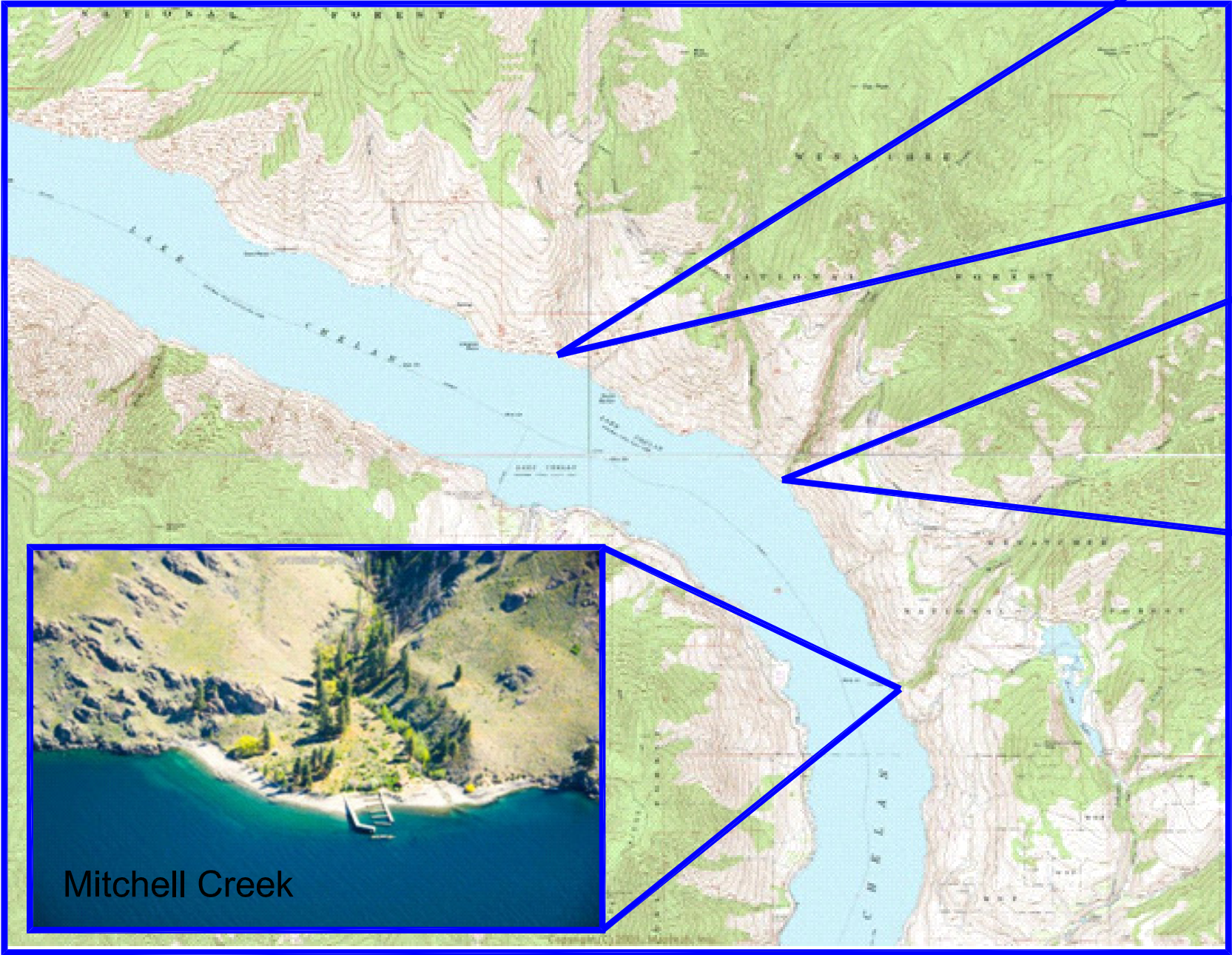


# LAKE CHELAN TRIBUTARY FISH PASSAGE PRELIMINARY DESIGN



## DRAWING INDEX:

1. Site Maps
2. Drainage Areas
3. Mitchell Creek Site Plan
4. Mitchell Creek Profile
5. Gold Creek Site Plan
6. Gold Creek Profile
7. Grade Creek Site Plan
8. Grade Creek Profile

*Consultant Team:*  
Fairbanks Environmental Services  
Waterfall Engineering  
Geo Engineers

## LAKE CHELAN TRIBUTARY FISH PASSAGE

REVISIONS				
REV	DATE	BY	APPD	DESCRIPTION

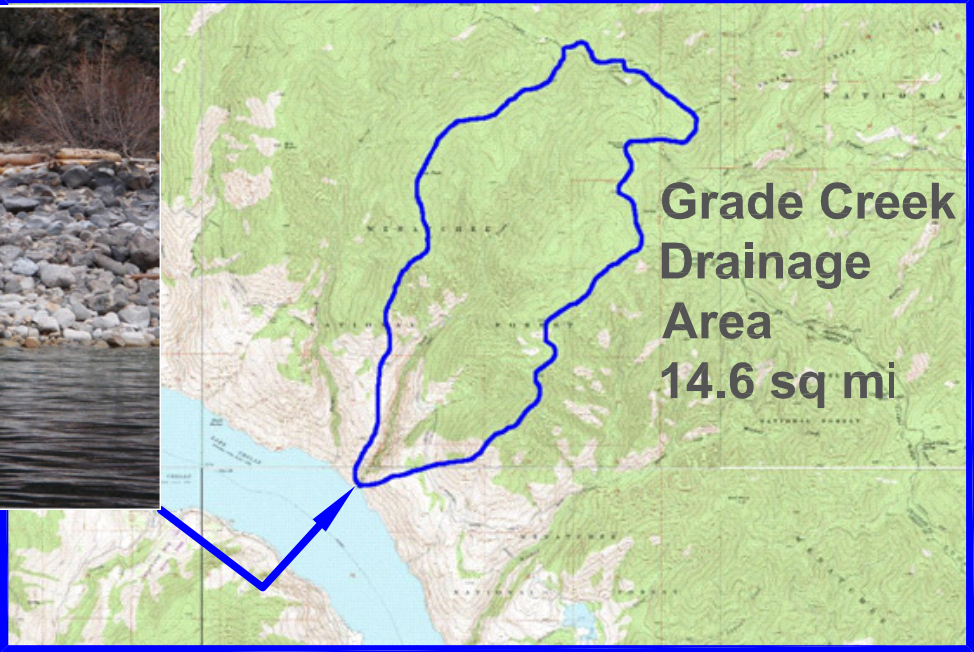
DESIGNED BY: Waterfall Engineering  
DRAWN BY:   
CHECKED BY:   
APPROVED BY:   
FILE:   
DATE: 6/22/09

Mitchell, Gold and Grade Creeks

Site Map

SHEET NO. 1 OF 8





2 and 100 Yr Flow, Fish Passage Design Flows and Channel Width Based on Drainage Area:

Site	Q2 <sup>a</sup>	Q100 <sup>a</sup>	Qfp <sup>b</sup>	Channel Width <sup>c</sup>
		(cfs)		(ft)
Mitchel Creek	155	1163	98	12
Gold Creek	222	1650	105	15
Grade Creek	176	1318	142	13

References: a) Sumioka, USGS, 1988  
b) Rowland, WSU, 2001  
c) Castro, ?

LAKE CHELAN TRIBUTARY FISH  
PASSAGE

REVISIONS				
REV	DATE	BY	APPD	DESCRIPTION

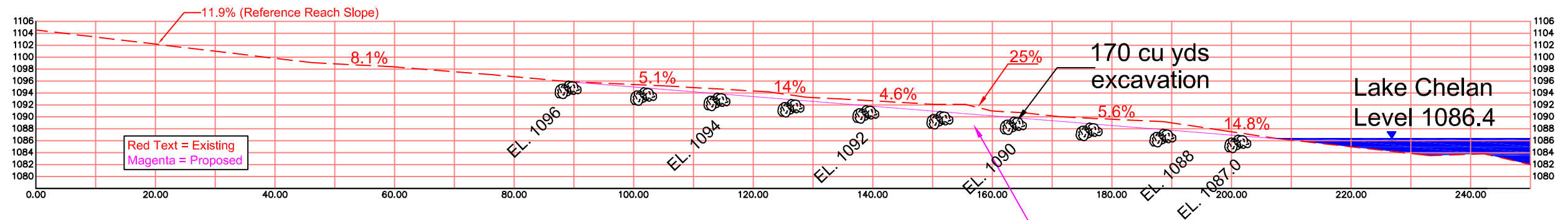
DESIGNED BY:	Waterfall Engineering
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FILE:	
DATE:	6/22/09

Mitchell, Gold and Grade Creeks

Drainage Areas and Photos

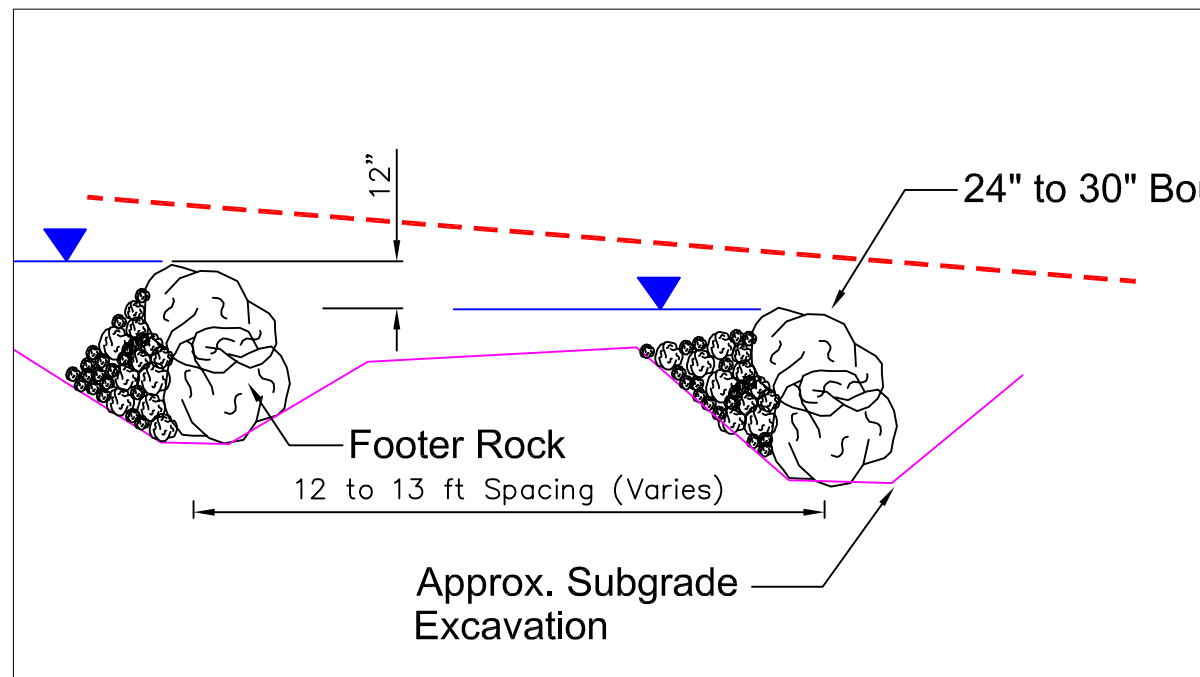




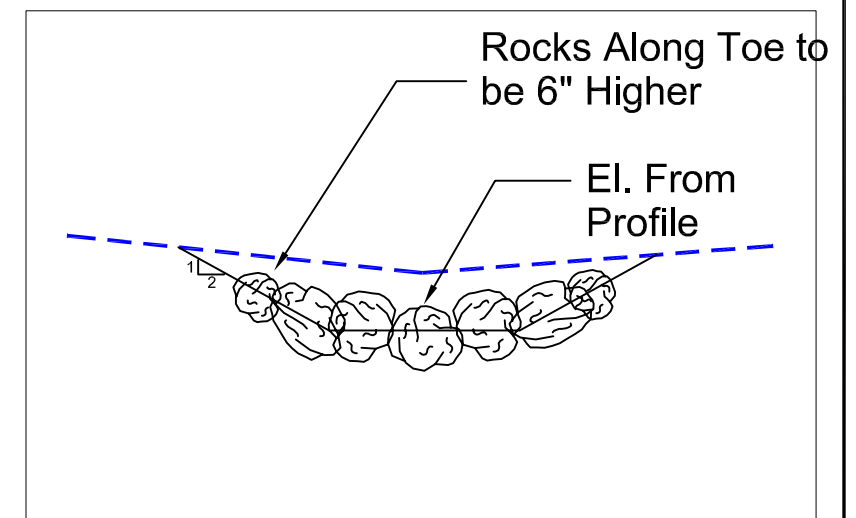
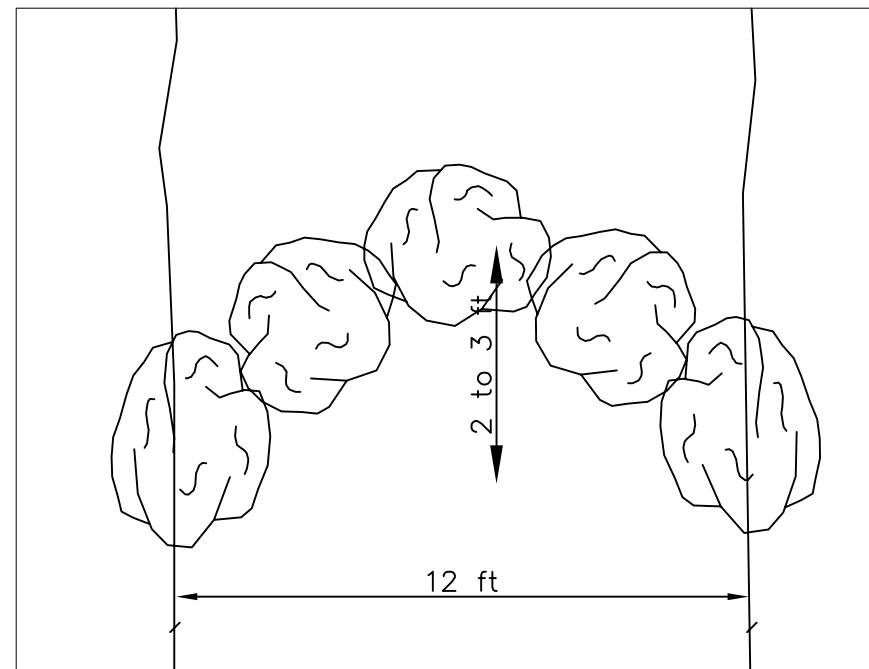


Mitchel Creek - Existing Profile  
Scale 1" = 20'

Proposed 8%  
Step/Pool Profile  
Length: 118 ft



Typical Rock Sill Detail  
1" = 2'



Note: Boulders to be placed in the upstream direction, buttressed against downstream boulders and partially resting on footer rocks. Backfill upstream side with select (finer material to seal upstream of boulders) with excavated material.

## LAKE CHELAN TRIBUTARY FISH PASSAGE

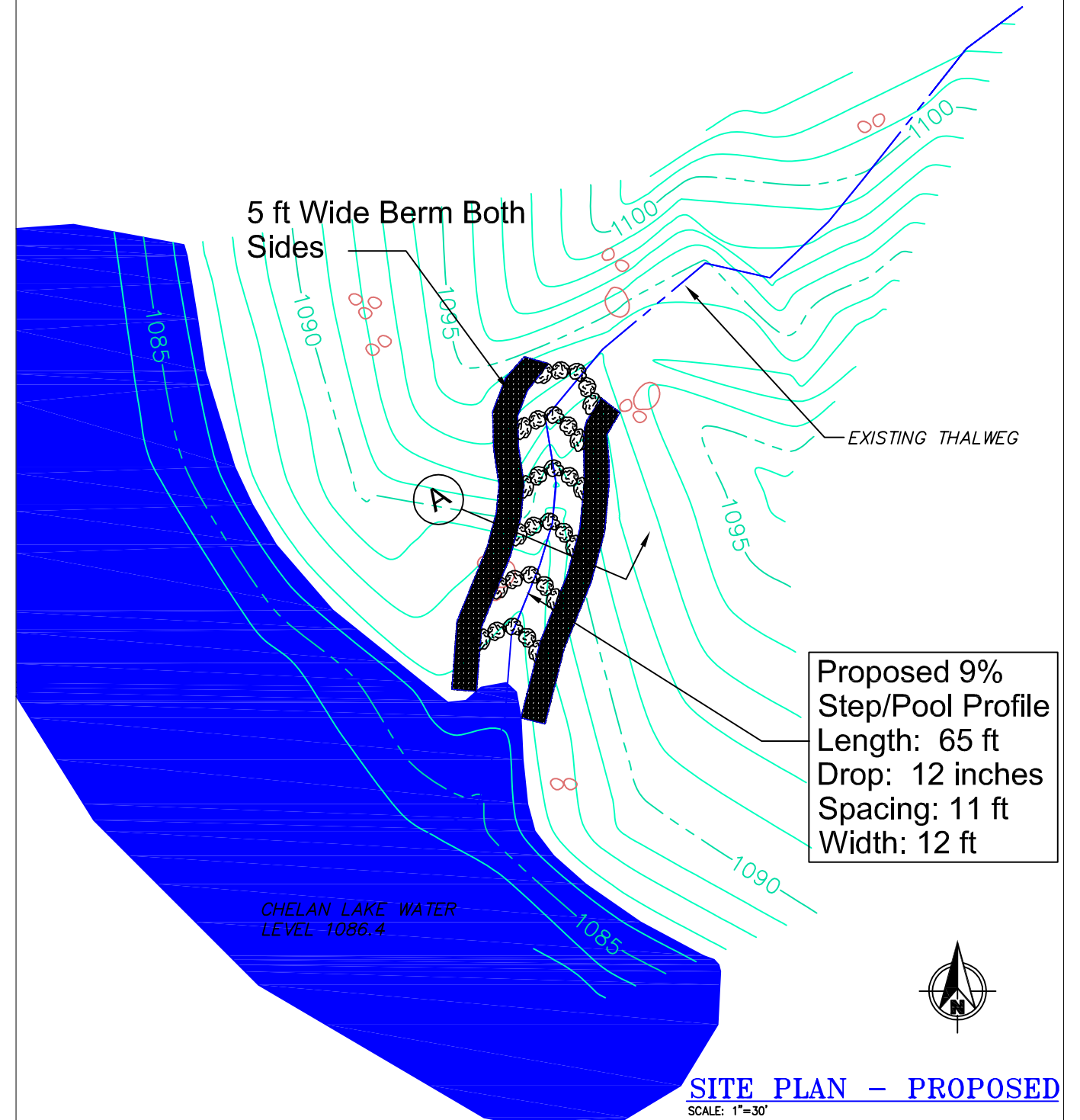
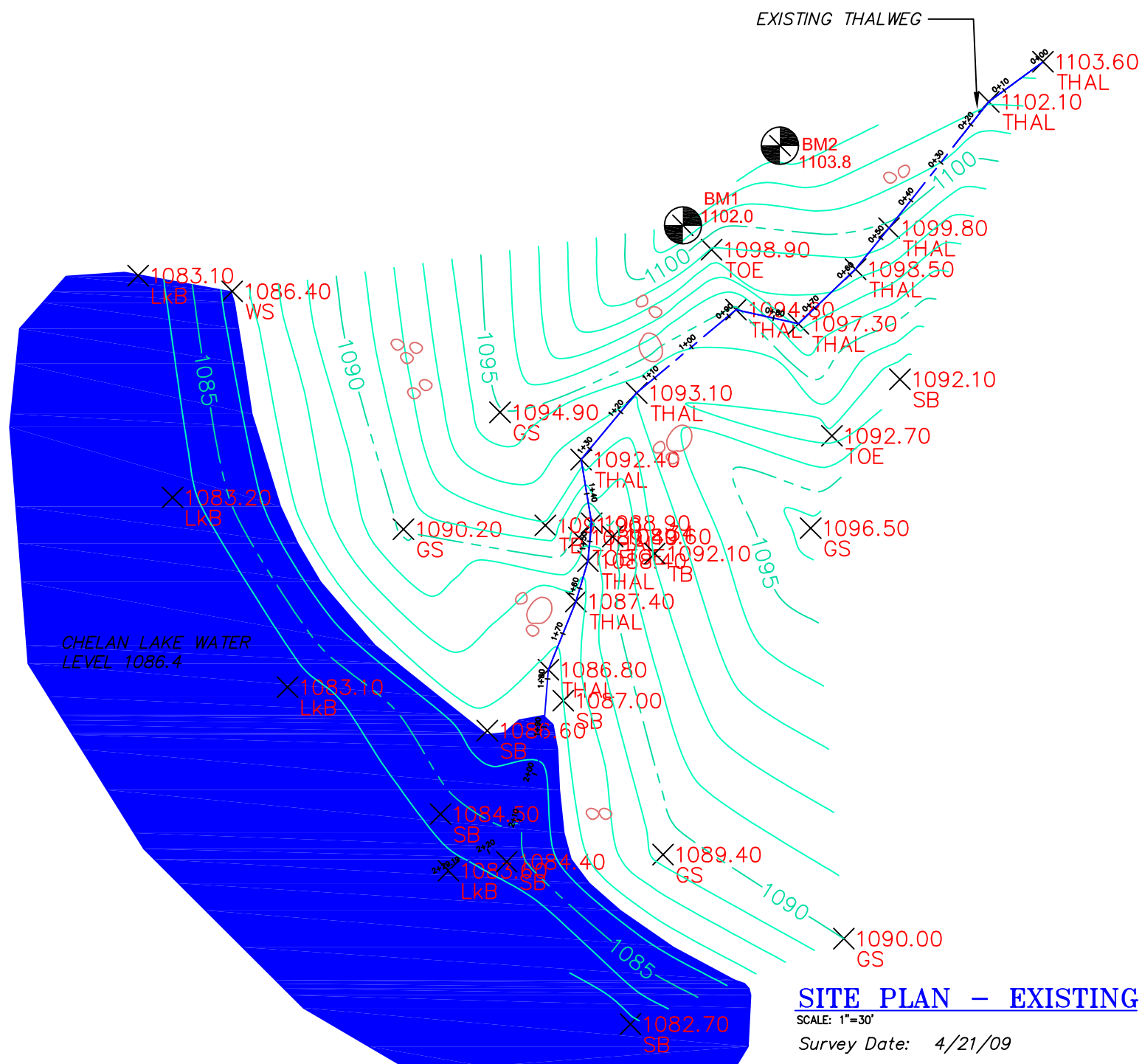
REVISIONS				
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FILE: NOTED  
DATE: 6/22/09

Mitchell Creek

PROFILE

SHEET NO. 4 OF 8



# LAKE CHELAN TRIBUTARY FISH PASSAGE

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APPROVED BY: \_\_\_\_\_

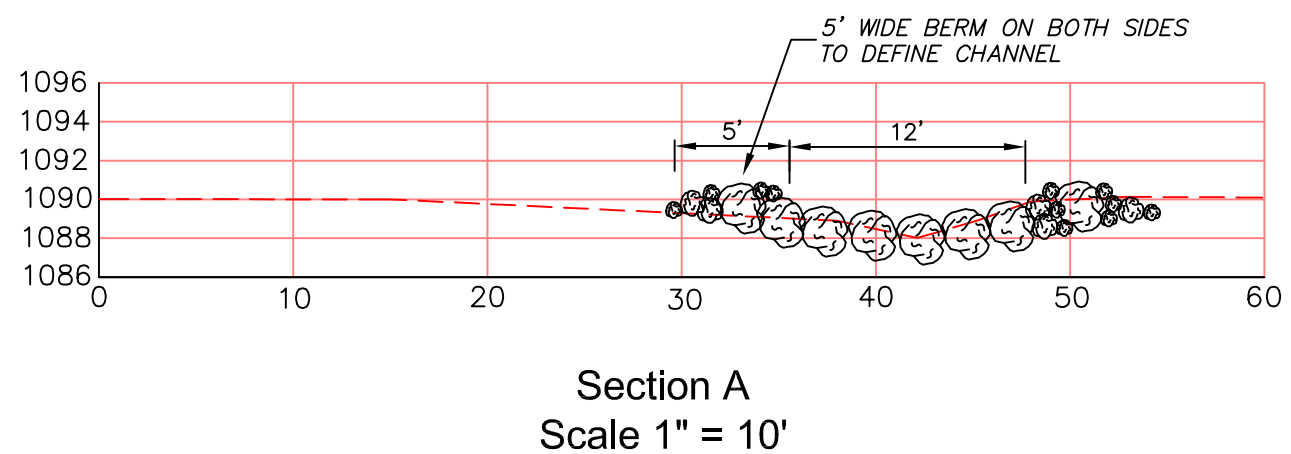
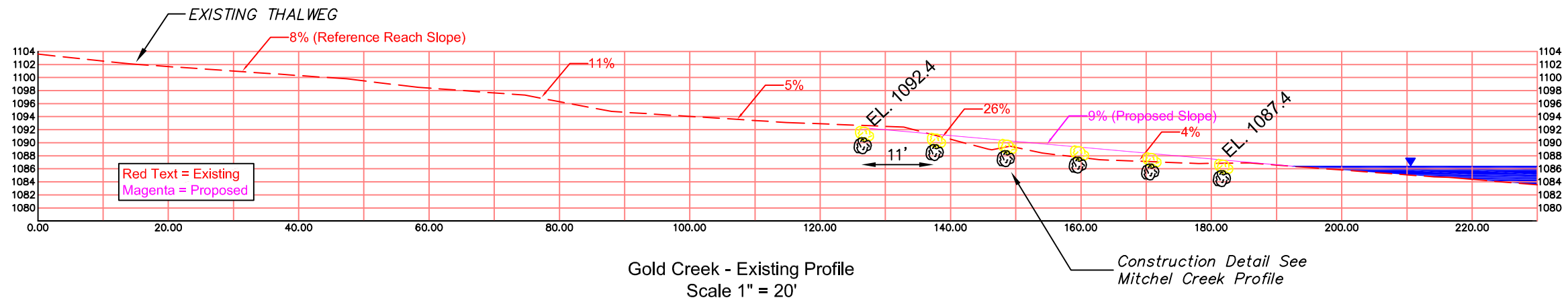
FILE: NOTED

DATE: 6/22/9

Gold Creek

SITE PLAN

SHEET NO. 5 OF 8

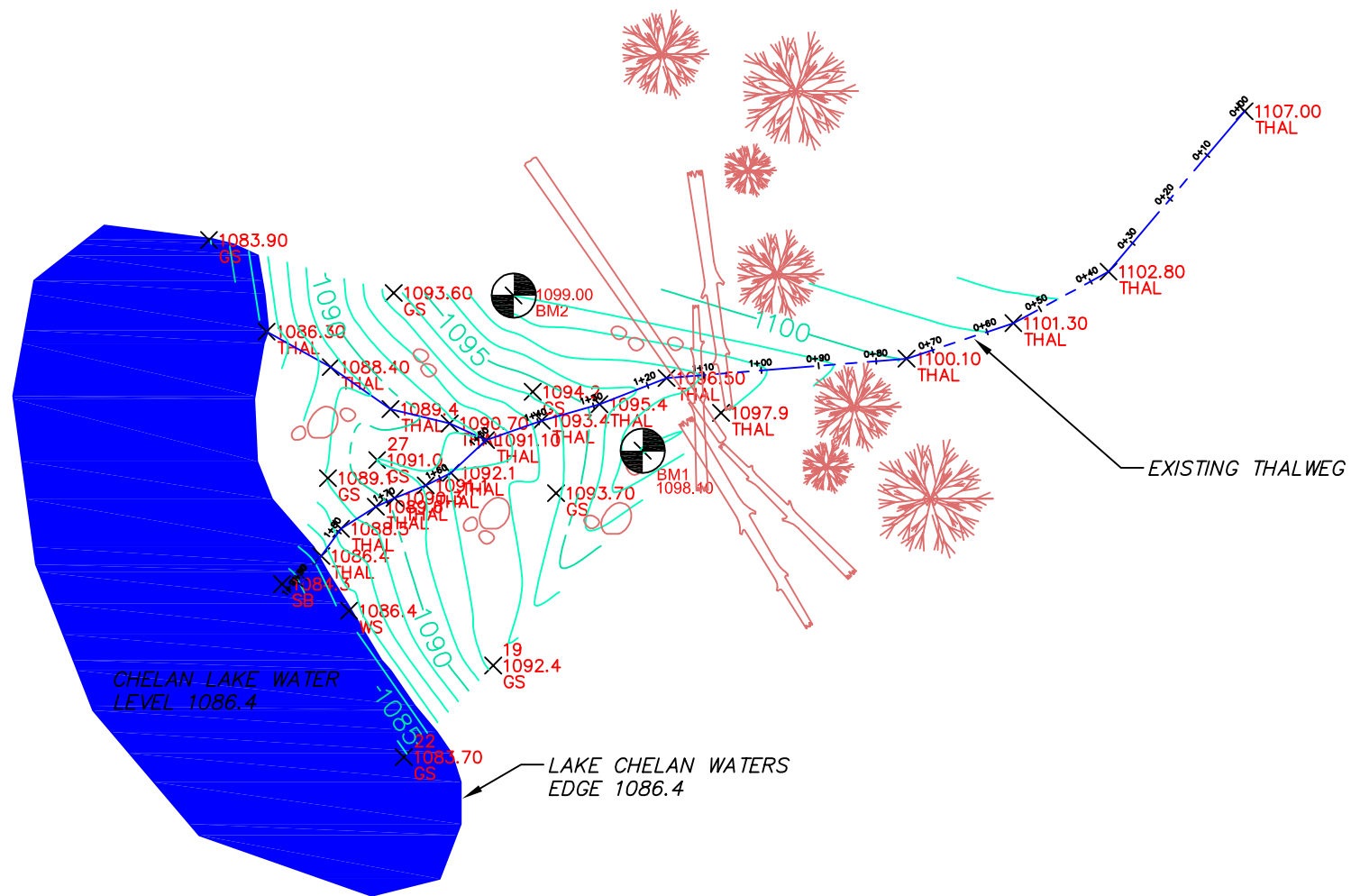


# LAKE CHELAN TRIBUTARY FISH PASSAGE

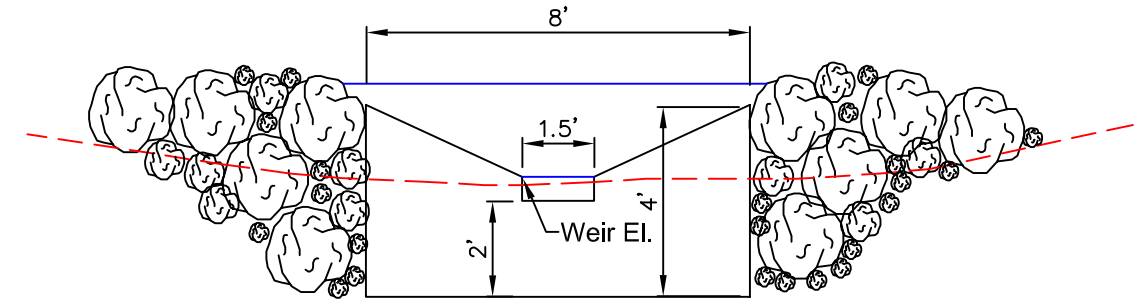
REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

DESIGNED BY: Waterfall Engineering
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CHECKED BY:
APPROVED BY:
FILE: NOTED
DATE: 6/22/9

Gold Creek
PROFILES

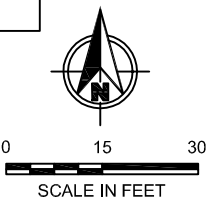
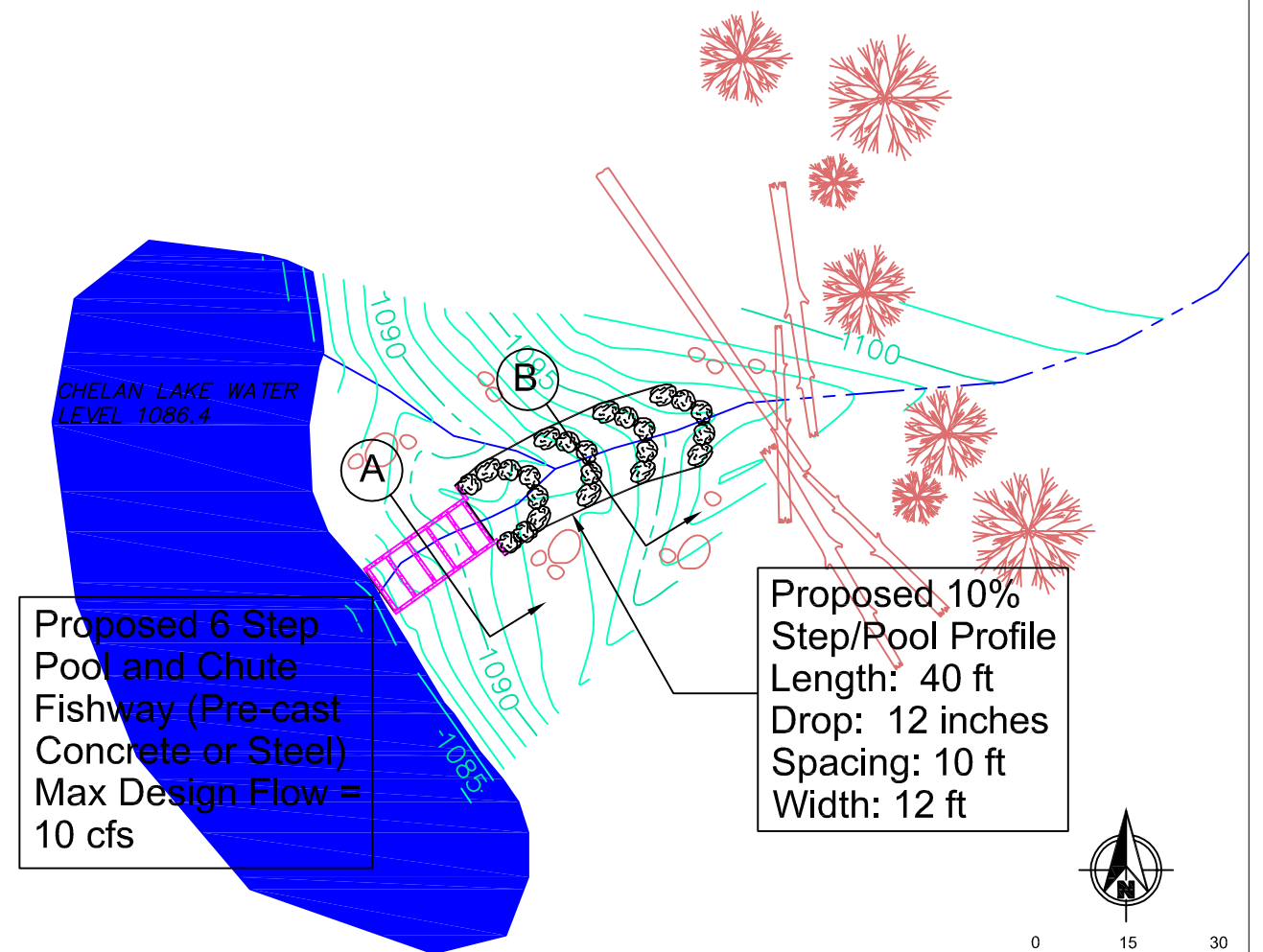


**EXISTING SITE PLAN**  
SCALE: 1"=30'



**Section A Through Fishway**

Scale 1" = 4'



**PROPOSED SITE PLAN**  
SCALE: 1"=30'

# LAKE CHELAN TRIBUTARY FISH PASSAGE

REVISIONS				
REV	DATE	BY	APP'D	DESCRIPTION

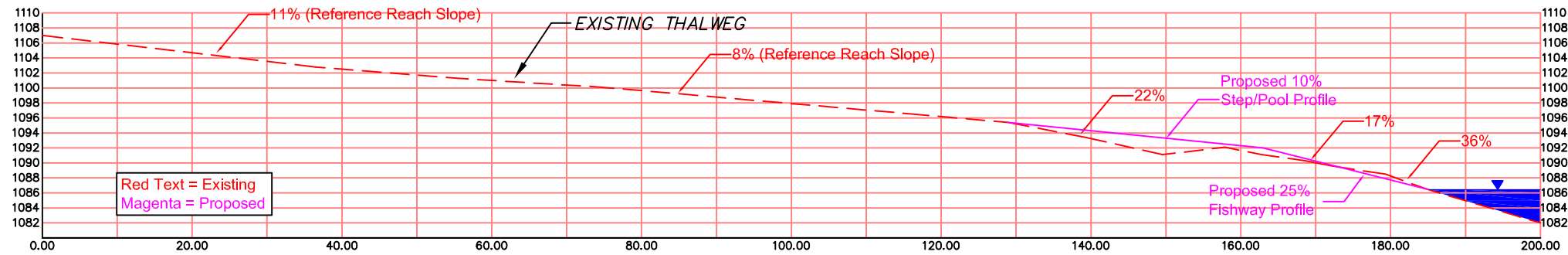
DESIGNED BY: Waterfall Engineering  
DRAWN BY:   
CHECKED BY: -  
APPROVED BY: -  
FILE: NOTED  
DATE: 6/22/9

GRADE CREEK

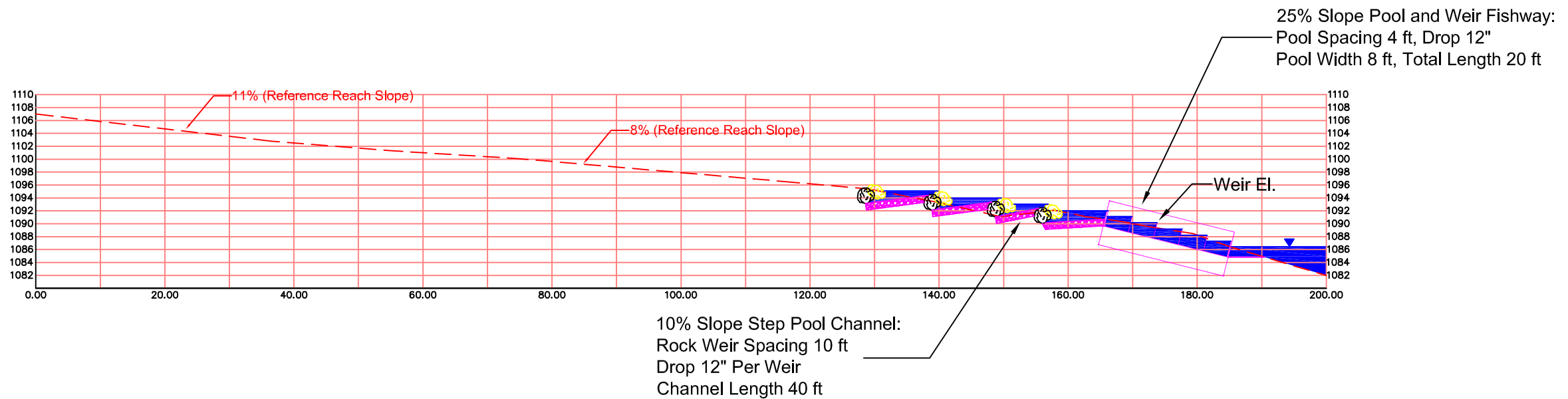
SITE PLAN

SHEET NO. 7 OF 8

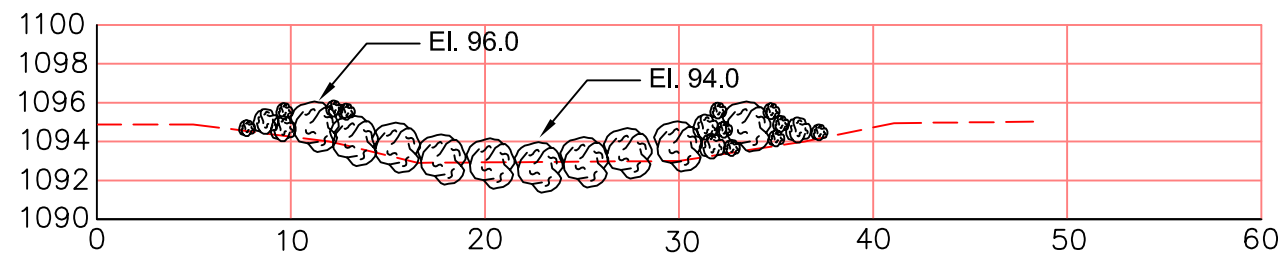




Grade Creek - Existing Profile  
Scale 1" = 20'



Grade Creek - Proposed Profile  
Scale 1" = 20'



Section B  
Scale 1" = 10'

# LAKE CHELAN TRIBUTARY FISH PASSAGE

REVISIONS					
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DATE: 6/22/9

Grade Creek

Profiles

SHEET NO. 8 OF 8