

# MILK CREEK BANK STABILIZATION PROJECT 100% DESIGN SUBMITTAL



VICINITY MAP  
N.T.S. (GOOGLE)



REGIONAL MAP  
N.T.S. (GOOGLE)

- SHEET INDEX**
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  - C2 EXISTING CONDITIONS
  - C3 SITE PLAN
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  - C5 LOG STRUCTURE DETAILS, DIVERSION AND EROSION CONTROL
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**GENERAL NOTES**

1. TOPOGRAPHIC MAPPING WAS PERFORMED BY:  
GROUND SURVEY (EXISTING CONTOURS):  
WATERWAYS CONSULTING, INC.  
1020 SW TAYLOR ST. SUITE 380  
PORTLAND, OR 97205  
SURVEY DATE: JULY 22-24, 2015.
2. ELEVATION DATUM: (EXISTING CONTOURS BY OTHERS):  
LIBAR DATA (EXISTING CONTOURS BY OTHERS):  
PROVIDED BY:  
CLACKAMAS SOIL AND WATER CONSERVATION DISTRICT  
SURVEY DATE: 2007
3. BASIS OF BEARINGS: BASIS OF BEARINGS BETWEEN POINTS #1001 AND #1002 IS S33°58.23'W, AS SHOWN ON SHT. C2.
4. BASIS OF BEARINGS: GPS TIES TO NAD83 OREGON STATE PLANE, NORTH USING THE OREGON REAL-TIME GLOBAL POSITIONING SYSTEM NETWORK (ORGN)
5. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
6. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE.
7. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2015 EDITION OF THE OREGON STANDARD SPECIFICATIONS. (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").

**ABBREVIATIONS**

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DLA	DIAMETER
E	EXISTING
EG	EXISTING GROUND
ELEV.	ELEVATION
D	DRAINAGE INLET
FG	FINISHED GRADE
FT	FEET
INV	INVERT
N	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
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

TREE SPECIES	MAPLE
W	OREGON ASH
OA	ALDER
A	UNKNOWN SPECIES
TREE	UNKNOWN SPECIES

**PROJECT DESCRIPTION**

THESE DRAWINGS PROVIDE 100% DESIGN LEVEL DETAILS FOR THE STABILIZATION OF A PORTION OF BANK ON MILK CREEK.  
WORK SHALL CONSIST OF LAYING BACK THE BANK, INSTALLING TOE PROTECTION BOULDERS, LOGS WITH ROOTWAYS, AND TWO LARGE WOOD STRUCTURES TO IMPROVE BANK STABILITY AND PROVIDE HABITAT FEATURES.

**SECTION AND DETAIL CONVENTION**

SECTION OR DETAIL IDENTIFICATION (NUMBER OR LETTER)  

 REFERENCE SHEET FROM WHICH SECTION OR DETAIL IS TAKEN.  
 REFERENCE SHEET ON WHICH SECTION OR DETAIL IS SHOWN.

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

REGISTERED PROFESSIONAL ENGINEER  
 78668PE  
 OREGON  
 JANUARY 9, 2007  
 MATT WILLIAM WELD  
 EXPIRES: 6/30/2016  
 DATE: 3/28/16

PREPARED AT THE REQUEST OF:  
**CLACKAMAS SOIL AND WATER CONSERVATION DISTRICT**

COVER SHEET

**MILK CREEK BANK STABILIZATION PROJECT  
 100% DESIGN SUBMITTAL**

DESIGNED BY: A.M.L.  
 DRAWN BY: M.M.W.  
 CHECKED BY: M.M.W.  
 DATE: 3/28/2016  
 JOB NO.: 14-082

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

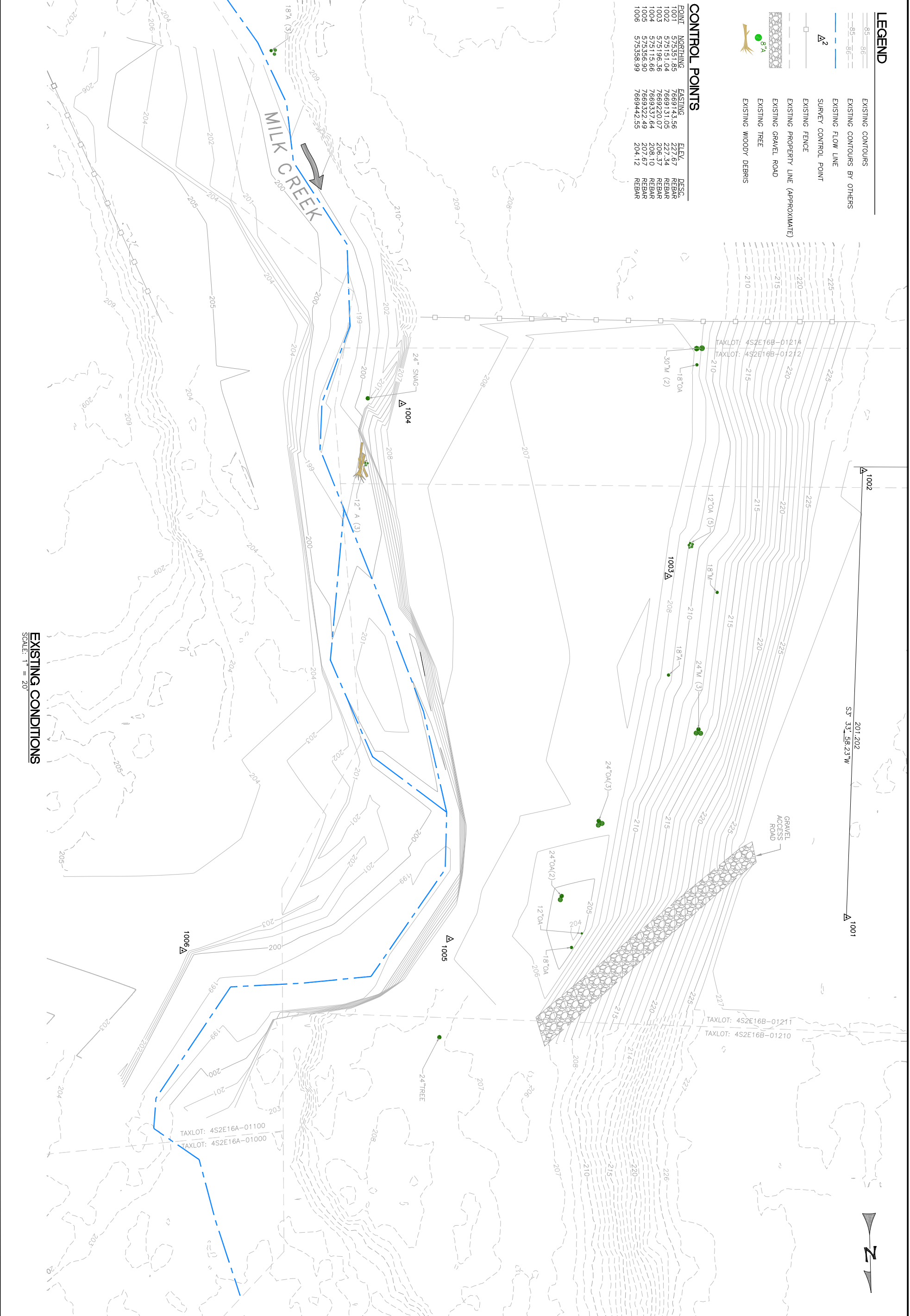
C1 OF 6

**LEGEND**

- 85 - 96 EXISTING CONTOURS
- 85 - 86 EXISTING CONTOURS BY OTHERS
- EXISTING FLOW LINE
- ▲2 SURVEY CONTROL POINT
- EXISTING FENCE
- EXISTING PROPERTY LINE (APPROXIMATE)
- EXISTING GRAVEL ROAD
- EXISTING TREE
- EXISTING WOODY DEBRIS

**CONTROL POINTS**

POINT	NORTHING	EASTING	ELEV.	DESC.
1001	575351.85	7669143.56	227.67	REBAR
1002	575151.04	7669131.05	227.34	REBAR
1003	575196.36	7669220.07	206.37	REBAR
1004	575115.66	7669337.64	208.10	REBAR
1005	575356.90	7669322.49	207.67	REBAR
1006	575358.99	7669442.55	204.12	REBAR



**EXISTING CONDITIONS**  
SCALE: 1" = 20'

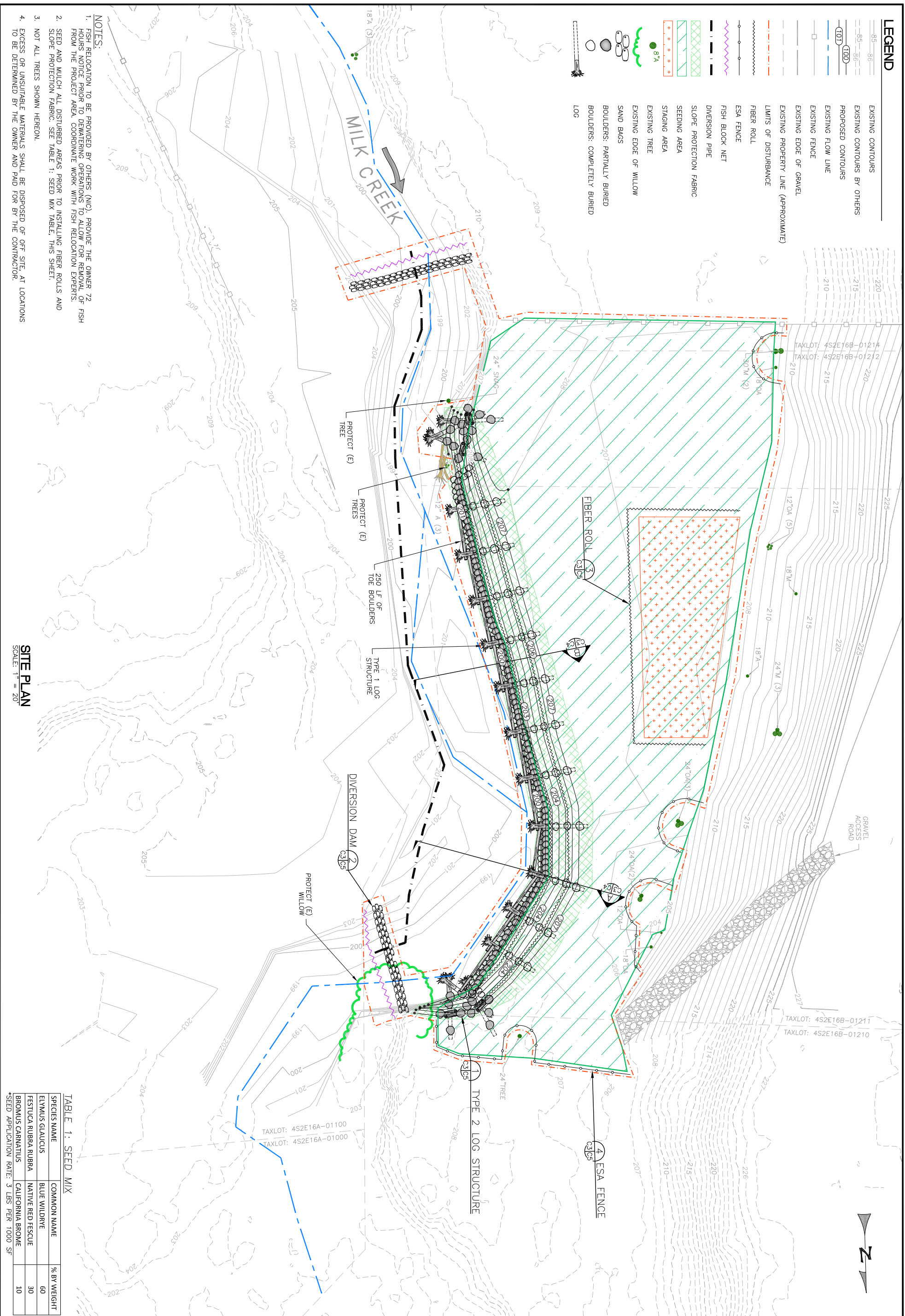


<p>C2 OF 6</p>	<p><b>MILK CREEK BANK STABILIZATION PROJECT</b> 100% DESIGN SUBMITTAL</p>	<p><b>EXISTING CONDITIONS</b></p>	<p>PREPARED AT THE REQUEST OF: <b>CLACKAMAS SOIL AND WATER CONSERVATION DISTRICT</b></p>	<p><i>Matt W. Weld</i> MATT W. WELD REGISTERED PROFESSIONAL ENGINEER 78668PE OREGON JANUARY 9, 2004 MATT WILLIAM WELD EXPIRES: 6/30/2016</p>	<p>3/28/16 DATE</p>	<p><b>WATERWAYS CONSULTING INC.</b> 1020 SW TAYLOR STREET, STE. 380 PORTLAND, OR 97205 PH: (503) 227-5979 // FAX: (888) 819-6847 WWW.WATWAYS.COM</p>
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**LEGEND**

- 85-96 EXISTING CONTOURS
- 95-96 EXISTING CONTOURS BY OTHERS
- 100-100 PROPOSED CONTOURS
- EXISTING FLOW LINE
- EXISTING FENCE
- EXISTING EDGE OF GRAVEL
- EXISTING PROPERTY LINE (APPROXIMATE)
- LIMITS OF DISTURBANCE
- FIBER ROLL
- ESA FENCE
- FISH BLOCK NET
- DIVERSION PIPE
- SLOPE PROTECTION FABRIC
- SEEDING AREA
- STAGING AREA
- EXISTING TREE
- EXISTING EDGE OF WILLOW
- SAND BAGS
- BOULDERS: PARTIALLY BURIED
- BOULDERS: COMPLETELY BURIED
- LOG



**NOTES:**

1. FISH RELOCATION TO BE PROVIDED BY OTHERS (N/C). PROVIDE THE OWNER 72 HOURS NOTICE PRIOR TO DEMATERING OPERATIONS TO ALLOW FOR REMOVAL OF FISH FROM THE PROJECT AREA. COORDINATE WORK WITH FISH RELOCATION EXPERTS.
2. SEED AND MULCH ALL DISTURBED AREAS PRIOR TO INSTALLING FIBER ROLLS AND SLOPE PROTECTION FABRIC. SEE TABLE 1: SEED MIX TABLE THIS SHEET.
3. NOT ALL TREES SHOWN HEREON.
4. EXCESS OR UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF SITE, AT LOCATIONS TO BE DETERMINED BY THE OWNER AND PAID FOR BY THE CONTRACTOR.

**SITE PLAN**  
SCALE: 1" = 20'

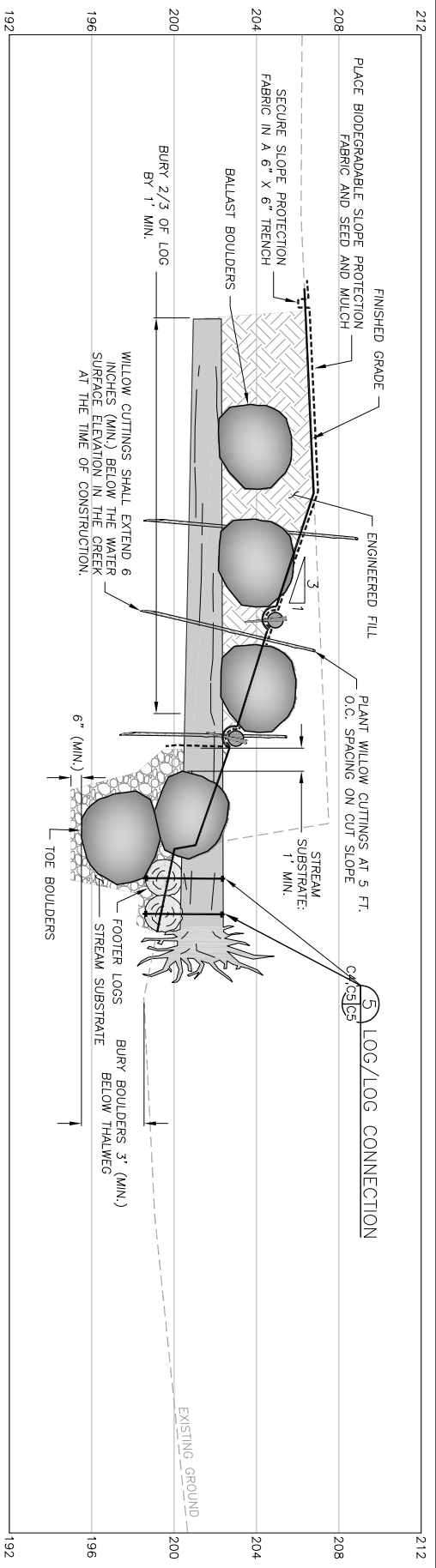


**TABLE 1: SEED MIX**

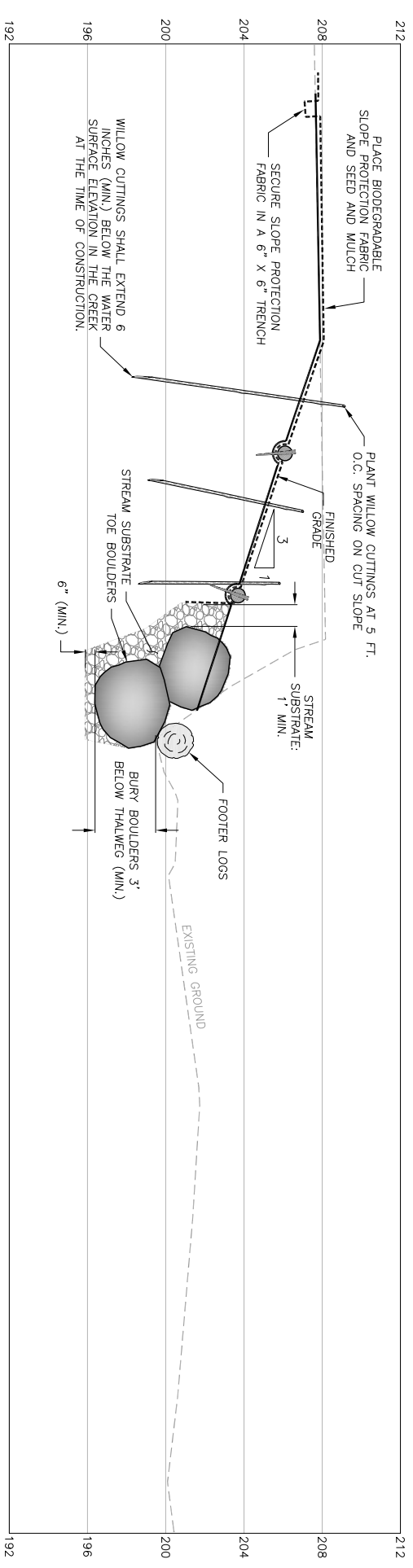
SPECIES NAME	COMMON NAME	% BY WEIGHT
Elymus glaucus	BLUE WILDRIVE	60
Festuca rubra rubra	NATIVE RED FESCUE	30
Bromus carinatus	CALIFORNIA BROOME	10

\*SEED APPLICATION RATE: 3 LBS PER 1000 SF

<p>DESIGNED BY: A.M.L. DRAWN BY: A.M.L. CHECKED BY: M.M.W. DATE: 3/28/2016 JOB NO.: 14-082</p>	<p><b>MILK CREEK BANK STABILIZATION PROJECT</b> 100% DESIGN SUBMITTAL</p>	<p><b>SITE PLAN</b></p>	<p>PREPARED AT THE REQUEST OF: <b>CLACKAMAS SOIL AND WATER CONSERVATION DISTRICT</b></p>	<p>MATT W. WELD REGISTERED PROFESSIONAL ENGINEER 78668PE OREGON JANUARY 9, 2006 MATT WILLIAM WELD EXPIRES: 6/30/2016</p>	<p>3/28/16 DATE</p>	<p><b>WATERWAYS CONSULTING INC.</b> 1020 SW TAYLOR STREET, STE. 380 PORTLAND, OR 97205 PH: (503) 227-5979 // FAX: (888) 819-6847 WWW.WATWAYS.COM</p>
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**TYPE 1 LOG STRUCTURE SECTION**  
SCALE: 1" = 4'



**BANK LAYBACK SECTION WITHOUT LOGS**  
SCALE: 1" = 4'

**LOG STRUCTURE NOTES**

1. PLACEMENT LOCATIONS: LOG STRUCTURE DESIGNS ARE SHOWN CONCEPTUALLY DUE TO THE INHERENT VARIABILITY OF THE MATERIAL PROPERTIES. THE DESIGN REQUIRES THAT THE ENGINEER WILL OBSERVE CONSTRUCTION OF THE LOG STRUCTURES TO ENSURE THE INTENT OF THE DESIGN IS MET. OBSERVATIONS MUST INCLUDE LOG AND BOULDER SELECTION, PLACEMENT AND BACKFILLING. ANY LOG STRUCTURES CONSTRUCTED WITHOUT THE ENGINEER PRESENT ON-SITE MAY RESULT IN REJECTION OF THE WORK BY THE ENGINEER.
2. LOGS: LOGS SHALL BE DOUGLAS FIR, CEDAR, HENLOCK, OR SPRUCE SOUND AND FREE OF SIGNIFICANT DECAY. MATERIALS FOR USE IN THE STRUCTURES SHALL MEET THE FOLLOWING SIZE CRITERIA:

**LOG STRUCTURE TYPE 1**

ITEM	DIAMETER	LENGTH	TOTAL COUNT
LOG WITH ROOTWAD	18"-24" (MIN. 12" AT ANY POINT)	25'-30'	11
LOG WITHOUT ROOTWAD	12"-18" (MIN. 12" AT ANY POINT)	25'-30'	10

**LOG STRUCTURE TYPE 2 (TWO TYPE 2 STRUCTURES)**

ITEM	DIAMETER	LENGTH	TOTAL COUNT
LOG WITH ROOTWAD	18"-24" (MIN. 12" AT ANY POINT)	25'-30'	6
PILE LOG	12"-18" (MIN. 12" AT ANY POINT)	15'-20'	8
ITEM	COUNT		
BALLAST BOULDERS	24		

DESIGNED BY: A.M.L.  
DRAWN BY: M.M.W.  
CHECKED BY: M.M.W.  
DATE: 3/28/2016  
JOB NO.: 14-082

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

0 1" = 1"

**MILK CREEK BANK STABILIZATION PROJECT**  
**100% DESIGN SUBMITTAL**

**SECTIONS**

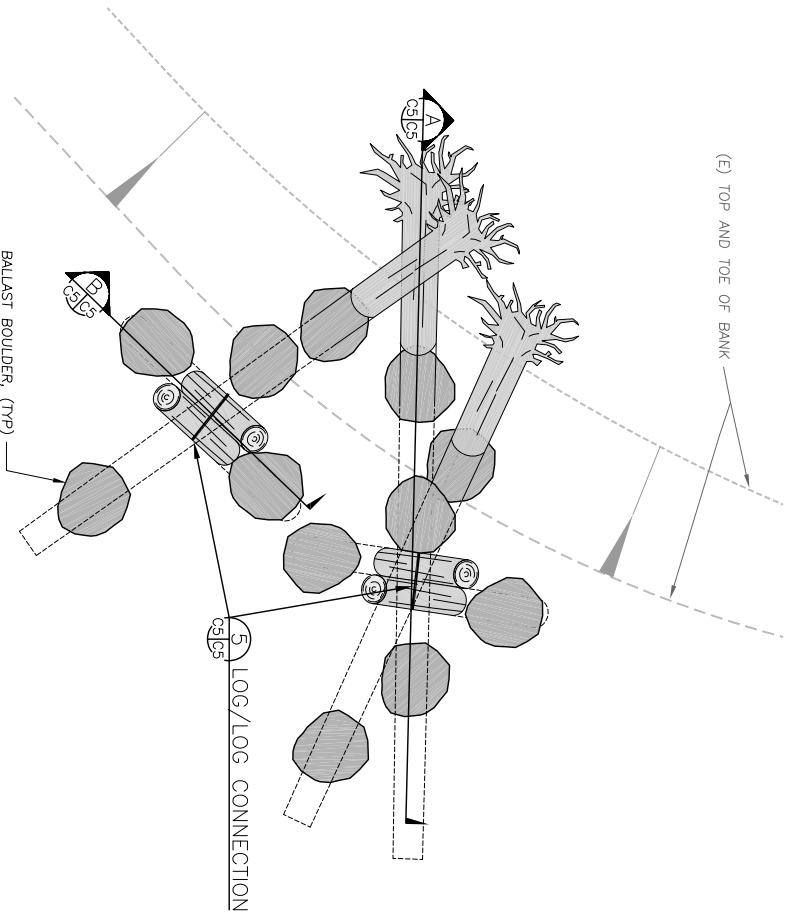
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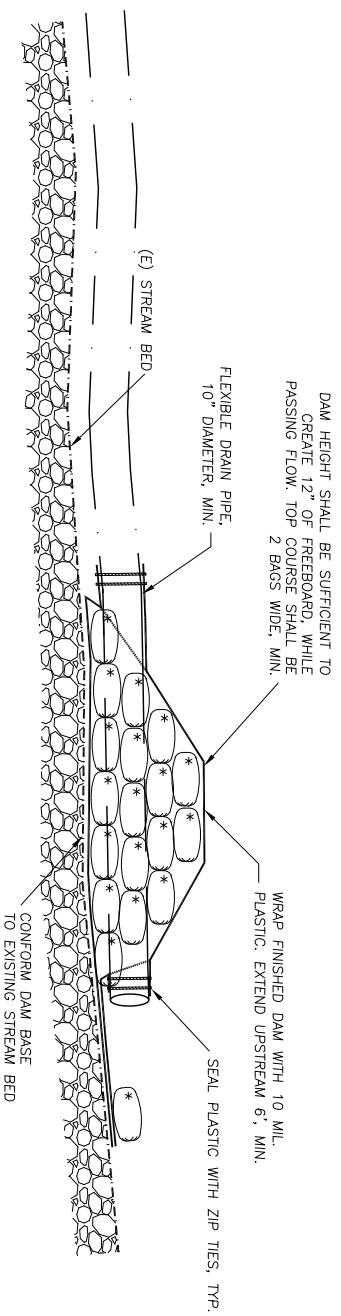
3/28/16 DATE

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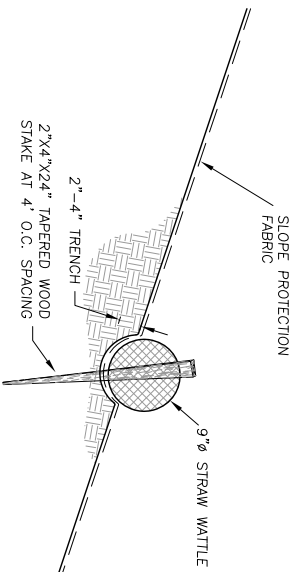


**TYPICAL TYPE 2 LOG STRUCTURE PLAN**  
SCALE: 1"=5'

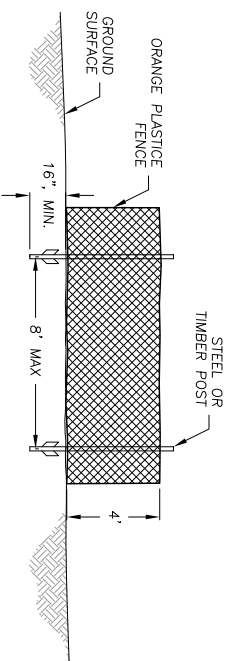


NOTE: CONTRACTOR MAY USE ALTERNATE DAM DETAIL, SUBJECT TO APPROVAL OF THE ENGINEER AND THE PERMITTING AGENCIES.

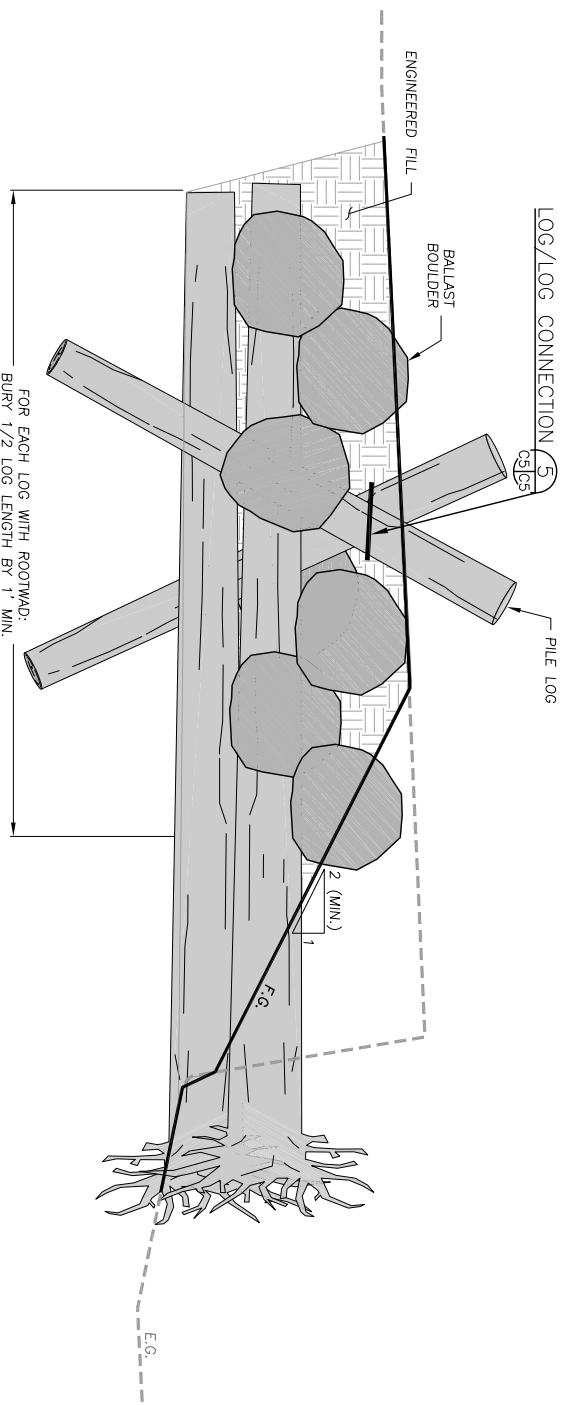
**DIVERSION DAM SECTION**  
SCALE: 1"=5'



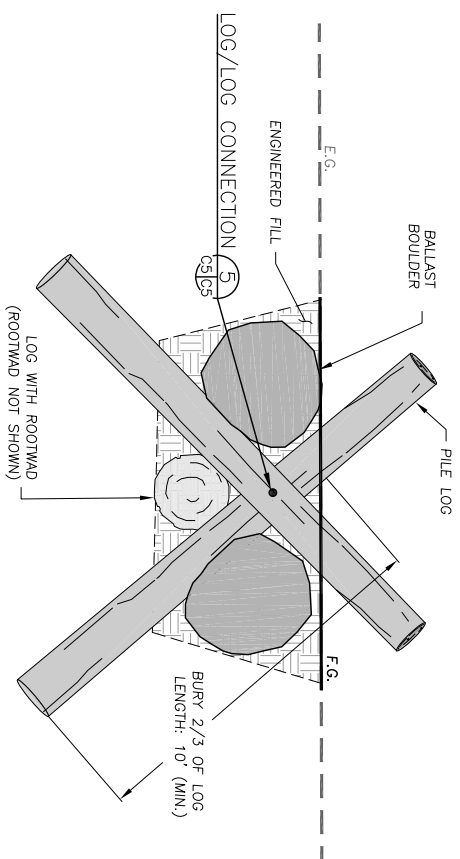
**FIBER ROLL**  
SCALE: 1"=1'



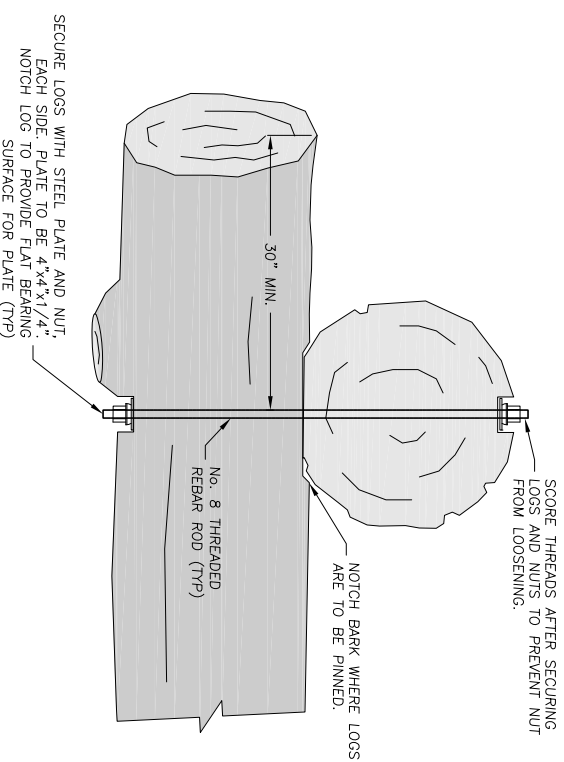
**ESA FENCE DETAIL**  
SCALE: 1"=4'



**TYPE 2 LOG STRUCTURE SECTION**  
SCALE: 1"=3'



**TYPE 2 LOG STRUCTURE SECTION**  
SCALE: 1"=3'



**LOG/LOG CONNECTION**  
SCALE: 1"=1'

