

# NAPA RIVER-RUTHERFORD REACH 4: EAST (LEFT) BANK

NAPA COUNTY, CALIFORNIA



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE

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## ABBREVIATIONS

ALD	ALDER	NIC	NOT IN CONTRACT
APPROX	APPROXIMATE	NTS	NOT TO SCALE
CL	CENTERLINE	OC	ON CENTER
CW	COTTONWOOD	PIP	PROTECT IN PLACE
DBH	DIAMETER BREST HEIGHT	PWA	PHILIP WILLIAMS & ASSOCIATES
DEMO	DEMOLISH	Q AG	QUERCUS AGRIFOLIA (LIVE OAK)
DS	DOWNSTREAM	Q LO	QUERCUS LOBATA (VALLEY OAK)
ELEV	ELEVATION	RC	RELATIVE COMPACTION
(E)	EXISTING	SPECS	SPECIFICATIONS
EG	EXISTING GRADE	STA	STATION
FG	FINISHED GRADE	3:1	SLOPE, HORIZONTAL:VERTICAL
FL	FLOW LINE	TBD	TO BE DETERMINED
FT	FOOT, FEET	(TYP)	TYPICAL
GB	GRADE BREAK	US	UPSTREAM
MAX	MAXIMUM	VAR	VARIES
MIN	MINIMUM	VIF	VERIFY IN FIELD
(N)	NEW	WAL	WALNUT
		WIL	WILLOW

## LEGEND

---	EXISTING GRADE (PROFILE & SECTION)
—	DESIGN GRADE
- - - - -	APPROX PROPERTY BOUNDARY
- . - . -	GRADING LIMITS
- - - - -	PROJECT LIMITS
---	APPROX THALWEG
○-○-○-○-○	CONSTRUCTION ACCESS
-v-v-v-v-	EXISTING WATERLINE
~~~~~	APPROX TREELINE
— 4 —	NEW CONTOUR LINE
— 4 —	EXISTING CONTOUR LINE
[X-X-X-X]	BRUSH MAT (PLAN)
[•••••]	LIVE POLE PLANTING (PLAN)
[X-X-X-X]	EXISTING GROUND (SECTION)
[X-X-X-X]	EXCAVATION (SECTION)
[•••••]	FILL (SECTION)
[X-X-X-X]	VINEYARD TOPSOIL OR PLANTING SOIL

## LEGEND (CONT.)

X 2,3	DEMO TREE
[X-X-X-X]	WILLOW BAFFLE
[X-X-X-X]	LARGE WOODY DEBRIS TYPE 1 & 2
[X-X-X-X]	LARGE WOODY DEBRIS TYPE 3
○-○-○	BOULDER CLUSTER
→	FLOW DIRECTION
X 9.36	SPOT ELEVATION
△	BENCHMARK
•	CONTROL POINT
⊕ 47	EXISTING UTILITY
1	INDICATES SECTION OR DETAIL NUMBER
2 3	SHEET NUMBER ON WHICH SECTION OR DETAIL APPEARS
1 2 3	SHEET NUMBER FROM WHICH WHICH SECTION OR DETAIL WAS SPECIFIED

DONALD G. RIDENHOUR, P.E. DATE  
COUNTY ENGINEER, R.C.E. 51790



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SHEET TITLE  
PROJECT: NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

PREPARED FOR:  
NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559

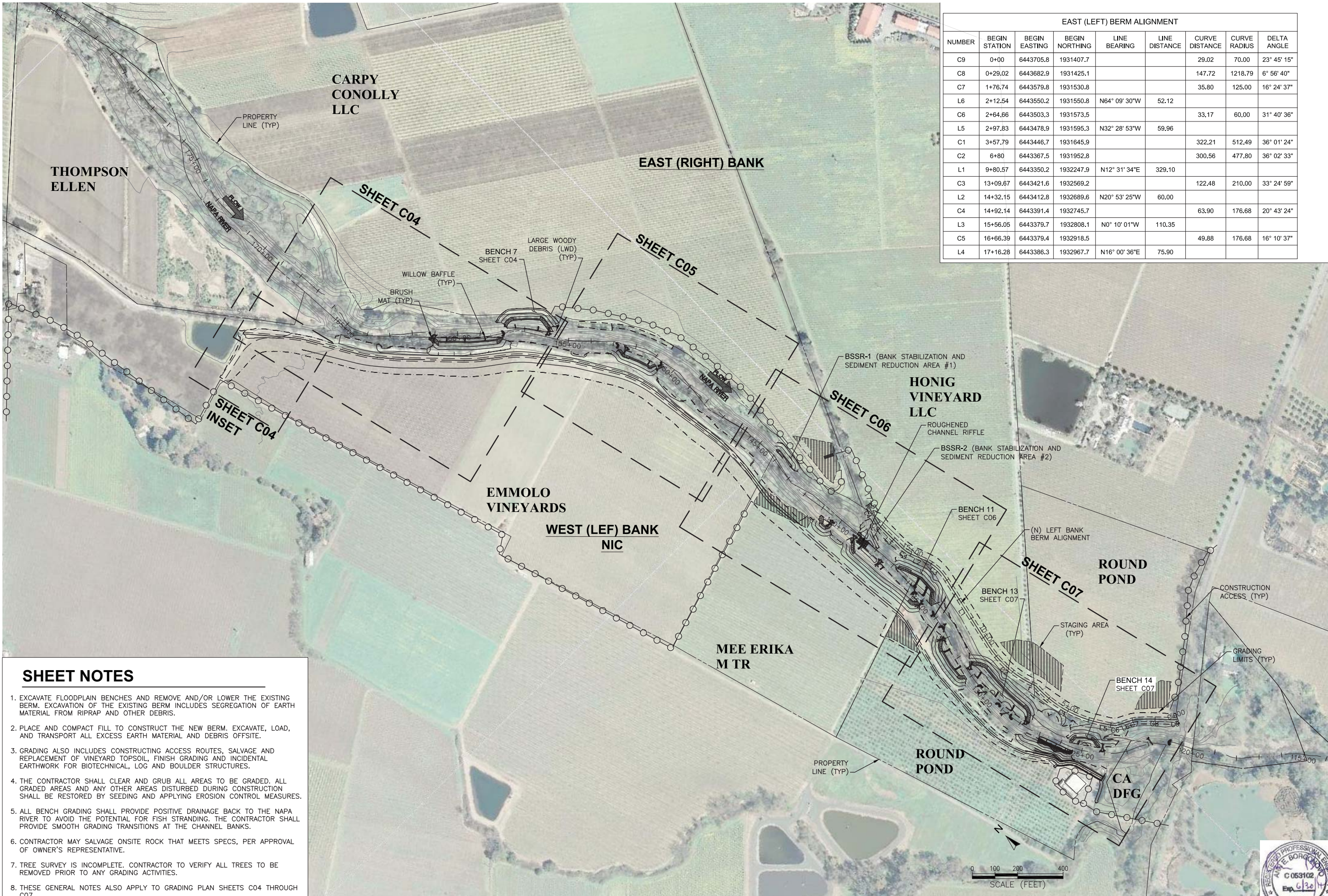


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DESIGNED R.BROWN  
J.BLOMBERG  
DRAWN B.TANAKA  
INCHARGE A.BORGONOVO  
C053102  
SCALE NOT TO SCALE  
DATE APRIL 2011  
SHEET

C01  
1 OF 34

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EAST (LEFT) BERM ALIGNMENT									
NUMBER	BEGIN STATION	BEGIN EASTING	BEGIN NORTHING	LINE BEARING	LINE DISTANCE	CURVE DISTANCE	CURVE RADIUS	DELTA ANGLE	
C9	0+00	6443705.8	1931407.7			29.02	70.00	23° 45' 15"	
C8	0+29.02	6443682.9	1931425.1			147.72	1218.79	6° 56' 40"	
C7	1+76.74	6443579.8	1931530.8			35.80	125.00	16° 24' 37"	
L6	2+12.54	6443550.2	1931550.8	N64° 09' 30"W	52.12				
C6	2+64.66	6443503.3	1931573.5			33.17	60.00	31° 40' 36"	
L5	2+97.83	6443478.9	1931593.3	N32° 28' 53"W	59.96				
C1	3+57.79	6443446.7	1931645.9			322.21	512.49	36° 01' 24"	
C2	6+80	6443367.5	1931952.8			300.56	477.80	36° 02' 33"	
L1	9+80.57	6443350.2	1932247.9	N12° 31' 34"E	329.10				
C3	13+09.67	6443421.6	1932569.2			122.48	210.00	33° 24' 59"	
L2	14+32.15	6443412.8	1932689.6	N20° 53' 25"W	60.00				
C4	14+92.14	6443391.4	1932745.7			63.90	176.68	20° 43' 24"	
L3	15+56.05	6443379.7	1932808.1	N0° 10' 01"W	110.35				
C5	16+66.39	6443379.4	1932918.5			49.88	176.68	16° 10' 37"	
L4	17+16.28	6443386.3	1932967.7	N16° 00' 36"E	75.90				

**SHEET NOTES**

- EXCAVATE FLOODPLAIN BENCHES AND REMOVE AND/OR LOWER THE EXISTING BERM. EXCAVATION OF THE EXISTING BERM INCLUDES SEGREGATION OF EARTH MATERIAL FROM RIPRAP AND OTHER DEBRIS.
- PLACE AND COMPACT FILL TO CONSTRUCT THE NEW BERM. EXCAVATE, LOAD, AND TRANSPORT ALL EXCESS EARTH MATERIAL AND DEBRIS OFFSITE.
- GRADING ALSO INCLUDES CONSTRUCTING ACCESS ROUTES, SALVAGE AND REPLACEMENT OF VINEYARD TOPSOIL, FINISH GRADING AND INCIDENTAL EARTHWORK FOR BIOTECHNICAL, LOG AND BOULDER STRUCTURES.
- THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS TO BE GRADED. ALL GRADED AREAS AND ANY OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND APPLYING EROSION CONTROL MEASURES.
- ALL BENCH GRADING SHALL PROVIDE POSITIVE DRAINAGE BACK TO THE NAPA RIVER TO AVOID THE POTENTIAL FOR FISH STRANDING. THE CONTRACTOR SHALL PROVIDE SMOOTH GRADING TRANSITIONS AT THE CHANNEL BANKS.
- CONTRACTOR MAY SALVAGE ONSITE ROCK THAT MEETS SPECS, PER APPROVAL OF OWNER'S REPRESENTATIVE.
- TREE SURVEY IS INCOMPLETE. CONTRACTOR TO VERIFY ALL TREES TO BE REMOVED PRIOR TO ANY GRADING ACTIVITIES.
- THESE GENERAL NOTES ALSO APPLY TO GRADING PLAN SHEETS C04 THROUGH C07.

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 PHONE (415) 262-2300 FAX (415) 262-2303

SHEET TITLE: **PROJECT LAYOUT AND KEY PLAN**  
 PROJECT: **NAPA RIVER RESTORATION RUTHERFORD REACH 4: EAST (LEFT) BANK**

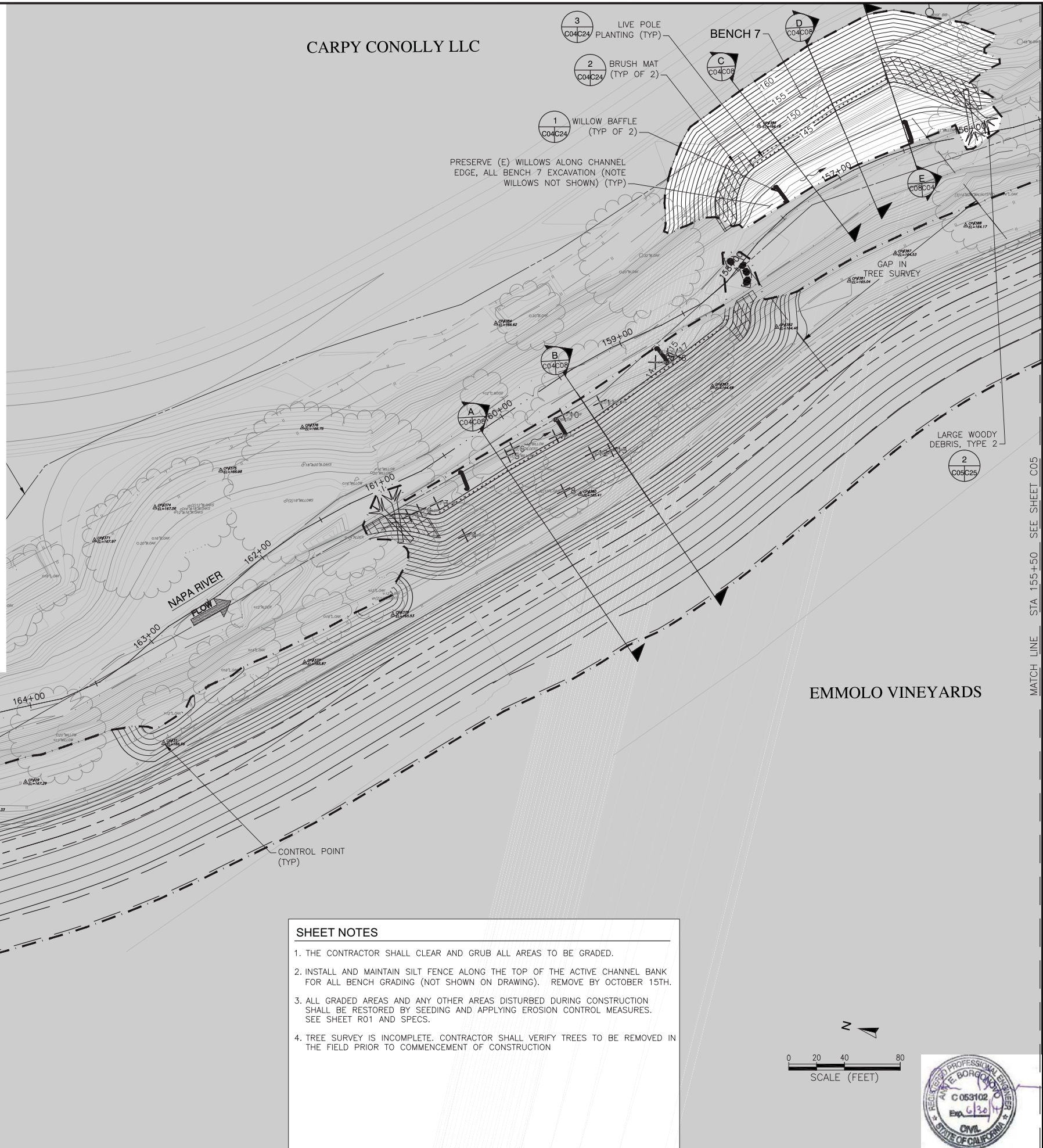
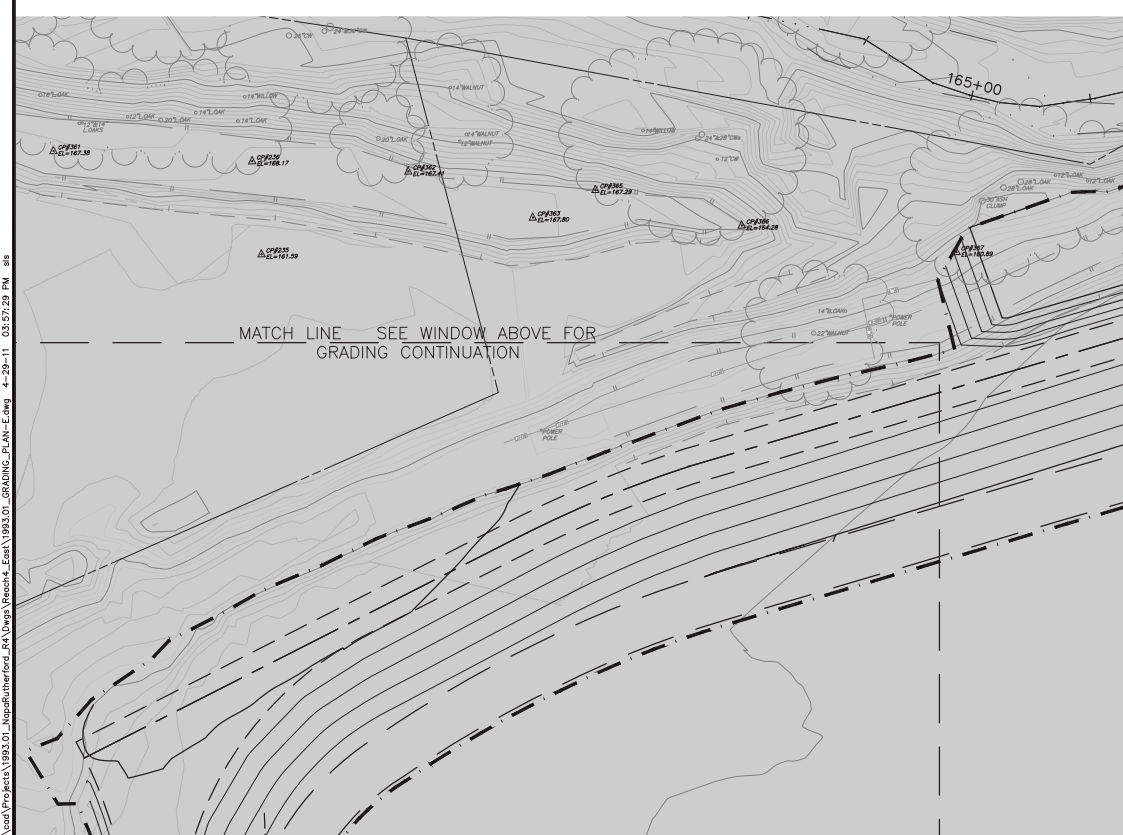
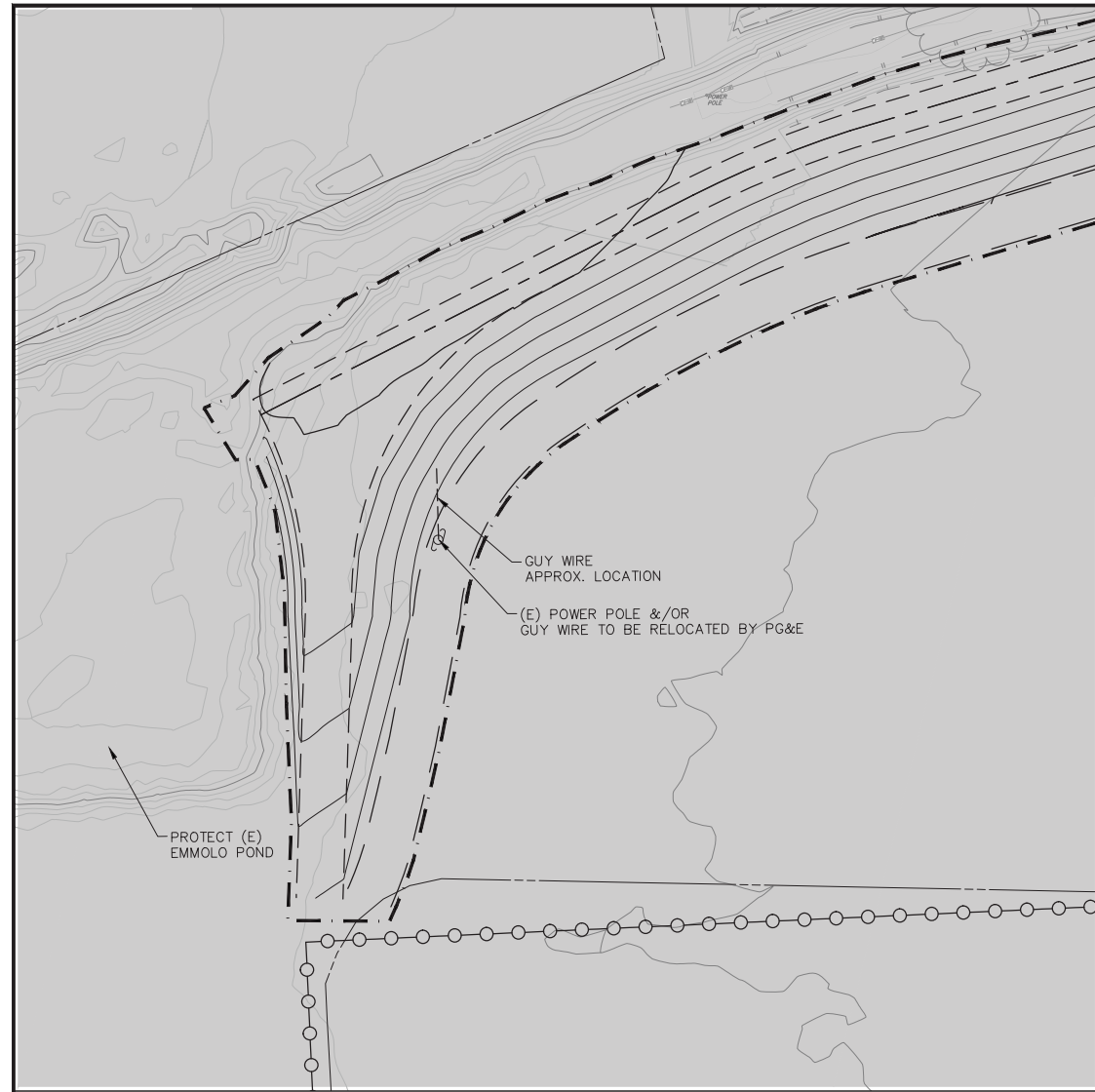
PREPARED FOR:  
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 DEPARTMENT OF PUBLIC WORKS  
 1195 Third St, Suite 201  
 Napa, CA 94559

APPROVED  
 DESIGNED: R. BROWN, J. BLOMBERG  
 DRAWN: B. TANAKA  
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 SCALE: AS SHOWN  
 DATE: APRIL 2011  
 SHEET



**C03**

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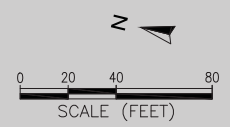
CARPY CONOLLY LLC

- 3 LIVE POLE PLANTING (TYP)
- 2 BRUSH MAT (TYP OF 2)
- 1 WILLOW BAFFLE (TYP OF 2)

PRESERVE (E) WILLOWS ALONG CHANNEL EDGE, ALL BENCH 7 EXCAVATION (NOTE WILLOWS NOT SHOWN) (TYP)

**SHEET NOTES**

1. THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS TO BE GRADED.
2. INSTALL AND MAINTAIN SILT FENCE ALONG THE TOP OF THE ACTIVE CHANNEL BANK FOR ALL BENCH GRADING (NOT SHOWN ON DRAWING). REMOVE BY OCTOBER 15TH.
3. ALL GRADED AREAS AND ANY OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND APPLYING EROSION CONTROL MEASURES. SEE SHEET R01 AND SPECS.
4. TREE SURVEY IS INCOMPLETE. CONTRACTOR SHALL VERIFY TREES TO BE REMOVED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION



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GRADING PLAN: STA 155+50 TO STA 169+15  
 PROJECT: NAPA RIVER RESTORATION  
 RUTHERFORD REACH 4:  
 EAST (LEFT) BANK

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 SHEET: C04

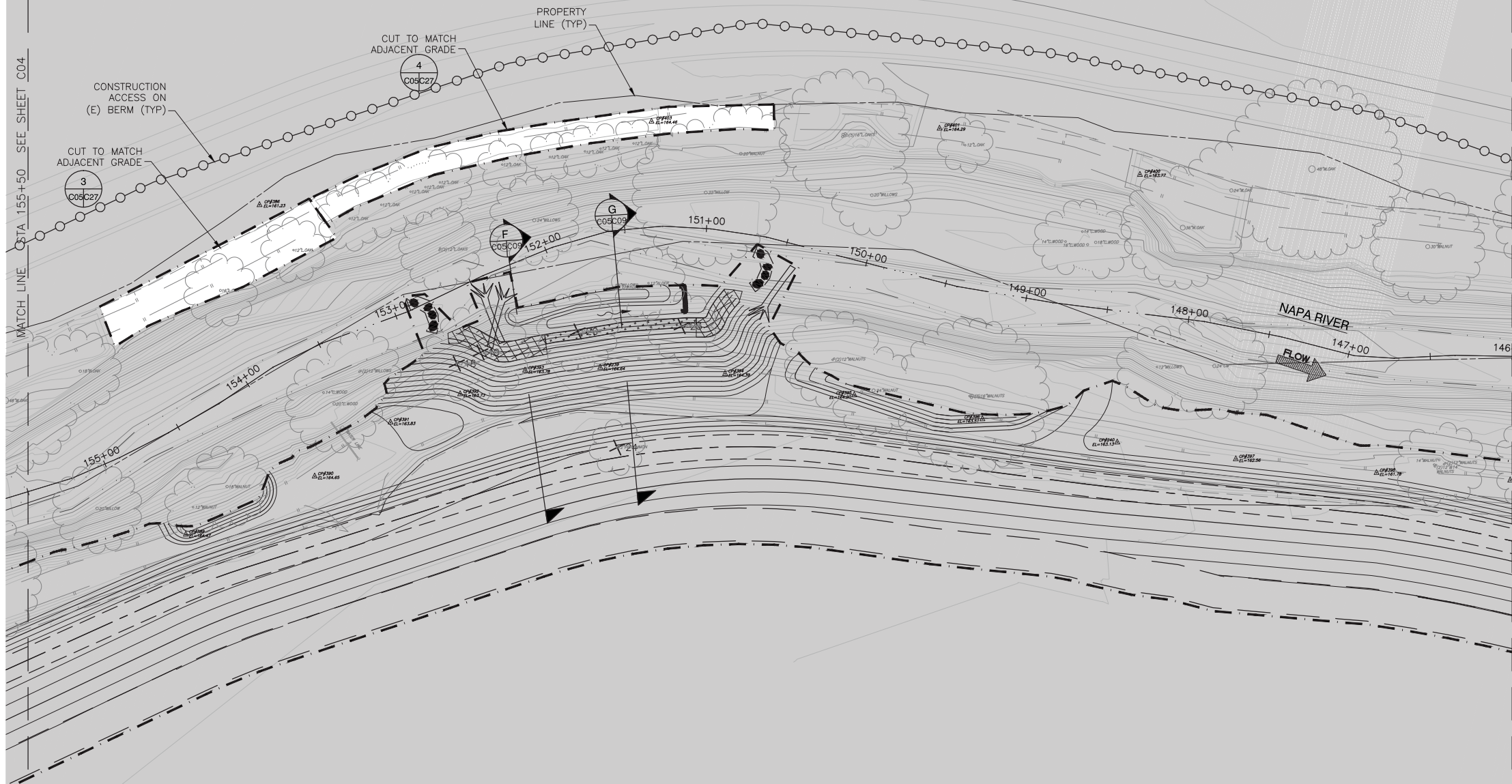
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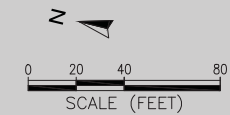
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2. INSTALL AND MAINTAIN SILT FENCE ALONG THE TOP OF THE ACTIVE CHANNEL BANK FOR ALL BENCH GRADING (NOT SHOWN ON DRAWING). REMOVE BY OCTOBER 15TH.
3. GRADING AREAS ON EAST (LEFT) BANK OCCUR BETWEEN STATION 150+60 TO STATION 154+70.
4. ALL GRADED AREAS AND ANY OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND APPLYING EROSION CONTROL MEASURES. SEE SHEET R01 AND SPECS.
5. TREE SURVEY IS INCOMPLETE. CONTRACTOR SHALL VERIFY TREE TO BE REMOVED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION



EMMOLO VINEYARDS



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SHEET TITLE  
**GRADING PLAN: STA 146+00 TO STA 155+50**  
 PROJECT  
**NAPA RIVER RESTORATION  
 RUTHERFORD REACH 4:  
 EAST (LEFT) BANK**

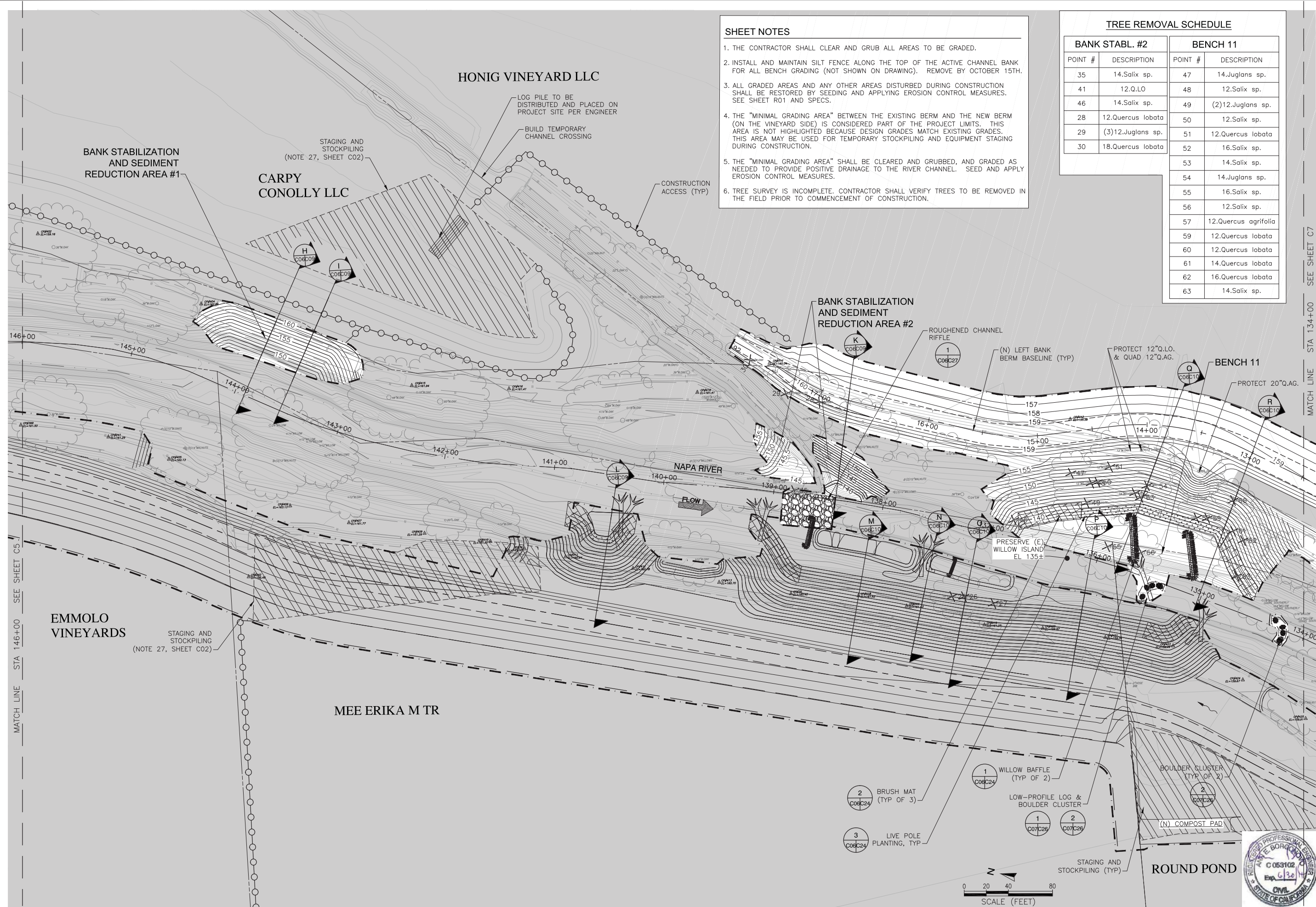
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 SCALE AS SHOWN  
 DATE APRIL 2011  
 SHEET

**C05**  
 5 OF 34

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- SHEET NOTES**
1. THE CONTRACTOR SHALL CLEAR AND GRUB ALL AREAS TO BE GRADED.
  2. INSTALL AND MAINTAIN SILT FENCE ALONG THE TOP OF THE ACTIVE CHANNEL BANK FOR ALL BENCH GRADING (NOT SHOWN ON DRAWING). REMOVE BY OCTOBER 15TH.
  3. ALL GRADED AREAS AND ANY OTHER AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND APPLYING EROSION CONTROL MEASURES. SEE SHEET R01 AND SPECS.
  4. THE "MINIMAL GRADING AREA" BETWEEN THE EXISTING BERM AND THE NEW BERM (ON THE VINEYARD SIDE) IS CONSIDERED PART OF THE PROJECT LIMITS. THIS AREA IS NOT HIGHLIGHTED BECAUSE DESIGN GRADES MATCH EXISTING GRADES. THIS AREA MAY BE USED FOR TEMPORARY STOCKPILING AND EQUIPMENT STAGING DURING CONSTRUCTION.
  5. THE "MINIMAL GRADING AREA" SHALL BE CLEARED AND GRUBBED, AND GRADED AS NEEDED TO PROVIDE POSITIVE DRAINAGE TO THE RIVER CHANNEL. SEED AND APPLY EROSION CONTROL MEASURES.
  6. TREE SURVEY IS INCOMPLETE. CONTRACTOR SHALL VERIFY TREES TO BE REMOVED IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION.

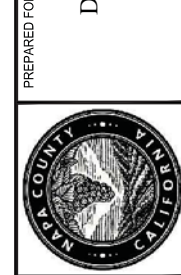
**TREE REMOVAL SCHEDULE**

BANK STABL. #2		BENCH 11	
POINT #	DESCRIPTION	POINT #	DESCRIPTION
35	14.Salix sp.	47	14.Juglans sp.
41	12.Q.LO	48	12.Salix sp.
46	14.Salix sp.	49	(2)12.Juglans sp.
28	12.Quercus lobata	50	12.Salix sp.
29	(3)12.Juglans sp.	51	12.Quercus lobata
30	18.Quercus lobata	52	16.Salix sp.
		53	14.Salix sp.
		54	14.Juglans sp.
		55	16.Salix sp.
		56	12.Salix sp.
		57	12.Quercus agrifolia
		59	12.Quercus lobata
		60	12.Quercus lobata
		61	14.Quercus lobata
		62	16.Quercus lobata
		63	14.Salix sp.

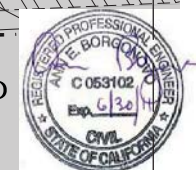
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SHEET TITLE  
**GRADING PLAN: STA 134+00 TO STA 146+00**  
 PROJECT  
**NAPA RIVER RESTORATION  
 RUTHERFORD REACH 4:  
 EAST (LEFT) BANK**

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**SHEET NOTES**

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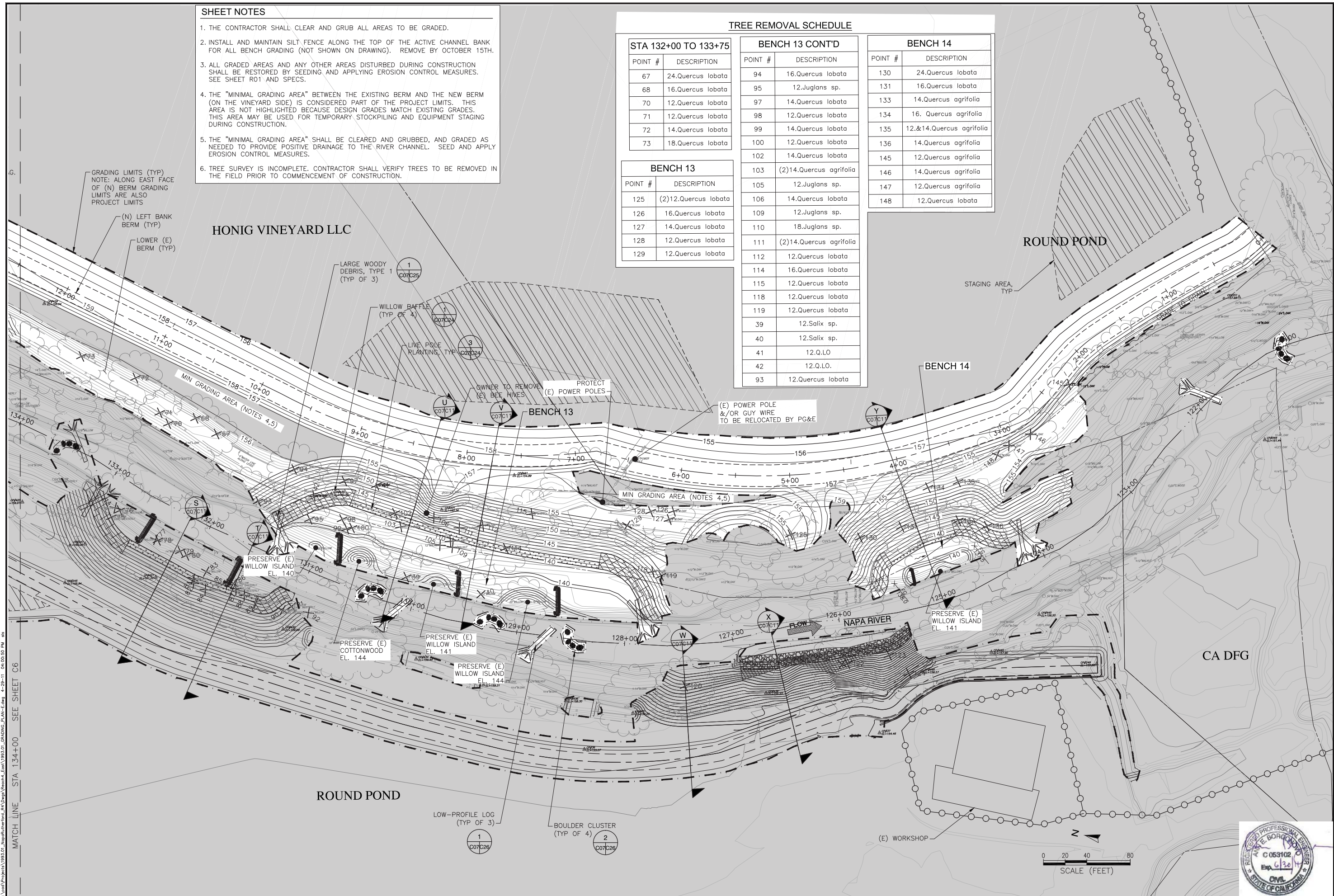
**TREE REMOVAL SCHEDULE**

STA 132+00 TO 133+75	
POINT #	DESCRIPTION
67	24.Quercus lobata
68	16.Quercus lobata
70	12.Quercus lobata
71	12.Quercus lobata
72	14.Quercus lobata
73	18.Quercus lobata

BENCH 13 CONT'D	
POINT #	DESCRIPTION
94	16.Quercus lobata
95	12.Juglans sp.
97	14.Quercus lobata
98	12.Quercus lobata
99	14.Quercus lobata
100	12.Quercus lobata
102	14.Quercus lobata
103	(2)14.Quercus agrifolia
105	12.Juglans sp.
106	14.Quercus lobata
109	12.Juglans sp.
110	18.Juglans sp.
111	(2)14.Quercus agrifolia
112	12.Quercus lobata
114	16.Quercus lobata
115	12.Quercus lobata
118	12.Quercus lobata
119	12.Quercus lobata
39	12.Salix sp.
40	12.Salix sp.
41	12.Q.LO
42	12.Q.LO.
93	12.Quercus lobata

BENCH 14	
POINT #	DESCRIPTION
130	24.Quercus lobata
131	16.Quercus lobata
133	14.Quercus agrifolia
134	16. Quercus agrifolia
135	12.&14.Quercus agrifolia
136	14.Quercus agrifolia
145	12.Quercus agrifolia
146	14.Quercus agrifolia
147	12.Quercus agrifolia
148	12.Quercus lobata

BENCH 13	
POINT #	DESCRIPTION
125	(2)12.Quercus lobata
126	16.Quercus lobata
127	14.Quercus lobata
128	12.Quercus lobata
129	12.Quercus lobata



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 MATCH LINE STA 134+00 SEE SHEET C6

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SHEET TITLE: **GRADING PLAN: STA 120+60 TO STA 134+00**  
 PROJECT: **NAPA RIVER RESTORATION RUTHERFORD REACH 4: EAST (LEFT) BANK**

---

PREPARED FOR:  
**NAPA COUNTY**  
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 Napa, CA 94559

---

APPROVED:   
 DESIGNED: R. BROWN, J. BLOMBERG  
 DRAWN: B. TANAKA  
 INCHARGE: A. BORGONOVO, C053102  
 SCALE: AS SHOWN  
 DATE: APRIL 2011  
 SHEET: **C07**

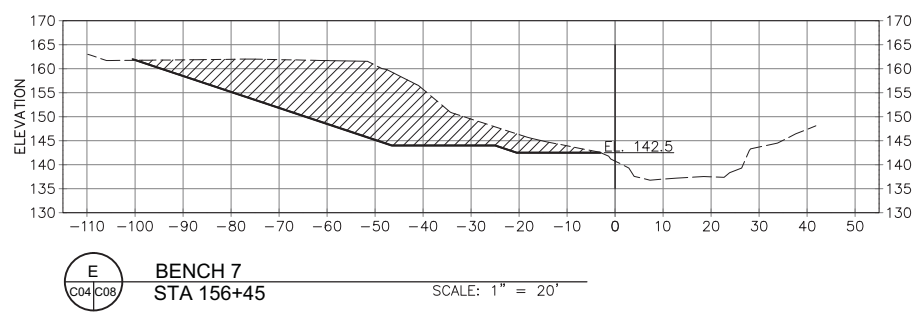
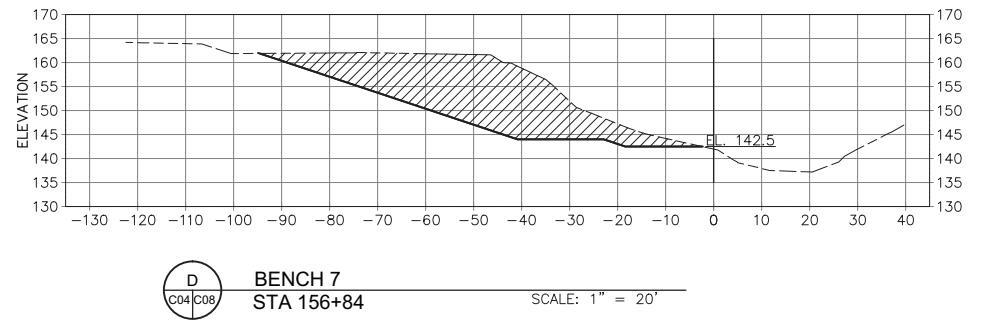
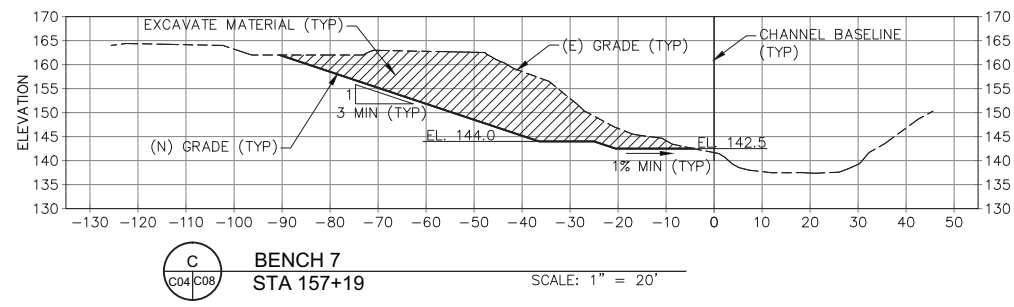
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7 OF 34



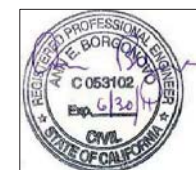
APPROVED	
DESIGNED	R. BROWN J. BLOMBERG
DRAWN	B. TANAKA
INCHARGE	A. BORGONOVO C053102
SCALE	AS SHOWN
DATE	APRIL 2011
SHEET	

**C08**

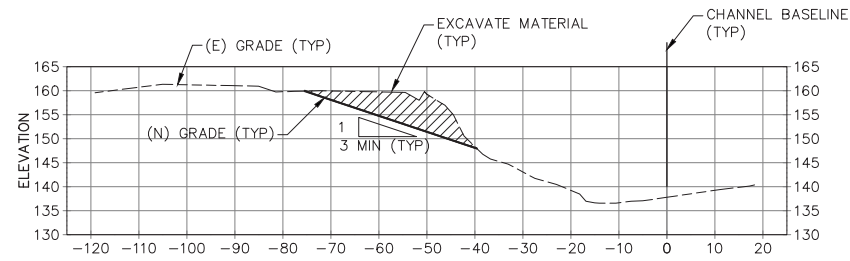


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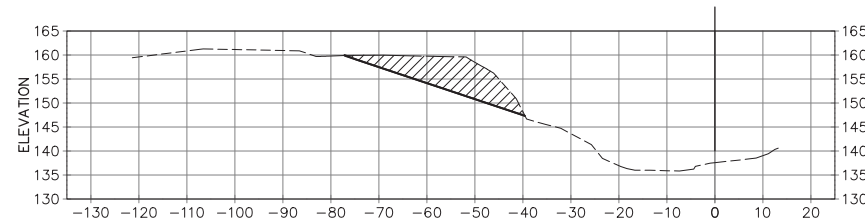
1. SECTIONS ARE SHOWN LOOKING DOWNSTREAM. STATION 0 IS THE CHANNEL BASELINE, SEE SHEET C02 FOR CONTROL TABLE.
2. THE ACCURACY OF TOPOGRAPHIC DATA WITHIN THE ACTIVE CHANNEL IS LIMITED. THE GROUND SURVEY GENERALLY EXTENDS DOWN THE CHANNEL BANK, BUT NOT ACROSS THE CHANNEL. LIDAR DATA FOR THE CHANNEL DOES NOT EXTEND BELOW THE WATER SURFACE AT THE TIME OF THE SURVEY.
3. AT SOME LOCATIONS THE MATCHLINE BETWEEN THE GROUND SURVEY AND LIDAR TOPOGRAPHIC DATA DOES NOT ALIGN VERTICALLY. ALL AVAILABLE DATA IS SHOWN FOR COMPLETENESS. THE GROUND SURVEY DATA (ON THE BENCH SIDE) IS A MORE ACCURATE REPRESENTATION OF ACTUAL CONDITIONS.



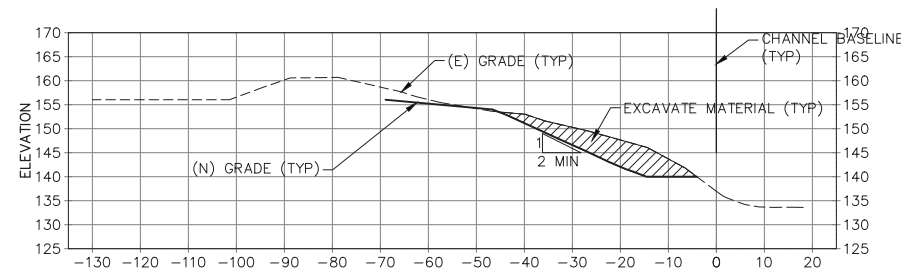




**H**  
C06/C09 **BANK STABILIZATION AND SEDIMENT REDUCTION AREA 1**  
STA 143+91 SCALE: 1" = 20'



**I**  
C06/C09 **BANK STABILIZATION AND SEDIMENT REDUCTION AREA 1**  
STA 143+56 SCALE: 1" = 20'



**K**  
C06/C09 **BANK STABILIZATION AND SEDIMENT REDUCTION AREA 2**  
STA 137+33 SCALE: 1" = 20'

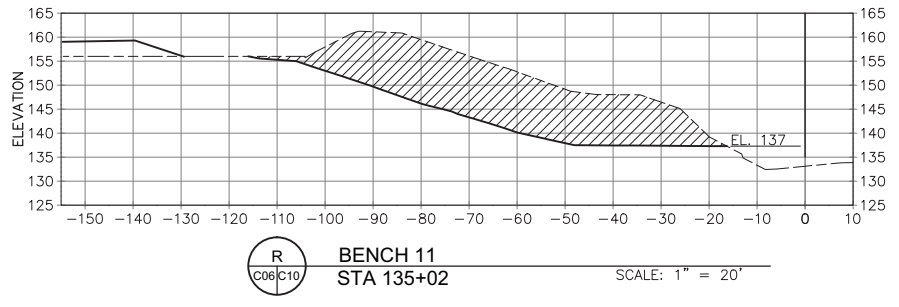
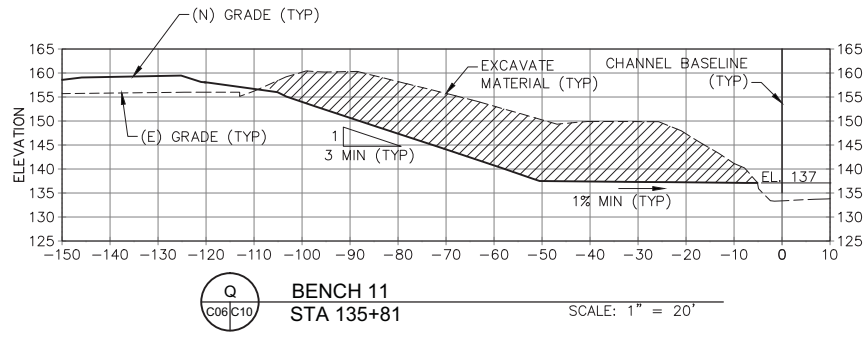
**NOTES:**

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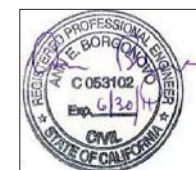
APPROVED	
DESIGNED	R. BROWN J. BLOMBERG
DRAWN	B. TANAKA
INCHARGE	A. BORGONOVO C053102
SCALE	AS SHOWN
DATE	APRIL 2011
SHEET	

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**NOTES:**

1. SECTIONS ARE SHOWN LOOKING DOWNSTREAM. STATION 0 IS THE CHANNEL BASELINE, SEE SHEET C02 FOR CONTROL TABLE.
2. THE ACCURACY OF TOPOGRAPHIC DATA WITHIN THE ACTIVE CHANNEL IS LIMITED. THE GROUND SURVEY GENERALLY EXTENDS DOWN THE CHANNEL BANK, BUT NOT ACROSS THE CHANNEL. LIDAR DATA FOR THE CHANNEL DOES NOT EXTEND BELOW THE WATER SURFACE AT THE TIME OF THE SURVEY.
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PREPARED BY:  
**PWA**  
 PHILIP WILLIAMS & ASSOCIATES, LTD.  
 ENVIRONMENTAL HYDROLOGY  
 1000 CALIFORNIA STREET, SUITE 100  
 SAN FRANCISCO, CALIFORNIA 94109  
 PHONE (415) 262-2300 FAX (415) 262-2303

SHEET TITLE: GRADING SECTIONS  
 BENCHES 10 AND 11  
 PROJECT: NAPA RIVER RESTORATION  
 RUTHERFORD REACH 4:  
 EAST (LEFT) BANK

PREPARED FOR:  
 NAPA COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 1195 Third St, Suite 201  
 Napa, CA 94559



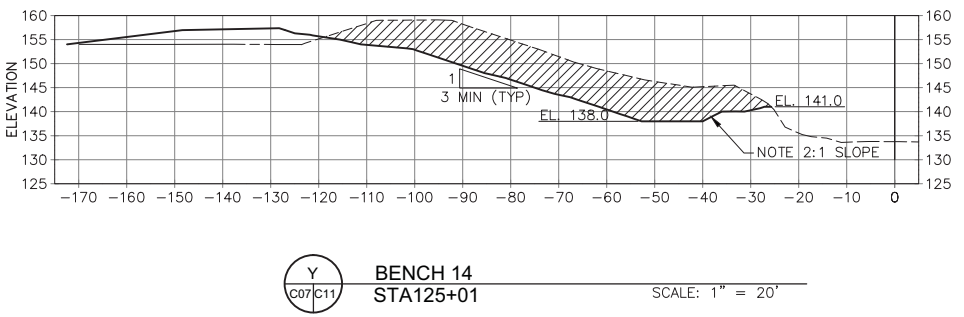
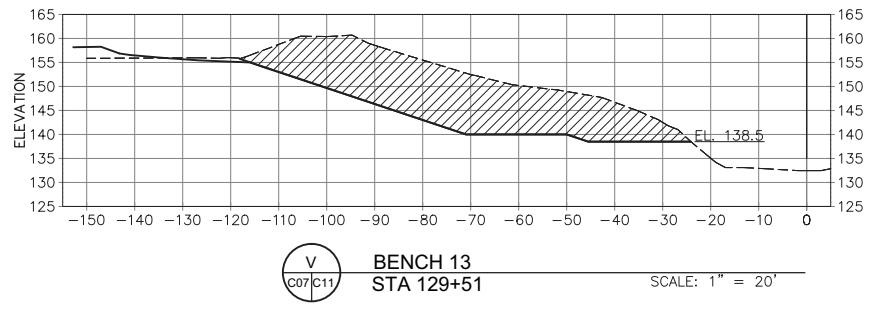
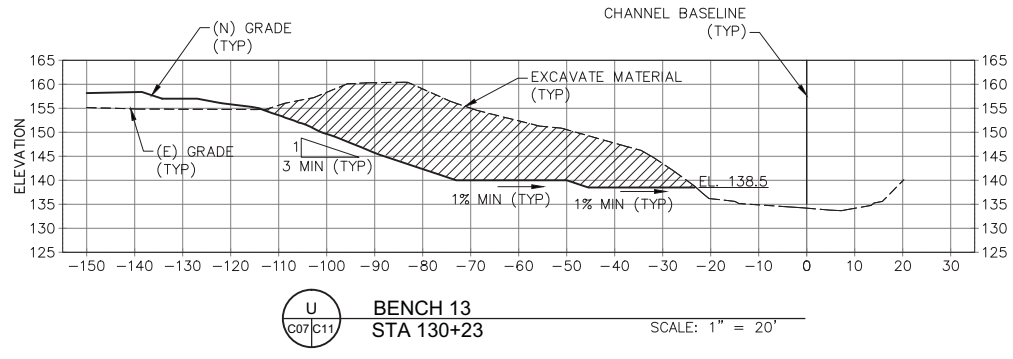
APPROVED:  
 DESIGNED: R. BROWN  
 J. BLOMBERG  
 DRAWN: B. TANAKA  
 INCHARGE: A. BORGONOVO  
 C053102  
 SCALE: AS SHOWN  
 DATE: APRIL 2011  
 SHEET:

C10  
 10 OF 34



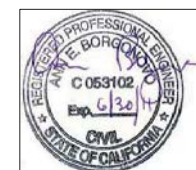
APPROVED
DESIGNED R. BROWN J. BLOMBERG
DRAWN B. TANAKA
INCHARGE A. BORGONOVO C053102
SCALE AS SHOWN
DATE APRIL 2011
SHEET

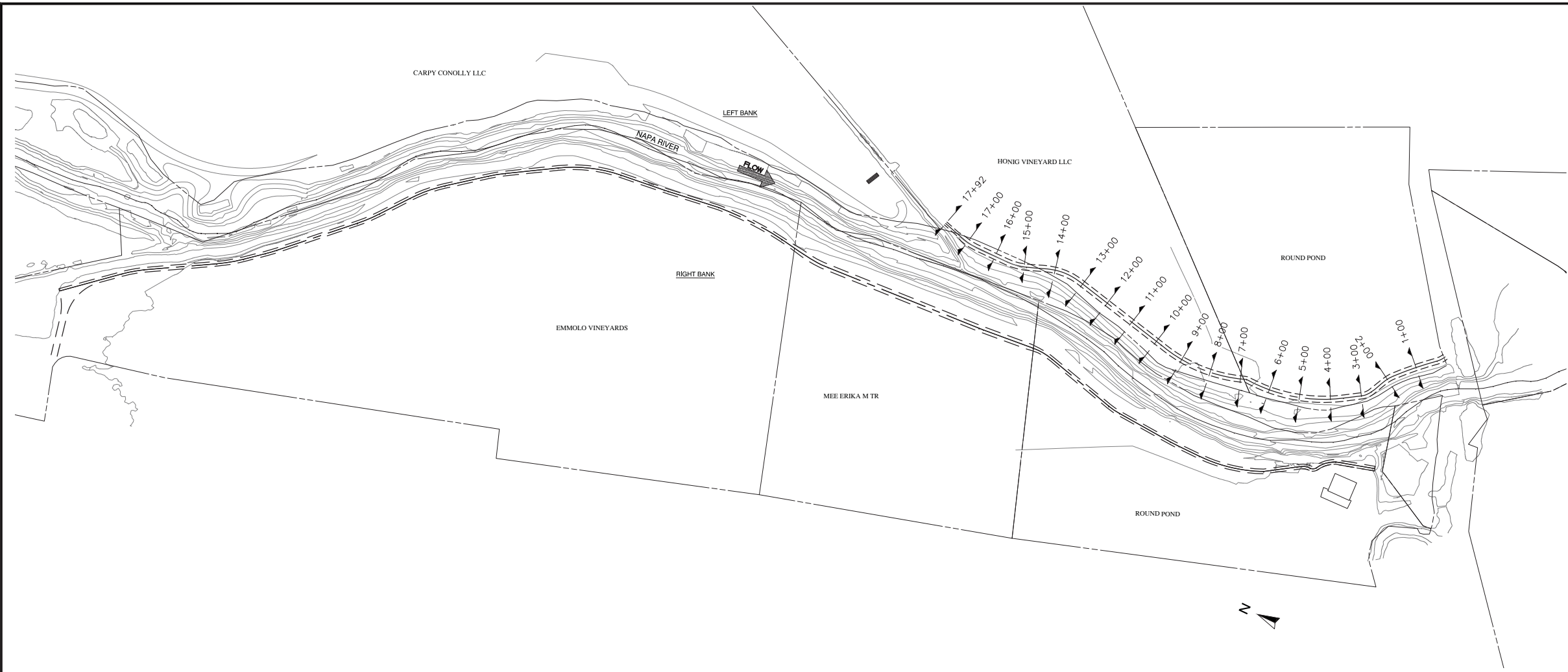
C11



**NOTES:**

1. SECTIONS ARE SHOWN LOOKING DOWNSTREAM. STATION 0 IS THE CHANNEL BASELINE, SEE SHEET C02 FOR CONTROL TABLE.
2. THE ACCURACY OF TOPOGRAPHIC DATA WITHIN THE ACTIVE CHANNEL IS LIMITED. THE GROUND SURVEY GENERALLY EXTENDS DOWN THE CHANNEL BANK, BUT NOT ACROSS THE CHANNEL. LIDAR DATA FOR THE CHANNEL DOES NOT EXTEND BELOW THE WATER SURFACE AT THE TIME OF THE SURVEY.
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- SHEET NOTES**
- BERM SECTIONS ARE SHOWN LOOKING UPSTATION (UPSTREAM)
  - OVEREXCAVATE WITHIN THE FOOTPRINT OF THE NEW BERM CORE TO THE BERM DAYLIGHT ELEVATION. PLACE FILL FOR NEW BERM IN UNIFORM LIFTS.

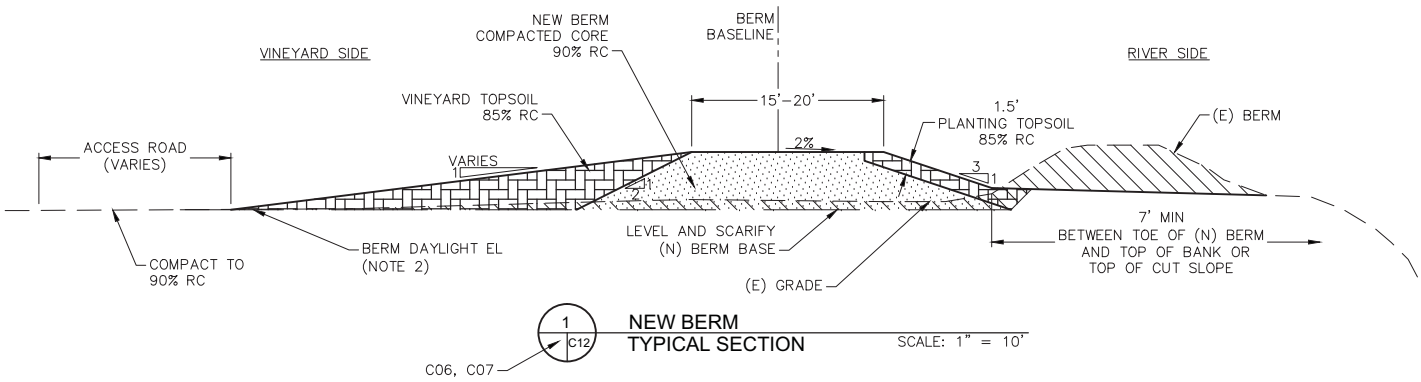
PREPARED BY:  
**PWA**  
 PHILIP WILLIAMS & ASSOCIATES, LTD.  
 ENVIRONMENTAL HYDROLOGY  
 1000 CALIFORNIA STREET  
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 PHONE (415) 262-2300 FAX (415) 262-2303

SHEET TITLE: **NEW BERMS TYPICAL SECTIONS AND HORIZONTAL CONTROL**  
 PROJECT: **NAPA RIVER RESTORATION RUTHERFORD REACH 4: EAST (LEFT) BANK**

PREPARED FOR:  
**NAPA COUNTY DEPARTMENT OF PUBLIC WORKS**  
 1195 Third St, Suite 201  
 Napa, CA 94559



APPROVED:  
 DESIGNED: R. BROWN, J. BLOMBERG  
 DRAWN: B. TANAKA  
 INCHARGE: A. BORGONOVO, C053102  
 SCALE: AS SHOWN  
 DATE: APRIL 2011  
 SHEET:



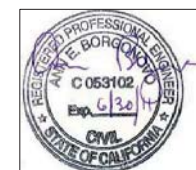
**SCHEDULE OF EAST (LEFT) BANK DIMENSIONS**

PROPERTY	STATION (FT)	TOP WIDTH (FT)	VINEYARD SIDE SLOPE	RIVER SIDE SLOPE	ACCESS ROAD WIDTH (FT)
ROUND POND	0+00 - 6+90	20	8H:1V	3H:1V	20
HONIG	6+90 - 17+92	20	8H:1V	3H:1V	20

**NEW BERM TYPICAL SECTION**  
 SCALE: 1" = 10'

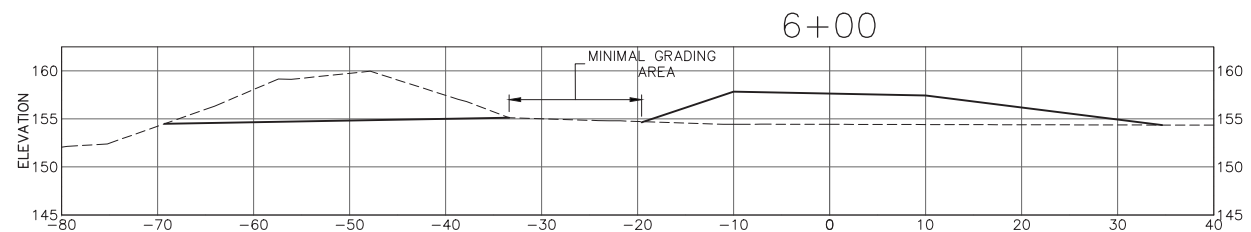
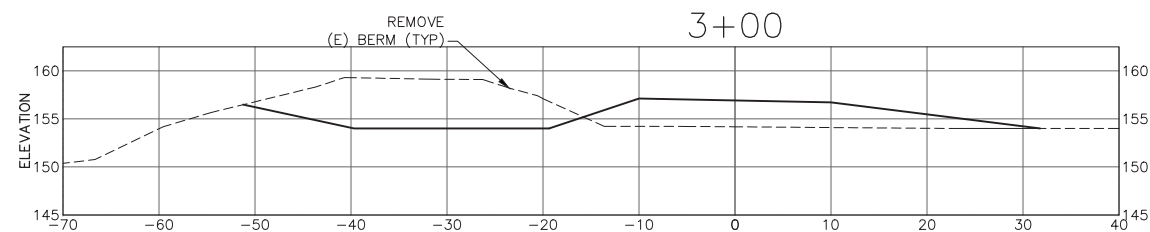
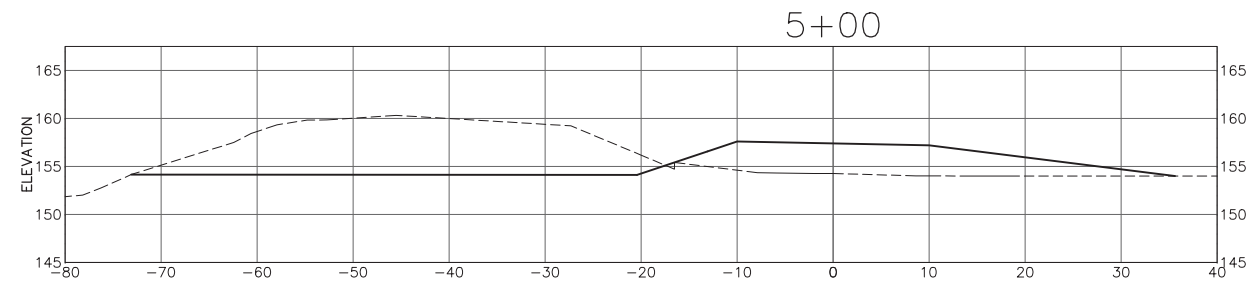
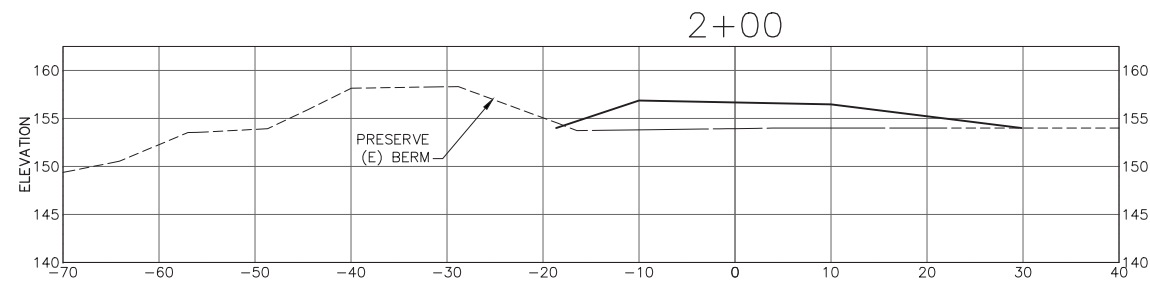
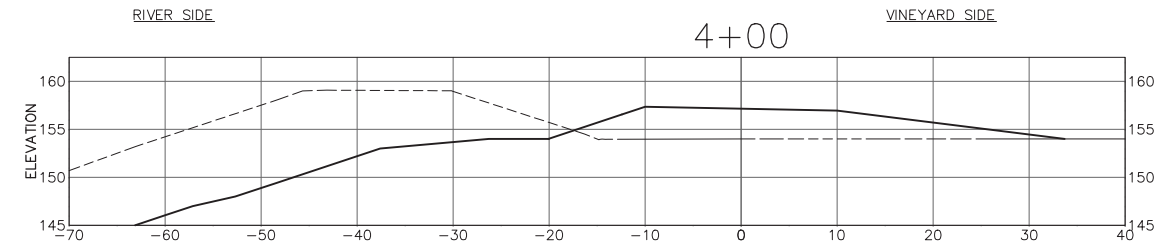
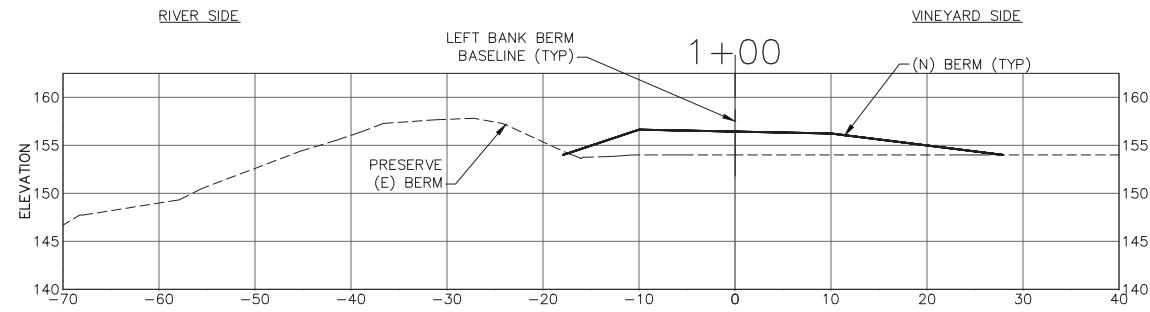
**EAST (LEFT) BANK NEW BERM: ELEVATION CONTROL**

BERM STATION	PROPOSED ELEVATION
0+00	156.2
1+24	156.5
3+33	157.0
5+41	157.5
7+49	158.0
9+86	158.5
12+43	159.0
14+99	159.5
17+50	160.0
17+92	159.1



**C12**

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**LEFT BANK (EAST)  
GRADING SECTIONS**

**SHEET NOTES**

- SCALE FOR ALL GRADING SECTIONS IS 1"=10'. SECTIONS ARE SHOWN LOOKING UPSTREAM.
- SEE SHEET C12 FOR TYPICAL SECTION.
- OVEREXCAVATE AS NEEDED TO CREATE LEVEL BERM FOUNDATION. SUBGRADE LIMITS NOT SHOWN ON THIS SHEET. SEE TYPICAL SECTIONS, SHEET C12.
- STATION 0 ON THE CROSS-SECTION ALIGNS WITH THE (N) BERM BASELINE.



PREPARED BY:  
LEFT BANK GRADING SECTIONS  
BERM STA 1+00 TO STA 6+00  
PROJECT: NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

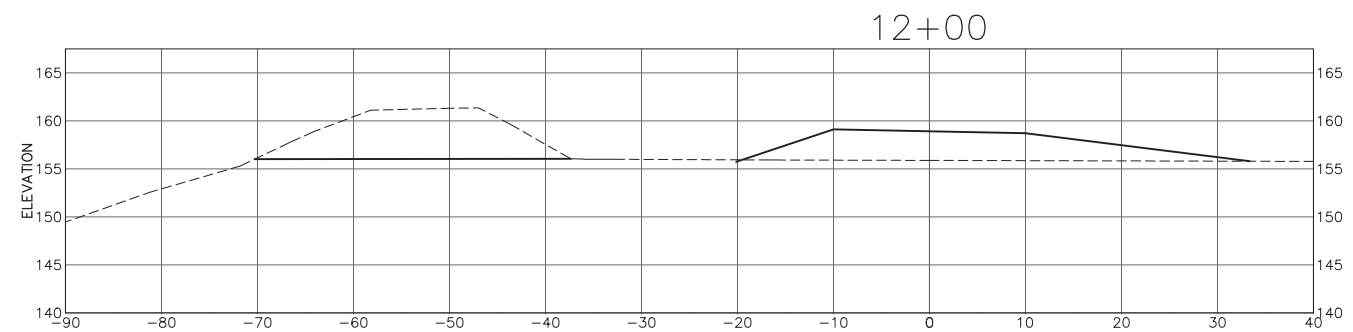
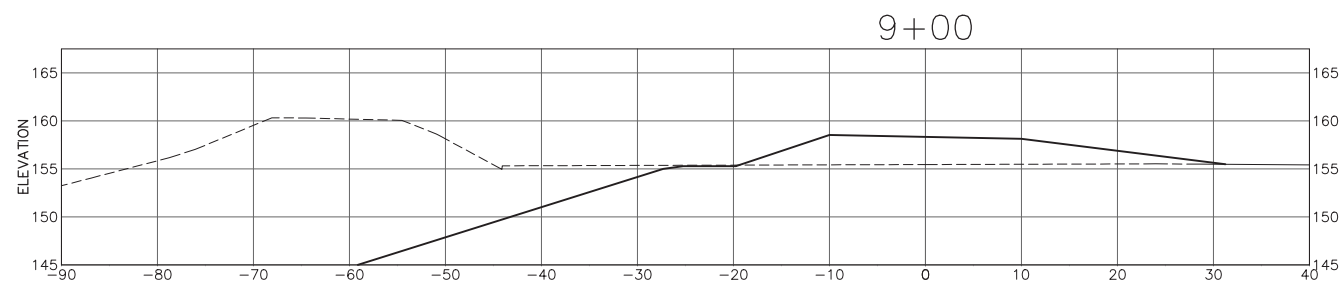
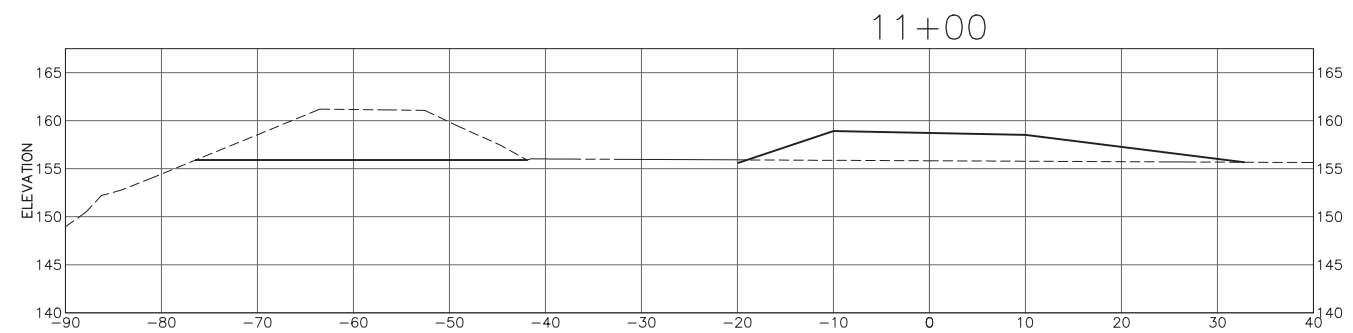
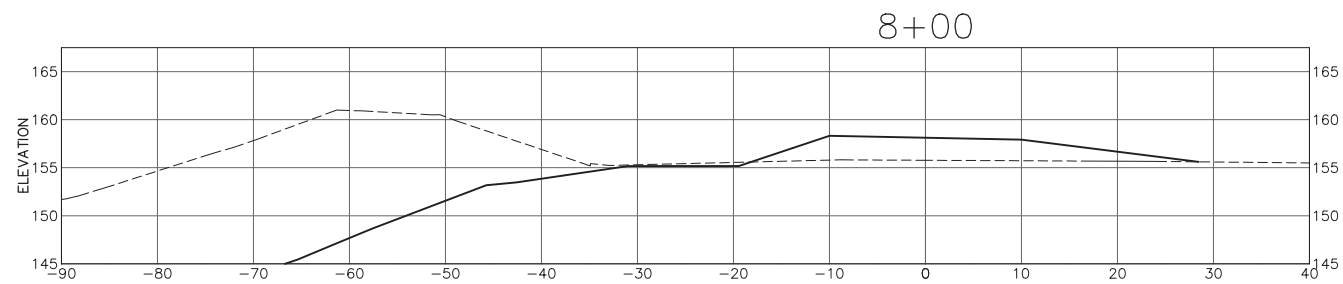
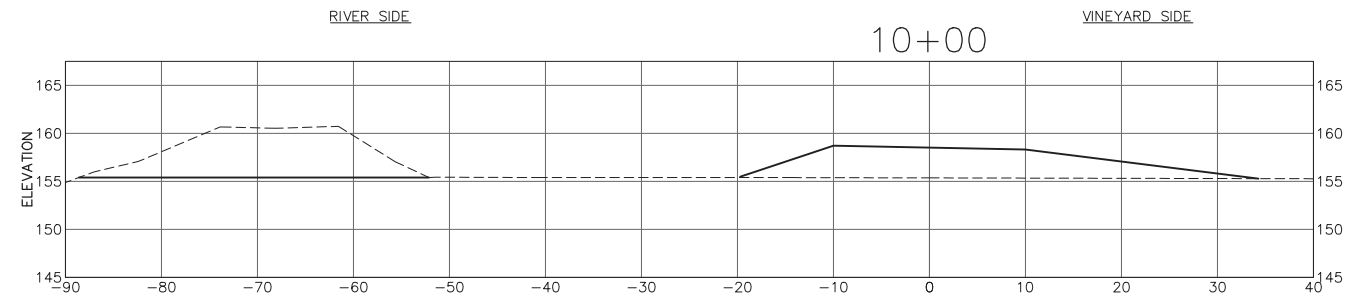
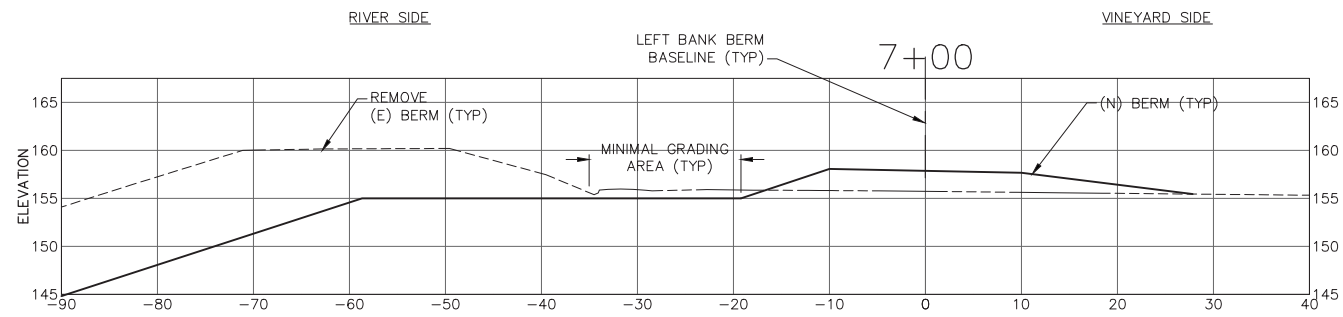
PREPARED FOR:  
NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559



APPROVED:  
DESIGNED: R. BROWN  
J. BLOMBERG  
DRAWN: B. TANAKA  
INCHARGE: A. BORGONOVO  
C053102  
SCALE: AS SHOWN  
DATE: APRIL 2011  
SHEET:

C13

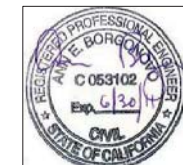
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**SHEET NOTES**

- SCALE FOR ALL GRADING SECTIONS IS 1"=10'. SECTIONS ARE SHOWN LOOKING UPSTREAM.
- SEE SHEET C12 FOR TYPICAL SECTION.
- OVEREXCAVATE AS NEEDED TO CREATE LEVEL BERM FOUNDATION. SUBGRADE LIMITS NOT SHOWN ON THIS SHEET. SEE TYPICAL SECTIONS, SHEET C12.
- STATION 0 ON THE CROSS-SECTION ALIGNS WITH THE (N) BERM BASELINE.

**LEFT BANK (EAST)  
GRADING SECTIONS**



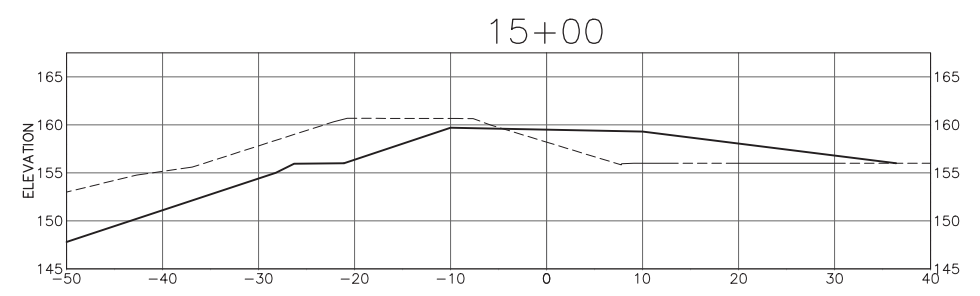
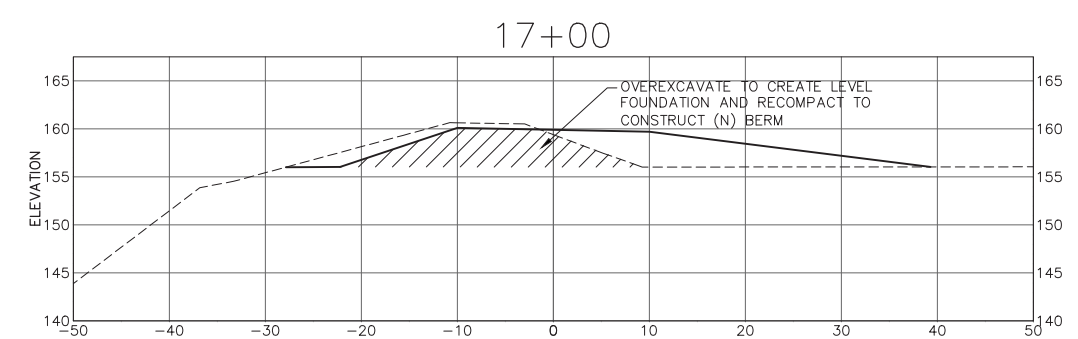
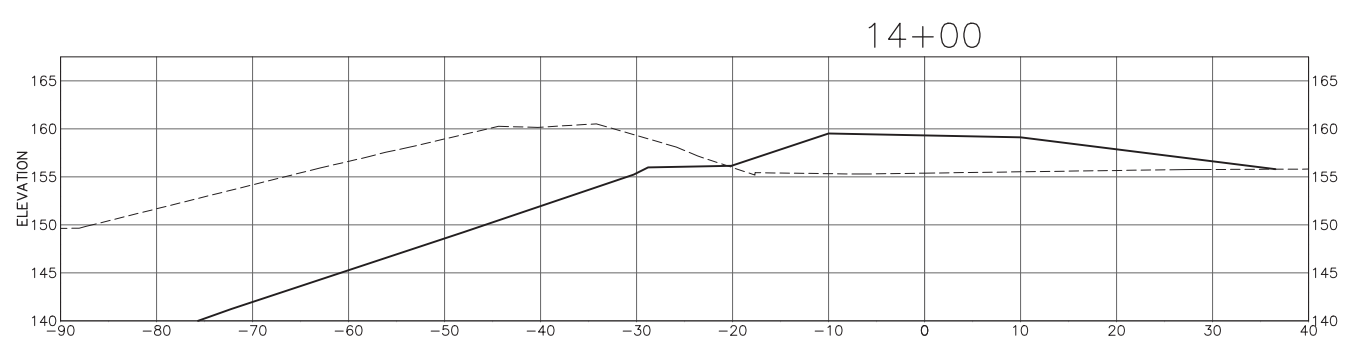
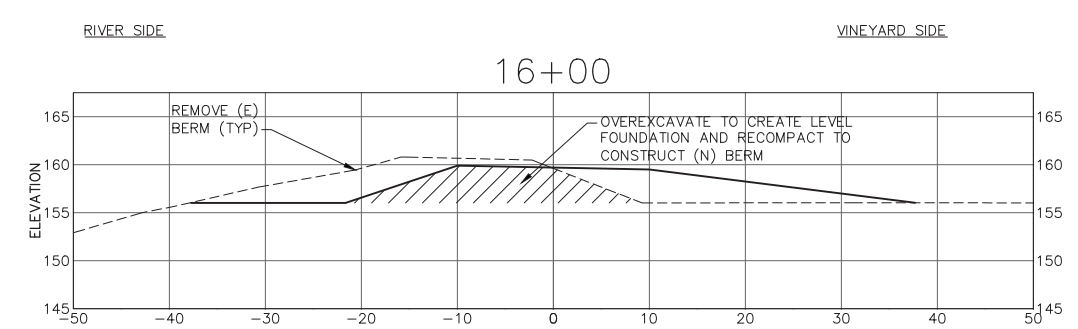
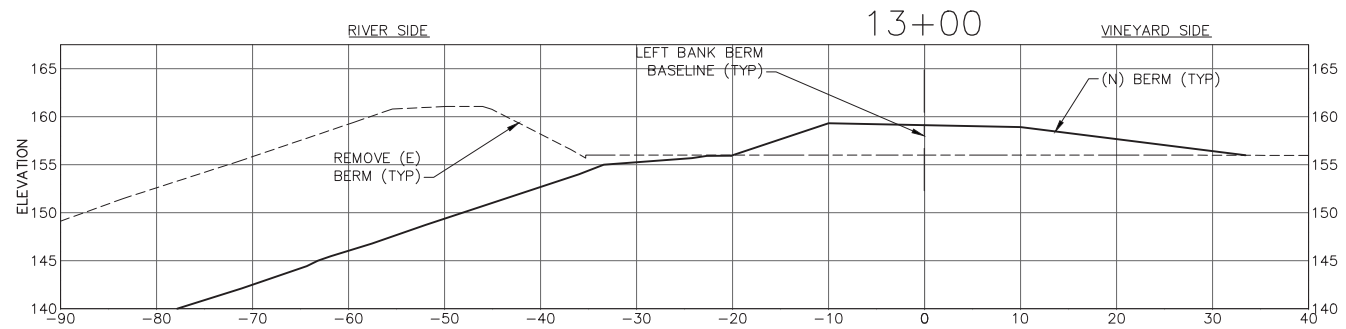
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SHEET TITLE: LEFT BANK GRADING SECTIONS  
BERM STA 7+00 TO STA 12+00  
PROJECT: NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

PREPARED FOR:  
NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559



APPROVED:  
DESIGNED: R. BROWN  
J. BLONBERG  
DRAWN: B. TANAKA  
INCHARGE: A. BORGONOVO  
C053102  
SCALE: AS SHOWN  
DATE: APRIL 2011  
SHEET:

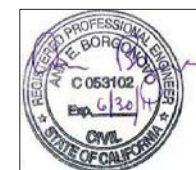
C14



**LEFT BANK (EAST)  
GRADING SECTIONS**

**SHEET NOTES**

- SCALE FOR ALL GRADING SECTIONS IS 1"=10'. SECTIONS ARE SHOWN LOOKING UPSTREAM.
- SEE SHEET C12 FOR TYPICAL SECTION.
- OVEREXCAVATE AS NEEDED TO CREATE LEVEL BERM FOUNDATION. SUBGRADE LIMITS NOT SHOWN ON THIS SHEET. SEE TYPICAL SECTIONS, SHEET C12.
- STATION 0 ON THE CROSS-SECTION ALIGNS WITH THE (N) BERM BASELINE.

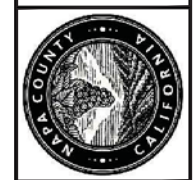


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ENVIRONMENTAL HYDROLOGY  
SAN FRANCISCO, CALIFORNIA 94109  
PHONE (415) 262-2300 FAX (415) 262-2303

SHEET TITLE:  
**LEFT BANK GRADING SECTIONS  
BERM STA 13+00 TO STA 17+00**

PROJECT:  
**NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK**

PREPARED FOR:  
**NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559**



APPROVED

DESIGNED  
R. BROWN  
J. BLOMBERG

DRAWN  
B. TANAKA

INCHARGE  
A. BORGONOVO  
C053102

SCALE  
AS SHOWN

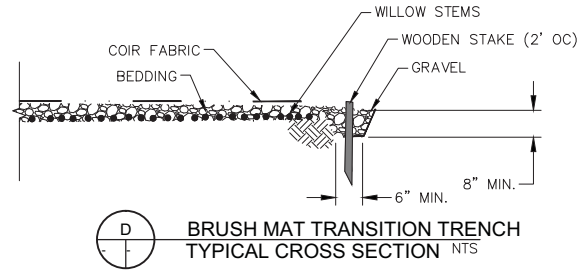
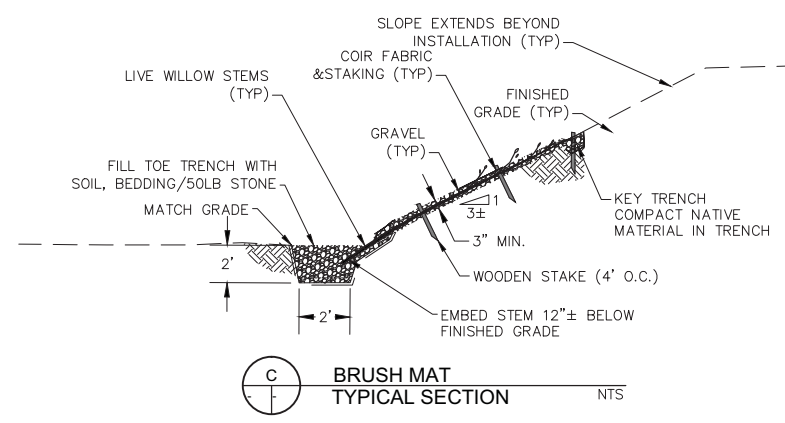
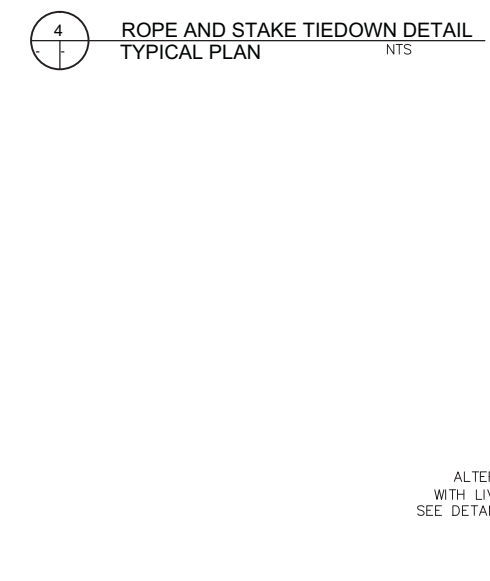
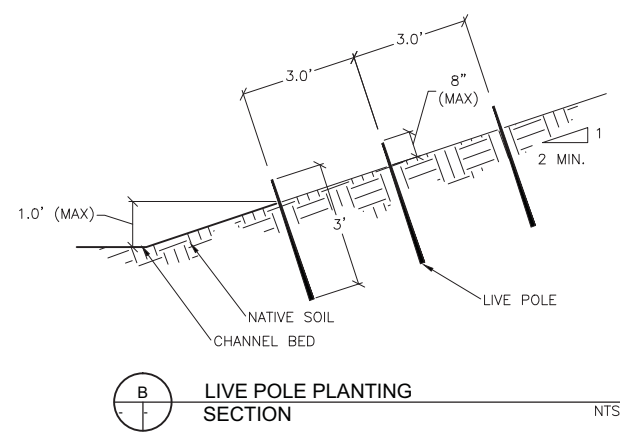
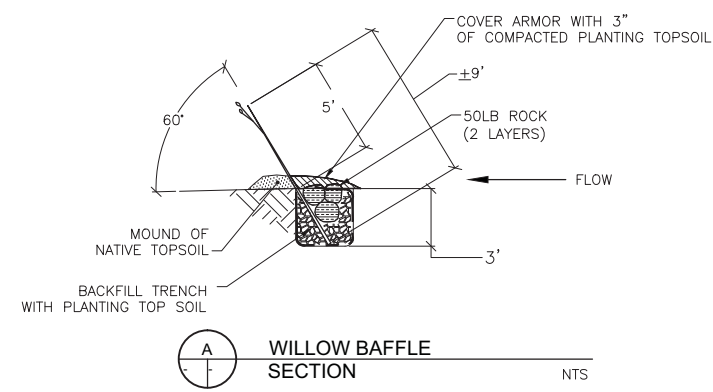
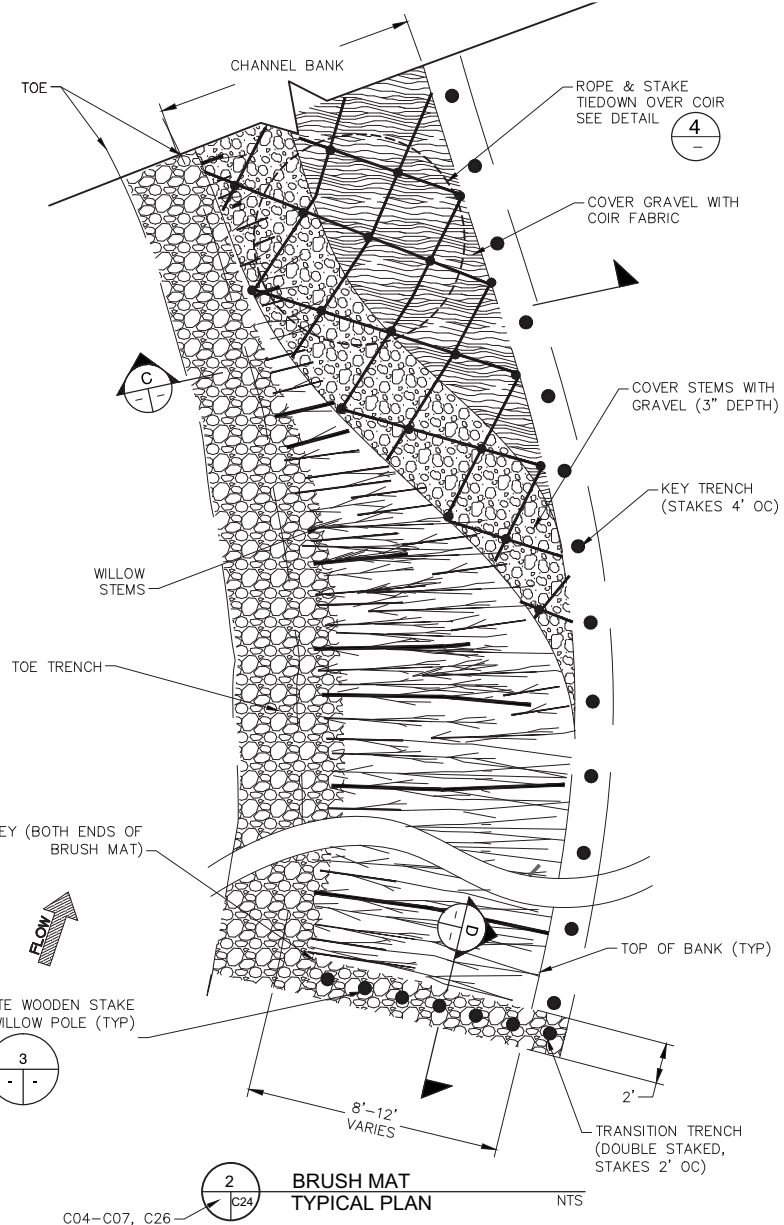
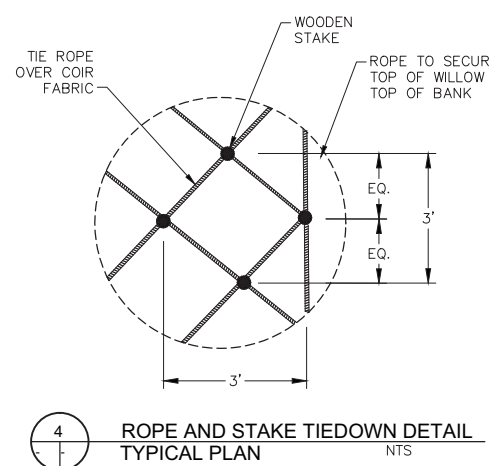
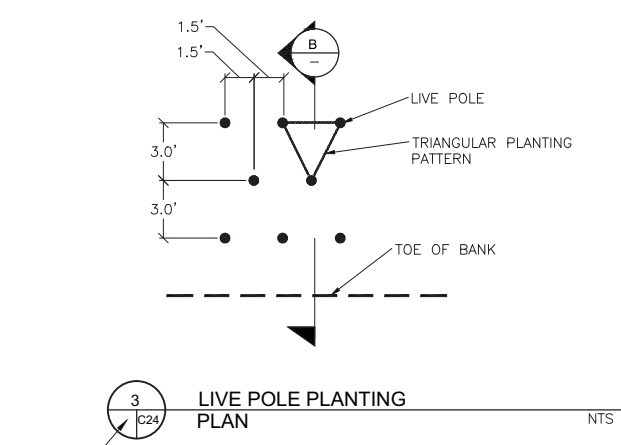
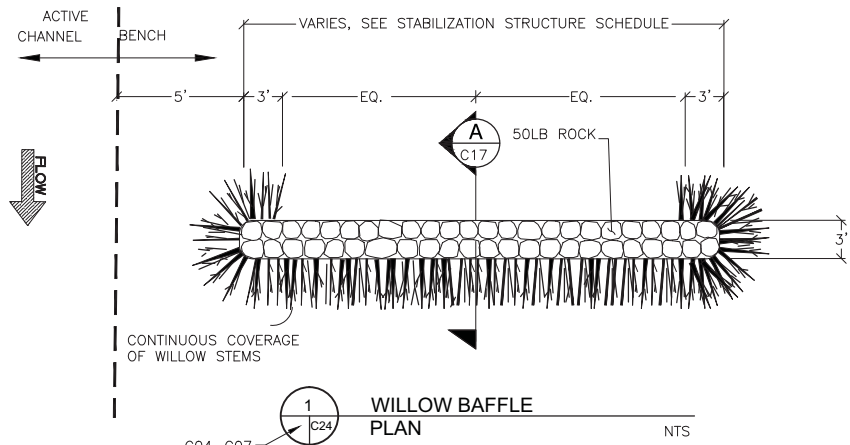
DATE  
APRIL 2011

SHEET

**C15**

15 OF 34

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STABILIZATION STRUCTURE SCHEDULE

TREATMENT	STATION/RANGE	BANK	ELEVATION RANGE	WIDTH
<b>BENCH #7 STA 158+14 TO STA 156+00 LEFT</b>				
BRUSH MAT	157+40 TO 158+00		145 TO 150	-
WILLOW BAFFLE	157+40		-	15
WILLOW BAFFLE	156+40		-	15
LARGE WOODY DEBRIS TYPE 2	156+00		-	-
BRUSH MAT	156+00 TO 156+50		145 TO 150	-
<b>BENCH #11 STA 136+85 TO STA 134+50 LEFT</b>				
BRUSH MAT	136+25 TO 136+75		138 TO 143	-
WILLOW BAFFLE	135+15		-	40
WILLOW BAFFLE	135+70		-	40
LARGE WOODY DEBRIS TYPE 3	135+60	CENTER	-	-
BOULDER CLUSTER	135+60	CENTER	-	-
BOULDER CLUSTER	134+30	CENTER	-	-
BRUSH MAT	134+50 TO 135+00		138 TO 143	-
<b>BENCH #13 STA 131+50 TO STA 127+75 LEFT</b>				
BRUSH MAT	130+75 TO 131+55		141 TO 145	-
LARGE WOODY DEBRIS TYPE 1	131+40		-	-
WILLOW BAFFLE	130+75		-	25
BOULDER CLUSTER	130+40	CENTER	-	-
LARGE WOODY DEBRIS TYPE 3	130+10	CENTER	-	-
WILLOW BAFFLE	129+60		-	25
BOULDER CLUSTER	129+30	CENTER	-	-
LARGE WOODY DEBRIS TYPE 3	128+80	CENTER	-	-
WILLOW BAFFLE	128+65		-	25
BOULDER CLUSTER	128+50	CENTER	-	-
LARGE WOODY DEBRIS TYPE 1	127+75		-	-
BRUSH MAT	127+75 TO 128+30		141 TO 145	-
<b>BENCH #14 125+75 TO 124+25 LEFT</b>				
BRUSH MAT	125+35 TO 125+75		139 TO 143	-
WILLOW BAFFLE	125+25		-	15
BRUSH MAT	124+25 TO 124+75		139 TO 143	-
LARGE WOODY DEBRIS TYPE 1	124+15		-	-
<b>IN CHANNEL 121+00 TO 121+90 CENTER</b>				
BOULDER CLUSTER	121+00	CENTER	-	-
LARGE WOODY DEBRIS TYPE 3	121+90	CENTER	-	-

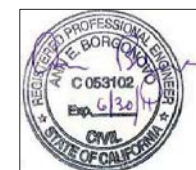
PREPARED BY:  
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 SAN FRANCISCO, CALIFORNIA 94109  
 PHONE (415) 262-2300 FAX (415) 262-2303

SHEET TITLE: BIOTECHNICAL STABILIZATION DETAILS  
 PROJECT: NAPA RIVER RESTORATION  
 RUTHERFORD REACH 4:  
 EAST (LEFT) BANK

PREPARED FOR:  
 NAPA COUNTY  
 DEPARTMENT OF PUBLIC WORKS  
 1195 Third St, Suite 201  
 Napa, CA 94559

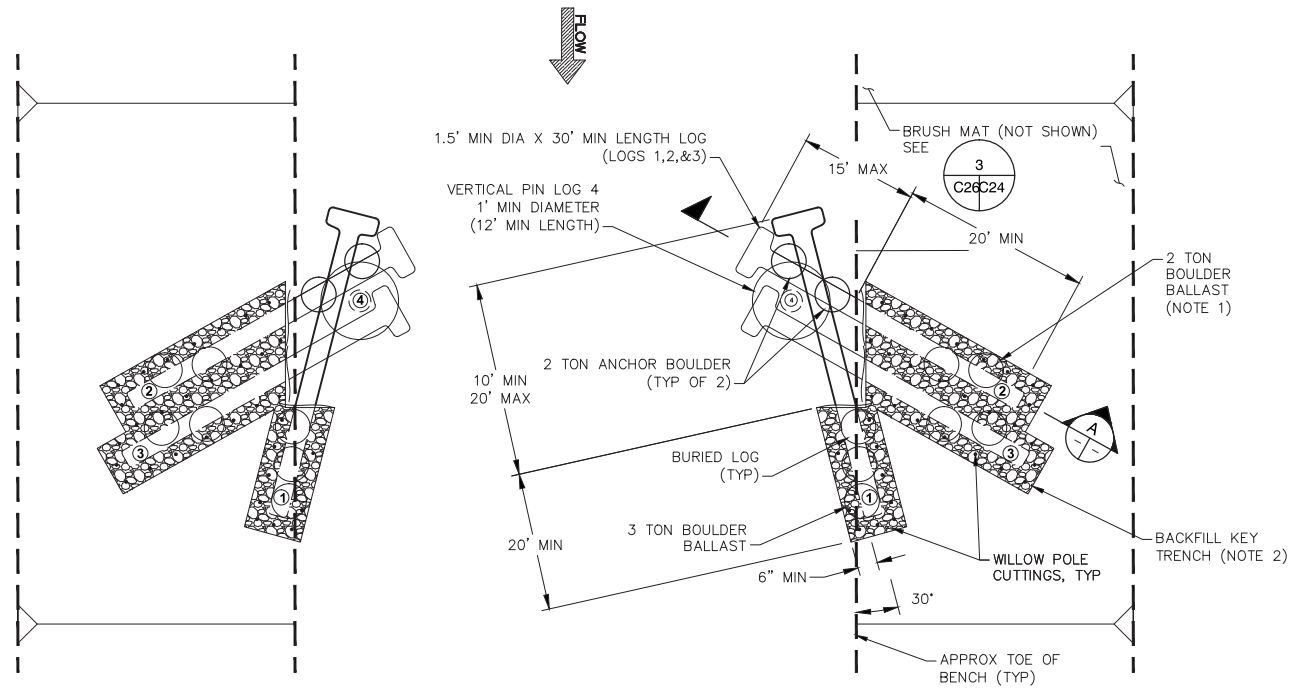


APPROVED:  
 DESIGNED: R. BROWN  
 J. BLOMBERG  
 DRAWN: B. TANAKA  
 INCHARGE: A. BORGONOVO  
 C053102  
 SCALE: AS SHOWN  
 DATE: APRIL 2011  
 SHEET:



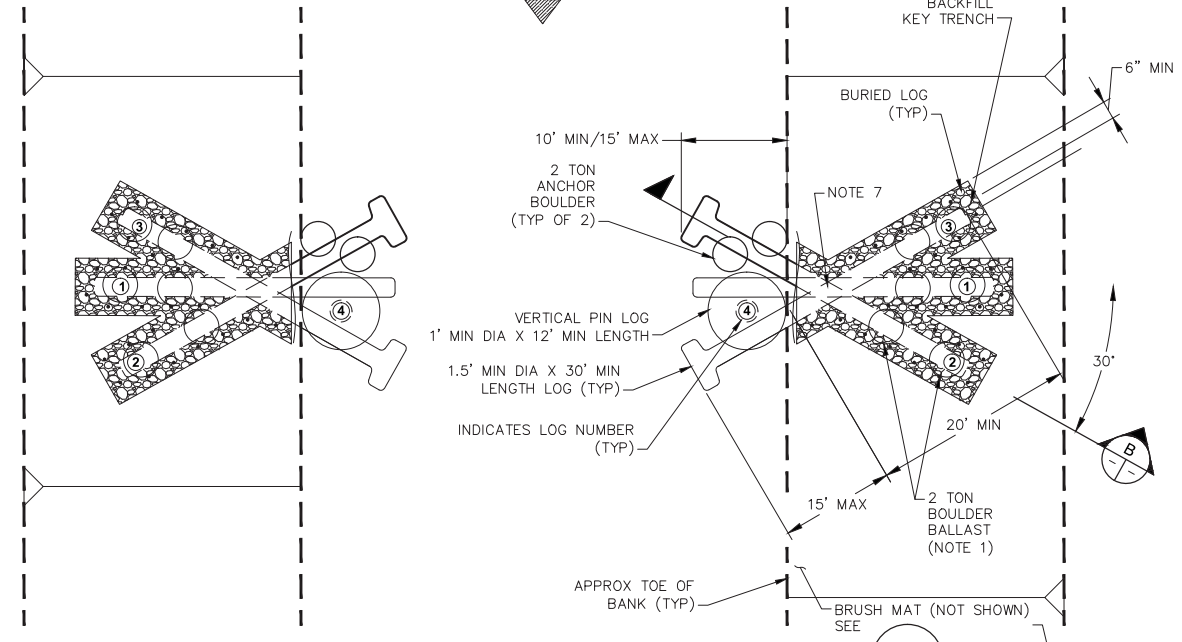
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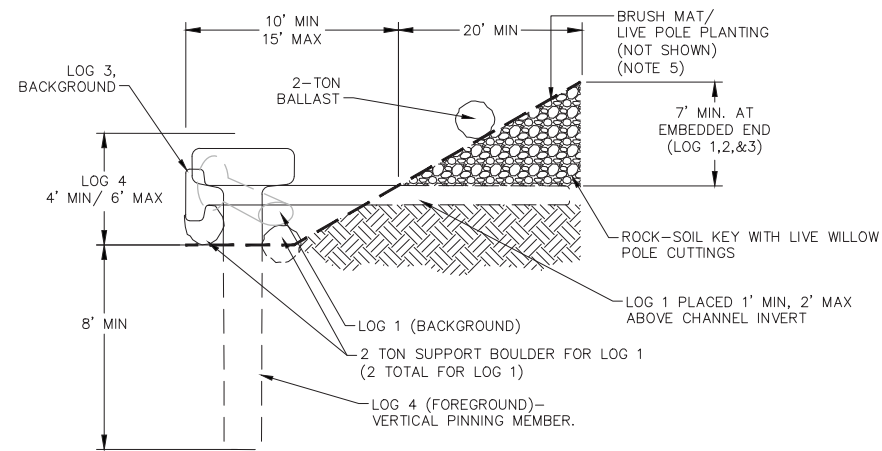
1 LWD STRUCTURE - TYPE 1  
SCHEMATIC PLAN - RIVER RIGHT NTS  
C04-C07

1 LWD STRUCTURE - TYPE 1  
PLAN - RIVER LEFT NTS  
C04-C07

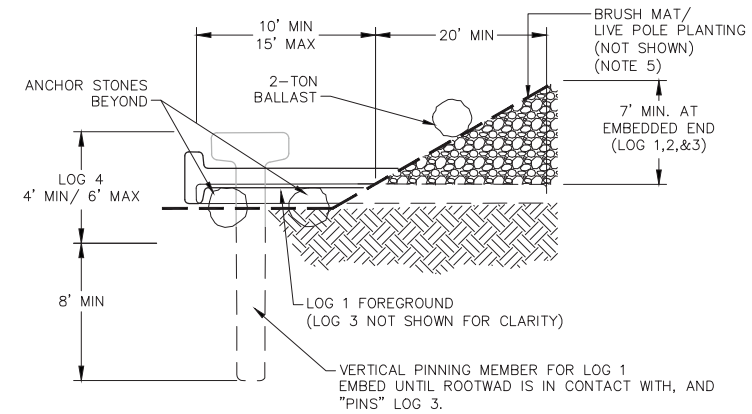


2 LWD STRUCTURE - TYPE 2  
SCHEMATIC PLAN - RIVER RIGHT NTS  
C04-C07

2 LWD STRUCTURE - TYPE 2  
PLAN - RIVER LEFT NTS  
C04-C07



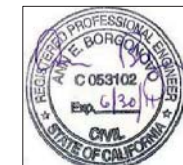
A LWD STRUCTURE, TYPE 1  
SECTION - UPSTREAM VIEW, RIVER LEFT NTS



B LWD STRUCTURE, TYPE 2  
SECTION AT LOG 2 - UPSTREAM VIEW, RIVER LEFT NTS

**SHEET NOTES**

1. PRIOR TO INSTALLATION, FIELD STAKE LWD STRUCTURE LOCATIONS (LOG ENDPOINTS) FOR REVIEW BY THE OWNER'S REPRESENTATIVE. ALLOW 3 WORKING DAYS FOR REVIEW AND ADJUST STAKES AS DIRECTED.
2. LOGS SHALL BE PLACED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. FIELD FIT AND ADJUST AS NEEDED TO CONFORM IRREGULAR LOGS TO NEAT DIMENSIONS SHOWN AND TO ACHIEVE LOG INTERLOCKING.
3. DETAIL SHOWS EMBEDMENT DEPTH ASSUMING THE LOG IS THE MINIMUM LENGTH SPECIFIED. IF LONGER LOGS ARE USED, INCREASE EMBEDMENT LENGTH AND DEPTH AS NEEDED TO MEET REQUIREMENTS SHOWN.
4. BACKFILL TRENCH WITH ROCK-SOIL MIX AND COMPACT TO 90% RC. STAKE THE ENDPOINTS OF THE BURIED LOG TO GUIDE BALLAST PLACEMENT.
5. INSTALL BRUSH MAT OVER FINISHED GRADE PER SHEET C24. INSTALL LIVE POLE PLANTING (PER SHEET C24) ON ANY PORTION OF THE DISTURBED BANK NOT COVERED WITH BRUSH MAT.
6. BALLAST BOULDERS CAN EITHER BE ONE 2-TON ROCK OR TWO 1-TON ROCKS AT CONTRACTOR'S OPTION. PLACE DIRECTLY OVER THE EMBEDDED LOG AND EMBED MIN 6 INCHES BELOW GRADE. BOULDERS MAY BE BURIED WITHIN KEY TRENCH. FIELD LOCATE AS DIRECTED BY THE OWNER'S REPRESENTATIVE. TRIM HOLE IN COMPLETED BRUSH MAT AS NEEDED FOR ROCK PLACEMENT.
7. LOGS MAY BE NOTCHED (3" MAX) TO ACHIEVE ORIENTATION AND EMBEDMENT AS SHOWN.



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SHEET TITLE: **LARGE WOODY DEBRIS (LWD) STRUCTURE DETAILS**

PROJECT: **NAPA RIVER RESTORATION RUTHERFORD REACH 4: EAST (LEFT) BANK**

PREPARED FOR: **NAPA COUNTY DEPARTMENT OF PUBLIC WORKS**  
1195 Third St, Suite 201  
Napa, CA 94559

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

DESIGNED: R. BROWN  
J. BLONBERG

DRAWN: B. TANAKA

INCHARGE: A. BORGONOVO  
C053102

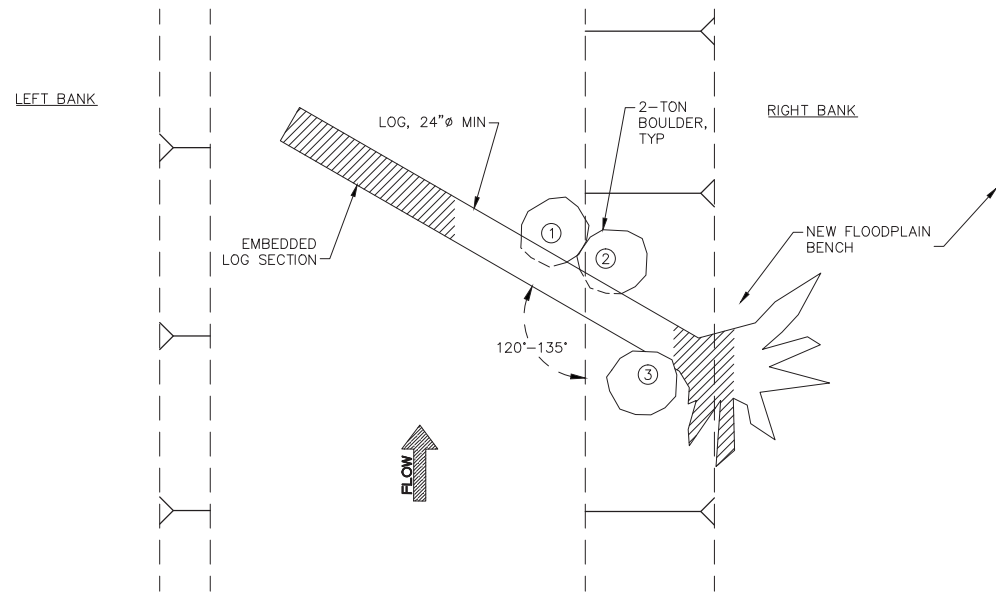
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DATE: APRIL 2011

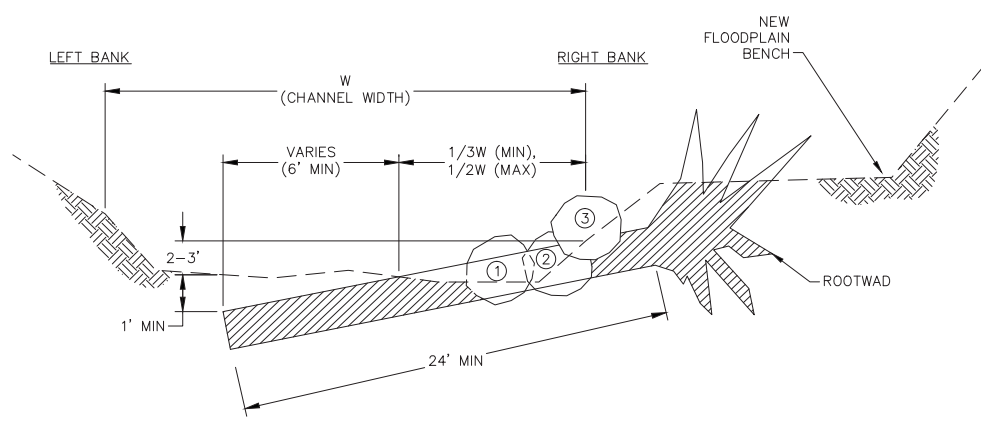
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25 OF 34

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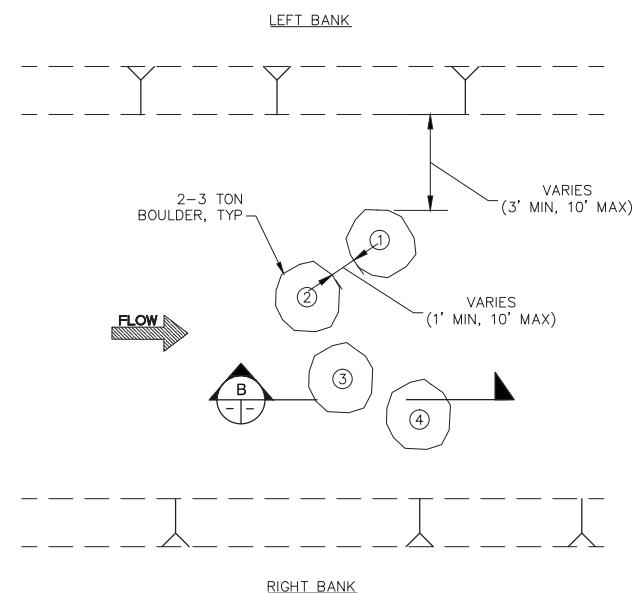
1 LOG STRUCTURE, TYPE 3  
PLAN SCALE: 1"=5'



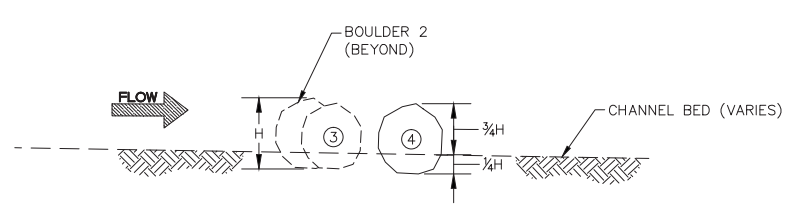
A LOG STRUCTURE, TYPE 3  
SECTION SCALE: 1"=5'

**NOTES**

- BOULDERS 1 AND 2 SHOWN BEYOND ROOTWAD.
- LOW PROFILE LOG DETAIL IS SCHEMATIC TO ILLUSTRATE GENERAL PLACEMENT OF MATERIALS. FIELD FIT AND ADJUST AS-NEEDED TO CONFORM TO SITE CONDITIONS AND ACHIEVE INTEGRATION OF MATERIALS.



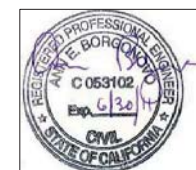
2 BOULDER CLUSTER  
PLAN SCALE: 1"=5'



B BOULDER CLUSTER  
PROFILE SCALE: 1"=5'

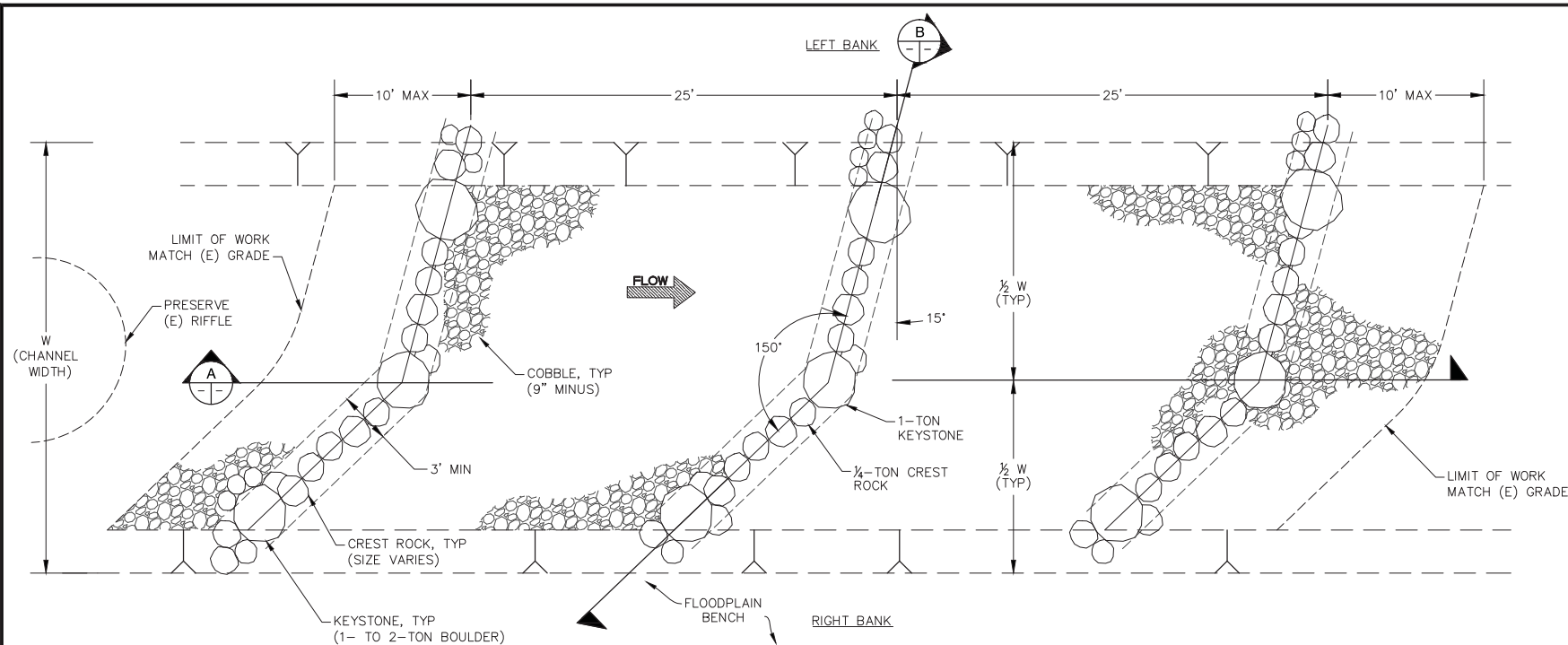
**NOTES**

- BOULDER CLUSTER DETAIL IS SCHEMATIC TO ILLUSTRATE GENERAL CONFIGURATION AND SPACING OF MATERIALS. FIELD FIT AND ADJUST AS-NEEDED TO CONFORM TO SITE CONDITIONS AND ACHIEVE INTENDED FUNCTION.

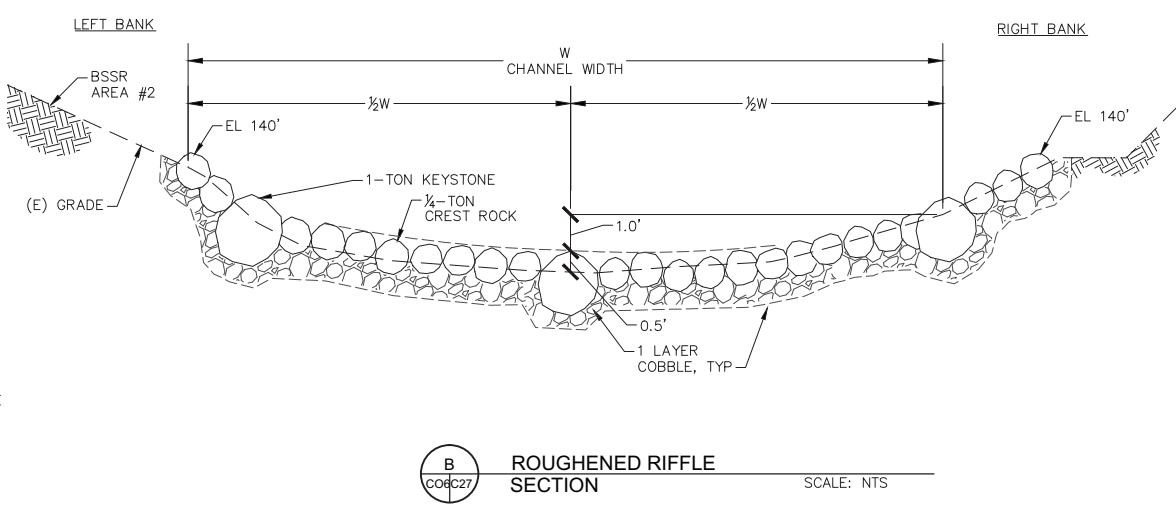


APPROVED	
DESIGNED	R. BROWN J. BLOMBERG
DRAWN	S. STOLLER
INCHARGE	A. BORGONOVO C053102
SCALE	AS SHOWN
DATE	APRIL 2011
SHEET	

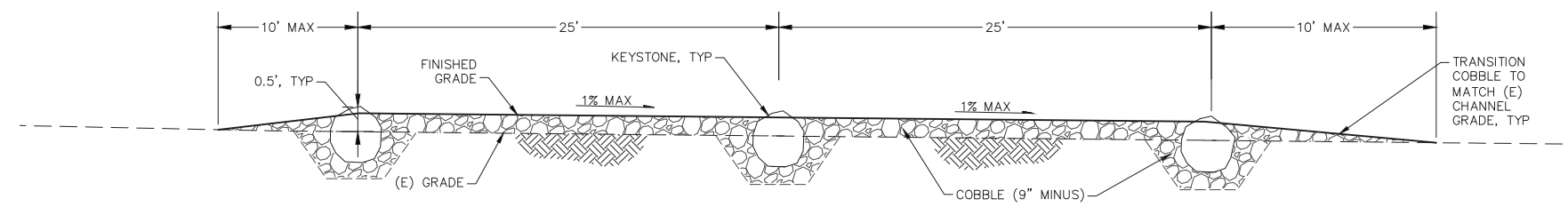
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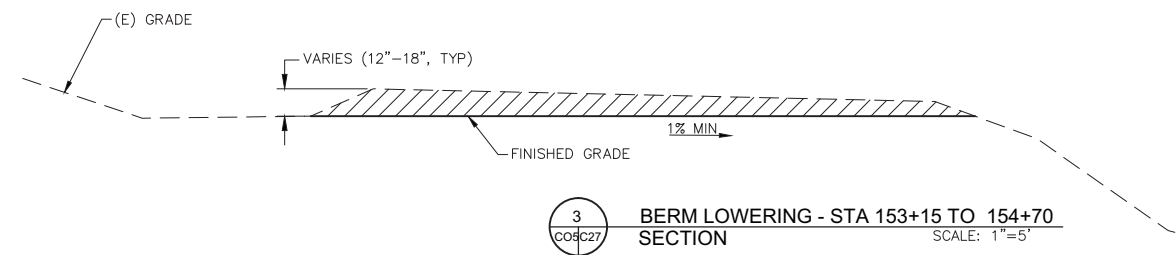
**1**  
C06/C27  
**ROUGHENED CHANNEL RIFFLE PLAN**  
SCALE: NTS



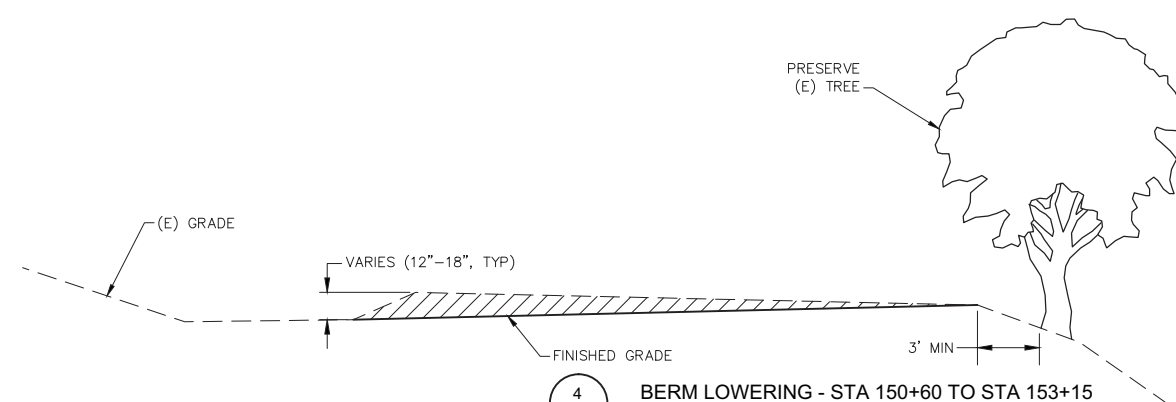
**B**  
C06/C27  
**ROUGHENED RIFFLE SECTION**  
SCALE: NTS



**A**  
C06/C27  
**ROUGHENED CHANNEL RIFFLE PROFILE**  
SCALE: NTS



**3**  
C06/C27  
**BERM LOWERING - STA 153+15 TO 154+70 SECTION**  
SCALE: 1"=5'



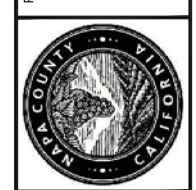
**4**  
C06/C27  
**BERM LOWERING - STA 150+60 TO STA 153+15 SECTION**  
SCALE: 1"=5'



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SHEET TITLE:  
**DETAILS - ROUGHENED RIFFLE, VSL, AND TOE PROTECTION**  
PROJECT:  
**NAPA RIVER RESTORATION RUTHERFORD REACH 4: EAST (LEFT) BANK**

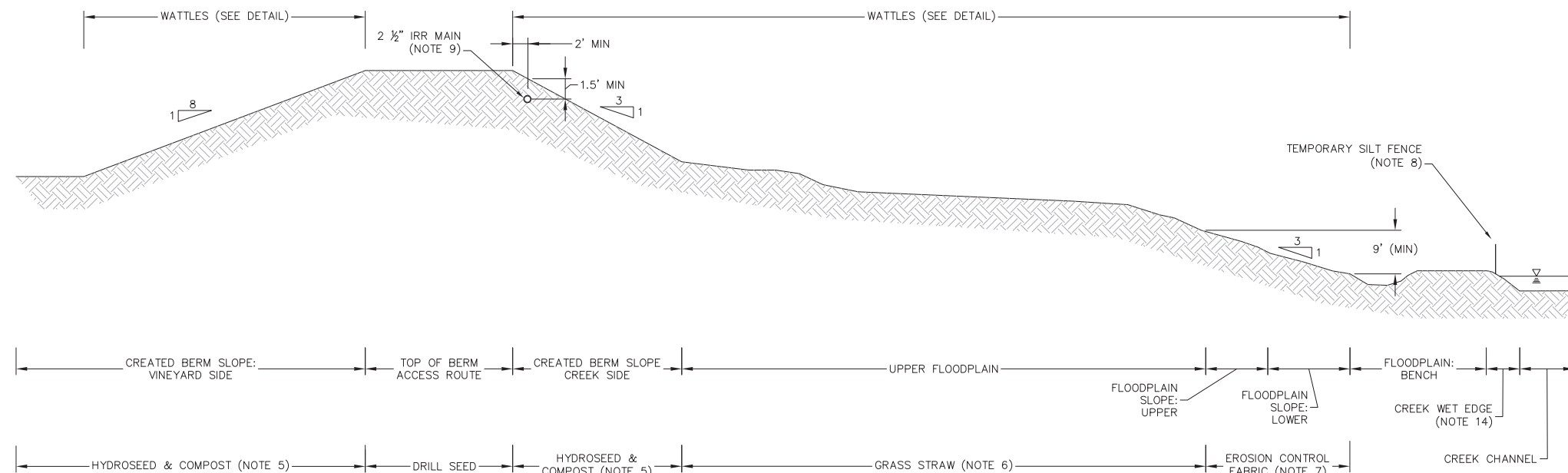
PREPARED FOR:  
**NAPA COUNTY DEPARTMENT OF PUBLIC WORKS**  
1195 Third St, Suite 201  
Napa, CA 94559



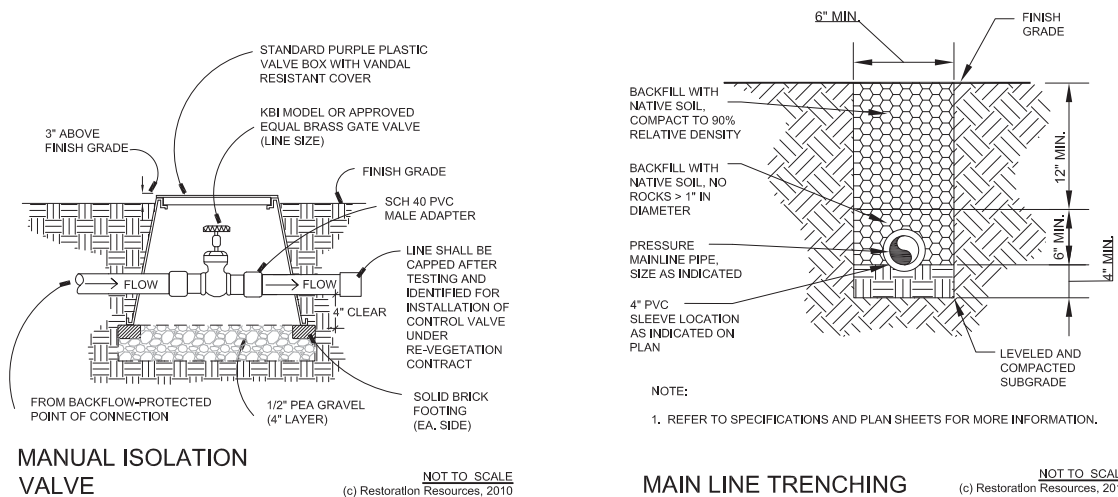
APPROVED:  
DESIGNED: R. BROWN, J. BLOMBERG  
DRAWN: S. STOLLER  
INCHARGE: A. BORGONOVO, C053102  
SCALE: AS SHOWN  
DATE: APRIL 2011  
SHEET:

**C27**  
27 OF 34

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SEEDING & EROSION CONTROL PLAN  
SCHEMATIC SECTION (NOTE 2) NTS

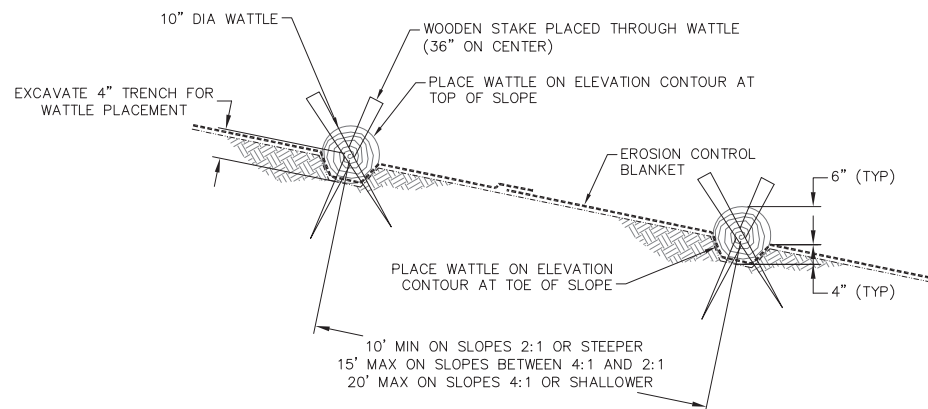


MANUAL ISOLATION VALVE

NOT TO SCALE  
(c) Restoration Resources, 2010

MAIN LINE TRENCHING

NOT TO SCALE  
(c) Restoration Resources, 2010



WATTLE DETAIL  
SECTION VIEW

NTS

EROSION CONTROL SEEDING MIXES AND RATES (NOTE 11)

Habitat Type: Berm Top and Access Route (note 12)		Acres 4.56	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Hordeum brachyantherum</i> / Meadow Barley	Drill Seed	10	46
<i>Vulpia microstachys</i> / Small Fescue	Drill Seed	14	64

Habitat Type: Created Berm Side Slope		Acres 5.62	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Bromus carinatus</i> / California Brome	Hydroseed	3	17
<i>Elymus glaucus</i> / Blue Wildrye	Hydroseed	3	17
<i>Eschscholzia californica</i> / California Poppy	Hydroseed	4	22
<i>Festuca idahoensis</i> / Idaho Fescue	Hydroseed	3	17
<i>Hordeum brachyantherum</i> / Meadow Barley	Hydroseed	3	17
<i>Lupinus bicolor</i> / Miniature Lupine	Hydroseed	4	22
<i>Trifolium wildenovi</i> / Tomcat Clover	Hydroseed	4	22
<i>Vulpia microstachys</i> / Small Fescue	Hydroseed	8	45

Habitat Type: Staging Area		Acres 1.41	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Triticum X Elymus "Regreen"</i> / Sterile Wheat	Broadcast Seed	26	37
<i>Eschscholzia californica</i> / California Poppy	Broadcast Seed	4	6
<i>Lupinus bicolor</i> / Miniature Lupine	Broadcast Seed	4	6
<i>Trifolium wildenovi</i> / Tomcat Clover	Broadcast Seed	4	6

Habitat Type: Upper Floodplain Woodland		Acres 3.67	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Bromus carinatus</i> / California Brome	Broadcast Seed	8	29
<i>Elymus glaucus</i> / Blue Wildrye	Broadcast Seed	8	29
<i>Grindelia camporum</i> / Gum Plant	Broadcast Seed	5	18
<i>Hordeum brachyantherum</i> / Meadow Barley	Broadcast Seed	8	29
<i>Melica Californica</i> / California Melic	Broadcast Seed	8	29
<i>Vulpia microstachys</i> / Small Fescue	Broadcast Seed	8	29

Habitat Type: Floodplain Slope: Upper		Acres 1.35	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Elymus glaucus</i> / Blue Wildrye	Broadcast Seed	8	11
<i>Festuca idahoensis</i> / Idaho Fescue	Broadcast Seed	8	11
<i>Hordeum brachyantherum</i> / Meadow Barley	Broadcast Seed	8	11
<i>Leymus triticoides</i> / Creeping Wildrye	Broadcast Seed	8	11

Habitat Type: Floodplain Slope: Lower		Acres 1.19	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Hordeum brachyantherum</i> / Meadow Barley	Broadcast Seed	8	10
<i>Leymus triticoides</i> / Creeping Wildrye	Broadcast Seed	8	10

Habitat Type: Lower Floodplain Bench		Acres 0.35	
Biological Name / Common Name	Seeding Method	lbs / ac	lbs. Req.
<i>Leymus triticoides</i> / Creeping Wildrye	Broadcast Seed	10	4

SHEET NOTES

- THIS SHEET SHOWS MINIMUM EROSION CONTROL MEASURES THAT ARE REQUIRED. INSTALL ADDITIONAL MEASURES AS NEEDED FOR SEDIMENT AND EROSION CONTROL AND SWPPP COMPLIANCE.
- THE SECTION SHOWS DESIGNATION OF SEEDING & EROSION CONTROL ZONES FOR GRADED AREAS. SEED ALL DISTURBED AREAS PER TABLE.
- UPON COMPLETION OF THE WORK RESTORE STAGING AREA(S) AND ACCESS ROUTES BY SEEDING (PER TABLES) AND APPLYING GRASS STRAW PER NOTE 6.
- SEE SEED MIX TABLES FOR SPECIES, QUANTITIES AND APPLICATION METHOD BY HABITAT ZONE.
- APPLY SEED, HYDROSTRAW AND MYCORRHIZAE USING HYDROSEEDING MACHINE - SEE SPECS. AFTER HYDROSEEDING, APPLY UNIFORM 2-INCH MINIMUM LAYER OF ORGANIC COMPOST ON BERM SIDE SLOPES.
- APPLY CERTIFIED WEED-FREE NATIVE GRASS STRAW AT A RATE OF 1.5-TONS PER ACRE. APPLY BY HAND IN AREAS WHERE EXISTING VEGETATION OR TERRAIN PROHIBIT VEHICULAR ACCESS; STRAW MAY BE BLOWN AS DEFINED IN THE WRITTEN SPECIFICATIONS ONTO THE SOIL SURFACE IN THOSE AREAS WHICH ARE ACCESSIBLE.
- INSTALL BIODEGRADABLE EROSION CONTROL FABRIC. SECURE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, AND THE SPECS (USE MOST STRINGENT REQUIREMENTS).
- INSTALL AND MAINTAIN SILT FENCE ALONG THE TOP OF THE ACTIVE CHANNEL BANK DURING BENCH GRADING. INSTALLATION LOCATIONS SHALL BE VERIFIED BY ENGINEER. REMOVE BY OCTOBER 15TH.
- INSTALL IRRIGATION MAINS WHERE SHOWN ON SHEETS R02 TO R05. IRRIGATION MAINS SHALL BE LOCATED AT LEAST 2- FEET FROM DRIVABLE PORTION OF BERM AND WITH 18-INCHES MINIMUM COVER. BACKFILL TRENCH TO 90% RELATIVE COMPACTION. MAINLINE SHALL BE SLEEVED UNDER ALL VEHICLE ACCESS CROSSINGS.
- POC LOCATIONS WILL BE CONFIRMED BY OWNERS.
- DISTURBED AREAS WILL BE PLANTED UNDER SEPARATE REVEGETATION CONTRACT. IN THE EVENT THAT CONTRACT SCHEDULES OVERLAP, COOPERATE AND COORDINATE WITH REVEGETATION CONTRACTOR AS NEEDED.
- DRILL SEED ON BERM TOP ONLY.
- LIMITS OF FLOODPLAIN SLOPE VARY. PRIOR TO SEEDING AND INSTALLATION OF EROSION CONTROL FABRIC, CONTRACTOR SHALL STAKE LIMIT OF FLOODPLAIN BENCHES AND SLOPES AND VERIFY WITH OWNERS' REPRESENTATIVE. EROSION CONTROL FABRIC SHALL BE INSTALLED ON ALL DISTURBED OR CUT FLOODPLAIN SLOPES TO A MINIMUM VERTICAL DIMENSION OF 9- FEET. THE VERTICAL EXTENT OF EROSION CONTROL FABRIC SHALL BE MEASURED FROM THE NEW FLOODPLAIN BENCH ELEVATION.
- WHERE DIRECTED BY THE OWNERS' REPRESENTATIVE, GRADE WET EDGE TO 3:1 AND PLACE LIVE POLE PLANTING.
- ALL EROSION CONTROL WORK AND SEEDING SHALL BE COMPLETED BY OCTOBER 15TH.

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**RESTORATION RESOURCES**  
3888 CINCINNATI AVENUE  
ROCKLIN, CA 95765  
TEL 916.408.2960  
FAX 916.408.2999  
www.restorationresources.net  
CA Lic. #22322

SHEET TITLE  
EROSION CONTROL PLAN &  
IRRIGATION DETAILS  
PROJECT NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

PREPARED FOR:  
NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559



APPROVED  
DESIGNED R. SWIFT, L. PIPER  
DRAWN L. PIPER  
INCHARGE R. SWIFT, PRESIDENT  
SCALE 1" = 40'  
DATE APRIL 2011  
SHEET

R01

**THOMPSON  
ELLEN**

**EMMOLO  
VINEYARDS**

**CARPY  
CONOLLY  
LLC**

IRRIGATION FOR REACH 4 PROPOSED GRADING AND REVEGETATION ON THIS SECTION OF THE EAST BANK WILL USE EXISTING MAINLINE INSTALLED UNDER THE REACH 3 CONTRACT. NO MAINLINE INSTALLATION IS REQUIRED FOR THIS SEGMENT. ADDITIONAL VALVES SHALL BE INSTALLED AS SHOWN.

REACH 4 PROPOSED GRADING CONTOURS

REACH 4 LIMIT OF GRADING

STATION MARKER

SHADED AREA IS NOT IN CONTRACT (WEST BANK)

**EMMOLO  
VINEYARDS**

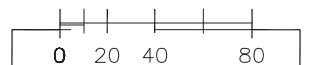
**THOMPSON  
ELLEN**

MATCH LINE  
SEE WINDOW ABOVE FOR REACH 4 CONTINUATION

NOTES:  
POC SHALL PROVIDE MINIMUM 60 GPM @ 60 PSI. CONTRACTOR TO VERIFY PRIOR TO IRRIGATION SYSTEM INSTALLATION.  
GATE VALVE IDENTIFICATION: Dr = VALVE FOR FUTURE DRIP SYSTEM  
Hb = VALVE FOR FUTURE HOSE BIBB SYSTEM  
POC LOCATIONS WILL BE CONFIRMED BY OWNERS.

**IRRIGATION LEGEND**

SYMBOL	DESCRIPTION	MANUFACTURER / MODEL	DETAIL	REMARKS
	MANUAL ISOLATION VALVE (GATE VALVE)	1 1/2" KBI MODEL OR APPROVED EQUAL BRASS GATE VALVE AS PER DETAIL	-	SIZED ACCORDING TO PIPE SIZE SET IN BOX WITH A 4"x4" PAINTED WOOD MARKER POST
	PVC MAINLINE PIPE (SIZE AS INDICATED)	AS APPROVED	-	1 1/2" - 2" PVC SCH 40
	PVC SLEEVING	AS APPROVED	-	TWICE THE DIAMETER OF PIPE SEE PLAN FOR LOCATIONS UNDER LEVEE ROAD PVC SCH 40



MATCH LINE STA 155+50 SEE SHEET R03

IRRIGATION PLAN -  
STA 155+50 to STA 169+15  
PROJECT: NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559



APPROVED  
DESIGNED R, SWIFT, L, PIPER  
DRAWN L, PIPER  
INCHARGE R, SWIFT  
PRESIDENT  
SCALE 1" = 40'  
DATE APRIL 2011  
SHEET

**R02**

PREPARED BY:  
**PWA**  
PHILIP WILLIAMS & ASSOCIATES, LTD.  
CITY OF THE FUTURE  
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www.restorationresources.net  
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**CARPY  
CONOLLY  
LLC**

CONTRACTOR SHALL  
TAP INTO EXISTING  
MAINLINE AND INSTALL  
NEW GATE VALVE AS  
SHOWN ON THE PLANS.

IRRIGATION FOR REACH 4  
PROPOSED GRADING AND  
REVEGETATION ON THIS SECTION  
OF THE EAST BANK WILL USE  
EXISTING MAINLINE INSTALLED  
UNDER THE REACH 3 CONTRACT.  
NO MAINLINE INSTALLATION IS  
REQUIRED FOR THIS SEGMENT.  
ADDITIONAL VALVES SHALL BE  
INSTALLED AS SHOWN.

REACH 4  
LIMIT OF  
GRADING

STATION MARKER

SHADED AREA IS NOT IN  
CONTRACT (WEST BANK)

**EMMOLO  
VINEYARDS**

NOTES:

POC SHALL PROVIDE MINIMUM 60 GPM @ 60 PSI. CONTRACTOR SHALL VERIFY PRIOR TO IRRIGATION SYSTEM INSTALLATION.

GATE VALVE IDENTIFICATION: Dr = VALVE FOR FUTURE DRIP SYSTEM  
Hb = VALVE FOR FUTURE HOSE BIBB SYSTEM

POC LOCATIONS WILL BE CONFIRMED BY OWNERS.

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER / MODEL	DETAIL	REMARKS
	MANUAL ISOLATION VALVE (GATE VALVE)	1 1/2" KBI MODEL OR APPROVED EQUAL BRASS GATE VALVE AS PER DETAIL	-	SIZED ACCORDING TO PIPE SIZE SET IN BOX WITH A 4"x4" PAINTED WOOD MARKER POST
	PVC MAINLINE PIPE (SIZE AS INDICATED)	AS APPROVED	-	1 1/2" - 2" PVC SCH 40
	PVC SLEEVING	AS APPROVED	-	TWICE THE DIAMETER OF PIPE SEE PLAN FOR LOCATIONS UNDER LEVEE ROAD PVC SCH 40

MATCHLINE STA 155+50 SEE SHEET R02

MATCHLINE STA 146+00 SEE SHEET R04

SHEET TITLE

IRRIGATION PLAN -  
STA 146+00 to STA 155+50  
PROJECT NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

PREPARED FOR:

NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559

APPROVED

DESIGNED R. SWIFT, L. PIPER

DRAWN L. PIPER

INCHARGE R. SWIFT  
PRESIDENT

SCALE 1" = 40'

DATE APRIL 2011

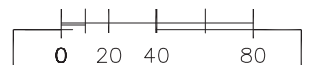
SHEET

R03

32 OF 34

PREPARED BY:  
**PWA**  
PHILIP WILLIAMS & ASSOCIATES, LTD.  
11717 RIVINGTON DRIVE, SUITE 200  
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FAX 916.408.2969  
www.restorationresources.net  
CA Lic. #429252



CONTRACTOR SHALL TAP INTO EXISTING MAINLINE AND INSTALL NEW GATE VALVE AS SHOWN ON THE PLANS.

**CARPY CONOLLY LLC**

IRRIGATION FOR REACH 4 PROPOSED GRADING AND REVEGETATION ON THIS SECTION OF THE EAST BANK WILL USE EXISTING MAINLINE INSTALLED UNDER THE REACH 3 CONTRACT. NO MAINLINE INSTALLATION IS REQUIRED FOR THIS SEGMENT. ADDITIONAL VALVES SHALL BE INSTALLED AS SHOWN.

**HONIG VINEYARD LLC**

POC 3 (INSTALLED UNDER REACH 3 CONTRACT)

REACH 4 LIMIT OF GRADING

STATION MARKER

1/2" mainline

REACH 4 PROPOSED GRADING CONTOURS

SHADED AREA IS NOT IN CONTRACT (WEST BANK)

**EMMOLO VINEYARDS**

**MEE ERIKA MTR**

**ROUND POND**

NOTES:

POC SHALL PROVIDE MINIMUM 60 GPM @ 60 PSI. CONTRACTOR SHALL VERIFY PRIOR TO IRRIGATION SYSTEM INSTALLATION.

GATE VALVE IDENTIFICATION: Dr = VALVE FOR FUTURE DRIP SYSTEM  
Hb = VALVE FOR FUTURE HOSE BIBB SYSTEM

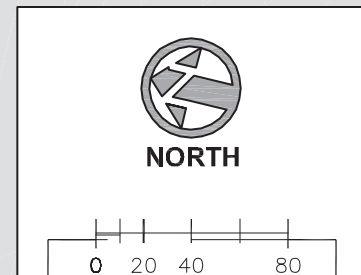
POC LOCATIONS WILL BE CONFIRMED BY OWNERS.

IRRIGATION LEGEND

SYMBOL	DESCRIPTION	MANUFACTURER / MODEL	DETAIL	REMARKS
	MANUAL ISOLATION VALVE (GATE VALVE)	1 1/2" KBI MODEL OR APPROVED EQUAL BRASS GATE VALVE AS PER DETAIL	-	SIZED ACCORDING TO PIPE SIZE SET IN BOX WITH A 4"x4" PAINTED WOOD MARKER POST
	PVC MAINLINE PIPE (SIZE AS INDICATED)	AS APPROVED	-	1 1/2" - 2" PVC SCH 40
	PVC SLEEVING	AS APPROVED	-	TWICE THE DIAMETER OF PIPE SEE PLAN FOR LOCATIONS UNDER LEVEL ROAD PVC SCH 40

MATCHLINE STA 146+00 SEE SHEET R03

MATCHLINE STA 134+00 SEE SHEET R05



PREPARED BY:  
**PWA**  
PHILIP WILLIAMS & ASSOCIATES, LTD.  
1111 RIVER ST. STE. 200  
SAN FRANCISCO, CALIFORNIA 94109  
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**RESTORATION RESOURCES**  
3888 CONCINNATI AVENUE  
ROCKLIN, CA 95765  
TEL 916.408.2960  
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www.restorationresources.net  
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SHEET TITLE  
IRRIGATION PLAN -  
STA 134+00 to STA 146+00  
PROJECT  
NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK

PREPARED FOR:  
NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559



APPROVED  
DESIGNED R. SWIFT, L. PIPER  
DRAWN L. PIPER  
INCHARGE R. SWIFT, PRESIDENT  
SCALE 1" = 40'  
DATE APRIL 2011  
SHEET

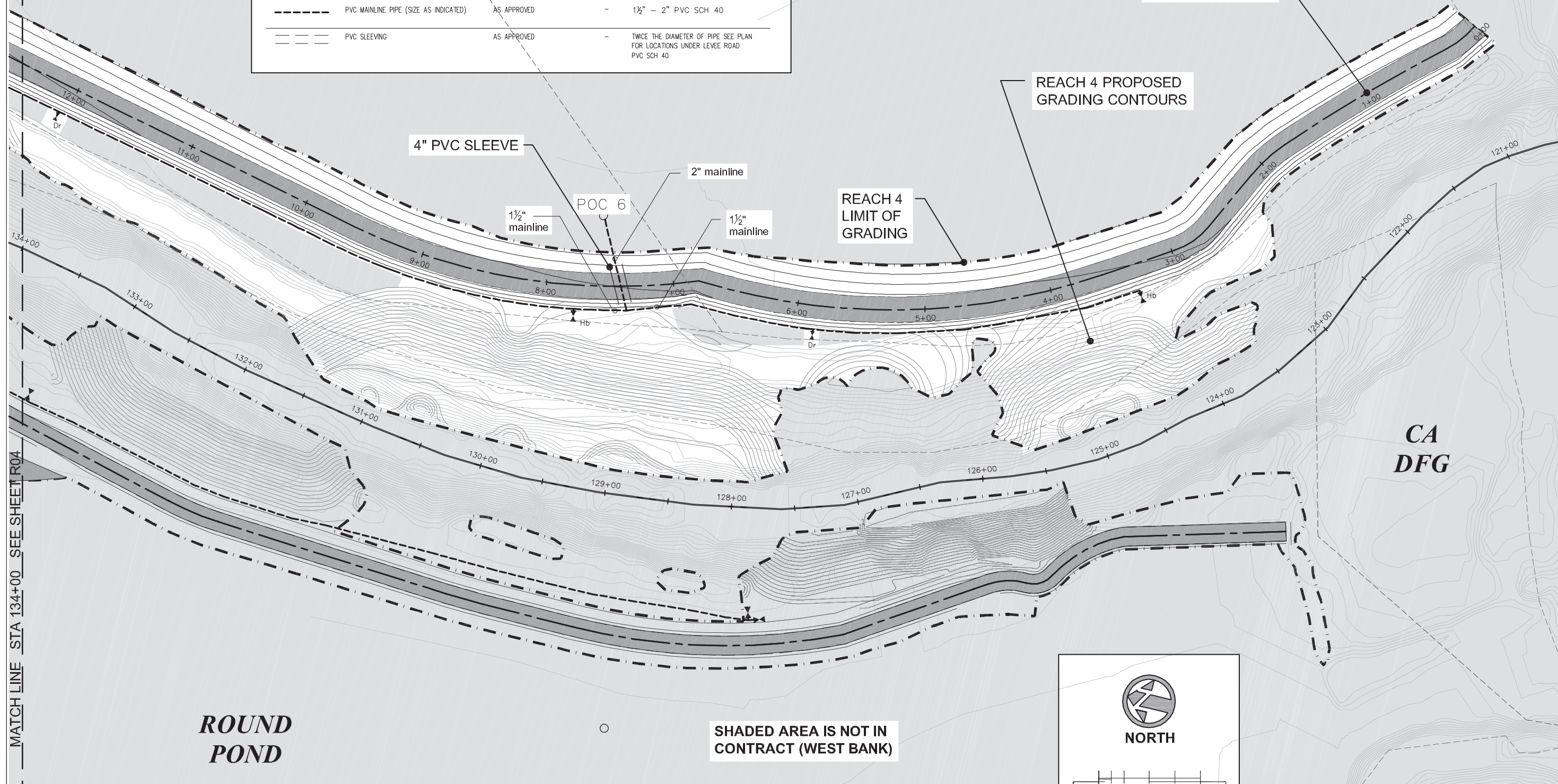
**HONIG  
VINEYARD  
LLC**

NOTES:  
 POC SHALL PROVIDE MINIMUM 60 GPM @ 60 PSI. CONTRACTOR SHALL VERIFY PRIOR TO IRRIGATION SYSTEM INSTALLATION.  
 GATE VALVE IDENTIFICATION: Dr = VALVE FOR FUTURE DRIP SYSTEM  
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**IRRIGATION LEGEND**

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	PVC SLEEVE	AS APPROVED	-	TWICE THE DIAMETER OF PIPE SEE PLAN FOR LOCATIONS UNDER LEVEE ROAD PVC SCH 40

**ROUND  
POND**



STATION MARKER

REACH 4 PROPOSED GRADING CONTOURS

4" PVC SLEEVE

2" mainline

1 1/2" mainline

POC 6

1 1/2" mainline

REACH 4 LIMIT OF GRADING

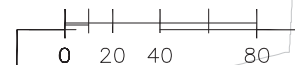
**CA  
DFG**

**ROUND  
POND**

SHADED AREA IS NOT IN CONTRACT (WEST BANK)



**NORTH**



MATCH LINE STA 134+00 SEE SHEET R04

PREPARED BY:  
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 www.restorationresources.net  
 CA Lic. #429252

SHEET TITLE  
**IRRIGATION PLAN -  
STA 124+60 to STA 134+00**  
 PROJECT: **NAPA RIVER RESTORATION  
RUTHERFORD REACH 4:  
EAST (LEFT) BANK**

PREPARED FOR:  
**NAPA COUNTY  
DEPARTMENT OF PUBLIC WORKS  
1195 Third St, Suite 201  
Napa, CA 94559**



APPROVED  
 DESIGNED R. SWIFT, L. PIPER  
 DRAWN L. PIPER  
 INCHARGE R. SWIFT, PRESIDENT  
 SCALE 1" = 40'  
 DATE APRIL 2011  
 SHEET

**R05**