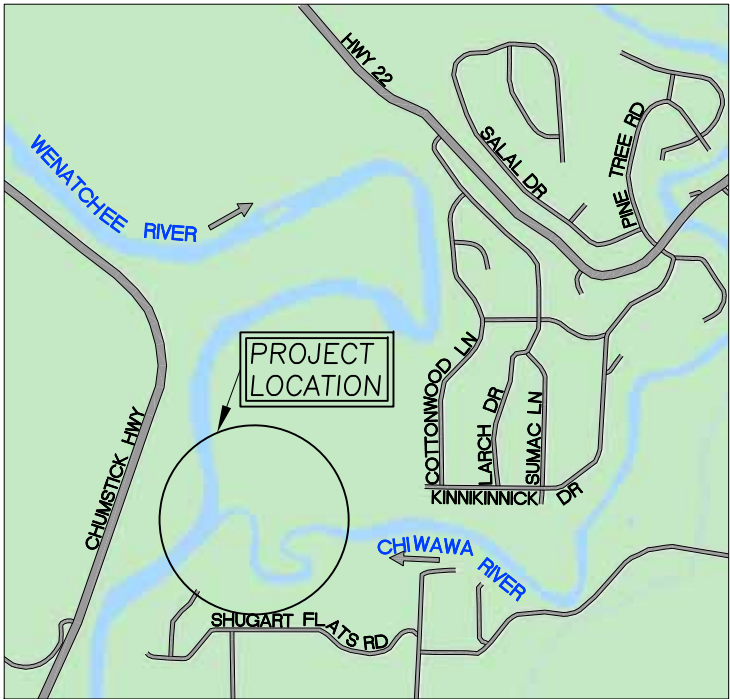
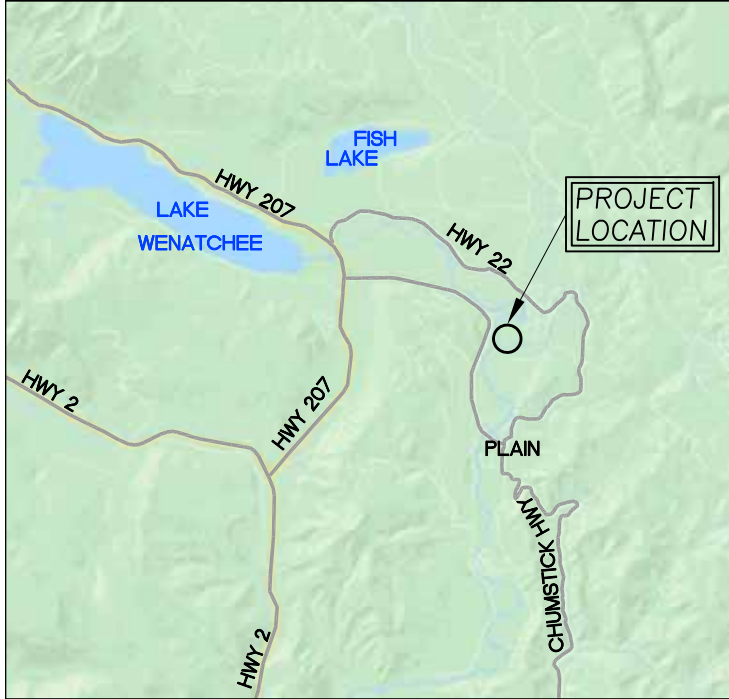


CHIWAWA OUTLET RESTORATION

CONCEPT LEVEL DESIGN PLANS



VICINITY MAP
N.T.S. (GOOGLE)



REGIONAL MAP
N.T.S. (GOOGLE)

SHEET INDEX

- | | |
|-----|------------------------------------|
| C1 | COVER |
| C2 | PROJECT OVERVIEW |
| C3 | UPSTREAM SIDE CHANNELS SITE PLAN |
| C4 | DOWNSTREAM SIDE CHANNELS SITE PLAN |
| C5 | SIDE CHANNELS PROFILES AND SECTION |
| C6 | CHIWAWA RIVER CONFLUENCE SITE PLAN |
| C7 | TYPICAL CROSS SECTIONS AND PROFILE |
| C8 | TYPICAL LARGE WOOD DETAILS |
| C9 | MID CHANNEL ELJ DETAIL |
| C10 | HABITAT WOOD STRUCTURE DETAIL |

PROJECT DESCRIPTION

THIS PROJECT WILL IMPROVE JUVENILE SALMON HABITAT BY INCREASING IN-CHANNEL COMPLEXITY, IMPROVING FLOODPLAIN CONNECTIVITY, AND EXPANDING COLD WATER REFUGIA IN THE WENATCHEE AND CHIWAWA RIVERS. THE PROJECT IS FURTHER DESCRIBED IN THE CHIWAWA OUTLET RESTORATION PROJECT CONCEPTUAL DESIGN REPORT, 2020. PROJECT ELEMENTS INCLUDE EXCAVATION OF SIDE CHANNELS IN THE CHIWAWA RIVER ALLUVIAL FAN, ALCOVE GRADING, AND PLACEMENT OF LARGE WOOD STRUCTURES

PROJECT LOCATION

LATITUDE: 47°47'15.92"N
LONGITUDE: 120°39'20.94"W

SECTION 1, TOWNSHIP 26 N, RANGE 17E

WATERBODY: CHIWAWA RIVER
TRIBUTARY OF: WENATCHEE RIVER

*** CALL BEFORE YOU DIG ***

CONTACT UNDERGROUND SERVICE ALERT (USA)
PRIOR TO ANY CONSTRUCTION WORK 1-800-227-2600

ABBREVIATIONS

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA.	DIAMETER
E	EXISTING
EG	EXISTING GROUND
ELEV.	ELEVATION
ELJ	ENGINEERED LOG JAM
FG	FINISHED GRADE
FT	FEET
INV	INVERT
N	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
PID	PROPERTY IDENTIFICATION NUMBER
RC	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION
(NUMBER OR LETTER)



SHEET REFERENCE

GENERAL NOTES

- LIDAR MAPPING WAS PERFORMED BY:
Quantum Spatial
421 SW 6th AVENUE
PORTLAND, OR 97204
SURVEY DATES: AUGUST, 2015.
- ELEVATION DATUM: NAVD88.
- HORIZONTAL DATUM: NAD83 WASHINGTON STATE PLANE NORTH
- AERIAL PHOTO SOURCE: AUTOCAD CIVIL3D GEOLOCATION MAP.
- CONTOUR INTERVAL IS TWO FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
- THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
- ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STATE OF WASHINGTON DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").
- THESE DESIGNS ARE INCOMPLETE WITHOUT THE FINAL STAMPED TECHNICAL SPECIFICATIONS PREPARED BY WATERWAYS CONSULTING, INC. REFER TO TECHNICAL SPECIFICATIONS FOR DETAILS NOT SHOWN HEREON.

PRELIMINARY

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKIMA NATION FISHERIES

COVER

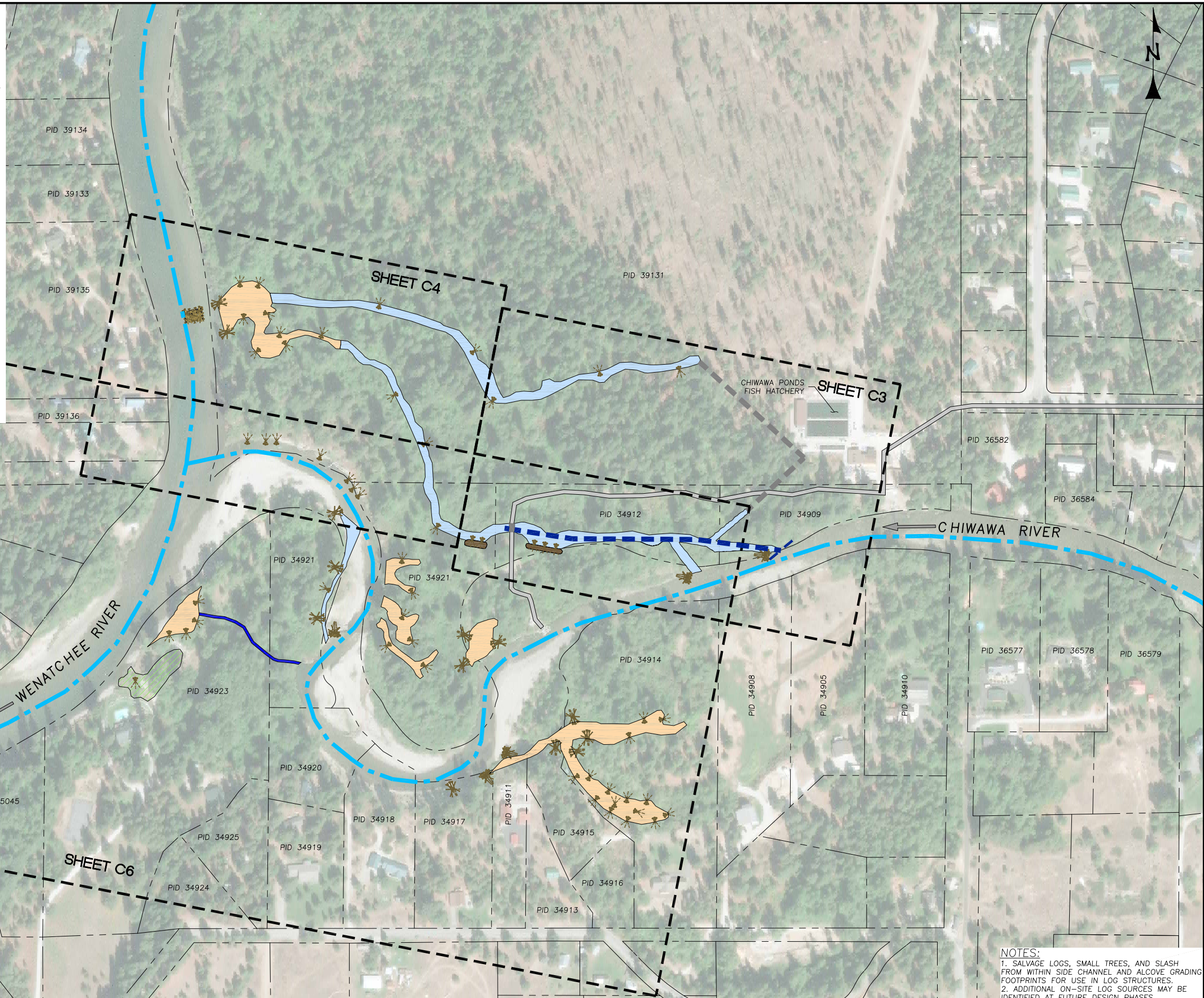
**CHIWAWA RIVER FAN
RECONNECTION
CONCEPT PLANS**

DESIGNED BY: B.T.
DRAWN BY: M.M.
CHECKED BY: J.H.
DATE: 05/12/20
JOB NO.: 19-040

BAR IS ONE INCH ON
ORIGINAL DRAWING,
ADJUST SCALES FOR
REDUCED PLOTS
0" 1"

C1

1
OF
10



NOTES:

1. SALVAGE LOGS, SMALL TREES, AND SLASH FROM WITHIN SIDE CHANNEL AND ALCOVE GRADING FOOTPRINTS FOR USE IN LOG STRUCTURES.
2. ADDITIONAL ON-SITE LOG SOURCES MAY BE IDENTIFIED AT FUTURE DESIGN PHASES.

WATERWAYS
CONSULTING INC.



1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH: (503) 227-5979 // FAX: (888) 819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION


PREPARED AT THE REQUEST OF:
YAKIMA NATION FISHERIES

PROJECT OVERVIEW

CHIWAWA RIVER FAN
RECONNECTION
CONCEPT PLANS

DESIGNED BY: B.T.
DRAWN BY: M.M.
CHECKED BY: J.H
DATE: 05/12/20
JOB NO.: 19-040

BAR IS ONE INCH ON
ORIGINAL DRAWING,
ADJUST SCALES FOR
REDUCED PLOTS

0  1"

C2	2 OF 10
----	---------------

PROJECT OVERVIEW

SCALE: 1" = 150'

f:\Projects\19-040_chiawa_outlet_design\CAD\19-040 SITE PLAN SIDE CHANNES.dwg -- 5/12/2020 4:31 PM



UPSTREAM SIDE CHANNELS SITE PLAN
SCALE: 1" = 40'

WATERWAYS CONSULTING INC.

1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH: (503) 222-5979 FAX: (503) 222-5979
WWW.WATERWAYS.COM

PRELIMINARY

NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:

YAKIMA NATION FISHERIES

UPSTREAM SIDE CHANNELS SITE PLAN

CHIEWA RIVER FAN RECONNECTION CONCEPT PLANS

DESIGNED BY:	B.T.
DRAWN BY:	M.M.
CHECKED BY:	J.H.
DATE:	05/12/20
JOB NO.:	19-040

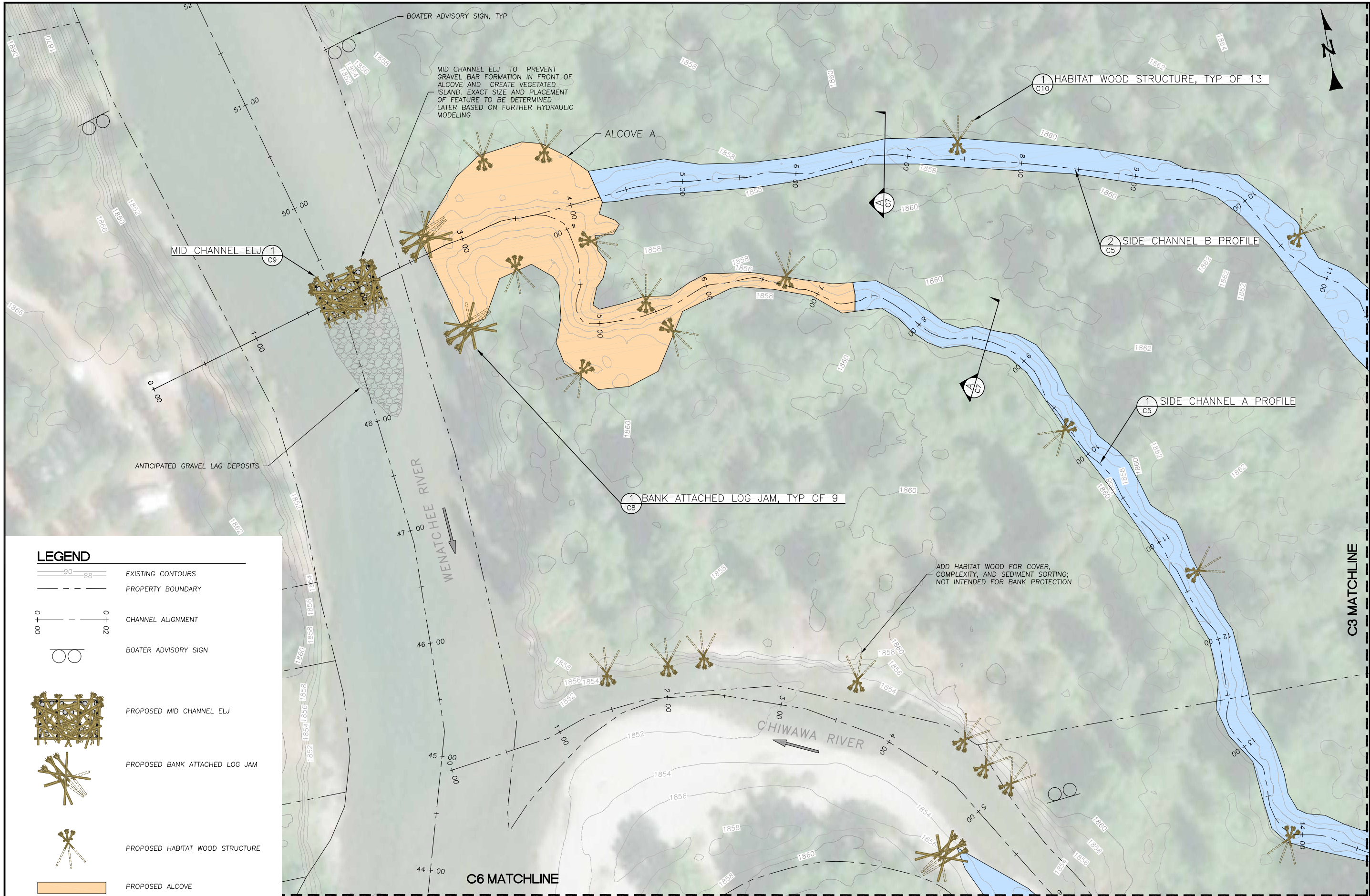
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

0 1"

C3

3 OF 10

f:\Projects\19-040_chiawa_outlet_design\CAD\19-040 SITE PLAN SIDE CHANNELS.dwg -- 5/12/2020 4:32 PM



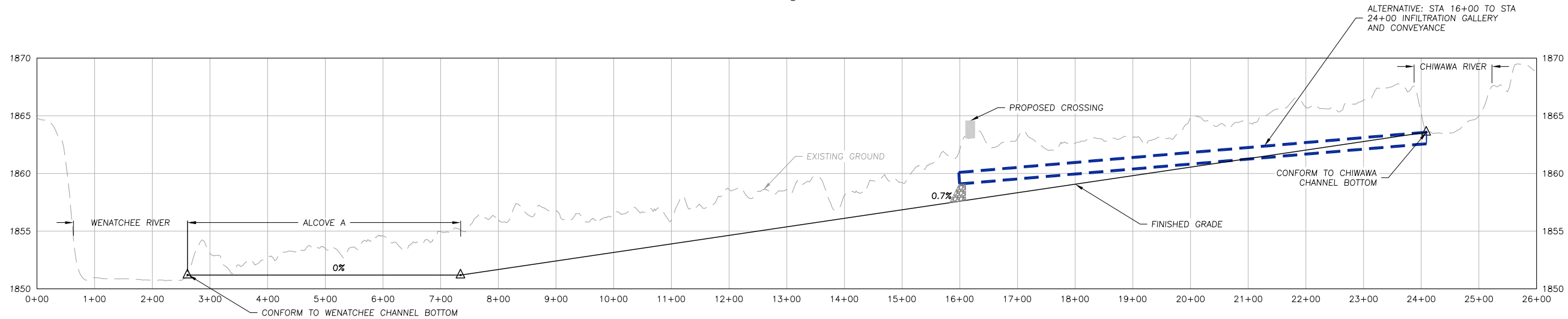
LEGEND

	EXISTING CONTOURS
	PROPERTY BOUNDARY
	CHANNEL ALIGNMENT
	BOATER ADVISORY SIGN
	PROPOSED MID CHANNEL ELJ
	PROPOSED BANK ATTACHED LOG JAM
	PROPOSED HABITAT WOOD STRUCTURE
	PROPOSED ALCOVE

DOWNSTREAM SIDE CHANNELS SITE PLAN
SCALE: 1" = 40'

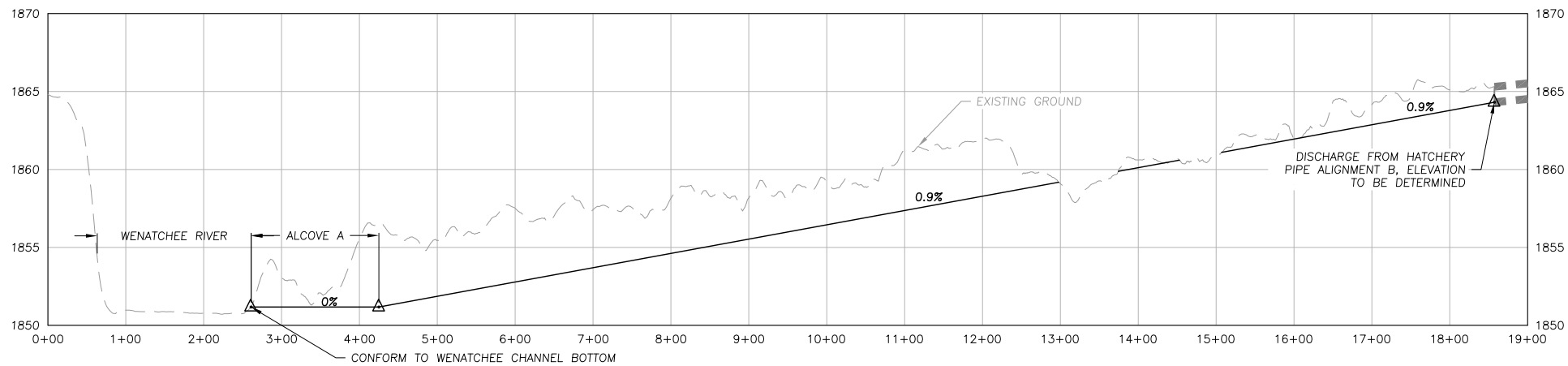
 WATERWAYS CONSULTING INC. 1020 SW TAYLOR STREET, STE. 380 PORTLAND, OR 97205 PH: (503) 222-5979 FAX: (503) 222-6847 WWW.WATERWAYS.COM	
PRELIMINARY NOT FOR CONSTRUCTION	
PREPARED AT THE REQUEST OF: YAKIMA NATION FISHERIES	
DOWNSTREAM SIDE CHANNELS SITE PLAN	
CHIAWA RIVER FAN RECONNECTION CONCEPT PLANS	
DESIGNED BY: B.T. DRAWN BY: M.M. CHECKED BY: J.H. DATE: 05/12/20 JOB NO.: 19-040	BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
C4	4 OF 10

f:\Projects\19-040_chiowa_outlet_design\CAD\19-040_SIDE_CHANNEL_PROFILE.dwg - 5/12/2020 4:33 PM



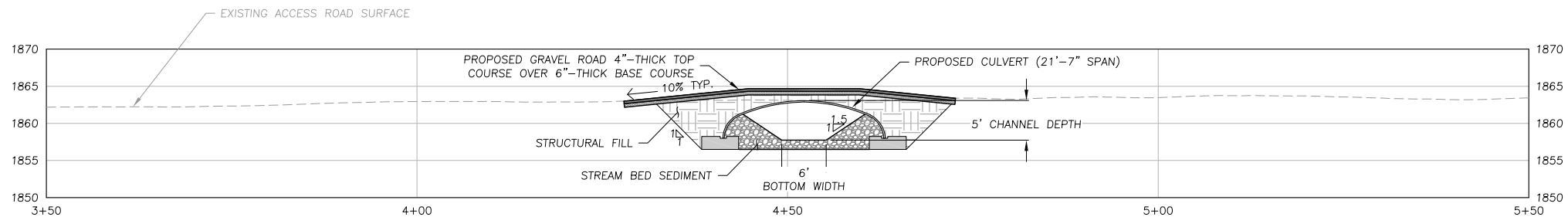
SIDE CHANNEL A PROFILE (SHOWN AT 20X VERTICAL EXAGGERATION)
HORZ SCALE: 1" = 100' VERT: 1" = 5'

1
C3 C4



SIDE CHANNEL B PROFILE (SHOWN AT 20X VERTICAL EXAGGERATION)
HORZ SCALE: 1" = 100' VERT: 1" = 5'

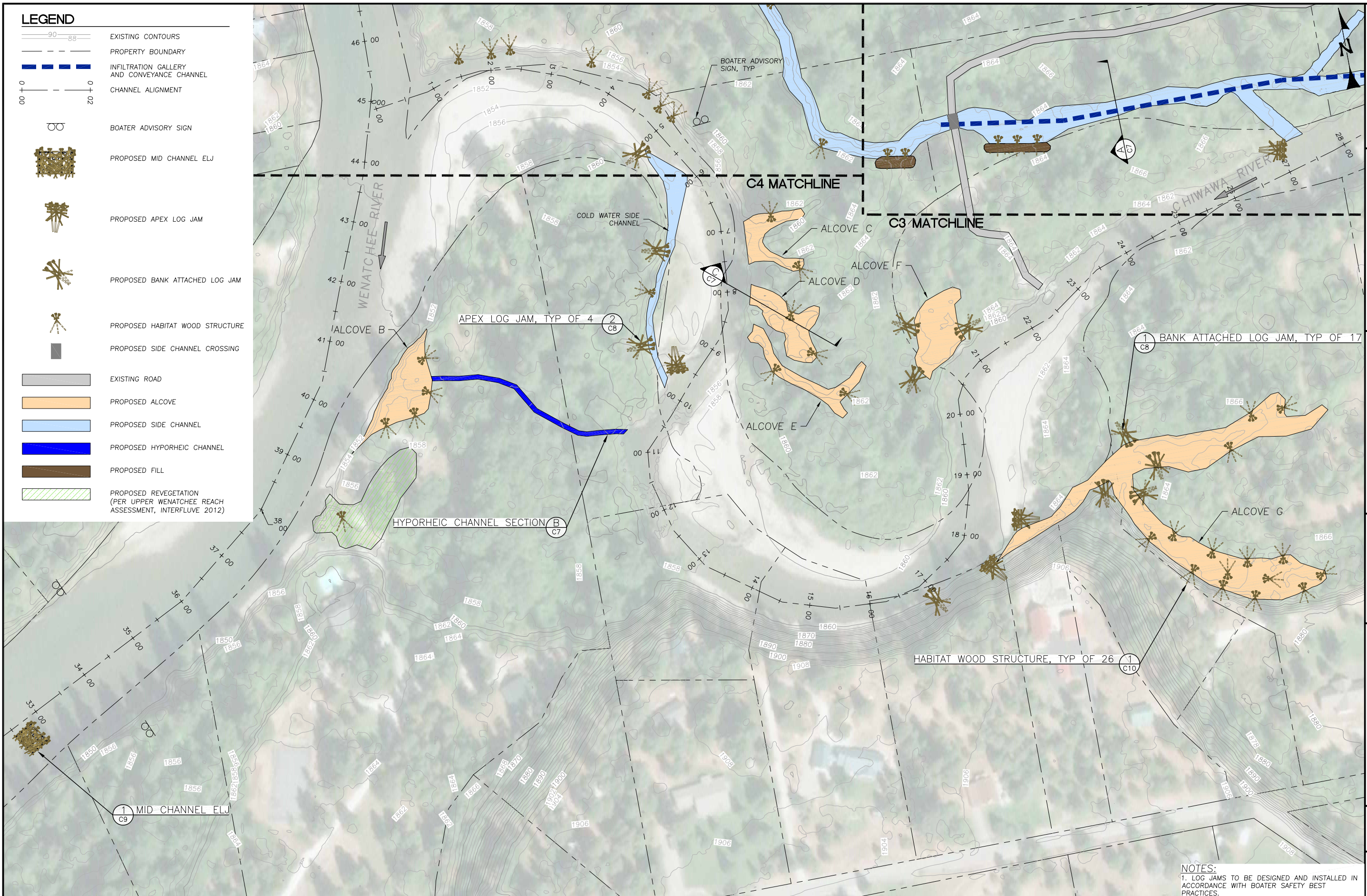
2
C3 C4



SIDE CHANNEL A CROSSING STRUCTURE SECTION
SCALE: 1" = 10'

A
C3

CROSSING NOTES:
1. CROSSING TYPE NOT DETERMINED AT THIS PHASE OF DESIGN. CROSSING MAY CONSIST OF A BRIDGE OR CULVERT.
2. CHANNEL AND CROSSING DIMENSIONS SHOWN ARE APPROXIMATE. CROSSING DIMENSIONS TO BE DEVELOPED AT A LATER STAGE OF DESIGN.
3. CROSSING WILL BE DESIGNED TO ACCOMMODATE LOADS SUCH AS A MOBILE CRANE TO REMOVE THE SMOLT TRAP



CHIWAHA RIVER CONFLUENCE SITE PLAN

WATERWAYS
CONSULTING INC.



1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH: (503) 227-5979 // FAX: (888) 819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION


PREPARED AT THE REQUEST OF:
YAKIMA NATION FISHERIES

CHIWAWA RIVER
CONFLUENCE
SITE PI AN

CHIWAWA RIVER FAN
RECONNECTION
CONCEPT PLANS

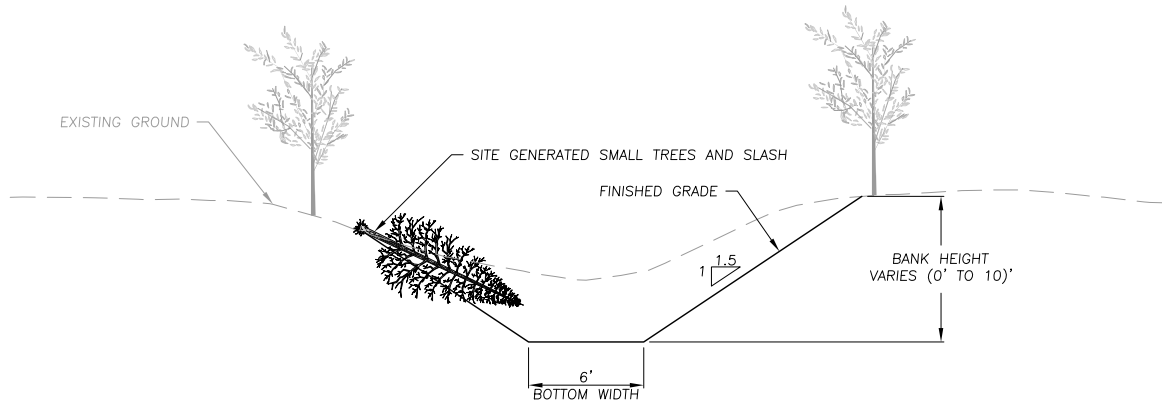
DESIGNED BY: B.T.
DRAWN BY: M.M.
CHECKED BY: J.H
DATE: 05/12/20
JOB NO.: 19-040

BAR IS ONE INCH OF
ORIGINAL DRAWING,
ADJUST SCALES FOR
REDUCED PLOTS

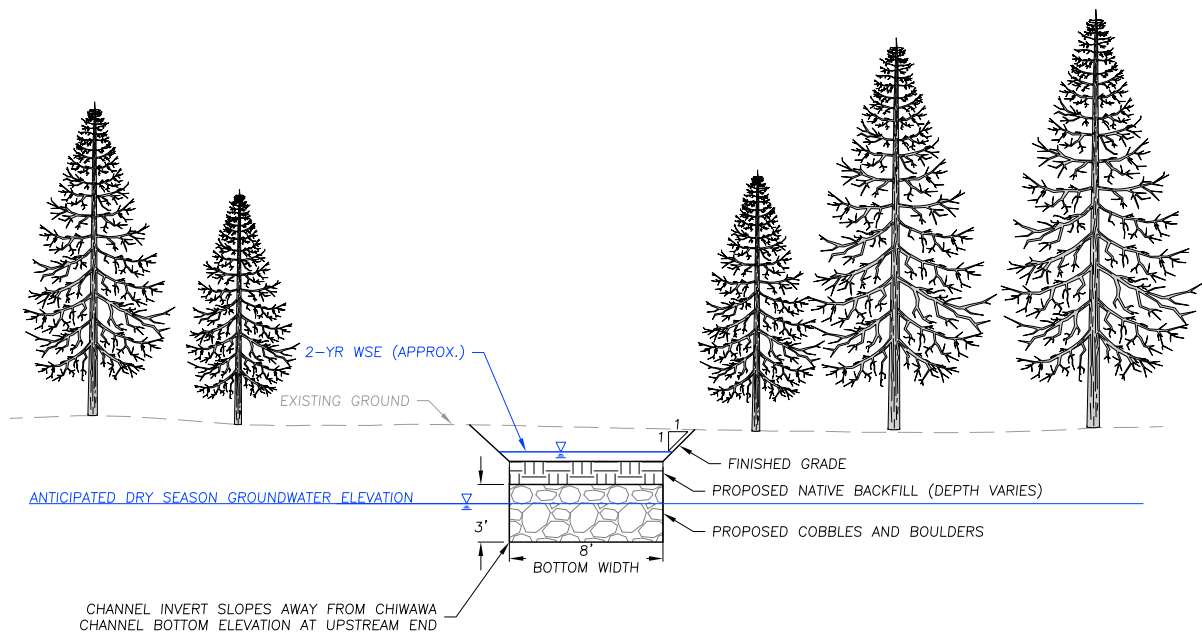
0  1"

C6	6 0 1
----	-------------

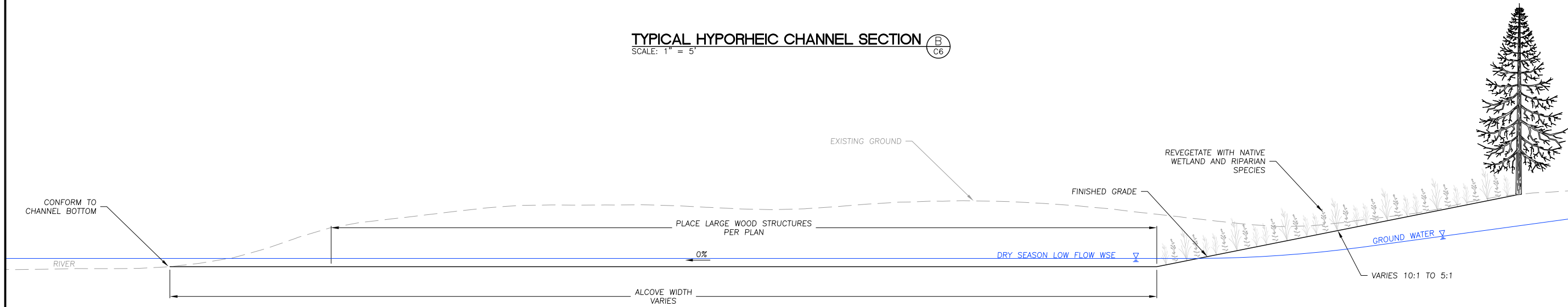
f:\Projects\19-040_chiawa_outlet_design\CAD\19-040 TYPICAL CROSS SECTIONS AND PROFILE.dwg - 5/12/2020 4:34 PM



TYPICAL SIDE CHANNEL SECTION A
SCALE: 1" = 5'
C3 C4 C6



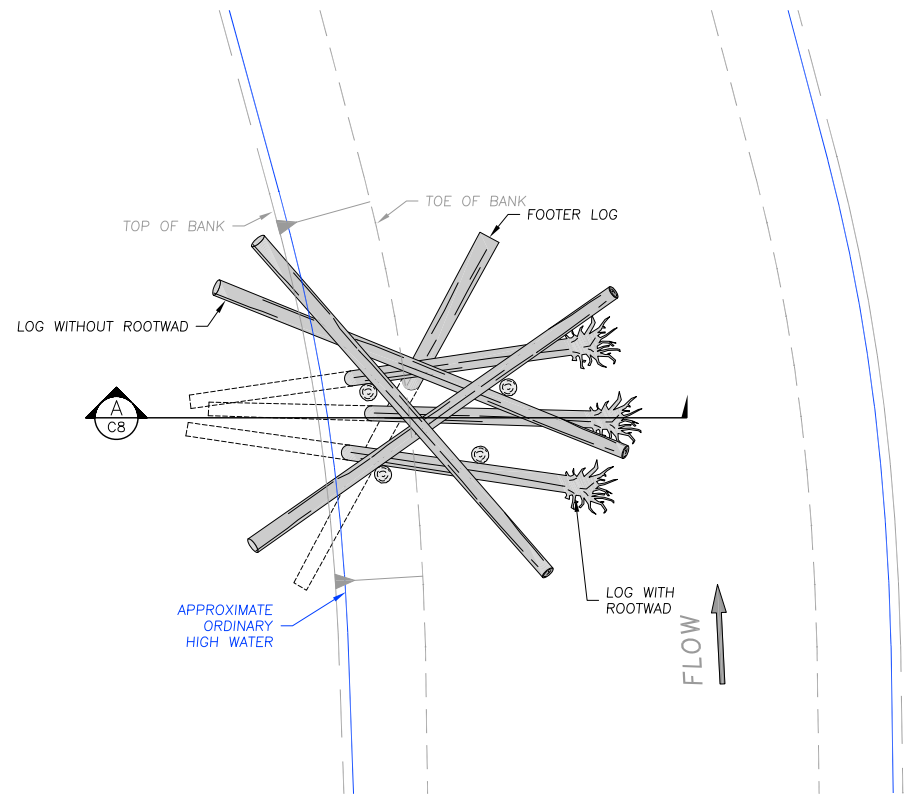
TYPICAL HYPORHEIC CHANNEL SECTION B
SCALE: 1" = 5'
C6



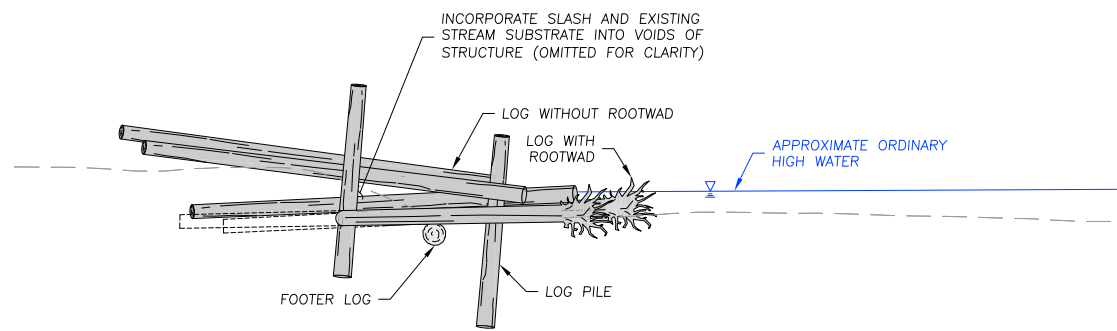
TYPICAL ALCOVE PROFILE (NOTE 1) C
SCALE: 1" = 5'
C4 C6

NOTES:
1. TYPICAL ALCOVE PROFILE APPLIES TO ALCOVES B-G.

WATERWAYS CONSULTING INC.		1020 SW TAYLOR STREET, STE. 380 PORTLAND, OR 97205 PH: (503) 222-5979 / FAX: (503) 619-6847 WWW.WATERWAYS.COM	
PRELIMINARY NOT FOR CONSTRUCTION			
PREPARED AT THE REQUEST OF: YAKIMA NATION FISHERIES			
TYPICAL CROSS SECTIONS AND PROFILE			
CHIWAWA RIVER FAN RECONNECTION CONCEPT PLANS			
DESIGNED BY: B.T.		DRAWN BY: M.M.	
CHECKED BY: J.H.		DATE: 05/12/20	
JOB NO.: 19-040			
BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS			
0 1"			
C7		7 OF 10	

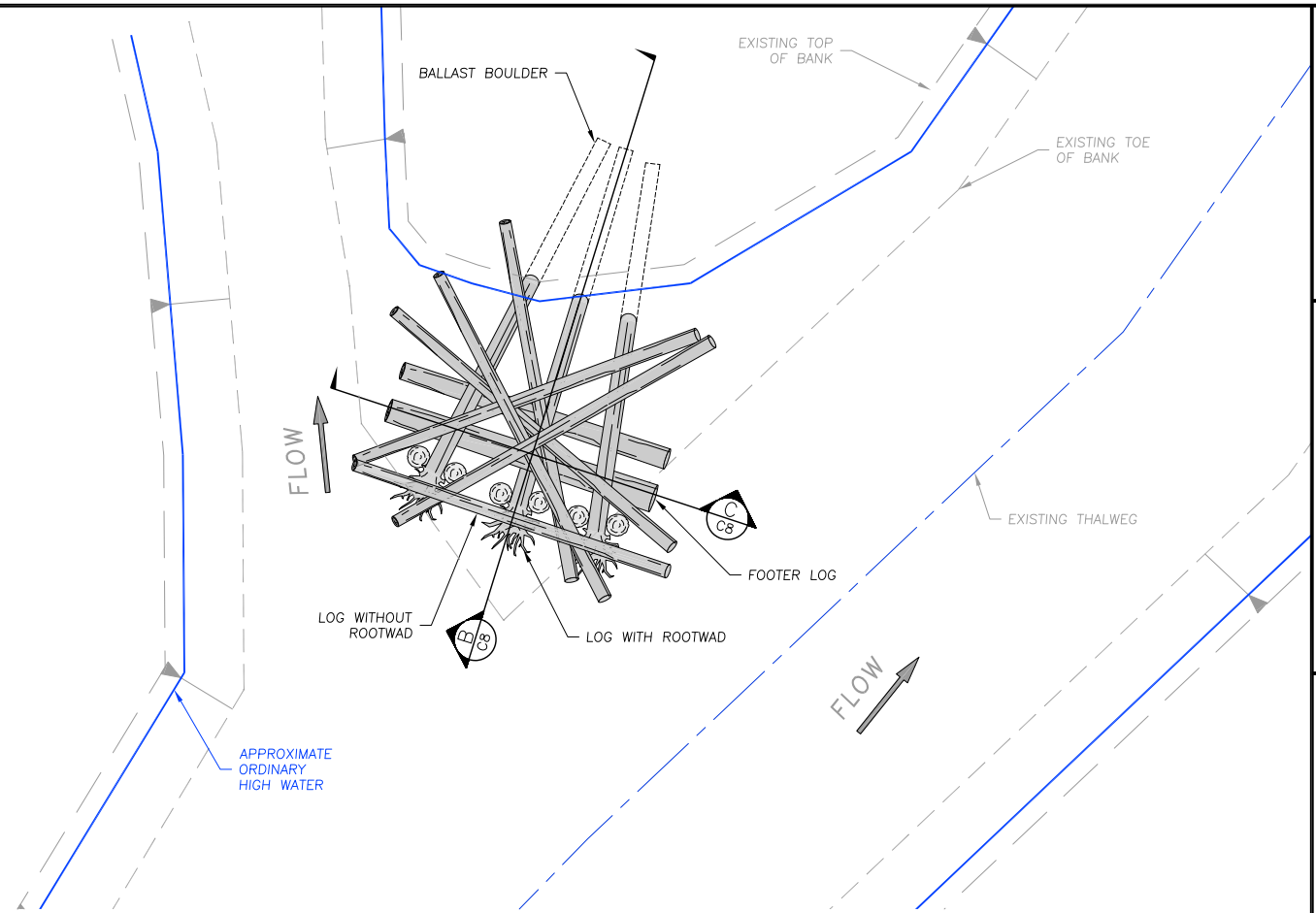


TYPICAL BANK ATTACHED LOG JAM 1
SCALE: 1" = 10' C4 C6

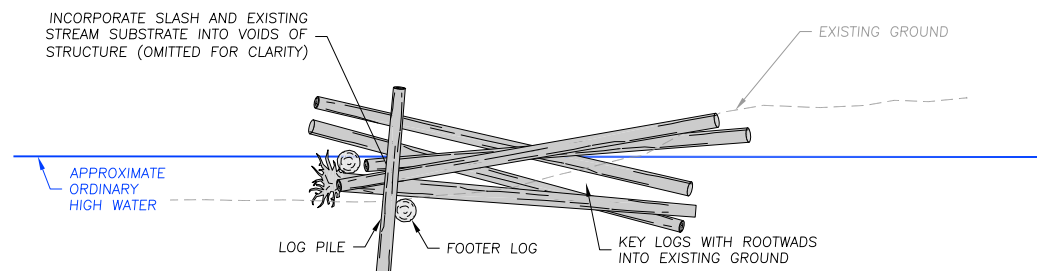


TYPICAL SECTION A
SCALE: 1" = 10' C8

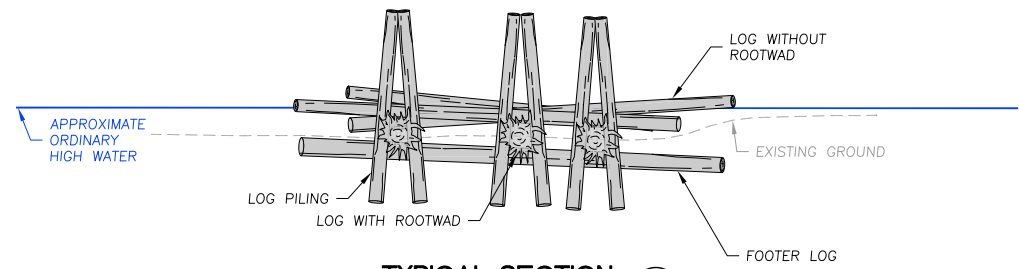
LOG STRUCTURE NOTES:
1. LOG DIMENSIONS, ORIENTATIONS, AND QUANTITIES ARE SHOWN FOR CONCEPT DESIGN AND WILL BE REFINED IN THE NEXT PHASE OF DESIGN.
2. LOG TO LOG AND LOG TO BOULDER CONNECTIONS OMITTED FOR CLARITY.
3. BALLASTING MATERIALS AND APPROACH NOT YET DETERMINED.



TYPICAL APEX LOG JAM 2
SCALE: 1" = 10' C3 C6



TYPICAL PROFILE B
SCALE: 1" = 10' C8



TYPICAL SECTION C
SCALE: 1" = 10' C8

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKIMA NATION FISHERIES

TYPICAL LARGE
WOOD DETAILS

CHIWAWA RIVER FAN
RECONNECTION
CONCEPT PLANS

DESIGNED BY: B.T.
DRAWN BY: M.M.
CHECKED BY: J.H.
DATE: 05/12/20
JOB NO.: 19-040

BAR IS ONE INCH ON
ORIGINAL DRAWING,
ADJUST SCALES FOR
REDUCED PLOTS
0 1"

f:\Projects\19-040_chiowa_outlet_design\CAD\19-040_Details.dwg - 5/12/2020 4:42 PM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKIMA NATION FISHERIES

**MID CHANNEL
ELJ DETAIL**

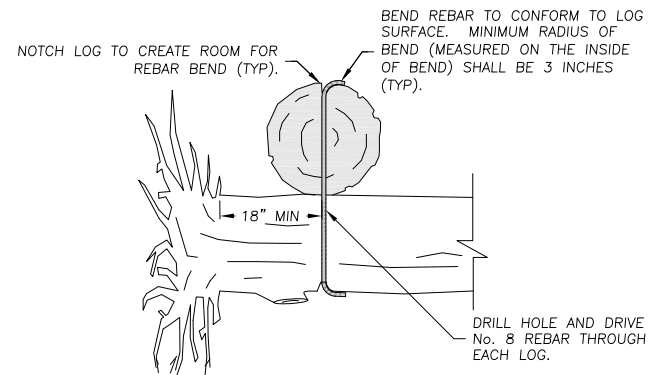
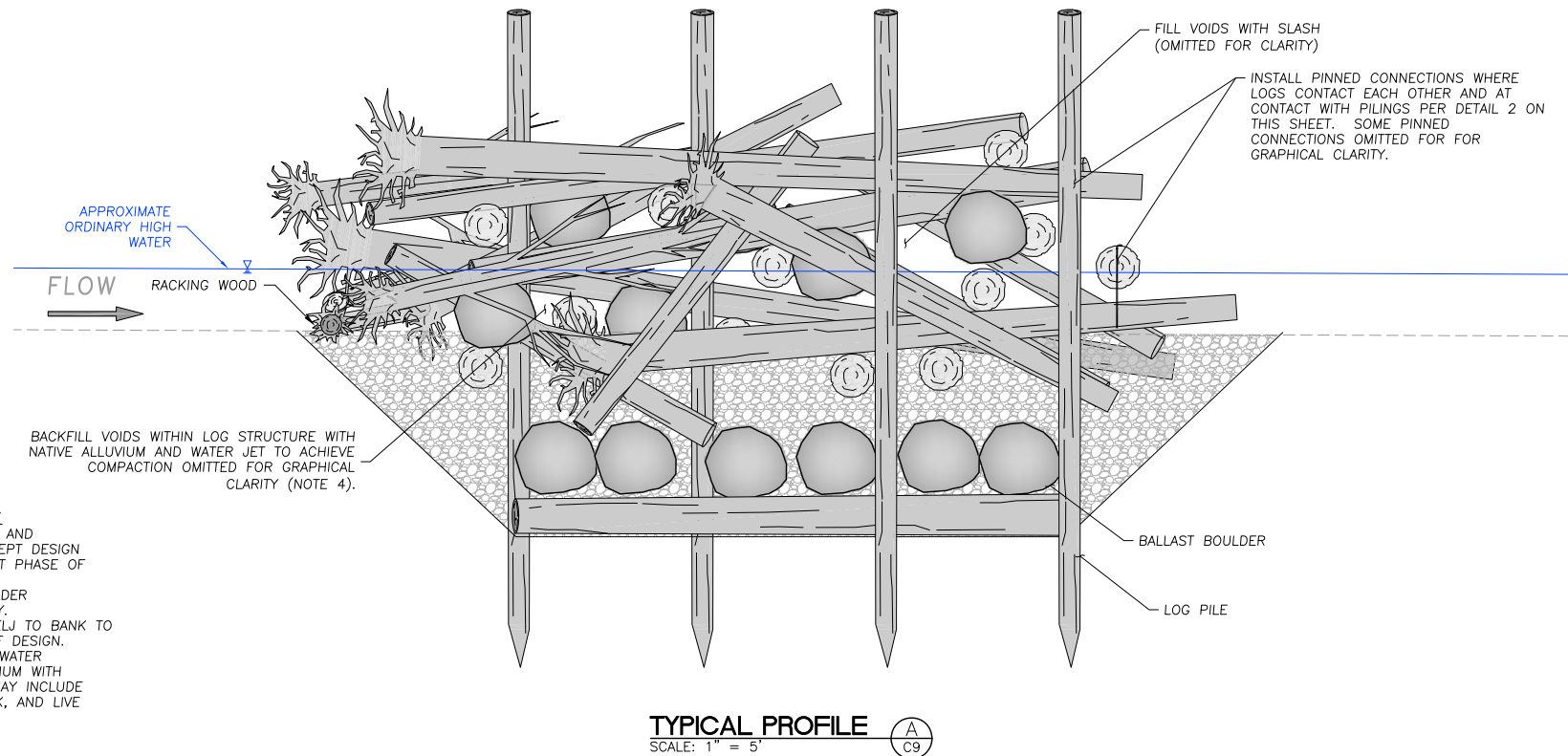
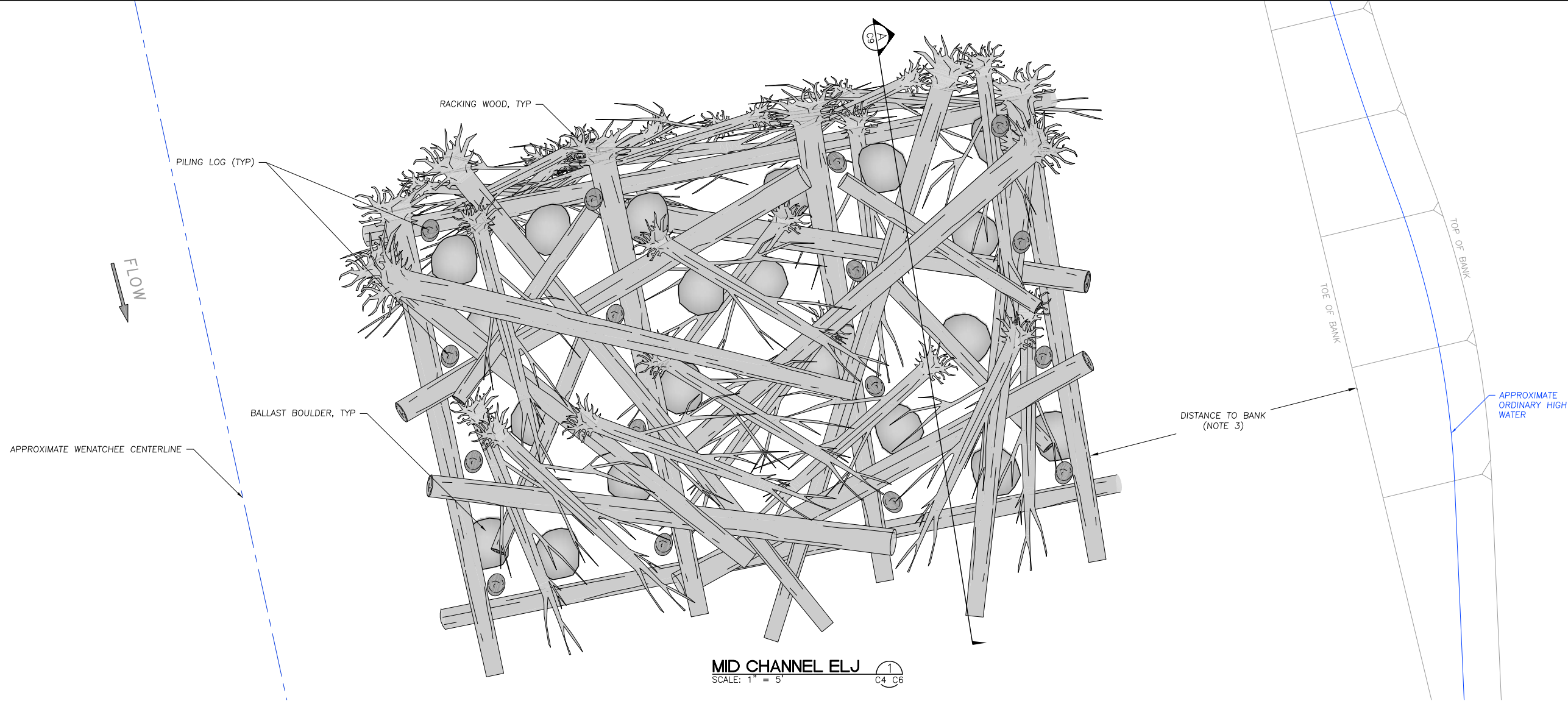
**CHIWAWA RIVER FAN
RECONNECTION
CONCEPT PLANS**

DESIGNED BY: B.T.
DRAWN BY: M.M.
CHECKED BY: J.H.
DATE: 05/12/20
JOB NO.: 19-040

BAR IS ONE INCH ON
ORIGINAL DRAWING,
ADJUST SCALES FOR
REDUCED PLOTS

C9

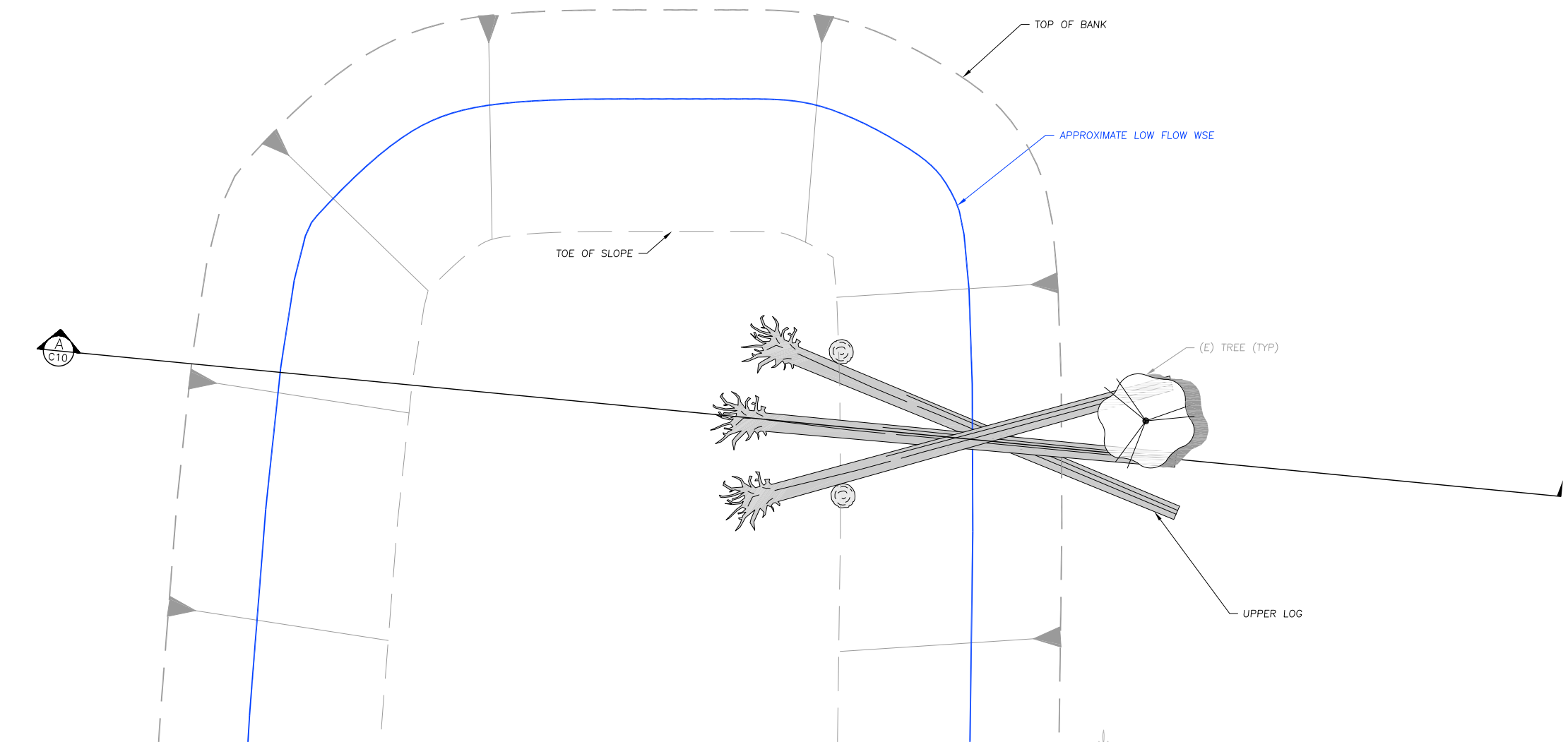
9
OF
10



LOG PINNING NOTES:
1. LOG PIN MAY CONSIST OF REBAR OR THREADED ROD WITH FASTENERS. LOG PINNING METHOD TO BE FINALIZED IN FUTURE PHASE OF DESIGN.

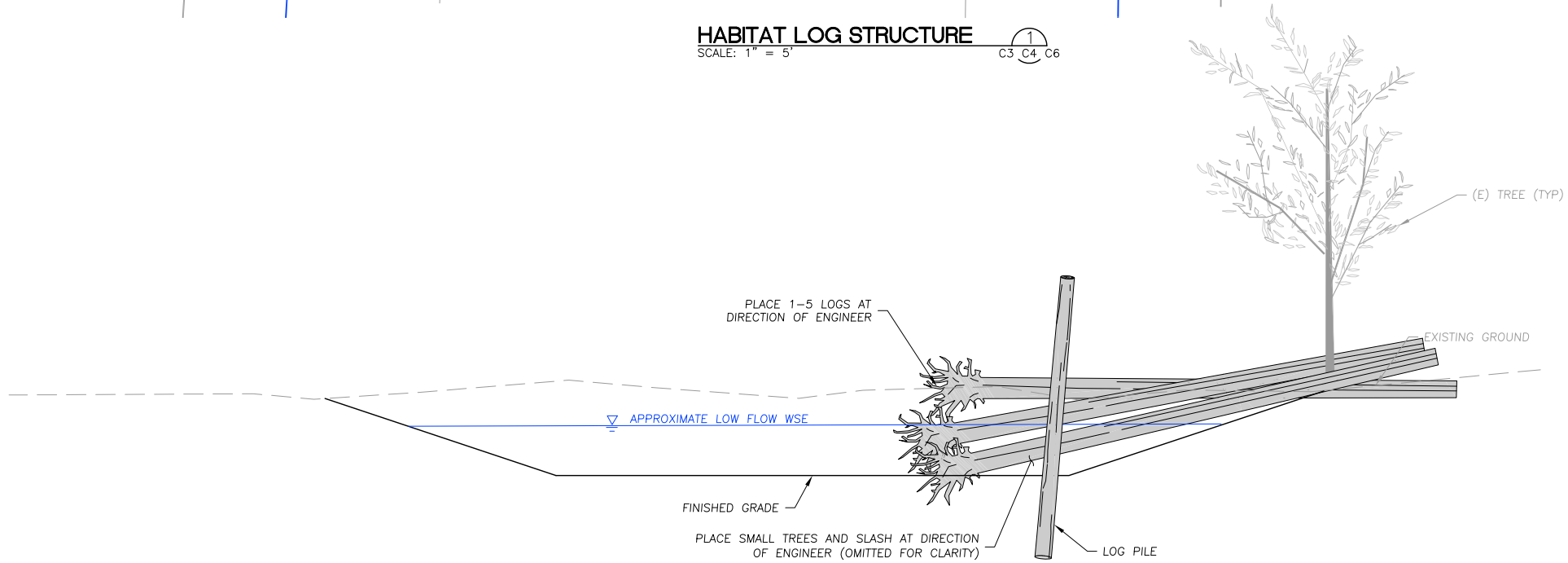
PINNED LOG CONNECTION 2
SCALE: 1" = 2' C9

f:\Projects\19-040_chiawa_outlet_design\CAD\19-040_Details.dwg - 5/12/2020 4:35 PM



HABITAT LOG STRUCTURE
SCALE: 1" = 5'

1
C3 C4 C6



TYPICAL PROFILE
SCALE: 1" = 5'

A
C10

LOG STRUCTURE NOTES:
1. LOG DIMENSIONS, ORIENTATIONS, AND QUANTITIES ARE SHOWN FOR CONCEPT DESIGN AND WILL BE REFINED IN THE NEXT PHASE OF DESIGN.
2. SMALL TREES AND SLASH OMITTED FOR CLARITY.
3. BALLAST AMOUNT TO BE DETERMINED IN FUTURE DESIGN PHASE. BALLASTING MATERIALS AND APPROACH NOT YET DETERMINED.