DOCUMENT 00912

ADDENDUM NUMBER 2

Issued: March 21, 2016

Dry Creek Habitat Enhancement Phase II, Part 1

FROM: Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, CA 95403-9019

TO: Prospective Bidders

This Addendum forms a part of and modifies the Project Manual dated February 2016. Bidder shall acknowledge receipt of this Addendum in the space provided in Document 00400 (Bid Form).

Modified text is indicated as follows: Double-underline designates text to be inserted; ~~strikethrough~~ designates text to be deleted.

Addendum Number 2 consists of 11 pages (size 8 ½" x 11") and 46 revised Drawings.

I. General Changes

A. No changes.

II. Changes to Prior Addenda

A. No changes.

III. Changes to Introductory Information and Bidding Requirements

A. Document 00400 (Bid Form), Paragraph 4, Schedule of Bid Prices:

1. Modify Bid Item 28 as follows:

28.	Side Channel Riffles – Area C and Area D	9,710	Square Feet	$	$

2. Add the following as Bid Item 34 and renumber remaining Bid Items accordingly:

34.	12" Diameter CMP for Enhancement Area D	XXXXXX	Lump Sum	$	$

Bidder shall use the revised Document 00400 (Bid Form) attached, marked "REVISED 3/18/2016" in its Bid.

IV. Changes to Contracting Requirements

A. Document 00520 (Agreement), modify Article 4.1 :

1. Modify Bid Item 28 as follows:

28.	Side Channel Riffles - Area C and Area D	9,710	Square Feet	$	$

2. Add the following as Bid Item 34 and renumber remaining Bid Items accordingly:

34.	12" Diameter CMP for Enhancement Area D	XXXXXX	Lump Sum	$	$

V. Changes to Conditions of the Contract

A. No changes.

VI. Changes to Specifications

A. Section 01100 (Summary):

1. Insert the following after Paragraph 1.1.A.1.e. and renumber remaining paragraph(s) accordingly:

   f. Work Sequence

2. Modify Paragraph 1.3.D.28 as follows:

   28. Side Channel Riffles - Area C and Area D. The unit price paid under this item shall be full payment for construction of Side Channel Riffles in Area C and Area D, including local excavation, subgrade preparation, and procurement and placement of riffle material including in-situ mixing as indicated. For the purposes of payment, this item will be measured by the square foot on the horizontal plane of finished riffle installed.

3. Insert the following after Paragraph 1.3.D.33 and renumber remaining paragraph(s) accordingly:

   34. 12" Diameter CMP for Enhancement Area D. The lump sum price paid under this item shall be full payment for providing the 12-inch corrugated metal pipe shown in Enhancement Area D, including procurement, local excavation, placement of pipe, backfill and surface restoration.

4. Modify Paragraph 1.15.A as follows:
   A. Permits, agreements, or written authorizations that are known by Owner to apply to this Project, and that have been or will be obtained by Owner, are listed below.~~:~~ Final permits for the current project are not available at this time. Final permits for prior work in Dry Creek are being provided with the other project documents as samples to convey potential permit requirements. THESE SAMPLE PERMITS ARE NOT THE OPERATIVE PERMITS. Requirements in the final operative permits may impose different and/or additional requirements from the sample permits. Sample permits are available on Owner's website and at Owner's Office.

B. Section 01500 (Temporary Facilities and Controls)
   1. Insert the following after 1.13.C:
      D. Remove temporary irrigation, equipment, facilities, and materials following the warranty period.

C. Section 02240 (Control of Water):
   1. Modify Paragraph 3.1.O as follows:
      O. Outlets of all dewatering pumps shall be constructed and managed in a manner that prevents discharge of turbid water to the active flowing stream, existing drainage ways, or culverts. Dispose of dewatered discharge within limits of staging and construction area easements in accordance with applicable permits. Disposal method shall not damage property.

D. Section 02950 (Streambed Construction):
   1. Modify Paragraph 2.1.A as follows:
      A. Riffle Substrate shall be ~~rounded~~, hard, durable, resistant to weathering and to water action, and be free from overburden, spoil, shale, limestone, structural defects and organic material.
         1. For Riffle Substrate A, the 50, 84, and 100% passing size fractions may be sub-angular, and the 5 and 16% passing size fractions shall be rounded.
         2. For Riffle Substrate B, the 84 and 100% passing size fractions may be sub-angular, and the 5, 16, and 50% passing size fractions shall be rounded.
      B. Rounded material may be salvaged from excavated material.

VII. Changes to Drawings

A. Delete Drawing Nos. 1-46 and replace with Drawing Nos. 1-46 attached and marked "3/14/16 REVISION 1"

VIII. Question(s)/Answer(s)

Owner's responses to Bidder questions shall be for the purposes of interpretation and clarification of the Contract Documents only, and shall not be construed as changing, superseding, or contradicting any express term in the Contract Documents. If any Bidder believes that a response to a question warrants a change in any term in the Contract Documents, the Bidder shall so request the change be made in writing addressed to Owner and received no later than the latest date for submitting Bidder questions. In the absence of a change in any term of the Contract Documents, the express terms of the Contract Documents shall have precedence. Bidder questions are listed below verbatim.

A. Would SCWA allow for desilting basin(s)/holding pond(s) within the staging areas or roads next to staging areas?

Owner's response: Answered in this Addendum above.

B. Is it acceptable to use angular vs. rounded Riffle Substrate material?
   1. It is specified in section 02950 that both Riffle Substrate A & B 12″ – 24″ rock is to be "Rounded".
   2. Would rock riffle material similar to material on the First Dry Creek Demonstration Habitat Enhancement Project be acceptable? ***See Attached Picture (DC Riffle.JPG) for reference***

Owner's response: Answered in this Addendum above.

C. Is the scale on page C2 for the Agricultural Access Plan 1″ = 20′?
   1. This pages graphic scale is labeled incorrectly as 1″ = 10′

Owner's response: Answered in this Addendum above.

D. The specifications require the schedule be resource loaded but the variety and types of resources used on a construction project are almost endless.
   1. Can the requirement to track resources be waived for this project?
   2. If not, please identify the resources to be tracked.

Owner's response: Bid per Bidding Documents.

END OF DOCUMENT

REVISED 3/21/2016

DOCUMENT 00400

BID FORM

To be submitted as part of Envelope "A" by the time and date specified in Document 00200 (Instructions to Bidders), paragraph 1.

TO THE HONORABLE BOARD OF DIRECTORS OF THE SONOMA COUNTY WATER AGENCY

THIS BID IS SUBMITTED BY:

_____

(Firm/Company Name)

RE: CONTRACT NUMBER 45-6.1-7 #4,
DRY CREEK HABITAT ENHANCEMENT PHASE II (PART 1)

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Sonoma County Water Agency, a public agency of the State of California ("Owner") in the form included in the Contract Documents, Document 00520 (Agreement), to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Sum and within the Contract Time indicated in this Bid and in accordance with all other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Contract Documents, Document 00100 (Advertisement for Bids), and Document 00200 (Instructions to Bidders), including, without limitation, those dealing with the disposition of Bid Security. This Bid will remain subject to acceptance for 90 Days after the day of Bid opening.

3. In submitting this Bid, Bidder represents:

   (a) Bidder has examined all of the Contract Documents and all of the Addenda (receipt of all of which is hereby acknowledged). The Addenda are listed below.

Addendum Number	**Addendum Date**	**Signature of Bidder**

(b) Bidder has visited the Site and performed all tasks, research, investigation, reviews, examinations, and analysis and given notices, regarding the Project and the Site, as set forth in Document 00520 (Agreement), Article 5.

(c) Bidder has given Owner prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and as-built drawings and actual conditions and the written resolution thereof through Addenda issued by Owner is acceptable to Contractor.

4. Based on the foregoing, Bidder proposes and agrees to fully perform the Work within the time stated and in strict accordance with the Contract Documents for the following sums of money listed in the following Schedule of Bid Prices:

SCHEDULE OF BID PRICES

All Bid items, including lump sums and unit prices, must be filled in completely. Bid items are described in Section 01100 (Summary of Work). Quote in figures only, unless words are specifically requested.

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
1.	Bonds	XXXXXX	Lump Sum	XXXXX	$
2.	Insurance	XXXXXX	Lump Sum	XXXXX	$
3.	Safety Program and Implementation	XXXXXX	Lump Sum	XXXXX	$
4.	Construction Material Waste Management Plan and Implementation	XXXXXX	Lump Sum	XXXXX	$
5.	Storm Water Pollution Prevention Plan and Implementation	XXXXXX	Lump Sum	XXXXX	$
6.	Mobilization/ Demobilization	XXXXXX	Lump Sum	XXXXX	$
7.	Clearing and Grubbing	XXXXXX	Lump Sum	XXXXX	$
8.	Temporary Access Improvements	XXXXXX	Lump Sum	XXXXX	$
9.	Control of Water	XXXXXX	Lump Sum	XXXXX	$
10.	Earthwork – Enhancement Area A*	5,640	Cubic Yard	XXXXX	$
11.	Earthwork – Enhancement Area B*	3,290	Cubic Yard	XXXXX	$

REVISED 3/21/2016

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
12.	Earthwork – Enhancement Area C*	10,420	Cubic Yard	XXXXX	$
13.	Earthwork – Enhancement Area D*	23,200	Cubic Yard	XXXXX	$
14.	Logs	222	Each	$	$
15.	Logs with rootwads	248	Each	$	$
16.	Snags	316	Each	$	$
17.	Ballast Boulders	236	Each	$	$
18.	Log to Boulder Attachment A**	59	Each	$	$
19.	Log to Boulder Attachment B**	59	Each	$	$
20.	Log to Log Attachment A**	650	Each	$	$
21.	Log to Log Attachment B**	219	Each	$	$
22.	Live Stakes	940	Each	$	$
23.	Type 1 Bank Treatment	68,100	Square Feet	$	$
24.	Type 2 Bank Treatment - FES Lift	1,480	Square Feet	$	$
25.	Type 3 Bank Treatment - FES Lift	870	Square Feet	$	$
26.	Type 3 Bank Treatment – Rock Toe	220	Ton	$	$
27.	Mainstem Riffles	11,810	Square Feet	$	$
28.	Side Channel Riffles – Area C and Area D	9,710	Square Feet	$	$
29.	Tributary Scour Protection – Enhancement Area A	3,100	Square Feet	$	$
30.	Board Fence Modification	XXXXXX	Lump Sum	$	$
31.	2″ Caliper Alder Trees	30	Each	$	$
32.	12″ Diameter CMP for Enhancement Area A	XXXXXX	Lump Sum	$	$

ITEM	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	TOTAL
33.	12″ Diameter CMP for Enhancement Area B	XXXXXX	Lump Sum	$	$
34.	12″ Diameter CMP for Enhancement Area D	XXXXXX	Lump Sum	$	$
35.	Lands of Meyer Improvement Plan - Agricultural Access from Dry Creek Road	XXXXXX	Lump Sum	XXXXX	$
36.	All Other Work	XXXXXX	Lump Sum	XXXXX	$
				TOTAL BID PRICE	$
* Bid Items 10, 11, 12, and 13 (Earthwork A, B, C and D), are designated as Final Pay Items.					
** Unit Price adjustment in Paragraph 1.5.D of 01200 (Price and Payment Procedures) does not apply to these Bid Items.					

Total: _____
(Words)

5. Subcontractors for work included in all Bid items are listed on the attached Document 00430 (Subcontractors List).

6. The undersigned Bidder understands that Owner reserves the right to reject this Bid.

7. If written notice of the acceptance of this Bid, hereinafter referred to as Notice of Award, is mailed or delivered to the undersigned Bidder within the time described in paragraph 2 of this Document 00400 or at any other time thereafter unless the Notice of Award is withdrawn, the undersigned Bidder will execute and deliver the documents required by Document 00200 (Instructions to Bidders) within the times specified therein. These documents include, but are not limited to, Document 00520 (Agreement), Document 00611 (Construction Performance Bond), and Document 00612 (Construction Labor and Material Payment Bond).

8. Notice of Award or request for additional information may be addressed to the undersigned Bidder at the address set forth below.

9. The undersigned Bidder herewith encloses cash, a cashier's check, or certified check of or on a responsible bank in the United States, or a corporate surety bond furnished by a surety authorized to do a surety business in the State of California, in form specified in Document 00200 (Instructions to Bidders), in the amount of ten percent (10%) of the Total Bid Price and made payable to "Sonoma County Water Agency."

10. The undersigned Bidder agrees to commence Work under the Contract Documents on the date established in Document 00700 (General Conditions) and to complete all work within the time specified in Document 00520 (Agreement). The undersigned Bidder acknowledges that Owner

has reserved the right to delay or modify the commencement date. The undersigned Bidder further acknowledges Owner has reserved the right to perform independent work at the Site, the extent of such work may not be determined until after the opening of the Bids, and that the undersigned Bidder will be required to cooperate with such other work in accordance with the requirements of the Contract Documents.

11. The undersigned Bidder agrees that, in accordance with Document 00700 (General Conditions), liquidated damages for failure to complete all Work in the Contract within the time specified in Document 00520 (Agreement) shall be as set forth in Document 00520 (Agreement).

12. The names of all persons interested in the foregoing Bid as principals are:

(IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give the legal name of corporation, state where incorporated, and names of president and secretary thereof; if a partnership, give name of the firm and names of all individual co-partners composing the firm; if Bidder or other interested person is an individual, give first and last names in full).

NAME OF BIDDER: _____
licensed in accordance with an act for the registration of Contractors, and with license number: _____ Expiration: _____.

REGISTRATION PURSUANT TO LABOR CODE SECTION 1725.5:
Contractor's registration number: _____

_____ _____
Where incorporated, if applicable

_____

_____
Principals

I certify (or declare) under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

_____
Signature of Bidder

_____
Date of Execution

_____
Place of Execution

NOTE: If Bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If Bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: _____
_____
_____

Contractor's Representative(s), (name, title): _____
_____

Officers authorized to sign contracts: _____
_____
_____

_____
Signature of Officer

_____
Title

_____
Date of Execution

_____
Place of Execution

Telephone Number(s): _____

Fax Number(s): _____

Email address(es): _____

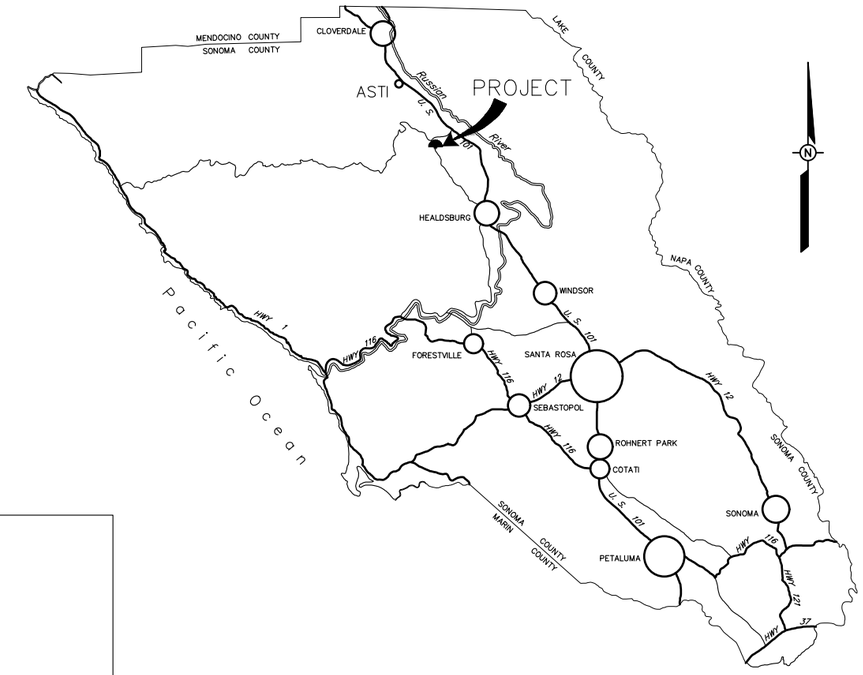
Date of Bid: _____

END OF DOCUMENT

SONOMA COUNTY WATER AGENCY

DRY CREEK HABITAT ENHANCEMENT

PHASE 2 – PART 1

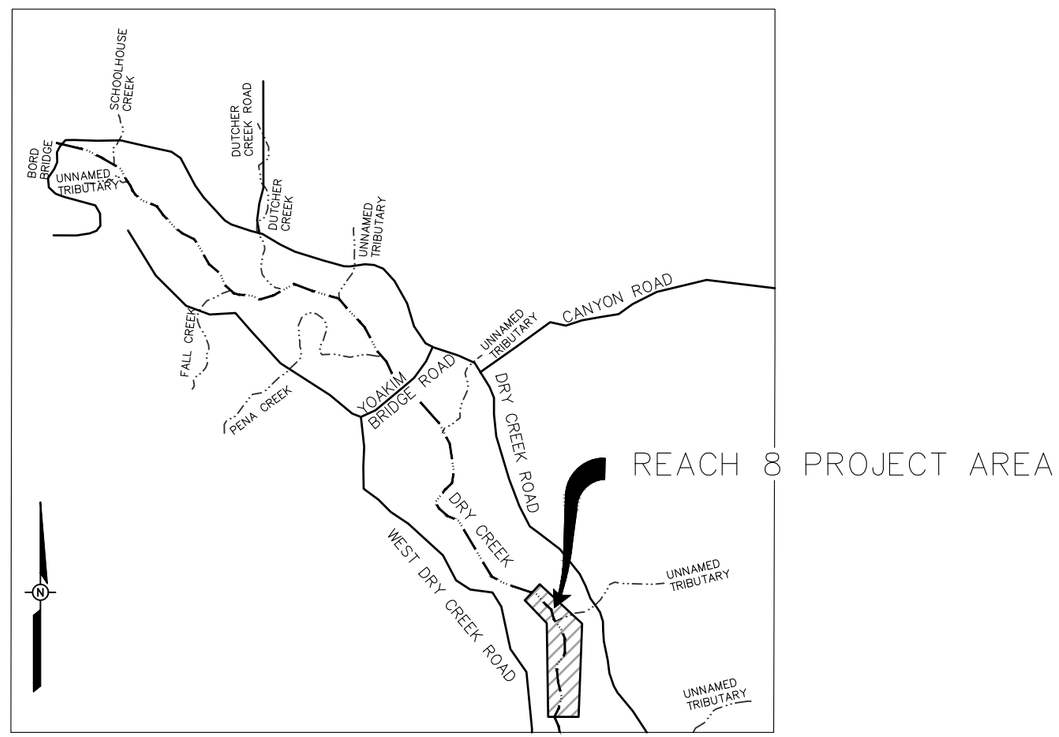


LOCATION MAP

NOT TO SCALE

SHEET NO.	TITLE

1 – LOCATION MAP AND INDEX TO DRAWINGS
2 – GENERAL NOTES AND LEGEND
3 – SITE MAP – PROJECT REACH
4 – EXISTING CONDITIONS – PHASE 2, PART 1
5 – SITE PLAN OVERVIEW AND PLAN SHEET KEY – PHASE 2, PART 1
6 – ACCESS AND STAGING OVERVIEW – PHASE 2, PART 1
7 – PHASE 2,PART 1–MAIN CHANNEL PLAN & PROFILE–STA. 435+00 TO 450+00
8 – PHASE 2,PART 1–MAIN CHANNEL PLAN & PROFILE–STA. 450+00 TO 468+00
9 – OFF–CHANNEL ENHANCEMENT AREA A & B – GRADING PLAN
10 – OFF–CHANNEL ENHANCEMENT AREA A & B – LWD AND BANK TREATMENT PLAN
11 – OFF–CHANNEL ENHANCEMENT AREA A – GRADING CROSS–SECTIONS
12 – OFF–CHANNEL ENHANCEMENT AREA B – GRADING CROSS–SECTIONS
13 – OFF–CHANNEL ENHANCEMENT AREA C – GRADING PLAN
14 – OFF–CHANNEL ENHANCEMENT AREA C – LWD AND BANK TREATMENT PLAN
15 – OFF–CHANNEL ENHANCEMENT AREA C – GRADING CROSS–SECTIONS
16 – OFF–CHANNEL ENHANCEMENT AREA D – GRADING PLAN
17 – OFF–CHANNEL ENHANCEMENT AREA D – LWD AND BANK TREATMENT PLAN
18 – OFF–CHANNEL ENHANCEMENT AREA D – GRADING CROSS–SECTIONS
19 – OFF–CHANNEL ENHANCEMENT AREA D – GRADING CROSS–SECTIONS
20 – OFF–CHANNEL ENHANCEMENT AREA D – GRADING CROSS–SECTIONS
21 – PHASE 2, PART 1 – MAIN CHANNEL SECTIONS – LWD AND RIFFLES
22 – TYPICAL DETAILS – MAIN CHANNEL RIFFLES
23 – TYPICAL DETAILS – SIDE CHANNEL RIFFLES
24 – TYPICAL DETAILS – BANK TREATMENTS
25 – TYPICAL DETAILS – BANK CONSTRUCTION
26 – TYPICAL DETAILS – FES LIFT (1 OF 2)
27 – TYPICAL DETAILS – FES LIFT (2 OF 2)
28 – LWD DETAILS – LOG JAM AND FLOODPLAIN LWD
29 – LWD DETAILS – BACKWATER CHANNEL AND POOL ENHANCEMENT
30 – LWD DETAILS – HABITAT WOOD PLACEMENT AND SIDE CHANNEL LWD
31 – LWD DETAILS – APEX JAM LWD
32 – DESIGN DETAILS – INLET LWD
33 – TYPICAL SEQUENCE DETAILS – LOG JAM
34 – TYPICAL SEQUENCE DETAILS – FLOODPLAIN AND POOL ENHANCEMENT LWD
35 – TYPICAL SEQUENCE DETAILS – BACKWATER LWD
36 – CONSTRUCTION SEQUENCE DETAIL – SIDE CHANNEL INLET
37 – TYPICAL SEQUENCE DETAILS – SIDE CHANNEL LWD
38 – TYPICAL SEQUENCE DETAILS – APEX JAM LWD
39 – LWD SUMMARY TABLE
40 – TYPICAL DETAILS – LWD ATTACHMENT & BALLASTING
41 – DETAILS – BOARD FENCE MODIFICATION
42 – DETAILS – BOARD FENCE MODIFICATION
43 – TYPICAL DETAILS – SDO AND TRIBUTARY PROTECTION
C1 – LANDS OF MEYER IMPROVEMENT PLAN – TITLE SHEET
C2 – LANDS OF MEYER IMPROVEMENT PLAN – AGRICULTURAL ACCESS PLAN
C3 – LANDS OF MEYER IMPROVEMENT PLAN – CROSS SECTIONS



VICINITY MAP

NOT TO SCALE

									SURVEY
									OPERATIONS
									INSPECTION
									TECH WR
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									ELECT
									CIVIL
									DATE
									ORIG REL
									REV
									COORDINATION CHECK
									MICROFILM DATE

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

Interflume
1020 Wasco Street, Suite I
Hood River, OR 97031
541.386.9003
www.interflume.com

REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE:
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

LOCATION MAP AND INDEX TO DRAWINGS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 1 OF 43

PLAN LEGEND

- EXISTING GRADE – SECTION AND PROFILE VIEW (EG)
- EXISTING THALWEG GRADE – SECTION AND PROFILE VIEW (EG)
- FINISH GRADE – SECTION AND PROFILE VIEW (FG)
- EXISTING CONTOURS (1 FT.)
- PROPOSED CONTOURS (1 FT.)
- APPROX. EDGE OF OLW 2014
- ORDINARY LOW WATER OLW (TYP.)
- ACCESS CORRIDOR (TYP.)
- TEMPORARY CONSTRUCTION EASEMENT (TYP.)
- CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)
- OH — OH — OVERHEAD POWER LINE (TYP.)
- DRY CREEK THALWEG (TYP.)
- DRY CREEK ALIGNMENT (TYP.)
- 233+00 — PARCEL BOUNDARY (TYP.)
- SILT FENCE (TYP.)
- TEMPORARY CONSTRUCTION FENCE
- (E) USACE INFRASTRUCTURE
- (N) USACE INFRASTRUCTURE MODIFICATION
- LARGE WOODY DEBRIS (LWD)
- LOG JAM (TYP.)
- POOL LWD (TYP.)
- HABITAT WOOD PLACEMENT (TYP.)
- SLASH (TYP.)
- BACKWATER CHANNEL LWD (TYP.)
- FLOODPLAIN LWD (TYP.)
- INLET STRUCTURE LWD (TYP.)
- SIDE CHANNEL LWD (TYP.)
- APEX LOG JAM (TYP.)
- 708 — PROJECT BENCHMARKS
- 126.0 — SPOT ELEVATION, FINISH GRADE
- POWER POLE
- INGRESS/EGRESS
- STORM DRAIN OUTFALL (SDO)
- (E) PUMP
- BOULDER BALLAST (TYP.)
- EXISTING STRUCTURES
- STAGING AREA
- EXISTING ROAD
- WATER SURFACE ELEVATION
- SLOPE BREAK (TYP.)
- SUBGRADE EXCAVATION
- LIMIT OF FINISH GRADE (TYP.)
- BANK TREATMENT TYPE 1 (TYP.)
- BANK TREATMENT TYPE 2 (TYP.)
- BANK TREATMENT TYPE 3 (TYP.)
- COMPACTED SELECT SOIL (TYP.)
- COMPACTED SELECT FILL (TYP.)
- BACKFILL NATIVE SUBSTRATE (TYP.)
- SOIL AMENDMENT AREA
- EXISTING RIFFLE (TYP.)
- RIFFLE SUBSTRATE A
- RIFFLE SUBSTRATE B
- SALVAGED NATIVE SUBSTRATE PLACED IN POOL TAILOUT (TYP.)
- PLACED 1/2 TON BOULDERS
- ROCK TOE (LIGHT RIPRAP CALTRANS 200 LB.)
- NATIVE MATERIAL (TYP.)
- TREE INVENTORY (CENTER CIRCLE SCALE BASED ON TREE DIA. AND OUTER CIRCLE BASED ON APPROX. DRIPLINE)

1

TYPICAL SECTION AND DETAIL LETTERING SYSTEM

SECTIONS AND DETAILS CUT ON SHEET NO. 12 TO BE FOUND ON SHEET NO. 15: A / 15 — SECTION OR DETAIL LETTER; SHEET ON WHICH IT APPEARS

ON SHEET NO. 15 THIS SECTION IS SHOWN AS: SECTION A / 12 — SECTION OR DETAIL LETTER; SHEET FROM WHICH SECTION WAS CUT

SECTIONS AND DETAILS TO BE FOUND ON SAME SHEET AS CUT: A / —

TYPICAL SECTION IMPROVEMENTS — A / 12

TYPICAL SECTION–PROJECT GRADING — STA: 11+00

ABBREVIATIONS

CFS	CUBIC FEET PER SECOND	N.I.C.	NOT IN CONTRACT
CMP	CORRUGATED METAL PIPE	NTS	NOT TO SCALE
D.B.H.	DIAMETER BREAST HEIGHT	O.C.	ON CENTER
EG	EXISTING GRADE	OH	OVERHEAD
(E)	EXISTING	OHW	ORDINARY HIGH WATER
FES	FABRIC ENCAPSULATED SOIL	OLW	ORDINARY LOW WATER
FG	FINISH GRADE	PDSCS	PUMP DISCHARGE SEDIMENT CONTROL SYSTEM
HDPE	HIGH DENSITY POLYETHYLENE	SDO	STORM DRAIN OUTFALL
I.E.	INVERT ELEVATION	STA	STATION
LWD	LARGE WOODY DEBRIS	(TYP.)	TYPICAL
(N)	NEW	WATER AGENCY	SONOMA COUNTY WATER AGENCY
FTR	FULLY THREADED ROD	USACE	UNITED STATES ARMY CORPS OF ENGINEERS
FT.	FEET		
YR	YEAR		
INC.	INCORPORATED		

GENERAL NOTES

1. UNITS: FEET
2. HORIZONTAL DATUM: CALIFORNIA STATE PLANE COORDINATES (NAD83) ZONE 2, US SURVEY FEET
3. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM (NAVD), 1988 US SURVEY FEET.
4. PROJECT BENCHMARKS :

PT	NORTHING	EASTING	ELEVATION	DESCRIPTIONS
707	6292791.23	2010757.42	158.22	5/8" Rebar w/Red Plastic Cap "SCWA Control"
708	6293296.15	2009681.69	155.86	5/8" Rebar w/Red Plastic Cap "SCWA Control"

5. STATIONING : ALL STATIONING REPRESENTS HORIZONTAL MEASUREMENT AT ALIGNMENT OF CONSTRUCTION.
6. ORIENTATION : RIGHT AND LEFT DIRECTIONS ARE FROM CENTERLINE LOOKING DOWNSTREAM.
7. UTILITIES : THE OWNER, TO THE BEST OF ITS ABILITY, HAS DELINEATED ON THE DRAWINGS ALL UTILITY INSTALLATIONS TO BE ENCOUNTERED WITHIN THE LIMITS OF WORK. SUCH INFORMATION IS BASED UPON INFORMATION FURNISHED TO OWNER BY THE UTILITY OWNERS, AND THE OWNER DOES NOT EITHER EXPRESSLY OR BY IMPLICATION GUARANTEE THAT UTILITY INSTALLATIONS WILL BE FOUND AT THE LOCATIONS OR DEPTHS INDICATED. THE OWNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN OR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL UTILITIES.
8. PARCEL DATA : PARCEL BOUNDARY ALIGNMENTS OBTAINED FROM WATER AGENCY IN MARCH OF 2014. PARCEL OWNER NAMES HAVE BEEN UPDATED AS NEEDED TO REFLECT CURRENT OWNERSHIP.
9. TOPOGRAPHY : BASED ON LIDAR MAPPING COLLECTED 2014 BY PICTOMETRY, INC. SUPPLEMENTED WITH GROUND SURVEY BY INTER–FLUVE, INC. COLLECTED MARCH AND OCTOBER 2014 AND JANUARY 2015 AND SURVEY PROVIDED BY OWNER.

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

REV	DATE	CIVIL	ELECT	MECH	TECH WR	INSPECTION	OPERATIONS	SURVEY
ORIG REL								

COORDINATION CHECK

MICROFILM DATE

Interflume — 1020 Wasco Street, Suite I, Hood River, OR 97031, 541.386.9003, www.interflume.com

REGISTERED PROFESSIONAL ENGINEER — MICHAEL P. BURKE — C 62986 — EXP. 6/30/16 — CIVIL — STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

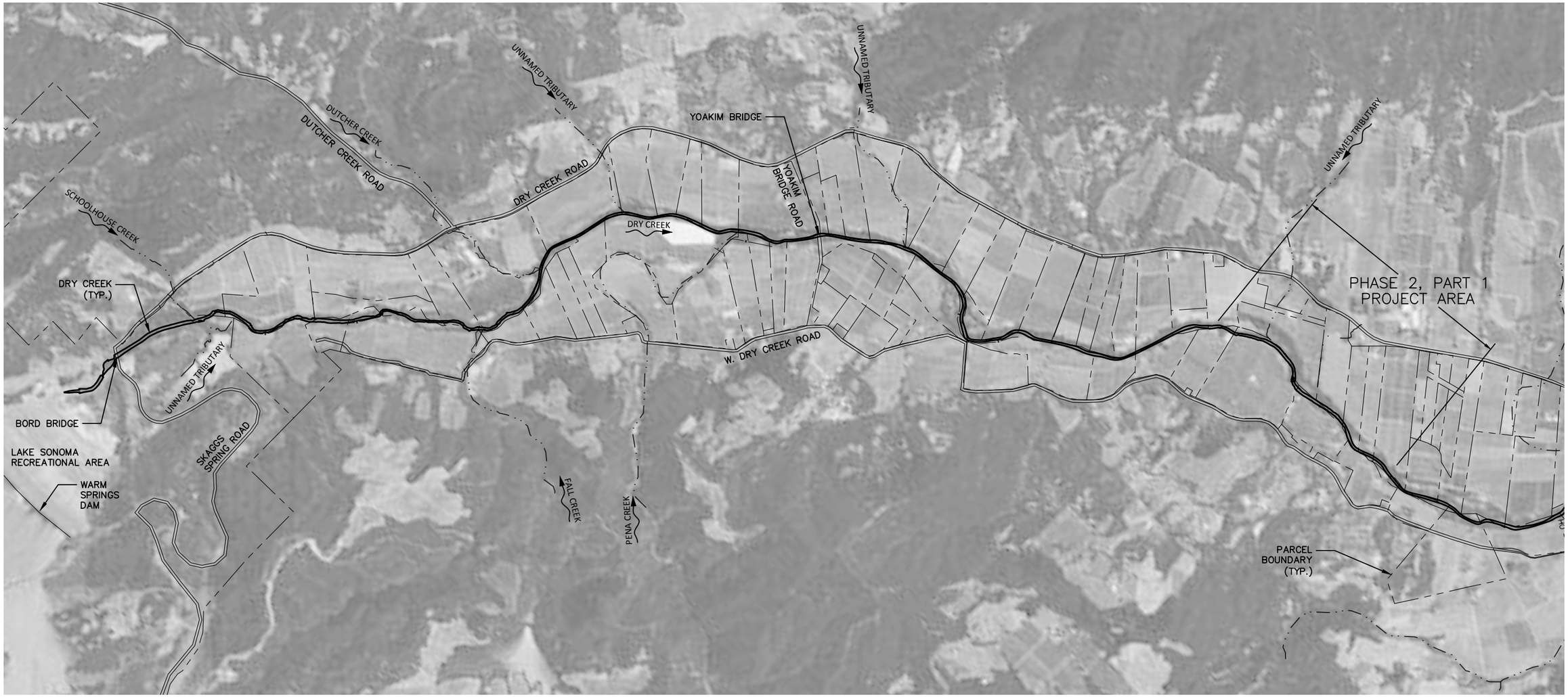
SCALE:
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

GENERAL NOTES AND LEGEND

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 2 OF 43



1000 0 1000 2000 4000

SCALE IN FEET

InterFluve
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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 1000 FT.
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

SITE MAP – PROJECT REACH

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 3 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

DRY CREEK ROAD
H.D.D.,LLC
MEYER
OVERHEAD POWER LINE (TYP.)
UNNAMED TRIBUTARY
707 5/8
708 5/8
TEMPORARY CONSTRUCTION EASEMENT (TYP.)
F. CARLSON
BUCHIGNANI
PETERS
PARCEL BOUNDARY (TYP.)
CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)
455+00
450+00
460+00
465+00
470+00
475+00
480+00
440+00
445+00
435+00
APPROX. EDGE OF OLW 2014
DRY CREEK ALIGNMENT (TYP.)
DRY CREEK
(E) RIFFLE (TYP.)
(E) USACE BOARD FENCE
SCHMIDT TR., , ETAL
WILLIAMSON FAMILY TRUST
BLACK DRY CREEK RANCH, LLC
LONE STAR VINEYARDS LLC, J CULLEN
WILLIAMSON
W. DRY CREEK ROAD
PHASE 2, PART 1 PROJECT AREA
STATION 435+00 TO 470+00
120 0 120 240 480
SCALE IN FEET

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 120 FT.
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

EXISTING CONDITIONS – PHASE 2, PART 1

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:

DRY CREEK ROAD

H.D.D.,LLC

MEYER

MEYER

MEYER

F. CARLSON

BUCHIGNANI

PETERS

708
5/8

707
5/8

TEMPORARY CONSTRUCTION EASEMENT (TYP.)

ADDITION OF RIFFLE SUBSTRATE B TO AREA C INLET CHANNEL

OFF-CHANNEL ENHANCEMENT AREA C SEE SHEETS 13–15

(N) TRIBUTARY PROTECTION

CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)

OVERHEAD POWER LINE (TYP.)

UNNAMED TRIBUTARY

APPROX. EDGE OF OLW 2014

OFF-CHANNEL ENHANCEMENT AREA A SEE SHEETS 9–12

(E) USACE BOARD FENCE

455+00

450+00

DRY CREEK

(E) RIFFLE (TYP.)

DRY CREEK ALIGNMENT (TYP.)

460+00

ADDITION OF 12" CMP TO AREA D

440+00

435+00

445+00

OFF-CHANNEL ENHANCEMENT AREA D SEE SHEETS 16–20

STATION 450+00 TO 468+00 SHEET 8

465+00

SHIFTED LOCATION OF LWD AND AREA B 12" CMP INLET

(N) RIFFLE (TYP.)

ADDITION OF 2 SNAGS AND 4 BALLAST BOULDERS TO INLET LWD

OFF-CHANNEL ENHANCEMENT AREA B SEE SHEETS 9–12

SCHMIDT TR, , ETAL

470+00

SCHMIDT TR, , ETAL

BLACK DRY CREEK RANCH, LLC

LONE STAR VINEYARDS LLC. J CULLEN

PARCEL BOUNDARY (TYP.)

BLACK DRY CREEK RANCH, LLC

STATION 435+00 TO 450+00 SHEET 7

425+00

WILLIAMSON FAMILY TRUST

W. DRY CREEK ROAD

WILLIAMSON

430+00

120 0 120 240 480

SCALE IN FEET

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C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 120 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED

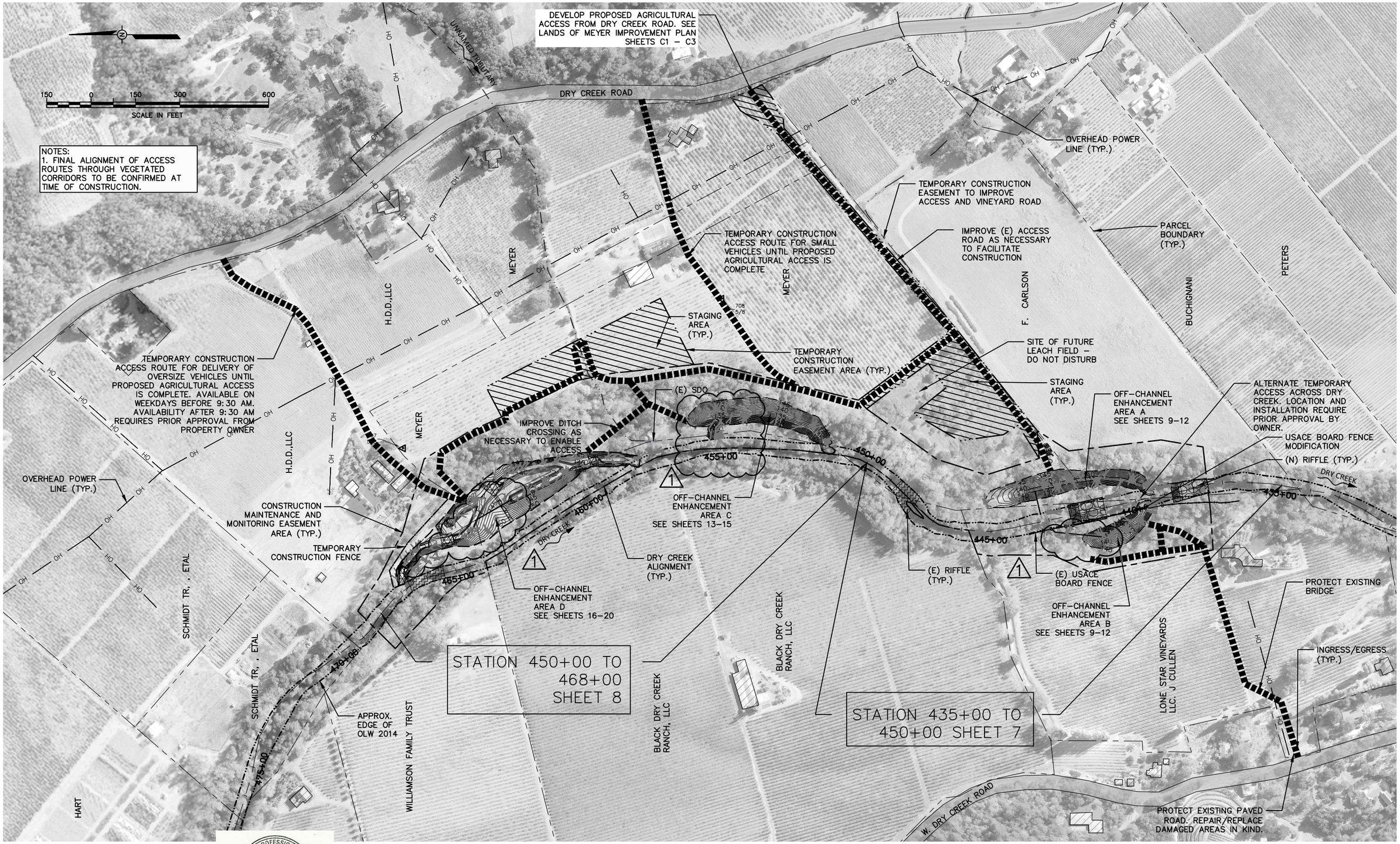
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

SITE PLAN OVERVIEW AND PLAN SHEET KEY – PHASE 2, PART 1

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 5 OF 43

G:\C-D\Dry Creek SCWA\Drawings_IFI_DC_2mile_D_R8.dwg



G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

Interflume
1020 Wasco Street, Suite I
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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

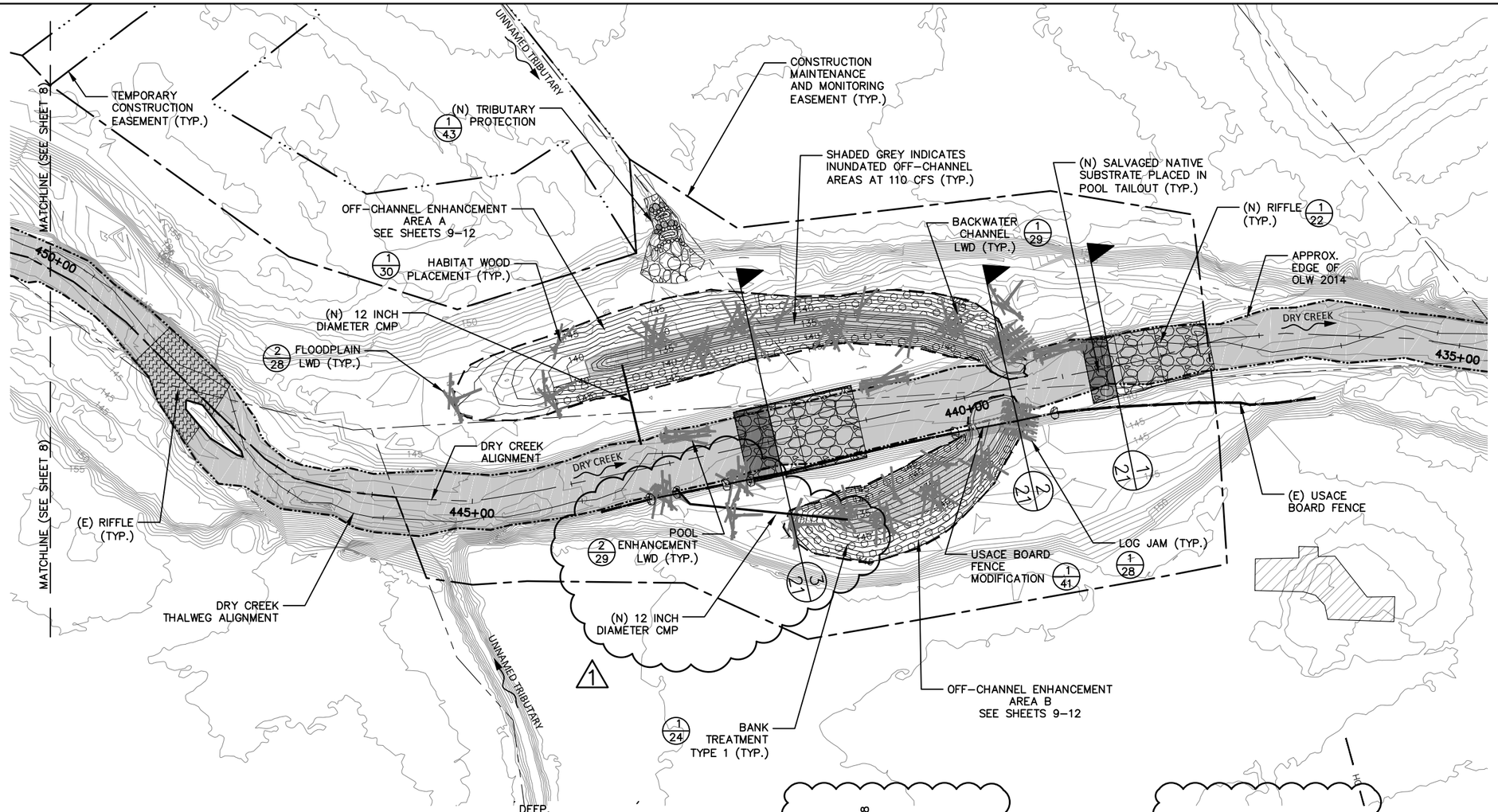
SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 150 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB
REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

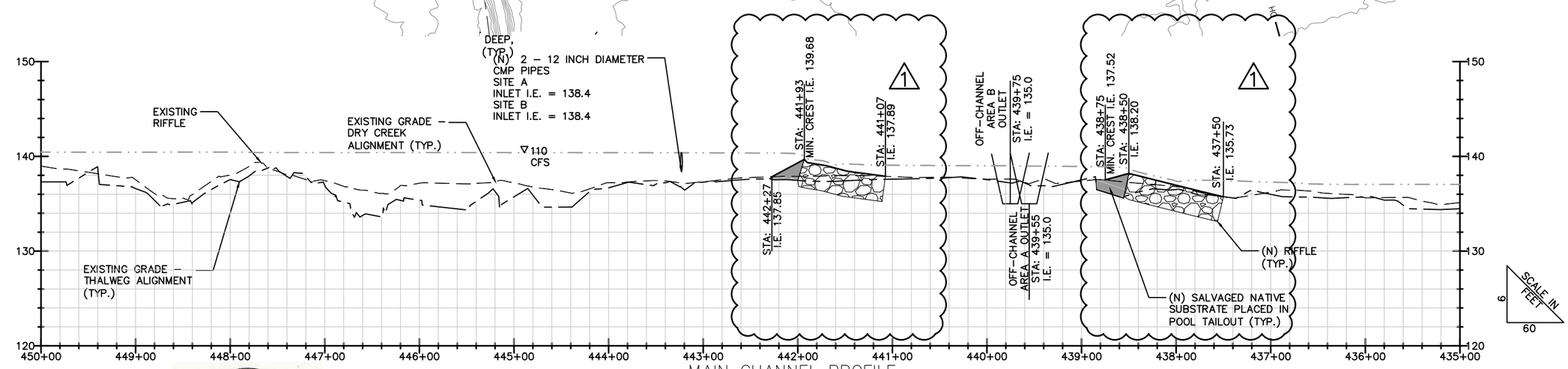
ACCESS AND STAGING OVERVIEW – PHASE 2, PART 1

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 6 OF 43



NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. AFTER INITIAL STAKING, THE WATER AGENCY RESERVES THE RIGHT TO ADJUST THE GRADING LIMITS LOCALLY TO PRESERVE MATURE TREES AND CONFORM TO ADJACENT GROUND
3. MAIN CHANNEL RIFFLES AND RIFFLE CUTOFFS TO BE CONSTRUCTED WITH RIFFLE SUBSTRATE A



MAIN CHANNEL PROFILE

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www.interfluve.com

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	RECORD INFORMATION / REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 60 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

PHASE 2,PART 1–MAIN CHANNEL PLAN & PROFILE–STA. 435+00 TO 450+00

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 7 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

TEMPORARY CONSTRUCTION EASEMENT (TYP.)

CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)

BANK TREATMENT TYPE 1 (TYP.) 1/24

BACKWATER CHANNEL LWD (TYP.) 1/29

SHADED GREY INDICATES INUNDATED OFF-CHANNEL AREAS AT 110 CFS (TYP.)

HABITAT WOOD PLACEMENT (TYP.) 1/30

(N) PROPOSED SIDE CHANNEL RIFFLE (TYP.) 1/23

(N) 12 INCH DIAMETER PIPE

OFF-CHANNEL ENHANCEMENT AREA D SEE SHEETS 16-20

SIDE CHANNEL LWD (TYP.) 2/30

BANK TREATMENT TYPE 3 (TYP.) 3/24 4/24

INLET STRUCTURE LWD (TYP.) 1/32

FLOODPLAIN LWD (TYP.) 3/28

BANK TREATMENT TYPE 2 (TYP.) 2/24

(E) RIFFLE (TYP.) 6/27

FLOODPLAIN LWD (TYP.) 2/28

DRY CREEK THALWEG ALIGNMENT

DRY CREEK ALIGNMENT

POOL LWD (TYP.) 2/29

5/21

APPROX. EDGE OF OLW 2014

APEX LOG JAM (TYP.) 1/31

LOG JAM (TYP.) 1/28

OFF-CHANNEL ENHANCEMENT AREA C SEE SHEETS 13-15

4/21

455+00

460+00

465+00

450+00

DRY CREEK

MATCHLINE (SEE SHEET 7)

MATCHLINE (SEE SHEET 7)

707 5/8

NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.

2. AFTER INITIAL STAKING, THE WATER AGENCY RESERVES THE RIGHT TO ADJUST THE GRADING LIMITS LOCALLY TO PRESERVE MATURE TREES AND CONFORM TO ADJACENT GROUND

60 0 60 120 240

SCALE IN FEET

EXISTING RIFFLE

EXISTING GRADE – DRY CREEK ALIGNMENT (TYP.)

110 CFS

EXISTING GRADE – THALWEG ALIGNMENT (TYP.)

OFF-CHANNEL AREA D INLET STA: 467+00 I.E. = 142.20

OFF-CHANNEL AREA D OUTLET STA: 457+53 I.E. = 138.25

OFF-CHANNEL AREA C OUTLET STA: 451+45 I.E. = 135.0

SCALE IN FEET 6 60

150 140 130 120

468+00 467+00 466+00 465+00 464+00 463+00 462+00 461+00 460+00 459+00 458+00 457+00 456+00 455+00 454+00 453+00 452+00 451+00 450+00

junk2

MAIN CHANNEL PROFILE

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REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 60 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

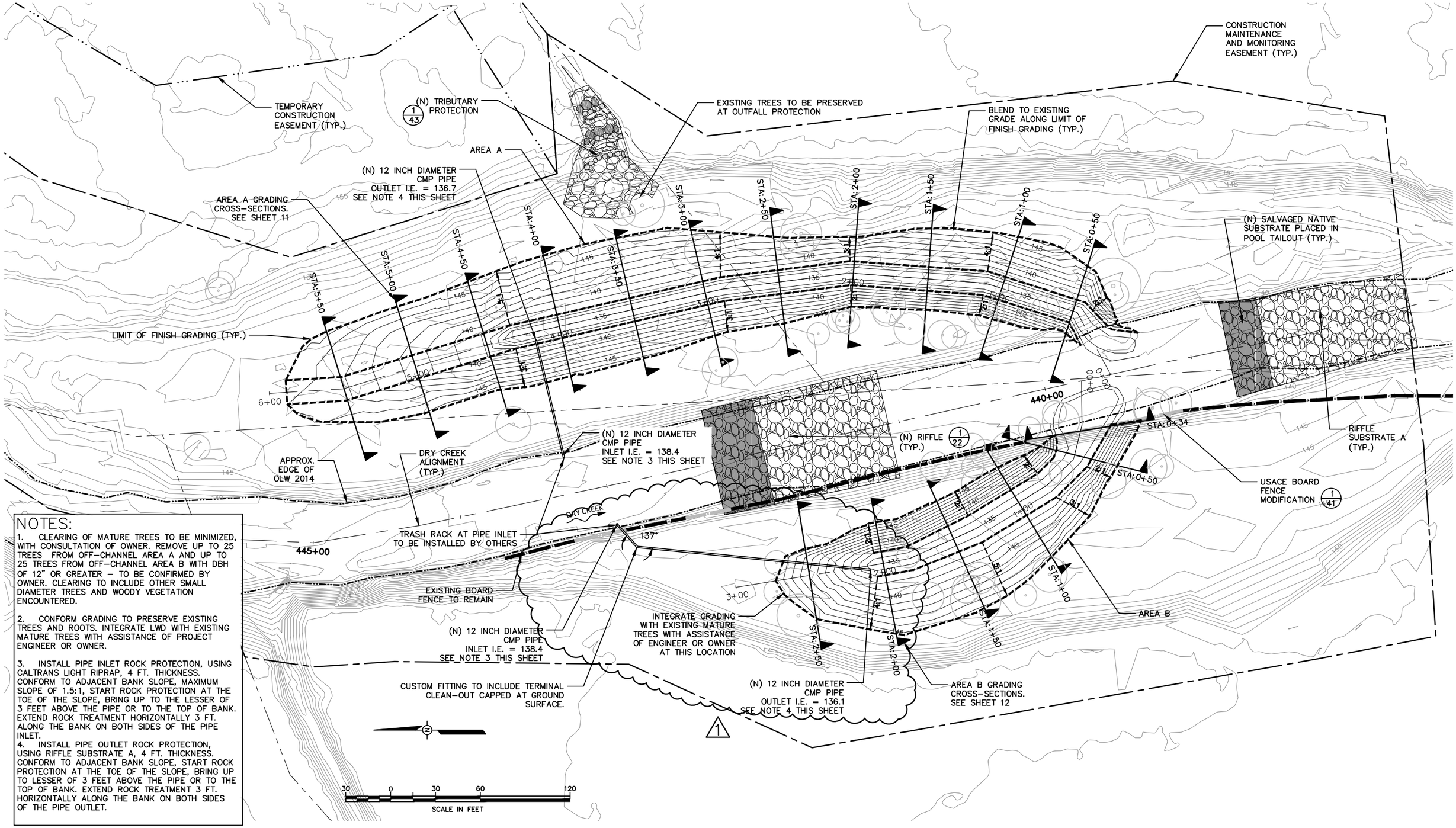
REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

PHASE 2,PART 1–MAIN CHANNEL PLAN & PROFILE–STA. 450+00 TO 468+00

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 8 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



NOTES:

1. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA A AND UP TO 25 TREES FROM OFF-CHANNEL AREA B WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

2. CONFORM GRADING TO PRESERVE EXISTING TREES AND ROOTS. INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF PROJECT ENGINEER OR OWNER.

3. INSTALL PIPE INLET ROCK PROTECTION, USING CALTRANS LIGHT RIPRAP, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, MAXIMUM SLOPE OF 1.5:1, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO THE LESSER OF 3 FEET ABOVE THE PIPE OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT HORIZONTALLY 3 FT. ALONG THE BANK ON BOTH SIDES OF THE PIPE INLET.

4. INSTALL PIPE OUTLET ROCK PROTECTION, USING RIFFLE SUBSTRATE A, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO LESSER OF 3 FEET ABOVE THE PIPE OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT 3 FT. HORIZONTALLY ALONG THE BANK ON BOTH SIDES OF THE PIPE OUTLET.

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

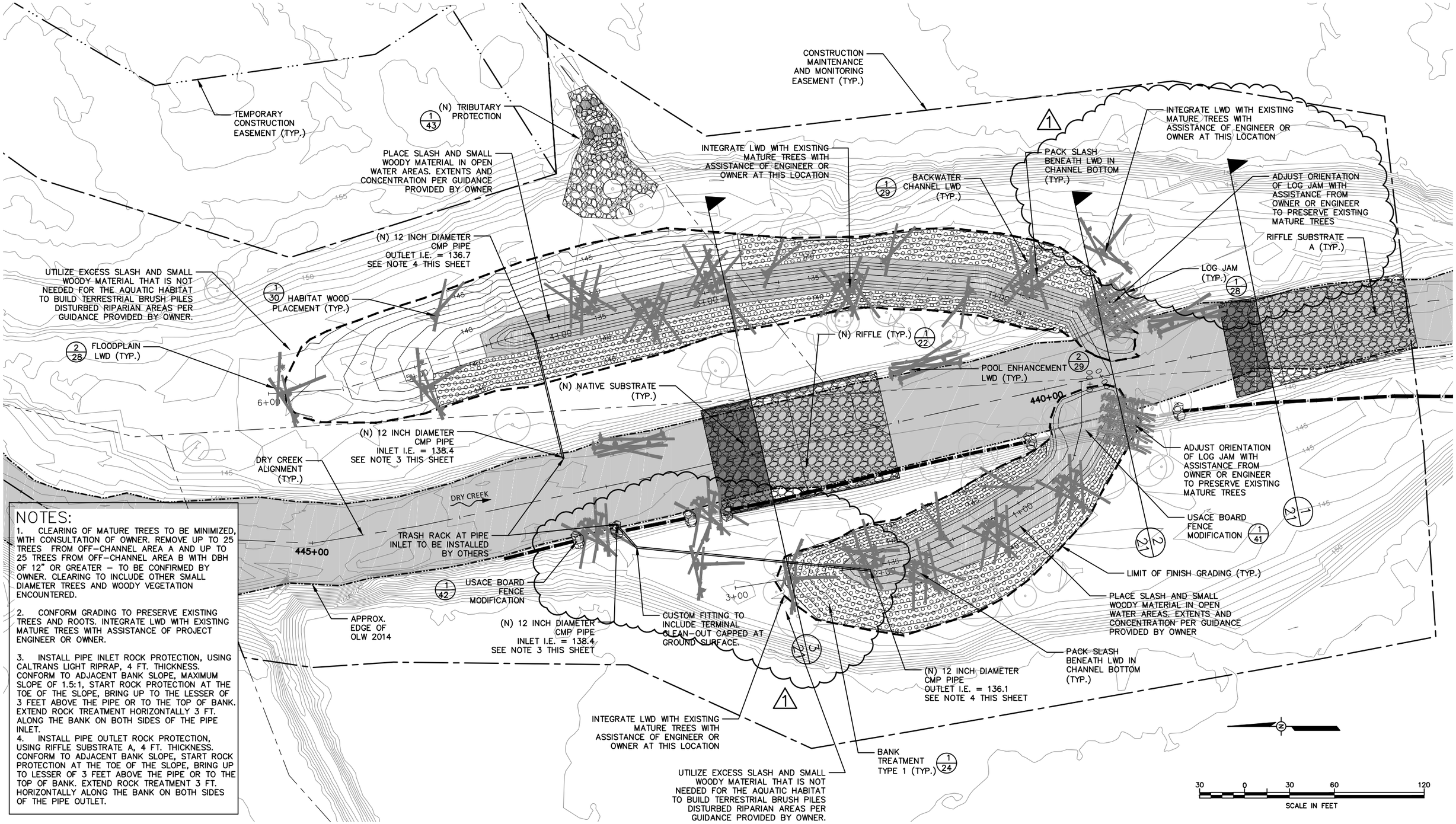
SCALE: 1 IN. = 30 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA A & B – GRADING PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 9 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



NOTES:

1. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA A AND UP TO 25 TREES FROM OFF-CHANNEL AREA B WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

2. CONFORM GRADING TO PRESERVE EXISTING TREES AND ROOTS. INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF PROJECT ENGINEER OR OWNER.

3. INSTALL PIPE INLET ROCK PROTECTION, USING CALTRANS LIGHT RIPRAP, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, MAXIMUM SLOPE OF 1.5:1, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO THE LESSER OF 3 FEET ABOVE THE PIPE OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT HORIZONTALLY 3 FT. ALONG THE BANK ON BOTH SIDES OF THE PIPE INLET.

4. INSTALL PIPE OUTLET ROCK PROTECTION, USING RIFFLE SUBSTRATE A, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO LESSER OF 3 FEET ABOVE THE PIPE OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT 3 FT. HORIZONTALLY ALONG THE BANK ON BOTH SIDES OF THE PIPE OUTLET.

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 30 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

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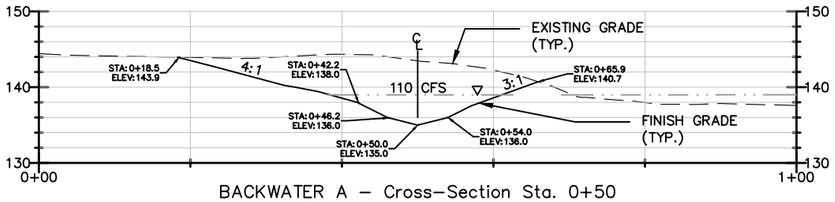
REVIEWED

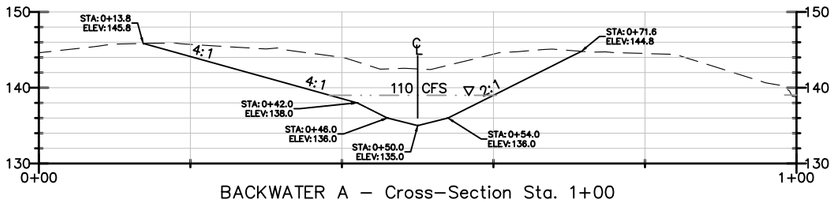
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA A & B – LWD AND BANK TREATMENT PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 10 OF 43

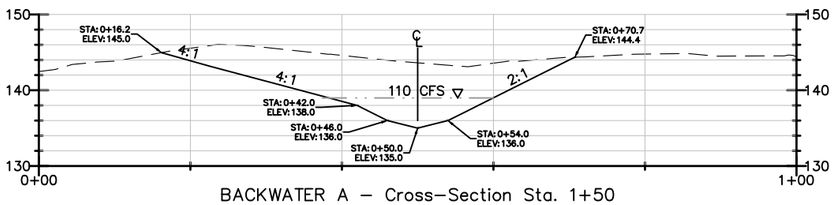
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



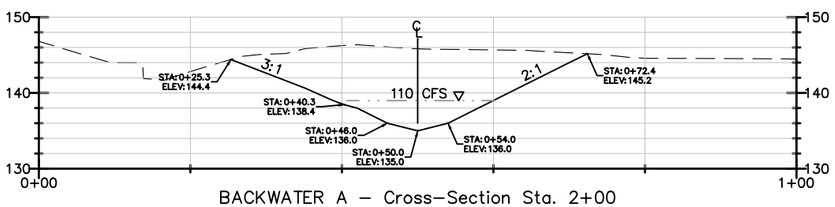
BACKWATER A – Cross-Section Sta. 0+50



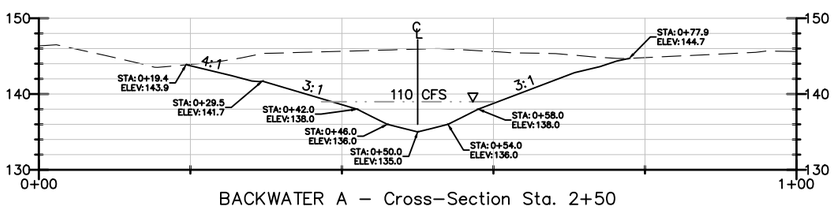
BACKWATER A – Cross-Section Sta. 1+00



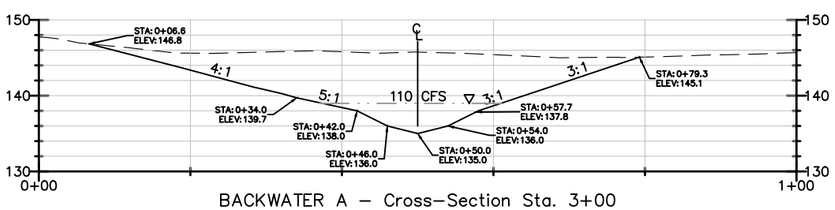
BACKWATER A – Cross-Section Sta. 1+50



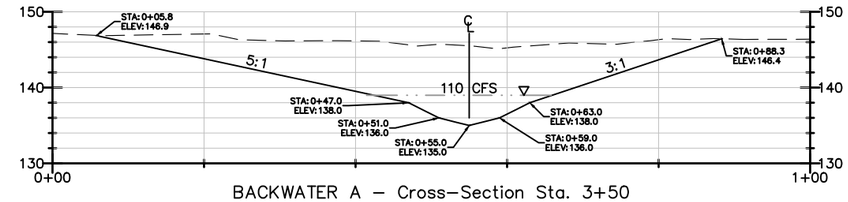
BACKWATER A – Cross-Section Sta. 2+00



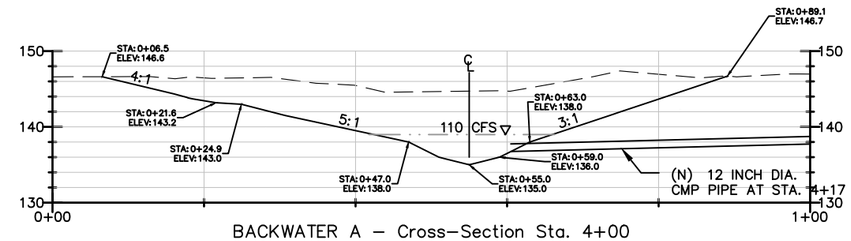
BACKWATER A – Cross-Section Sta. 2+50



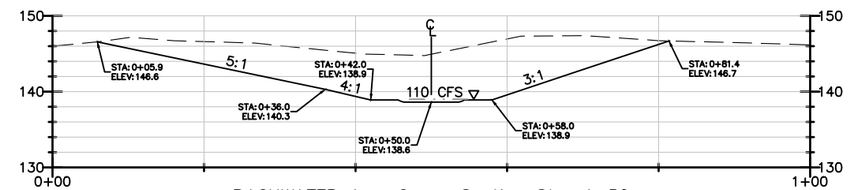
BACKWATER A – Cross-Section Sta. 3+00



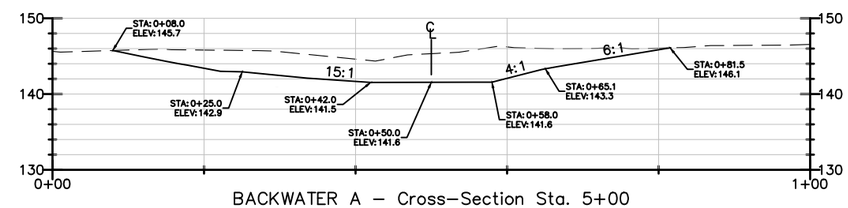
BACKWATER A – Cross-Section Sta. 3+50



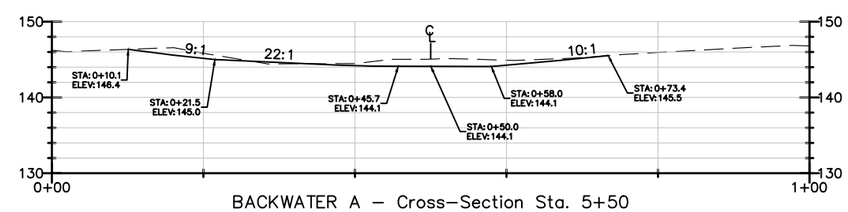
BACKWATER A – Cross-Section Sta. 4+00



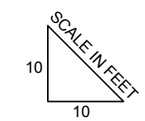
BACKWATER A – Cross-Section Sta. 4+50



BACKWATER A – Cross-Section Sta. 5+00



BACKWATER A – Cross-Segment Sta. 5+50



NOTE:
1. GRADING CROSS SECTIONS ARE ORIENTED LOOKING DOWNSTREAM FROM LEFT TO RIGHT. THE STATIONING ORIGIN FOR EACH SECTION IS AT THE EXTREME LEFT END OF THE SECTION CUT LINE.

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA A
– GRADING CROSS-SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 11 OF 43

Interfluve
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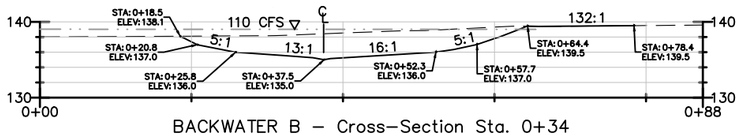
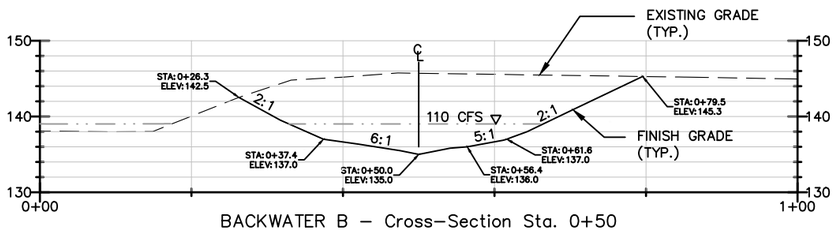
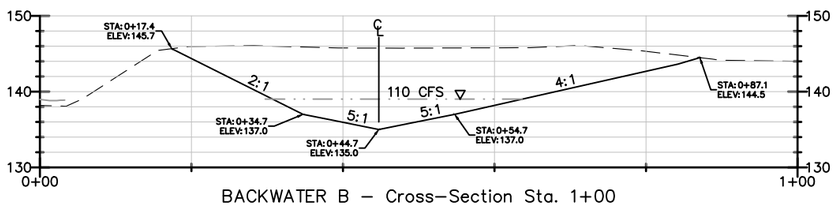
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



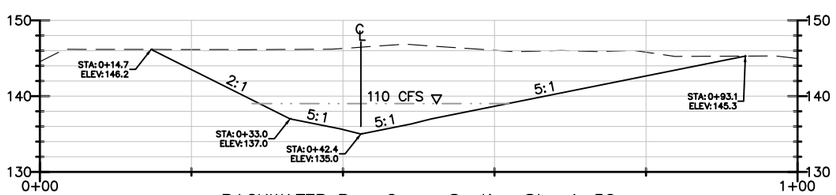
BACKWATER B – Cross–Section Sta. 0+34



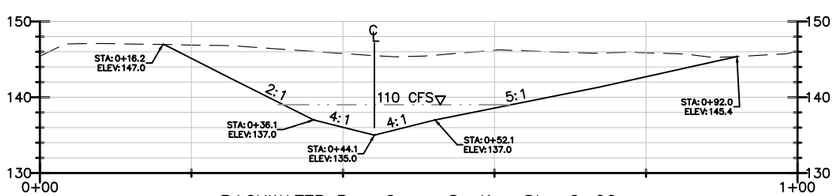
BACKWATER B – Cross–Section Sta. 0+50



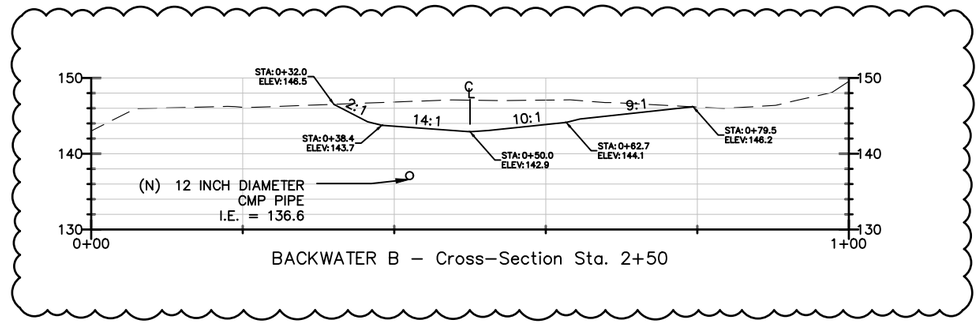
BACKWATER B – Cross–Section Sta. 1+00



BACKWATER B – Cross–Section Sta. 1+50

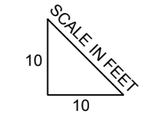


BACKWATER B – Cross–Section Sta. 2+00



BACKWATER B – Cross–Section Sta. 2+50

1



NOTE:
1. GRADING CROSS SECTIONS ARE ORIENTED LOOKING DOWNSTREAM FROM LEFT TO RIGHT. THE STATIONING ORIGIN FOR EACH SECTION IS AT THE EXTREME LEFT END OF THE SECTION CUT LINE.

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF–CHANNEL ENHANCEMENT AREA B
– GRADING CROSS–SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 12 OF 43

TEMPORARY CONSTRUCTION EASEMENT (TYP.)

CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)

LIMIT OF FINISH GRADING (TYP.)

AREA C GRADING CROSS-SECTIONS. SEE SHEET 15

STA: 5+00

STA: 4+50

STA: 4+34

STA: 4+00

STA: 3+50

STA: 3+00

STA: 2+50

STA: 2+00

STA: 1+50

STA: 1+00

STA: 0+50

BLEND TO EXISTING GRADE ALONG LIMIT OF FINISH GRADING (TYP.)

INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF ENGINEER OR OWNER AT THIS LOCATION

AREA C INLET GRADING CROSS-SECTIONS. SEE SHEET 15

455+00

(N) PROPOSED SIDE CHANNEL RIFFLE (TYP.) 1/23

DRY CREEK

DRY CREEK ALIGNMENT (TYP.)

450+00

APPROX. EDGE OF OLW 2014

DRY CREEK

(E) RIFFLE (TYP.)

NOTES:

1. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA C WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

2. CONFORM GRADING TO PRESERVE EXISTING TREES AND ROOTS. INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF PROJECT ENGINEER OR OWNER.

30 0 30 60 120

SCALE IN FEET

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 30 FT.
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

OFF-CHANNEL ENHANCEMENT AREA C – GRADING PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 13 OF 43

UTILIZE EXCESS SLASH AND SMALL WOODY MATERIAL THAT IS NOT NEEDED FOR THE AQUATIC HABITAT TO BUILD TERRESTRIAL BRUSH PILES IN DISTURBED RIPARIAN AREAS PER GUIDANCE PROVIDED BY OWNER.

PACK SLASH BENEATH LWD IN CHANNEL BOTTOM (TYP.)

ADJUST ORIENTATION OF LOG STRUCTURE WITH ASSISTANCE FROM OWNER OR ENGINEER TO PRESERVE EXISTING MATURE TREES

HABITAT WOOD PLACEMENT (TYP.) 1/30

BACKWATER CHANNEL LWD (TYP.) 1/29

CONSTRUCTION MAINTENANCE AND MONITORING EASEMENT (TYP.)

TEMPORARY CONSTRUCTION EASEMENT (TYP.)

PLACE SLASH AND SMALL WOODY MATERIAL IN OPEN WATER AREAS. EXTENTS AND CONCENTRATION PER GUIDANCE PROVIDED BY OWNER

LIMIT OF FINISH GRADING (TYP.)

FLOODPLAIN LWD (TYP.) 2/28

CONFORM GRADING AND LOG PLACEMENT TO PRESERVE EXISTING TREES AND ROOTS WITH ASSISTANCE FROM OWNER OR ENGINEER

BANK TREATMENT TYPE 1 (TYP.) 1/24

LOG JAM (TYP.) 1/28

APPROX. EDGE OF OLW 2014

(N) PROPOSED SIDE CHANNEL RIFFLE (TYP.) 1/23

APEX LOG JAM (TYP.) 1/31

DRY CREEK

455+00

450+00

ADJUST ORIENTATION OF LOG STRUCTURE WITH ASSISTANCE FROM OWNER OR ENGINEER TO PRESERVE EXISTING MATURE TREES

ADJUST ORIENTATION OF LOG JAM WITH ASSISTANCE FROM OWNER OR ENGINEER TO PRESERVE EXISTING MATURE TREES

4/21

DRY CREEK ALIGNMENT (TYP.)

(E) RIFFLE (TYP.)

NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.

2. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA C WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

30 0 30 60 120

SCALE IN FEET

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

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DATE: 3/14/2016
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CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA C –
LWD AND BANK TREATMENT PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 14 OF 43

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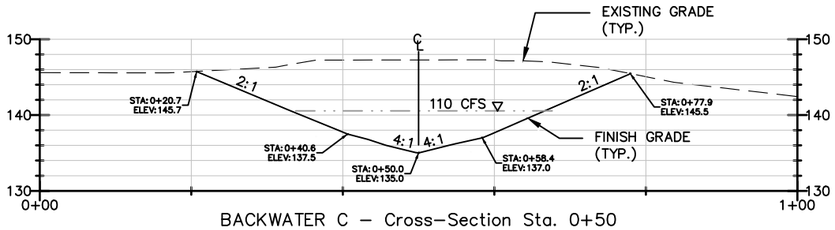
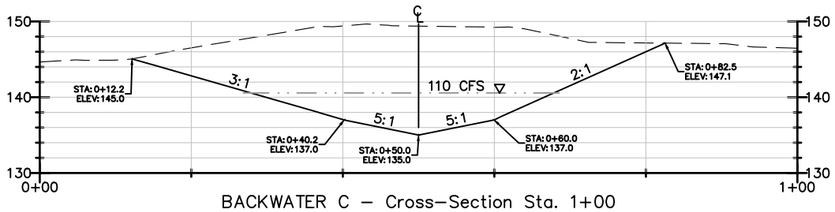
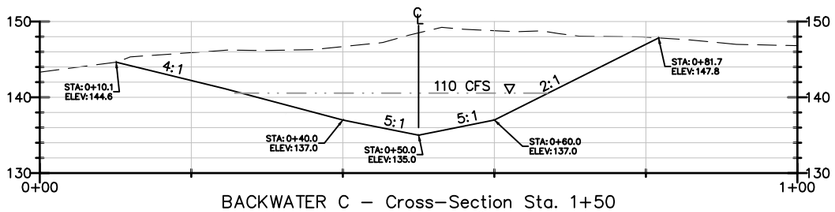


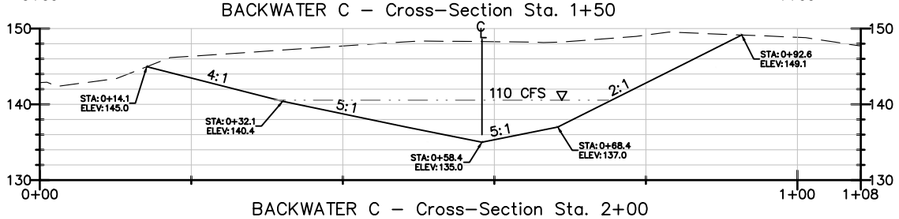
BACKWATER C – Cross-Section Sta. 0+50



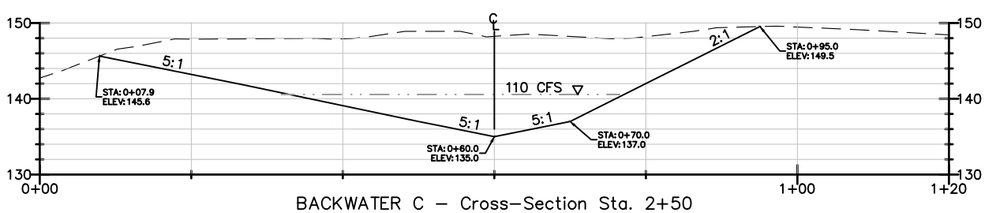
BACKWATER C – Cross-Section Sta. 1+00



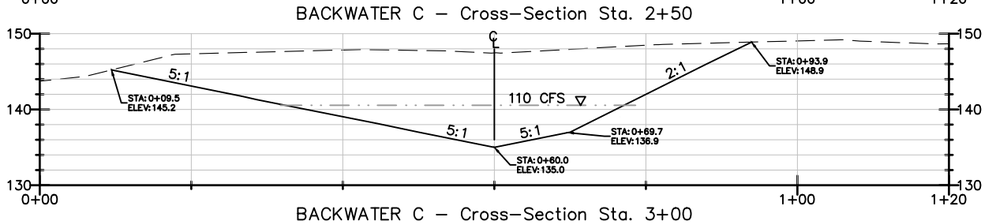
BACKWATER C – Cross-Section Sta. 1+50



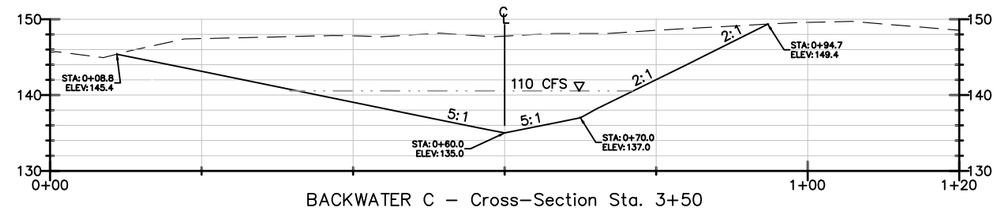
BACKWATER C – Cross-Section Sta. 2+00



BACKWATER C – Cross-Section Sta. 2+50



BACKWATER C – Cross-Section Sta. 3+00



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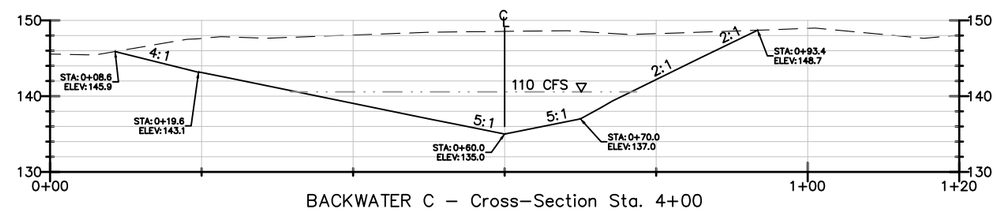

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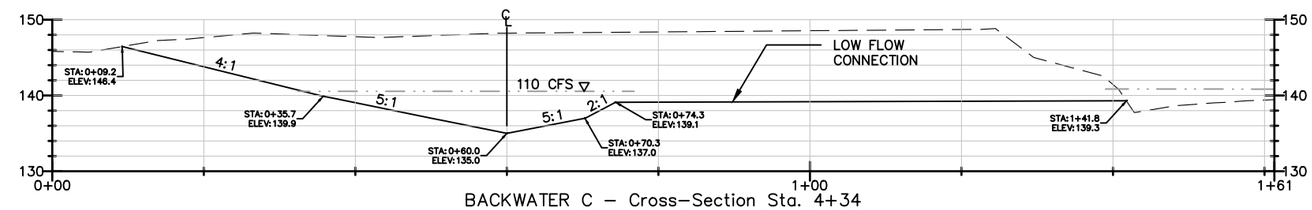
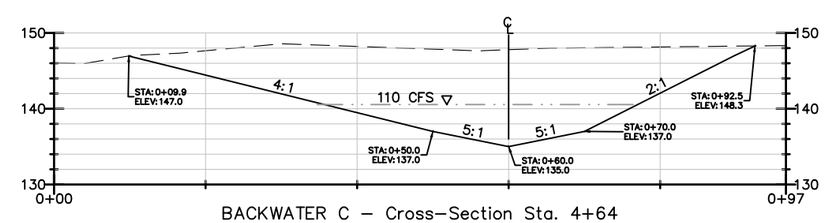


BACKWATER C – Cross-Section Sta. 4+34



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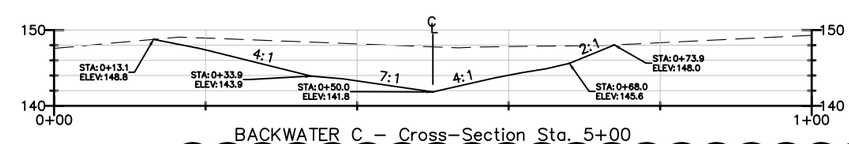
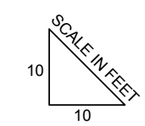
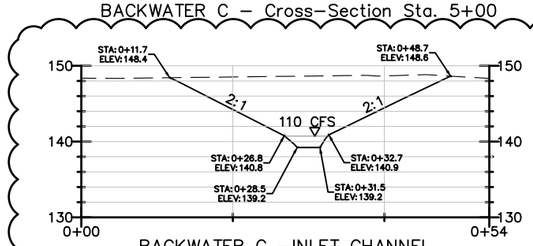


BACKWATER C – Cross-Section Sta. 5+00





BACKWATER C –INLET CHANNEL

1

NOTE:
1. GRADING CROSS SECTIONS ARE ORIENTED LOOKING DOWNSTREAM FROM LEFT TO RIGHT. THE STATIONING ORIGIN FOR EACH SECTION IS AT THE EXTREME LEFT END OF THE SECTION CUT LINE.

2. RIFFLE SUBSTRATE HATCH NOT SHOWN IN ALL GRADING SECTIONS WHERE IT OCCURS, SEE PLAN VIEW.

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE : 3/14/2016
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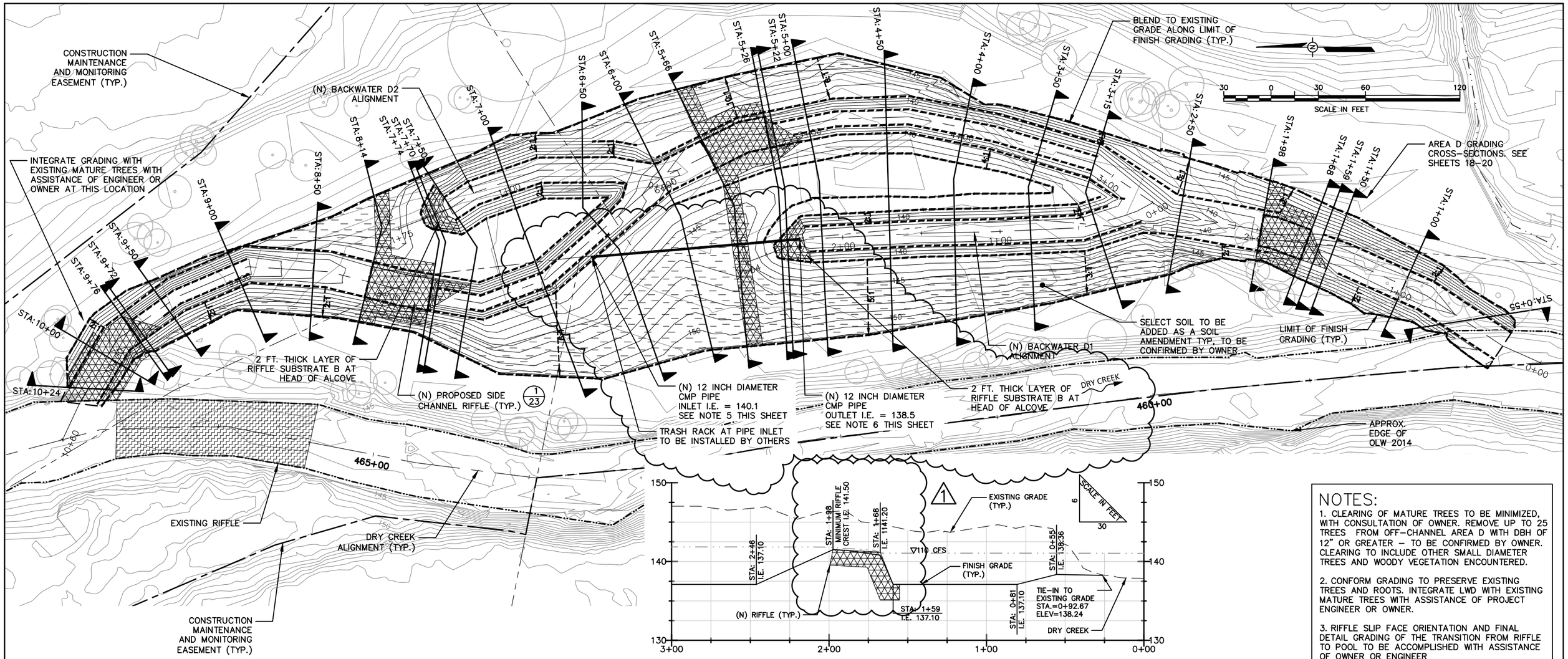
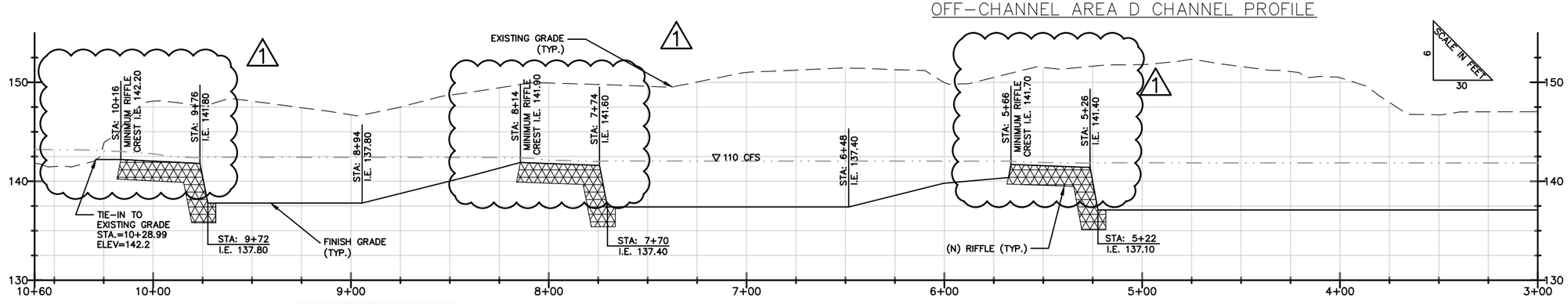
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA C
– GRADING CROSS-SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 15 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



OFF-CHANNEL AREA D CHANNEL PROFILE



OFF-CHANNEL AREA D CHANNEL PROFILE – CONT'D

NOTES:

1. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA D WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

2. CONFORM GRADING TO PRESERVE EXISTING TREES AND ROOTS. INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF PROJECT ENGINEER OR OWNER.

3. RIFFLE SLIP FACE ORIENTATION AND FINAL DETAIL GRADING OF THE TRANSITION FROM RIFFLE TO POOL TO BE ACCOMPLISHED WITH ASSISTANCE OF OWNER OR ENGINEER

4. MINIMUM RIFFLE CREST ELEVATIONS SHOWN ON SIDE CHANNEL PROFILE AT STATIONS 1+98, 5+66, 8+14, 10+16.

5. INSTALL PIPE INLET ROCK PROTECTION, USING CALTRANS LIGHT RIPRAP, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, MAXIMUM SLOPE OF 1.5:1, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO THE LESSER OF 3 FEET OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT HORIZONTALLY 3 FT. ALONG THE BANK ON BOTH SIDES OF THE PIPE INLET.

6. INSTALL PIPE OUTLET ROCK PROTECTION, USING RIFFLE SUBSTRATE B, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO LESSER OF 3 FEET OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT 3 FT. HORIZONTALLY ALONG THE BANK ON BOTH SIDES OF THE PIPE OUTLET.

1

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

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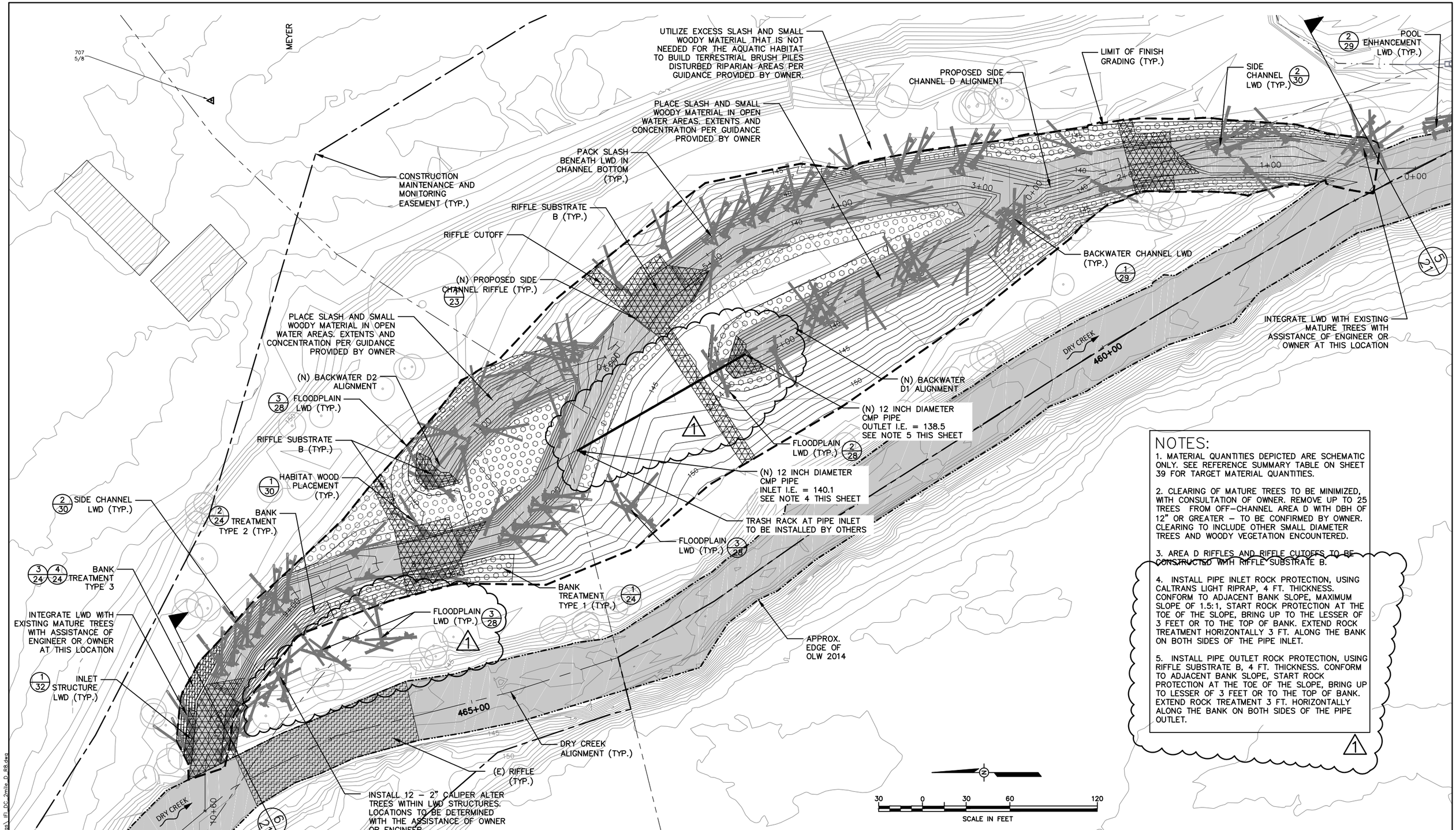
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA D – GRADING PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 16 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



NOTES:

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2. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA D WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.

3. AREA D RIFFLES AND RIFFLE CUTOFFS TO BE CONSTRUCTED WITH RIFFLE SUBSTRATE B.

4. INSTALL PIPE INLET ROCK PROTECTION, USING CALTRANS LIGHT RIPRAP, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, MAXIMUM SLOPE OF 1.5:1, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO THE LESSER OF 3 FEET OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT HORIZONTALLY 3 FT. ALONG THE BANK ON BOTH SIDES OF THE PIPE INLET.

5. INSTALL PIPE OUTLET ROCK PROTECTION, USING RIFFLE SUBSTRATE B, 4 FT. THICKNESS. CONFORM TO ADJACENT BANK SLOPE, START ROCK PROTECTION AT THE TOE OF THE SLOPE, BRING UP TO LESSER OF 3 FEET OR TO THE TOP OF BANK. EXTEND ROCK TREATMENT 3 FT. HORIZONTALLY ALONG THE BANK ON BOTH SIDES OF THE PIPE OUTLET.

1

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NO.	DATE	REVISION	BY
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1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 30 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA D –
LWD AND BANK TREATMENT PLAN

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 17 OF 43

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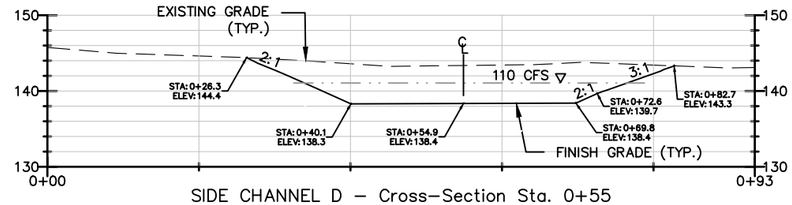
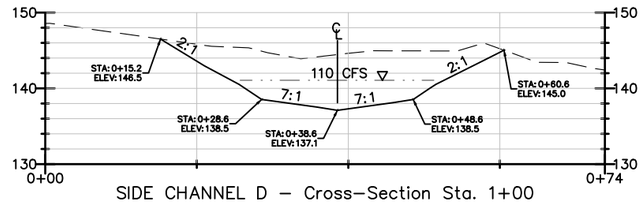
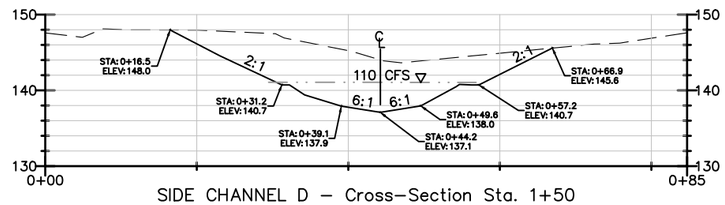


SIDE CHANNEL D – Cross-Section Sta. 0+55



SIDE CHANNEL D – Cross-Section Sta. 1+00



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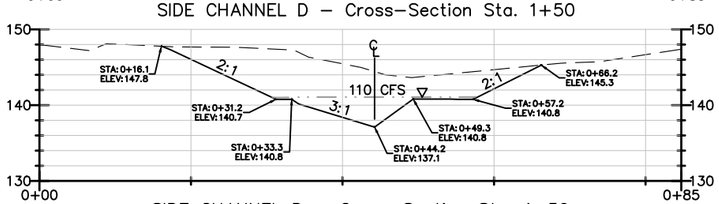

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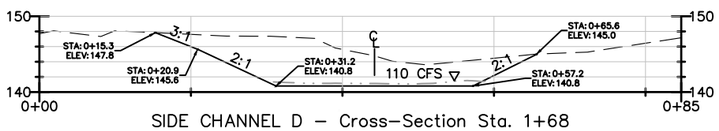
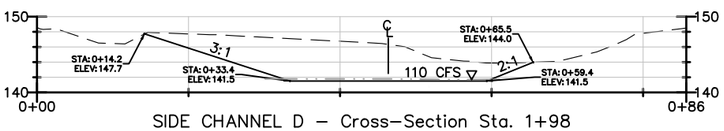


SIDE CHANNEL D – Cross-Section Sta. 1+68



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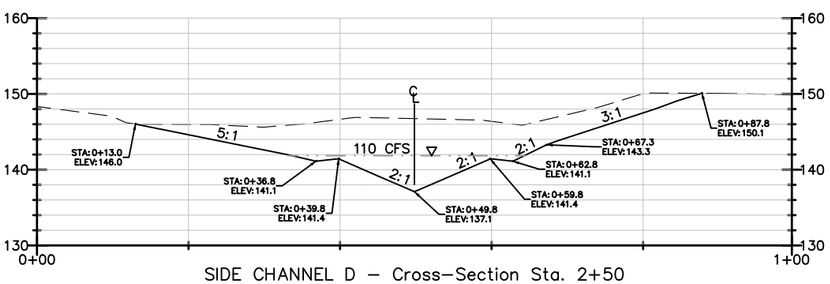

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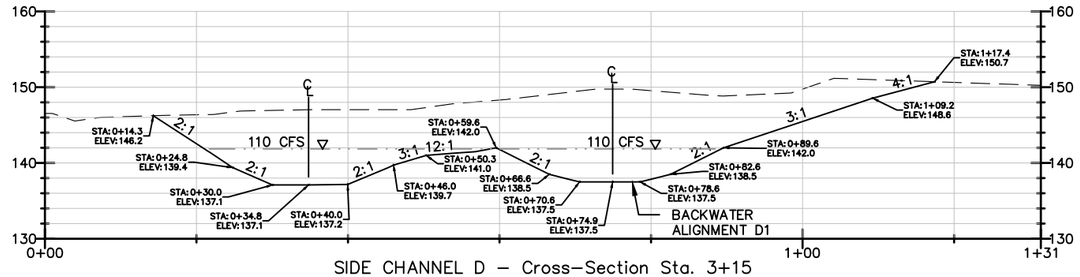

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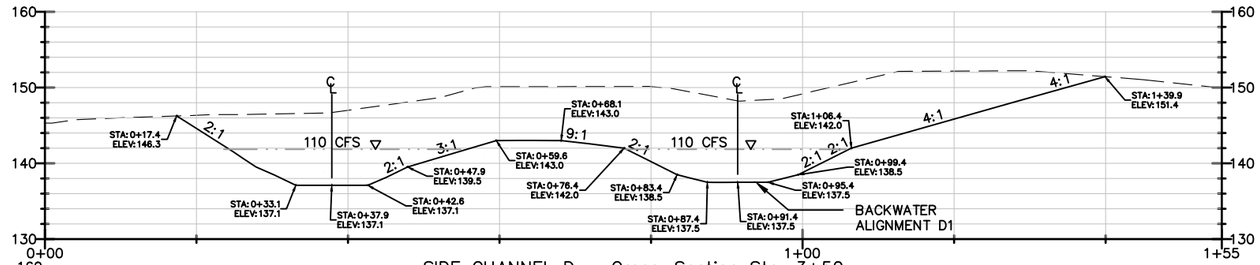

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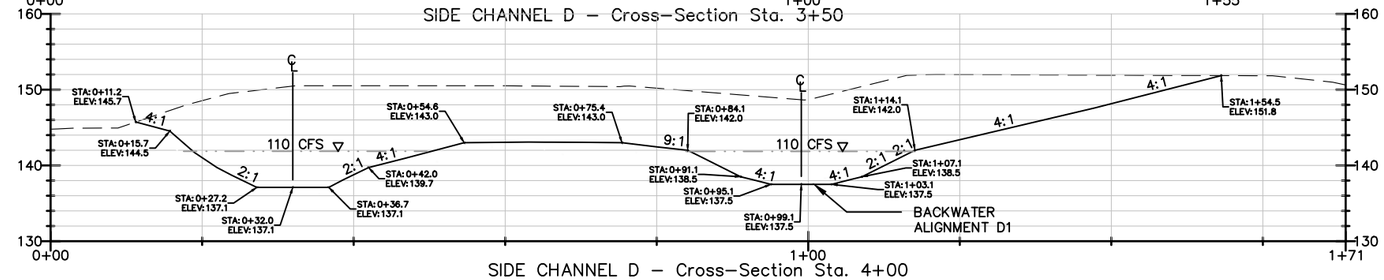

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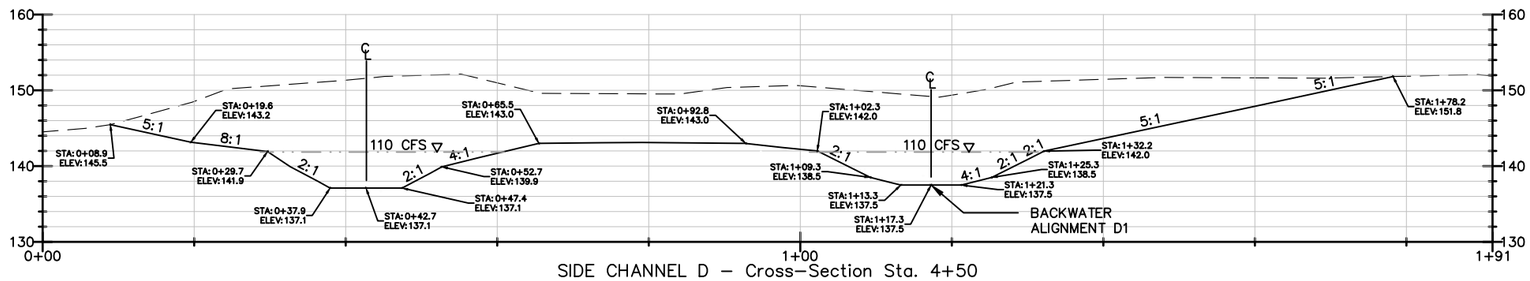
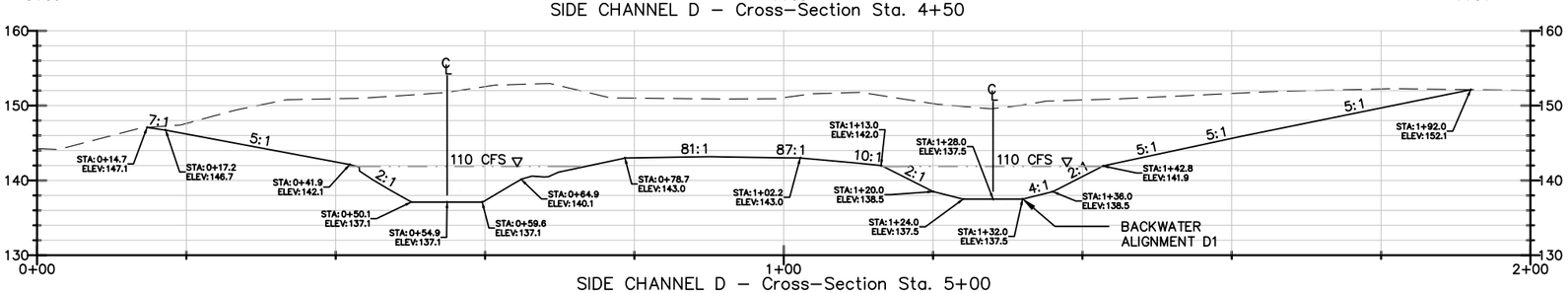


SIDE CHANNEL D – Cross-Section Sta. 4+50



SIDE CHANNEL D – Cross-Section Sta. 5+00

NOTE:
1. GRADING CROSS SECTIONS ARE ORIENTED LOOKING DOWNSTREAM FROM LEFT TO RIGHT. THE STATIONING ORIGIN FOR EACH SECTION IS AT THE EXTREME LEFT END OF THE SECTION CUT LINE.
2. RIFFLE SUBSTRATE HATCH NOT SHOWN IN ALL GRADING SECTIONS WHERE IT OCCURS, SEE PLAN VIEW.

SCALE IN FEET 10 10

1

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB
REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA D
– GRADING CROSS-SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 18 OF 43

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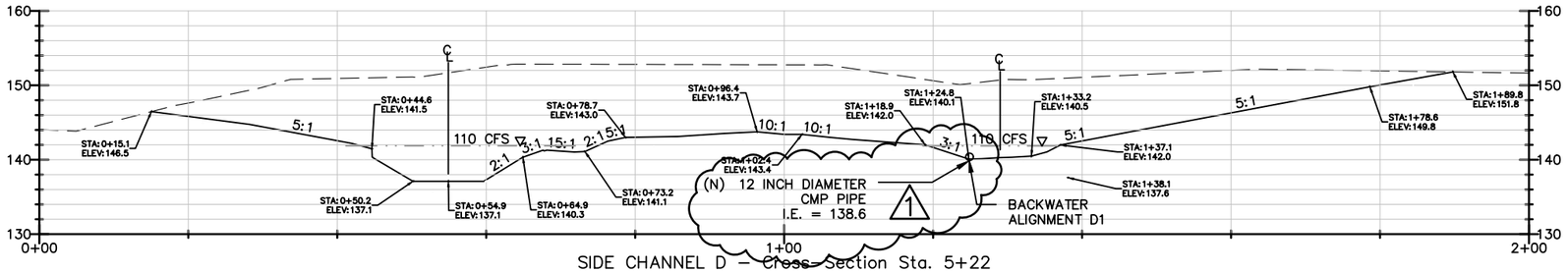
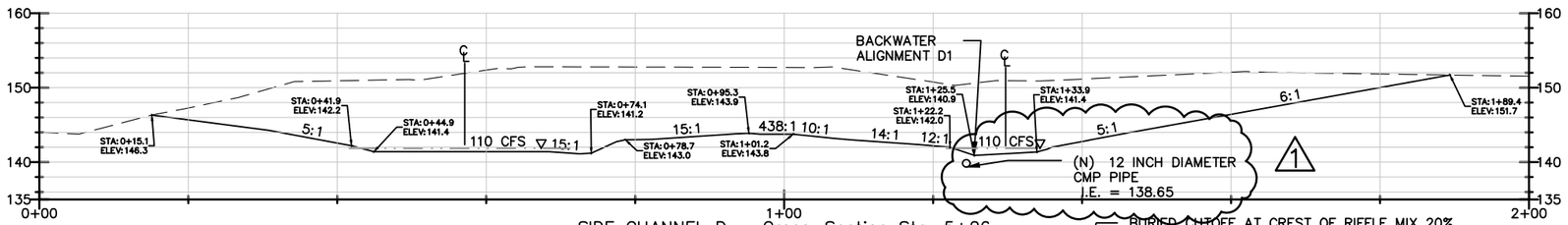
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

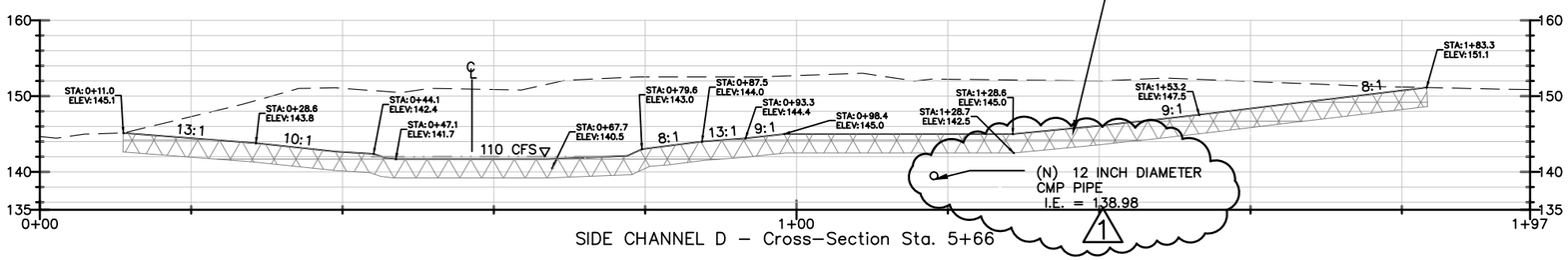


SIDE CHANNEL D – Cross-Section Sta. 5+22

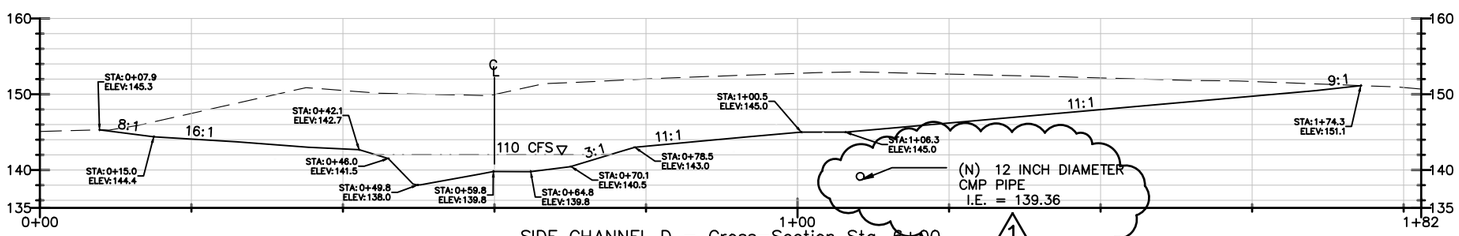


SIDE CHANNEL D – Cross-Section Sta. 5+26

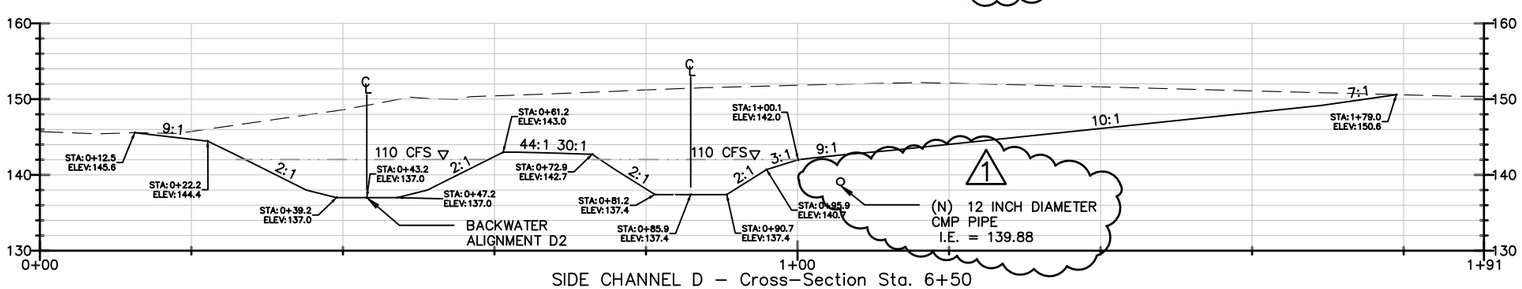
BURIED CUTOFF AT CREST OF RIFFLE MIX 20% SELECT SOIL WITH RIFFLE SUBSTRATE.



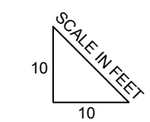
SIDE CHANNEL D – Cross-Section Sta. 5+66



SIDE CHANNEL D – Cross-Section Sta. 6+00



SIDE CHANNEL D – Cross-Section Sta. 6+50



NOTE:
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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA D
– GRADING CROSS-SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 19 OF 43

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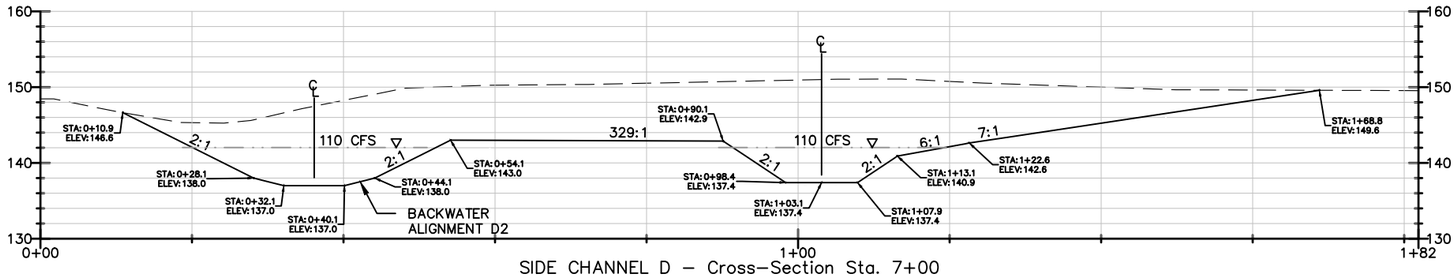
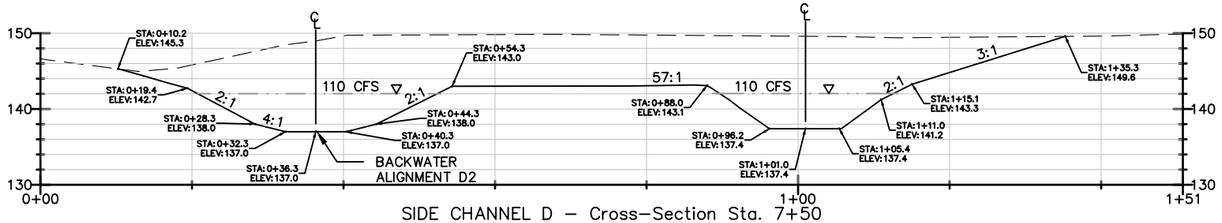


SIDE CHANNEL D – Cross-Section Sta. 7+00



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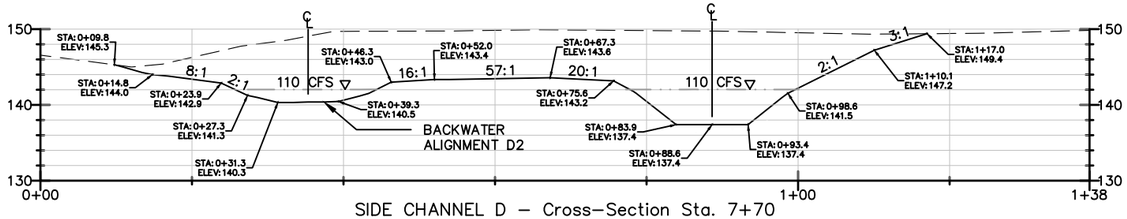

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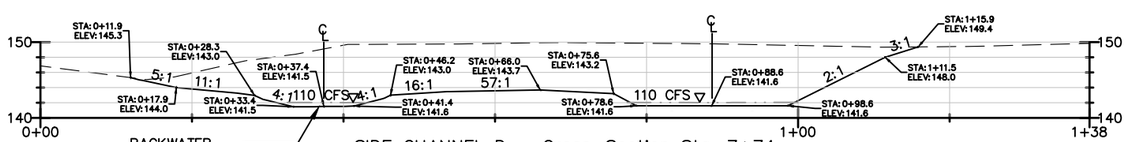
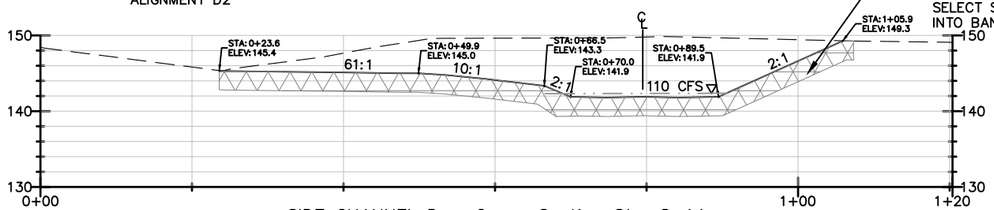
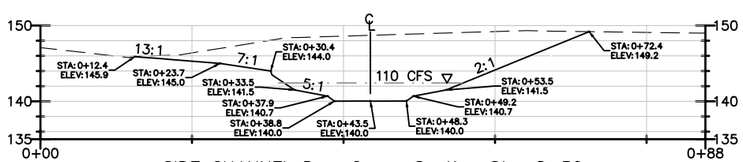


SIDE CHANNEL D – Cross-Section Sta. 7+74

BURIED CUTOFF AT CREST OF RIFFLE MIX 20% SELECT SOIL WITH RIFFLE SUBSTRATE. LENGTH INTO BANK VARIES WITH LOCATION.



SIDE CHANNEL D – Cross-Section Sta. 8+14



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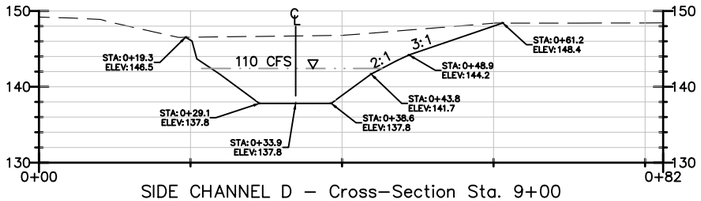
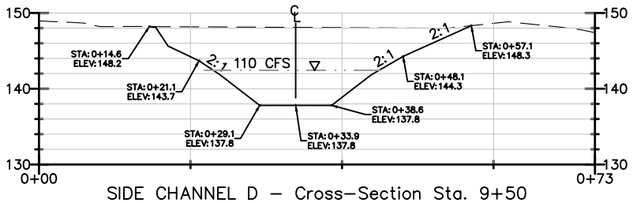
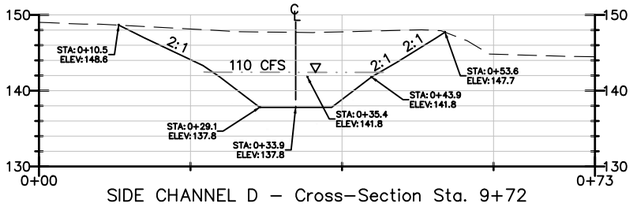


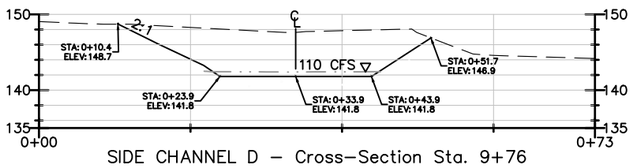
SIDE CHANNEL D – Cross-Section Sta. 9+00



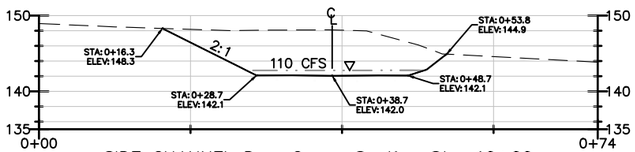
SIDE CHANNEL D – Cross-Section Sta. 9+50



SIDE CHANNEL D – Cross-Section Sta. 9+72

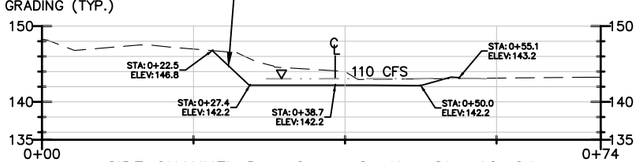


SIDE CHANNEL D – Cross-Section Sta. 9+76

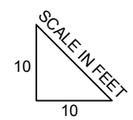


SIDE CHANNEL D – Cross-Section Sta. 10+00

BLEND TO EXISTING GRADE ALONG LIMIT OF FINISH GRADING (TYP.)



SIDE CHANNEL D – Cross-Section Sta. 10+24



NOTE:
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2. RIFFLE SUBSTRATE HATCH NOT SHOWN IN ALL GRADING SECTIONS WHERE IT OCCURS, SEE PLAN VIEW.

1

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 10 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
OFF-CHANNEL ENHANCEMENT AREA D
– GRADING CROSS-SECTIONS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 20 OF 43

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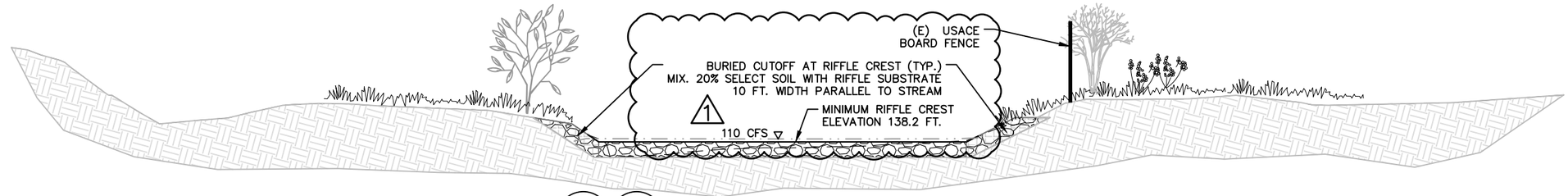
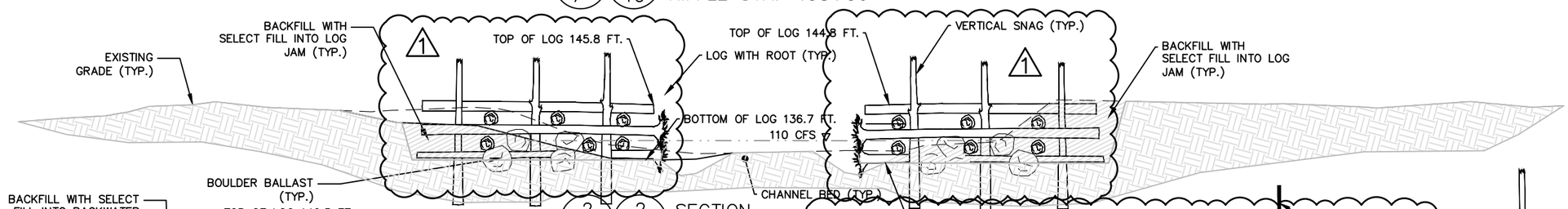
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



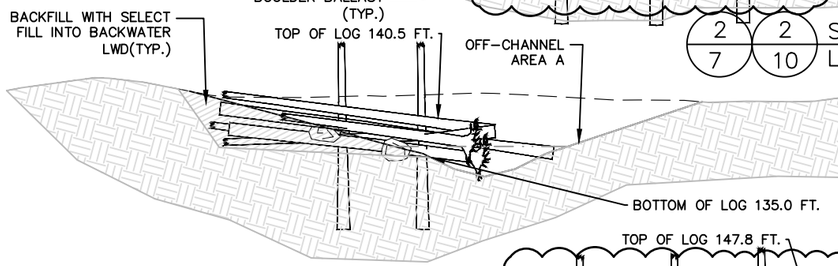
1/7 1/10 SECTION
RIFFLE STA: 438+50

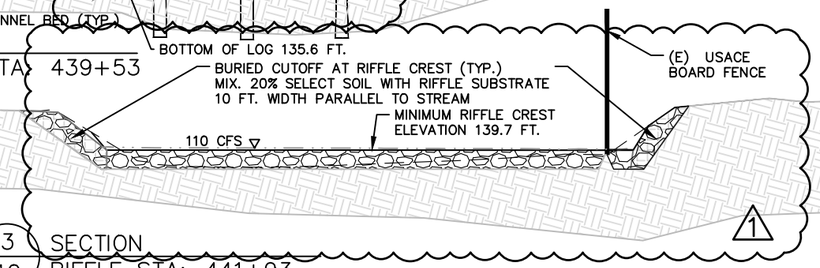
GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. PLACEMENT AND ORIENTATION OF ROOTWADS TO BE CONFIRMED WITH ASSISTANCE OF OWNER OR ENGINEER, AND MAY VARY FROM TYPICAL PLAN AND DETAILS

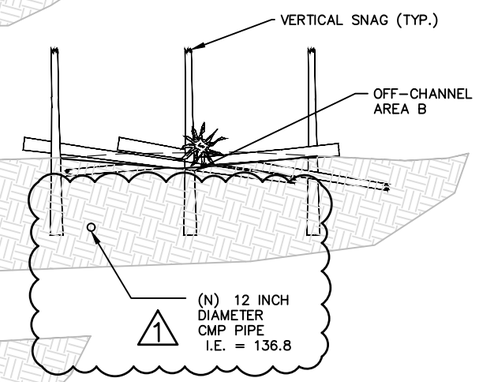


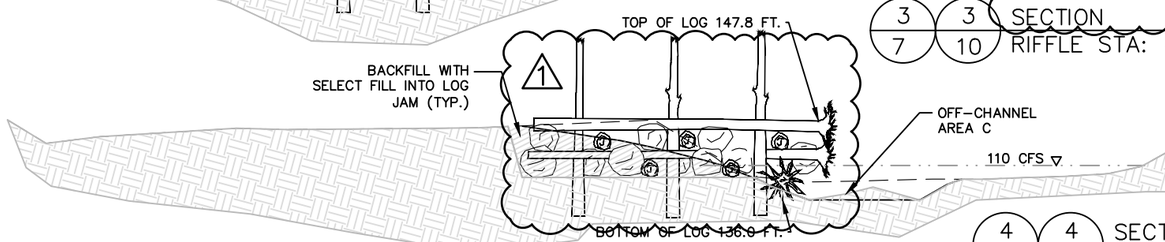
2/7 2/10 SECTION
LOG JAM STA: 439+53



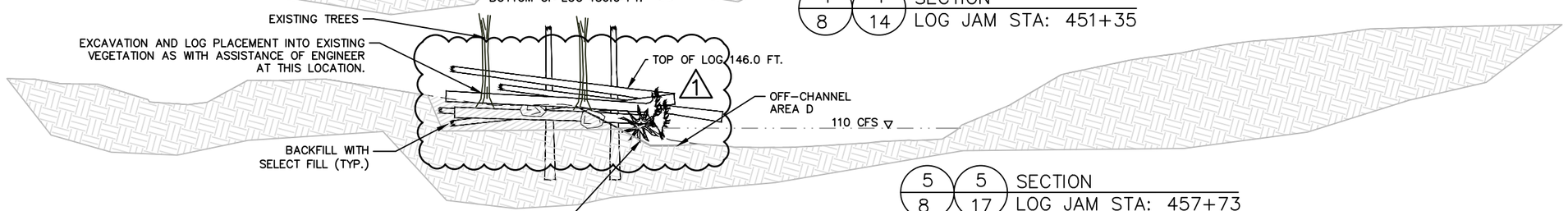


3/7 3/10 SECTION
RIFFLE STA: 441+93

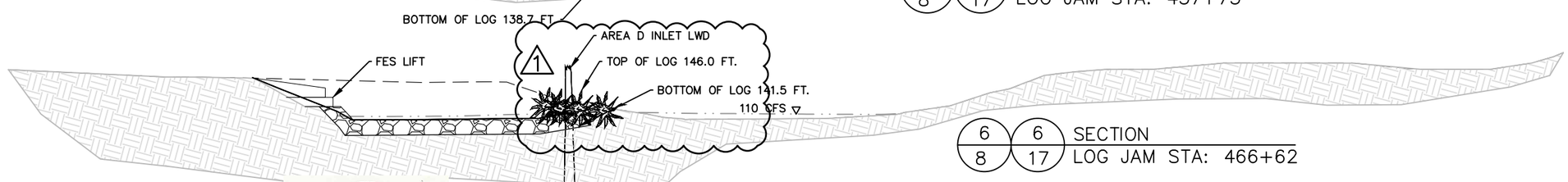




4/8 4/14 SECTION
LOG JAM STA: 451+35



5/8 5/17 SECTION
LOG JAM STA: 457+73



6/8 6/17 SECTION
LOG JAM STA: 466+62

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
CIVIL
STATE OF CALIFORNIA

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NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: 1 IN. = 5 FT.
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

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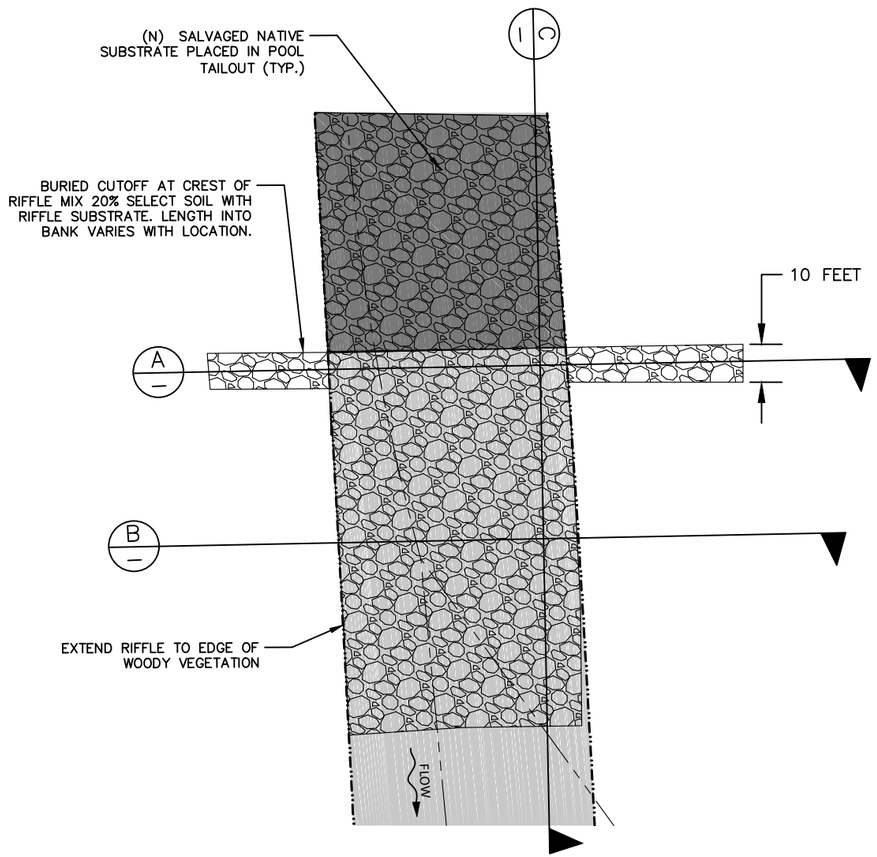
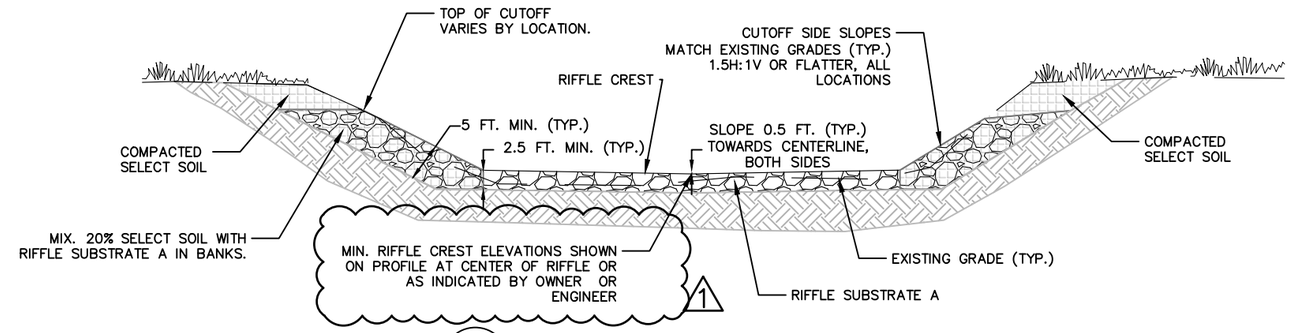
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
PHASE 2, PART 1 – MAIN CHANNEL
SECTIONS – LWD AND RIFFLES

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 21 OF 43

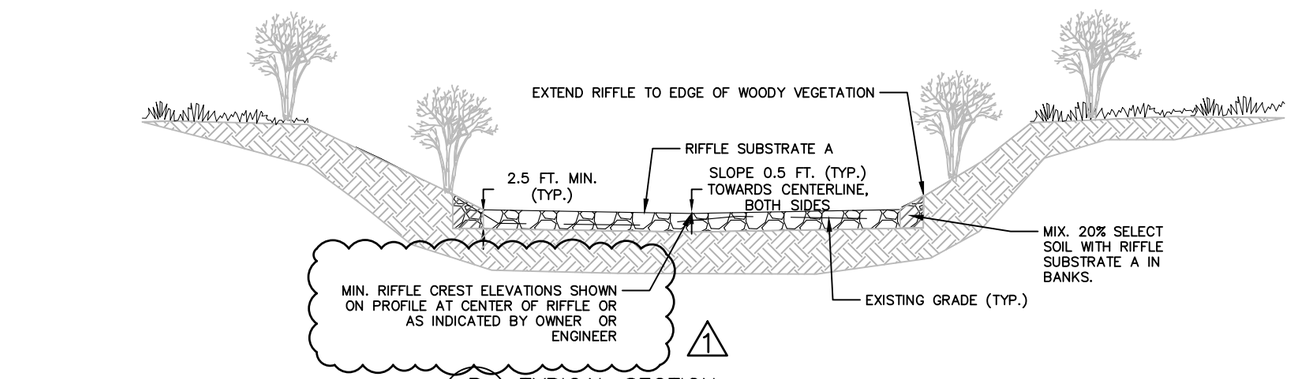
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



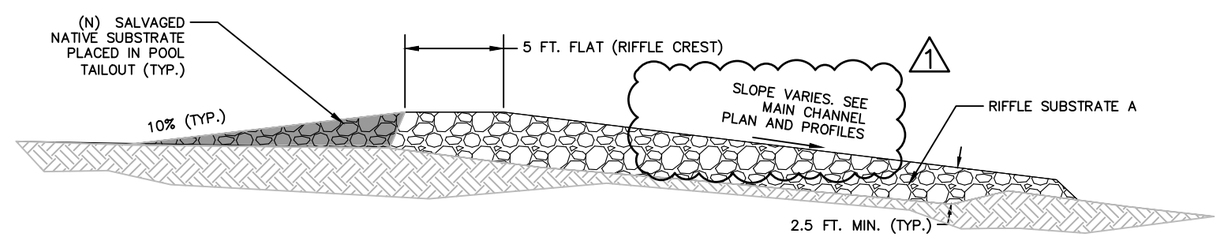
1/7 1/9 1/10 1/41 TYPICAL PLAN
RIFFLE CONSTRUCTION
NTS



A TYPICAL SECTION
RIFFLE CREST
NTS



B TYPICAL SECTION
RIFFLE (NON-CREST)
NTS



C TYPICAL PROFILE
RIFFLE
NTS

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NO.	DATE	REVISION	BY
		RECORD INFORMATION	
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SONOMA COUNTY WATER AGENCY

SCALE: VARIES
DATE: 3/14/2016
DRAWN: REP
CHECKED: MB

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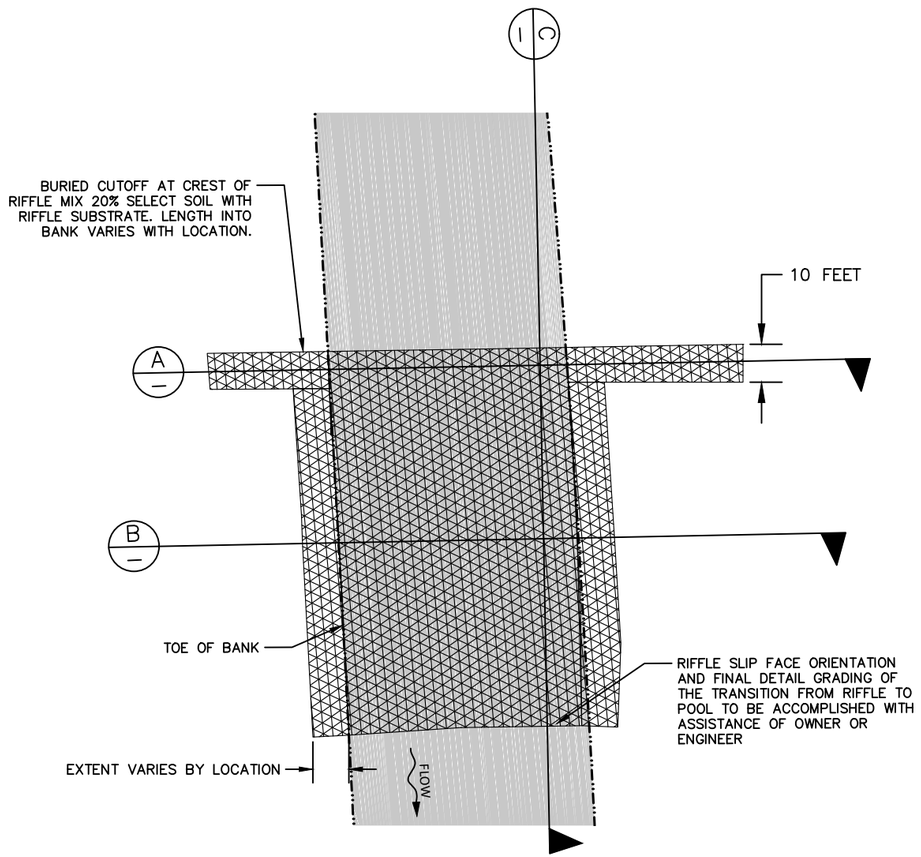
REVIEWED

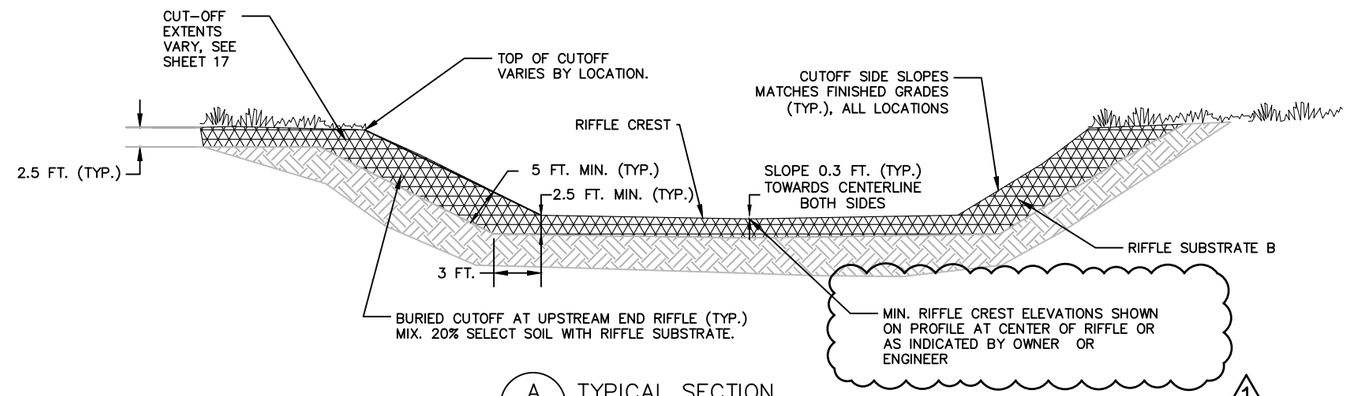
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS – MAIN CHANNEL RIFFLES

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 22 OF 43

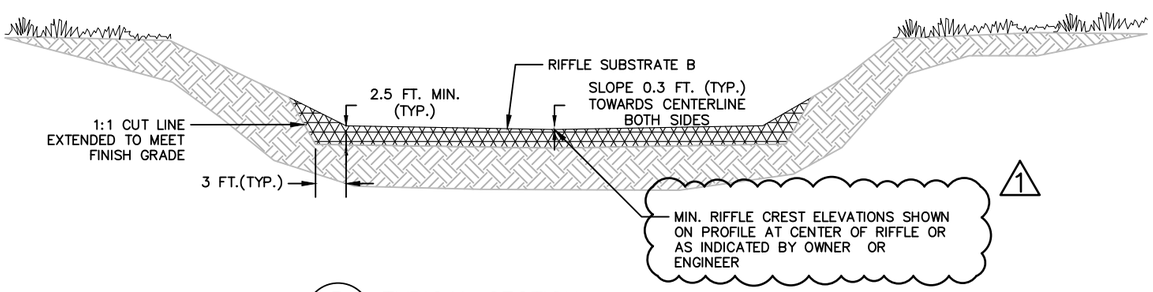
G:\C-D\Dry Creek, SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



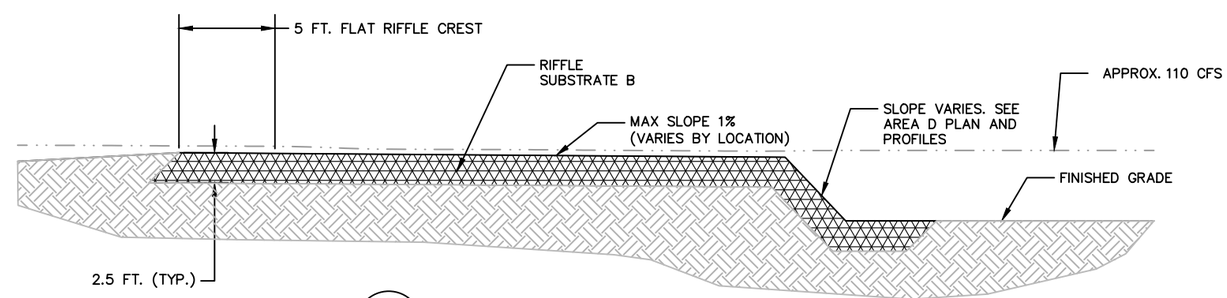
1/8 1/16 1/17 TYPICAL PLAN
SIDE CHANNEL RIFFLE CONSTRUCTION
NTS



A TYPICAL SECTION
SIDE CHANNEL RIFFLE CREST
NTS



B TYPICAL SECTION
SIDE CHANNEL RIFFLE (NON-CREST)
NTS



C TYPICAL PROFILE
SIDE CHANNEL RIFFLE
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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS – SIDE CHANNEL RIFFLES

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 23 OF 43

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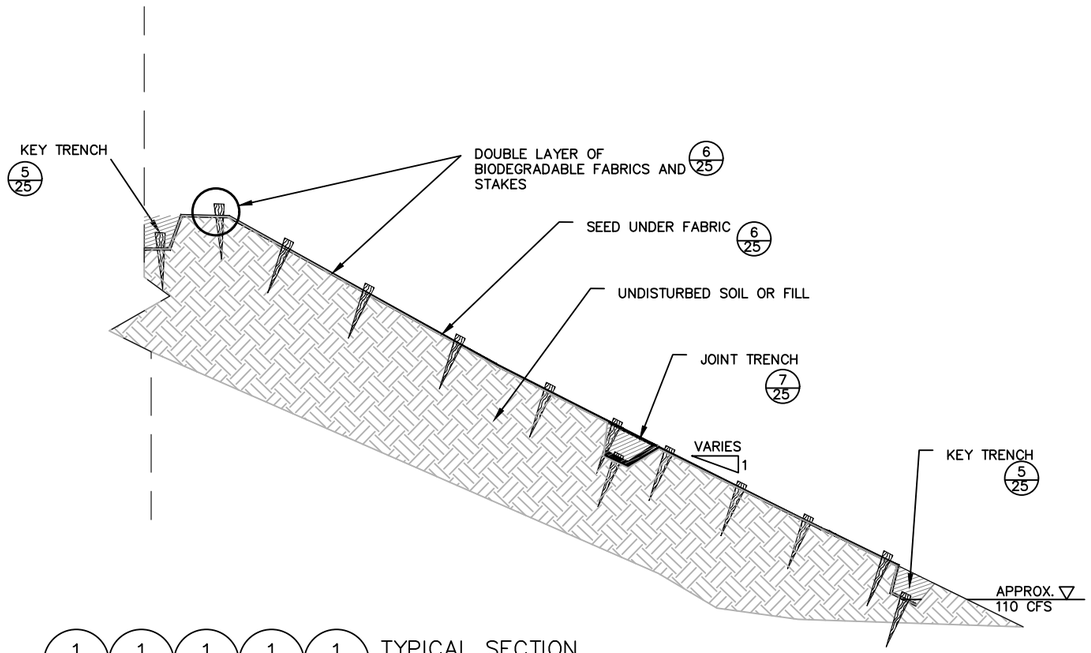
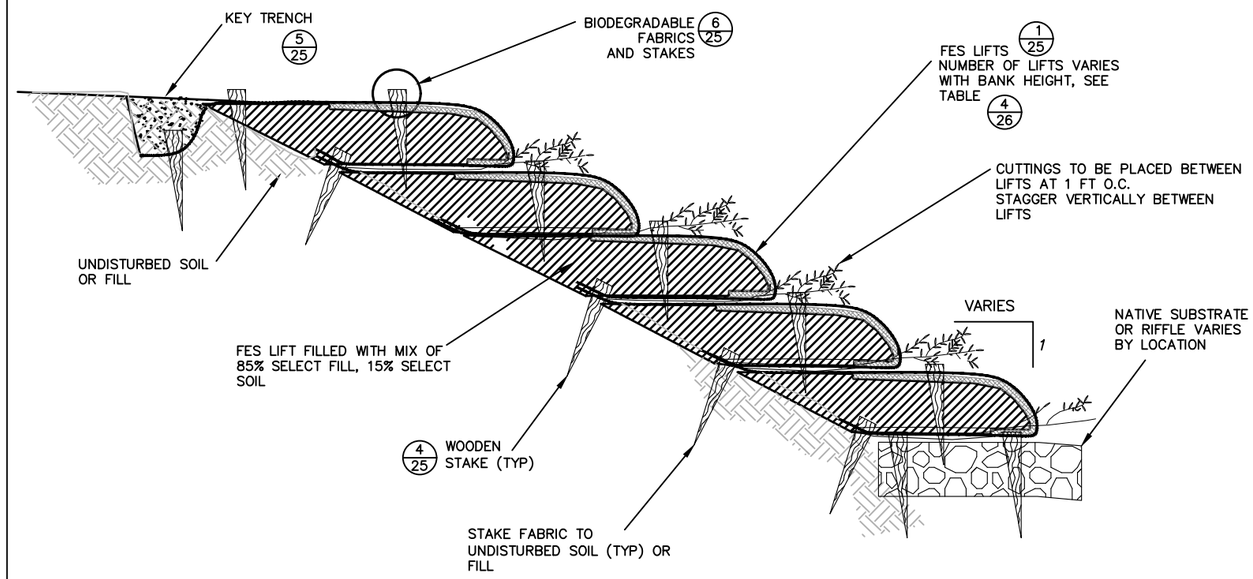
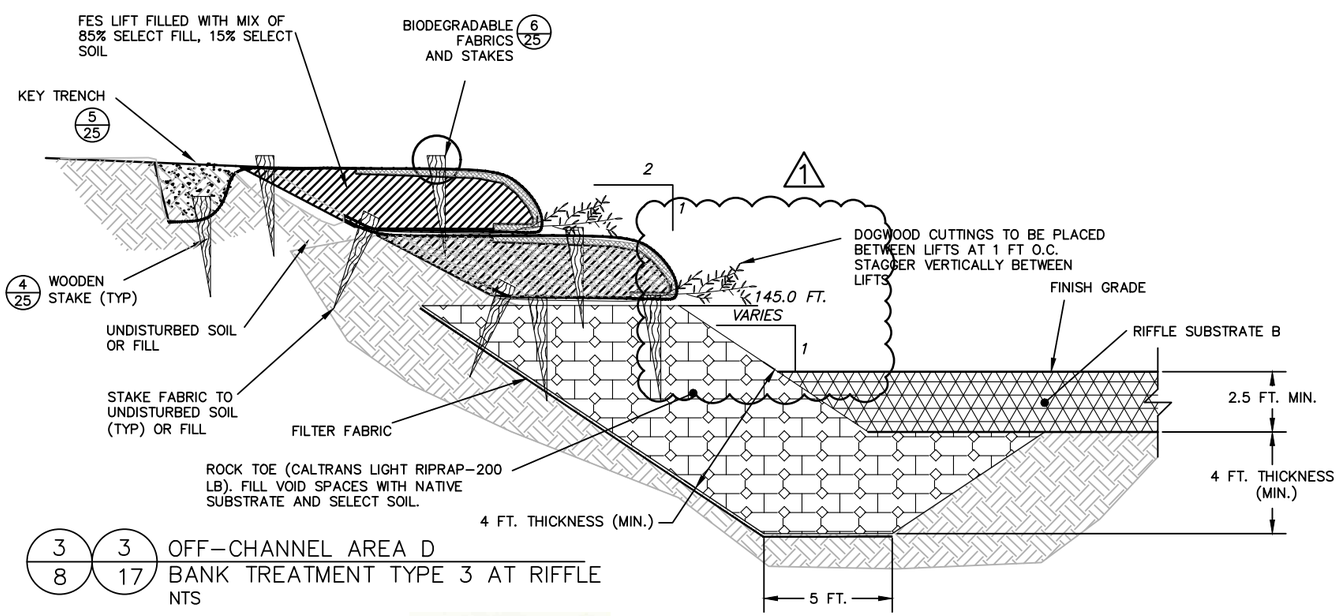


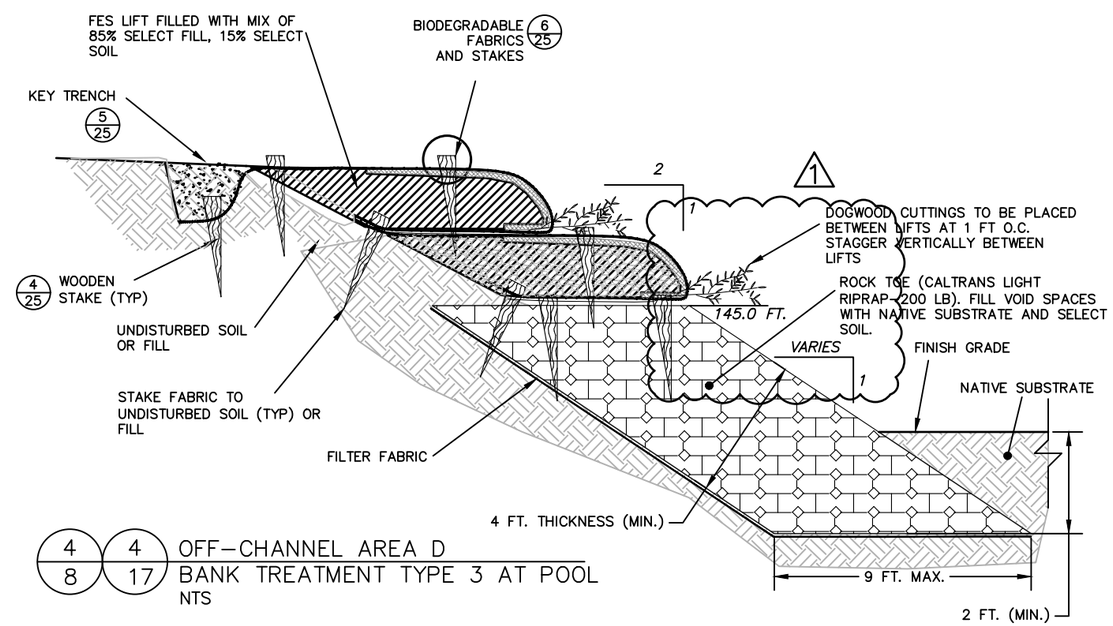
1/7 1/8 1/10 1/14 1/17 TYPICAL SECTION
BANK TREATMENT TYPE 1
NTS



2/8 2/17 TYPICAL SECTION
BANK TREATMENT TYPE 2
NTS



3/8 3/17 OFF-CHANNEL AREA D
BANK TREATMENT TYPE 3 AT RIFFLE
NTS



4/8 4/17 OFF-CHANNEL AREA D
BANK TREATMENT TYPE 3 AT POOL
NTS

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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS –
BANK TREATMENTS

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 24 OF 43

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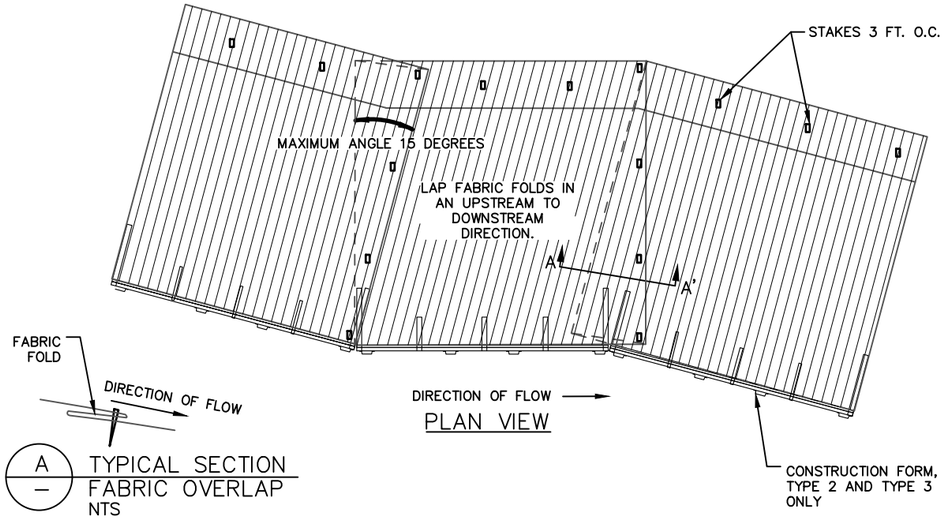
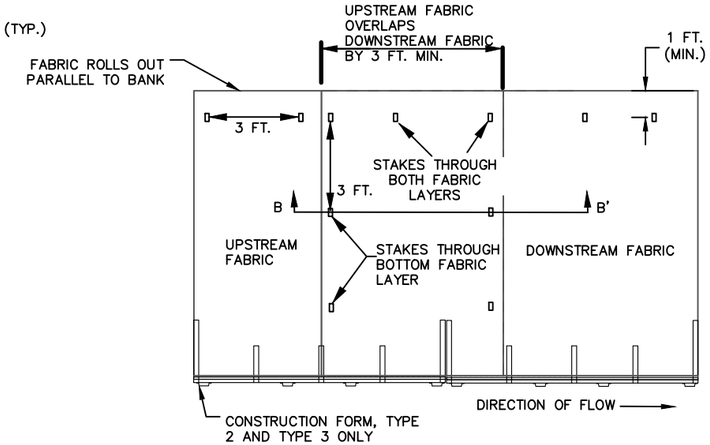
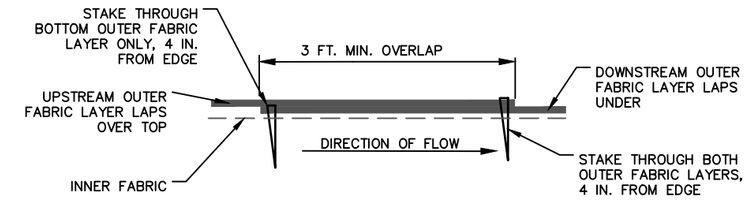


A — TYPICAL SECTION
FABRIC OVERLAP
NTS

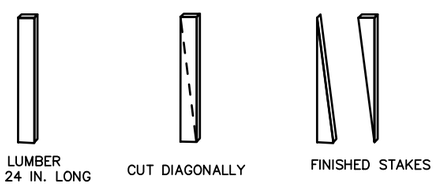
1 — TYPICAL PLAN DETAIL
FOLDING OF CONTINUOUS OUTER COIR FABRIC AT BENDS
NTS



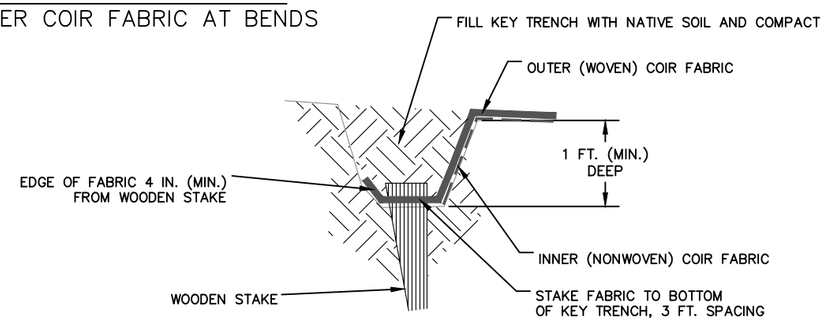
2 — TYPICAL PLAN DETAIL
OUTER FABRIC JOINING DETAILS
NTS



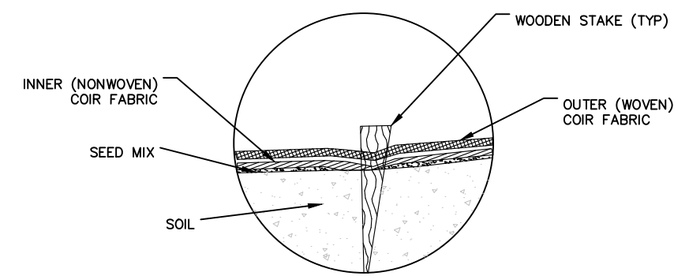
B — TYPICAL SECTION
FABRIC OVERLAP
NTS



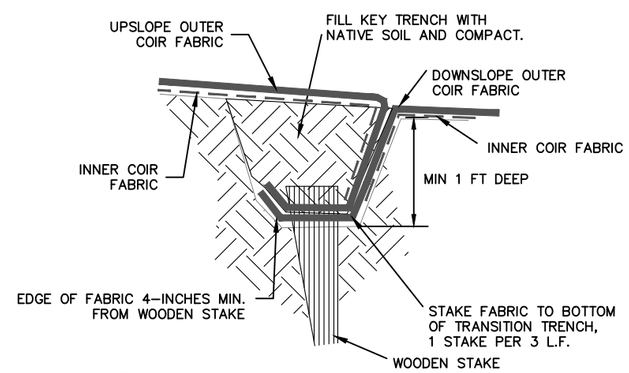
4/24 WOODEN STAKE FABRICATING DETAILS
NTS



5/24 KEY TRENCH DETAIL
TRENCH INTO SOIL
NTS



6/24 TYPICAL DETAIL
BIODEGRADABLE FABRICS AND STAKES
NTS



7/24 JOINT TRENCH DETAIL
NTS

GENERAL NOTES ON SECURING COIR FABRIC

1. THE HOLES FOR STAKES SHALL NOT BE PRECUT. ALLOW THE STAKE TO BREAK THE MINIMUM NUMBER OF STRANDS AS IT IS BEING DRIVEN. DRIVE STAKES SO THAT 3 IN. OF THE TOP OF STAKE IS LEFT EXPOSED.

2. FORMS MAY BE ANGLED TO CREATE BENDS IN THE LIFTS AS NEEDED. FABRIC SHALL BE FOLDED AS SHOWN. NO BEND SHALL EXCEED A 15 DEGREE ANGLE. FOLDS SHALL BE MADE IN AN UPSTREAM TO DOWNSTREAM DIRECTION. STAKE THE FOLDS AS SHOWN.

3. OUTER FABRIC ENDS SHALL BE JOINED BY LAPPING THE UPSTREAM PIECE OF FABRIC OVER THE DOWNSTREAM PIECE AS SHOWN. OVERLAPS SHALL BE A MINIMUM OF 3 FEET. INNER FABRIC ENDS SHALL BE BUTTED TOGETHER, NOT OVERLAPPED. OVERLAPS IN OUTER FABRIC SHALL BE STAGGERED FROM LIFT TO LIFT BY A MINIMUM OF 10 FT.

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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS –
BANK CONSTRUCTION

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
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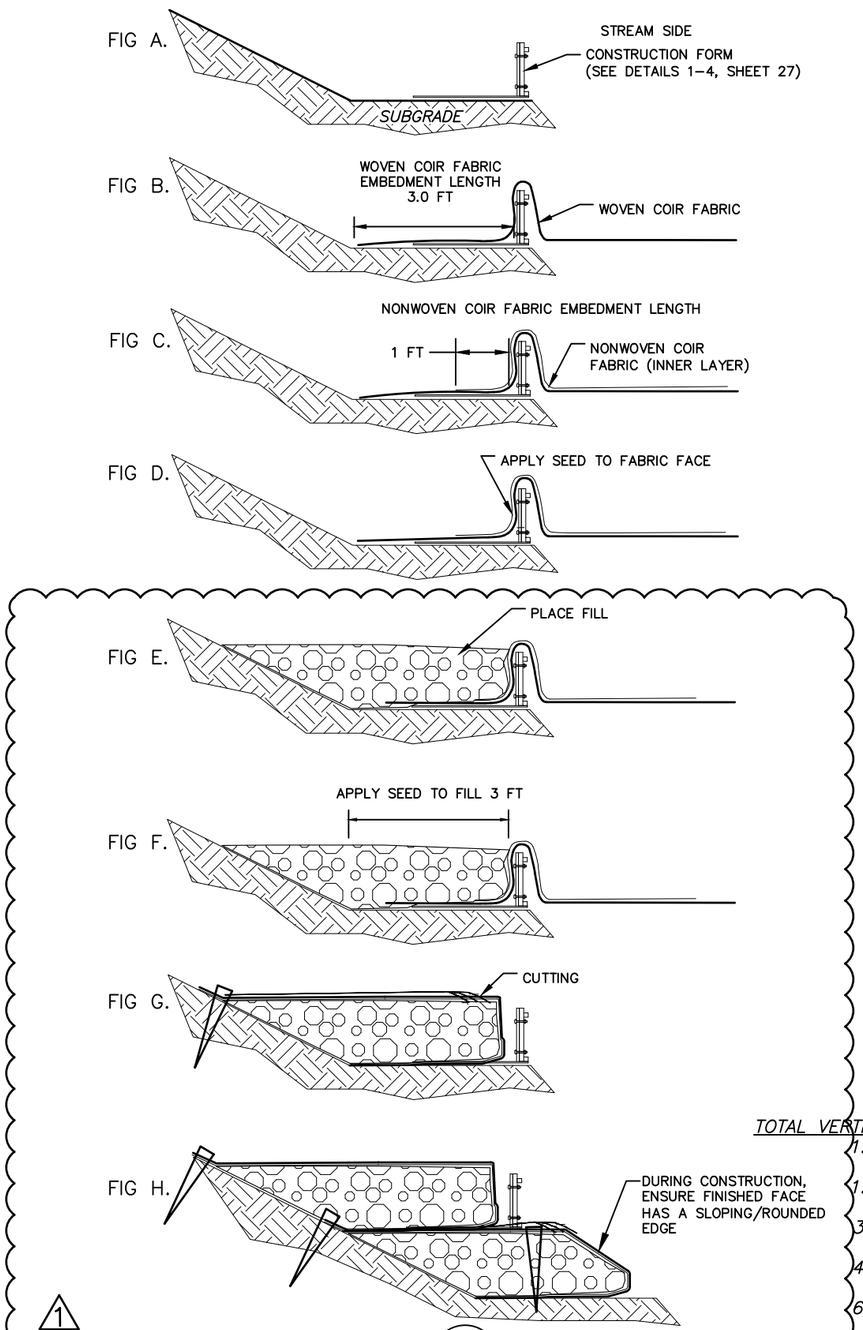

1 / 24 TYPICAL SECTION
TYPICAL CONSTRUCTION SEQUENCE FOR FES LIFTS
NTS

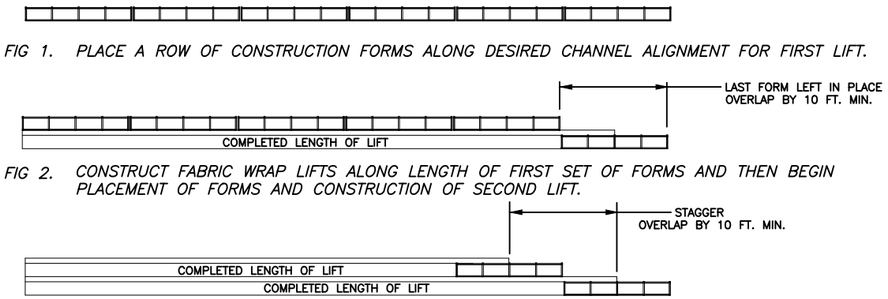

FIG 1. PLACE A ROW OF CONSTRUCTION FORMS ALONG DESIRED CHANNEL ALIGNMENT FOR FIRST LIFT.

FIG 2. CONSTRUCT FABRIC WRAP LIFTS ALONG LENGTH OF FIRST SET OF FORMS AND THEN BEGIN PLACEMENT OF FORMS AND CONSTRUCTION OF SECOND LIFT.

FIG 3. STAGGER FABRIC OVERLAPS A MINIMUM OF 10 FT. BETWEEN LIFTS.

2 / – TYPICAL ELEVATION VIEW
CONSTRUCTION SEQUENCE FOR FES LIFTS
NTS

1. FES LIFTS MAY BE CONSTRUCTED IN EITHER AN UPSTREAM OR DOWNSTREAM DIRECTION, AS LONG AS THE FABRIC IS OVERLAPPED IN THE PROPER DIRECTION.

2. EACH LIFT MAY HAVE A UNIQUE FILL COMPOSITION AND VARYING PLACEMENT OF CUTTINGS. SEE TYPICAL SECTIONS.

3. PLACE A SERIES OF THREE OR MORE FORMS ON THE GROUND SO THAT THE FORMS FOLLOW THE PROPOSED STREAM BANK ALIGNMENT. BUTT THE ENDS OF THE FORMS TIGHTLY TOGETHER (FIG A).

4. UNROLL THE WOVEN COIR FABRIC PARALLEL TO THE LONG AXIS OF THE CHANNEL AND POSITION IT SO THAT 3.0 FEET EXTENDS FOR EMBEDMENT ON THE BANK SIDE OF THE FORMS (FIG B), AND A MINIMUM 3 FEET EXTENDS LENGTHWISE BEYOND THE LAST FORM FOR OVERLAP. DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE (FIG B).

5. UNROLL THE NONWOVEN COIR FABRIC OVER THE TOP OF THE WOVEN COIR FABRIC AND POSITION IT SO THAT AT LEAST 1 FOOT OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS (FIG C). DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE AND ALIGN THE LONG EDGES OF THE COIR FABRICS. STRETCH AND PULL THE FABRIC LAYERS TO REMOVE WRINKLES.

6. APPLY NATIVE SEED MIX TO NONWOVEN COIR FABRIC ALONG VERTICAL EDGE OF LIFT (FIG D). PLACE SPECIFIED FILL OVER THE FABRIC ON THE BANK SIDE OF THE FORMS. LEVEL THE FILL AND COMPACT (FIG E).

7. APPLY NATIVE SEED MIX TO TOP OF FILL FROM THE FRONT OF THE LIFT TO 3 FT BACK FROM FRONT OF THE LIFT (FIG F).

8. FOLD THE LOOSE ENDS OF THE TWO COIR FABRIC LAYERS BACK OVER THE COMPACTED FILL MATERIAL AND STRETCH TIGHTLY TO REMOVE WRINKLES AND GIVE THE FACE A SLOPING OR ROUNDED EDGE (FIG G). SECURE WITH WOODEN STAKES 1 PER 3 L.F. ALONG THE BACK EDGE AND INTO UNDISTURBED SOIL.

9. REMOVE THE FORMS FROM THE FRONT OF THE COMPLETED LIFTS AND SHAPE LIFT FACE AS NEEDED. LEAVE THE LAST FORM IN PLACE AT THE END OF THE NEWLY CONSTRUCTED LIFT (DETAIL 2, FIGURE 2 THIS SHEET). PLACE CUTTINGS ON TOP OF THE FINISHED LAYER BEFORE INSTALLING THE NEXT LIFT (FIG G). PLACE A SMALL AMOUNT OF SOIL OVER THE CUTTINGS. CAREFULLY RESET THE FORMS ON TOP OF THE FINISHED LAYER FOR THE NEXT LIFT (FIG H) TO AVOID DAMAGING THE CUTTING.

10. PROCEED WITH A NEW SERIES OF LIFTS BY EXTENDING A NEW ROW OF FORMS. OFFSET FORMS TO ESTABLISH THE DESIGN BANK SLOPE BEGINNING AT THE END FORM THAT WAS LEFT IN PLACE, LAY OUT TWO NEW LAYERS OF FABRIC AS PREVIOUSLY DESCRIBED, MAKING SURE TO OVERLAP THE NEW FABRIC LAYERS WITH THE PREVIOUS LAYERS. STAGGER OVERLAPS, BETWEEN ADJACENT LIFTS BY A MINIMUM OF 15 FEET (DETAIL 2, FIGURE 3 THIS SHEET).

11. UPON COMPLETTION OF TOP LIFT, INSTALL KEY TRENCH PARALLEL TO THE BANK AT THE LANDWARD EDGE OF THE WOVEN FABRIC. SEE DETAIL 5 SHEET 25.

12. BACKFILL THE KEY TRENCH WITH NATIVE SOIL AND SMOOTH TO MERGE WITH EXISTING CONTOURS. APPLY SEED MIX TO KEY TRENCH AREA.

3 / – TYPICAL SEQUENCE
CONSTRUCTION OF FES LIFTS
NTS

TOTAL VERTICAL BANK HEIGHT (FT)	*NUMBER OF LIFTS*	*TOTAL VERTICAL BANK HEIGHT (FT)*	*NUMBER OF LIFTS*
1.0 TO 1.5	*1*	*9.1 TO 10.5*	*7*
1.6 TO 3.0	*2*	*10.6 TO 12.0*	*8*
3.1 TO 4.5	*3*	*12.1 TO 13.5*	*9*
4.6 TO 6.0	*4*	*13.6 TO 15.0*	*10*
6.1 TO 7.5	*5*		
7.6 TO 9.0	*6*		

FES LIFT NOTES:
1. TOP AND BOTTOM LIFTS SHALL USE 13 FOOT WIDE WOVEN COIR FOR THE OUTER FABRIC. MIDDLE LIFTS SHALL USE 10 FOOT WIDE WOVEN COIR FOR THE OUTER FABRIC.
2. MAXIMUM LIFT HEIGHT IS 18 IN.

4 / 24 TABLE
NUMBER OF FES LIFTS FOR BANK HEIGHT

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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS – FES LIFT (1 OF 2)

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 26 OF 43

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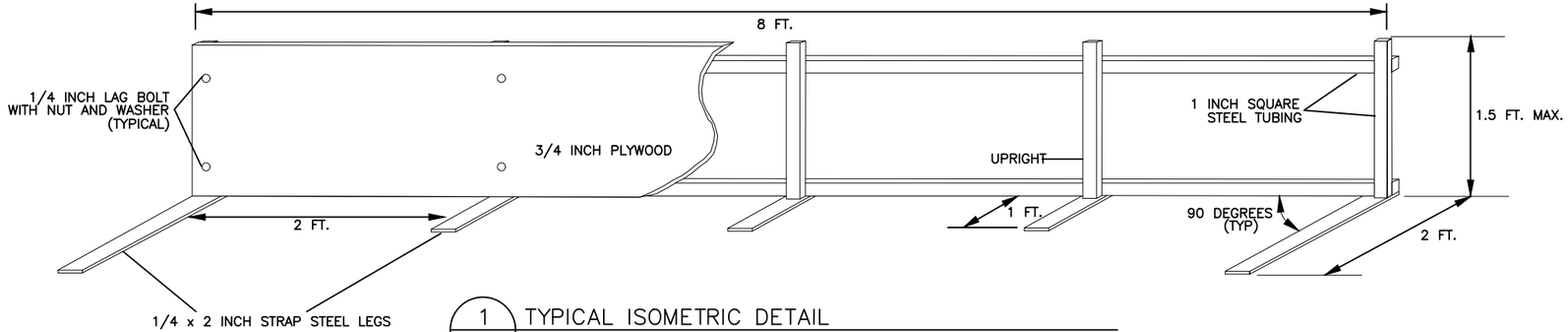
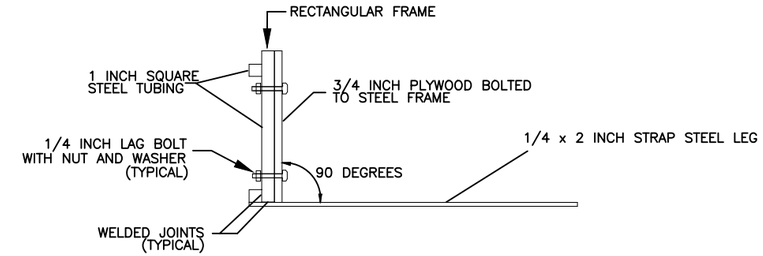
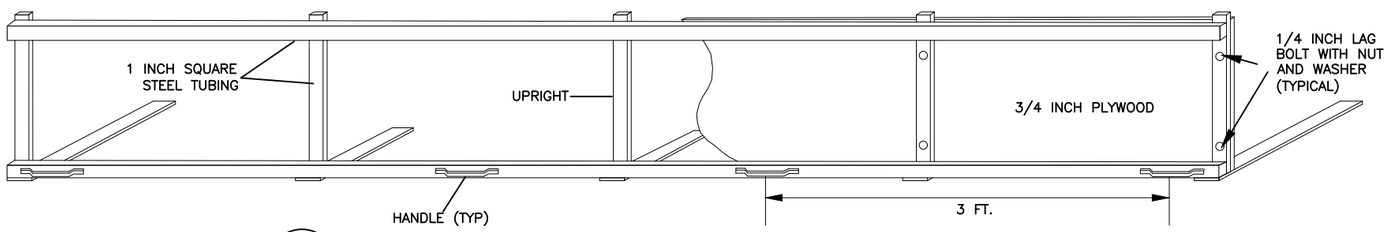


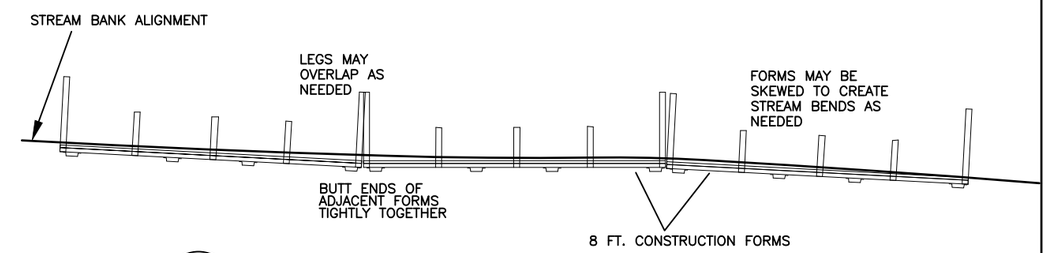
1 TYPICAL ISOMETRIC DETAIL
FABRICATED CONSTRUCTION FORM FOR FES LIFTS
NTS
ISOMETRIC VIEW FROM REAR



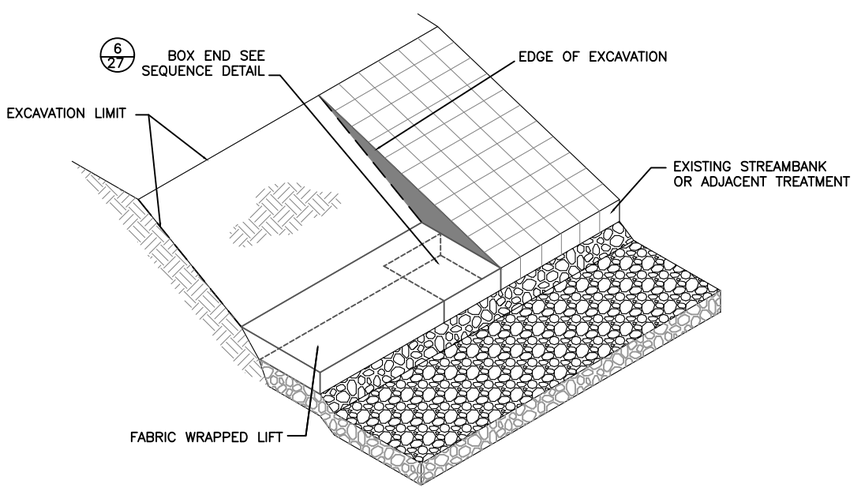
3 TYPICAL SECTION
FABRICATED CONSTRUCTION FORM FOR FES LIFTS
NTS



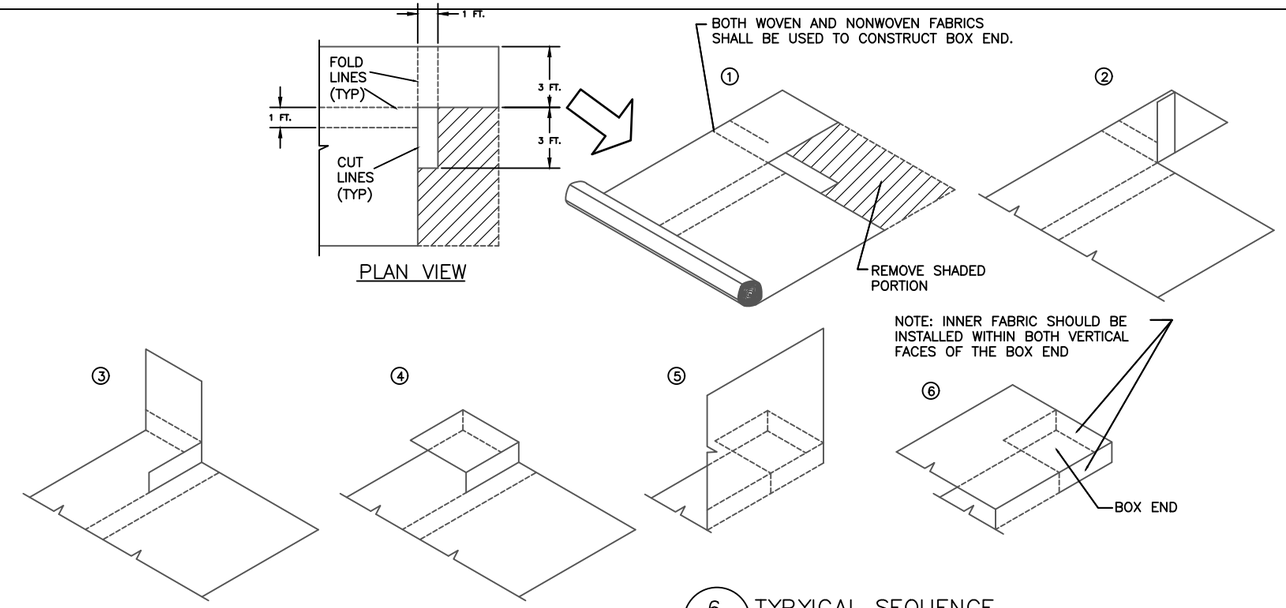
2 TYPICAL ISOMETRIC DETAIL
FABRICATED CONSTRUCTION FORM FOR FES LIFTS
NTS
ISOMETRIC VIEW FROM FRONT



4 TYPICAL PLAN DETAIL
FABRICATED CONSTRUCTION FORM FOR FES LIFTS
NTS



5 ISOMETRIC VIEW
BOX END AT FES LIFT TERMINATION
NTS



6 TYPYICAL SEQUENCE
BOX END AT FES LIFT TERMINATION
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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

TYPICAL DETAILS – FES LIFT (2 OF 2)

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 27 OF 43

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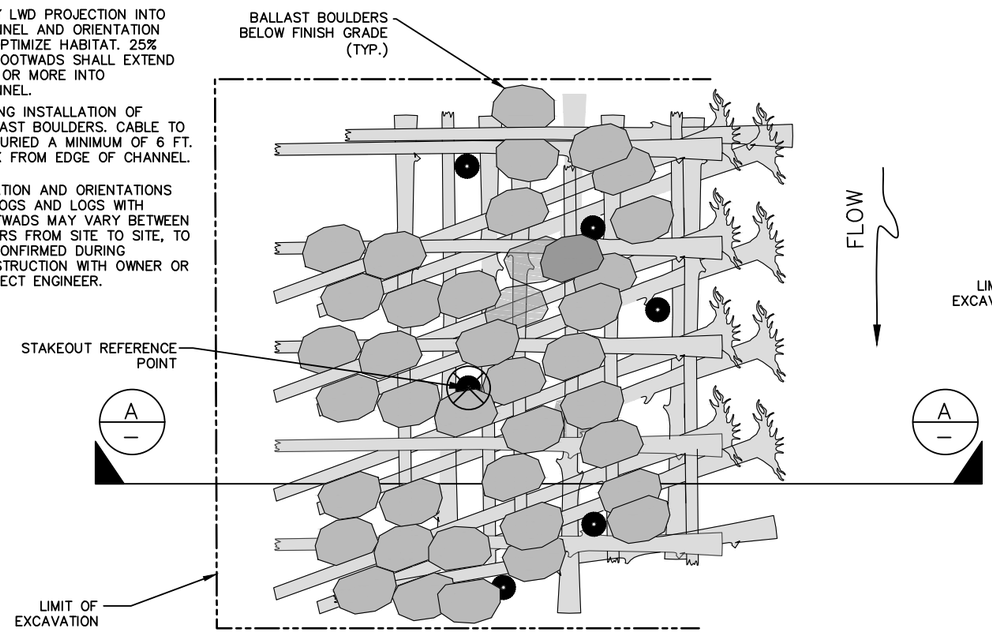
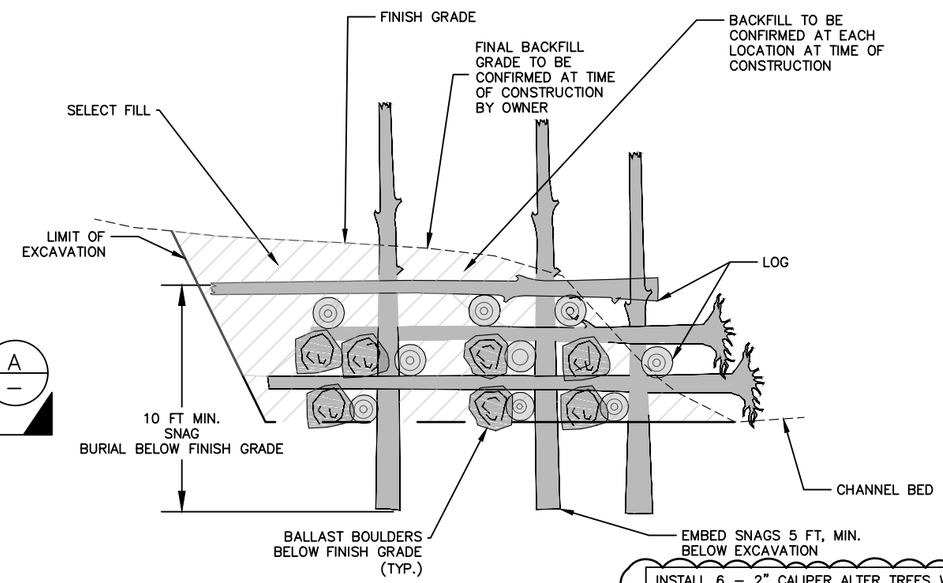
LOG JAM SPECIFIC NOTES:

1. VARY LWD PROJECTION INTO CHANNEL AND ORIENTATION TO OPTIMIZE HABITAT. 25% OF ROOTWADS SHALL EXTEND 8FT. OR MORE INTO CHANNEL.
2. DURING INSTALLATION OF BALLAST BOULDERS. CABLE TO BE BURIED A MINIMUM OF 6 FT. BACK FROM EDGE OF CHANNEL.
3. LOCATION AND ORIENTATIONS OF LOGS AND LOGS WITH ROOTWADS MAY VARY BETWEEN LAYERS FROM SITE TO SITE, TO BE CONFIRMED DURING CONSTRUCTION WITH OWNER OR PROJECT ENGINEER.



1 1 1 1 / 7 8 10 14 TYPICAL PLAN DETAIL
LOG JAM
1 IN = 5 FT.



A / – TYPICAL SECTION
LOG JAM

GENERAL SHEET NOTES:

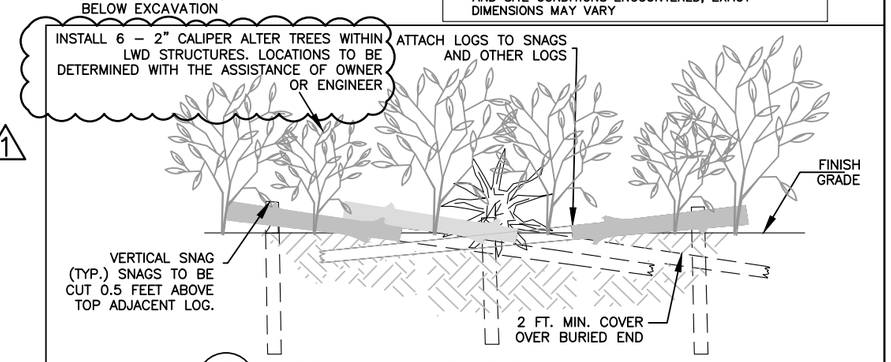
1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES BELOW
3. SEE SHEET 33 FOR LOGJAM CONSTRUCTION SEQUENCE.
4. SEE SHEET 34 FOR FLOODPLAIN LWD CONSTRUCTION SEQUENCE.
5. SEE SHEET 40 FOR LWD ATTACHMENT AND BALLASTING DETAILS.

1

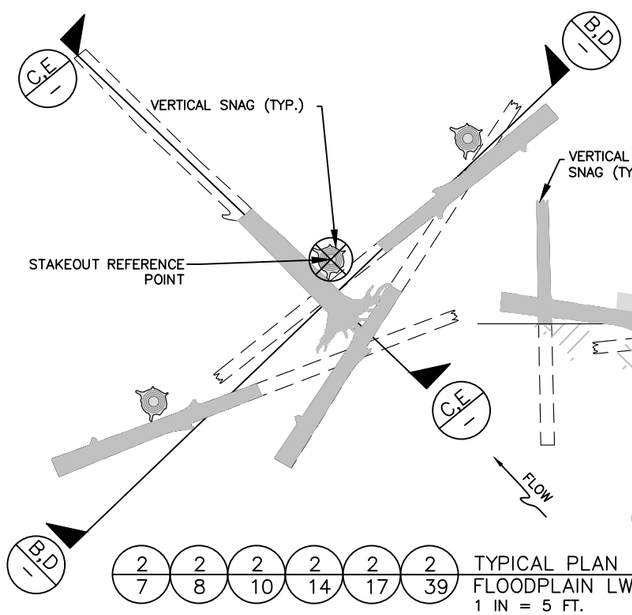
GENERAL LWD INSTALLATION NOTES:

1. SPECIFIC ORIENTATION OF LWD AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SITE CONDITIONS AND SIZE AND SHAPE OF MATERIALS DELIVERED TO THE SITE.
2. OWNER SHALL COORDINATE WITH CONTRACTOR DURING INSTALLATION OF LWD TO CONFIRM PLACEMENT, ORIENTATION AND BALLASTING.
3 LWD SHALL BE BALLASTED TO RESIST BUOYANCY BY PARTIAL BURIAL, CABLING TO OTHER LWD, SECURING TO VERTICAL SNAGS OR BOULDERS, OR OTHER METHODS.
4. EXISTING TREES MAY BE SUBSTITUTED FOR SNAGS IN SELECT LOCATIONS, TO BE CONFIRMED BY OWNER.
5. BALLAST BOULDERS TO BE PLACED BELOW FINISH GRADE ONLY.
6. SUBGRADE SLOPE MAY BE ADJUSTED BASED ON LOCAL SITE CONDITIONS WITH THE ASSISTANCE OF OWNER OR ENGINEER.
7. DUE TO ANTICIPATED VARIATION IN MATERIAL SIZE AND SITE CONDITIONS ENCOUNTERED, EXACT DIMENSIONS MAY VARY

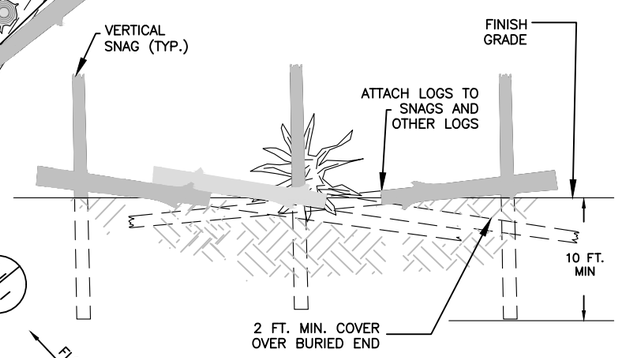
1



D / – TYPICAL ELEVATION VIEW
ALTERNATE FLOODPLAIN LWD WITH CUT–OFF SNAGS
NTS



2 2 2 2 2 2 / 7 8 10 14 17 39 TYPICAL PLAN
FLOODPLAIN LWD
1 IN = 5 FT.



B / – TYPICAL ELEVATION VIEW
FLOODPLAIN LWD
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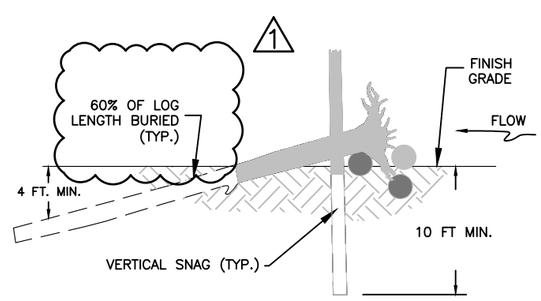
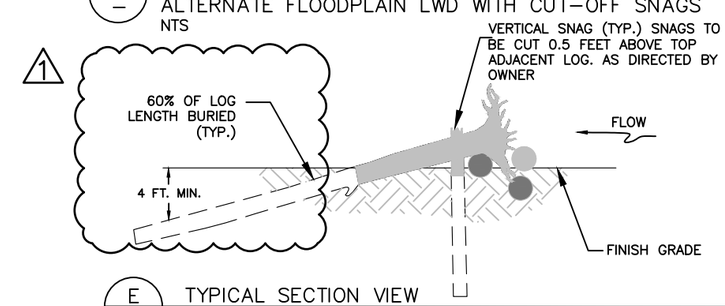


C / – TYPICAL SECTION
FLOODPLAIN LWD
NTS



E / – TYPICAL SECTION VIEW
ALTERNATE FLOODPLAIN LWD WITH CUT–OFF SNAGS
NTS

3 3 / 8 17 TYPICAL DETAILS
ALTERNATE FLOODPLAIN LWD
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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: NTS
DATE: 3/14/2016
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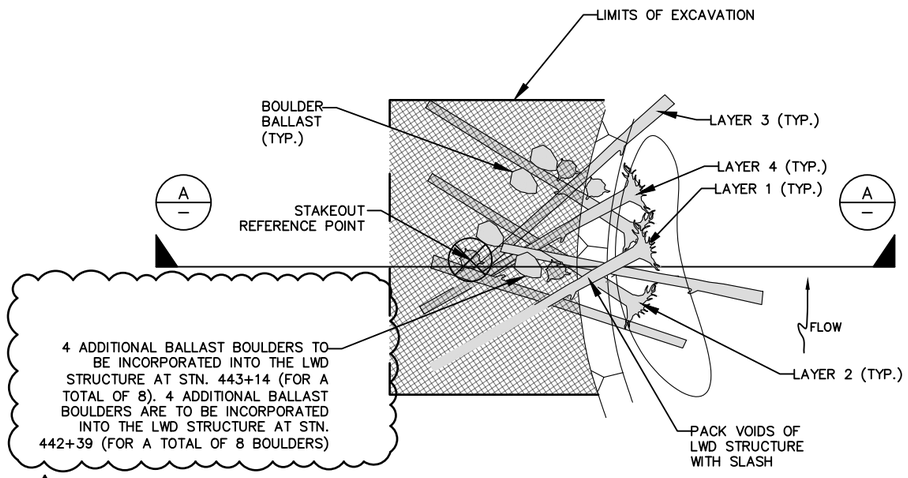
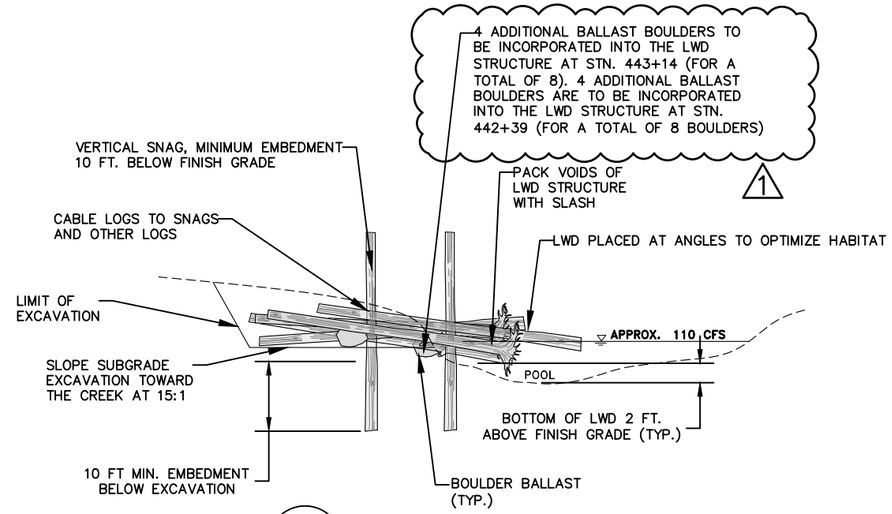
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
LWD DETAILS – LOG JAM AND FLOODPLAIN LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 28 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



1 1 1 1 1 1 / 7 8 10 14 17 41 TYPICAL PLAN DETAIL
BACKWATER CHANNEL LWD
1 IN = 10 FT.

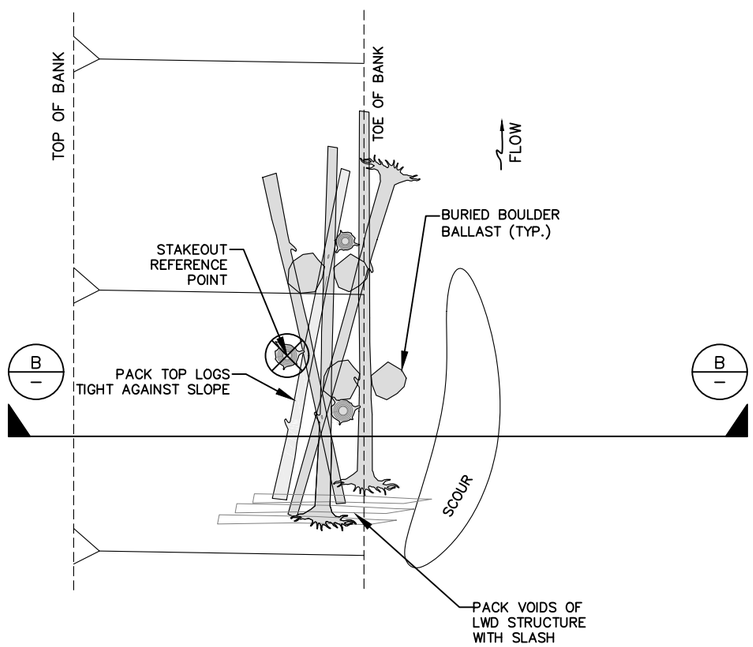


A / – TYPICAL SECTION
BACKWATER CHANNEL LWD
NTS

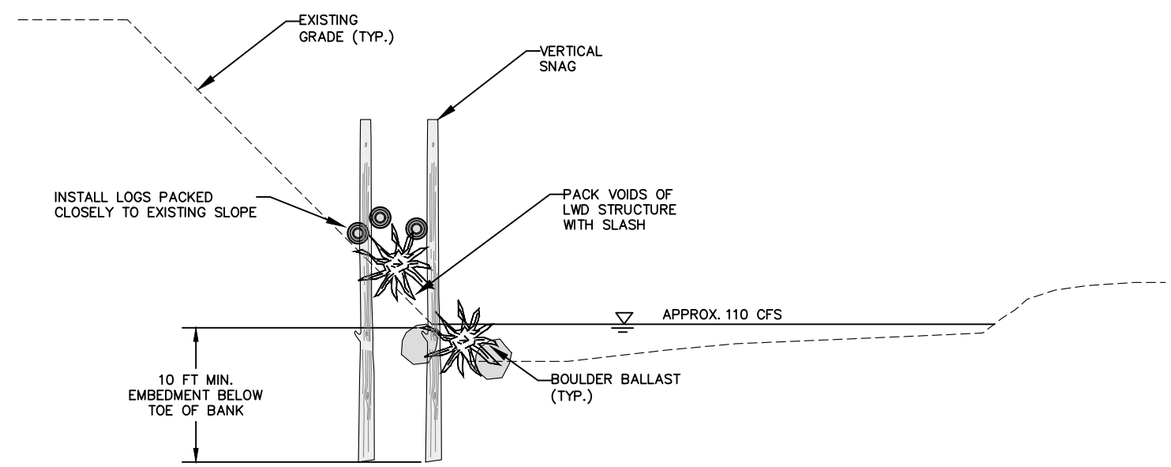
GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. SEE SHEET 35 FOR BACKWATER CHANNEL LWD CONSTRUCTION SEQUENCE.
4. SEE SHEET 34 FOR POOL LWD CONSTRUCTION SEQUENCE.
5. SEE SHEET 40 FOR LWD ATTACHMENT AND BALLASTING DETAILS.

1



2 2 2 2 2 / 7 8 10 17 39 TYPICAL PLAN DETAIL
POOL ENHANCEMENT LWD
1 IN = 5 FT.



B / – TYPICAL SECTION
POOL LWD
NTS

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NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE: NTS
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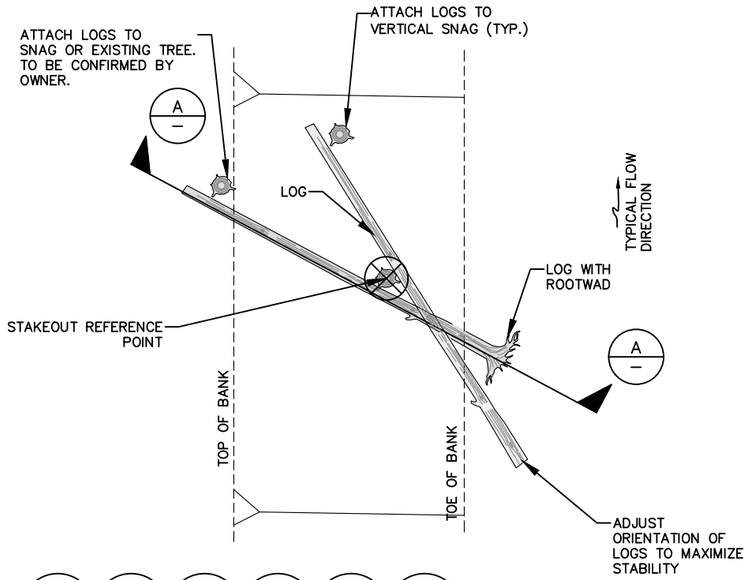
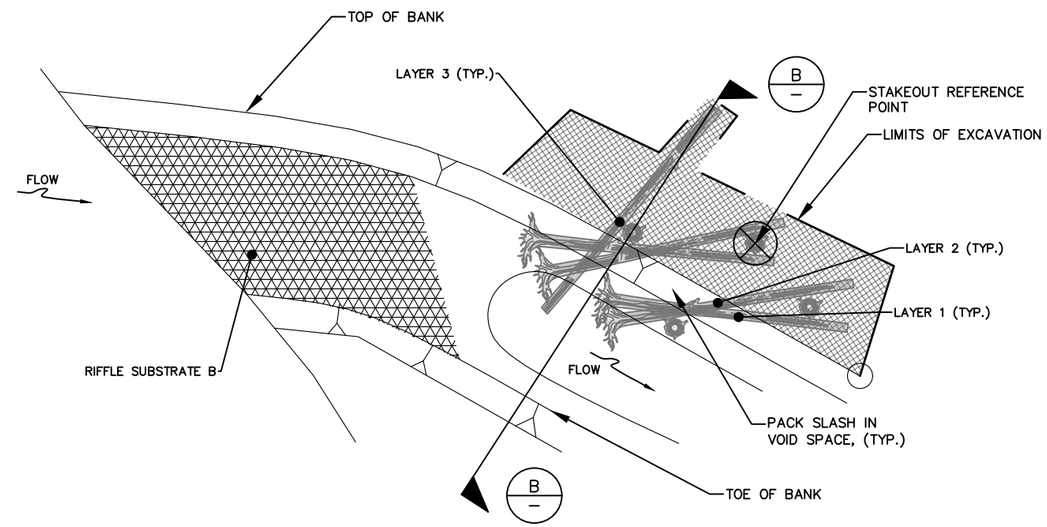
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
LWD DETAILS – BACKWATER CHANNEL AND POOL ENHANCEMENT

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 29 OF 43

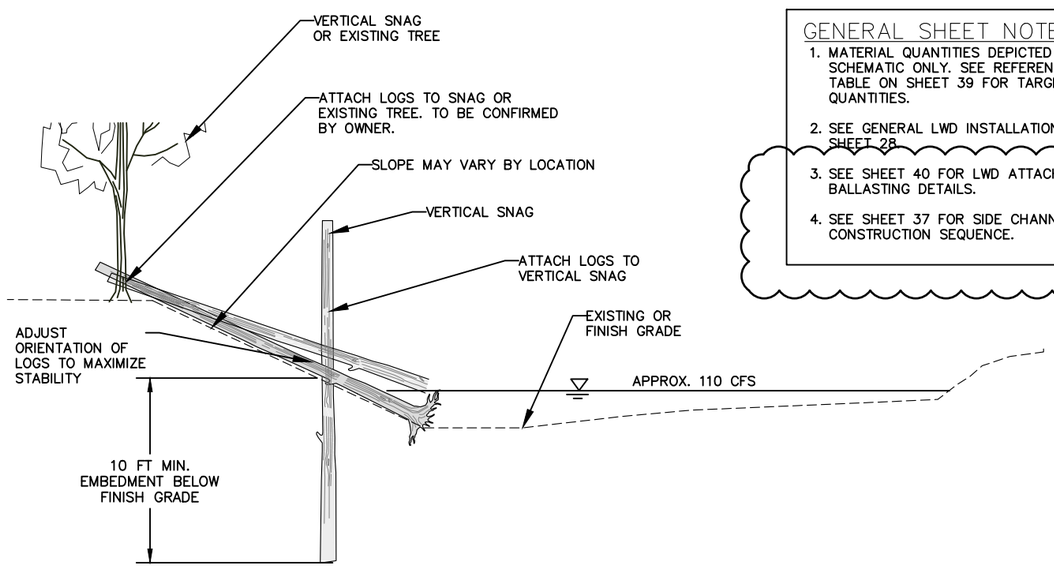
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



1 / 7 | 1 / 8 | 1 / 10 | 1 / 14 | 1 / 17 | 1 / 39 TYPICAL PLAN DETAIL
HABITAT WOOD PLACEMENT
1 IN = 5 FT.



2 / 8 | 2 / 17 TYPICAL PLAN DETAIL
SIDE CHANNEL LWD
1 IN = 10 FT.

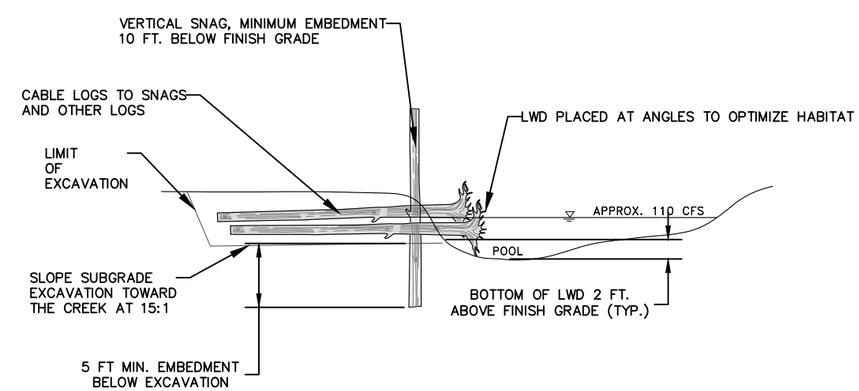


A / – TYPICAL SECTION
HABITAT WOOD PLACEMENT
NTS

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. SEE SHEET 40 FOR LWD ATTACHMENT AND BALLASTING DETAILS.
4. SEE SHEET 37 FOR SIDE CHANNEL LWD CONSTRUCTION SEQUENCE.

1



B / – TYPICAL SECTION
SIDE CHANNEL LWD
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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

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1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: NTS
DATE: 3/14/2016
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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
LWD DETAILS – HABITAT WOOD PLACEMENT AND SIDE CHANNEL LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:

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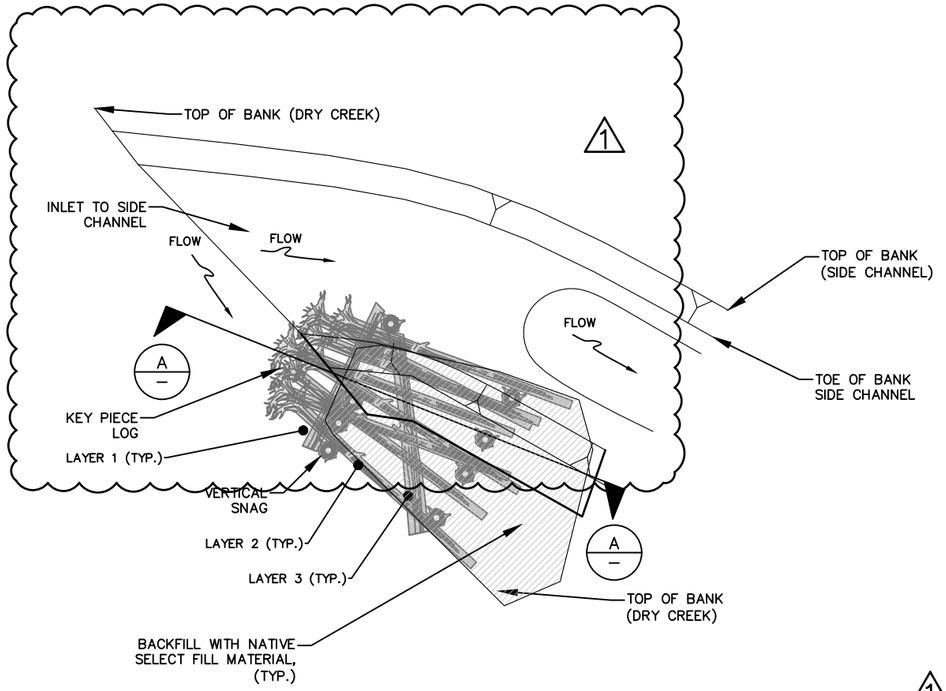
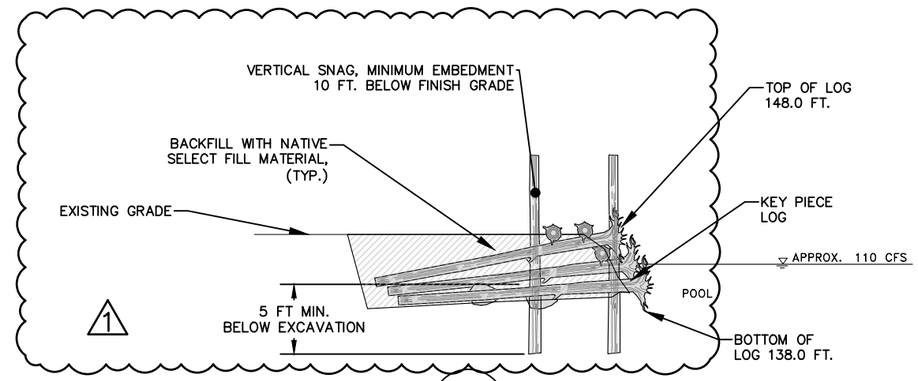


1 / 8 — 1 / 14 TYPICAL PLAN DETAIL
APEX LOG JAM LWD
NTS



A / – TYPICAL SECTION
APEX LOG JAM LWD
NTS

1

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. ~~SEE GENERAL LWD INSTALLATION NOTES ON~~ SHEET 28.
3. SEE SHEET 40 FOR LWD ATTACHMENT AND BALLASTING DETAILS.
4. SEE SHEET 38 FOR APEX LOG JAM LWD CONSTRUCTION SEQUENCE.

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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
LWD DETAILS – APEX JAM LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 31 OF 43

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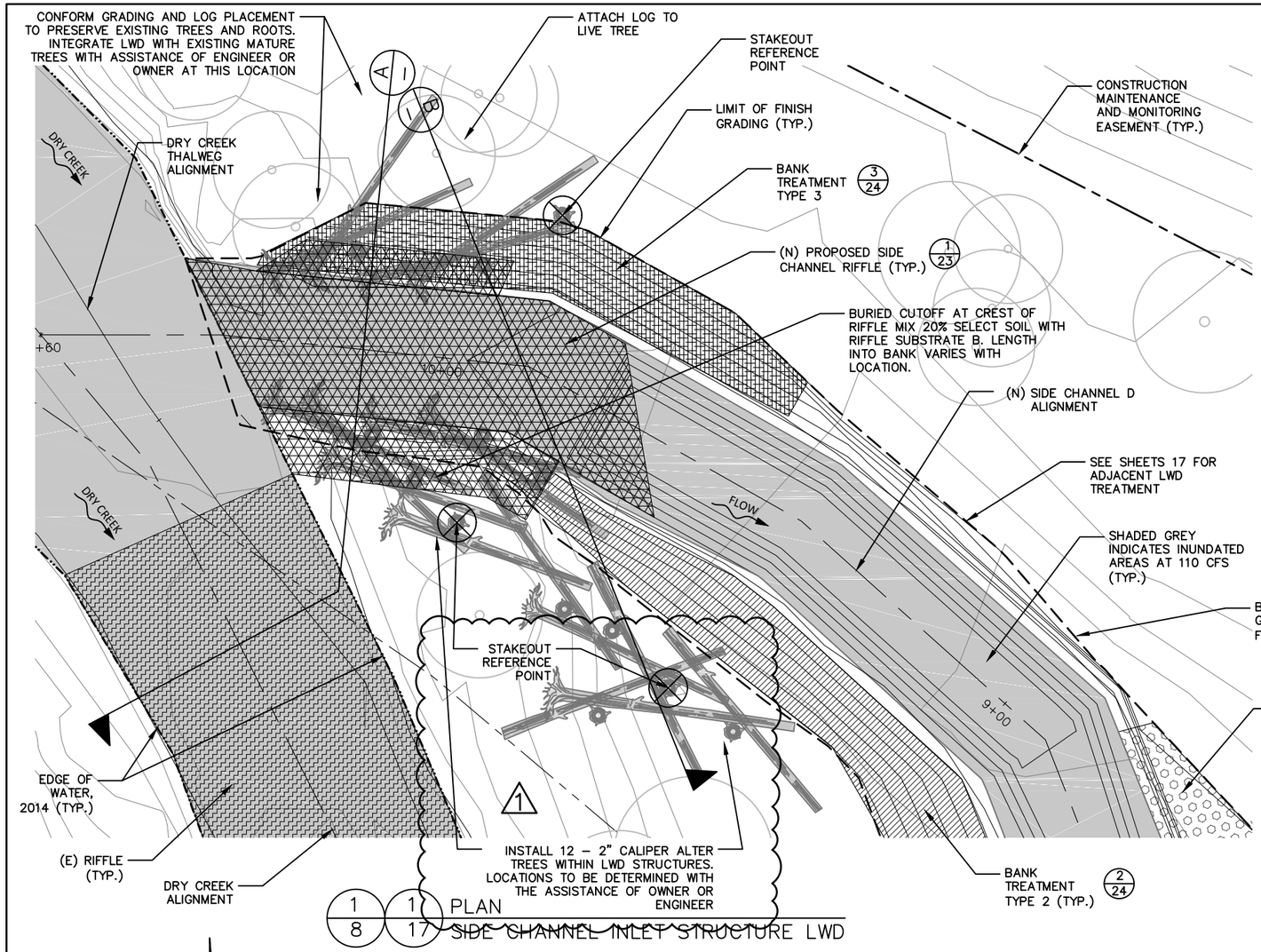
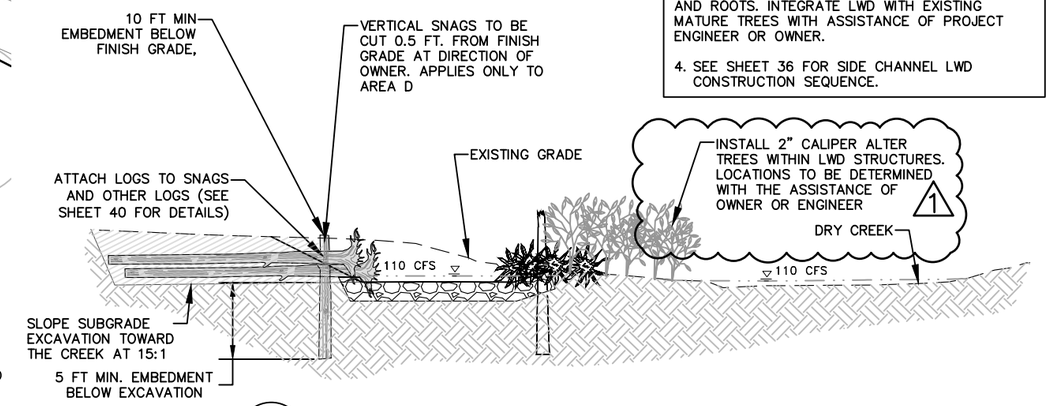


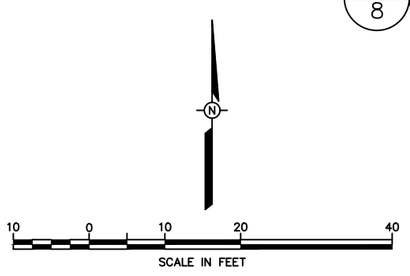
1/8 1/17 PLAN
SIDE CHANNEL INLET STRUCTURE LWD

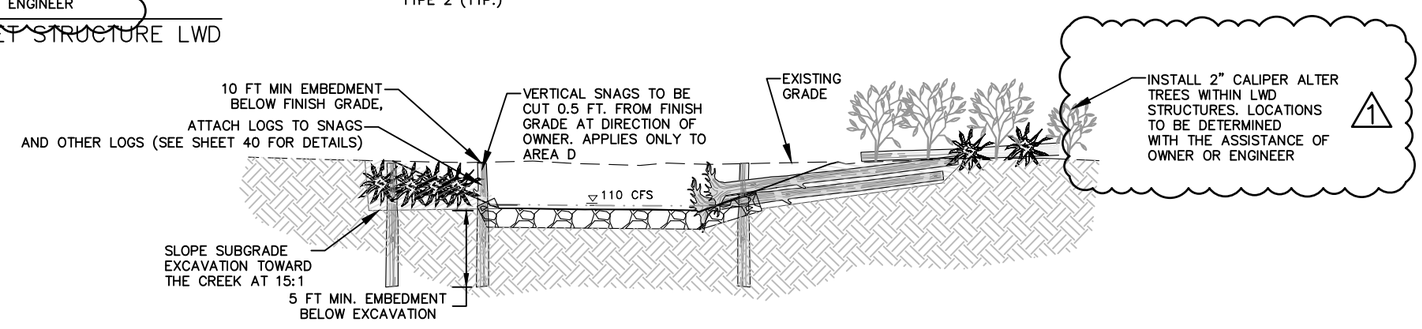
NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. CLEARING OF MATURE TREES TO BE MINIMIZED, WITH CONSULTATION OF OWNER. REMOVE UP TO 25 TREES FROM OFF-CHANNEL AREA D WITH DBH OF 12" OR GREATER – TO BE CONFIRMED BY OWNER. CLEARING TO INCLUDE OTHER SMALL DIAMETER TREES AND WOODY VEGETATION ENCOUNTERED.
3. CONFORM GRADING TO PRESERVE EXISTING TREES AND ROOTS. INTEGRATE LWD WITH EXISTING MATURE TREES WITH ASSISTANCE OF PROJECT ENGINEER OR OWNER.
4. SEE SHEET 36 FOR SIDE CHANNEL LWD CONSTRUCTION SEQUENCE.



A – ELEVATION
SIDE CHANNEL INLET STRUCTURE LWD
NTS





B – ELEVATION
SIDE CHANNEL INLET STRUCTURE LWD
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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
DESIGN DETAILS –
INLET LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 32 OF 43

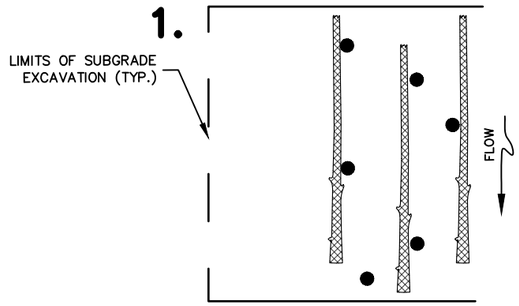
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES AT EACH LWD STRUCTURE.
2. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LOG JAM CONSTRUCTION.
3. SEE GENERAL LWD CONSTRUCTION NOTES ON SHEET 28.
4. SEE SHEETS 21 FOR DESIGN SECTIONS FOR EACH LOG JAM.
5. FOR LWD ATTACHMENT AND BALLASTING DETAILS SEE SHEET 40.
6. EXISTING TREES MAY BE INTEGRATED INTO LOG JAMS AT SELECT LOCATIONS IF DESIGNATED BY OWNER.
7. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.

1

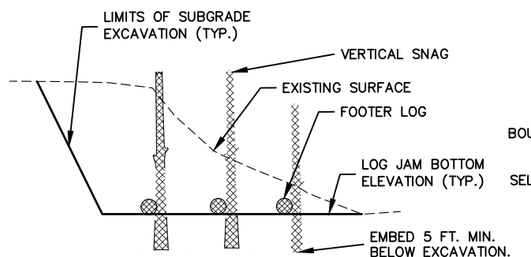
1.



PLAN VIEW
NTS

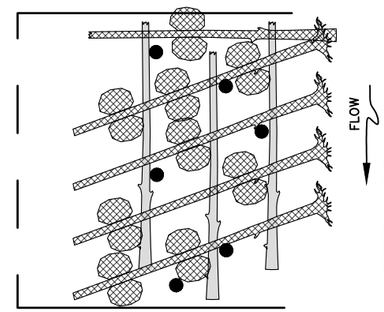
TYPICAL LAYER 1. SEQUENCING

1. PREPARE SITE
2. EXCAVATE TO SUBGRADE.
3. INSTALL LAYER 1 FOOTER LOGS.
4. INSTALL VERTICAL SNAGS



SECTION VIEW
NTS

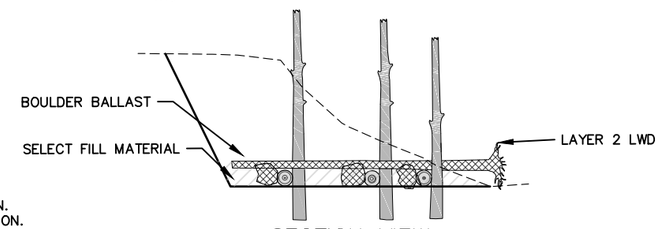
2.



PLAN VIEW
NTS

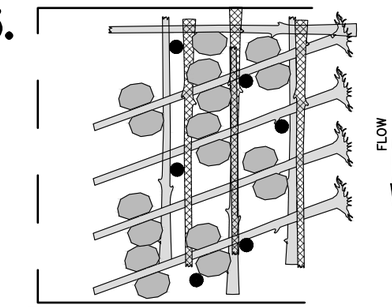
TYPICAL LAYER 2. SEQUENCING

1. INSTALL LAYER 2 LWD.
2. PLACE BOULDERS FOR BALLASTING. BOULDER BALLAST TO BE PLACED AS APPROVED BY OWNER.
3. ANCHOR LAYER 2 LWD TO BOULDER BALLAST WHERE CONNECTIONS ARE AVAILABLE.
4. CABLE LAYER 1 AND 2 LWD MINIMUM 2 CONNECTIONS PER LWD. CONNECTIONS INCLUDE LWD TO LWD, LWD TO SNAG, OR LWD TO BOULDERS.
5. BACKFILL AND COMPACT WITH SELECT FILL MATERIAL TO TOP OF LAYER 1.



SECTION VIEW
NTS

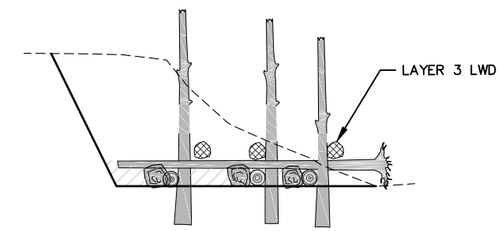
3.



PLAN VIEW
NTS

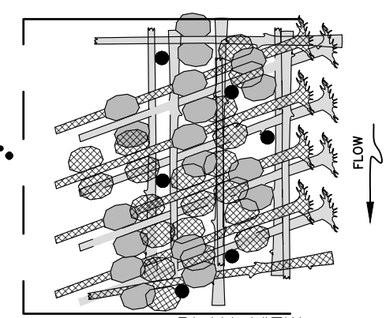
TYPICAL LAYER 3. SEQUENCING

1. INSTALL LAYER 3 HEADER LOGS.



SECTION VIEW
NTS

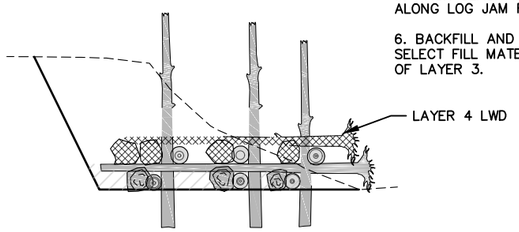
4.



PLAN VIEW
NTS

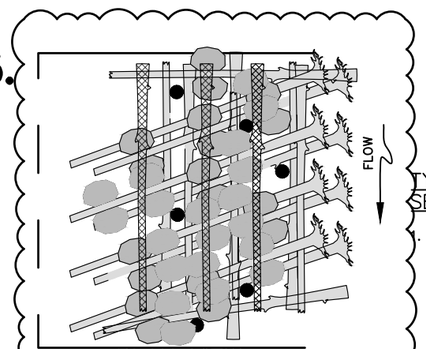
TYPICAL LAYER 4. SEQUENCING

1. INSTALL LAYER 4 LWD.
2. PLACE BOULDERS FOR BALLASTING. BOULDER BALLAST TO BE PLACED AS APPROVED BY OWNER.
3. ANCHOR LAYER 4 LWD TO BOULDER BALLAST WHERE CONNECTIONS ARE AVAILABLE.
4. CABLE LAYER 3 AND 4 LWD. MINIMUM 2 CONNECTIONS PER LWD. CONNECTIONS INCLUDE LWD TO LWD, LWD TO SNAG, OR LWD TO BOULDERS.
5. PACK SLASH INTO VOIDS ALONG LOG JAM FACE.
6. BACKFILL AND COMPACT WITH SELECT FILL MATERIAL TO TOP OF LAYER 3.



SECTION VIEW
NTS

5.

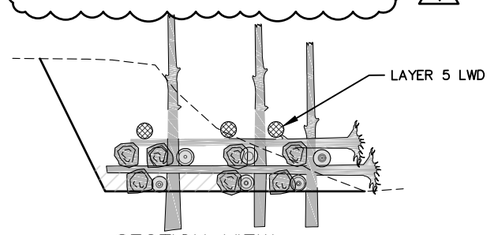


PLAN VIEW
NTS

1

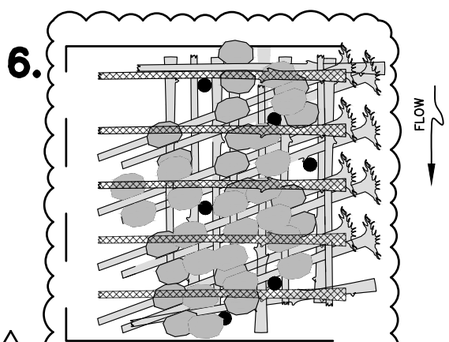
TYPICAL LAYER 5. SEQUENCING

1. INSTALL LAYER 5 LWD.



SECTION VIEW
NTS

6.

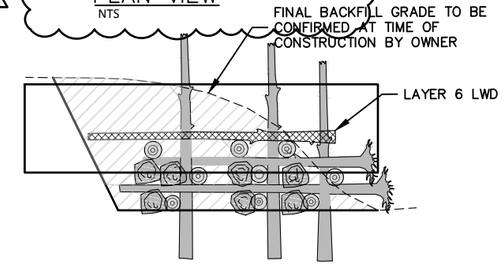


1

PLAN VIEW
NTS

TYPICAL LAYER 6. SEQUENCING

1. INSTALL LAYER 6 LWD.
2. CABLE LAYER 5 AND 6 LWD. MINIMUM 2 CONNECTIONS PER LWD. CONNECTIONS INCLUDE LWD TO LWD, LWD TO SNAG, OR LWD TO BOULDERS.
3. PACK SLASH INTO VOIDS ALONG LOG JAM FACE.
4. BACKFILL AND COMPACT WITH SELECT FILL. BACKFILL GRADE TO BE CONFIRMED AT TIME OF CONSTRUCTION BY OWNER.



SECTION VIEW
NTS

1 / _ TYPICAL SEQUENCE LOG JAM
NTS

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SONOMA COUNTY WATER AGENCY

SCALE:	NTS
DATE :	3/14/2016
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CHECKED :	MB

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REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1

TYPICAL SEQUENCE DETAILS – LOG JAM

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 33 OF 43

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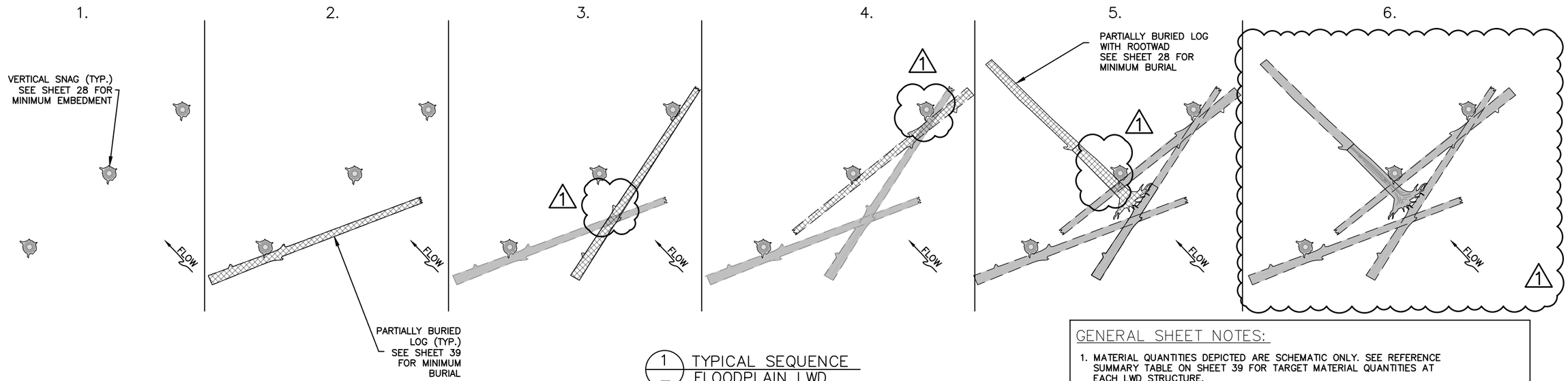
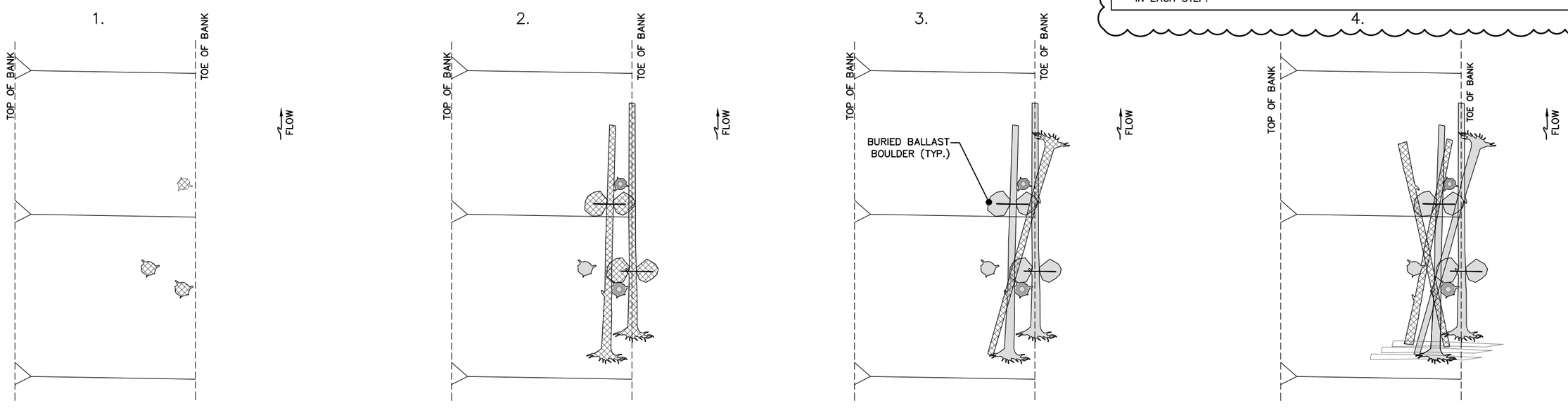


1 TYPICAL SEQUENCE
FLOODPLAIN LWD

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES AT EACH LWD STRUCTURE.
2. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LWD CONSTRUCTION.
3. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28
4. SEE SHEET 40 FOR LWD ATTCHMENT DETAILS.
5. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.



2 TYPICAL SEQUENCE
POOL LWD

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REGISTERED PROFESSIONAL ENGINEER
MICHAEL P. BURKE
C 62986
EXP. 6/30/16
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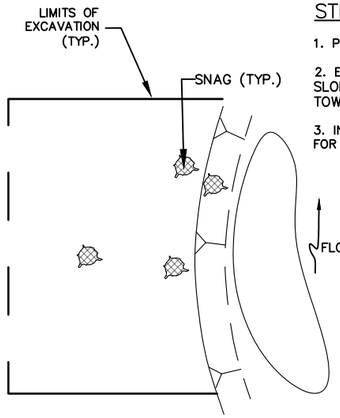
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL SEQUENCE DETAILS – FLOODPLAIN AND POOL ENHANCEMENT LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 34 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



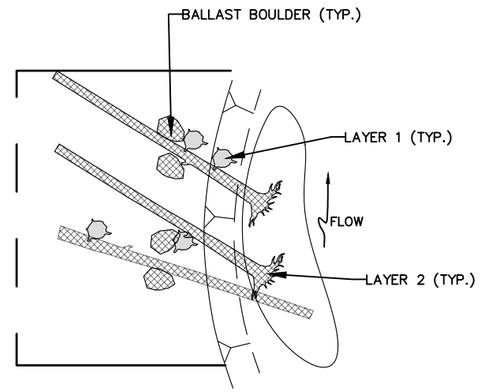
PLAN VIEW
NTS

STEP 1.

1. PREPARE SITE

2. EXCAVATE TO SUBGRADE. SLOPE SUBGRADE EXCAVATION TOWARD THE CREEK.

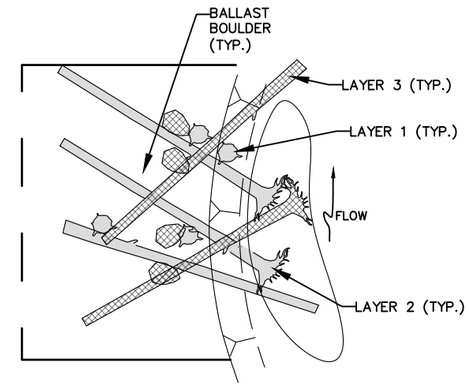
3. INSTALL SNAGS. SEE SHEET 29 FOR MINIMUM EMBEDMENT



PLAN VIEW
NTS

STEP 2.

1. INSTALL LAYER 2 LWD.
2. INSTALL ASSOCIATED BOULDERS.
3. CABLE LOGS TO LOGS, SNAGS AND BOULDERS. 2 CONNECTIONS PER LOG.
4. BACKFILL TO TOP OF LAYER 1.



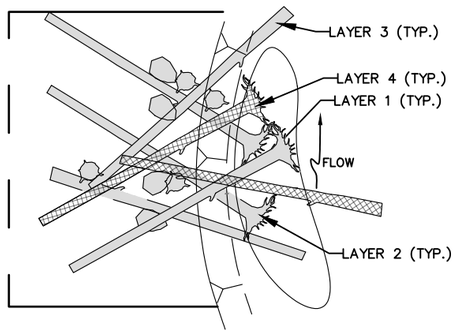
PLAN VIEW
NTS

STEP 3.

1. INSTALL LAYER 3 LWD.
2.INSTALL ASSOCIATED BOULDERS.
3. CABLE LOGS TO LOGS, SNAGS AND BOULDERS. 2 CONNECTIONS PER LWD.
4. BACKFILL TO TOP OF LAYER 2.

STEP 4.

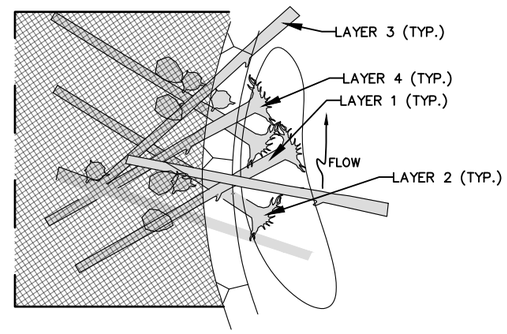
1. INSTALL LAYER 4 LWD.
2. CABLE LOGS TO LOGS, SNAGS AND BOULDERS. 2 CONNECTIONS PER LWD.



PLAN VIEW
NTS

STEP 5.

1. BACKFILL WITH SELECT FILL. CONFIRM BACKFILL EXTENT WITH OWNER.



PLAN VIEW
NTS

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES AT EACH LOG JAM AND LWD STRUCTURE.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LWD CONSTRUCTION.
4. FOR LWD ATTACHMENT AND BALLASTING DETAILS SEE SHEET 40.
5. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.

1

1 TYPICAL SEQUENCE
BACKWATER LWD
NTS

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

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REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

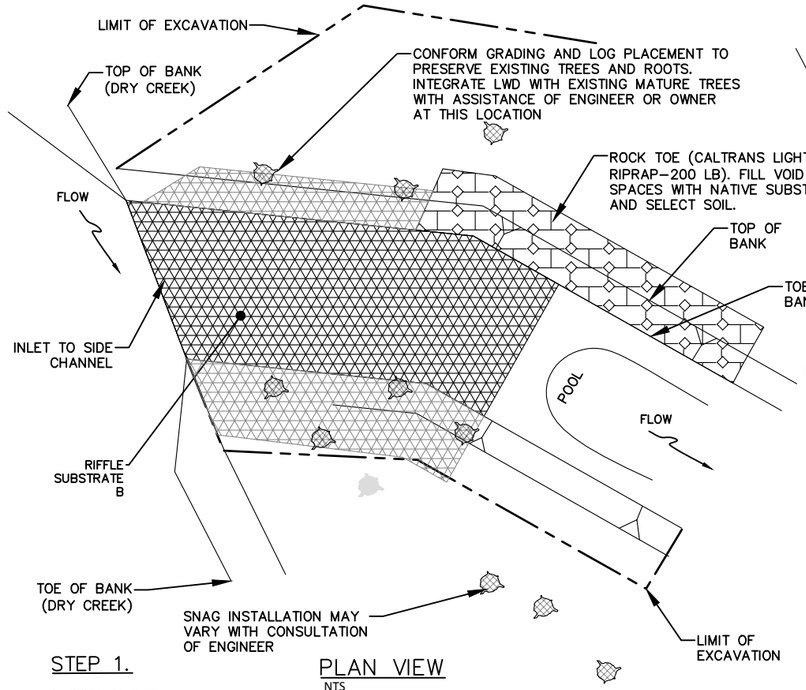
SONOMA COUNTY WATER AGENCY

SCALE: NTS
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL SEQUENCE DETAILS – BACKWATER LWD

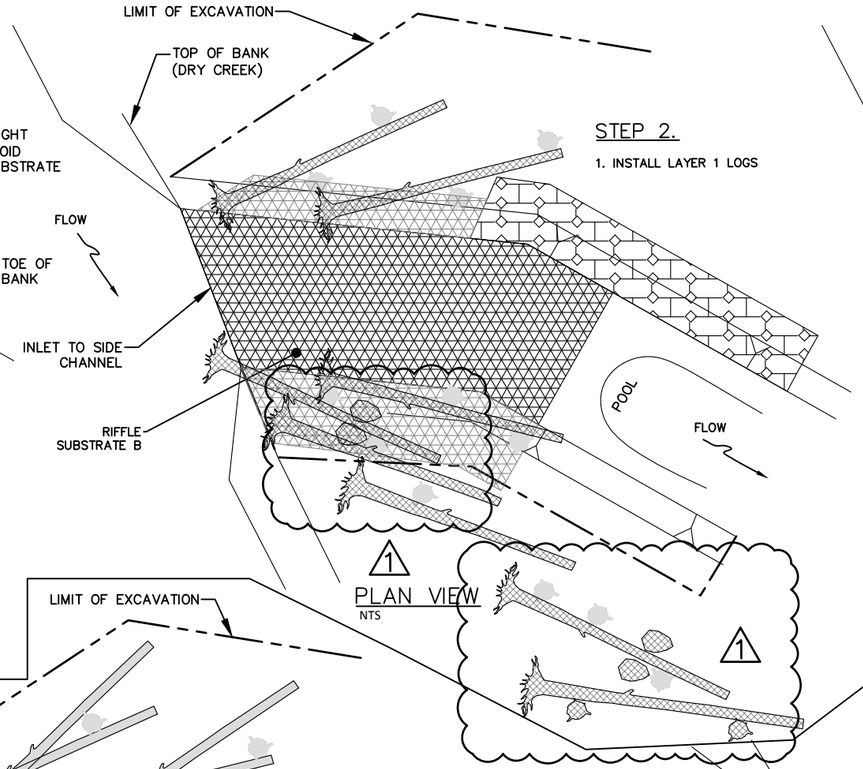
FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 35 OF 43



PLAN VIEW
NTS

STEP 1.

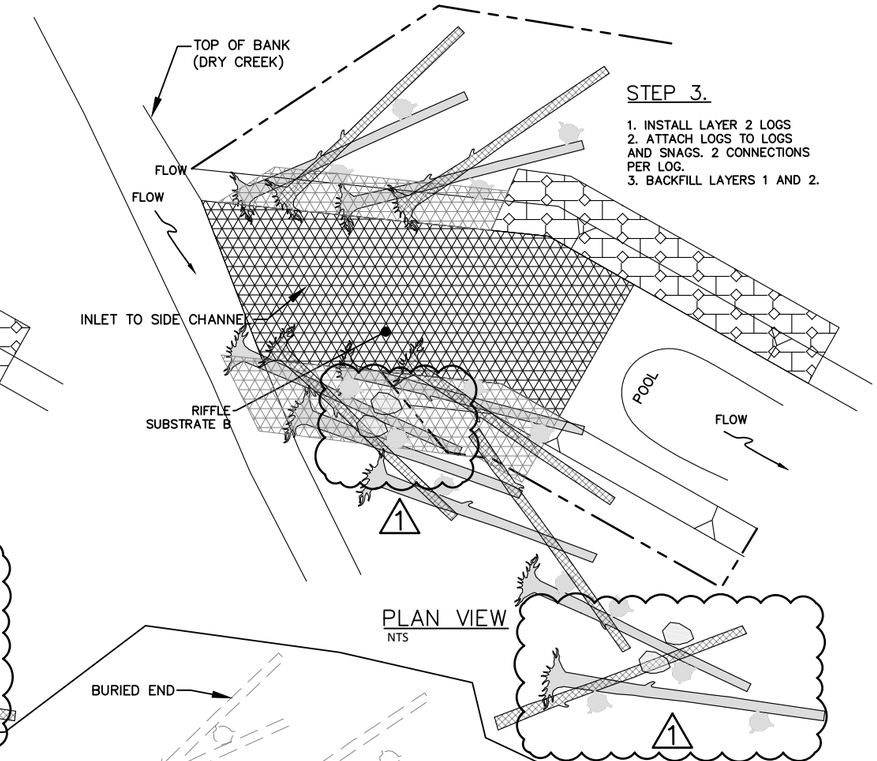
1. PREPARE SITE
2. EXCAVATE TO SUBGRADE.
3. INSTALL SNAGS. MINIMUM EMBEDMENT 10'



PLAN VIEW
NTS

STEP 2.

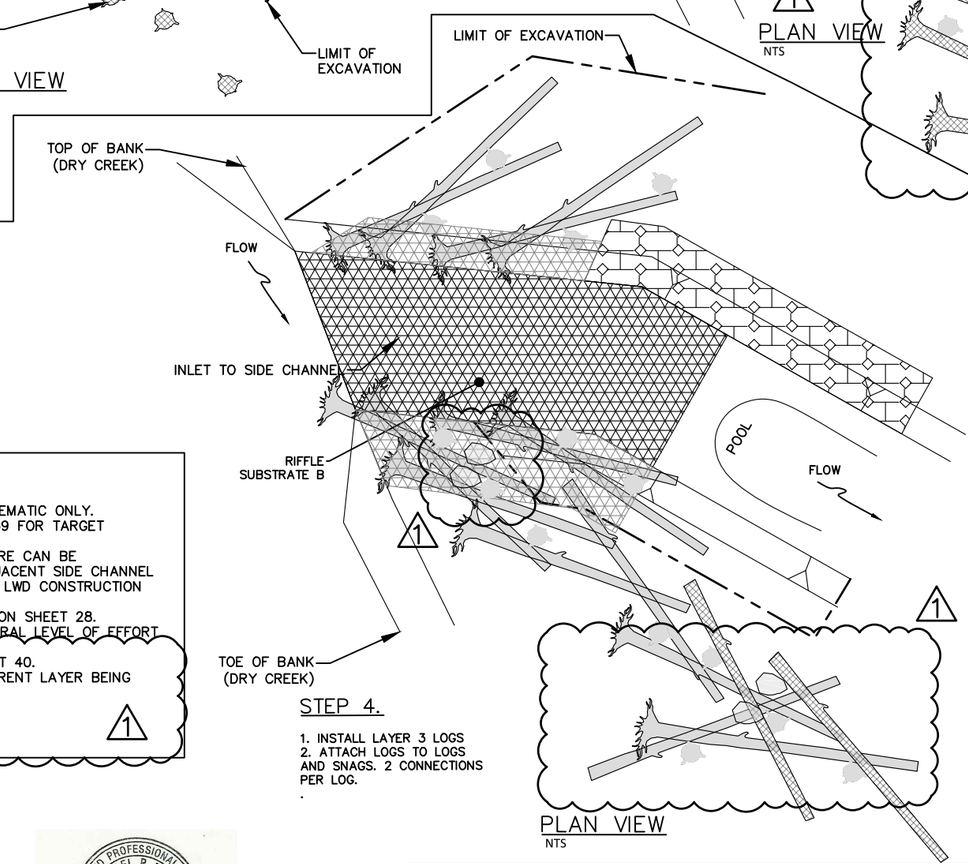
1. INSTALL LAYER 1 LOGS



PLAN VIEW
NTS

STEP 3.

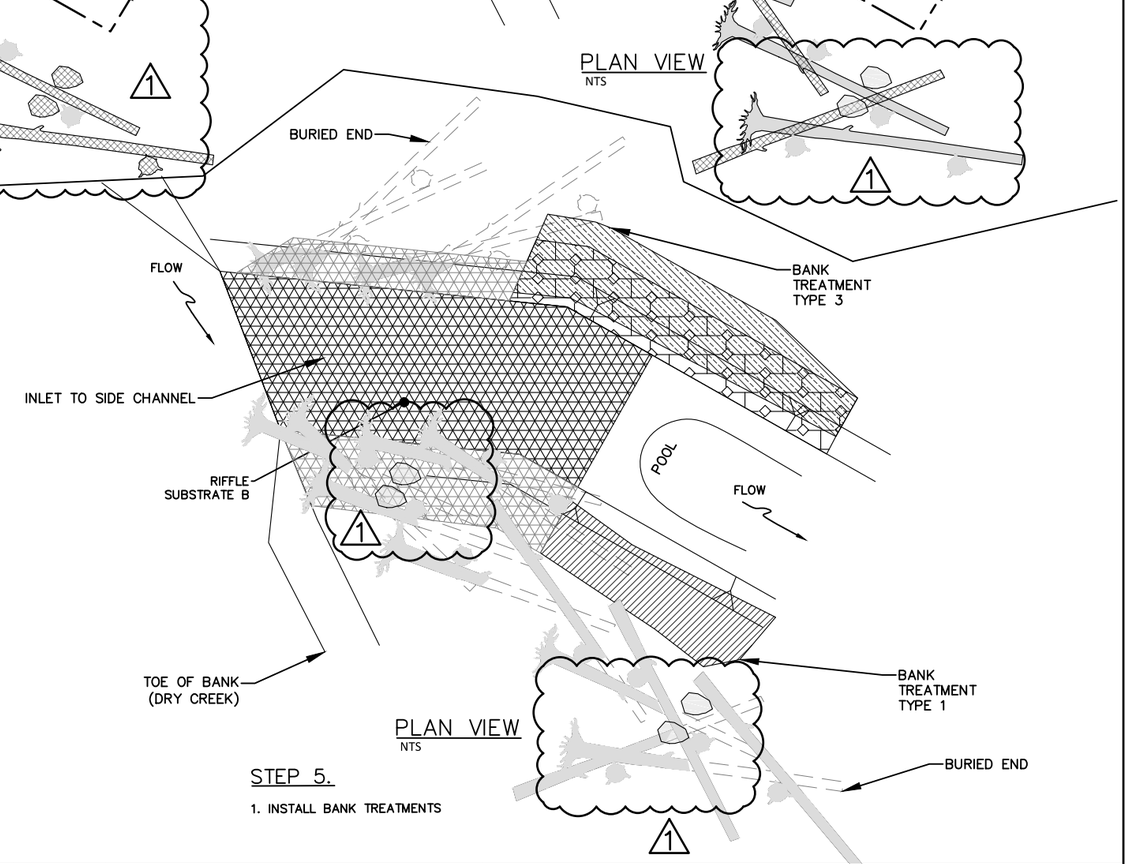
1. INSTALL LAYER 2 LOGS
2. ATTACH LOGS TO LOGS AND SNAGS. 2 CONNECTIONS PER LOG.
3. BACKFILL LAYERS 1 AND 2.



STEP 4.

1. INSTALL LAYER 3 LOGS
2. ATTACH LOGS TO LOGS AND SNAGS. 2 CONNECTIONS PER LOG.
.

PLAN VIEW
NTS



PLAN VIEW
NTS

STEP 5.

1. INSTALL BANK TREATMENTS

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. DOWNSTREAM PORTION OF THIS STRUCTURE CAN BE CONSTRUCTED SIMULTANEOUSLY WITH ADJACENT SIDE CHANNEL LWD. SEE SHEET 37 FOR SIDE CHANNEL LWD CONSTRUCTION SEQUENCE DETAILS.
3. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
4. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LWD CONSTRUCTION.
5. FOR LWD ATTACHMENT DETAILS SEE SHEET 40.
6. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.

1

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CIVIL
STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE:	NTS
DATE :	3/14/2016
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CHECKED :	MB

REVIEWED

REVIEWED

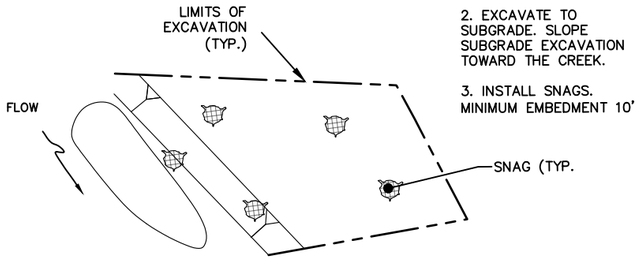
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
CONSTRUCTION SEQUENCE DETAIL –
SIDE CHANNEL INLET

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

STEP 1.

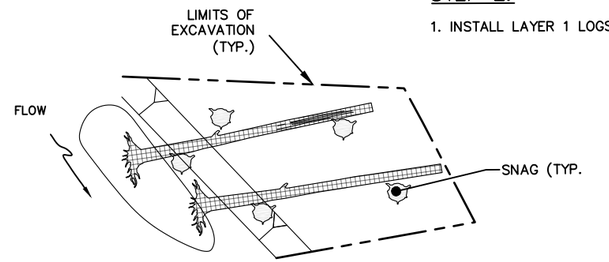
1. PREPARE SITE
2. EXCAVATE TO SUBGRADE. SLOPE SUBGRADE EXCAVATION TOWARD THE CREEK.
3. INSTALL SNAGS. MINIMUM EMBEDMENT 10'



PLAN VIEW
NTS

STEP 2.

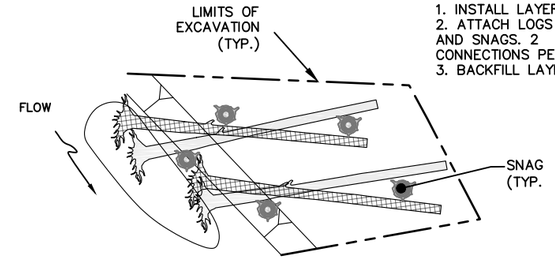
1. INSTALL LAYER 1 LOGS



PLAN VIEW
NTS

STEP 3.

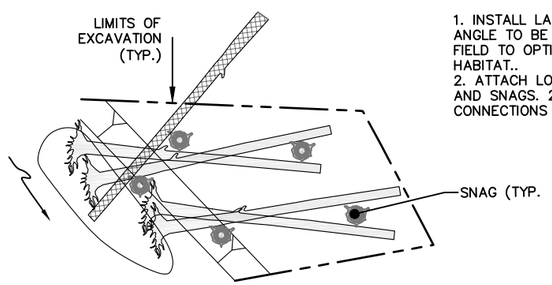
1. INSTALL LAYER 2 LOGS
2. ATTACH LOGS TO LOGS AND SNAGS. 2 CONNECTIONS PER LOG.
3. BACKFILL LAYER 1



PLAN VIEW
NTS

STEP 4.

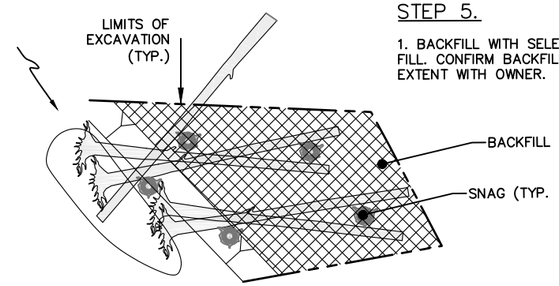
1. INSTALL LAYER 3 LOG. ANGLE TO BE ADJUSTED IN FIELD TO OPTIMIZE HABITAT..
2. ATTACH LOGS TO LOGS AND SNAGS. 2 CONNECTIONS PER LOG.



PLAN VIEW
NTS

STEP 5.

1. BACKFILL WITH SELECT FILL. CONFIRM BACKFILL EXTENT WITH OWNER.



PLAN VIEW
NTS

1 TYPICAL SEQUENCE
SIDE CHANNEL LWD
NTS

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LWD CONSTRUCTION.
4. FOR LWD ATTACHMENT DETAILS SEE SHEET 40.
5. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.

1

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NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

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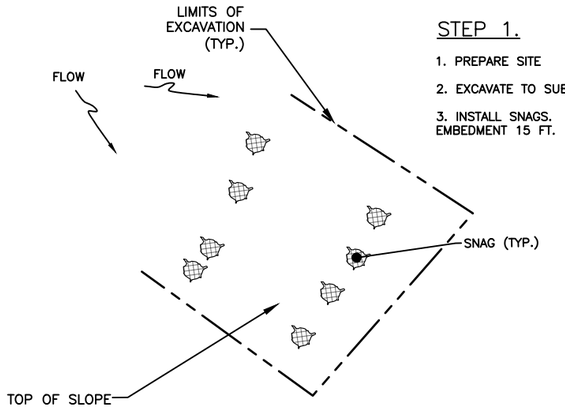
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL SEQUENCE DETAILS – SIDE CHANNEL LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 37 OF 43

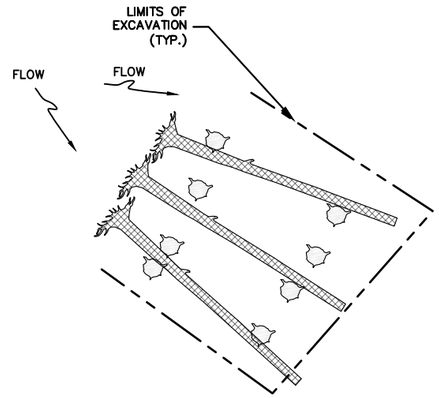
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



PLAN VIEW
NTS

STEP 1.

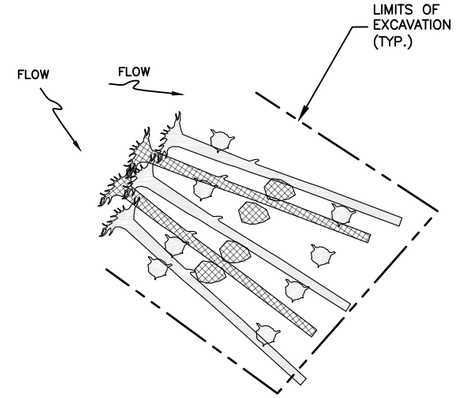
1. PREPARE SITE
2. EXCAVATE TO SUBGRADE.
3. INSTALL SNAGS. MINIMUM EMBEDMENT 15 FT.



PLAN VIEW
NTS

STEP 2.

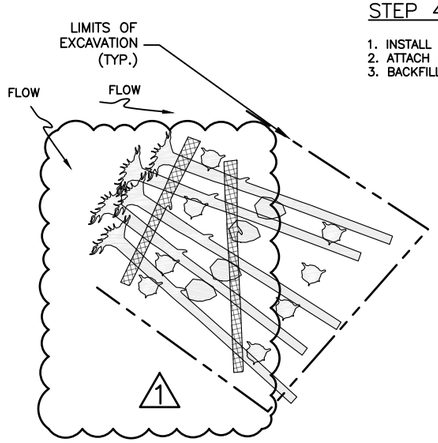
1. INSTALL LAYER 1 LOGS



PLAN VIEW
NTS

STEP 3.

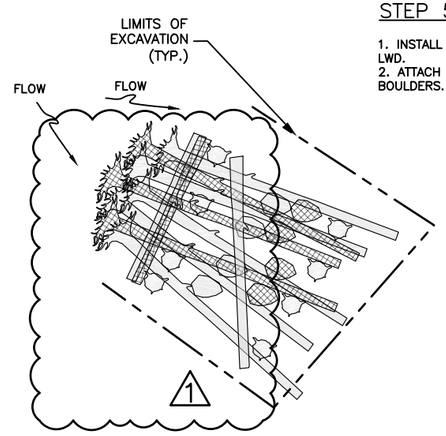
1. INSTALL LAYER 2 LWD.
2. INSTALL ASSOCIATED BOULDERS.
3. ATTACH LOGS TO LOGS, SNAGS AND BOULDERS. 2 CONNECTIONS PER LOG.
4. BACKFILL TO TOP OF LAYER 1



PLAN VIEW
NTS

STEP 4.

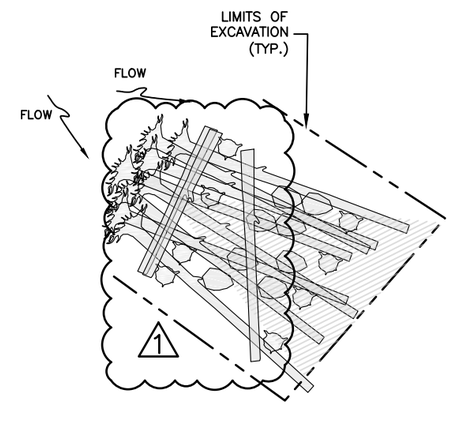
1. INSTALL LAYER 3 LWD.
2. ATTACH LOGS TO LOGS AND SNAGS.
3. BACKFILL TO TOP OF LAYER 2.



PLAN VIEW
NTS

STEP 5.

1. INSTALL LAYER 4 LWD.
2. ATTACH LOGS TO LOGS, SNAGS AND BOULDERS. 2 CONNECTIONS PER LWD.



PLAN VIEW
NTS

STEP 6.

1. BACKFILL WITH SELECT FILL. CONFIRM BACKFILL EXTENT WITH OWNER.

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. ~~SEQUENCING PROVIDED TO REFLECT GENERAL LEVEL OF EFFORT FOR LWD CONSTRUCTION.~~
4. FOR LWD ATTACHMENT AND BALLASTING DETAILS SEE SHEET 40.
5. CROSS HATCHED AREA REPRESENTS CURRENT LAYER BEING INSTALLED IN EACH STEP.

1 TYPICAL SEQUENCE
APEX JAM LWD
NTS

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NO.	DATE	REVISION	BY
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1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: NTS
DATE : 3/14/2016
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DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL SEQUENCE DETAILS – APEX JAM LWD

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 38 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

Type	Number	Logs	Logs with Rootwads	Snags	Ballast Boulders	Log to Log Connections	Log to Boulder Connections
Off-Channel Enhancement A							
Log Jam	1	16	8	8	40	42	20
Floodplain Roughness	3	9	3	9	0	18	0
Backwater LWD	5	15	20	20	20	65	10
Habitat LWD	5	5	5	10	0	20	0
Total Area A	14	45	36	47	60	145	30
Off-Channel Enhancement Area B							
Log Jam	1	16	8	8	40	42	20
Floodplain Roughness	2	6	2	6	0	12	0
Backwater LWD	4	12	16	16	16	52	8
Habitat LWD	2	2	2	4	0	8	0
Total Area B	9	36	28	34	56	114	28
Main-Channel Enhancement A and B							
Backwater LWD	2	6	8	8	16	26	8
Pool LWD	3	6	9	9	12	30	6
Total Main Channel A & B	5	12	17	17	28	56	14
Off-Channel Enhancement Area C							
Apex Jam	1	2	8	8	8	14	4
Log Jam	1	16	8	8	40	42	20
Floodplain Roughness	2	6	2	6	0	12	0
Backwater LWD	7	21	28	28	28	91	14
Habitat LWD	10	10	10	20	0	40	0
Total Area C	21	55	56	70	76	199	38
Off-Channel Enhancement Area D							
Floodplain Roughness	5	15	5	15	0	30	0
Backwater LWD	5	15	20	20	20	65	10
Habitat LWD	27	27	27	54	0	108	0
Inlet Structure	1	4	12	14	4	34	2
Side Channel LWD	11	11	44	44	0	110	0
Total Area D	49	72	108	147	24	347	12
Main Channel Enhancement C and D							
Pool LWD	1	2	3	3	4	10	2
Total Main Channel C & D	1	2	3	3	4	10	2

1 SUMMARY TABLE
LOG JAM AND LWD INSTALLATION QUANTITIES

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NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

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DATE: 3/14/2016
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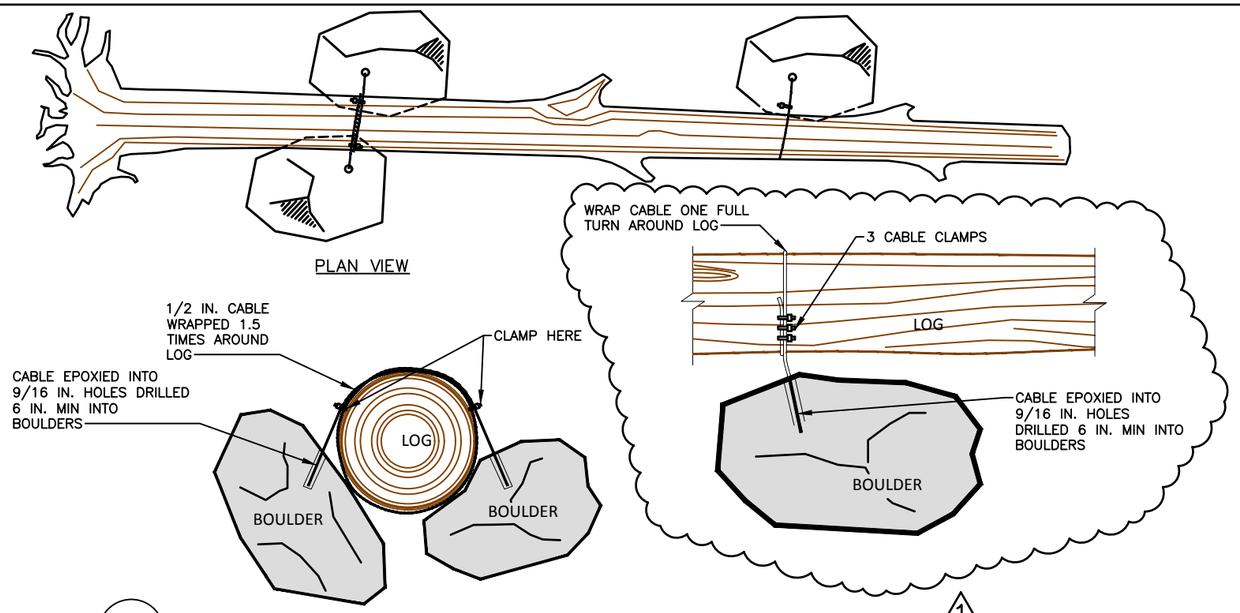
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
LWD SUMMARY TABLE

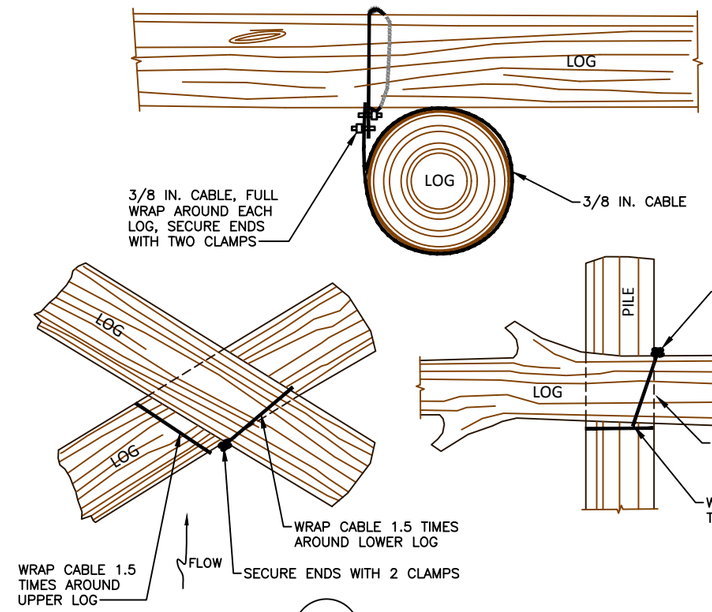
FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 39 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



1 — TYPICAL DETAIL
LOG TO BOULDER ATTACHMENT B
NTS

2 — TYPICAL DETAIL
LOG TO BOULDER ATTACHMENT B (SINGLE)
NTS

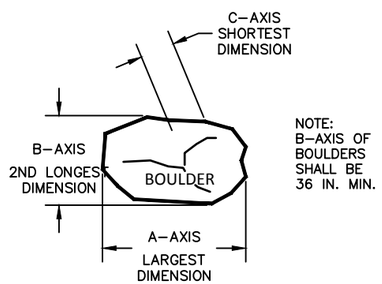


GENERAL NOTES:

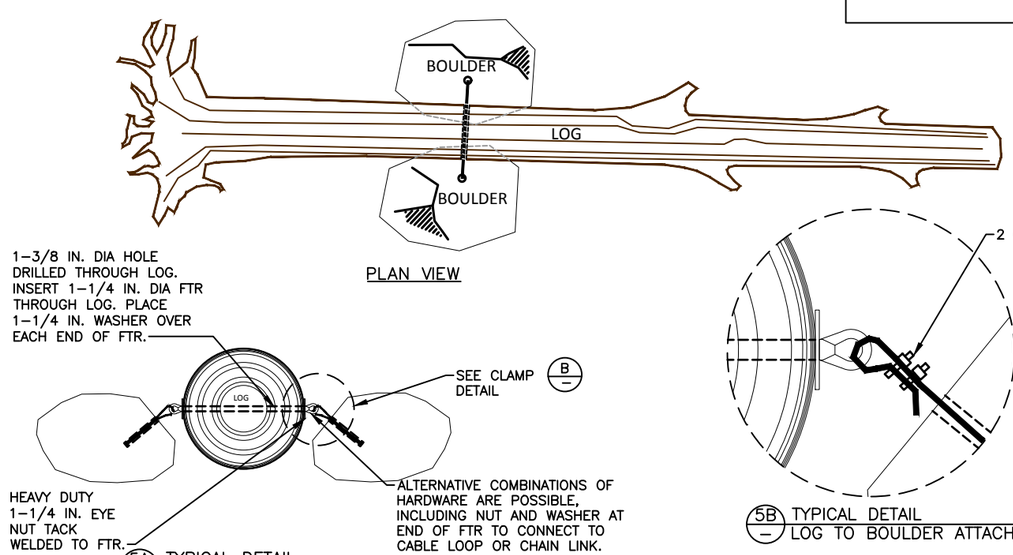
1. USE 3/8 INCH GALVANIZED CABLE.
2. CABLE SHALL BE SECURED BY 1.5 WRAPS AROUND LOG AND SECURE TAG END WITH 2 CABLE CLAMPS
3. THERE SHALL BE NO SLACK IN THE CABLE AFTER IT IS FASTENED.
4. ARRANGE CABLE WRAPS TO MINIMIZE LENGTH OF CABLE SPANNING BETWEEN LOGS.

1

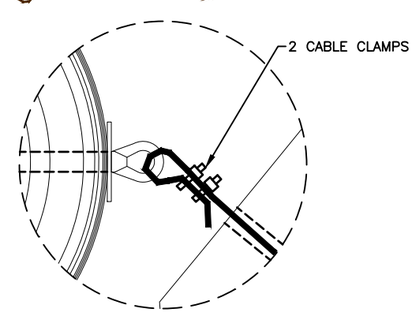
3 — TYPICAL DETAIL
LOG TO LOG ATTACHMENT B
NTS



4 — TYPICAL DETAIL
BOULDER SIZE
NTS



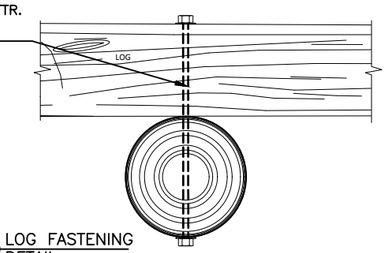
5A — TYPICAL DETAIL
LOG TO BOULDER CONNECTION
NOT TO SCALE



5B — TYPICAL DETAIL
LOG TO BOULDER ATTACHMENT A

5 — TYPICAL DETAIL
LOG TO BOULDER ATTACHMENT A
NTS

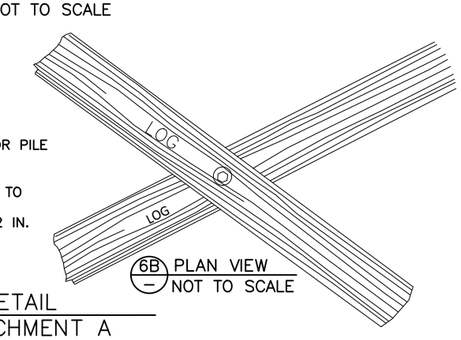
1–3/8IN. DIA HOLE DRILLED THROUGH BOTH LOGS. INSERT 1–1/4 IN. DIA FTR THROUGH BOTH LOGS. PLACE 1–1/4 IN. WASHER OVER EACH OF OF FTR. TIGHTEN 1–1/4 IN. NUT OVER EACH END OF FTR. TACK WELD NUT TO FTR AFTER TIGHTENING.



6A — LOG FASTENING DETAIL
NOT TO SCALE

THREADED ROD NOTES:

1. PIN LOGS TO LW OR PILE
2. DRILL 1–3/8 IN. HOLE THROUGH LW OR PILE
3. INSERT 1–1/4 IN. DIA FTR
4. INSTALL WASHER AND NUT
5. TIGHTEN NUT AND STRIKE END OF FTR TO MUSHROOOM END TO SECURE NUT.
6. IF END OF FTR EXTENDS MORE THAN 2 IN. BEYOND NUT. CUT OFF EXCESS.
7. FILE OR GRIND OFF SHARP EDGES



6B — PLAN VIEW
NOT TO SCALE

6 — TYPICAL DETAIL
LOG ATTACHMENT A
NTS

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REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE:	NTS
DATE :	3/14/2016
DRAWN :	REP
CHECKED :	MB

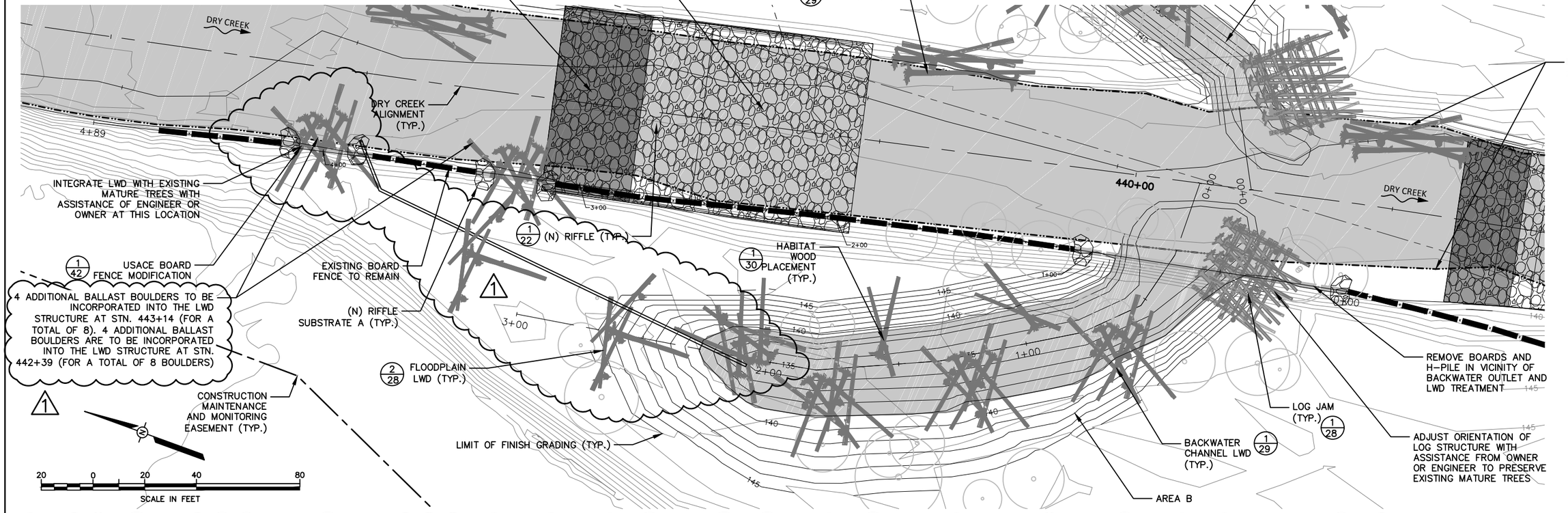
REVIEWED

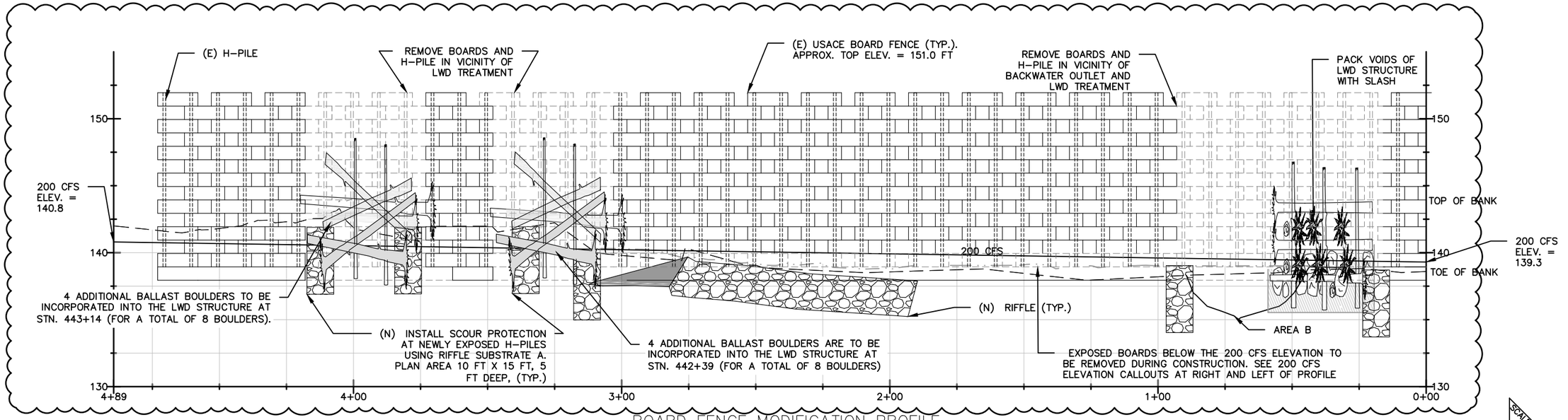
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS – LWD
ATTACHMENT & BALLASTING

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 40 OF 43

G:\C-D\Dry Creek SCWA\Drawings_IFI_DC_2mile_D_R8.dwg





BOARD FENCE MODIFICATION PROFILE

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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SONOMA COUNTY WATER AGENCY

SCALE: NTS
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DRAWN: REP
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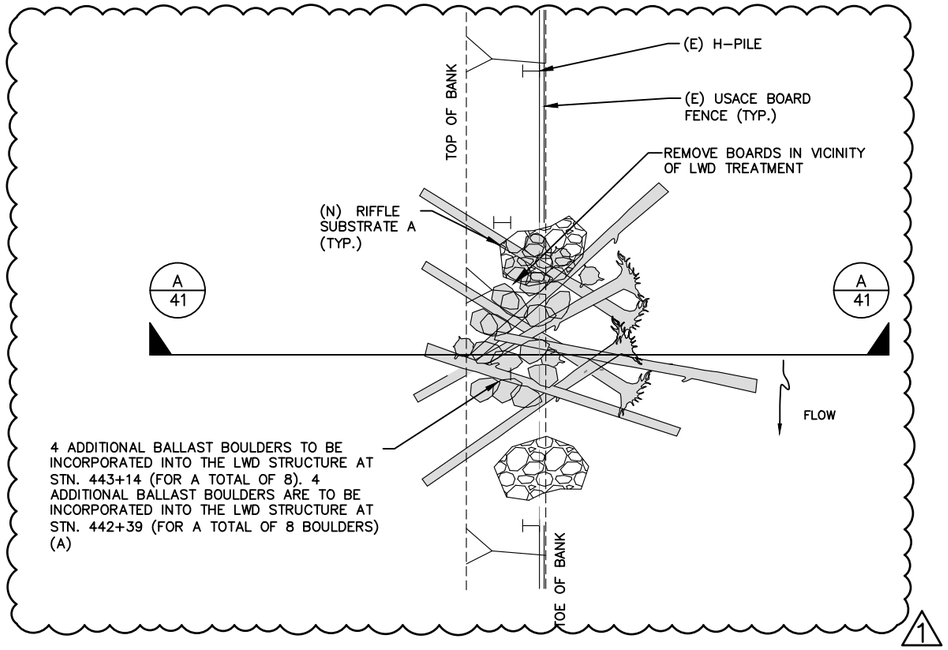
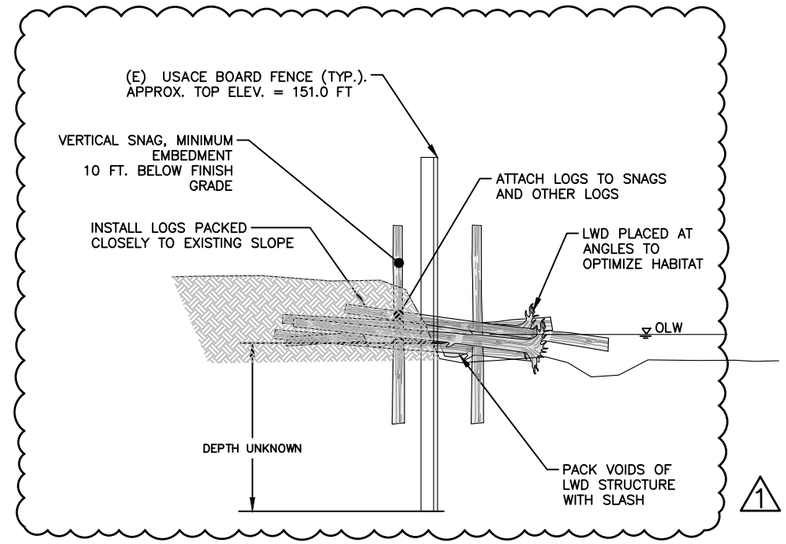
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
DETAILS – BOARD FENCE MODIFICATION

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 41 OF 43

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



1 / 41 TYPICAL PLAN
USACE BOARD FENCE MODIFICATION LWD
NTS



A / – TYPICAL SECTION
USACE BOARD FENCE MODIFICATION LWD
NTS

GENERAL SHEET NOTES:

1. MATERIAL QUANTITIES DEPICTED ARE SCHEMATIC ONLY. SEE REFERENCE SUMMARY TABLE ON SHEET 39 FOR TARGET MATERIAL QUANTITIES.
2. SEE GENERAL LWD INSTALLATION NOTES ON SHEET 28.
3. INSTALL PER BACKWATER LWD DETAIL SHEET 29.
4. SEE SHEET 35 FOR BACKWATER CHANNEL LWD TYPICAL CONSTRUCTION SEQUENCE.
5. FOR LWD ATTACHMENT AND BALLASTING DETAILS SEE SHEET 40.

1

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BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
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1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE:	NTS
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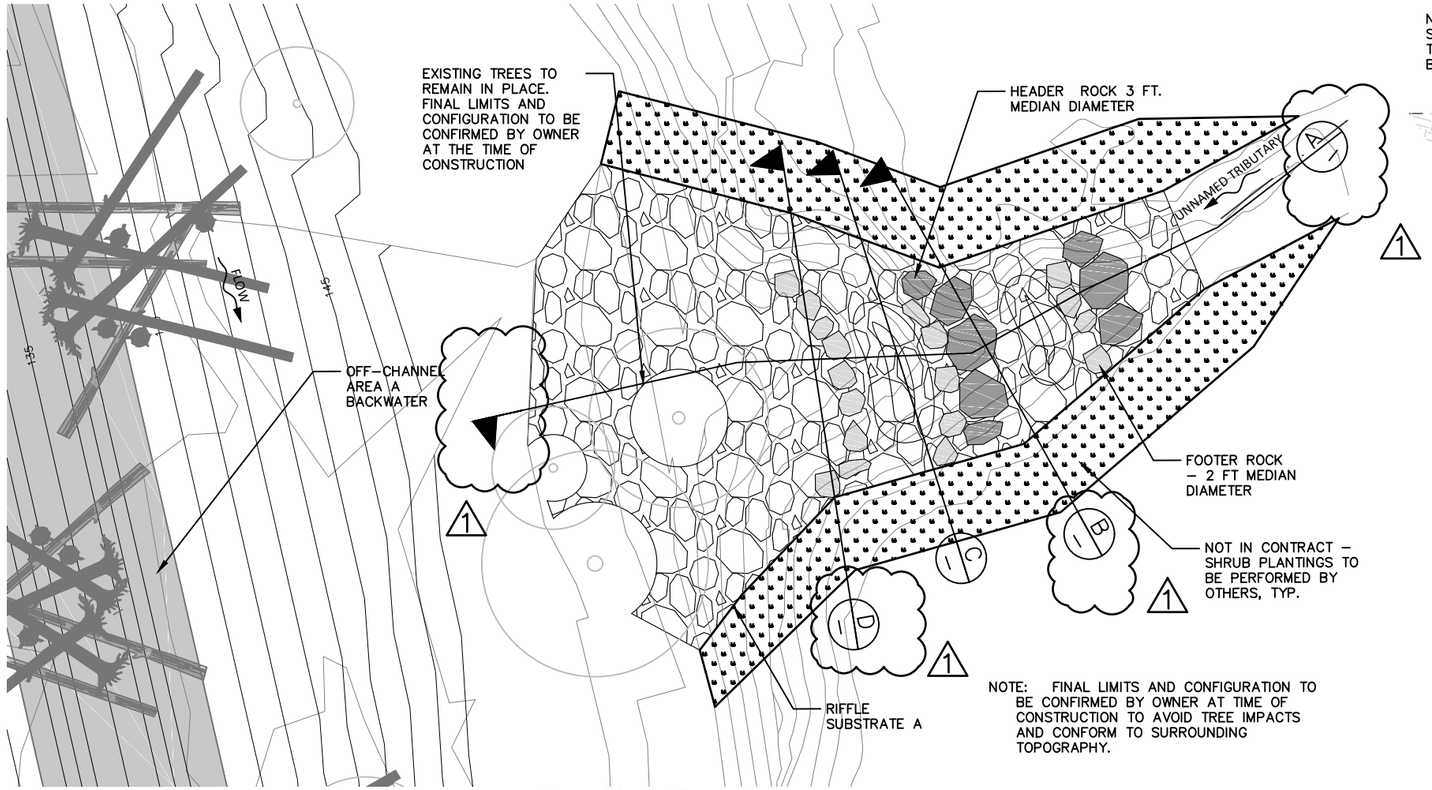
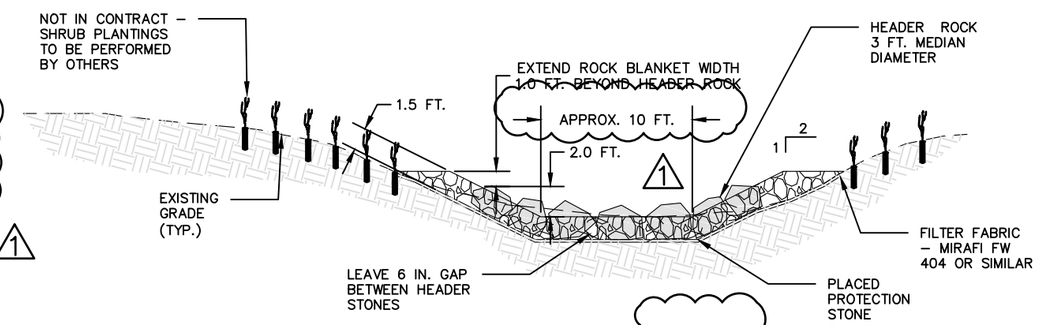
DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
DETAILS – BOARD FENCE MODIFICATION

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 42 OF 43

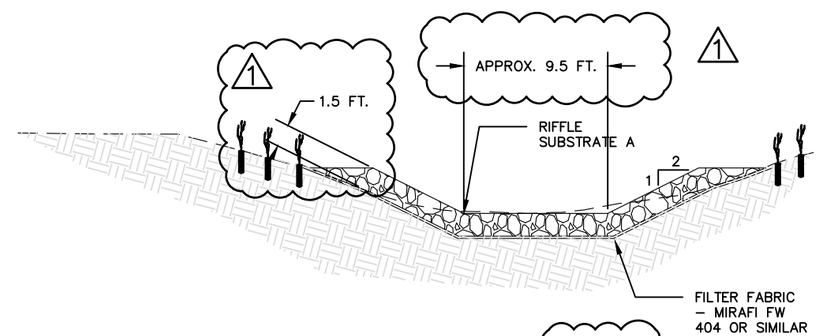
G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg



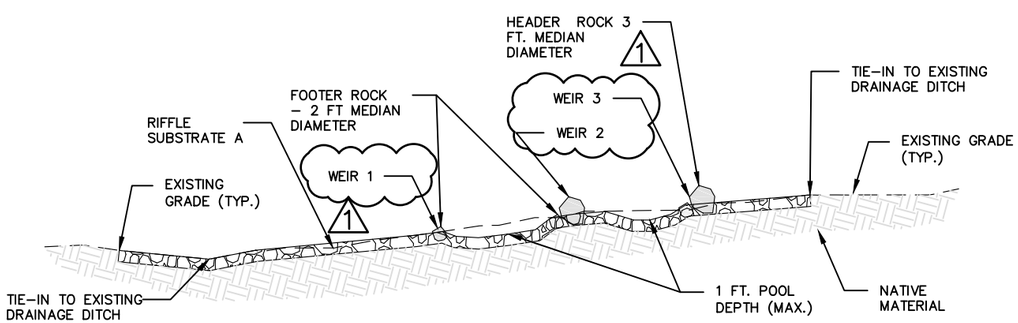
1/7 1/9 1/10 PLAN VIEW
DRAINAGE TIE–IN AREA A
NTS



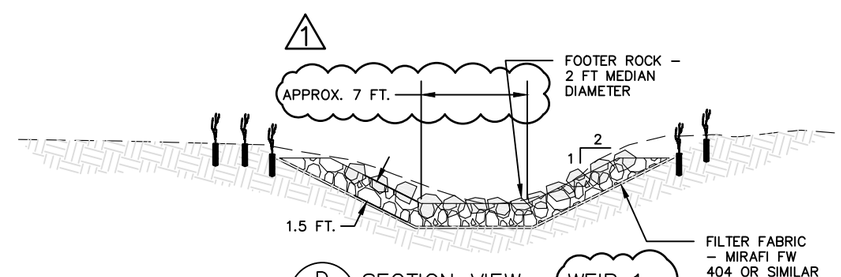
B/– SECTION VIEW – WEIR 2
DRAINAGE TIE–IN AREA A
NTS



C/– SECTION VIEW – POOL
DRAINAGE TIE–IN AREA A
NTS



A/– PROFILE VIEW
DRAINAGE TIE–IN AREA A
NTS



D/– SECTION VIEW – WEIR 1
DRAINAGE TIE–IN AREA A
NTS

G:\C-D\Dry Creek SCWA\Drawings\ IFI_DC_2mile_D_R8.dwg

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REGISTERED PROFESSIONAL ENGINEER MICHAEL P. BURKE C 62986 EXP. 6/30/16 CIVIL STATE OF CALIFORNIA

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

NO.	DATE	REVISION	BY
		RECORD INFORMATION	
1	3/14/16	REVISION 1	

SONOMA COUNTY WATER AGENCY

SCALE: NTS
DATE : 3/14/2016
DRAWN : REP
CHECKED : MB

REVIEWED
REVIEWED

DRY CREEK HABITAT ENHANCEMENT – PHASE 2 – PART 1
TYPICAL DETAILS – SDO AND TRIBUTARY PROTECTION

FILE NAME: IFI_DC_2MILE_D.DWG
CONTRACT NUMBER: ----
DRAWING NUMBER:
SHEET 43 OF 43

LANDS OF MEYER IMPROVEMENT PLAN

5258 DRY CREEK ROAD

Healdsburg, California

APN 090-220-016

INSPECTIONS

1. The road subgrade within the roadway section shall be scarified to a depth of six inches and compacted to a tight non-yielding surface with no visible displacement to at least 95% of relative compaction and shall be free of loose or extraneous material.
2. The Class II Aggregate Base shall have a relative compaction of at least 95%, shall be free of loose or extraneous material, and be a tight non-yielding surface with no visible displacement.
3. A Soils Engineer shall test, and approve the construction of roads, and, if required, parking areas.The Soils Engineer shall provide copies of the test results and written approvals to the County's Inspector within three work days of testing or approval. The approval shall include the stability and relative density of subgrades and base courses prior to the placement of asphalt concrete. A final Soils Report shall be submitted by the Project Soils Engineer to the Construction Inspection Supervisor of the Permit and Resource Management Department which contains an analysis of the soils encountered and compilation of the compaction tests performed.

GENERAL NOTES

1. All material, workmanship, and construction shall conform to the State of California Standard Specifications and Standard Plans (current edition).
2. For any work to be performed on the County right-of-way, the Contractor shall obtain an encroachment permit from the Sonoma County Department of Permit and Resource Management, 2550 Ventura Avenue, Santa Rosa, before start of work.
3. The Contractor shall notify the Department of Permit and Resource Management's construction inspector before starting work. See "Inspections" below for notifications and approvals.
4. The Contractor shall be responsible for notifying Underground Service Alert (U.S.A.). Call toll-free (800) 227-2600 at least two working days prior to excavation. The Contractor shall uncover existing buried utilities with utility owner to verify locations and elevations of utilities. Buried utilities include but are not limited to water, sewer, electrical, gas, and telephone. All utilities conflicting with the proposed construction shall be relocated prior to start of construction.
5. All underground improvements shall be installed and approved prior to road paving and placement of curb, gutter, and sidewalks.
6. Restoration of existing surfacing due to construction of trenches shall be governed by the conditions in the road encroachment permit.
7. Any grading outside of the roadway improvements may require a grading permit from the Permit and Resource Management Department.
8. The Contractor shall obtain a trench permit form the California Division of Industrial Safety prior to the excavation of any trench over five feet in depth.
9. The County may require additional work or facilities in the course of the construction of the project in order for the improvements to reasonably provide for the intended function or for public safety.

GRADING NOTES

1. The Owner shall enlist the services of a registered geotechnical engineer to monitor the placement of embankments. The geotechnical engineer shall submit a final soils report to the County, which certifies that the embankments were placed in accordance with the project plans (and amendments thereto, if any), specifications, and sound geotechnical practice. The report shall address in particular the suitability of the native soil encountered at the toe and base of all fills. Further, the report shall contain analysis of the soils encountered and a compilation of compaction tests performed. The Report shall be subject to the approval of the County.
2. The subgrade and Class II Aggregate Base shall have a relative compaction of at least 95%.
3. If construction is performed earlier than May 1st or later than October 1st in any given year, an approved erosion control plan designed by a civil engineer or other approved, competent individual is required.
4. Existing drainage courses receiving waters from this site and located throughout this site shall remain open and clear of debris to properly convey storm water. In any event, the owner and/or contractor shall be held liable for any damage due to obstructing natural drainage patterns.
5. Retaining walls are not approved under this grading permit. Retaining walls require a separate building permit, unless exempted.
6. The contractor shall immediately notify the design engineer upon discovering significant discrepancies, errors or omissions in the plans. Prior to proceeding, the owner shall have the plans revised to clarify identified discrepancies, errors or omissions. The revised plans shall be subject to review by the Chief Building Official.
7. In the event cultural resources (i.e., historical, archaeological, and paleontological resources, and human remains) are discovered during grading or other construction activities, work shall be halted within a 100 foot radius of the find. The Northwest Information Center shall be notified at (707) 664-0880. A qualified archaeologist shall be consulted for an on-site evaluation. Additional mitigation may be required by the County per the archaeologist's recommendations. If human burials or human remains are encountered, the contractor shall also notify the County Coroner at (707) 565-5070.
8. Should grading operations encounter hazardous materials, or what appear to be hazardous materials, stop work in the affected area immediately and contact 911 or the appropriate agency for further instruction.
9. The grading permit and an approved copy of the grading plans shall be maintained on the project site throughout the duration of construction activities.
10. Drainage facilities and grading shall be inspected before receiving final approval. The contractor shall consult the required inspections notes for coordination of inspection requests.

STORM DRAIN NOTES

1. Trench and backfill construction shall be in accordance with CalTrans' Standard Plan A62-D for concrete culverts and A62-F for metal and plastic culverts.
2. Off-site drainage improvements shall be completed prior to November 1st.

TREE PROTECTION NOTES

1. Protected trees, their protected perimeters and whether they are to be retained or removed are to be clearly shown on all improvement plans. A note shall be placed on the improvement plans that "Construction is subject to requirements established by Sonoma County to protect certain trees."
2. Before the start of any clearing, excavation, construction or other work on the site, every tree designated for protection on the approved site plan shall be clearly delineated with a substantial barrier at the protected perimeter, or limits established during the permit process. The delineation markers shall remain in place for the duration of all work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of brush, earth and other debris as to avoid injury to any protected tree.
3. Where proposed development or other site work must encroach upon the protected perimeter of a protected tree, special measures shall be incorporated to allow the roots to obtain oxygen, water and nutrients. Tree wells or other techniques may be used where advisable. No changes in existing ground level shall occur within the protected perimeter unless a drainage and aeration scheme approved by a certified arborist is utilized. No burning or use of equipment with an open flame shall occur near or within the protected perimeter (except for authorized controlled burns).
4. No storage or dumping of oil, gasoline, chemicals, or other substances that may be harmful to trees shall occur within the drip line of any tree, or any other location on the site from which such substances might enter the drip line.
5. If any damage to a protected tree should occur during or as a result of work on the site, the county shall be promptly notified of such damage. If a protected tree is damaged so that it cannot be preserved in a healthy state, the planning director shall require replacement in accordance with the arboreal value chart. If on-site replacement is not feasible, the applicant shall pay the in lieu fee to the tree replacement fund.
6. The following design standards for protected trees shall be adhered to:
   a. Underground trenching for utilities should avoid tree roots within the protected perimeter. If avoidance is impractical, tunnels should be made below major roots. If tunnels are impractical and cutting roots is required, it shall be done by hand-sawn cuts after hand-digging trenches. Trenches should be consolidated to serve as many units as possible.
   b. Compaction within the drip line or protected perimeter shall be avoided.
   c. Paving with either concrete or asphalt over the protected perimeter should be avoided. If paving over the protected perimeter cannot be avoided, affected trees shall be treated as removed for purposes of calculation arboreal value.
   d. Wherever possible septic systems and/or leach lines shall not be located on the uphill side of a protected tree.
7. Security posted for the purpose of insuring the proper construction of public or private improvements shall also include an amount sufficient to secure any requirements imposed pursuant to this section. In addition, security for potential tree damage shall be 25% of the amount posted for planned tree replacement. In lieu fees shall be paid prior to recording any maps. Such security shall not be released until protection requirements, including planting of replacement tree, and any long term maintenance requirements have been satisfactorily discharged. The initial bond amount may be reduced to cover only the maintenance and replacement of trees after construction is completed.

EROSION PREVENTION & SEDIMENT CONTROL NOTES

1. Perform erosion prevention and sediment control in accordance with Chapter 11a and 11 of the Sonoma County Code (SCC).
2. The approved plans shall conform with the Permit and Resource Management Department's (PRMD) Erosion Prevention and Sediment Control Best Management Practices (BMP's) guide as posted on the PRMD website.
3. The contractor is responsible for preventing storm water pollution generated from the construction site year round. Work sites with inadequate erosion and sediment control may be subject to a stop work order.
4. If discrepancies occur between these notes, material referenced herein or manufacturer's recommendations, then the most protective shall apply.
5. At all times the owner is responsible for obtaining and complying with the State of California National Pollutant Discharge Elimination System (NPDES) General Permit Waste Discharge requirements for discharges of storm water runoff associated with construction activity. Construction activities include but are not limited to clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement.

RAINY SEASON OPERATIONS

1. The owner must implement an effective combination of erosion prevention and sediment control on all disturbed areas during the rainy season (October 15 – April 15). Construction grading and drainage improvement shall be permitted during the rainy season only when on-site soil conditions permit the work to be performed in compliance with SCC Chapter 11 and 11a. Storm water BMPs referenced or detailed in the permit authority's Best Management Practices guide shall be implemented and functional on the site at all times
2. The area of erodible land exposed at any one time during the work shall not exceed 1 Acre or 20% of the permitted work area, whichever is greater, and the time of exposure shall be minimized to the maximum extent practicable.
3. Agricultural grading and drainage improvements, and initial land preparation work for vineyard and orchard planting, shall be permitted during the rainy season only from April 1 to April 15, and only when on-site soil conditions permit the work to be performed in compliance with SCC CH. 11a and 11.

YEAR ROUND REQUIREMENTS

1. During the non-rainy season, on any day when the National Weather Service forecast is a chance of rain of 30% or greater within the next 24 hours, storm water BMPs referenced or detailed in PRMD's Best Management Practices Guide shall be implemented, installed, and functional on the site to prevent soil and other pollutant discharges. At all other times, BMPs should be stored on site in preparation for installation prior to rain events.
2. Erosion prevention and sediment control measures shall be inspected by the owner before forecasted storm events and after storm events to ensure measures are functioning properly. Erosion prevention and sediment control measures that have failed or are no longer effective shall be promptly replaced. Erosion prevention and sediment control measures shall be maintained until disturbed areas are stabilized.
3. The limits of grading shall be defined and marked on site to prevent damage to surrounding vegetation. Preservation of existing vegetation shall occur to the maximum extent practicable. Any existing vegetation within the limits of grading that is to remain undisturbed by the work shall be identified and protected from damage by marking, fencing, or other measures.
4. Changes to the Erosion Prevention and Sediment Control Plan may be made to respond to field conditions and shall be noted on the plan.
5. Discharges of potential pollutants from construction sites shall be prevented using source controls to the maximum extent practicable. Potential pollutants include but are not limited to: sediment, trash, nutrients, pathogens, petroleum hydrocarbons, metals, concrete, cement, asphalt, lime, paint, stains, glues, wood products, pesticides, herbicides, chemicals, hazardous waste, sanitary waste, vehicle or equipment wash water, and chlorinated water.
6. Entrance(s) to the construction site shall be maintained in a condition that will prevent tracking or flowing of potential pollutants offsite. Potential pollutants deposited on paved areas within the County right-of-way, such as roadways and sidewalks, shall be properly disposed of at the end of each working day or more frequently as necessary. The contractor shall be responsible for cleaning construction vehicles leaving the site on a daily basis to prevent dust, silt, and dirt from being released or tracked offsite. All sediment deposited on paved roadways shall be removed at the end of each working day or more often as necessary.
7. All disturbed areas shall be protected by using erosion prevention measures to the maximum extent practicable, such as establishing vegetation coverage, hydroseeding, straw mulch, geotextiles, plastic covers, blankets or mats. Temporary or permanent revegetation shall be installed as soon as practical after vegetation removal but in all cases prior to October 15. Prior to final inspection, all disturbed areas shall be revegetated or landscaping shall be installed.
8. Whenever it is not possible to use erosion prevention measures on exposed slopes, sediment control devices such as fiber rolls and silt fences shall be installed to prevent sediment migration. Fiber rolls and silt fences shall be trenched and keyed into the soil and installed on contour. Silt fences shall be installed approximately 2 to 5 feet from toe of slope.
9. Hydroseeding shall be conducted in a three step process. First, evenly apply seed mix and fertilizer to the exposed slope. Second, evenly apply mulch over the seed and fertilizer. Third, stabilize the mulch in place. An equivalent single step process, with seed, fertilizer, water, and bonded fibers is acceptable.

   Applications shall be broadcasted mechanically or manually at the rates specified below. Seed mix and fertilizer shall be worked into the soil by rolling or tamping. If straw is used as mulch, straw shall be derived from wheat, rice, or barley and be approximately 6 to 8 inches in length. Stabilization of mulch shall be done hydraulically by applying an emulsion or mechanically by crimping or punching the mulch into the soil. Equivalent methods and materials may be used only if they adequately promote vegetation growth and protect exposed slopes.

Materials	application rate (pounds per acre)
Seed mix	
Bromus mollis (blando brome)	40
Trifolium hirtum (hykon rose clover)	20
Fertilizer	
16-20-0 & 15% sulphur	500
Mulch	
Straw	4000
Hydraulic stabilizing*	
M-binder or sentinel	75-100
Equivalent material	per manufacturer

*non-asphaltic, derived from plants

10. Dust control shall be provided by contractor during all phases of construction.
11. Storm drain inlets shall be protected from potential pollutants until drainage conveyance systems are functional and construction has been completed.
12. Energy dissipaters shall be installed at storm drain outlets which may convey erosive storm water flow.
13. Soil, material stockpiles, and fertilizing material shall be properly protected to minimize sediment and pollutant transport from the construction site.
14. Solid waste, such as trash, discarded building materials and debris, shall be placed in designated collection areas or containers. The construction site shall be cleared of solid waste daily or as necessary. Regular removal and proper disposal shall be coordinated by the Contractor.
15. A concrete washout area, such as a temporary pit, shall be designated to clean concrete trucks and tools. At no time shall concrete products and waste be allowed to enter County waterways such as creeks or storm drains. No washout of concrete, mortar mixers, or trucks shall be allowed on soil.
16. Proper application, cleaning, and storage of potentially hazardous materials, such as paints and chemicals, shall be conducted to prevent the discharge of pollutants.
17. Temporary restrooms and sanitary facilities shall be located and maintained during construction activities to prevent the discharge of pollutants.
18. Appropriate vehicle storage, fueling, maintenance, and cleaning areas shall be designated and maintained to prevent discharge of pollutants.

ABBREVIATIONS

AAI	ADOBE ASSOCIATES, INC.	HC	HANDICAPPED
AB	AGGREGATE BASE	IG	INVERT GRADE
AC	ASPHALT CONCRETE	LF	LINEAR FEET
AD	AREA DRAIN	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	ME	MATCH EXISTING
BC	BEGIN CURVE	MH	MANHOLE
BLDG	BUILDING	MIN	MINIMUM
BM	BENCH MARK	NTS	NOT TO SCALE
BOV	BLOWOFF VALVE	NO	NUMBER
C	COMPACT PARKING	OC	ON CENTER
CB	CATCH BASIN	PIV	POST INDICATOR VALVE
CL	CLASS	PL	PROPERTY LINE
℄	CENTERLINE	PP	POWER POLE
CPC	CENTRAL PRECAST CONCRETE	PUE	PUBLIC UTILITY EASEMENT
CM	CORRUGATED METAL PIPE	RCE	REGISTERED CIVIL ENGINEER
CO	CLEANOUT	RCP	REINFORCED CONCRETE PIPE
CONC	CONCRETE	R/W	RIGHT OF WAY
DI	DROP INLET	RWL	RECLAIMED WATER LINE
DWG	DRAWING	S	SLOPE
DWY	DRIVEWAY	SAD	SEE ARCHITECTURAL DRAWINGS
EC	END CURVE	SD	STORM DRAIN
EG	EXISTING GROUND	SS	SANITARY SEWER
EP	EDGE OF PAVEMENT	STA	STATION
EL	ELEVATION	STD	STANDARD
ESMT	EASEMENT	TC	TOP OF CURB
EX	EXISTING	TYP	TYPICAL
FL	FLOWLINE	W	WATER
FG	FINISH GRADE	WM	WATER METER
FH	FIRE HYDRANT	WV	WATER VALVE
FS	FINISHED SURFACE	WWF	WELDED WIRE FABRIC
FSS	FIRE SAFE STANDARD		
GB	GRADE BREAK		
GR	GRATE		

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PROPERTY BOUNDARY
160	160	INDEX CONTOUR
159	159	INTERMEDIATE CONTOUR
		GRADE BREAK
		DRAINAGE SWALE
		DAYLIGHT LINE
		APPROXIMATE LIMIT OF GRADING/DISTURBANCE

OWNER INFO

JEFF MEYER
PO Box 2398
HEALDSBURG, CA 95448

PURPOSE STATEMENT:

THIS PROJECT PROPOSES GRADING & DRAINAGE IMPROVEMENTS FOR A NEW AGRICULTURAL ACCESS APPROACH

TOPOGRAPHIC INFORMATION:

VERTICAL INFORMATION OBTAINED FOR THIS PROJECT ARE BASED ON LIDAR POINTS OBTAINED FROM SONOMAVEGMAP.ORG. METADATA FOR THE LIDAR POINTS STATES NORTH AMERICAN DATUM 1983.

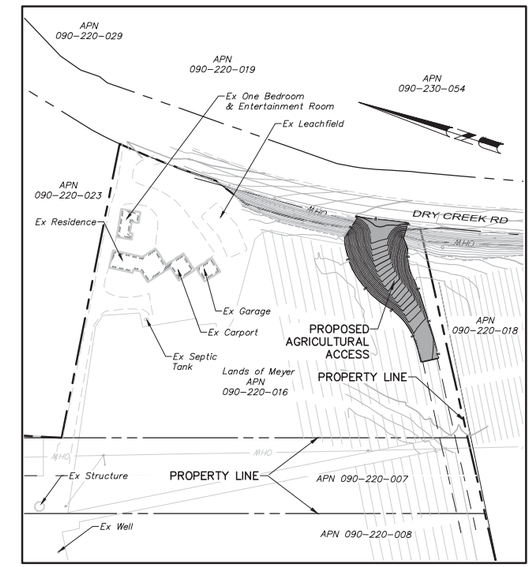
GRADING QUANTITIES:

Site Grading is based upon subgrade to existing grade. No account has been taken for strippings, expansion or contraction. Volumes should be verified and determined independently by the contractor.

CUT	FILL	TOTAL	BASE ROCK
0 CY	2,295 CY	2,295 CY	160 CY

Note:
Excess material to be off-hauled to an approved location or placed onsite under the direction of the project Soils Engineer. Earth materials placed onsite not shown on these plans may require revisions(s) to the grading permit.

Area of Disturbance = 0.2 Acres

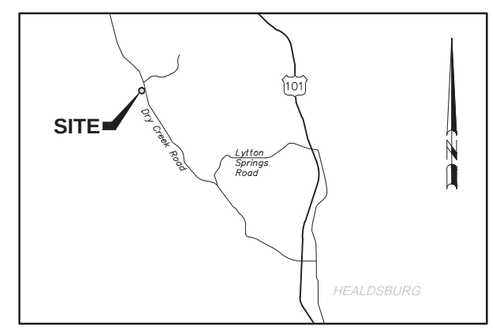


OVERALL SITE PLAN

SCALE: 1" = 100'

SHEET INDEX

C1.0 TITLE SHEET
C2.0 AGRICULTURAL ACCESS PLAN
C3.0 CROSS SECTIONS



LOCATION MAP

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY LEE SCHRAM
No. 067890
Exp.6/30/2017
CIVIL
STATE OF CALIFORNIA

Timothy L. Schram, RCE 67890
My license expires 6/30/2017

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NO.	DATE	RECORD INFORMATION / REVISION

SONOMA COUNTY WATER AGENCY

SCALE: AS NOTED		REVIEWED
DATE:	DATE:	
DRAWN:	NAME	REVIEWED
CHECKED	NAME	

LANDS OF MEYER IMPROVEMENT PLAN
TITLE SHEET

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:
SHEET C1 OF 46

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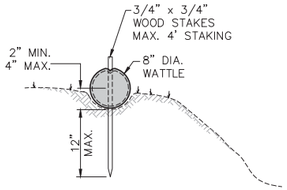
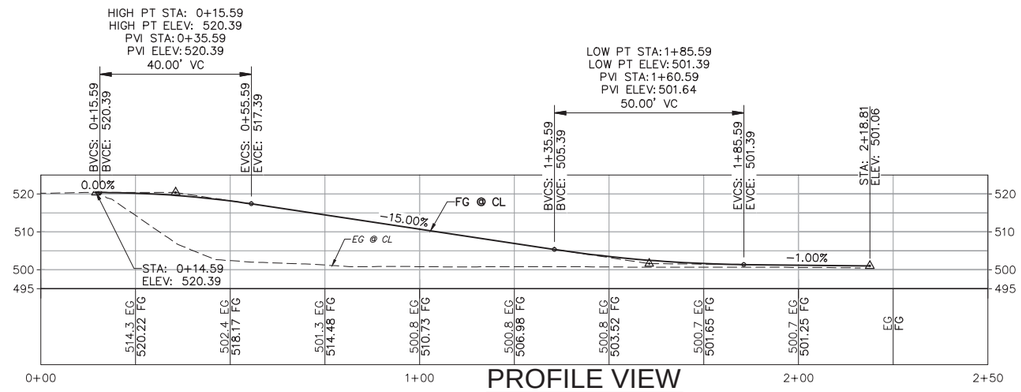


FIBER ROLL INSTALLATION

1

NTS



PROFILE VIEW

Graphic Scale: 1" = 20' Horizontal
1" = 20' Vertical

2

PAVING LEGEND:

- 12" CL II AB
- HYDROSEED & GRASS MAT NETTING

UNOBSTRUCTED VIEW FOR STOPPING DISTANCE

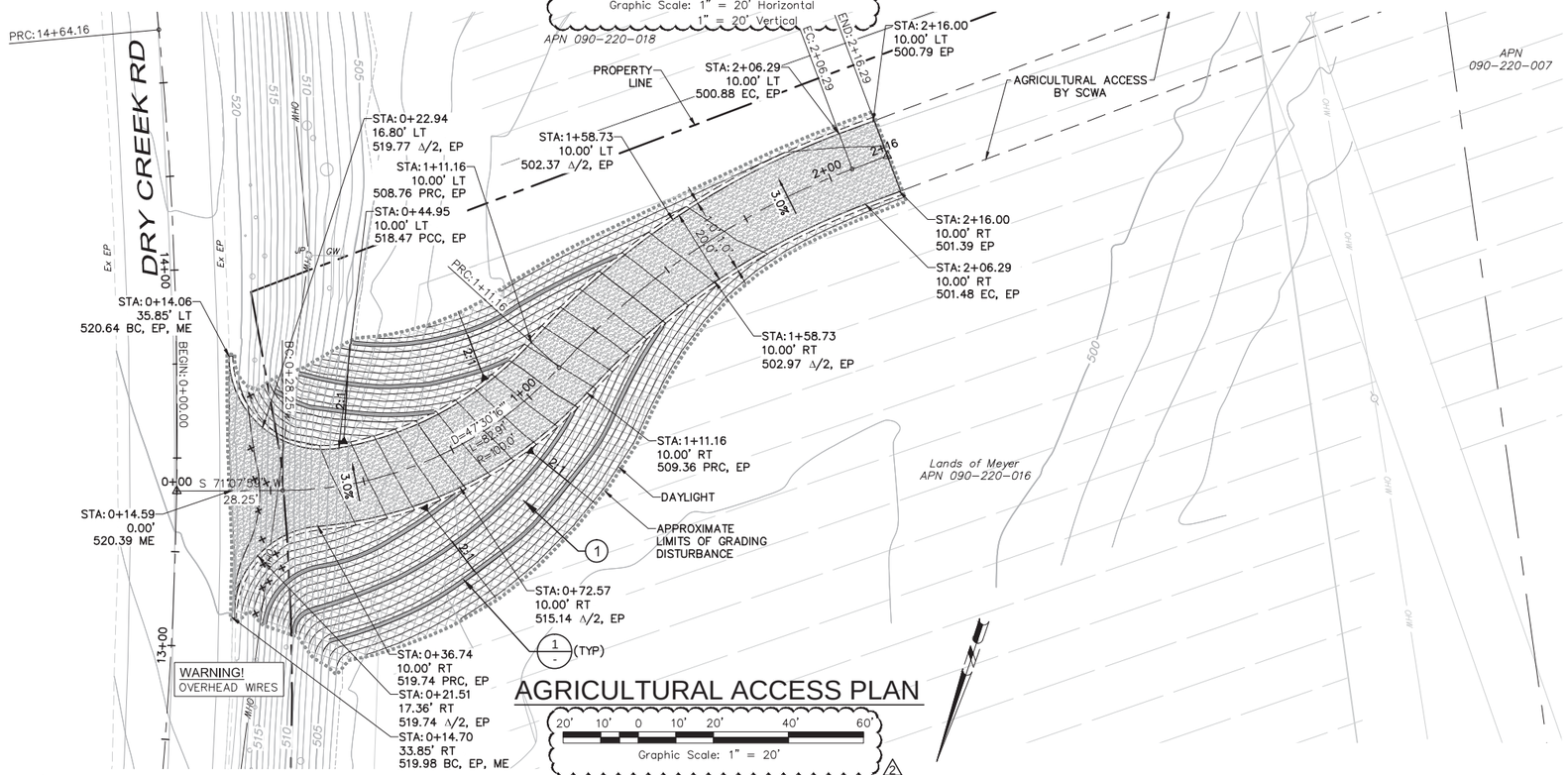
+ DESIGN/POSTED LIMIT SPEED: 50 MPH
+ CORNER SIGHT DISTANCE: 430 FT
+ AVAILABLE SIGHT DISTANCE: > 430 FT (BOTH DIRECTIONS, FIELD VERIFIED)

KEY NOTES:

1. TRACK WALK, HYDROSEED AND PROVIDE GRASS MAT NETTING FOR SLOPES GREATER THAN 3:1
2. TRACK WALK, HYDROSEED AND PROVIDE GRASS MAT NETTING FOR SLOPES GREATER THAN 3:1

DEMOLITION:

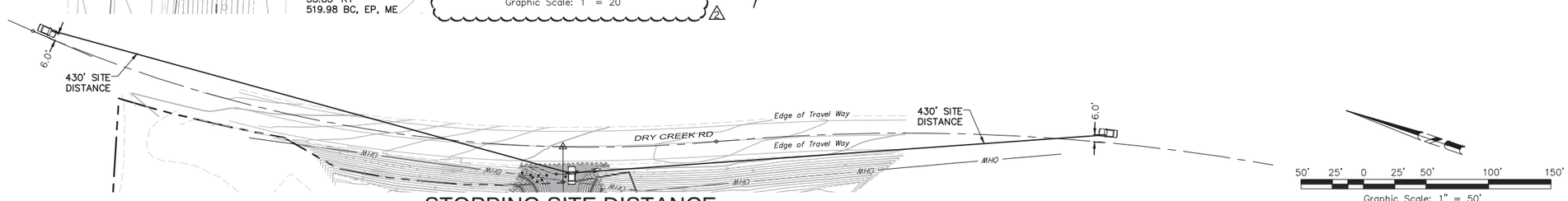
12" LO	EXISTING TREE TO BE REMOVED



AGRICULTURAL ACCESS PLAN

20' 10' 0 10' 20' 40' 60'
Graphic Scale: 1" = 20'

2



STOPPING SITE DISTANCE

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY LEE SCHRAM
No. 067890
Exp. 6/30/2017
CIVIL
STATE OF CALIFORNIA

Timothy L. Schram, RCE 67890
My license expires 6/30/2017

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RECORD INFORMATION

NO.	DATE	REVISION	
2	03/17/16	UPDATES TO SCALES	TLS

SONOMA COUNTY WATER AGENCY

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LANDS OF MEYER IMPROVEMENT PLAN
AGRICULTURAL ACCESS PLAN

FILE NAME:
CONTRACT NUMBER:
DRAWING NUMBER:
SHEET C2 OF 46

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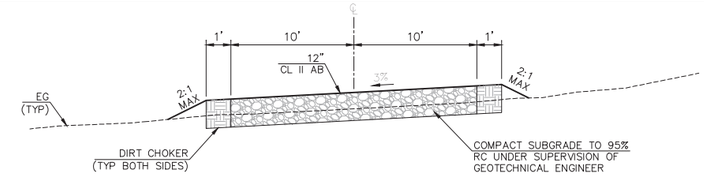

TYPICAL DRIVEWAY SECTION

STA:0+12.00–2+16.00
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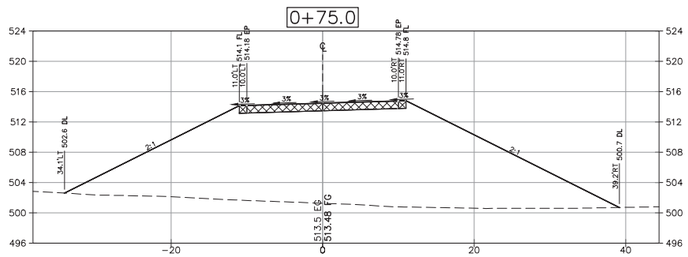

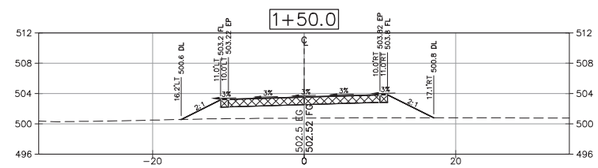

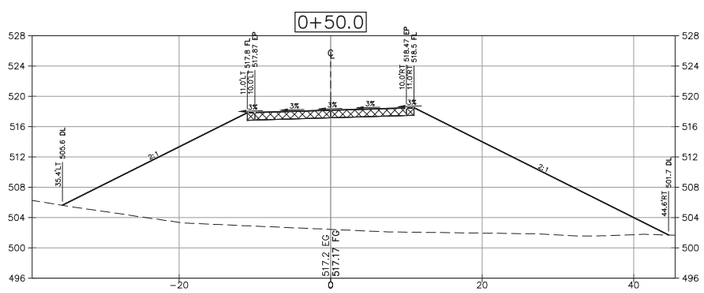

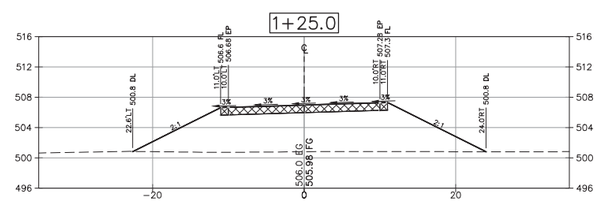

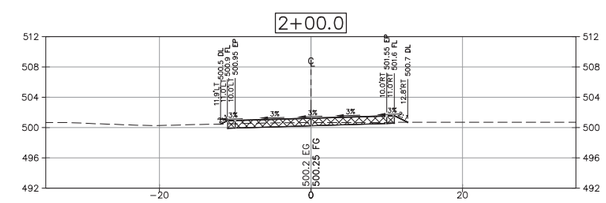

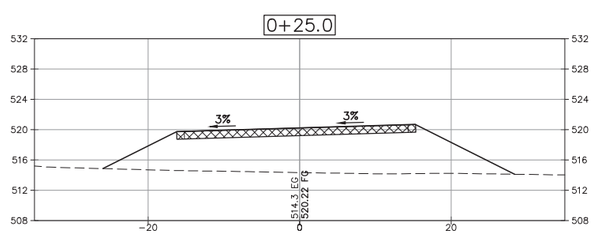

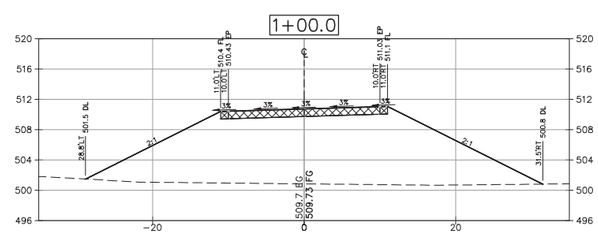

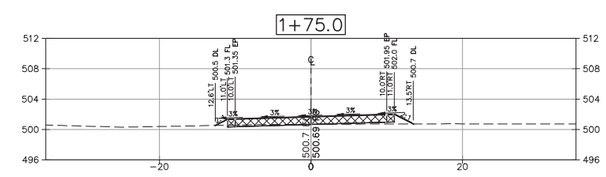

CROSS SECTIONS

10' 5' 0 5' 10' 20' 30'

Graphic Scale: 1" = 10'

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CROSS SECTIONS

FILE NAME:
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SHEET C3 OF 46

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