX AND REFERENCE SURVEYS -
 KLOODCHIE CREEK - NECANICUM BASIN

Post # 119 7/18/01