CALIFORNIA COASTAL COMMISSION
NORTH COAST DISTRICT OFFICE
1385 EIGHTH STREET, SUITE 130
ARCATA, CA 95521
VOICE (707) 826-8950
FAX (707) 826-8960

Th17a

1-20-0560

(HUMBOLDT COUNTY DPW)

April 7, 2022

EXHIBITS

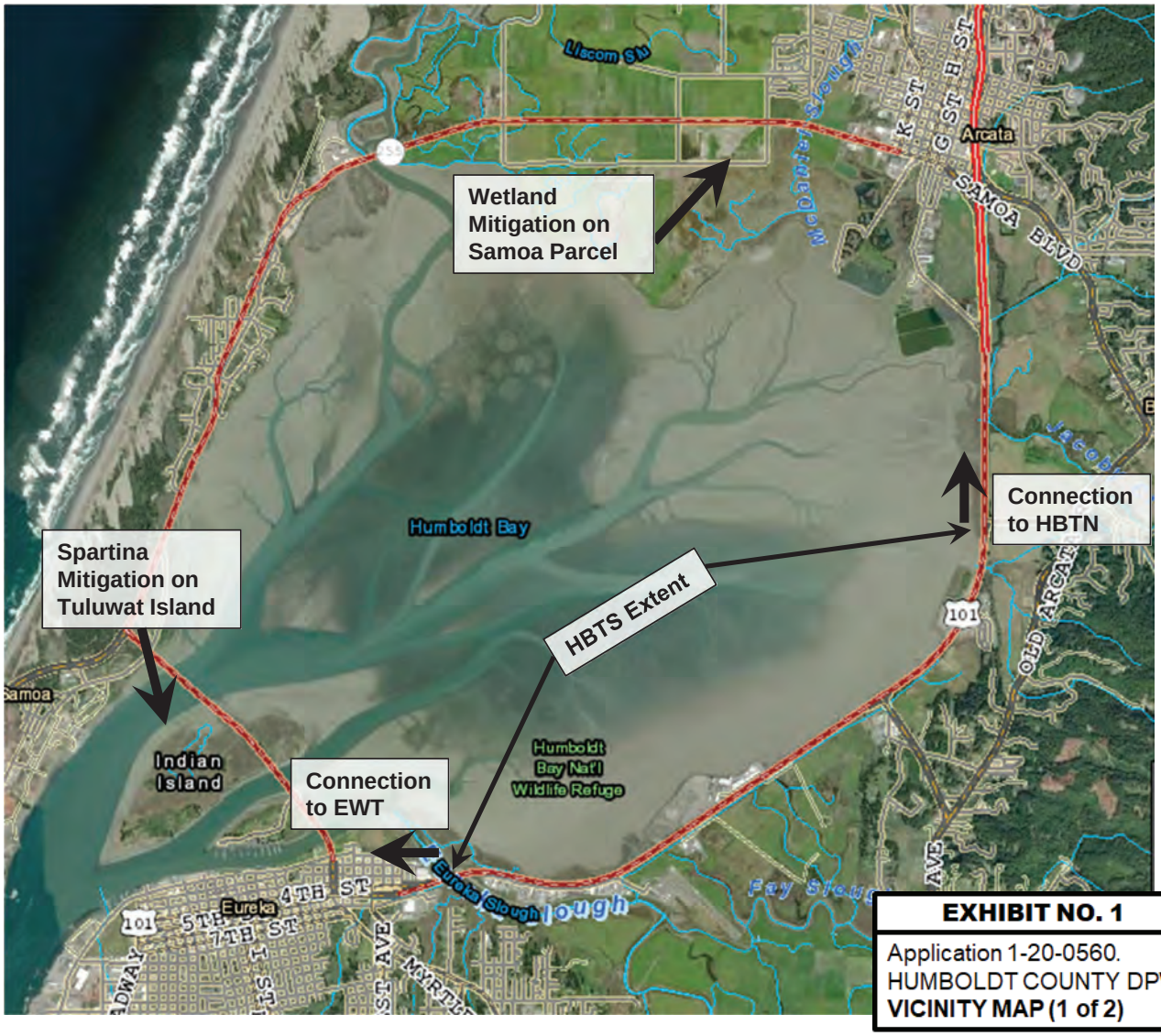


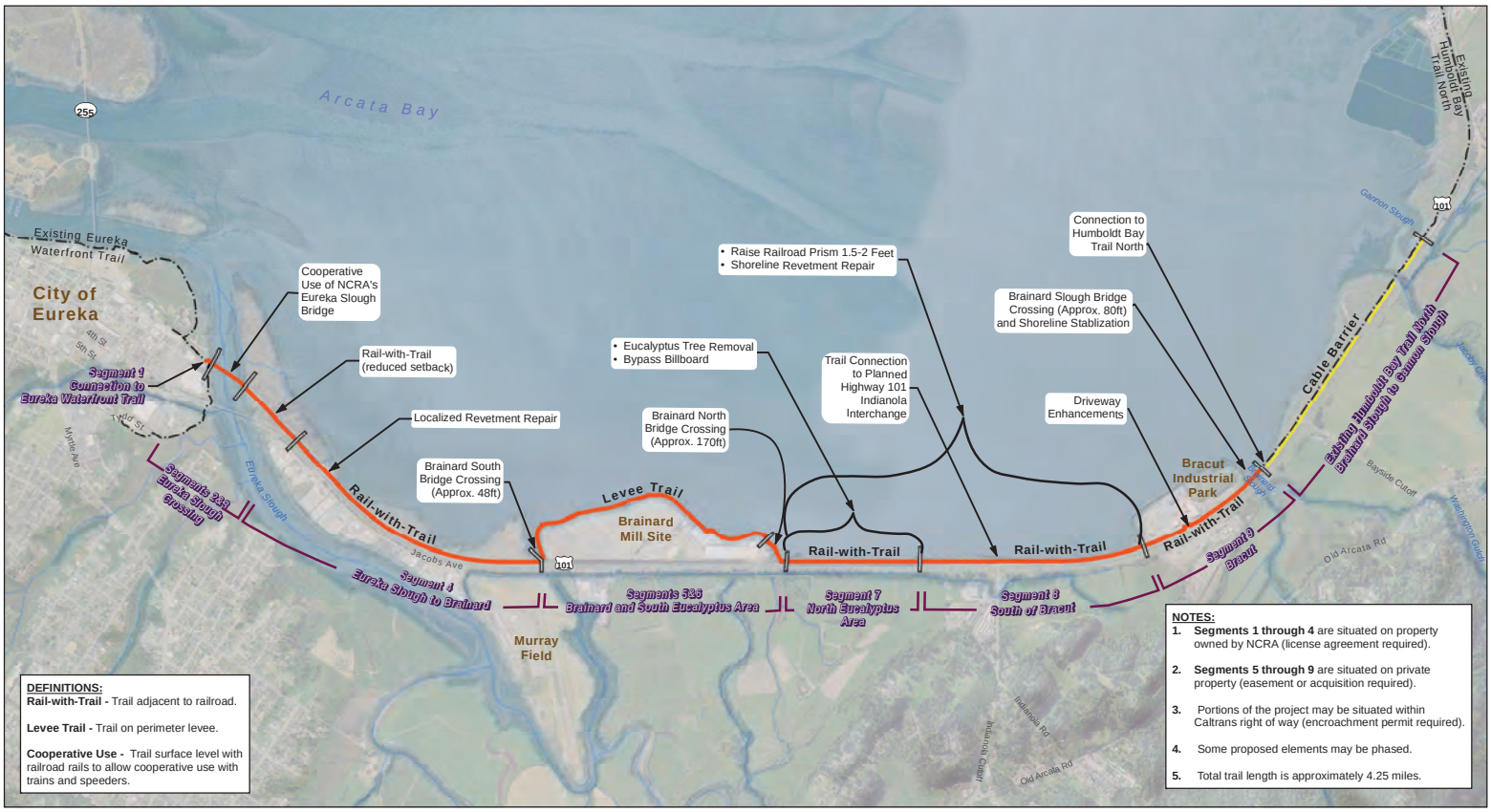
EXHIBIT NO. 1

Application 1-20-0560.
HUMBOLDT COUNTY DPW
VICINITY MAP (1 of 2)


Connection to HBTN
Humboldt Bay
Bracut
OLD ARCATA RD
Humboldt Bay Nat'l Wildlife Refuge
101
CRC Property
Connection to EWT
WALKER POINT RD
JACOBS AVE
Eureka Slough
Eureka Slough
Fay Slough
MYRTLE AVE
OLE HANSON RD
ROBIN LN

EXHIBIT NO. 2

Application 1-20-0560
HUMBOLDT COUNTY DPW
TRAIL OVERVIEW (1 of 2)



DEFINITIONS:

Rail-with-Trail - Trail adjacent to railroad.

Levee Trail - Trail on perimeter levee.

Cooperative Use - Trail surface level with railroad rails to allow cooperative use with trains and speeders.

NOTES:

1. **Segments 1 through 4** are situated on property owned by NCRA (license agreement required).
2. **Segments 5 through 9** are situated on private property (easement or acquisition required).
3. Portions of the project may be situated within Caltrans right of way (encroachment permit required).
4. Some proposed elements may be phased.
5. Total trail length is approximately 4.25 miles.

Paper Size 11" x 17" (ANSI B)

0 750 1,500 2,250 3,000 Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

LEGEND

- Humboldt Bay Trail South
- Cable Barrier - Humboldt Bay Trail North
- Existing Trail
- Project Segment
- Segment Break

ABBREVIATIONS

CRC	California Redwood Company
NCRA	North Coast Railroad Authority

Humboldt County Public Works Department
Humboldt Bay Trail - Bay Trail South
(Eureka to Bracut)

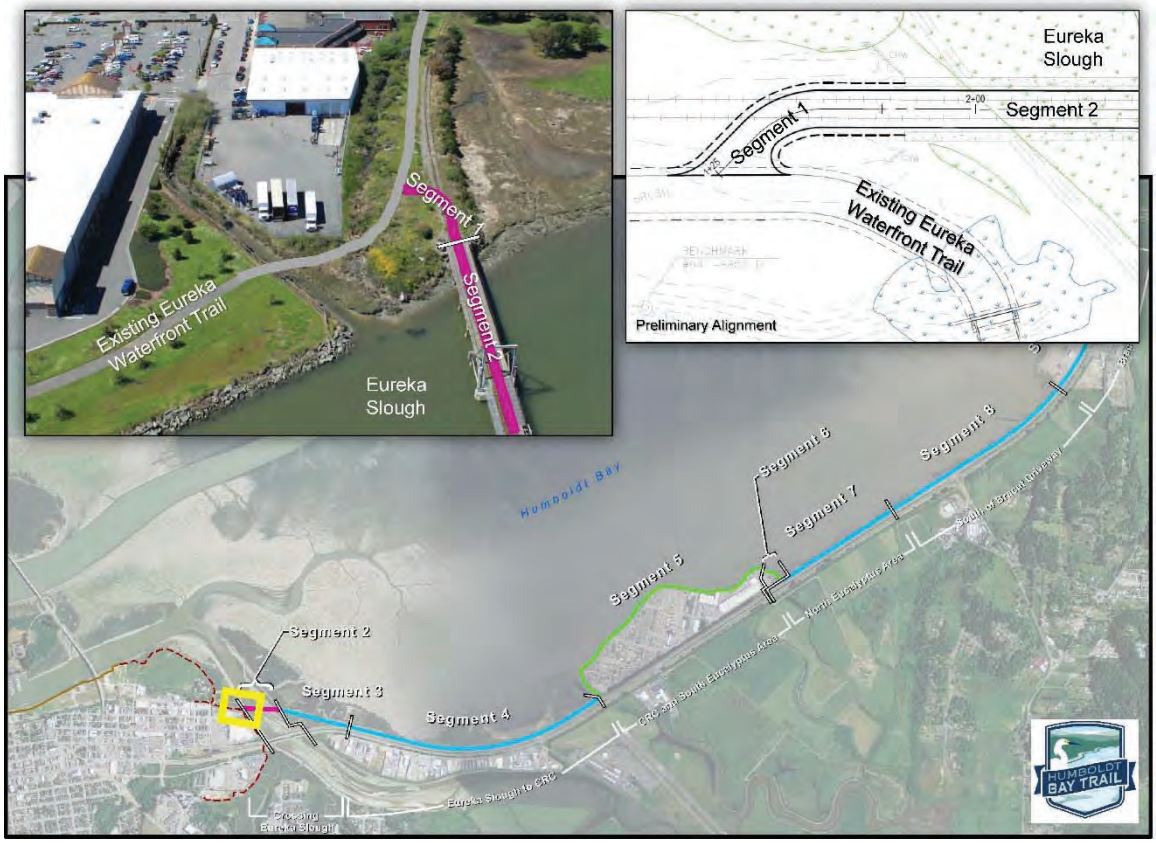
Job Number	11110166
Revision	I
Date	13 Oct 2020

Proposed Trail Alignment and Key Components

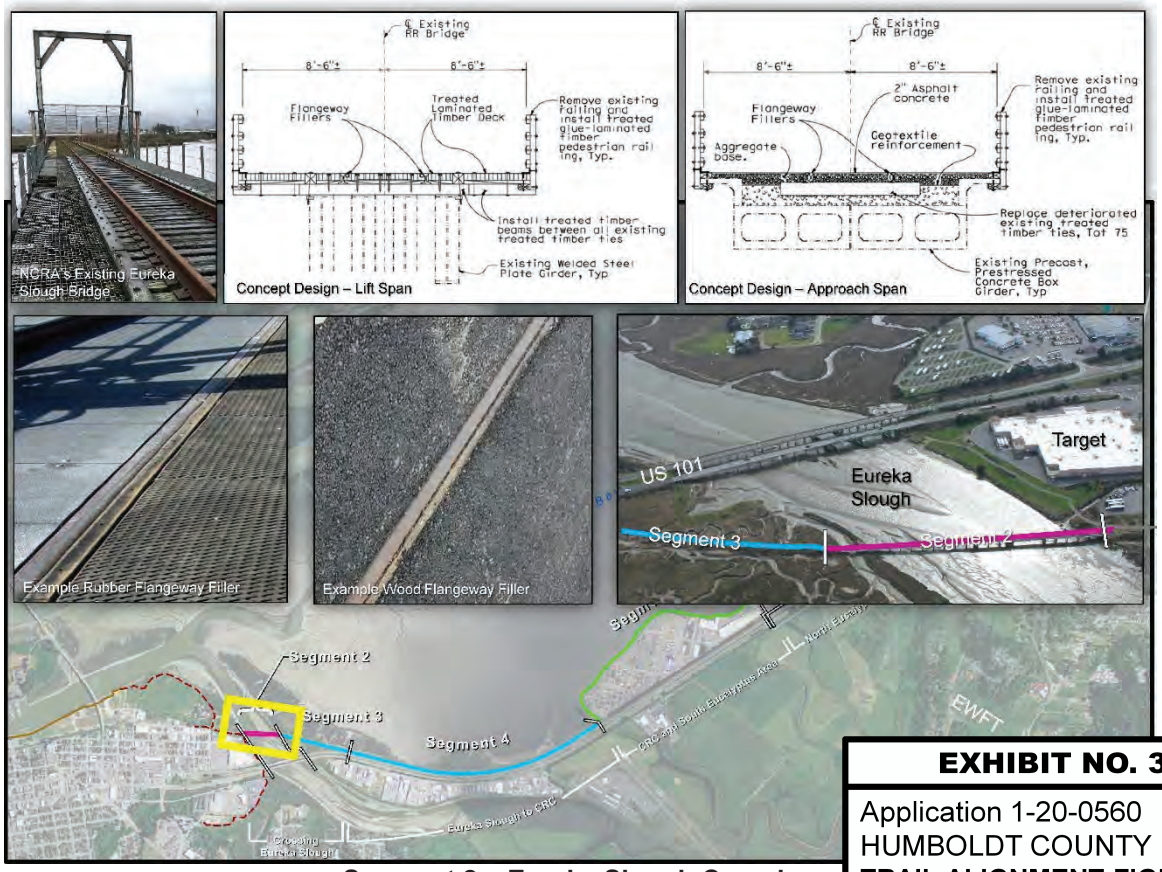
Figure 3

718 Third Street Eureka CA 95501 USA **T** 707 443 8326 **F** 707 444 8330 **E** eureka@ghd.com **W** www.ghd.com

Humboldt Bay Trail South Alignment Figures



Segment 1 – Connection to Eureka Waterfront Trail

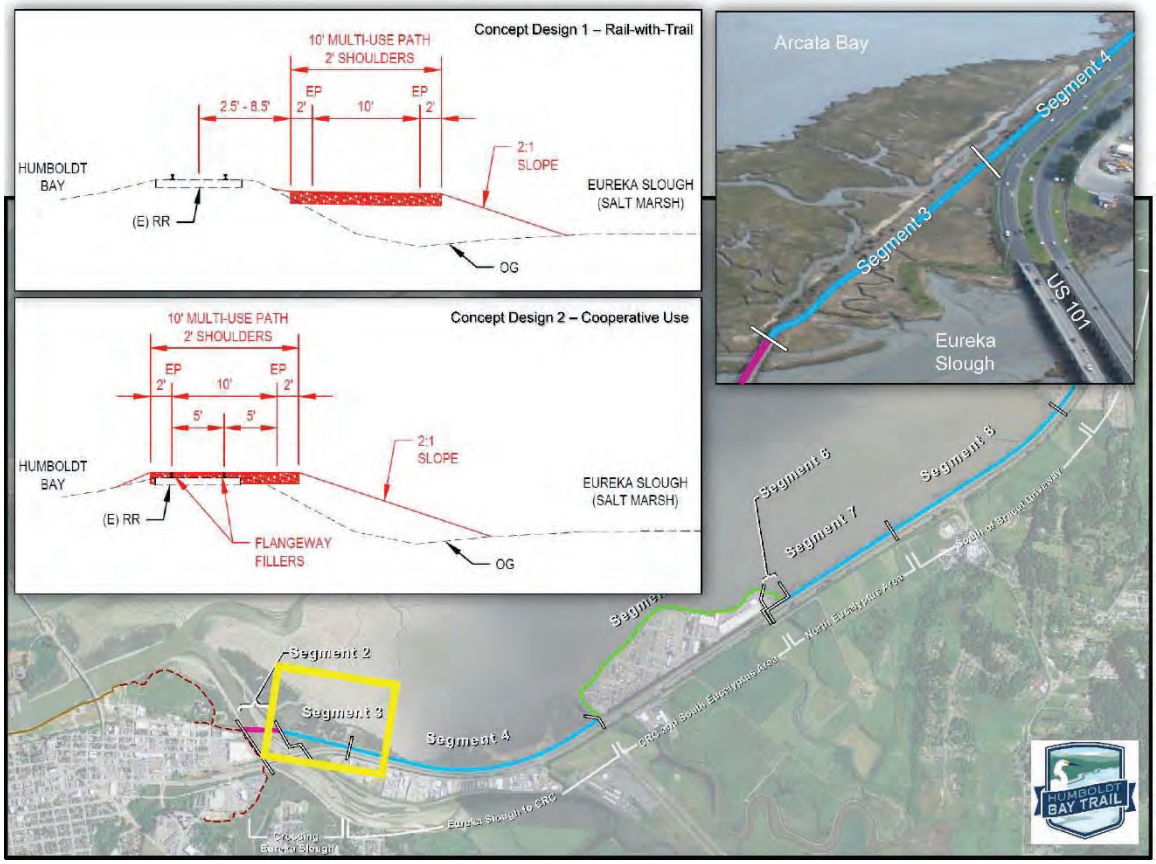


Segment 2 – Eureka Slough Crossing

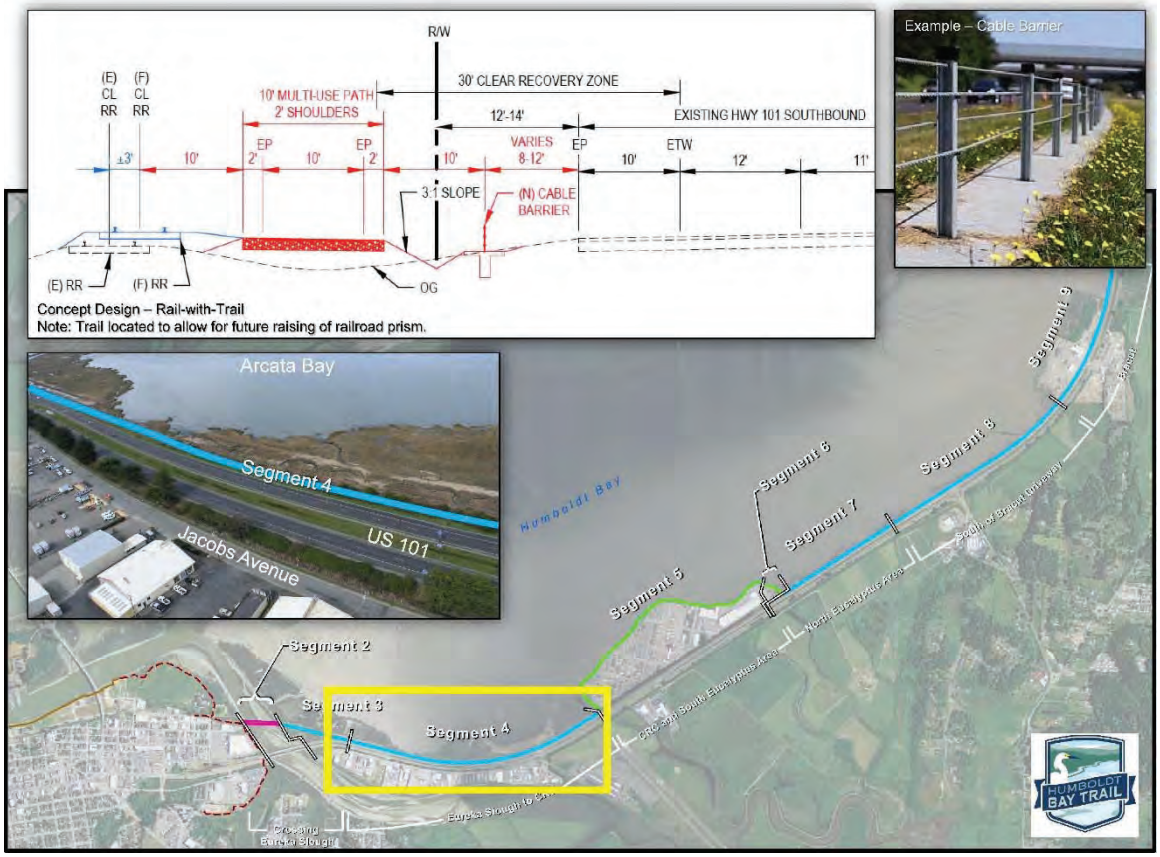
EXHIBIT NO. 3

Application 1-20-0560
HUMBOLDT COUNTY DPW
TRAIL ALIGNMENT FIGURES

Humboldt Bay Trail South Alignment Figures

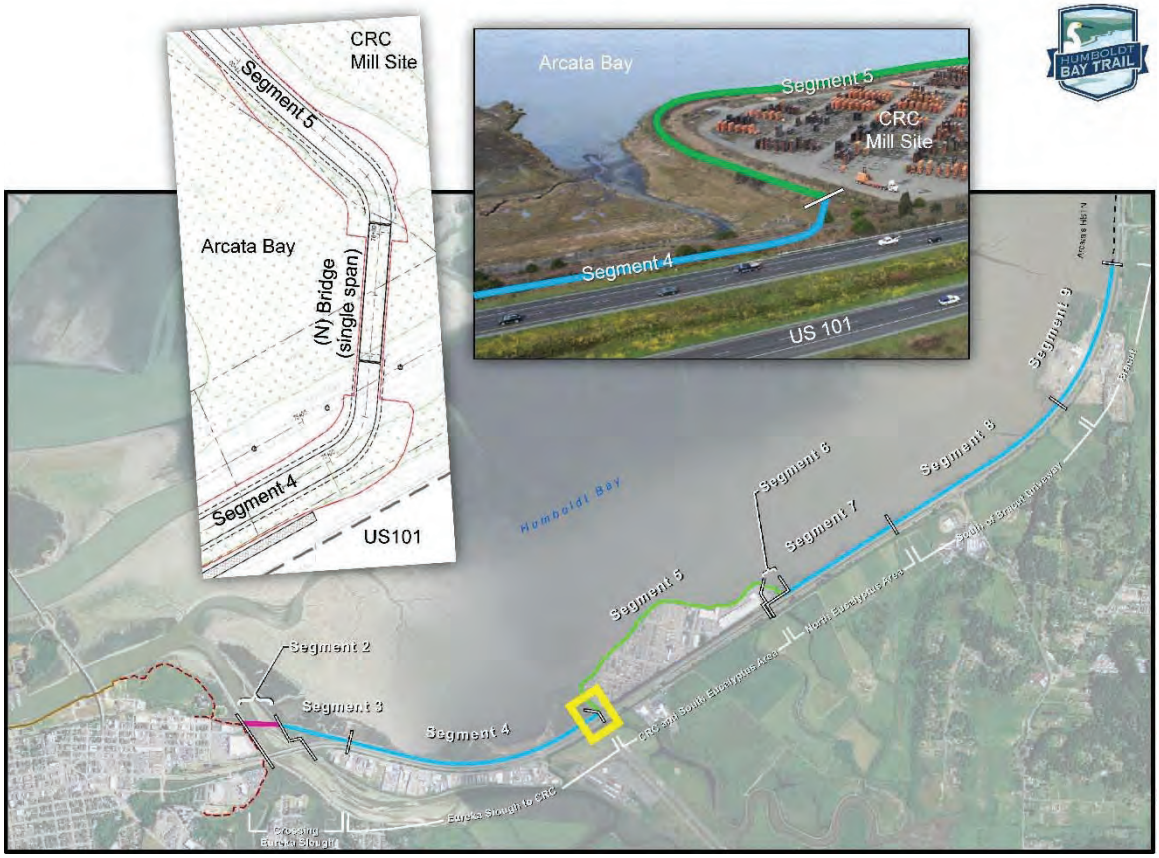


Segment 3 – Eureka Slough North

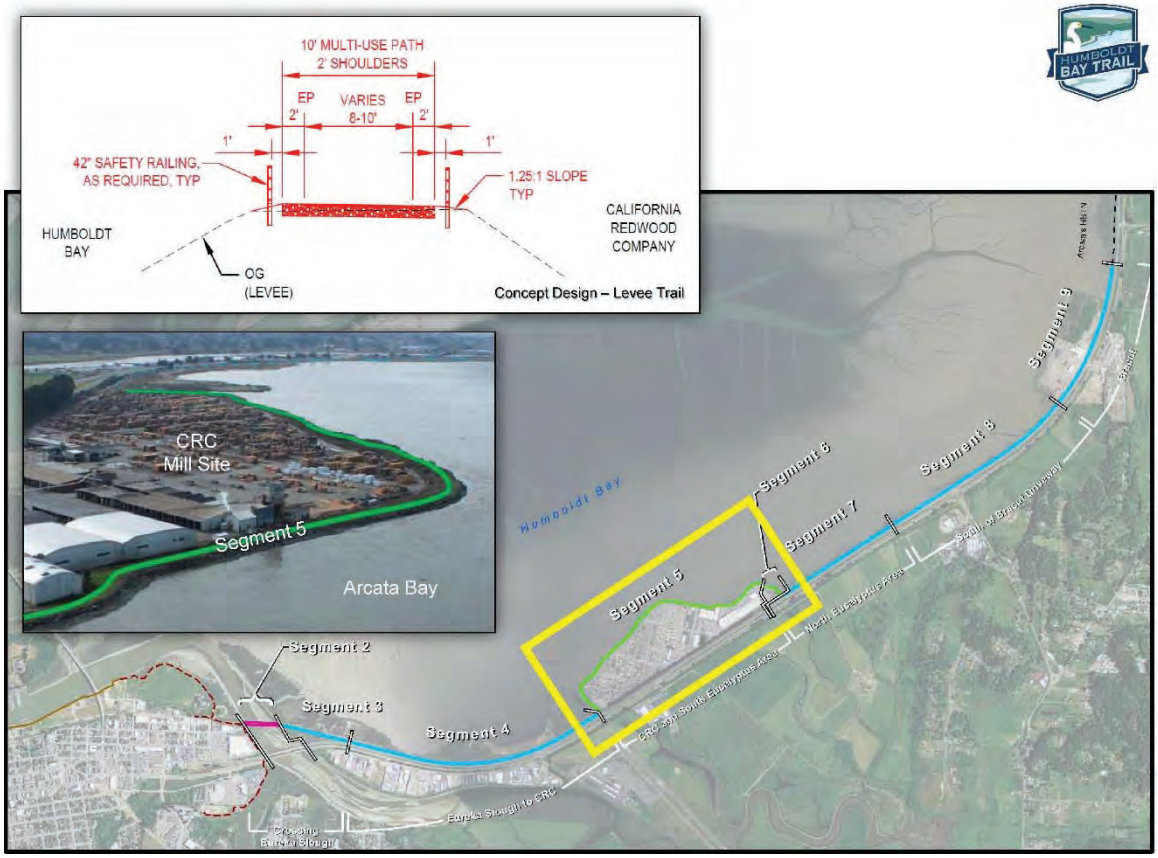


Segment 4 – Eureka Slough to CRC

Humboldt Bay Trail South Alignment Figures

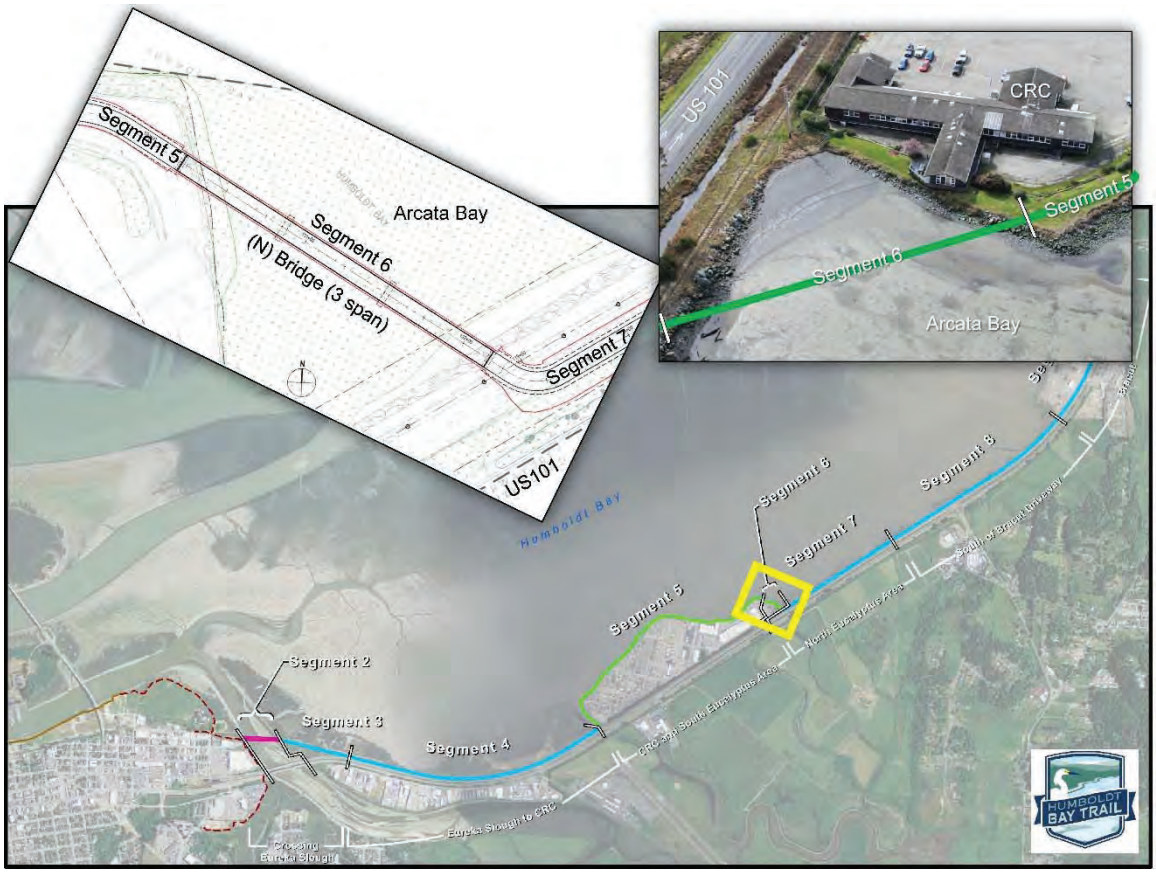


Segment 4/5 – South CRC Bridge

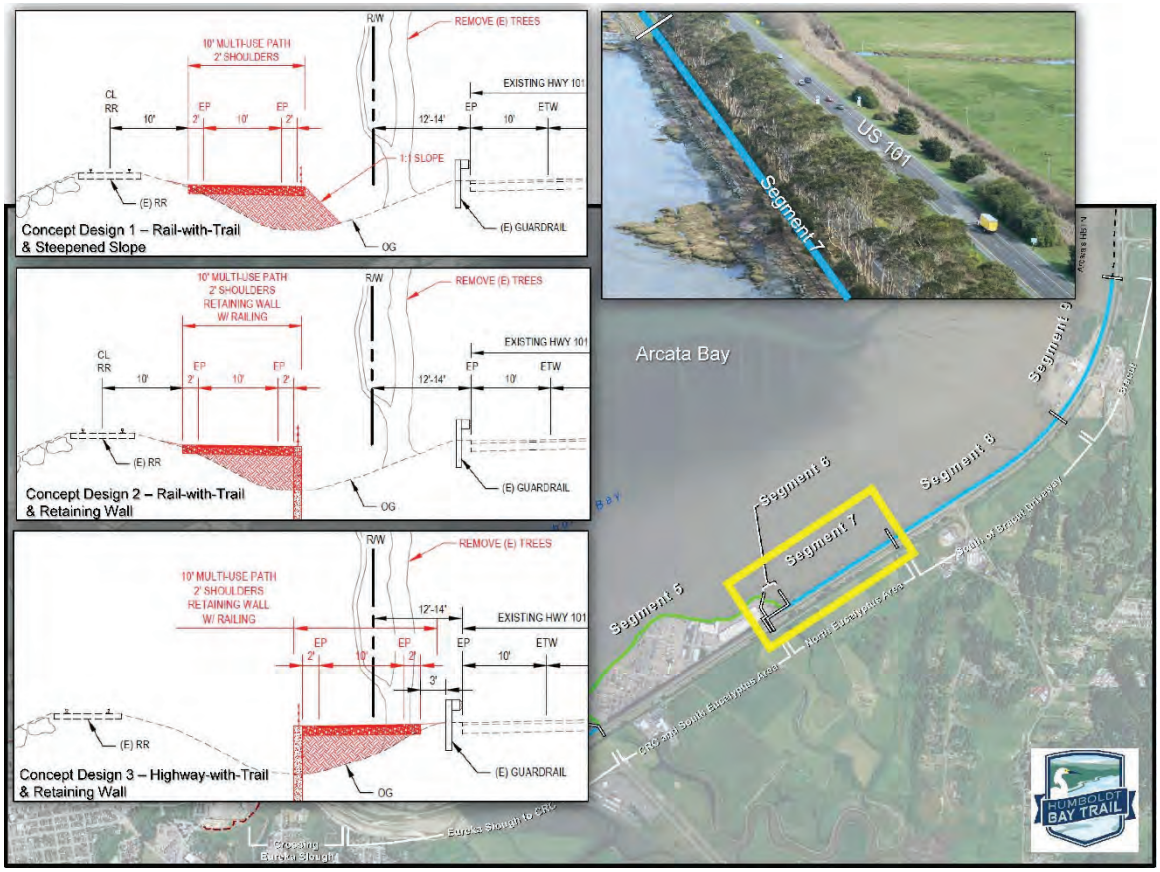


Segment 5 – CRC

Humboldt Bay Trail South Alignment Figures

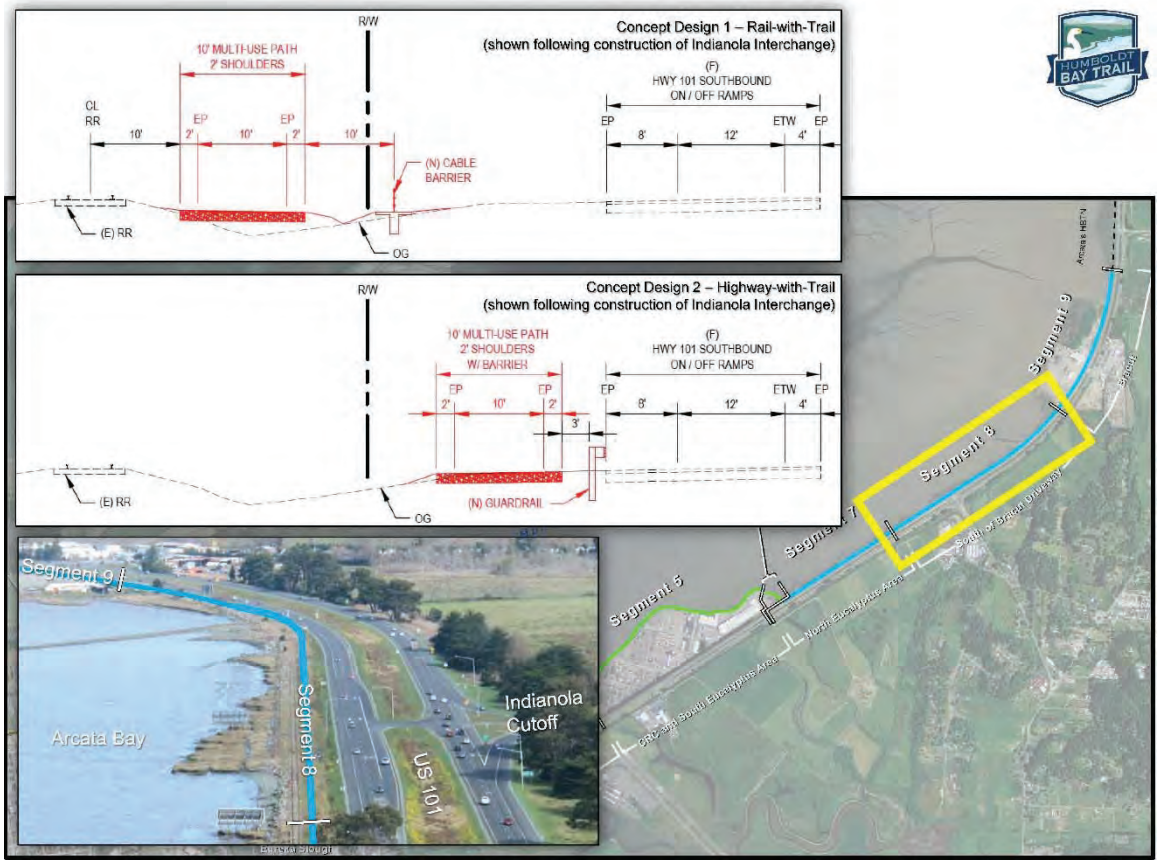


Segment 6 – CRC North

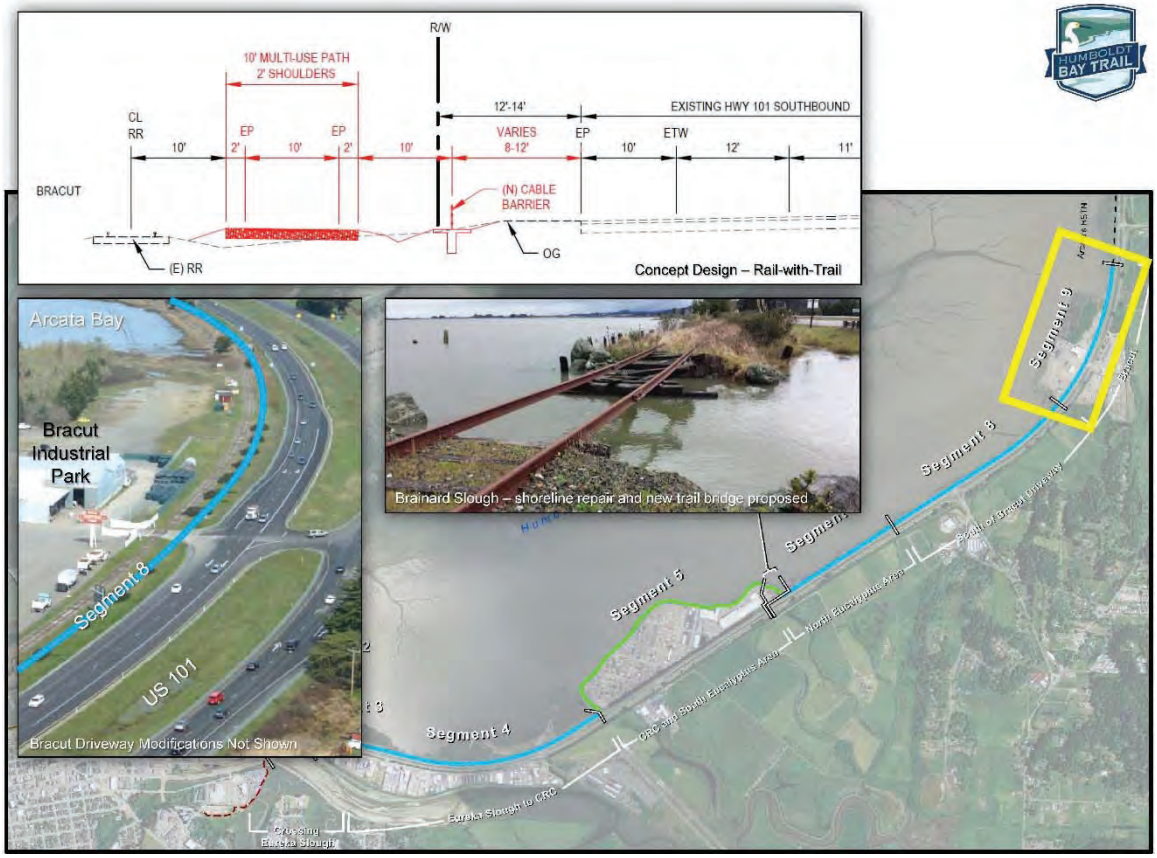


Segment 7 – Eucalyptus North

Humboldt Bay Trail South Alignment Figures

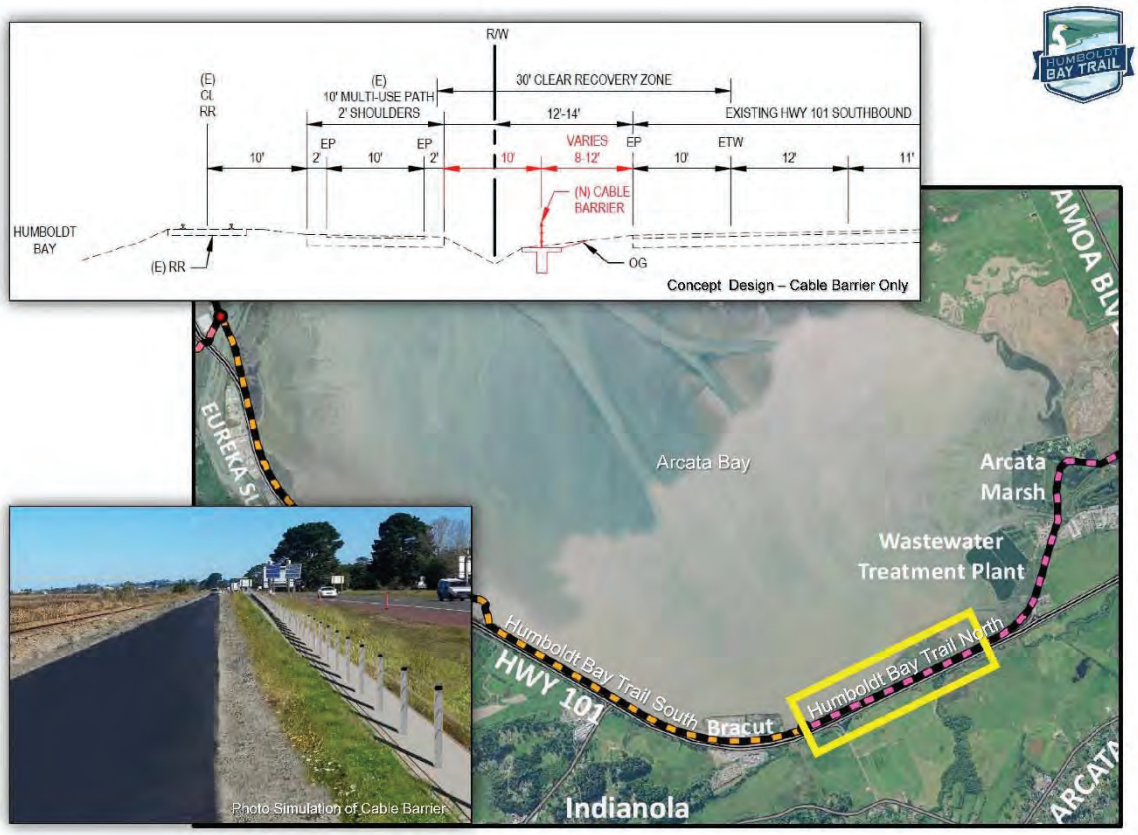


Segment 8 – Eucalyptus to Bracut



Segment 9 – Bracut

Humboldt Bay Trail South Alignment Figures



Humboldt Bay Trail North - HBTS

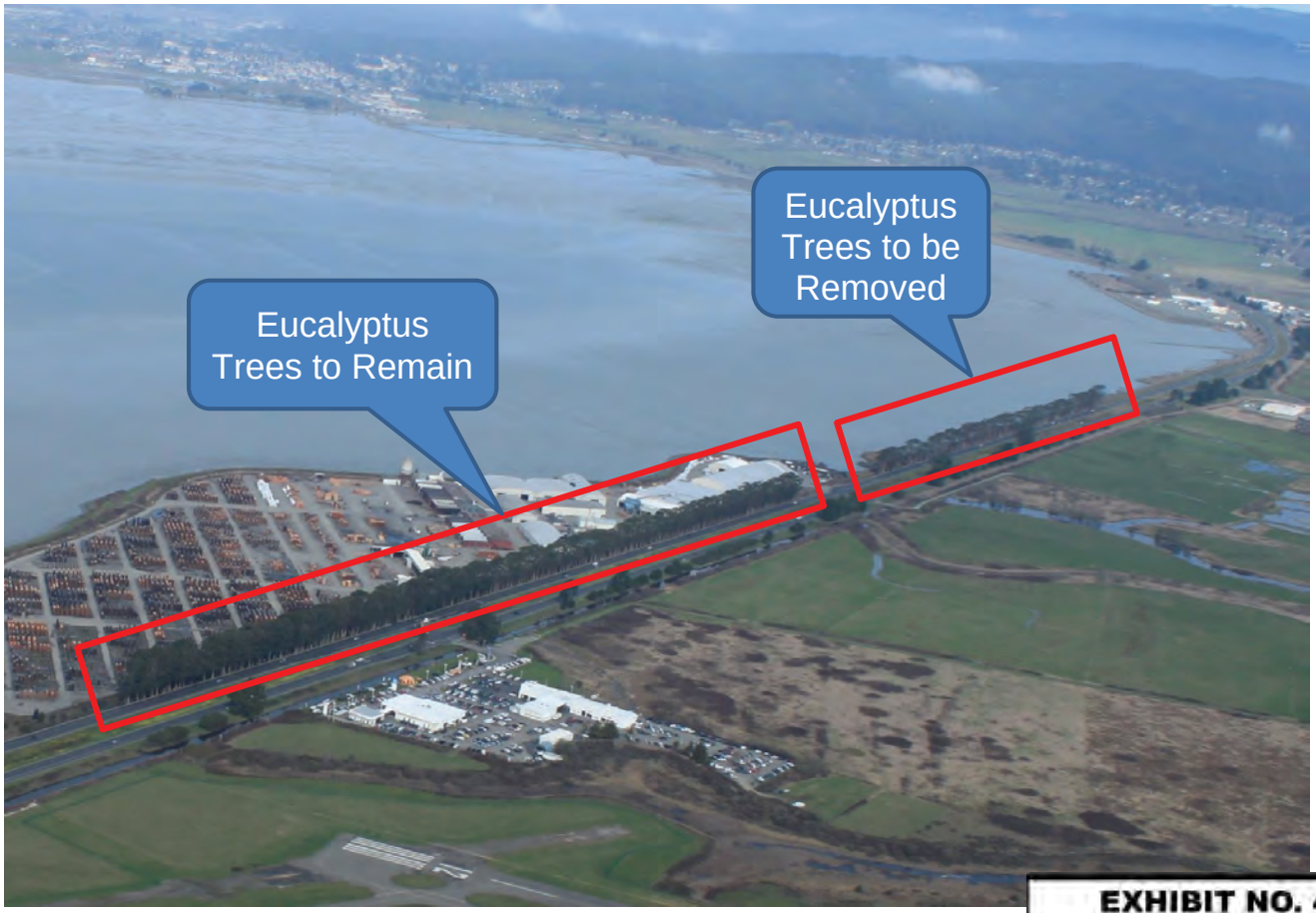


EXHIBIT NO. 4

Application 1-20-0560
HUMBOLDT COUNTY DPW
PROPOSED EUCALYTPUS REMOVAL

North State Resources, Inc. now Stantec

V:\2272\active\227200360005_report_deliv\deliverable\VIA\Figures sg; 0218

PAY LIMITS - EXCAVATION

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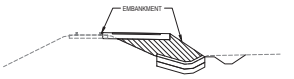

PAY LIMITS - FILL

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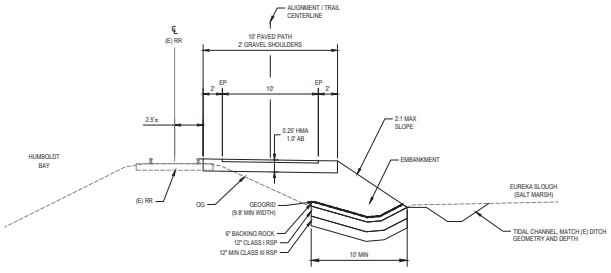

SEGMENT 3 TYPICAL SECTION : STA 9+06 TO STA 27+50

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Drafting Check	J.WOLF	Design Check	J.WO
Project Manager	J.WOLF	Date	9/2/2
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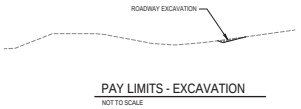
EXHIBIT NO. 5

Application 1-20-0560
HUMBOLDT COUNTY DPW
PROJECT PLANS (EXCERPTS)
(Page 1 of 35)

Plot Date: 2 September 2020 - 8:56 AM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\111101660_03_G003.dwg

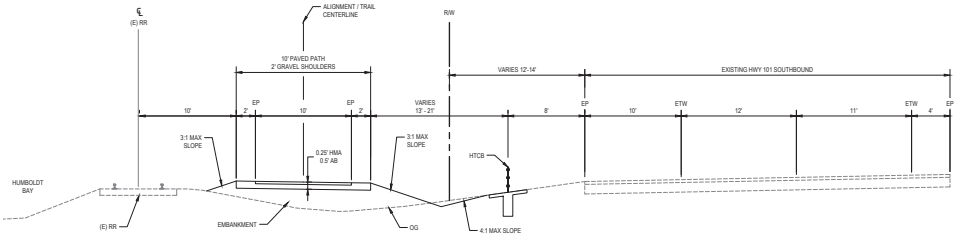


PAY LIMITS - EXCAVATION

NOT TO SCALE

PAY LIMITS - FILL

NOT TO SCALE



SEGMENT 4 TYPICAL SECTION: STA 27+50 TO STA 75+53

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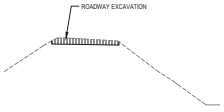
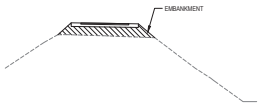


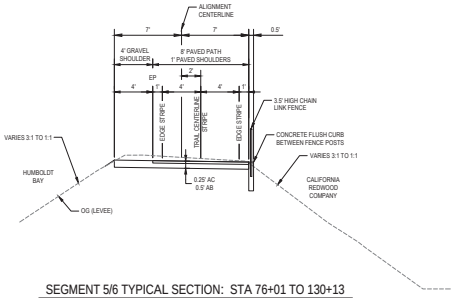
PAY LIMITS - EXCAVATION (TRAIL IN CUT)

NOT TO SCALE



PAY LIMITS - FILL (TRAIL IN FILL)

NOT TO SCALE



SEGMENT 5/6 TYPICAL SECTION: STA 76+01 TO 130+13

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Project Manager	J.WOLF	Date	9/2/2020
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Project: HUMBOLDT BAY TRAIL SOUTH

Title: TYPICAL SECTIONS

Project No. 11110166

Original Size: ANSI D

Sheet No. G-004

Sheet 4 of 60

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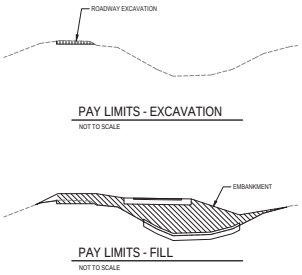
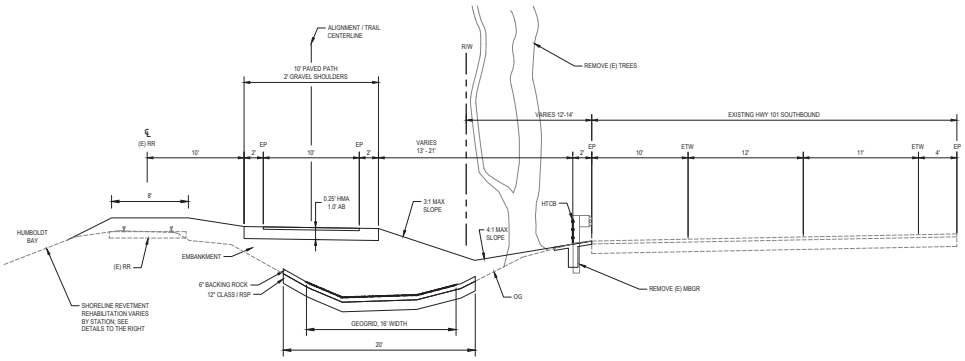
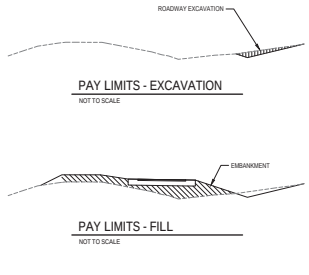
Exhibit 5
Page 2 of 35

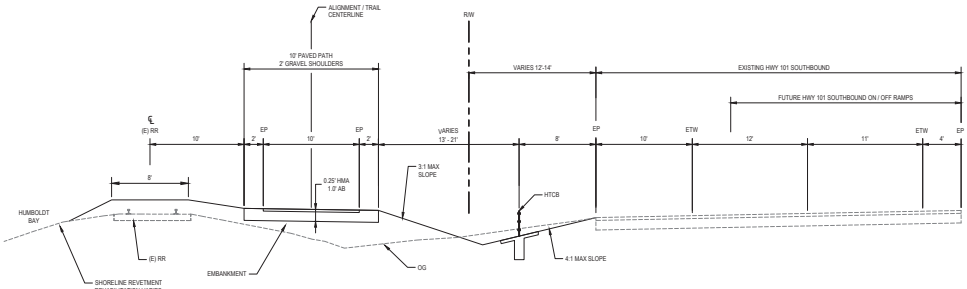




SEGMENT 7 TYPICAL SECTION: STA 131+83 TO STA 157+70

NOT TO SCALE





SEGMENT 8 TYPICAL SECTION: STA 157+70 TO STA 198+00

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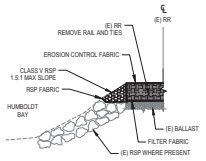
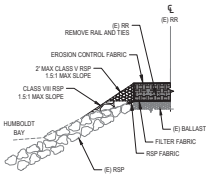


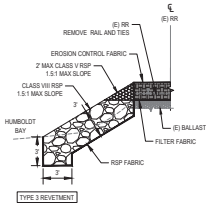
TYPE 1 REVETMENT

STATION RANGES:
133+00 - 137+00; 144+82 - 147+10; 156+17 - 157+15;
158+12 - 158+90; 160+00 - 161+10; 163+32 - 163+70;
168+12 - 175+67; 179+86 - 182+53; 185+36 - 189+10; 192+11 - 197+00



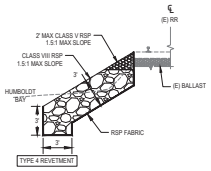
TYPE 2 REVETMENT

STATION RANGES:
139+54 - 144+82; 147+10 - 156+17; 158+96 - 160+00;
163+70 - 168+12; 175+67 - 179+86; 182+53 - 185+36; 189+15 - 192+11



TYPE 3 REVETMENT

STATION RANGES:
137+00 - 139+54; 157+15 - 158+12; 161+10 - 163+32



TYPE 4 REVETMENT

STATION RANGE:
34+70 - 36+13

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Project Manager	J.WOLF	Date	9/2/2020
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Project: HUMBOLDT BAY TRAIL SOUTH
Title: TYPICAL SECTIONS

Project No. 11110166

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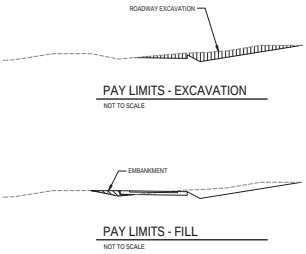

PAY LIMITS - EXCAVATION

NOT TO SCALE

PAY LIMITS - FILL

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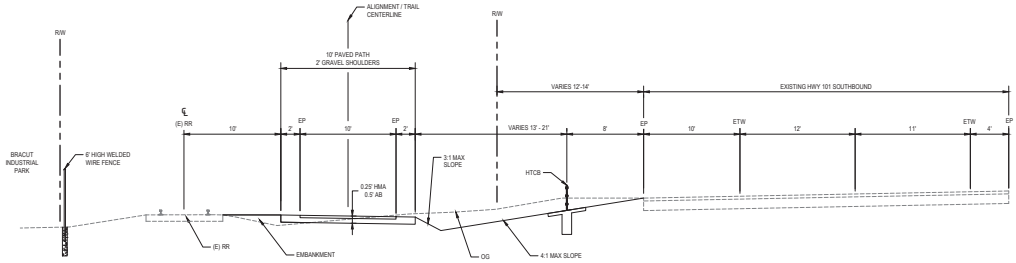

SEGMENT 9 TYPICAL SECTION: STA 198+00 TO STA 221+71 & STA 222+51 TO STA 224+31

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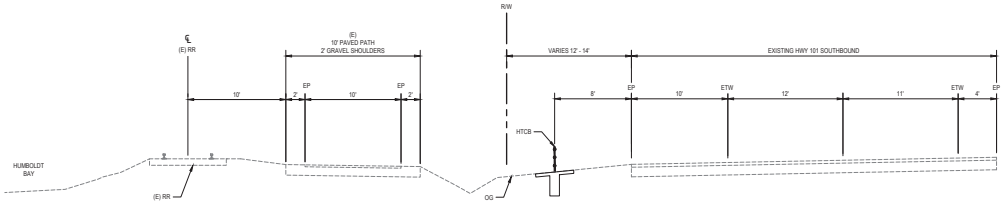

HBTN TYPICAL SECTION: STA 224+31 TO STA 276+50

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Project Manager	J.WOLF	Date	9/2/2020
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Project: HUMBOLDT BAY TRAIL SOUTH

Title: TYPICAL SECTIONS

Project No. 11110166

Original Size: ANSI D

Sheet No. G-006

Sheet 6 of 60

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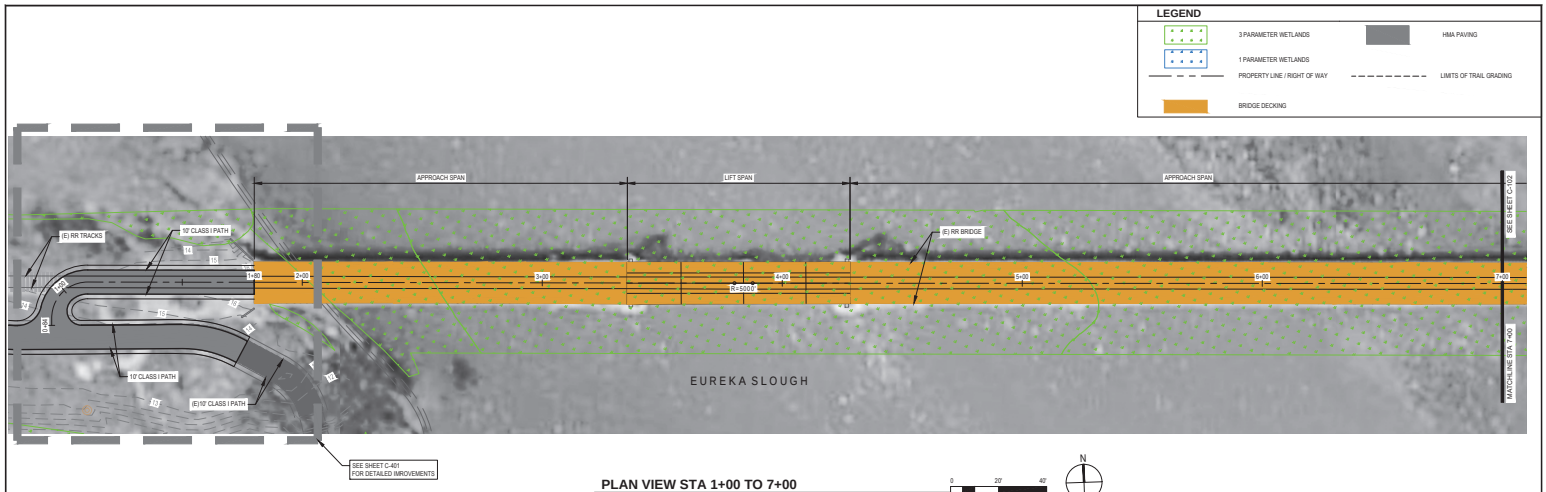
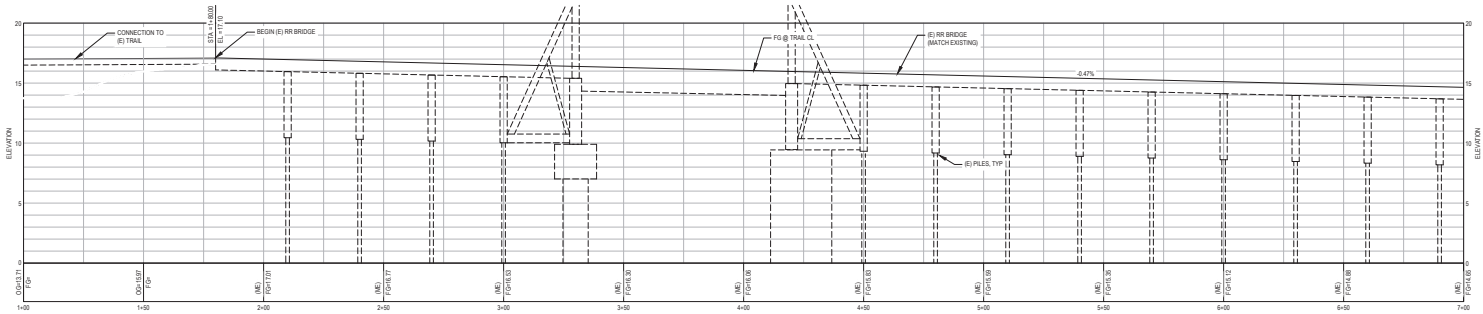


PLAN VIEW STA 1+00 TO 7+00

0 20' 40'

N



PROFILE VIEW STA 1+00 TO 7+00

0 20' 40' HORIZONTAL

0 4' 8' VERTICAL

60% DESIGN

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Project Manager	J.WOLF	Date	8/24/2020
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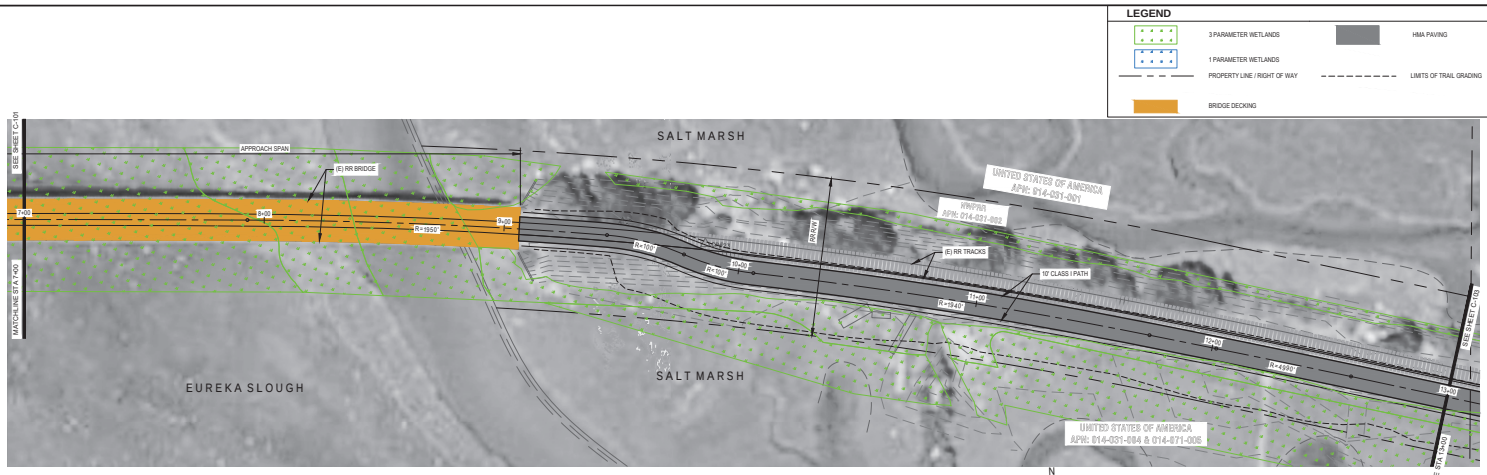
Project: HUMBOLDT BAY TRAIL SOUTH
Title: IMPROVEMENT PLAN & PROFILE STA 1+00 TO 7+00

Project No. 11110166

Original Size: ANSI D | Sheet No. C-101 | Sheet 7 of 60

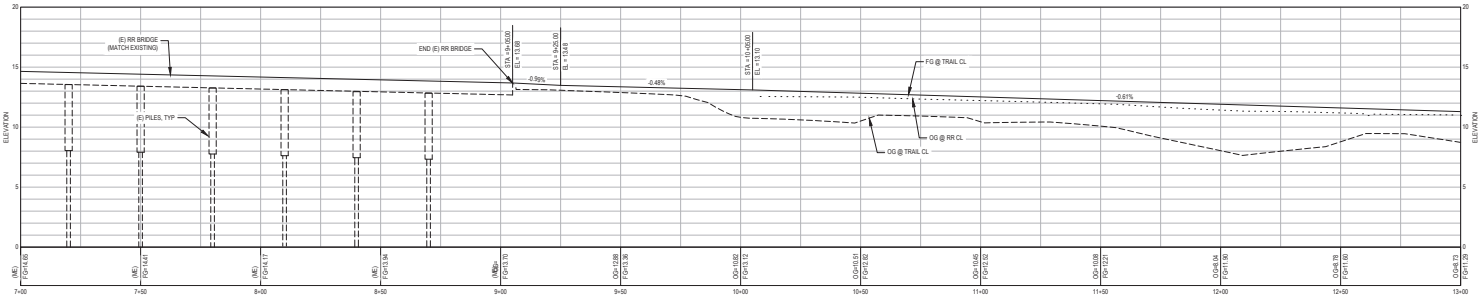
Plot Date: 24 August 2020 - 5:54 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_04-11_C101-108.dwg



PLAN VIEW STA 7+00 TO 13+00

0 20' 40'

N



PROFILE VIEW STA 7+00 TO 13+00

0 20' 40' HORIZONTAL

0 4' 8' VERTICAL

60% DESIGN
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Project Manager	J.WOLF	Date	8/24/2020
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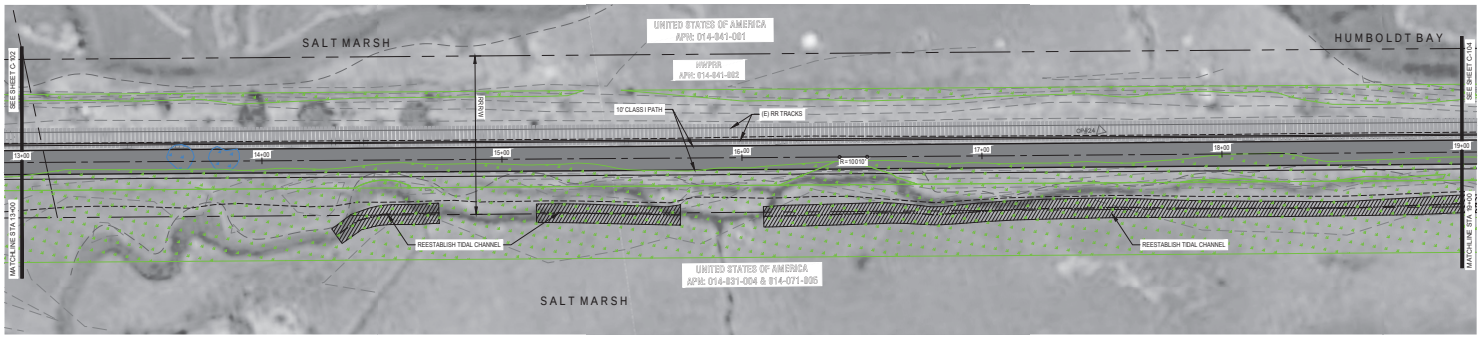
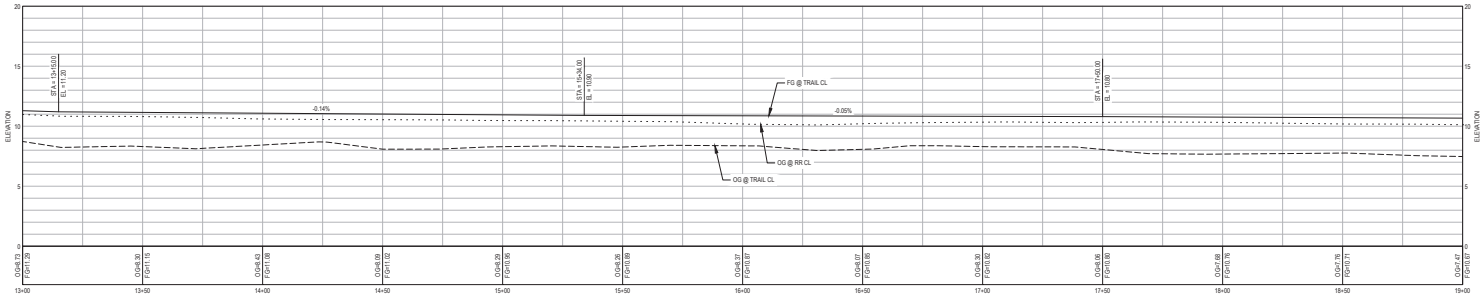
Client: COUNTY OF HUMBOLDT
Project: HUMBOLDT BAY TRAIL SOUTH
Title: IMPROVEMENT PLAN & PROFILE STA 7+00 TO 13+00
Project No. 11110166
Original Size: ANSI D
Sheet No. C-102
Sheet 8 of 60

Plot Date: 24 August 2020 - 5:54 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\11\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_04-11_C101-108.dwg



PLAN VIEW STA 13+00 TO 19+00



PROFILE VIEW STA 13+00 TO 19+00

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Project Manager	J.WOLF	Date	8/24/2020
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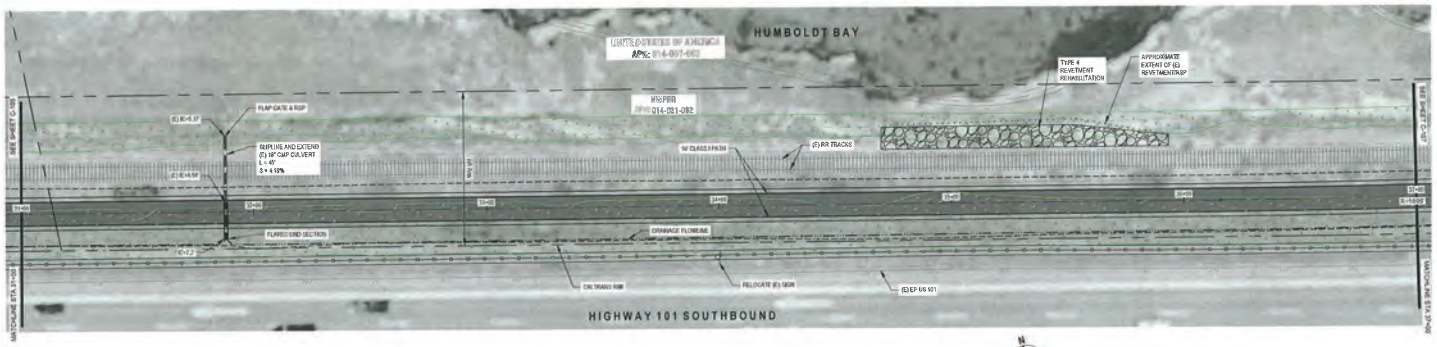
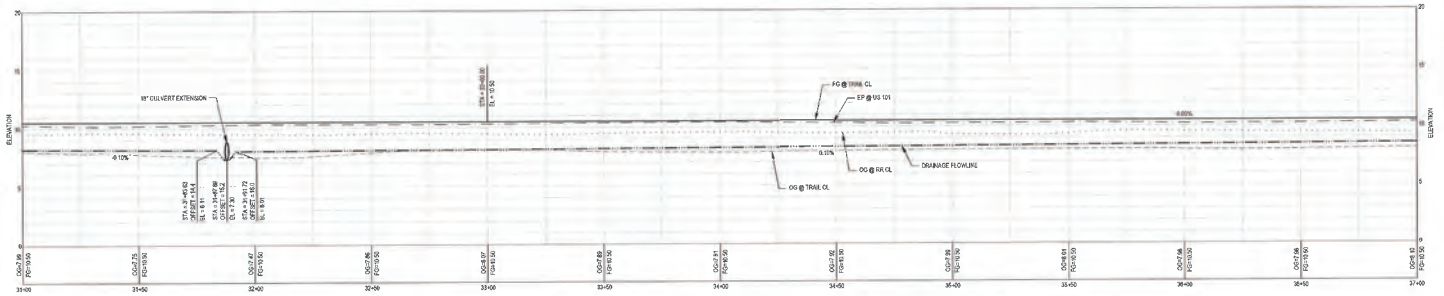
Project: HUMBOLDT BAY TRAIL SOUTH
Title: IMPROVEMENT PLAN & PROFILE STA 13+00 TO 19+00
Project No. 11110166
Original Size: ANSI D
Sheet No. C-103
Sheet 9 of 60

Plot Date: 24 August 2020 - 5:55 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_04-11_C101-108.dwg



PLAN VIEW STA 31+00 TO 37+00



PROFILE VIEW STA 31+00 TO 37+00

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Project Manager	J.WOLF	Date	12/17/2020
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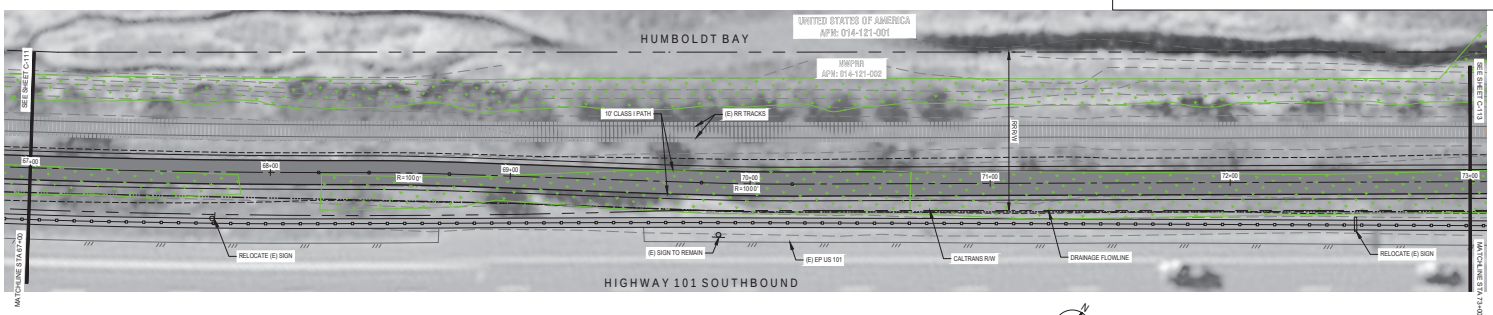
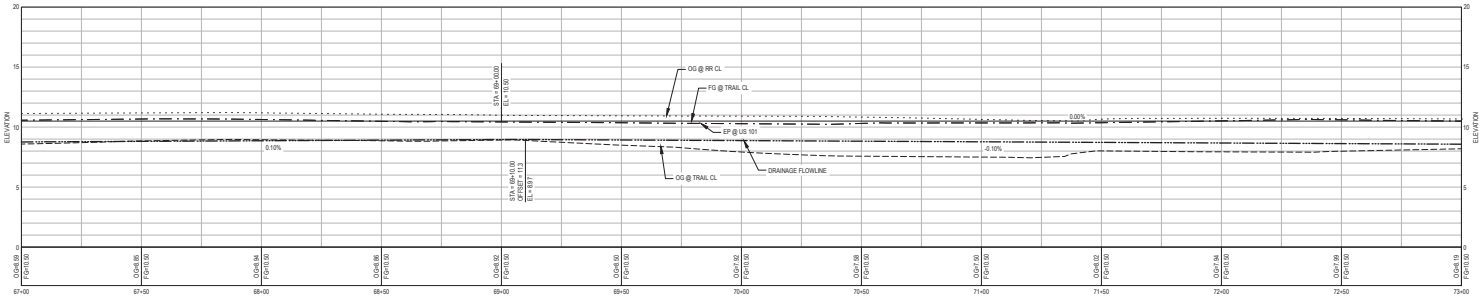
Client: COUNTY OF HUMBOLDT
Project: HUMBOLDT BAY TRAIL SOUTH
Title: IMPROVEMENT PLAN & PROFILE STA 31+00 TO 37+00
Project No: 11110166
Original Size: ANSI D
Sheet No: C-106
Sheet: 12 of 40

Exhibit 5
Page 8 of 35

Plot Date: 17 December 2020 - 12:41 PM



PLAN VIEW STA 67+00 TO 73+00



PROFILE VIEW STA 67+00 TO 73+00

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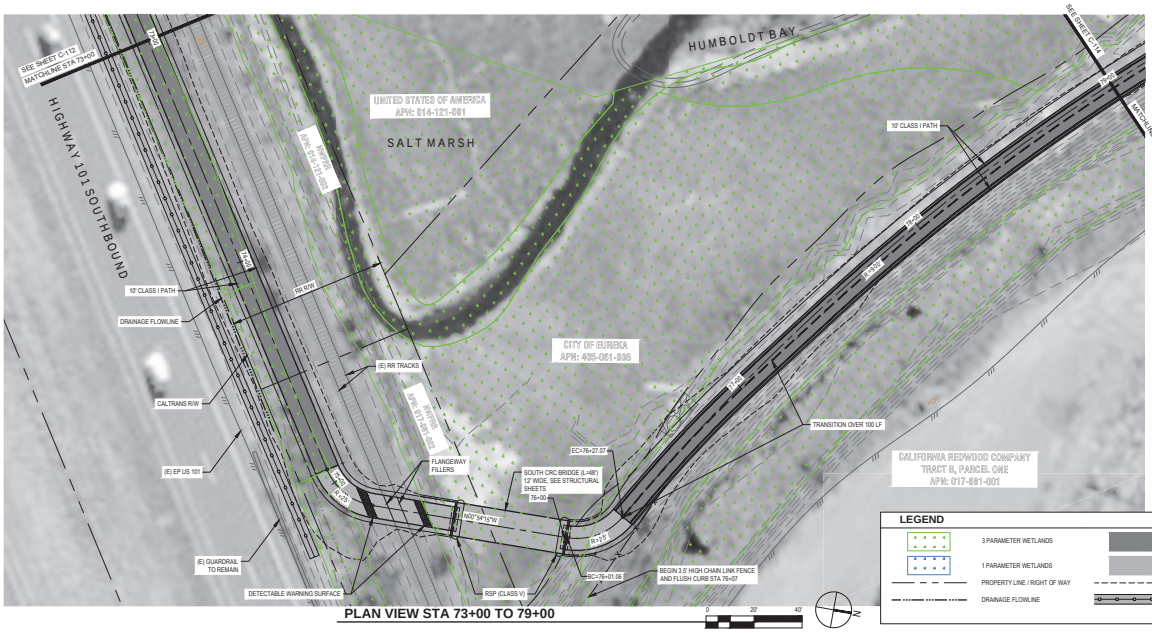
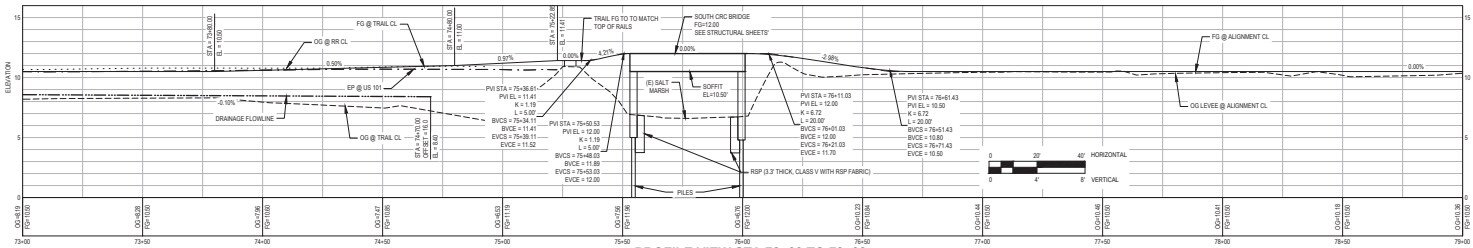
Title: IMPROVEMENT PLAN & PROFILE STA 67+00 TO 73+00
Project No. 11110166
Original Size: ANSI D
Sheet No. C-112
Sheet 18 of 60

Plot Date: 24 August 2020 - 6:04 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_12-19_C105-116.dwg



PLAN VIEW STA 73+00 TO 79+00



PROFILE VIEW STA 73+00 TO 79+00

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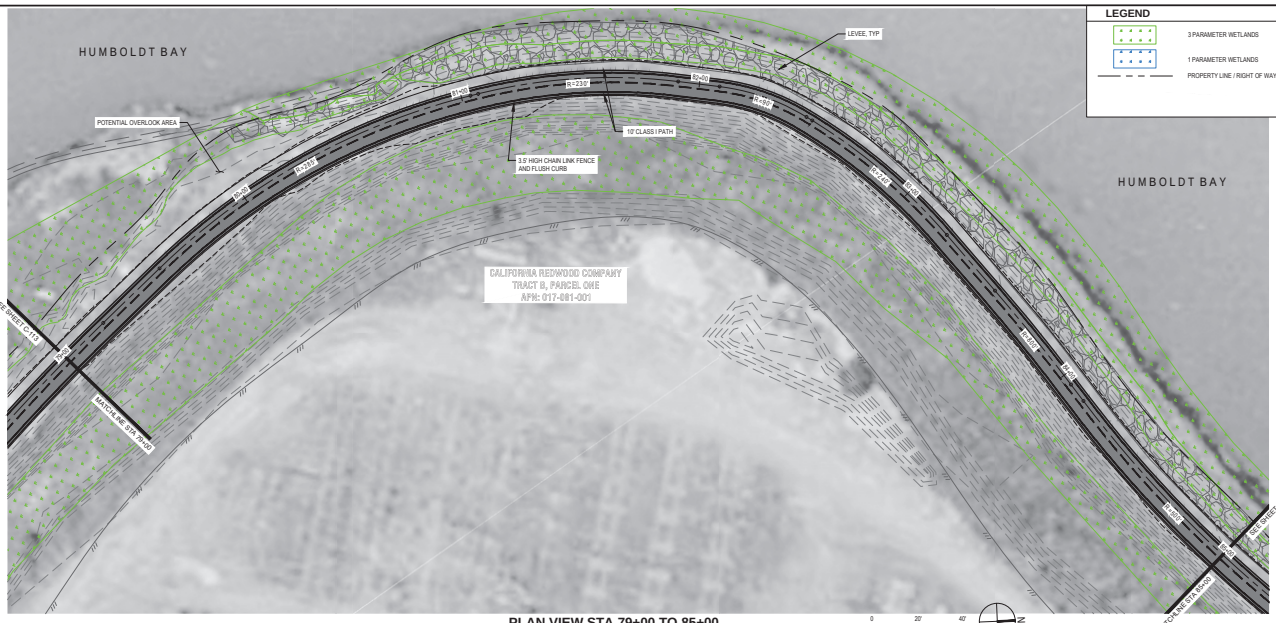
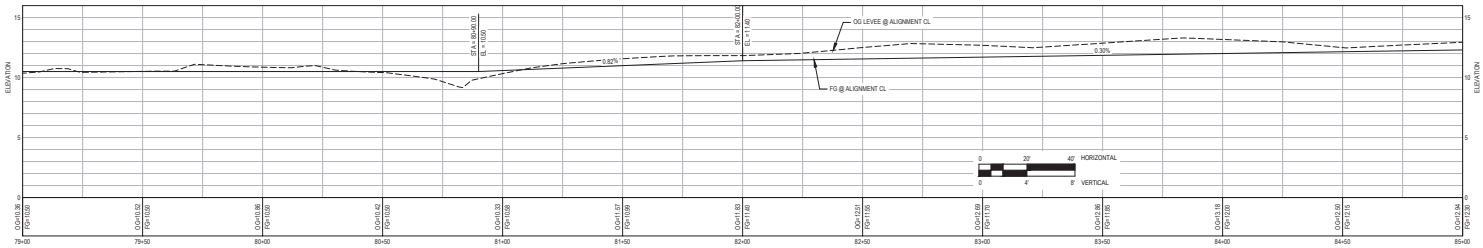
Project No. 11110166
Original Size: ANSI D
Sheet No. C-113
Sheet 19 of 60

Plot Date: 24 August 2020 - 6:05 PM
Plotted By: Owen Goode
Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_12-19_C105-116.dwg



PLAN VIEW STA 79+00 TO 85+00



PROFILE VIEW STA 79+00 TO 85+00

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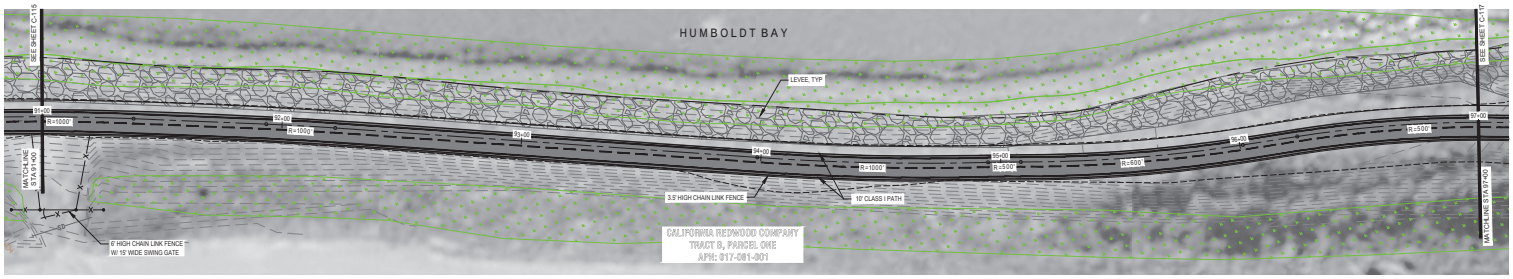
Project No. 11110166
Original Size: ANSI D
Sheet No. C-114
Sheet 20 of 60

Plot Date: 24 August 2020 - 6:06 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_12-16_C105-116.dwg

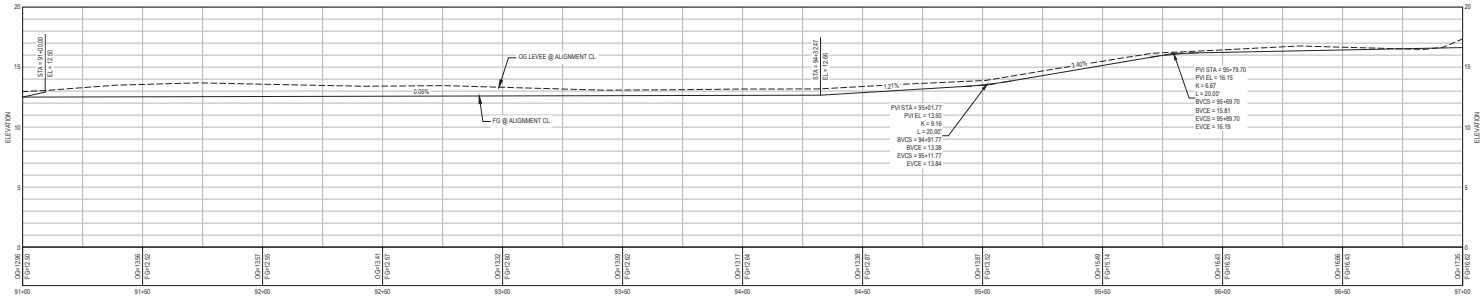
LEGEND

3 PARAMETER WETLANDS
1 PARAMETER WETLANDS
PROPERTY LINE / RIGHT OF WAY
ASPHALT PAVING
LIMITS OF TRAIL GRADING



PLAN VIEW STA 91+00 TO 97+00

0 20' 40'



PROFILE VIEW STA 91+00 TO 97+00

0 20' 40' HORIZONTAL
0 4' 8' VERTICAL

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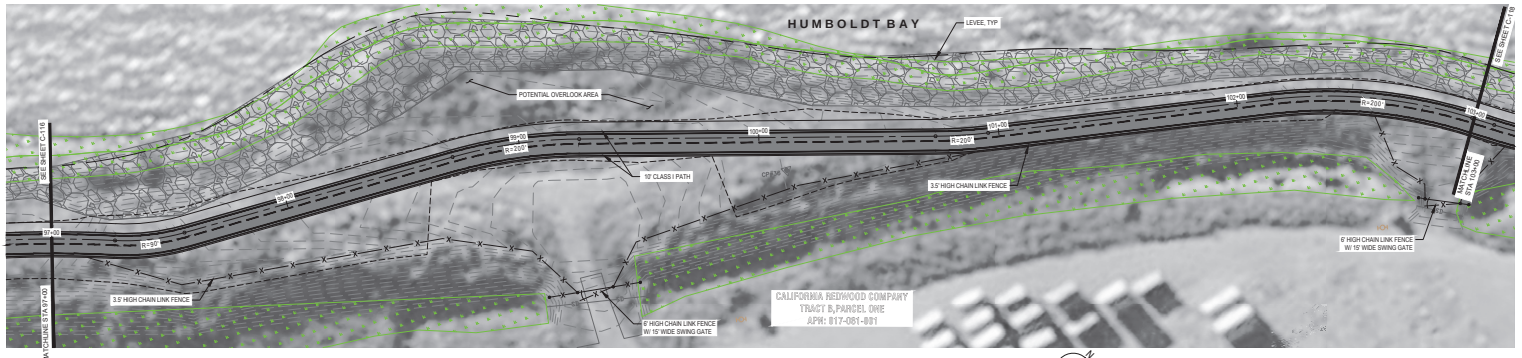
Project No. 11110166
Original Size: ANSI D
Sheet No. C-116
Sheet 22 of 60

Plot Date: 24 August 2020 - 6:07 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_12-16_C105-116.dwg

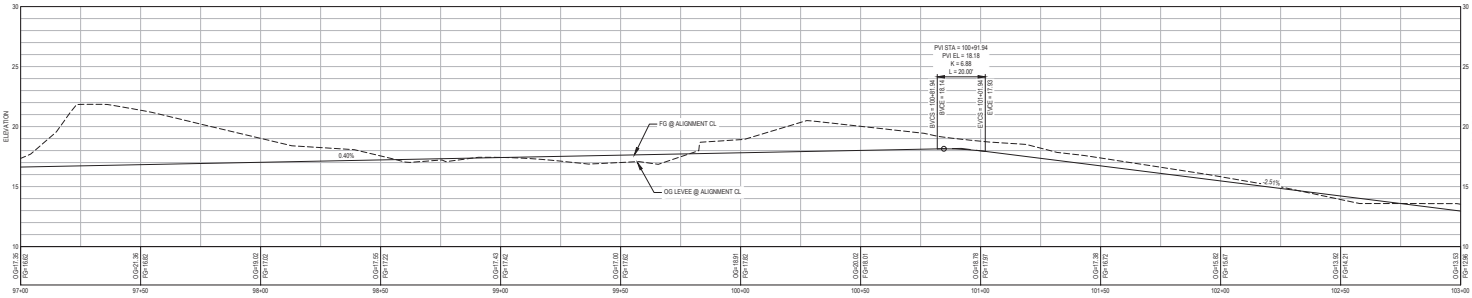
LEGEND

3 PARAMETER WETLANDS
ASPHALT PAVING
1 PARAMETER WETLANDS
PROPERTY LINE / RIGHT OF WAY
LIMITS OF TRAIL GRADING



PLAN VIEW STA 97+00 TO 103+00

0 20' 40'



PROFILE VIEW STA 97+00 TO 103+00

0 20' 40' HORIZONTAL
0 4' 8' VERTICAL

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Project No. 11110166
Original Size: ANSI D
Sheet No. C-117
Sheet 23 of 60

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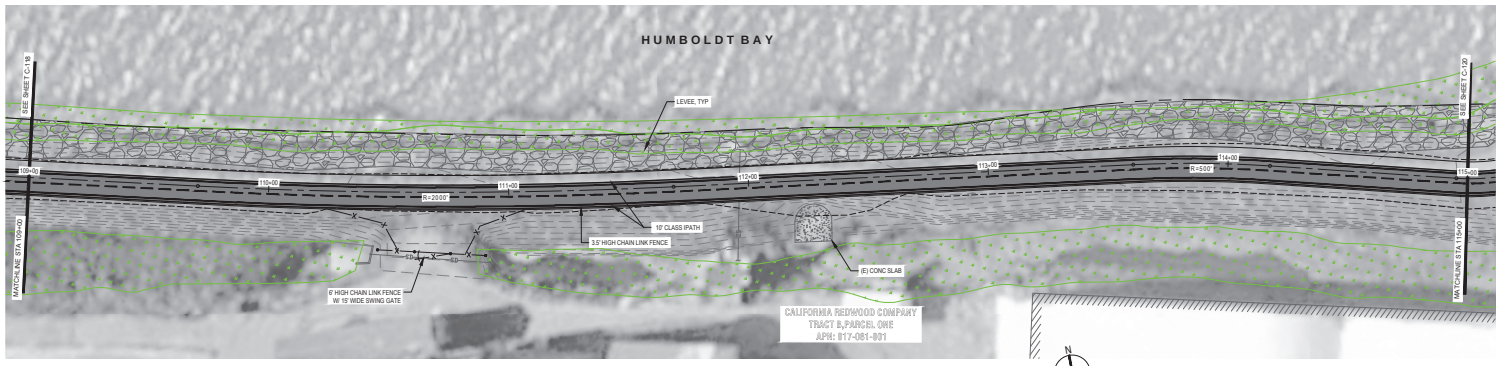
LEGEND

3 PARAMETER WETLANDS
ASPHALT PAVING
1 PARAMETER WETLANDS
PROPERTY LINE / RIGHT OF WAY
LIMITS OF TRAIL GRADING



PLAN VIEW STA 109+00 TO 115+00

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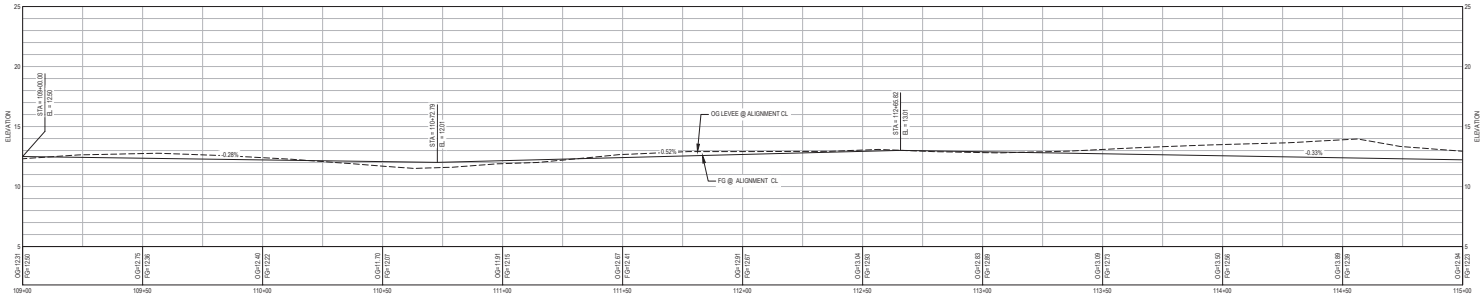

PROFILE VIEW STA 109+00 TO 115+00

0 20' 40' HORIZONTAL
0 4' 8' VERTICAL

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Project No. 11110166
Original Size: ANSI D
Sheet No. C-119
Sheet 25 of 60

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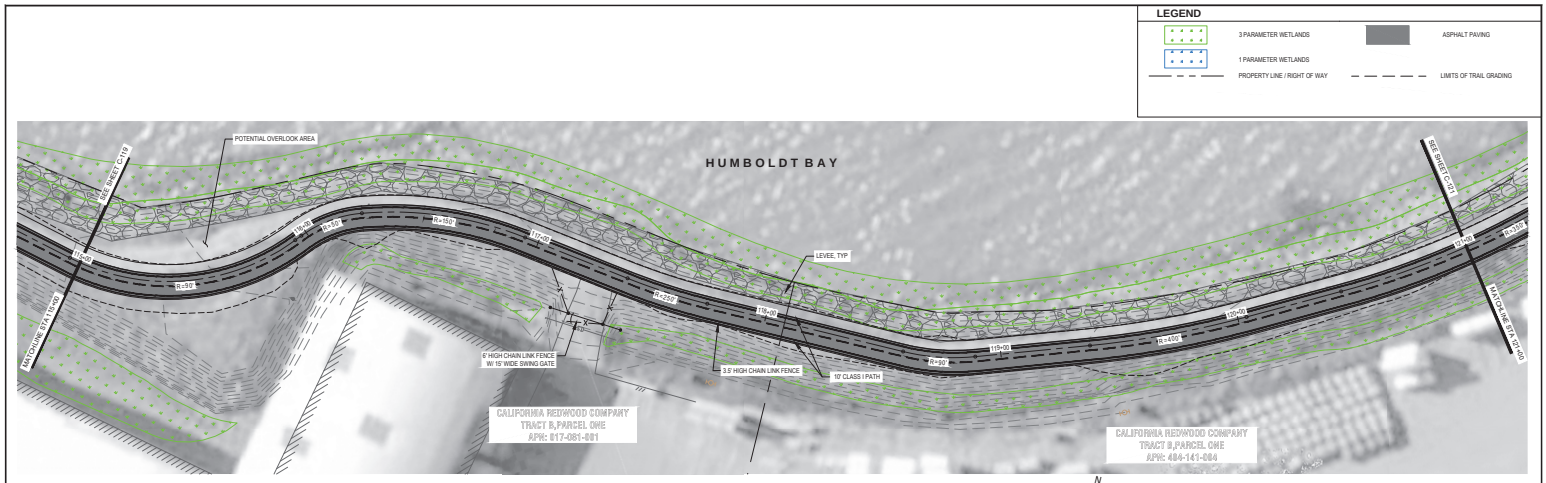
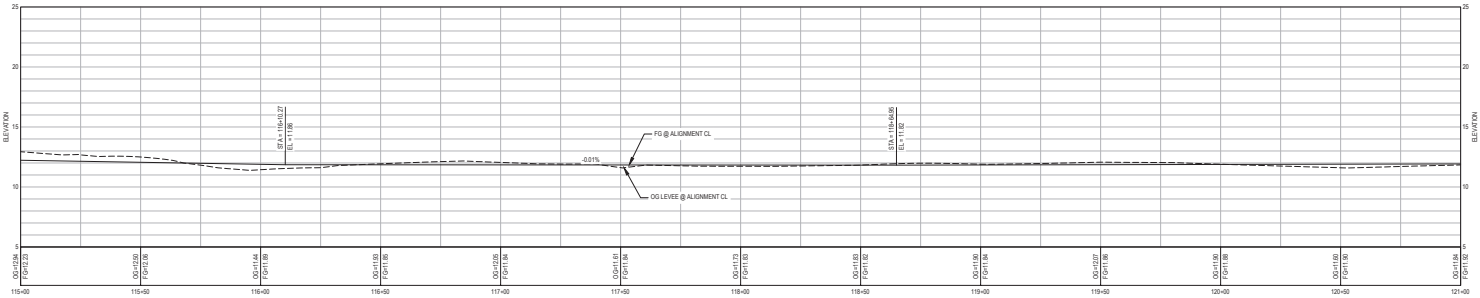


PLAN VIEW STA 115+00 TO 121+00



PROFILE VIEW STA 115+00 TO 121+00

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Title: IMPROVEMENT PLAN & PROFILE STA 115+00 TO 121+00
Project No. 11110166
Original Size: ANSI D
Sheet No. C-120
Sheet 26 of 60

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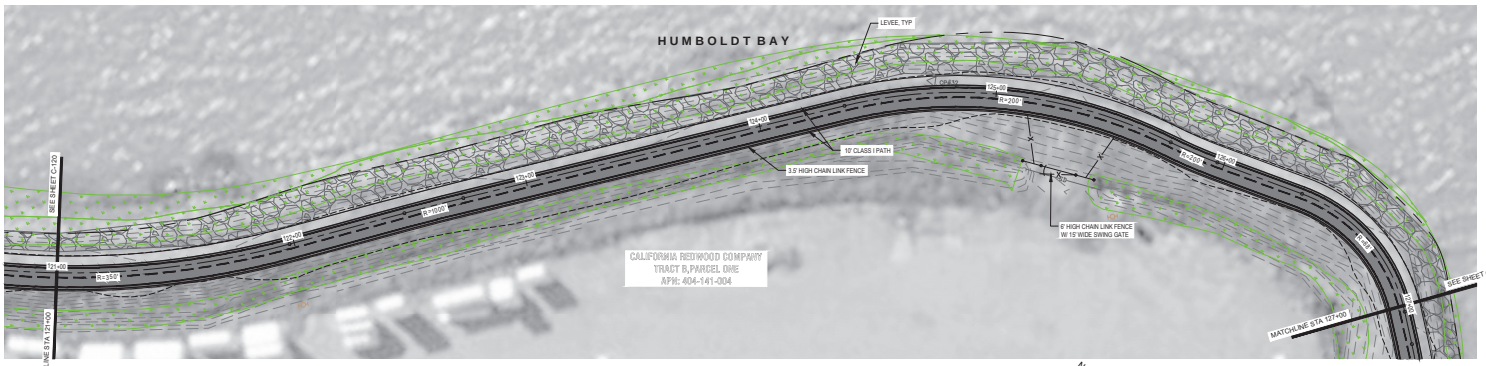
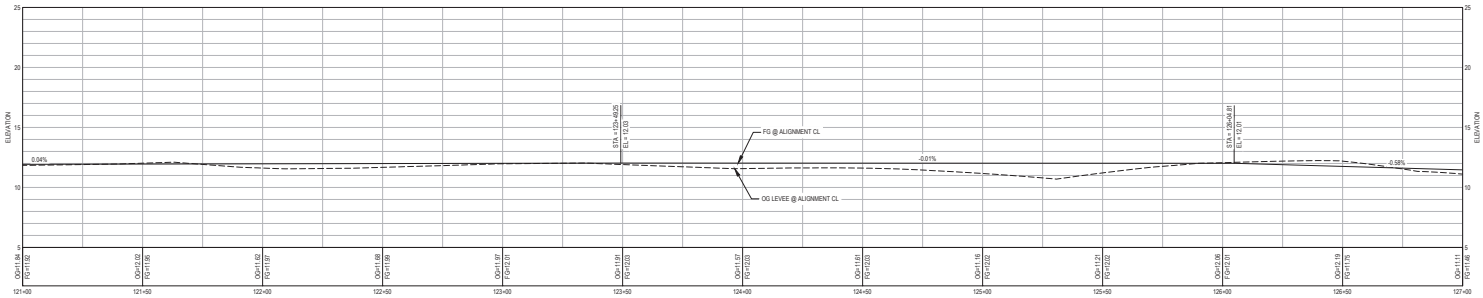
LEGEND

3 PARAMETER WETLANDS
1 PARAMETER WETLANDS
PROPERTY LINE / RIGHT OF WAY
ASPHALT PAVING
LIMITS OF TRAIL GRADING



PLAN VIEW STA 121+00 TO 127+00

0 20' 40'



PROFILE VIEW STA 121+00 TO 127+00

0 20' 40' HORIZONTAL
0 4' 8' VERTICAL

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Project Manager	J.WOLF	Date	8/24/2020
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Title: IMPROVEMENT PLAN & PROFILE STA 121+00 TO 127+00
Project No. 11110166
Original Size: ANSI D
Sheet No. C-121
Sheet 27 of 60

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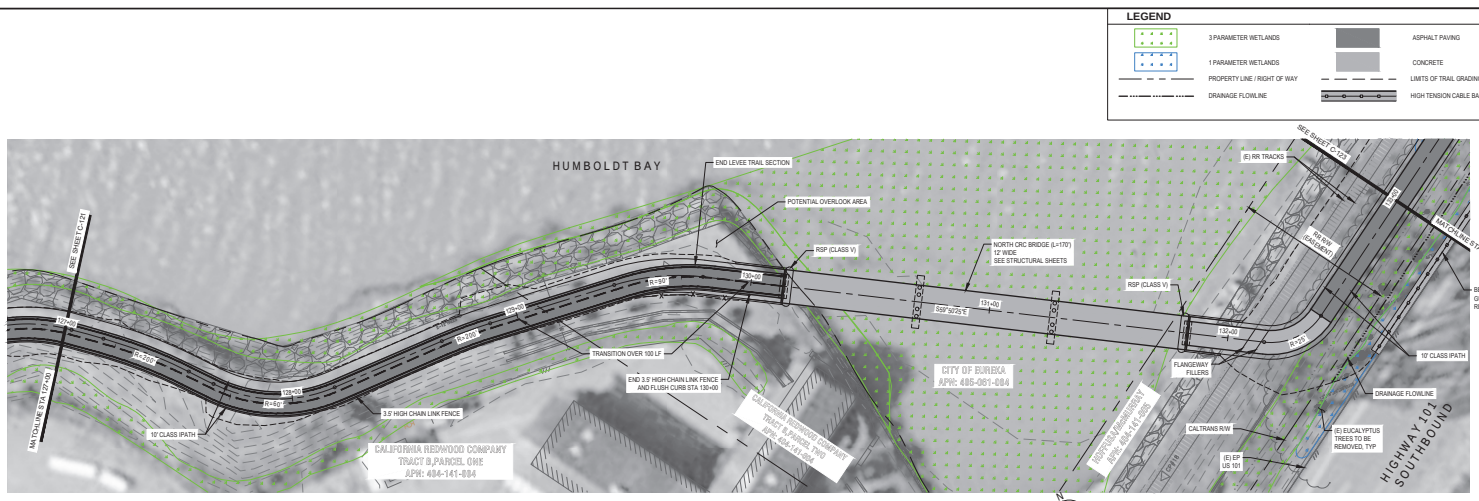

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Project Manager	J.WOLF	Date	8/24/2020
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Project: HUMBOLDT BAY TRAIL SOUTH

Title: IMPROVEMENT PLAN & PROFILE STA 127+00 TO 133+00

Project No. 11110166

Original Size: ANSI D

Sheet No. C-122

Sheet 28 of 60

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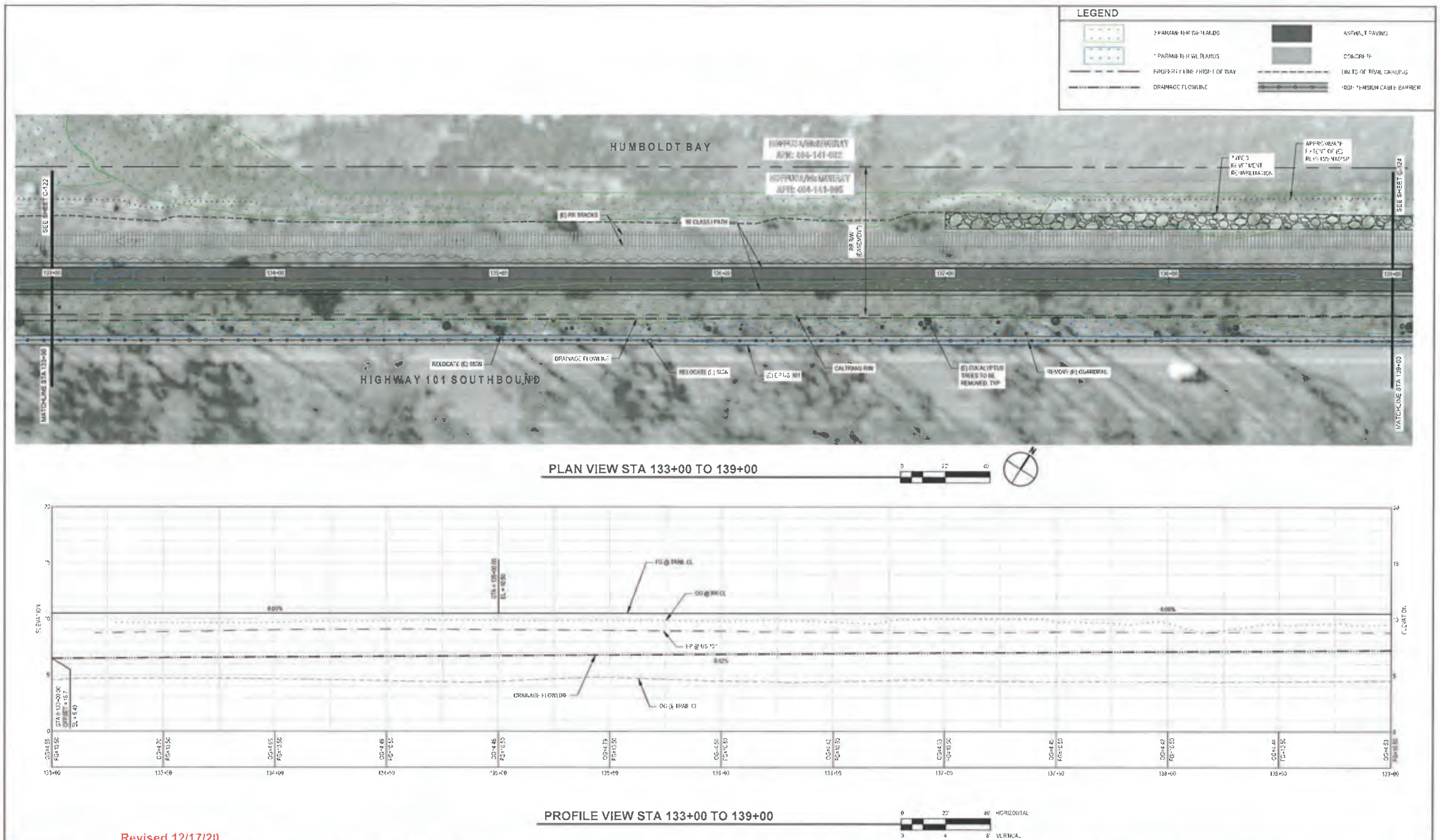

Revised 12/17/20

60% DESIGN
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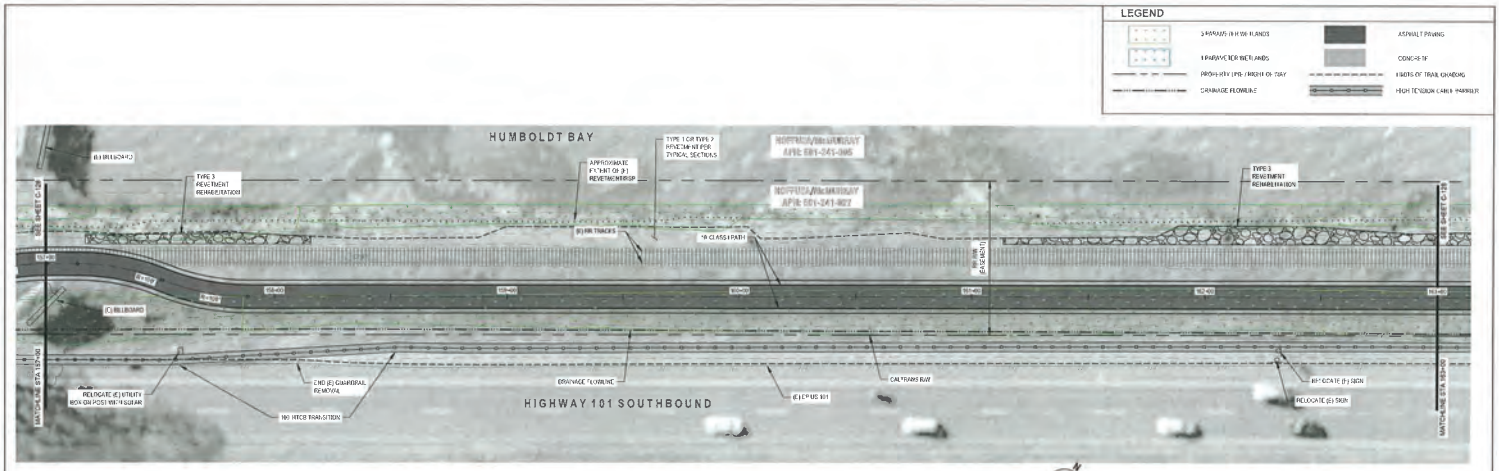
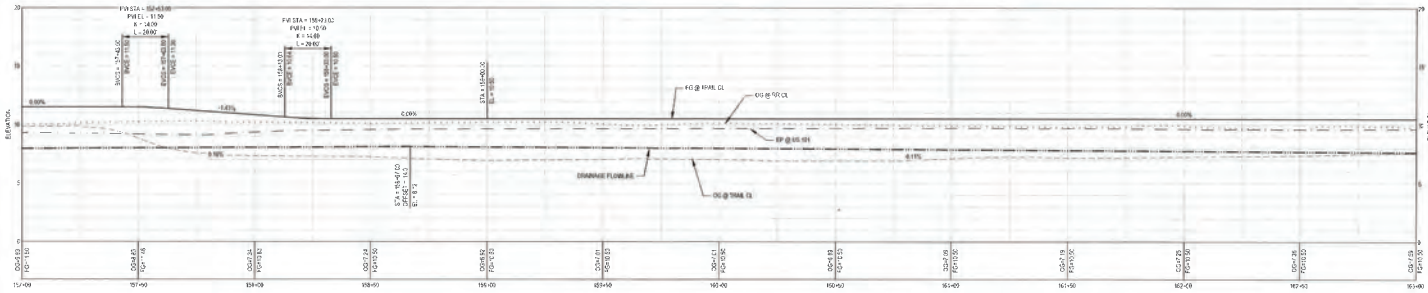
Client	COUNTY OF HUMBOLDT
Project	HUMBOLDT BAY TRAIL SOUTH
Title	IMPROVEMENT PLAN & PROFILE STA 133+00 TO 139+00
Project No.	11110166
Original Size	ANSI D
Sheet No.	C-123

Exhibit 5
Page 18 of 35



PLAN VIEW STA 157+00 TO 163+00



PROFILE VIEW STA 157+00 TO 163+00

Revised 12/17/20

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Project Manager	J.WOLF	Date	12/15/2020
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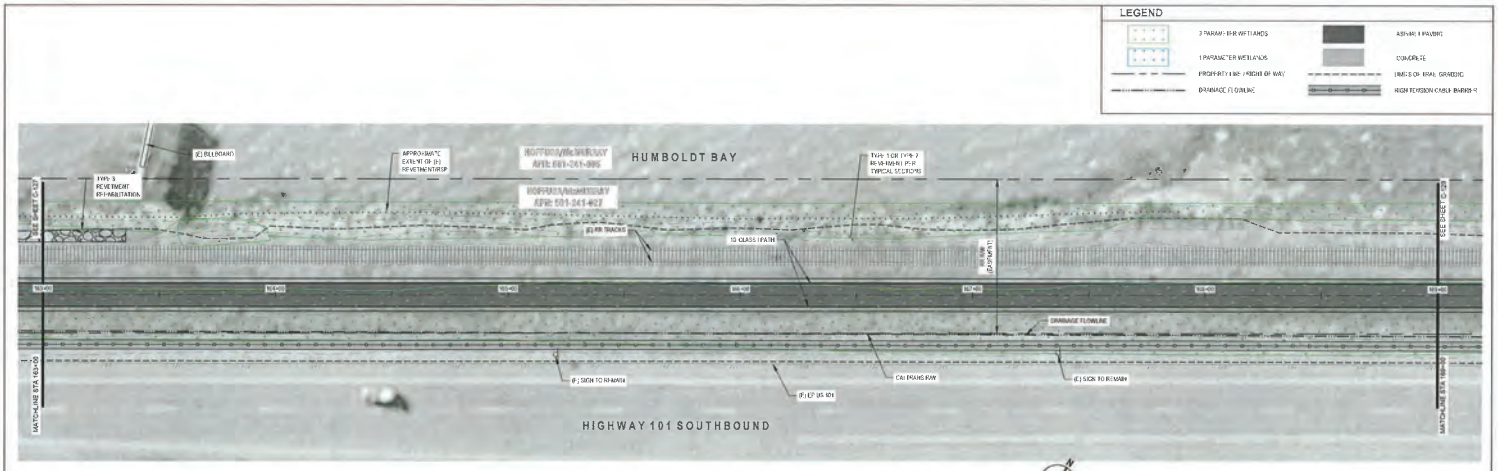
Project: HUMBOLDT BAY TRAIL SOUTH
Title: IMPROVEMENT PLAN & PROFILE STA 157+00 TO 163+00

Project No. 11110165
Drawing Unit: ANSI D
Sheet No.: C-127
Sheet 33 of 60



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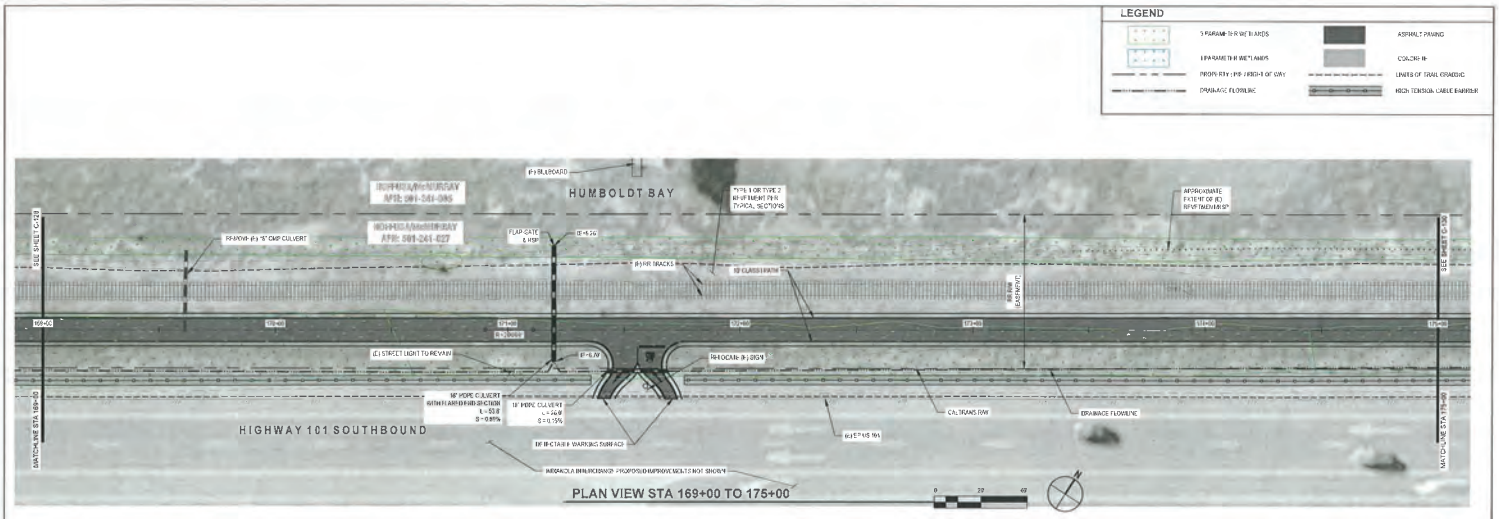
HUMBOLDT BAY TRAIL SOUTH
IMPROVEMENT PLAN & PROFILE STA 163+00 TO 169+00

Sheet No. C-128



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Title: IMPROVEMENT PLAN & PROFILE STA 169+00 TO 175+00
Project No. 11110166
Drawing No. C-129
ANSI D
Sheet 25 of 60

Exhibit 5
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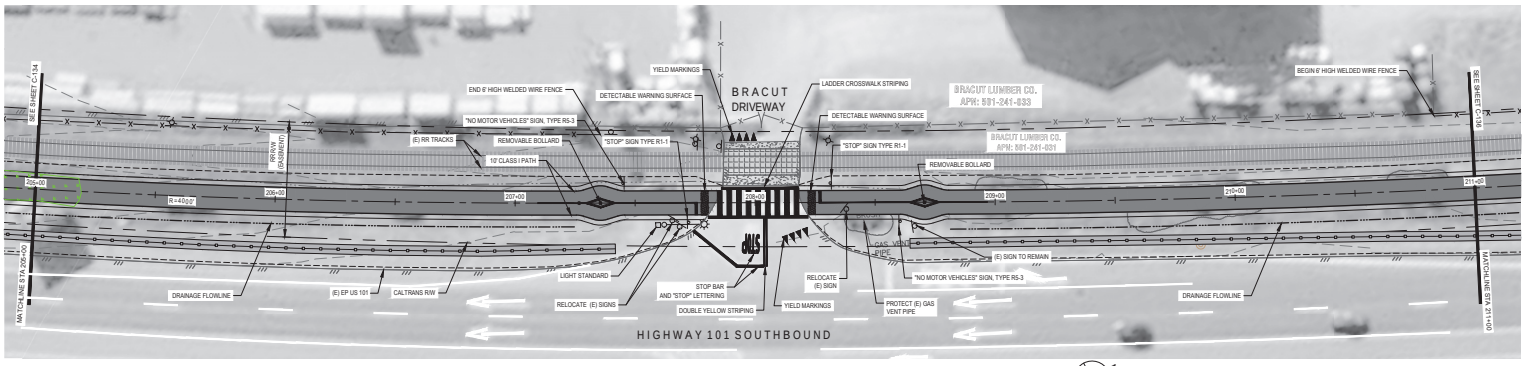
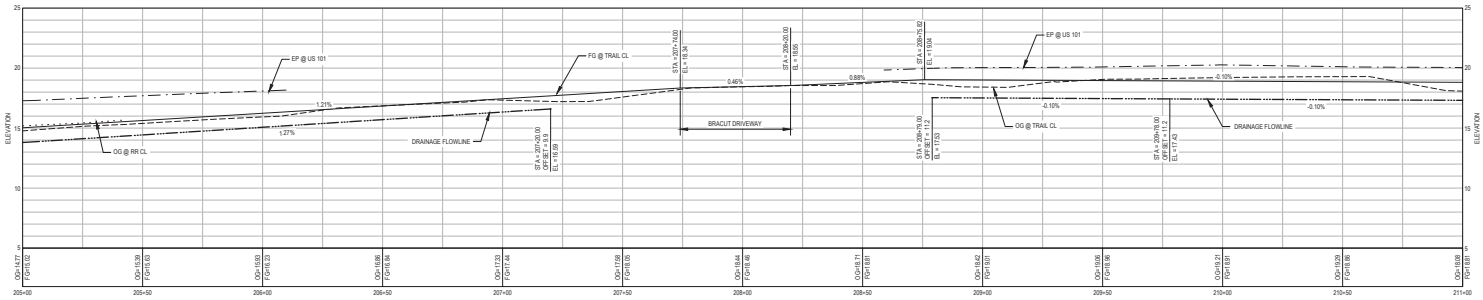


PLAN VIEW STA 205+00 TO 211+00



PROFILE VIEW STA 205+00 TO 211+00

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Project No. 11110166
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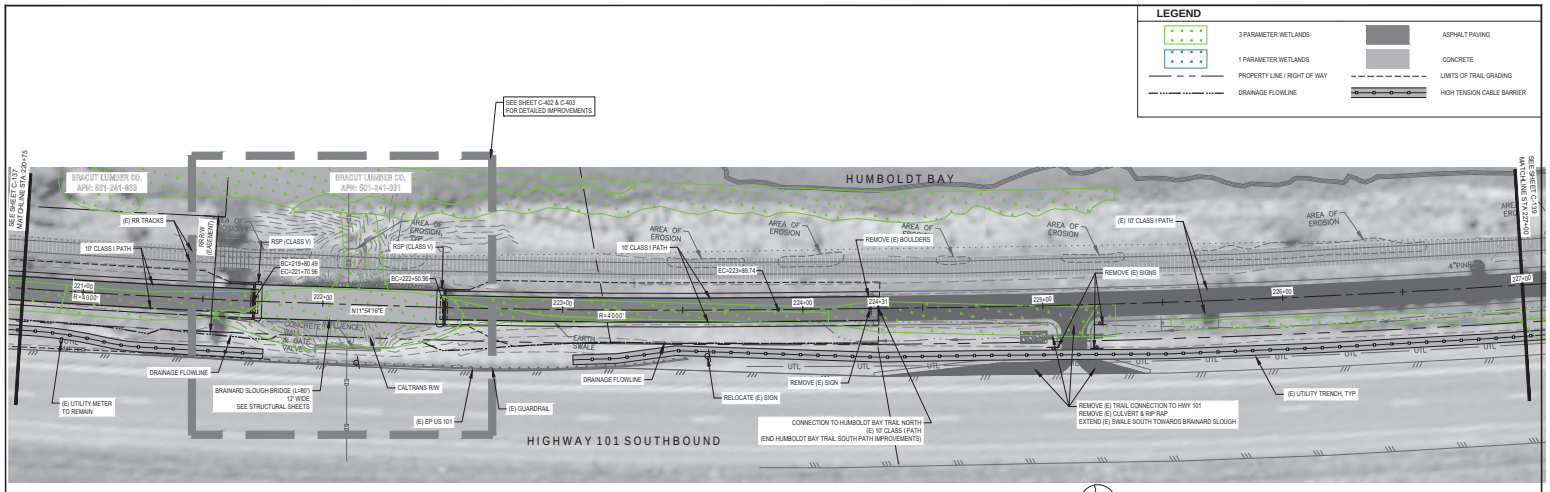
Sheet No. C-135
Sheet 41 of 60

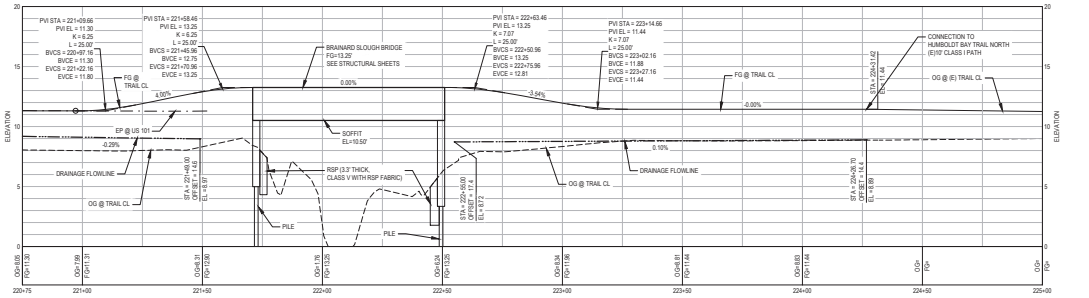
Plot Date: 24 August 2020 - 6:31 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\11\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_34-41_C131-138.dwg

Exhibit 5
Page 22 of 35



PLAN VIEW STA 220+75 TO 227+00

0 20' 40'



PROFILE VIEW STA 220+75 TO 225+00

0 20' 40' HORIZONTAL

0 4' 8' VERTICAL

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Project No. 11110166
Original Size: ANSI D
Sheet No. C-138
Sheet 44 of 60

Plot Date: 2 September 2020 - 8:51 AM Plotted By: Owen Goode Filename: I:\ghdnet\ghd\US\Eureka\Projects\11\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_34-41_C131-138.dwg

Exhibit 5
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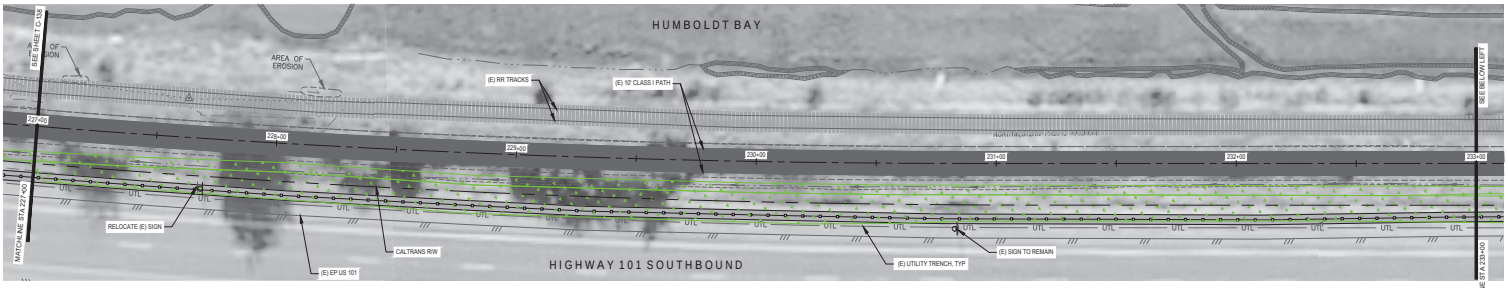

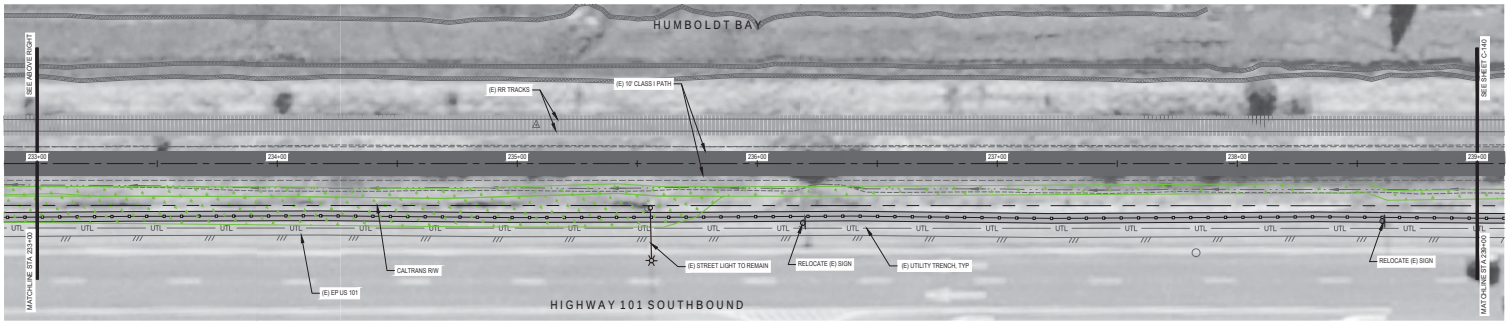

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0 1"

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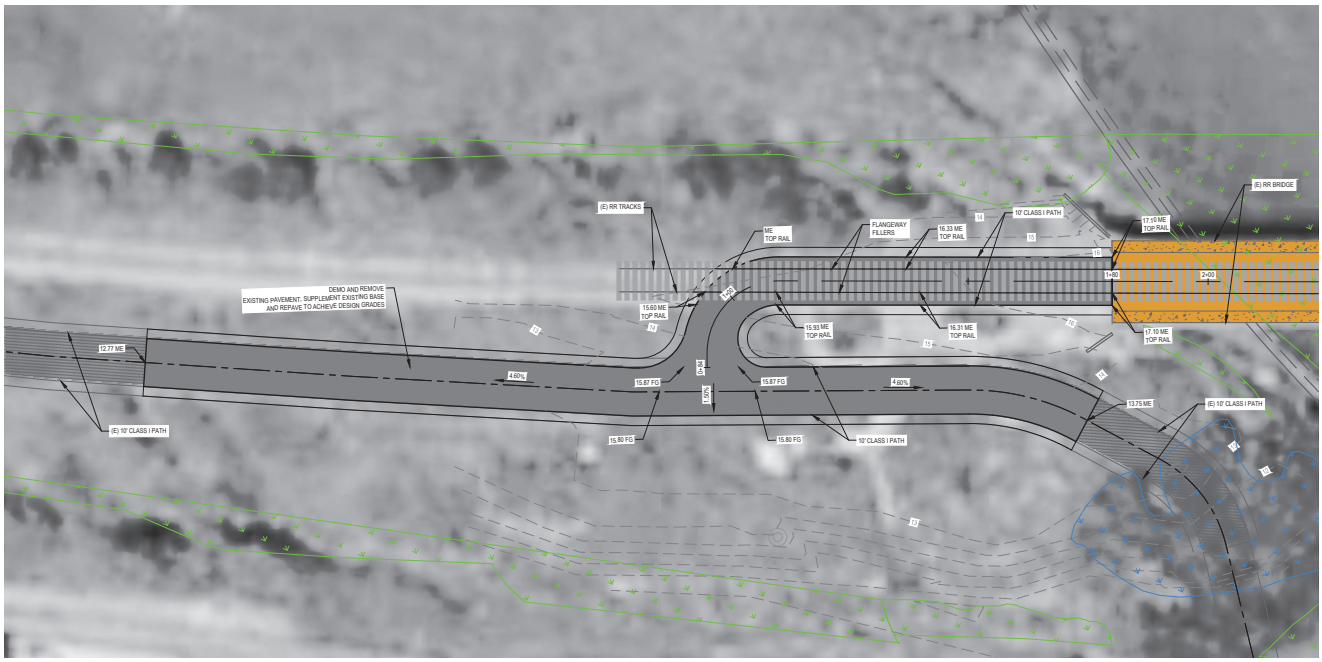
Title: IMPROVEMENT PLAN STA 227+00 TO 239+00

Project No. 11110166

Original Size: ANSI D | Sheet No. C-139 | Sheet 45 of 60

Plot Date: 24 August 2020 - 6:38 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_42-46_C135-43.dwg



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Project No. 11110166
Original Size: ANSI D
Sheet No. C-401
Sheet 50 of 60

Plot Date: 24 August 2020 - 6:47 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\11\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_50-52_C-401-C-403.dwg

Exhibit 5
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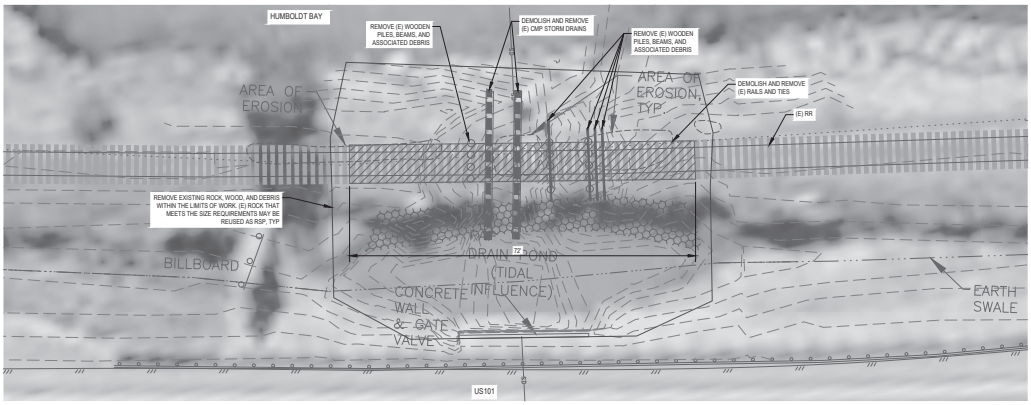
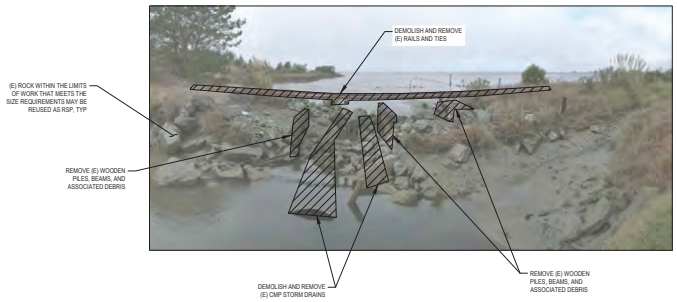


BRAINARD SLOUGH DEMOLITION



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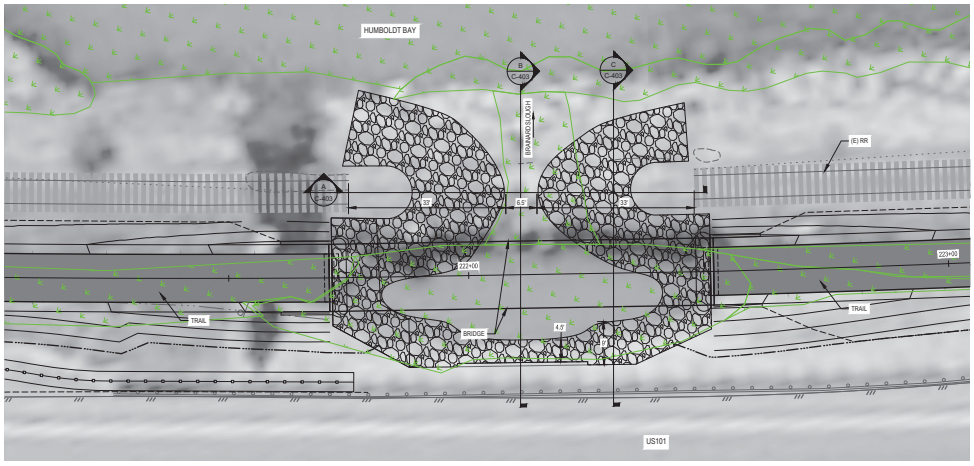
Title: BRAINARD SLOUGH DEMOLITION
Project No. 11110166
Original Size: ANSI D
Sheet No. C-402
Sheet 51 of 60

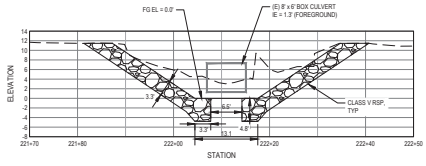
Plot Date: 24 August 2020 - 6:48 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\111\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_50-52_C-401-C-403.dwg



BRAINARD SLOUGH IMPROVEMENTS

0 10' 20'

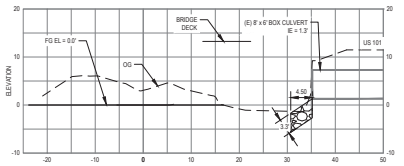
NOTE:
BRIDGE DECKING NOT SHOWN FOR CLARITY



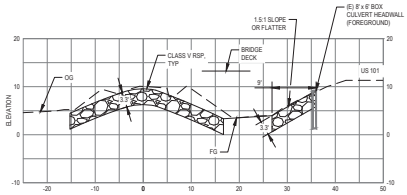
A LEVEE PROFILE AT TRAIL STA 221+70 TO STA 222+50

0 10' 20' HORIZONTAL

0 10' 20' VERTICAL



B LEVEE CROSS-SECTION AT STA 222+11
BRAINARD SLOUGH PROFILE
SCALE: 1" = 10'



C LEVEE CROSS-SECTION AT STA 222+32
SCALE: 1" = 10'

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Title: BRAINARD SLOUGH IMPROVEMENTS
Project No. 11110166
Original Size: ANSI D
Sheet No. C-403
Sheet 52 of 60

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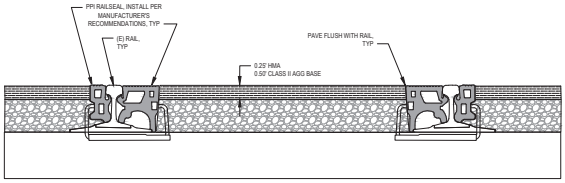
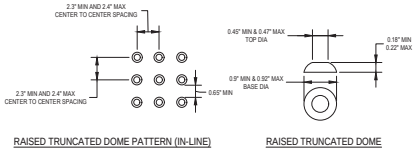


TYPICAL RAILROAD CROSSING DETAIL

NOT TO SCALE



RAISED TRUNCATED DOME PATTERN (IN-LINE)

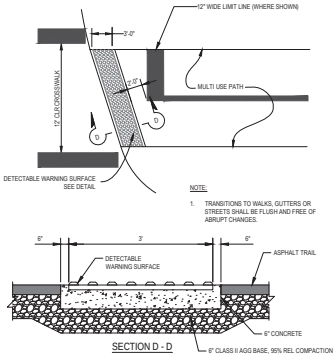
RAISED TRUNCATED DOME

NOTE:

1. CURB RAMPS SHALL HAVE A DETECTABLE WARNING SURFACE THAT EXTENDS THE FULL WIDTH AND 2'-0" DEPTH OF RAMP. SEE RAMP DETAILS ON THIS SHEET FOR DETECTABLE WARNING LAYOUT.
2. THE EDGE OF THE DETECTABLE WARNING SHALL BE BETWEEN 6" AND 8" AWAY FROM THE STREET GUTTER FLOWLINE EXCEPT FOR PARALLEL RAMP CONSTRUCTION, WHERE THE DETECTABLE WARNING SURFACE SHALL BE BETWEEN 0" AND 2" AWAY FROM THE STREET GUTTER FLOWLINE.
3. DETECTABLE WARNING SHALL BE A PREFORMED MATERIAL AS APPROVED BY THE ENGINEER. THE DETECTABLE WARNING SHALL BE CAST-IN, NOT SURFACE APPLIED UNLESS NOTED OTHERWISE. THE USE OF CONCRETE STAMPING IS NOT PERMITTED. NEW RAMPS SHALL BE CAST-IN-PLACE AND EXISTING RAMPS SHALL BE SURFACE-APPLIED.
4. DETECTABLE WARNING SURFACE SHALL BE FEDERAL YELLOW.

DETECTABLE WARNING SURFACE DETAILS

NOT TO SCALE



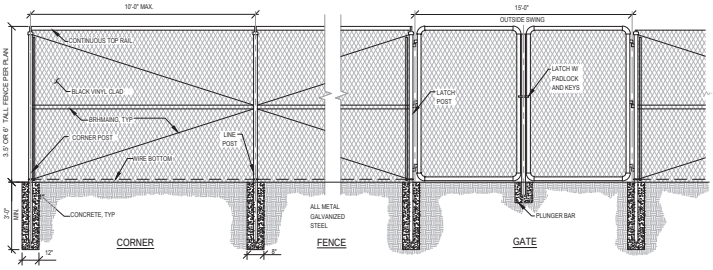
NOTE:

1. TRANSITIONS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.

SECTION D - D

DETECTABLE WARNING SURFACE AT VEHICLULAR CROSSING DETAILS

NOT TO SCALE



NOTE:
MATCH COMPONENTS WHEN EXTENDING, MODIFYING OR CONNECTING TO EXISTING (UNLESS OTHERWISE NOTED).

TYPICAL CHAINK LINK FENCE AND GATE DETAIL

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Title: CIVIL DETAILS
Project No. 11110166
Original Size: ANSI D
Sheet No. C-501
Sheet 53 of 60

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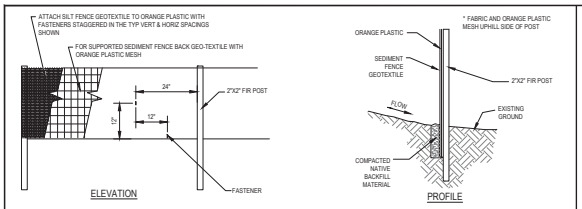
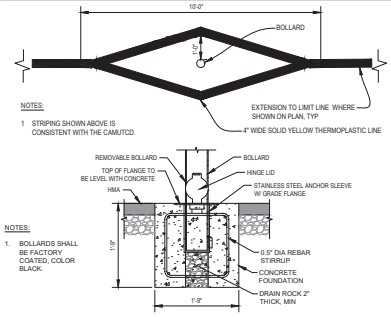


NOTES:

1. FILTER FABRIC SHALL BE INSTALLED IN A CONTINUOUS ROLL TO AVOID THE USE OF JOINTS. WHERE JOINTS ARE NECESSARY SPLICE FABRIC TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6" OVERLAP. SECURELY FASTEN BOTH ENDS TO THE POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6' APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12".
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE AND 6" DEEP ALONG THE LINE OF POSTS UPHILL FROM THE BARRIER. TRENCH SHALL FOLLOW THE CONTOUR.
4. TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL.
5. INSPECT AND REPAIR AFTER EACH RAINFALL. INSPECT DAILY DURING PROLONGED RAINFALL.
6. REMOVE SEDIMENT WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT ABOVE GROUND PORTION OF THE FENCE.
7. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE AND SEEDED.

TEMPORARY SILT FENCE DETAIL (BOUNDARY FENCE)

NOT TO SCALE



NOTES:

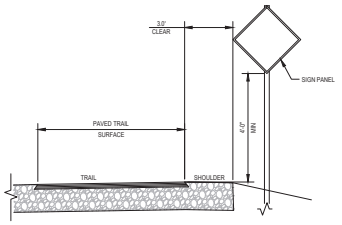
1. STRIPING SHOWN ABOVE IS CONSISTENT WITH THE CAMUTCD.

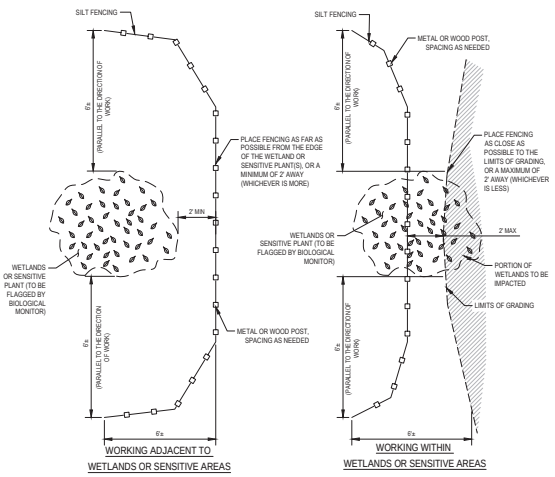
NOTES:

1. BOLLARDS SHALL BE FACTORY COATED, COLOR BLACK.

TYPICAL REMOVABLE BOLLARD & STRIPING DETAILS

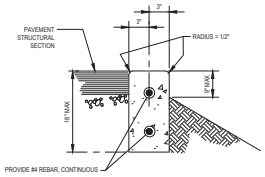
NOT TO SCALE





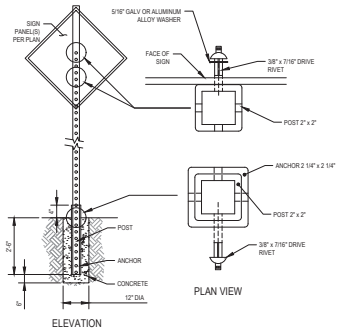
TEMPORARY VEGETATION PROTECTION FENCING

NOT TO SCALE



CONCRETE FLUSH CURB DETAIL

NOT TO SCALE



NOTE:

1. POST, SLEEVE AND ANCHOR SHALL BE HOT DIPPED GALVANIZED STEEL CONFORMING TO ASTM A653 DES. G90.

ROADSIDE SIGN INSTALLATION DETAIL

NOT TO SCALE

60% DESIGN

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Project Manager	J.WOLF	Date	8/24/2020
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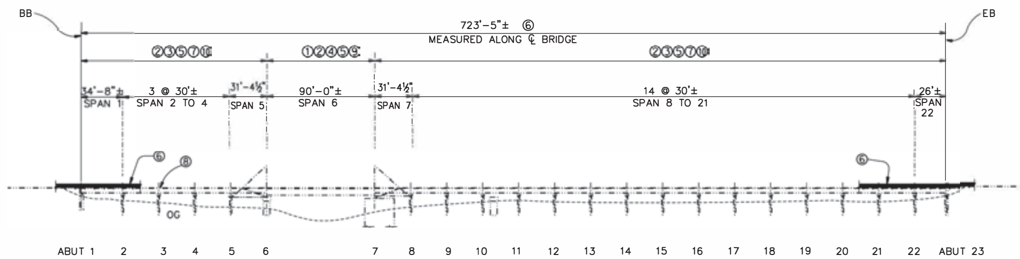
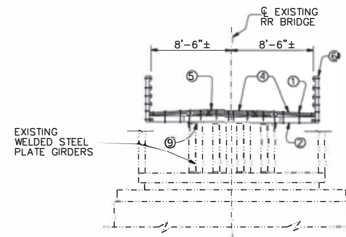
Project No. 11110166
Original Size: ANSI D
Sheet No. C-502
Sheet 54 of 60

Plot Date: 24 August 2020 - 6:49 PM Plotted By: Owen Goode Filename: \\ghdnet\ghd\US\Eureka\Projects\11\11110166 Humboldt Bay Trail South PA&ED PS&E\06-CAD\Sheets\11110166_C-501-504.dwg



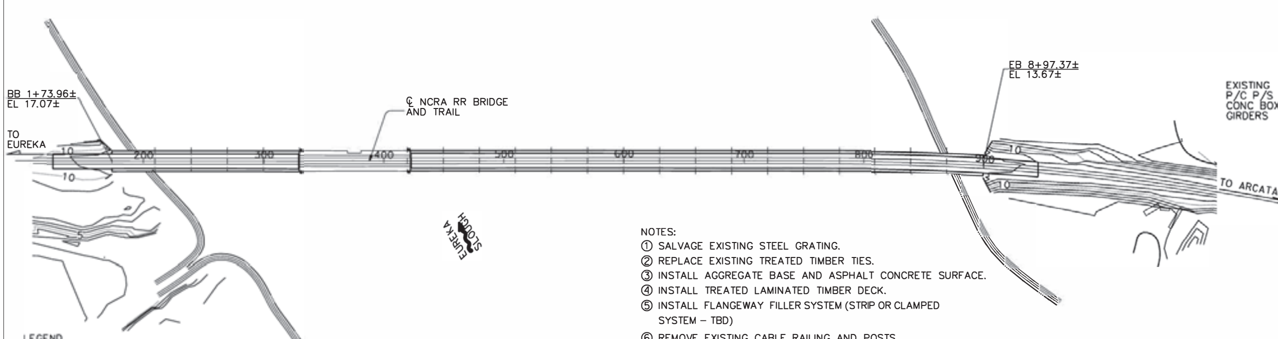
ELEVATION

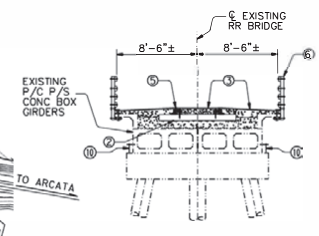
1" = 40'



LIFT-SPAN 6

EXISTING STEEL PLATE GIRDER





SPAN 1-5 AND 7-22

EXISTING P/C P/S CONC BOX GIRDER

TYPICAL SECTIONS

1" = 5'

NOTES:

1. SALVAGE EXISTING STEEL GRATING.
2. REPLACE EXISTING TREATED TIMBER TIES.
3. INSTALL AGGREGATE BASE AND ASPHALT CONCRETE SURFACE.
4. INSTALL TREATED LAMINATED TIMBER DECK.
5. INSTALL FLANGEWAY FILLER SYSTEM (STRIP OR CLAMPED SYSTEM – TBD)
6. REMOVE EXISTING CABLE RAILING AND POSTS. AND INSTALL TREATED TIMBER PEDESTRIAN RAILING.
7. INSTALL JOINT SEALS.
8. REPAIR WALKWAY SPALL.
9. CLEAN AND PAINT GIRDER FLANGE.
10. REPAIR STEEL TIE DOWN ANCHORS.

LEGEND

INDICATES EXISTING STRUCTURE

INDICATES NEW CONSTRUCTION

PLAN

1" = 40'

60% DESIGN

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Drawn J.GALLINO | Designer D. ROESNER

Drafting Check | Design Check

Project Manager | Date 02/27/2020

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Client **COUNTY OF HUMBOLDT**

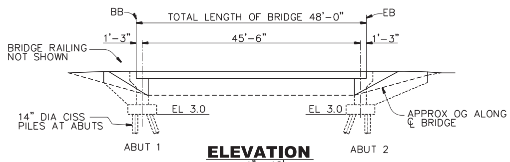
Project **HUMBOLDT BAY TRAIL SOUTY**

Title **EUREKA SLOUGH NCRA BRIDGE RETROFIT GENERAL PLAN**

Project No.

Original Size ANSI D | Sheet No. **S-101** | Sheet 55 of 60

Plot Date: 16 April 2010 - 2:51 PM | Plotted By: Owen Goode



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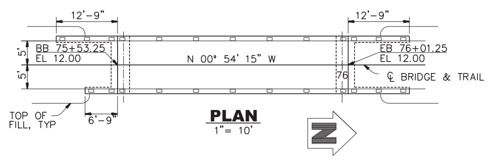
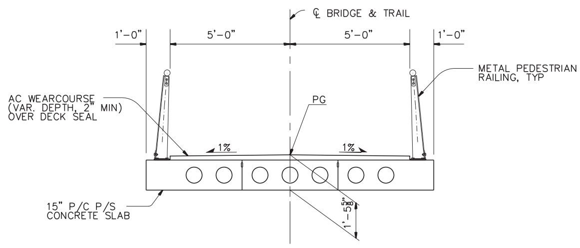


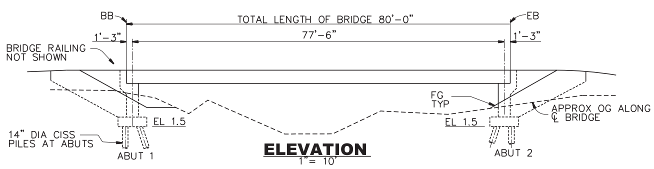
PLAN
1" = 10'

SOUTH CRC BRIDGE



TYPICAL SECTION
1/2" = 1'-0"

SOUTH CRC BRIDGE



ELEVATION
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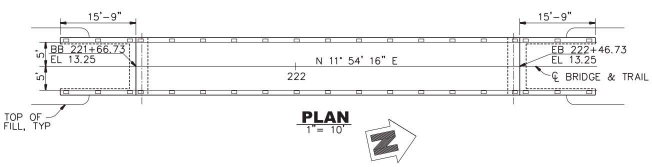
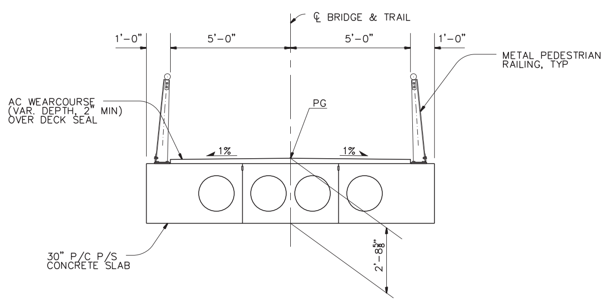


PLAN
1" = 10'

BRAINARD SLOUGH BRIDGE



TYPICAL SECTION
1/2" = 1'-0"

BRAINARD SLOUGH BRIDGE

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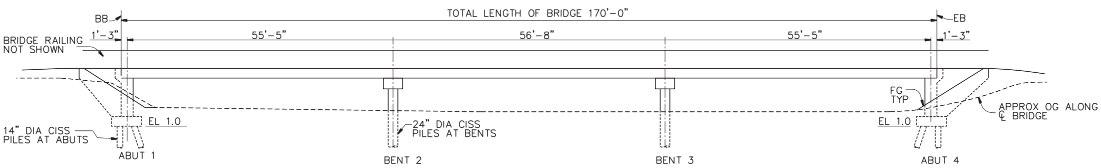
Project: HUMBOLDT BAY TRAIL SOUTH
Title: SOUTH CRC BRIDGE - GENERAL PLAN
BRAINARD SLOUGH BRIDGE - GENERAL PLAN
Project No.
Original Size: ANSI D
Sheet No. S-102
Sheet 56 of 60

Exhibit 5
Page 31 of 35



ELEVATION
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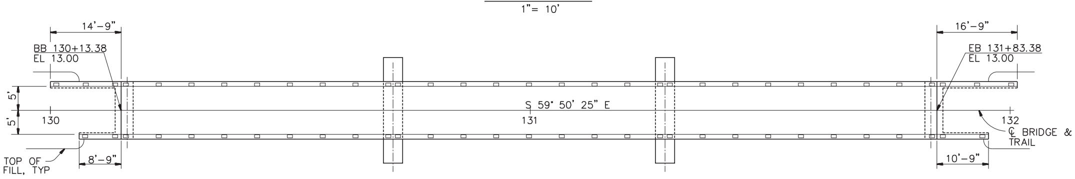

PLAN
1"= 10'

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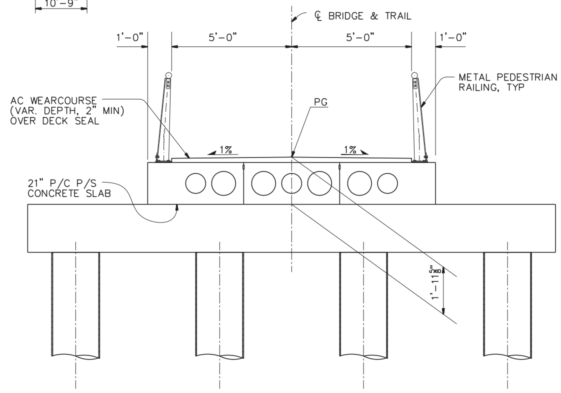

TYPICAL SECTION
1/2" = 1'-0"

NORTH CRC BRIDGE

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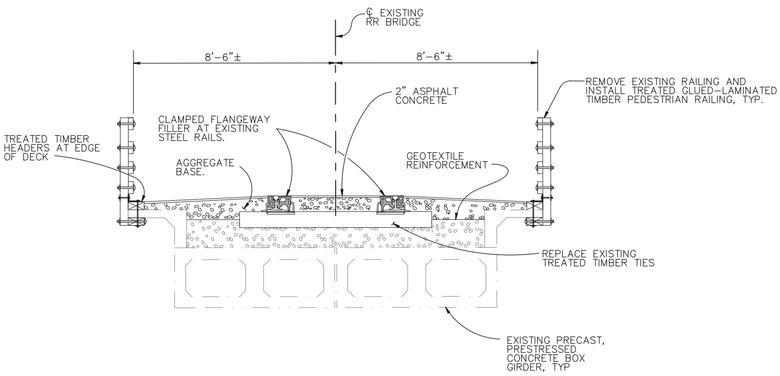
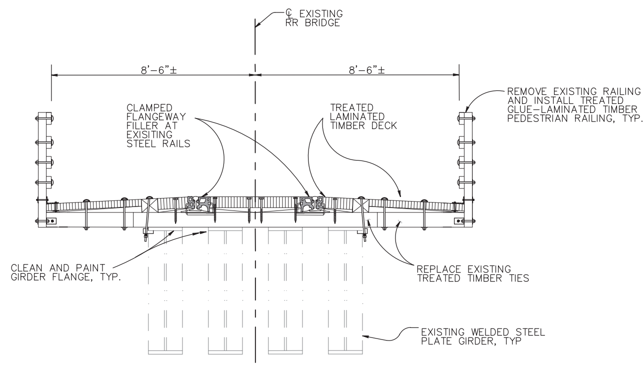
Project **HUMBOLDT BAY TRAIL SOUTH**
Title **NORTH CRC BRIDGE - GENERAL PLAN**
Project No.
Original Size **ANSI D** Sheet No. **S-103** Sheet 57 of 60

Plot Date: 16 April 2010 - 2:51 PM Plotted By: Owen Goode Filename: ...\11111110166_TBLK Morrison Structures.dwg

Exhibit 5
Page 32 of 35



SPANS 1 THRU 5 AND 7 THRU 22 P/C, P/S CONCRETE BOX GIRDER - TYPICAL SECTION
CLAMPED FLANGEWAY FILLER SYSTEM OPTION
1/2" = 1'-0"



SPAN 6 STEEL PLATE GIRDER - TYPICAL SECTION
CLAMPED FLANGEWAY FILLER SYSTEM OPTION
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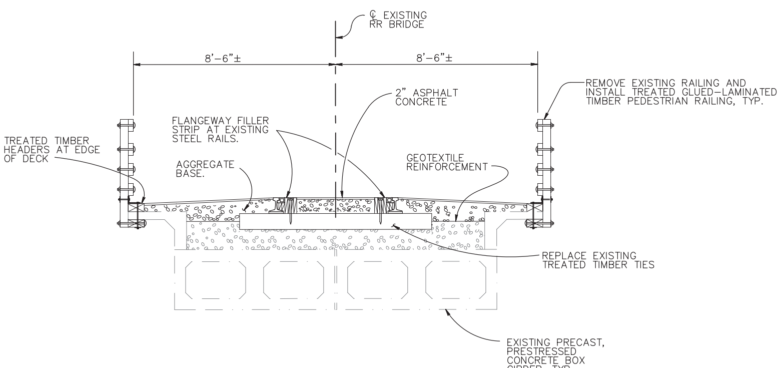

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STRIP FLANGEWAY FILLER SYSTEM OPTION
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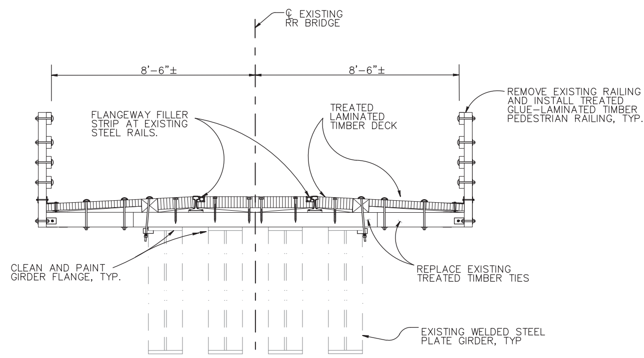

SPAN 6 STEEL PLATE GIRDER - TYPICAL SECTION
STRIP FLANGEWAY FILLER SYSTEM OPTION
1/2" = 1'-0"

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Project HUMBOLDT BAY TRAIL SOUTH
Title EUREKA SLOUGH NCRA BRIDGE - DETAILS
Project No.
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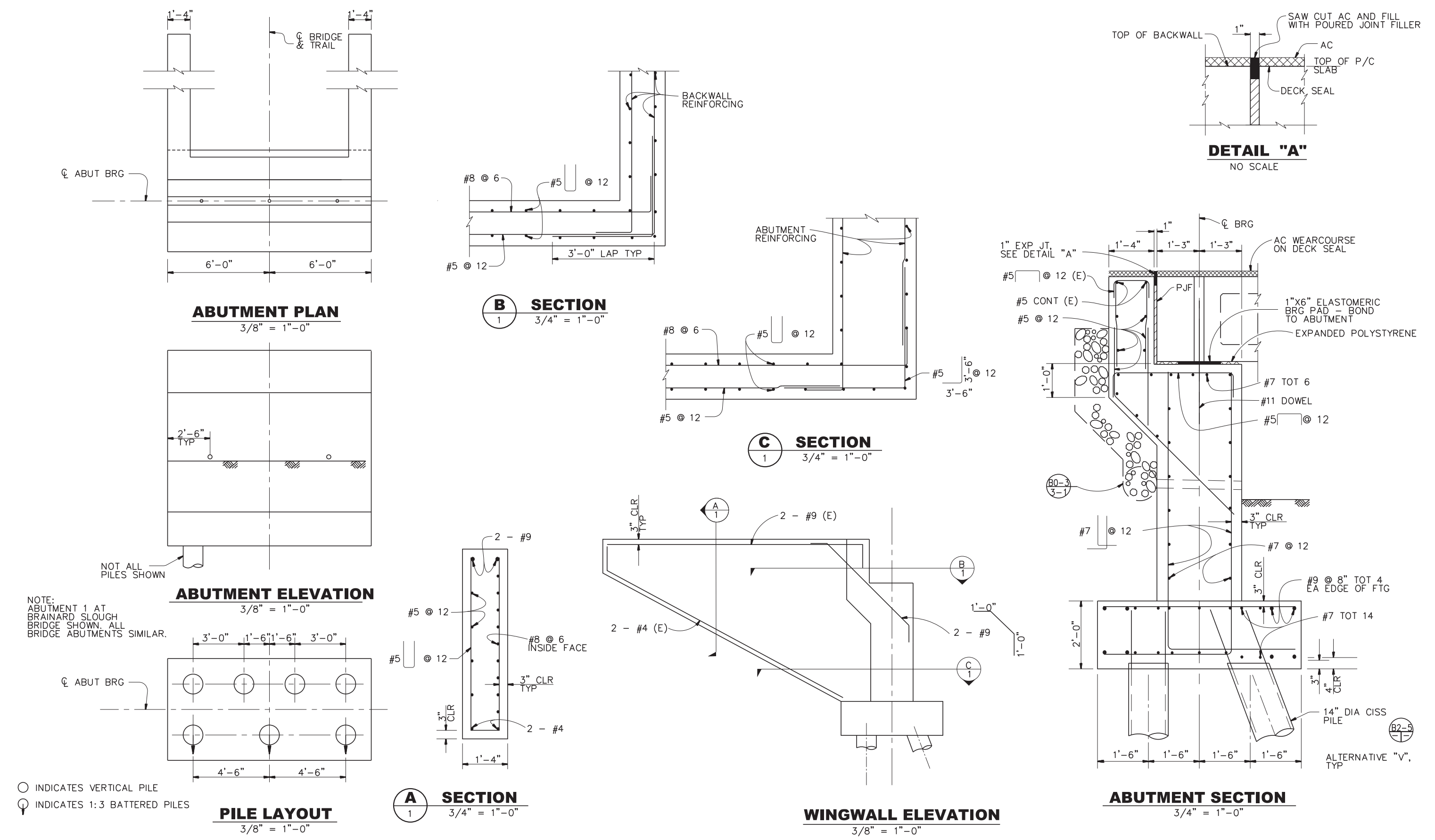
Plot Date: 16 April 2010 - 2:51 PM | Plotted By: Owen Goode | Filename: ...\xr-11110166_TBLK Morrison Structures.dwg



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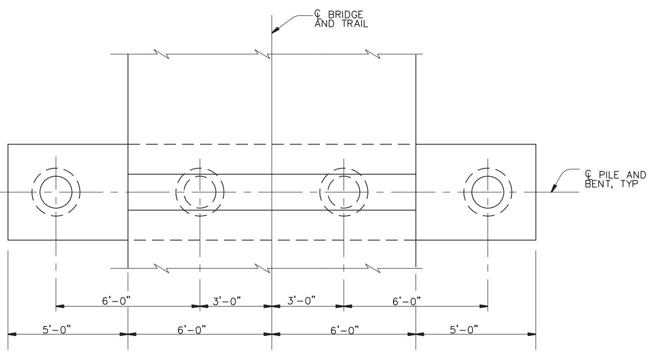
Project No.
Original Size ANSI D | Sheet No. S-502 | Sheet 59 of 60

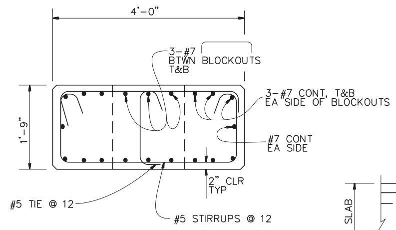
Plot Date: 16 April 2010 - 2:51 PM Plotted By: Owen Goode

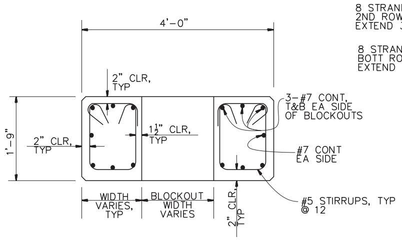
Exhibit 5
Page 34 of 35

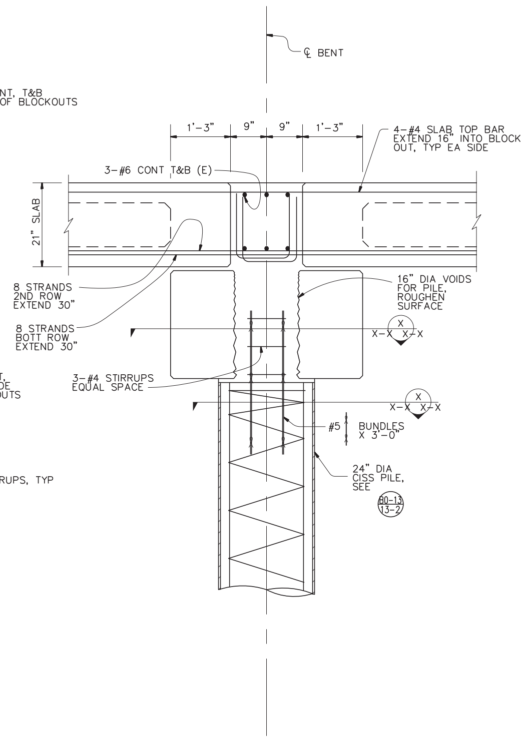


BENT PLAN

1/2" = 1'-0"







X SECTION S-4.0

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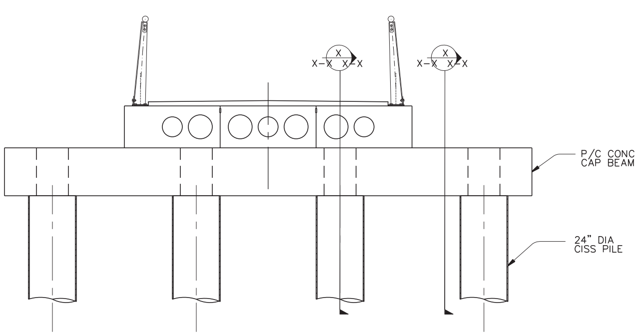

BENT ELEVATION

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Project HUMBOLDT BAY TRAIL SOUTH
Title P/C BRIDGE BENT DETAILS

Project No.
Original Size ANSI D | Sheet No. S-503 | Sheet 60 of 60

Exhibit 5
Page 35 of 35

Humboldt Bay Trail South

Visual Resources Impact Assessment

Humboldt County, California
Eureka, California and *Arcata South, California* 7.5-Minute Quadrangles
Township 5 North, Range 1 West, Sections 23 and 24; and Township 5 North, Range 1 West, Section 4, 9, 17, and unsectioned portions, respectively
February 2018

01-HUM-0-CR
Federal Project No. RPSTPL-5904(143)

STATE OF CALIFORNIA
Department of Transportation, District 1 and
County of Humboldt – Public Works Department

Prepared By: _____ Date: 3/12/18
Connie MacGregor, Senior Environmental Analyst/Environmental Scientist
NSR, now part of Stantec
(530) 222-5347 ext. 140

Local Agency Approved By: Hank Seemann Date: 3-12-2018
Hank Seemann, Deputy Director
Humboldt County Public Works Department
(707) 445-7741

Recommended Approval By: Laura Lazzaretto Date: 3/22/18
Laura Lazzoratto, Caltrans Landscape Architect
District 1, Caltrans

Caltrans SEP Approved By: _____ Date: 03/22/18
Brandon Larsen, Senior Environmental Planner
Local Assistance, District 1, Caltrans
(707) 445-6410

EXHIBIT NO. 6

Application 1-20-0560
HUMBOLDT COUNTY DPW
VISUAL ASSESSMENT
(EXCERPTS) (Page 1 of 50)

Chapter 4. Affected Environment

4.1. Regional Context

Humboldt County is located along the northern coast of California from the King Range National Conservation Area up to the Prairie Creek Redwoods State Park. The cities of Eureka and Arcata are located within Humboldt County. The City of Eureka is located on the inner shoreline of Humboldt Bay, buffered from the Pacific Ocean by the Samoa Peninsula. Eureka is bordered on all sides by unincorporated Humboldt County. Humboldt Bay and the Samoa peninsula occur to the west, the foothills of the Pacific Coast Range occur to the east, the Eureka Slough and lowland wetlands occur to the north; the Elk River and more wetlands are found to the south of the city. The City of Arcata is situated just north along Highway 101 from Humboldt Bay (the northern portion of Humboldt Bay is also referred to as Arcata Bay) to Highway 299. Humboldt Bay lies to the south and the foothills occur east of the city. Agriculture dominates the land to the west of Arcata and the Mad River borders the city to the north.

This area contains open and expansive views of Humboldt Bay, low-lying wetlands, and tree-covered foothills. Further east the canyons and ridges of the Coast Range are visible. Several large streams, rivers, and sloughs flow through this area of Humboldt County and empty into the Humboldt Bay or directly into the Pacific Ocean.

4.2. Local Context

The proposed trail alignment begins in the northeast end of the Eureka and proceeds generally northeast along the NCRS corridor that parallels Highway 101 to the east and Humboldt Bay to the west. The flat elevation of the coastal plain grants views of the bay throughout the entire trail alignment and adjacent Highway 101 corridor, with the exception of the extreme south end of the proposed trail, which passes into urban areas. The terrain to the west of the proposed project alignment includes open water, wetlands, mudflats, and designated wildlife areas. To the east is Highway 101, scattered industrial development, and agricultural lands. The proposed trail segment also would pass through two industrial areas located immediately adjacent to the bay. There are four billboards in the vicinity of the project, all of which are situated on private property. Three of the billboards are located outside the project area on the bay side of the railroad prism. One of the billboards is located within the project area between the highway and railroad.

4.3. Project Viewshed

The viewshed is traditionally defined as what can be seen in 360 degrees from a single view point. The limits of a viewshed include the visual boundaries of the surface areas seen from the proposed project. Viewsheds can be restricted to corridors—limited by vegetation, topography, or other obstacles—or may be temporarily limited by smoke, dust, fog, or precipitation. While the extent of the viewshed varies by location (i.e., view point), throughout the project area, it is primarily characterized by open views with Humboldt Bay to the west. Landward views to the east from the proposed trail predominantly show lowland wetlands, commercial development, and the foothills and Coast Range in the distance. Highway 101 parallels the proposed trail corridor to the east. Views may be obstructed by trees and traffic along Highway 101. Portions of the trail are adjacent to development such as the CRC and the Bracut Industrial Park.

4.4. Landscape Units

Landscape units are used to define the visual environment within distinct boundaries. Landscape units are frequently named and are often locally recognized. For example, Humboldt Bay—located in between Arcata and Eureka—would be a landscape unit. Landscape units provide a framework for the assessment and management of visual resources and the effects of projects upon them.

A visual assessment unit (VAU) is a term used to define the portion of the landscape unit that is visible from the project or from which the project may be seen within the boundaries of a landscape unit. Individual VAUs are characterized by key observation points (KOP), which are key locations from which viewers can see existing conditions in the VAU.

Following are descriptions of the nine landscape units that correspond to project segments and one landscape unit outside of the project alignment defined for the purpose of visual resources assessment for the proposed project (Figures 2a–f). Visual assessment units and KOPs within each landscape unit are introduced in the analysis of impacts (Section 8).

4.4.1. Landscape Unit #1: Connection to Eureka Waterfront Trail (Project Segment 1)

Landscape Unit #1 corresponds to Segment #1 of the proposed trail alignment. This landscape unit begins at its connection to Eureka Waterfront Trail and extends approximately 100 feet along the railroad corridor to the Eureka Slough crossing. The surrounding landscape type is a mix of coastal, industrial, rural residential dominated by low-lying vegetation (mostly grass) with a few scattered mature hardwood trees and shrubs. For the

most part, this landscape unit is not visible from major roads in the area, including Highway 101 and SR 255 because of the flat topography, distance, and surrounding development. Some businesses adjacent to nearby surface streets (2nd and Y streets) would have the most direct views of the proposed trail. Commercial, industrial, and residential development immediately adjacent to this landscape unit would be visible to trail users.

4.4.2. Landscape Unit #2: Eureka Slough Crossing (Project Segment 2)

Landscape Unit #2 consists of the approximately 700-linear-foot existing railroad bridge crossing over Eureka Slough that runs roughly parallel to Highway 101. The railroad bridge is a relatively low-elevation, flat, steel structure supported by multiple piers. Views of the bridge from Highway 101 and areas immediately adjacent to the north side of the slough, including a public waterfront access at the northwest corner of Highway 101, behind the Target store are generally unobstructed, although the flat topography and distance make it difficult to distinguish detail. The landscape type associated with this landscape unit is the railroad corridor, water, and mudflats. Trail users would be afforded views of Humboldt Bay to the west, Highway 101 to the east, and Eureka Slough over which the trail would pass.

4.4.3. Landscape Unit #3: Eureka Slough North (Project Segment 3)

Continuing north from the east end of the Eureka Slough railroad bridge crossing, Landscape Unit #3 follows the railroad corridor as it passes between two wetland marsh/mudflats managed by Humboldt Bay National Wildlife Refuge (NWR). It is along this project segment that the proposed trail alignment would begin to parallel the west side of Highway 101. The landscape type is dominated by the railroad corridor, coastal mudflats, and marshes with no designated public access or other development. Commercial development lines much of the east side of Highway 101 adjacent to the project area, but the flat topography, distance, and vegetation that lines the south side of Highway 101 obstructs most views toward the bay. Trail users passing through Landscape Unit #3 would experience the naturalness of Humboldt Bay and the coastal marshlands; however, the visual character of these views from the trail would also include the Highway 101 corridor to the east.

4.4.4. Landscape Unit #4: Eureka Slough to CRC (Project Segment 4)

Landscape Unit #4 follows the Humboldt Bay coastline for approximately 1 mile. This landscape unit follows the railroad corridor as it passes between Highway 101 to the south and the wetland marsh/mudflats managed by Humboldt Bay NWR to the north, and eventually to the west as the alignment follows the land contours northward. The tidally influenced (i.e., inundated) Humboldt Bay coastline is only about 100 feet to the west. The railroad corridor prism is slightly elevated and is, therefore, apparent from Highway 101 with the exception of a few stretches where the view is buffered by small stands of trees and

shrubs that have established between the highway and the railroad corridor. The elevation is flat and the landscape type is dominated by the railroad corridor, coastal mudflats, and marshes. There is no residential or commercial development, or public access immediately adjacent to this project segment. The visual experience afforded trail users would be similar to that described for Landscape Unit #4.

4.4.5. Landscape Unit #5: CRC and South Eucalyptus Area (Project Segment 5)

The proposed trail would be routed along the approximately 1-mile long levee that was created to protect the CRC mill site from the waters of Humboldt Bay. Although it is no longer used as a lumber mill, many of the old buildings at the north end of the parcel remain intact. Landscape Unit #5 consists of the proposed trail alignment that would follow the outer perimeter of the CRC mill site. Trail users would be afforded direct views of Humboldt Bay as well as unobstructed views of the CRC parcel. Conversely, viewers within the CRC parcel would have views of this section of the trail. The sizable former log deck area would buffer views of the trail along the levee from Highway 101; however, a proposed bridge structure would be needed at the south end of the parcel, adjacent to Highway 101, to allow for connection of the trail to the existing levee. In addition, mature eucalyptus trees that line the west side of the Highway 101 road corridor as it passes by CRC would further limit views of this trail segment. Limited industrial and commercial use of the parcel occurs, but there is no residential development or public access in proximity to this landscape unit. In addition to the railroad corridor and the armored rock levee, the landscape type is industrial and commercial development, with outlying areas of coastal marsh and mudflats. Because Project Segment 5 would deviate from the NCRA corridor, the Highway 101 corridor and the southern eucalyptus corridor that occurs between Highway 101 and the eastern boundary of the CRC parcel, these areas will not be discussed relative to this trail segment.

4.4.6. Landscape Unit #6: North CRC Levee Trail Connector (Project Segment 6)

Landscape Unit #6 is a small unit that corresponds to project Segment 6. Approximately 500-linear feet of trail bridge crossing would be needed in this segment to create a connection between the proposed trail to the north and the north end of the CRC levee. The area to be spanned consists of a tidally-influenced inundated finger of the Humboldt Bay coastline that interfaces with the west side of the railroad prism and the north side of the levee. A commercial office building on the extreme north end of the CRC parcel further limits trail alignment options. The proposed bridge would be visible from Highway 101, but the view would be buffered by the presence of existing development. The landscape type

associated with this landscape unit is water, coastal marsh, mudflats, the railroad corridor, and commercial development. Trail users would experience this variety of landscape types and the visual character unique to each as seen from the trail.

4.4.7. Landscape Unit #7: North Eucalyptus Area (Project Segment 7)

Landscape Unit #7 would extend approximately 0.75 mile, from the proposed bridge crossing at the north end of the CRC parcel to the location where Indianola Cutoff intersects the east side of Highway 101. The southern end of this segment contains a row of mature eucalyptus trees that line a portion of the north side of Highway 101. Two commercial billboards are located on either side of the railroad corridor just north of the trees. The area available for trail development is limited in this segment by the presence of Highway 101 on the east and Humboldt Bay on the west. Under the proposed project, the eucalyptus trees would be removed to allow for trail construction and as a public safety measure for trail users. Changes to the existing view in this landscape unit would be apparent, particularly to travelers familiar with this stretch of roadway. However, as experienced by users of the new trail, the changes in the post-construction visual character of this landscape unit would not be substantial since there currently is no comparable land use. The landscape type includes railroad corridor, commercial billboards, coastal marsh, mudflats, water, and mature tree stands.

4.4.8. Landscape Unit #8: South of Bracut (Project Segment 8)

Landscape Unit #8 is similar in structure to Landscape Unit #7. The area available for trail development is limited by the presence of Highway 101 and Humboldt Bay. This approximately 0.5 mile segment of proposed trail contains only a widely scattered number of small trees and two commercial billboards. Its proximity to Highway 101 would result in the proposed trail and its features highly visible on the landscape. Aside from the billboards, there is no commercial or residential development near this proposed trail segment. The landscape type includes the railroad corridor, commercial billboards, coastal marsh, mudflats, water, and widely scattered trees. The visual character experienced by trail users in this landscape unit would include developed and undeveloped features, including Highway 101 and the developed road corridor immediately adjacent to the trail and the more natural environment of Humboldt Bay to the west.

4.4.9. Landscape Unit #9: Bracut (Project Segment 9)

Landscape Unit #9 corresponds to project Segment 9, which is the northern terminus of the proposed trail addressed in this assessment. Bracut is an area of active commercial and light industrial development that lines both side of Highway 101. There is no residential development adjacent to this project segment. Similar to the other northern landscape units

(i.e., #s 7 and 8), the railroad corridor is aligned in close proximity to Highway 101, making it readily apparent on the landscape. Trees and shrubs are sparse in this landscape unit with the exception of the northern end where vegetation along the railroad corridor increases in density. The landscape type includes the railroad corridor, a commercial billboard, coastal marsh, mudflats, water, and patches of trees and shrubs. The visual experience afforded trail users would be similar to that described for Landscape Unit #8.

4.4.10. Landscape Unit #10: Humboldt Bay Trail North

Landscape Unit #10 consists of a section of the Humboldt Bay Trail North where it would join the proposed Humboldt Bay Trail south. It was included in this discussion to assess the planned extension of safety cable barrier fencing from the north end of project Segment 9 into the Humboldt Bay Trail North. Trail pavement in this landscape unit was installed as a part of the Humboldt Bay Trail North project. The trail is aligned on the east side of the NCRA corridor and the west side of Highway 101. The safety cable barrier fencing would be installed between the trail and Highway 101 over approximately 0.9 mile. Trees and shrubs are scattered along the edge of the railroad corridor. Much of the wetland marsh/mudflats on the west side of the NCRA corridor are managed by Humboldt Bay NWR.

Chapter 5. Visual Environment

5.1. Regional Landscape

The description of regional landscape is used to establish the general visual environment of the project alignment against which the effects of the project on visual resources are assessed. A regional landscape is characterized by those attributes that distinguish it from the next. Following are descriptions of the landform (e.g., valleys, coasts, and mountains), natural and developed land cover, regional distribution, and visual homogeneity of the regional landscape within the project alignment.

5.2. Landform

The dominant landform associated with the project area is coast plain. The city of Eureka and the coastal plain through which the proposed trail would be aligned is located on a fairly flat plain just slightly higher in elevation (approximately 44 feet above mean sea level) than Humboldt Bay. Vast areas of mudflats and shallow water north of Eureka extend north along the Humboldt Bay coastline. Although views are expansive, the nearly level elevation limits definition of distant views. To the east, north, and south the coastal plain extends for some distance before giving way to the forested mountain foothills.

5.3. Land Cover

5.3.1. Natural

Natural land cover in the landward portions of the project area includes coastal wetlands, grasslands, and shoreline. Expansive wetlands, marshes, sloughs, and mudflats occur throughout the project alignment. Little in the way of natural vegetation and land cover remains in the southern end of the project area south of the Segment #2 Eureka Slough crossing. Years of industrial, commercial, and urban development and other disturbances have significantly altered the natural vegetation community types in this area favoring invasive and ornament species over coastal wetland and upland species. The wetlands, mudflats, and marshes support low-growing vegetation (i.e., grass, rush, sedges) with occasional patches of shrubs and small trees.

Adjacent to the southeast side of the CRC parcel is a sizable stand of mature eucalyptus trees. These trees buffer views of the CRC industrial complex from Highway 101 and areas to the east and south. A second, similar row of mature eucalyptus, also located along the southeast side of Highway 101, begins at the north end of the CRC parcel and extends approximately 0.7 mile northeast toward Bracut.

5.3.2. Developed

Although the alignment would pass through areas dominated by natural land cover, the alignment itself would be within the NCRA corridor. Much of the proposed trail alignment has at some time in the past experienced varying levels of disturbance and development. The proposed purpose of the project—to develop a commuter and recreational trail—would diversify the land cover type to include mixed use (industrial, transportation, and recreation). Portions of two significant industrial areas would be included in the proposed project area. The Bracut Industrial Center is the smaller of the two areas and is used for light industrial and commercial businesses. The larger CRC no longer is used as a mill, but many of the buildings on the northern half of the parcel are used for a variety of commercial and light industrial businesses. The old log deck on the southern half of the property is currently unused. Within the proposed project alignment and vicinity, the currently unused NCRA corridor, Highway 101, and adjacent recreational development such as Arcata's Humboldt Bay Trail North to the north and the Eureka Waterfront Trail to the south influence the visual character of the proposed trail alignment.

Chapter 8. Visual Impacts

8.1. Study Methodology

8.1.1. Visual Impact

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental to the visual environment. The assessment of visual impacts also considers changes to visual character (composed of pattern elements and pattern character), cumulative, and temporary impacts associated with construction activities. Tables are used to assign numerical values to the existing visual resource and project-related changes, and the viewer's sensitivity to these changes. Numerical ratings range from -7.0 to +7.0 where -7.0 is high negative change and +7.0 is high positive change. Table A provides a reference for comparing numerical ratings associated with changes to visual resources to a qualitative narrative rating:

Table A. Comparing Numerical and Narrative Ratings of Visual Resource Change Based on Viewer Response

	Negative Visual Resource Change								Positive Visual Resource Change						
Rating	-7.0	-6.0	-5.0	-4.0	-3.0	-2.0	-1.0	0	1.0	2.0	3.0	4.0	5.0	6.0	7.0
Viewer Sensitivity[A]/ Equivalent Narrative Rating	High	High	Moderately High	Moderate	Moderate	Moderately Low	Low	No Change	Low	Moderately Low	Moderate	Moderate	Moderately High	High	High
Significance[B]	S	S	S	S	S	LS	LS	LS	LS	LS	LS	LS	LS	LS	LS

Notes:

[A]**Viewer Sensitivity**

High: The potential for public concern over adverse (negative) change in scenic/visual quality is great. Affected views are rare, unique, or in other ways are special and highly valued in the region or locale. Project-related changes that enhance or preserve affected views would not be considered adverse and would be perceived as positive (less than significant).

Moderate: The potential for public concern over adverse (negative) change in scenic/visual quality is appreciable. Affected views are secondary in importance or similar to views commonly found in the region or locale. A moderately to highly intense visual impact would be perceived as a significant lessening of visual quality. Project-related changes that enhance or preserve affected views would not be considered adverse and would be perceived as positive (less than significant).

Low: There may be some indication that a small minority of the public has a concern over scenic/visual resource impacts on the affected area. However, only the greatest intensity of adverse change (i.e., High and Moderate) in the condition of aesthetics/visual resources would have the potential to register with the public as a substantial (significant) reduction in visual quality. Project-related changes that

enhance or preserve affected views would not be considered adverse and would be perceived as positive (less than significant).

No Change: The views are not public or there are no indications of public concern over, or interest in, scenic/visual resource impacts on the affected area. This designation is also used to indicate no impact or no adverse impact.

[B]**Significance** (Determinations correspond to Table 12, CEQA Guidelines Significance Criteria for Aesthetics and Visual Resources, provided in Chapter 9 of this VIA):

S (Significant Impact): There would be a substantial reduction in visual quality.

LS (Less-than-Significant-Impact): There would be no substantial reduction in visual quality.

The magnitude of potential changes to visual resources resulting from implementation of the project was assessed by evaluating changes to visual character of the existing views. Pattern elements, which are the artistic attributes—form, line, color, and texture—intrinsic to the items to compose the view; and pattern character, including, but not limited to dominance, scale, diversity, and continuity, were considered. In addition, the assessment of project-related visual impacts considered visual quality of the existing and proposed conditions of the 15 KOPs used to represent scenic resources within the project area. The numerical difference between the following three visual quality conditions, in addition to the response of viewers described in Chapter 7, was used to quantify the level of change to visual resources anticipated as a result of the proposed project:

- **Vividness:** The extent to which the landscape is memorable. This is associated with the distinctiveness, diversity, and contrast of visual elements.
- **Intactness:** The integrity of the visual order in the landscape and the extent to which the existing landscape is free from non-typical encroaching intrusions.
- **Unity:** The visual harmony of the landscape as a whole; the degree to which the visual elements maintain a coherent visual pattern.

Key views within the various VAUs, referred to in this study as Key Observation Points (KOPs), were selected to best assess the proposed changes to the project's visual resources. In many cases, post-project visual simulations were created at the KOP to provide a snapshot of anticipated changes to visual resources.

The ratings of visual quality provided herein were determined by Stantec staff based on their professional experience evaluating similar development projects.

8.2. Visual Resources Impacts Assessment

Following are descriptions of the VAUs within each landscape unit. These VAUs were chosen to represent the different visual attributes within a particular landscape unit. KOPs illustrate the visual resources as seen from a specific location with a VAU. Figures 2a–f show the hierarchy of the visual analysis method used in the context of the project alignment.

8.2.1. Landscape Unit #1: Connection to Eureka Waterfront Trail (Project Segment 1)

8.2.1.1. VISUAL ASSESSMENT UNIT 1, KEY OBSERVATION POINT 1

VAU 1 is located in a public waterfront access area behind the Target store in Eureka. Because of its public accessibility, parking availability, and proximity to Eureka Slough, it is popular with recreationists, including fishermen, walkers, and kayakers. KOP 1 represents a recreationist's point of view. Image 1A illustrates the existing view from this KOP facing north toward the proposed project and the railroad bridge over Eureka Slough. Views of Eureka Slough are fairly expansive from this KOP; however, human-made visual intrusions, including ornamental trees and metal fencing in the fore- and middle-ground, and the railroad bridge in the background are somewhat visually intrusive and views of Humboldt Bay in the distance.

The proposed trail would follow the railroad alignment in the background. As shown in the post-project visual simulation (Image 1B), a section of the Eureka Waterfront Trail—visually simulated to illustrate its connection to the Humboldt Bay Trail that would begin where the former would intersect the railroad corridor immediately to the left of the railroad bridge—would be created to link the public parking area to the Humboldt Bay Trail. Specific to the proposed Humboldt Bay Trail, the visual simulation illustrates the new bridge railing, which would be consistent with the existing view. As seen from KOP 1, the existing landscape would be modified as a result of trail development actions associated with the extension of the Eureka Waterfront Trail, but as it ascends into the background toward the Humboldt Bay Trail, it creates an inviting view to explore the trail system. Modifications to the railroad bridge as a result of the addition of new railing and the intersection of the two trails at the left end of the bridge would not significantly change the existing pattern elements associated with the view. Scale and continuity of the existing visual features would not change. The pattern character observed from KOP 1 and VAU 1 is the result of scale and continuity of the

Image 1A (VAU 1, KOP 1). Existing view of the proposed trail alignment and NCRA Railroad bridge crossing over Eureka Slough. View looking north towards Humboldt Bay.

Image 1B (VAU 1, KOP 1). Visual simulation of post-project view of the trail alignment and NCRA Railroad bridge crossing over Eureka Slough. View looking north towards Humboldt Bay.

railroad corridor. Table 1 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 1.

Table 1. Anticipated Changes to Visual Quality in Visual Assessment Unit 1

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	6	5	5.5	5.3	
Proposed Condition[A]	6.5	5.5	6	6	
Visual Quality Difference				+0.7	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

The existing vividness, intactness, and unity of views from VAU 1 earn moderately-high to high ratings. The area shown appears to be maintained (e.g., mowed grass). Although the presence of infrastructure and urban development detract from the unique visual qualities associated with Humboldt Bay to the north beyond the railroad crossing and the undeveloped Humboldt Bay coastline to the northeast, implementation of the proposed project would not significantly change the existing visual environment. Although the access trail shown in the visual simulation (Image 1B) is a part of the Eureka Waterfront Trail system, its presence is an important part of the proposed Humboldt Bay Trail since it would serve as a link between the two trail segments. The addition of even more human-made features in the view as seen from KOP 1, including the access trail and new railing on the railroad bridge, would enhance rather than degrade this view by creating a more inviting public space that would encourage viewers to explore the new coast trail. Despite its being in the background, Humboldt Bay and its coastal influence shape the pattern character of the view. Although minor, the proposed project would introduce slightly increased visual intrusions through the addition of pedestrian and bicycle traffic over the bridge. Signage, and new safety railings and paint, would slightly modify the view, but would enhance the aesthetics, particularly those of the existing railroad bridge, which has been degraded by time and vandalism. Because this is an established public recreational access point, recreationists would be the most sensitive viewer group to project-related changes. Vividness, intactness, and unity would all increase at this location as a result of project implementation. Because this view can also be seen from Highway 101 as it crosses Eureka Slough, travelers would also be exposed to the positive changes made to the aesthetics and visual resources associated with the project. It is anticipated that travelers and recreationists would enjoy the resulting changes in the quality

of the views when looking north toward the trail from this location. Project-related impacts on the visual environment as seen from KOP 1 would be less than significant and would result in a positive effect on the visual resource as summarized in Table 1.

8.2.2. Landscape Unit #2: Eureka Slough Crossing (Project Segment 2)

8.2.2.1. Visual Assessment Unit 2, Key Observation Point 2

KOP 2 illustrates the travelers' view of the proposed Eureka Slough crossing from the southbound lanes of Highway 101 just before it enters into Eureka. Image 2 illustrates how the presence of highway bridge railing, the existing railroad bridge, and distance detract from the unique visual qualities associated with Humboldt Bay in the distant background. This view is of the outer extent of north-Eureka's industrial and commercial development, and signals a return to urbanization after having passed by the coastal marshes and mudflats of Humboldt Bay. Travelers on Highway 101 are subject to these contrasting views, which lack intactness and unity. The highway bridge's safety rail obstructs much of the view, but it is also consistent with the linearity of the railroad crossing. The Highway 101 bridge is also slightly higher elevation than the railroad grade, thus Humboldt Bay and its confluence with Eureka Slough are visible. Vividness is moderately high due to the presence of the slough and railroad bridge. The proposed trail would follow the railroad corridor and bridge

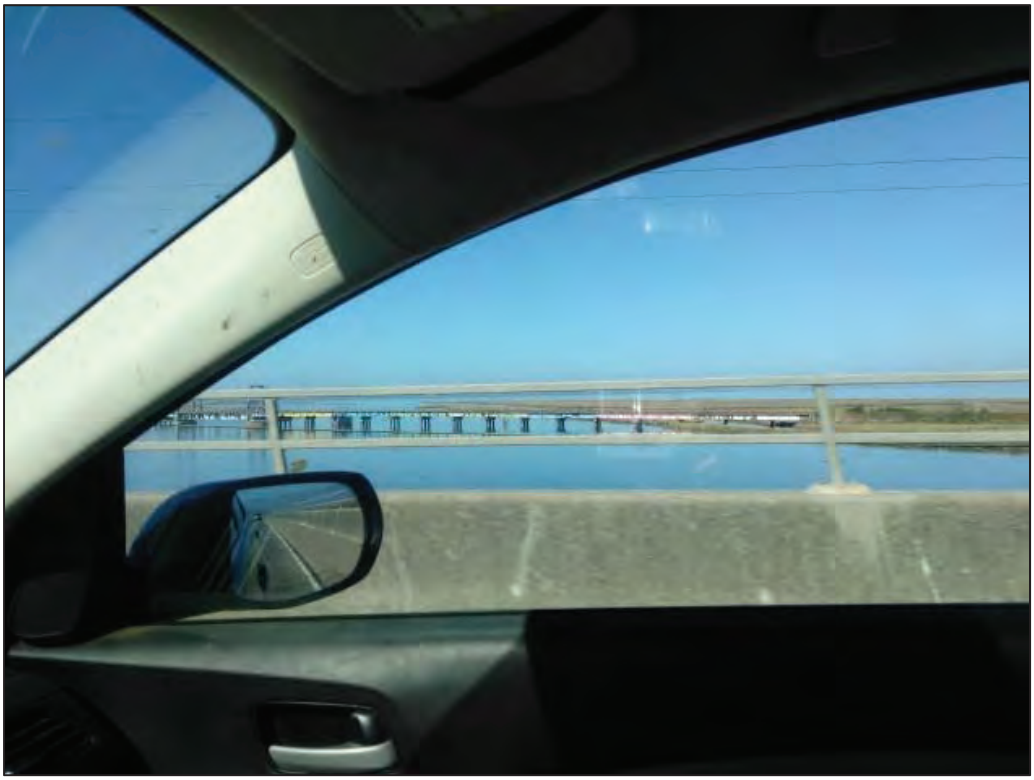

Image 2 (VAU 2, KOP 2). View of Eureka Slough NCRA railroad bridge from Highway 101 south. View looking north.

crossing. Although travelers would have little time to look out over the project area it would still be visible from this perspective. Table 2 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 2.

Table 2. Anticipated Changes to Visual Quality in Visual Assessment Unit 2

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5.5	4	4	4.5	
Proposed Condition[A]	5.5	5	5	5.2	
Visual Quality Difference				+0.7	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

VAU 2 earns moderate ratings for intactness and unity, and a moderately high rating for vividness (i.e., memorability). The linearity of the proposed trail along the railroad corridor would be consistent with existing conditions and would improve the intactness and unity of the view by creating a more aesthetically pleasing continuous pattern character. It is anticipated that elements of the proposed project would enhance the aesthetics of visual resources in the project area as seen by travelers. Unity and intactness would improve. It is anticipated that the addition of signage to the landscape would have no discernible noticeable effect given the numerous visual intrusions present. Construction activities would be a temporary visual impact and not unlike maintenance equipment used in the Highway 101 corridor. Project-related impacts on the visual environment as seen from KOP 2 would be less than significant and would result in a positive effect on the visual resource as summarized in Table 2.

8.2.3. Landscape Unit #3: Eureka Slough North (Project Segment 3)

8.2.3.1. Visual Assessment Unit 3, Key Observation Point 3

VAU 3 illustrates the typical view that travelers on Highway 101 have of the coastal plain to the west looking toward Humboldt Bay on the west side of Eureka Slough. As shown in Image 3, views from KOP 3 are expansive with little or no vertical obstructions towards the proposed project alignment—which would be horizontal across the middle-ground of the image just beyond the paved road corridor—or Humboldt Bay in the background. Views such as this capture the naturalness of the coastal plain and the NWR, and while scenic, are somewhat common along this stretch of highway. Table 3 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 3

Image 3 (VAU 3, KOP 3). View of the coastal plain west of Eureka Slough from Highway 101 north. View looking northwest.

Table 3. Anticipated Changes to Visual Quality in Visual Assessment Unit 3

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5.5	6	6	5.8	
Proposed Condition[A]	5.5	5.5	5.5	5.5	
Visual Quality Difference				-0.3	Low (Negative)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

The existing vividness, intactness, and unity of VAU 3 as seen from KOP 3 earns moderately high to high ratings. Views such as those shown in Image 3 are aesthetically pleasing and pattern elements (form, line, color, and texture) are generally harmonious, but such views are relatively common over the extent of the proposed trail alignment through Segment 3 and are not individually remarkable. Changes to the view, including vegetation removal and exposure of the trail to travelers along Highway 101, and installation of safety barriers such as cables to ensure separation of the trail from the highway to the east and the NWR to the

west, would be a human-made intrusion on the landscape. However, any such project features would be low profile (elevation) and linear, consistent with the other linear features in the VAU and over time, vegetation on the trail prism would return. The continuity of the pattern character and use of low-chroma and non-glare construction materials would lessen the effects of the trail on the unity of the coastal plain. Construction activities would be a temporary visual impact and not unlike maintenance equipment used in the Highway 101 corridor. Project-related impacts on the visual environment as seen from KOP 3 would be negative, but less than significant as summarized in Table 3.

8.2.4. Landscape Unit #4: Eureka Slough to CRC (Project Segment 4)

8.2.4.1. Visual Assessment Unit 4, Key Observation Point 4

VAU 4 illustrates typical views that neighbors may have of the proposed project area when looking from commercial businesses located on the south side of Highway 101. KOP 4 is located at the intersection of Airport Road and Highway 101. Image 4A shows existing conditions looking northwest towards Humboldt Bay. Image 4B is a post-project visual simulation. From this KOP, human-made intrusions on the landscape are readily apparent with vertical signage and lighting, and significant paved road corridors. The coastal plain and Humboldt Bay are apparent in the middle- and background of Image 4A, but these views are broken-up by the vertical trees and shrubs that have become established along the unused railroad corridor. The proposed trail would cross horizontally through this vantage point parallel to the highway. The highway and related infrastructure lowers intactness and unity although expansive views of the bay are still present. Table 4 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 4.

Image 4A (VAU 4, KOP 4). Existing view looking northwest from the intersection of Airport Road and Highway 101.

Image 4B (VAU 4, KOP 4). Visual simulation of the post-project view looking northwest from the intersection of Airport Road and Highway 101.

Table 4. Anticipated Changes to Visual Quality in Visual Assessment Unit 4

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	4.5	5	5	4.8	
Proposed Condition[A]	5	5.5	5.5	5.3	
Visual Quality Difference				+0.5	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

VAU 4 earns moderate ratings for intactness, unity, and vividness despite the obvious human-made intrusions on the landscape. Similar to the project effects on visual resources described for VAU 3, views such as those shown in Image 4A and in the post-project visual simulation, Image 4B, are aesthetically pleasing and pattern elements (form, line, color, and texture) are generally harmonious. Such views are relatively common over the extent of the proposed trail alignment through Segment 4 and are not individually remarkable. Changes to the view, including vegetation removal and exposure of the trail to neighbors on the south side of Highway 101, and installation of safety barriers such as cables to ensure separation of the trail from the highway to the east and the NWR to the west, would be an additional human-made intrusion on the landscape. However, any such project features would be low profile (elevation) and linear, consistent with the other linear features in the VAU. Removal of the taller vertical vegetation would enhance the vividness, intactness and unity of the view by returning it to a more natural coastal plain without the tall shrubs that are not commonly found in this habitat community. The continuity of the pattern character and use of low-chroma and non-glare construction materials would lessen the effects of the trail on the unity of the coastal plain. Construction activities would be a temporary visual impact and not unlike maintenance equipment used in the Highway 101 corridor. Project-related impacts on the visual environment as seen from KOP 4 would be less than significant and would result in a positive effect on the visual resource as summarized in Table 4.

8.2.5. Landscape Unit #5: CRC and South Eucalyptus Area (Project Segment 5)

8.2.5.1. Visual Assessment Unit 5, Key Observation Points 5, 6, and 7

VAU 5 includes the proposed trail alignment along the levee that extends along the CRC parcel. The proposed trail alignment in this VAU would leave the Highway 101 and NCRA corridors and would follow the levee that juts out into Humboldt Bay. As illustrated in the

photograph provided in Section 3.3.10, the stand of eucalyptus trees that line the NCRA corridor between Highway 101 and the CRC parcel in Landscape Unit #5 would not be affected by the proposed trail alignment. The view from KOP 5, as shown in Image 5A, would allow trail users to experience the contrast in visual character that occurs between the natural character and pattern elements of Humboldt Bay to the west versus those of the human-made environment of CRC to the east. Images 5B and 5C illustrate other views from the proposed trail that pedestrians and bicyclists would have of the bay and the structures associated with the CRC parcel. The levee is not visible to travelers on Highway 101. The levee prism is elevated above both the water and the upland areas through which it passes. The elevated levee would expand the distance of views afforded trail users of both the bay and the former industrial character of the CRC parcel. The form, line, and structure of these views are fairly common along the Humboldt Bay coastline, but are aesthetically pleasing and have a high degree of unity. Table 5 summarizes the anticipated effect of the proposed project on visual resources as seen from KOP 5.

Image 5A (VAU 5, KOP 5). View of proposed trail alignment from south end of CRC parcel levee. View looking north..

Image 5B (VAU 5, KOP 6). View of proposed trail adjustment near northwest end of CRC levee. View looking north.

Image 5C (VAU 5, KOP 7). View of proposed trail alignment from north end of CRC levee. View looking northeast.

Table 5. Anticipated Changes to Visual Quality in Visual Assessment Unit 5

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	4.5	6	5.2	
Proposed Condition[A]	6	3.5	5	4.8	
Visual Quality Difference				-0.4	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

Alignment of the proposed trail along the levee would decrease the intactness and unity of the existing views as a result of the trail, and the fencing, barriers, and gates that may be needed along the trail to ensure there would be no trespass into the CRC industrial complex. Although the levee is a human-made feature located immediately adjacent to the CRC facility, which is an area that has undergone significant development, the existing sense of naturalness when looking west toward the bay, would be somewhat reduced by the removal of the coastal vegetation and addition of fencing. However, the presence of the trail along the levee would increase the vividness of the view for trail users. The exposure of neighbors would be limited to the limited number of viewers looking toward the trail from the CRC or from the bay. Similar to the visual experience of viewers from the trail, neighbors and outside travelers would may notice the vertical elements of the fencing and other barriers, which would reduce the overall quality of the view. In addition, railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail. It is anticipated that the temporarily disturbed area would be restored to pre-project conditions. Construction of the trail would require equipment and machinery that may temporarily reduce intactness and increase glare experienced by viewers from outside of the trail alignment. There would be no impact on pedestrians or bicyclists during construction since they would not have access to this area. Project-related impacts on the visual environment as seen from KOP 5 would be negative, but less than significant as summarized in Table 5.

8.2.6. Landscape Unit #6: North CRC Levee Trail Connector (Project Segment 6)

8.2.6.1. VISUAL ASSESSMENT UNIT 6, KEY OBSERVATION POINT 6

VAU 6 includes the north end of the CRC parcel. This VAU illustrates the proximity of Segment 6 to the shoreline and the view that recreational visitors using the trail might have of

the north end of the CRC parcel when looking southwest. This is one of only two areas along the proposed alignment that encompasses open water, the trail alignment, and urban development (the other being Segment 2 over Eureka Slough). A proposed bridge walkway would be created at this location to create a connection between the trail from the north to the levee that extends around the perimeter of the bay-ward edge of the CRC parcel. As shown in Image 6A, there is limited upland in front (north) of the office building where the trail could be routed. Therefore, as shown in the post-project visual simulation, Image 6B, a bridge crossing would be built that would extend approximately 200 feet from the railroad corridor, over the water, to the edge of the levee just northeast of the office building complex. Travelers, particularly commuters on Highway 101, and neighbors (i.e., those who occupy the CRC offices and outbuildings) would experience noticeable changes in the vividness, intactness, and unity of the view.

The proposed bridge crossing would add a sense of connectivity between the bustling activity occurring on Highway 101 and the tranquility of Humboldt Bay. The color, line, and airy form of the proposed bridge would be inviting and encourage viewers to explore beyond what can be seen from KOP 6. Minor obstruction to views from the adjacent CRC office building could result from the proposed bridge alignment, but the openness of the structure over the water would minimize this potential effect. It is anticipated that the temporarily disturbed area would be restored to pre-project conditions.

Construction of the trail and bridge would require equipment and machinery that may temporarily reduce the quality of the existing view. Table 6 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 6.

Image 6A (VAU 6, KOP 6). View of existing conditions at north end of CRC parcel. View looking southwest towards levee.

Image 6B (VAU 6, KOP 6). Visual simulation of proposed bridge connection to levee at north end of CRC parcel. View looking southwest toward levee.

Table 6. Anticipated Changes to Visual Quality in Visual Assessment Unit 6

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	4	4	4.3	
Proposed Condition[A]	5.5	4	4.5	4.5	
Visual Quality Difference				+0.2	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

The existing vividness, intactness, and unity of views from within VAU 6 earn moderately low to moderate ratings. Views such as those shown in Image 6A illustrate the proximity of buildings on the CRC parcel to Humboldt Bay and the proposed trail alignment. There is a disparity between the intactness and unity of the coastline to the north and south of the CRC parcel and the industrial and commercial development that occurs intermittently along the proposed trail corridor. The vividness (memorability) of the view from KOP 6 is relatively high compared to surrounding areas because of the presence of a definable feature—the office building—that is highly visible on the landscape. Addition of the proposed bridge crossing as shown in visual simulation Image 6B would increase the memorability of the view. The human-made bridge and its safety railings would be a permanent, unnatural feature in the VAU; however, the form, line, and color of the bridge design would add diversity, scale, and continuity to the pattern character associated with the view from KOP 6. Each of the various bridge design options under consideration, and as illustrated in Section 3.3.8, would have their own unique visual character that would influence viewer response. Railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. The proposed trail alignment and enhancements would be visible for a distance given the flat topography of the viewing area and the linear nature of the proposed trail. It is anticipated that travelers and neighbors would enjoy the resulting changes in the quality of the views when looking east toward the trail from these locations.

Construction equipment required for pile driving and cranes would be required. This would temporarily increase visual intrusions and the potential for glare in the project area. Construction equipment and activities may equally impact commuters and tourists, however permanent changes to the visual environment would be more noticeable to commuters and

neighbors in the adjacent offices. Project-related impacts on the visual environment as seen from KOP 6 would be less than significant and would result in a positive effect on the visual resource as summarized in Table 6.

8.2.7. Landscape Unit #7: Eucalyptus Area North (Project Segment 7)

8.2.7.1. VISUAL ASSESSMENT UNIT 7, KEY OBSERVATION POINT 7

VAU 7 consists of project Segment 7, which includes an approximately 0.7-mile-long eucalyptus stand located between the west side of Highway 101 and the east side of the NCRA railroad corridor. As shown in Image 7A, these trees dominate the VAU and limit views of Humboldt Bay from Highway 101. Their presence emphasizes the linearity of the human-made elements in the view including Highway 101, the metal guard rail, the railroad corridor, and the alignment of the trees themselves. According to the project's cultural report (JRP Historical Consulting Services 2004) the eucalyptus was planted at the time of Highway 101 construction as a beautification effort. These trees provide a vertical element and rich texture to the existing view. Other non-native vegetation has established itself along the proposed trail corridor, adding to the visual obstructions for the view from Highway 101. Commuters are the viewer group having the most familiarity of this view, so they would be the most affected by the proposed removal of these trees for public safety reasons. As shown in the visual simulation Image 7B, removal of the trees would change the visual character of the view by allowing for unobstructed views of the coastal plain and Humboldt Bay previously obstructed by the presence of the trees. The pattern elements of form, line, color, and texture associated with the towering stand of eucalyptus would be replaced by the new trail prism that would be supported by a conspicuous retaining wall that would be exposed to the Highway 101 corridor. Removal of the stand of eucalyptus trees, as shown in the photograph provided in Section 3.3.10, would also expose the CRC buildings to the south, making them a dominant, unnatural feature, potentially distracting from the adjacent bay. Recreationists using the trail would be fully exposed to the visual quality of the Highway 101 corridor to the east, which would be in sharp contrast to the presence of Humboldt Bay immediately to the west.

Table 7 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 7.

Image 7A (VAU 7, KOP 7). Existing view of eucalyptus trees and vegetation lining the Highway 101 corridor just north of CRC. View looking southwest.

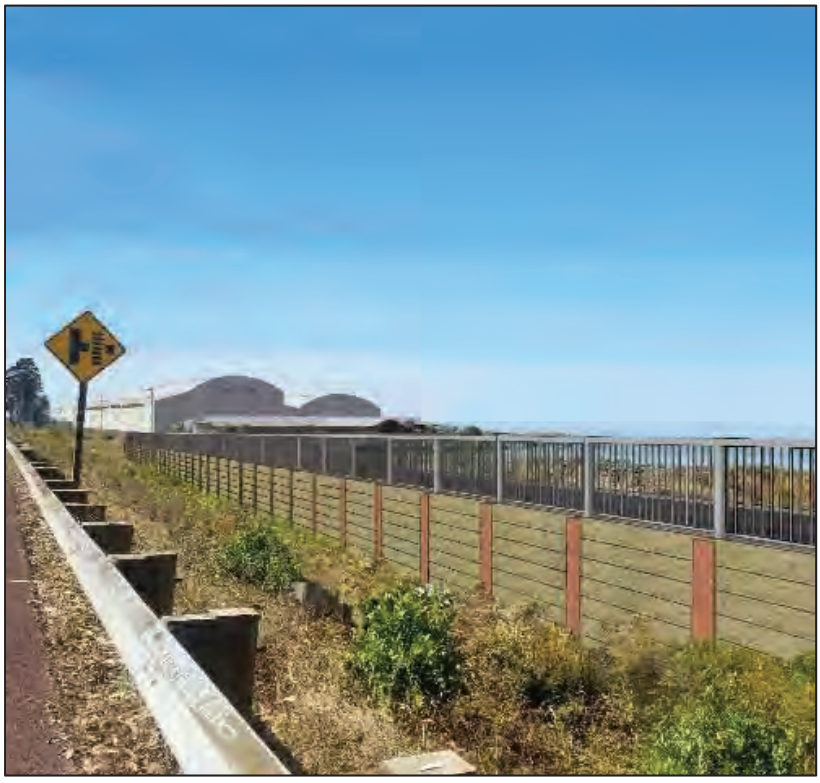

Image 7B (VAU 7, KOP 7). Visual simulation of the proposed trail alignment post-tree removal just north of CRC. View looking southwest.

Table 7. Anticipated Changes to Visual Quality in Visual Assessment Unit 7

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	5	6	5.3	
Proposed Condition[A]	4	3.5	4	3.8	
Visual Quality Difference				-1.5	Moderately Low (Negative)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

VAU 7 earns moderately high to high ratings for existing intactness, unity, and vividness. However, proposed removal of the eucalyptus trees and the installation of extensive safety railing and approximately 2,700 linear feet of retaining wall would decrease the visual character of views experienced by travelers both in and outside of the proposed trail alignment, as well as the limited number of neighbors at the CRC parcel. Although the eucalyptus trees were purposely planted and are not native to the area, their presence along the coastline provides a higher level of unity and intactness than would exist as a result of their removal. Replacement of trees by a human-made feature (trail) would change the pattern elements associated with this view. Vertical lines would be replaced by the horizontal trail alignment, and the dynamic color and texture of the trees would be replaced by the monochromatic trail features; however, railing materials, color, and scale would affect the visual impact. Railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. The overall aesthetic quality would be lessened along this trail segment. Project-related impacts on the visual environment as seen from KOP 7 would be negative; moderately low significance as summarized in Table 7.

8.2.8. Landscape Unit #8: South of Bracut (Project Segment 8)

8.2.8.1. VISUAL ASSESSMENT UNIT 8-1, KEY OBSERVATION POINT 8

KOP 8 is used to illustrate the changes to visual resources and aesthetics that would occur as a result of removing the sizable eucalyptus that currently line Highway 101 south. As shown in Image 8A, the trees dominate the existing view, drawing the viewer's eye skyward. In contrast, post-construction visual simulation Image 8B draws the viewer's line of vision toward the background of the image. The northern end of this stand of eucalyptus trees along

Highway 101 begins approximately 1,000 feet south of the Indianola Cutoff and extends south nearly to the CRC parcel (as described in Landscape Unit #7).

Despite obvious signs of human intrusion, the view shown in Image 8A includes a dynamic mix of form, line, color, and texture. Humboldt Bay is visible to the west. The continuity of the highway and adjacent railroad corridors influence the pattern character of the existing and post-construction views. Similar to other VAUs north of CRC, VAU 8-1 exhibits more areas of disturbance and decreased unity than those further to the south. Tourists and other travelers may find the existing view fairly common and unremarkable compared to more natural areas along the Humboldt Bay coastlines. The removal of the trees would only increase the unremarkable visual experience. Commuters would be the most affected viewer group. Recreationists on the trail may also find the view unremarkable and common with nothing to buffer the presence of the Highway 101 corridor. Table 8 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 8-1. Table 8 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 8-1.

As previously discussed, one of the billboards is located within the project area between the highway and railroad, and depending on the final trail alignment, the trail may narrowly avoid this billboard. The potential exists for the trail to conflict with the billboard, which may result in its removal or relocation. The visual simulation (Image 8B) assumes the billboard would not be in conflict with the trail alignment and, therefore will remain. If the billboard is removed, views of Humboldt Bay from Highway 101 would be broadened and the distraction created by its presence would be removed.

Image 8A (VAU 8-1, KOP 8). Existing view of north end of eucalyptus grove on west side of Highway 101 south, just south of Indianola Cutoff.

Image 8B (VAU 8-1, KOP 8). Visual simulation of the post-construction trail alignment along Highway 101 south, just south of Indianola Cutoff.

Table 8. Anticipated Changes to Visual Quality in Visual Assessment Unit 8

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	4.5	4.5	4.7	
Proposed Condition[A]	4	3	3.5	3.5	
Visual Quality Difference				-1.2	Low (Negative)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

The existing vividness, intactness, and unity of views from VAU 8-1 are generally low to moderate. Significant urban and commercial development and infrastructure detracts from the visual quality and aesthetics of this landscape unit as a whole; compounded further by the removal of the trees in the middle- and background of the view. Views such as those shown in Images 8A and B are relatively common in urban areas and are not individually remarkable. Numerous human-caused intrusions on the landscape dominate the view as seen from KOP 8. The addition of safety cable fencing and raised profile asphalt path as shown in Image 8B would add to the diminished quality of the view. Views of the bay may be increased, but the visual intrusions may distract from the aesthetic quality of the visual resource. Railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. Construction activities would temporarily increase intrusions and glare. These changes would be most noticeable to commuters as opposed to tourists due to the routine exposure to views along their commute. Project-related impacts on the visual environment as seen from KOP 8 would be negative; moderately low significance as summarized in Table 8.

8.2.8.2. VISUAL ASSESSMENT UNIT 8-2, KEY OBSERVATION POINT 9

The purpose of VAU 8-2 is to provide a pre- and post-construction comparison of the proposed trail. Image 9A shows the existing condition of the NCRA railroad corridor just south of Bracut. The area available for the trail is relatively narrow with Highway 101 immediately to the east and Humboldt Bay to the west. Views such as this are common and while harmonious with the dominant coastal character of the area, are unremarkable. Post-construction visual simulation Image 9B illustrates the proposed asphalt trail alignment and the safety cable barrier that would be used between the trail and Highway 101. Views in this area are expansive and generally unobstructed. Travelers of all types can appreciate the size

of the bay and get a sense of the coastline as it extends into the distance. Table 9 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 8-2.

Image 9A. (VAU 8-2, KOP 9). Existing view of Highway 101 corridor south of Bracut. View facing north.

Image 9B. (VAU 8-2, KOP 9). Post-construction visual simulation of proposed trail south of Bracut. View facing north.

Table 9. Anticipated Changes to Visual Quality in Visual Assessment Unit 8-2

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	6	6	5.7	
Proposed Condition[A]	5	5.5	5.5	5.3	
Visual Quality Difference				-0.4	Low (Negative)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

KOP 8-2 earns fairly high ratings for intactness, unity, and vividness. The pattern elements present are harmonious and open. The new trail would be intrusive on the landscape, but somewhat consistent with the adjacent Highway 101 corridor and the railroad prism. Intactness and unity would be slightly diminished. The proposed trail and its features would be apparent to travelers on Highway 101 and may distract from the scenic resources associated with the bay in the background. The presence of recreational trail uses so close to the highway could be a distraction to drivers. Alternatively, some drivers may feel that observing people recreating along the bay is an enhancement. However, railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. During construction equipment and machines would be present which would provide a temporary increase in visual intrusions. Project-related impacts on the visual environment as seen from KOP 8 would be negative, but less than significant as summarized in Table 9.

8.2.9. Landscape Unit #9: Bracut (Project Segment 9)

8.2.9.1. Visual Assessment Unit 9, Key Observation Points 10 and 11

VAU 9 is located just north of Bracut where the Highway 101 crosses Brainard Slough. KOPs 10 and 11 are located in close proximity to each other and were established to illustrate different views of the proposed trail alignment APE at Brainard Slough, including proposed changes to visual resources that would occur as a result of installing a pedestrian bridge crossing over the slough and shoreline revetment (rock). Image 10 faces west toward Humboldt Bay as seen from Highway 101. The railroad crossing over Brainard Slough has been significantly degraded by historic washout and erosion. The view of the Bracut peninsula that extends into the distance coupled with the diverse textural elements, including rocks, mudflats, vegetation, and the slough extending out towards the bay has a relatively high degree of vividness, intactness, and unity despite the human-made elements. As seen

from Highway 101, views of the crossing would be fleeting, but nonetheless interesting. The unique quality of this view decreases slightly with the presence of the metal guardrail and highway corridor as shown in Image 11A, but it continues to retain a sense of the area's history. Installation of a pedestrian bridge crossing as a part of the proposed trail would change the character of the view by adding a modern, vertical, human-made feature to the visual resource. Table 10 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 9.

Image 10 (VAU 9, KOP 10). Existing Brainard Slough railroad crossing. View looking west.

Table 10. Anticipated Changes to Visual Quality in Visual Assessment Unit 9

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	6	5.5	6	5.8	
Proposed Condition[A]	6	5	5.5	5.5	
Visual Quality Difference				-0.3	Low (Negative)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

The existing vividness, intactness, and unity of views from KOP 10 earn moderately high to high ratings. Views such as those shown in Images 10 and 11A are aesthetically pleasing due to the pattern elements (form, line, color, and texture) that are harmonious throughout the entirety of the views. Although the proposed bridge crossing, revetment, and trail alignment would be visual intrusions on the landscape, the retention of existing trees and landscape features (as shown in visual simulation Image 11B) would continue to draw the viewer's eye upward and towards the background of the image instead of along the horizontal trail. Use of rock and low-chroma colors that would be consistent with the surrounding environment would lessen the visual effect of the bridge on the landscape. The continuity of the pattern character would be maintained as a result of the linearity of the trail alignment; however, intactness and unity would be slightly diminished. The vividness (memorability) of the view from this KOP would remain high given the uniqueness of the bridge crossing. The proposed trail and its features would be apparent to travelers on Highway 101 and may distract from the scenic resources associated with the bay in the background. The presence of recreational trail uses so close to the highway could be a distraction to drivers. However, railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. During construction equipment and machines would be present which would provide a temporary increase in visual intrusions. Project-related impacts on the visual environment as seen from KOP 9 would be negative, but less than significant as summarized in Table 10.

Image 11A (VAU 9, KOP 11). Existing view from southbound Highway 101 next to Brainard Slough crossing. View looking southwest.

Image 11B (VAU 9, KOP 11). Post-construction visual simulation showing proposed Brainard Slough crossing from Highway 101 south. View looking southwest.

8.2.10. Landscape Unit #10: Humboldt Bay Trail North Extension

8.2.10.1. Visual Assessment Unit 10, Key Observation Point 12

VAU 10 is comprised of the southernmost extent of the nearly completed Humboldt Bay Trail North (shown in Image 12A). The proposed cable barrier fencing would be extended north from Landscape Unit #9 into Landscape Unit #10 (as far as the Gannon Slough crossing). No other activities would occur in this VAU, since the Bay Trail North has already been implemented under a separate project. Visual simulation Image 12B illustrates the existing paved trail segment, including the cable barrier fencing. The low profile cable barrier would be set back from the edge of trail and approximately 8 to 12 feet from the edge of the Highway 101 shoulder. The cable barrier would consist of steel wire ropes (typically 4 strands) mounted on steel posts secured in concrete foundations. An approximately 2-foot wide concrete weed mat would be installed along the length of the cable barrier. Views such as those shown in Images 12A and 12B would be common throughout the entirety of the proposed trail system improvements along Humboldt Bay between Arcata and Eureka. Although the cable barrier fencing would be another human-made intrusion on the landscape, it would be consistent with existing conditions, which include the paved trail, the NCRA corridor, and Highway 101. Views in this area are expansive and generally unobstructed. Travelers of all types can appreciate the size of the bay and get a sense of the coastline as it extends into the distance. Table 11 summarizes the anticipated effect of the proposed project on visual resources as seen from VAU 10.

Image 12A. (VAU 10, KOP 12). Existing view of the Humboldt Bay Trail North, which is currently under construction. View facing north.

Image 12B. (VAU 10, KOP 12). Visual simulation of the completed Humboldt Bay Trail North, including the continuation of cable barrier fencing from VAU 9. View facing north.

Table 11. Anticipated Changes to Visual Quality in Visual Assessment Unit 10

	Vividness	Intactness	Unity	Total ((V+I+U)/3)	Resource Change (Qualitative)
Existing Condition[A]	5	6	6	5.7	
Proposed Condition[A]	5	6.5	6.5	6	
Visual Quality Difference				+0.3	Low (Positive)

[A]The visual quality ratings shown above are based on summertime daylight hours, which is the most likely time that travelers would pass through the area. Ratings are anticipated to vary minimally by season and time of day.

KOP 12 earns moderately high ratings for intactness, unity, and vividness. The pattern elements present are harmonious and open. While the addition of the cable barrier fencing, including its concrete foundation and metal fence posts, would be intrusive on the landscape, it would be consistent with the existing paved trail, adjacent Highway 101 corridor, and the railroad prism. The low profile and openness of the barrier would not obstruct views available to motorists or recreationists. While there may be an increased potential for glare as a result of the use of galvanized metal and concrete, it is anticipated that this potential impact would be avoided through the use of non-glare and low-chroma construction materials. Intactness and unity would increase with the installation of the barrier because of its linearity and consistency with the other human-made features visible from KOP 12. The proposed trail and its features would be apparent to travelers on Highway 101 and may slightly distract from the scenic resources associated with the bay, but the impact would be low. Recreationists would similarly find views of the trail to be visually common and would not be distracted from the panoramic views of the adjacent coastline. Railings, fencing, and other barriers used throughout the trail alignment for safety may partially obstruct views of areas outside of the trail and conversely, views of the trail afforded motorists on Highway 101. During construction equipment and machines would be present, which would provide a temporary increase in visual intrusions; however, because the pavement has already been installed in this VAU, the duration of construction would be shorter than along other segments of the Humboldt Bay Trail South. Project-related impacts on the visual environment as seen from KOP 10 would be less than significant and would result in a positive effect on the visual resource as summarized in Table 12.

8.3. Special Consideration – Eucalyptus Tree Removal

Removal of approximately 1/3 of the total eucalyptus stand that currently lines Highway 101, would be arguably the most noticeable change to the visual character of the Humboldt Bay Trail. Not only would their removal change the existing views along the Highway 101 corridor, but it would also change the visual character of the skyline as viewed from distant neighbors and as reference by pilots using the nearby Murray Field Airport. These trees are considered by some in the community to be an important local landmark, with a history reaching back approximately 80 years. Neighbors and commuters using Highway 101 (i.e., those most familiar with the existing view) would be the most affected viewer groups. There is currently not a trail in the affected area, thus the effect of changes in the visual character of this proposed trail segment on future trail users cannot be qualified since there is not an established existing view for this viewer group. Removal of the eucalyptus trees would be open up views of Arcata Bay from Highway 101 as well as to neighbors; however, the use of railings, fencing, and barriers that may be used to ensure public safety along the affected segment may be considered by some to be an unnatural obstruction on the landscape, reducing the intactness of the view. Unity would be reduced because the eucalyptus trees were a compatible visual intrusion and were harmonious with other visual components. However, harmonious elements like native landscaping treatments would also be included. The photograph provided in Section 3.3.10 shows the extent of proposed eucalyptus tree removal.

Chapter 9. Summary of Project Impacts

9.1. Determination of Impacts Under CEQA

Project consistency with the significance criteria used in the current CEQA Guidelines (2017) was determined using the impacts thresholds identified in Table A (Chapter 8. Section 8.1). The proposed project impacts on visual resources and aesthetics, and the anticipated viewer response would be less than significant, even when the impact would result in a low to moderately low negative resource change. Table 12 summarizes the project's impacts and consistency with the current CEQA significance criteria

Table 12. CEQA Guidelines Significance Criteria for Aesthetics and Visual Resources (2017)

Significance Criteria Issue	Project-related Impact	Project Consistency
Have a significant adverse effect on a scenic vista?	The project would result in minor changes to the appearance of the existing ROW between Highway 101 and Humboldt Bay, but would not diminish views of Humboldt Bay on the landward side or of the coastal mountain from the bay.	Less than Significant
Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Highway 101 in the project vicinity is not a designated state scenic highway. There are no documented scenic resources or historic buildings in the immediate project area. However, the eucalyptus trees that line Highway 101 from just south of Bracut to the southern end of the CRC parcel are a local landmark and scenic resource. Partial removal of eucalyptus trees on the north side of the CRC site for safety would change the existing view, but would result in an expansion of views of Humboldt Bay.	Less than Significant
Substantially degrade the existing visual character or quality of the site and its surroundings?	The project would be compatible with the existing visual character of the proposed project alignment and its surroundings, and would not introduce any elements that would degrade existing visual character or quality. The addition of project components such as a boardwalk, fencing, retaining walls, and rock slope protection would occur in a manner consistent with the existing aesthetic of the surrounding area.	Less than Significant
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	The project would result in some light emissions similar to existing conditions in the Bracut area and the Highway 101 corridor. Use of metal bridge railings may increase the potential for glare. The use of reflective paint and signage, and lighting at some trail/driveway intersections would be consistent with other California Coastal Trail segments. Project	Less than Significant

Table 12. CEQA Guidelines Significance Criteria for Aesthetics and Visual Resources (2017)		
Significance Criteria Issue	**Project-related Impact**	**Project Consistency**
	implementation would may impact daytime views as a result of glare off of metal bridges. However, the type of bridges used in the proposed trail alignment are currently to be determined. Nighttime views would not be affected in the project area and vicinity as a result of project-related safety lighting improvements.	

9.2. Determination of Impacts Under NEPA

Although there are no specific standards for determining the significance of project impacts on visual resources and aesthetics under NEPA, the assessment of changes in visual quality as a result of project-related impacts on visual resources was determined based on the relationship of viewers with their visual environment and the project's potential to change the visual character of the environment. Similar to the CEQA thresholds for significance, project compatibility, viewer sensitivity, and degree of impacts were identified for the purpose of this study as the NEPA criteria used to determine if overall project impacts on visual quality would be beneficial, adverse, or neutral. The determination of visual quality change is based on visual simulations and other images, and prevailing findings of qualitative resource changes summarized in the VAU assessment tables used in Chapter 8. An overall net change when assessing the project as a whole (i.e., the cumulative net change of all KOPs assessed) was found to equal -0.7 (Low/Less than Significant) (as described in Chapter 8, Section 8.1, Table A). The degrees of visual change used in NEPA are described as beneficial, adverse, or neutral. Because the overall net change falls within the low end of the negative side of the scale used in Table A, the changes in visual quality when assessed using NEPA terminology were determined to be "neutral." Table 13 provides a summary of NEPA criteria, general project impact, and the anticipated effect that project-related changes to visual resources would have on viewers.

Table 13. NEPA Criteria Assessment of Visual Quality Change		
Criteria	**Project-related Impact**	**Visual Quality Change**
Compatibility of impacts on visual resources	The project would be compatible with the existing visual character of the proposed project alignment and its surroundings, and would not introduce any elements that would substantially degrade existing visual character or quality.	Neutral

Table 13. NEPA Criteria Assessment of Visual Quality Change		
Criteria	**Project-related Impact**	**Visual Quality Change**
Viewer sensitivity to impacts	Commuters would be the viewer group potentially most affected by the proposed project because of their familiarity with the Highway 101 corridor. However, views of Humboldt Bay and compatibility of the proposed trail components with the surrounding area would likely be enhanced as a result of the project. Other travelers would have little or no familiarity with the existing view. The few neighbors with views of the project would not be adversely affected by the project.	Neutral
Degree of impacts	Overall impacts on visual resources as a result of project implementation would enhance the existing viewshed (i.e., views of Humboldt Bay and surrounding areas as seen from both land and water). In addition, project components would not degrade the visual character or quality of the existing visual environment.	Neutral

9.3. Summary of Project Impacts

In general, the project would have a beneficial impact on existing and planned visual resources in the project alignment or vicinity, which would include improvements to existing aesthetics and visual resources, and creation of additional viewing opportunities of Humboldt Bay, mudflats and marshlands. New features such as signage, bridge crossings, and viewing platforms would be constructed to be unobtrusive on the landscape. Landscape reestablishment would incorporate plants that would match the surrounding native vegetation and improve the aesthetic qualities of the trail.

The project would not adversely impact the panoramic scenic vistas of Humboldt Bay visible from points along the proposed trail alignment and locations adjacent to the trail such as along Highway 101 and nearby roads such as the Indianola Cutoff. The low profile of project features such as a guard rail and cable barriers, and directional signage would not substantially obstruct views of the bay as seen from inland areas. The three proposed new bridge structures including the Brainard Slough crossing and two crossings to the CRC levee (one at either end of the parcel) would affect the pattern elements (form, line, structure, texture, etc.) of the existing views, but the effect on visual resources and aesthetics would be less than significant. Neighbors (i.e., those persons working in offices and buildings near the north end of CRC) would be exposed to visual changes as a result of the bridge crossing extending from the trail corridor to the levee. Consideration for construction materials, color palettes, plantings, and use of open safety barrier design would buffer the appearance of project features on the landscape and the effect on viewers, in particular, commuters on Highway 101 who would have the greatest familiarity with the pre-project conditions. In

addition, the use of cable safety barriers or rails as needed along the extent of the trail would be consistent with the safety features along Highway 101.

Removal of eucalyptus north of CRC (Segment 7) would result in a minor adverse change in the visual environment, primarily noticeable to commuters; however, views of Humboldt Bay would be increased for travelers on Highway 101 as well as landward views from the bay and curving coastline to the north and south. Other vegetation management actions throughout the project alignment, including removal of smaller trees and shrubs along the railroad corridor would have a lesser impact on visual resources and aesthetics. Travelers would have more intact and unified views of Humboldt Bay and the coastal plain as a result of vegetation management activities. Few, if any, neighbors would be significantly impacted by changes in visual resources as a result of vegetation management, including removal of the eucalyptus, since most are too far away to see a change in the visual environment or have obstructed views.

The completed project includes use of nighttime safety lighting at locations where the trail would intersect roadways, such as at the Bracut driveway/intersection (Segment 9). While this would be a new source of nighttime lighting, low-level, low-glare lighting will be used. The potential for glare from headlights (including bicycle lights), the expanded trail surface, directional and informational signs, soils exposed by project construction, and vegetation removal would be consistent with existing conditions along the Highway 101 corridor and surrounding areas and would not be significant. Nighttime views of the project area would be limited to artificial light from outside sources such a bicycle lights and road crossings. Conservation Measure VIS-1 (see Chapter 11) is recommended to ensure that impacts resulting from project-related light sources remain less than significant.

The effects of new signage and viewing platforms set against the landscape would be less-than-significant given the dominant vertical structure of the vegetation and occasional overhead utilities throughout the project alignment. However, reflective road paint, where appropriate, and highly reflective signs are required by law.

During construction minor temporary impacts on aesthetics could result from construction disturbance. Large machines and equipment would be present along the highway, which could temporarily provide sources of glare and obstruct views of the Humboldt Bay. Most noticeable to neighbors and travelers would be the presence of construction equipment at the various bridge crossings; however, the industrial nature of the adjacent parcels and the temporary presence of the equipment makes this a less-than-significant impact on aesthetics and visual resources.

Chapter 10. Cumulative Effects

Proposed changes to the existing aesthetic of the project area from implementation of the Humboldt Bay Trail South Project would not degrade views of Humboldt Bay or the scenic quality of the project area. The proposed project would enhance viewing opportunities for the public and would provide landscaping treatments that visually match the surrounding landscape. Rock rip-rap, weed mats, and native revegetation are examples of the types of landscape treatments that would be used throughout the project area, as practicable. In addition, it is anticipated that native vegetation would reestablish over time, lessening the appearance of such treatments even further. The visual effect of these treatments on the landscape would be a part of the cumulative considerations afforded landscaping used for other projects associated with the Highway 101 corridor and adjacent areas. Views of Humboldt Bay, the coastal mudflats, and other coastal scenic resources would open up in some areas where large trees are planned for removal. Travelers typically experience views from a travel corridor in a cumulative rather than site specific manner. The project's contribution to cumulative impacts on aesthetics and visual resources would be an overall improvement of the scenic quality of the area throughout many segments of the proposed alignment, when considering the scattered industrial and commercial development that distracts from the panoramic views of Humboldt Bay along the Highway 101 corridor. The cumulative effect of the vegetation removal along Highway 101 on visual resources and aesthetics would contribute to the loss of vertical pattern elements rich in texture, form, line, and color, thus reducing the visual diversity of the views between Eureka and Arcata. The addition of the cable barrier railing, fencing, and retaining walls in the project area would be a cumulative impact, particularly when considered in the context of other projects such as the Eureka-Arcata Route 101 Corridor Improvement Project (Caltrans District 1-HUM-101, PM 79.9/86.3) that will affect the same general area. The larger Highway 101 corridor has cable barrier rail proposed in McKinleyville and the Eureka to Arcata corridor, along with the existing cable barrier rail already installed in Arcata. However, in the project area, Humboldt Bay and the coastal shoreline would be made more prominent, consistent with the majority of the project area. The presence of the trail would be a cumulatively considerable improvement for recreationists.

Chapter 11. Visual Resource Management Recommendations

11.1. Resource Protection Measures

The effect of the proposed project on scenic resources and aesthetics would be a benefit to the County and the City of Eureka. Project design considerations include the beneficial effects of the project on viewer sensitivity to Humboldt Bay, and the County's, City's, and Caltrans' guidelines pertaining to scenic resources. This assessment of the visual character of the project area indicates that the following management recommendations should be considered for inclusion in the project design standards to ensure minimal adverse changes in overall visual quality:

1. Manipulate landscape components such as landform and vegetation to enhance the visibility of project actions from surrounding areas.

2. Enhance opportunities for scenic views from the Humboldt Bay Trail South when possible.

3. Use construction materials that are visually compatible with the landscape. However, reflective road paint and highly reflective signs are required by law.

4. Retaining wall architectural treatment, such as specified color, texture, and material options that would allow the wall to recede into the landscape.

5. Select pedestrian safety rails within consideration for matching the scenic character to the project area.

6. Revegetation would be limited to native grasses and special-status native plants.

11.2. Conservation Measures

The following conservation measure is recommended to be incorporated into the project description to minimize impacts associated with required safety lighting:

- **Conservation Measure VIS-1:** To avoid adverse impacts, new sources of light, including any outside night lighting associated with construction, will be designed to protect wildlife and nighttime views, including views of the night sky. This design goal will be satisfied using a variety of means as applicable, including fixture types, cut off angles, shields, lamp arm extensions, and pole heights. Specific design preferences include not directing light upward or to other properties, avoiding

brightly illuminated vertical surfaces where feasible, such as walls and lamp poles, and not directing lighting toward environmentally sensitive habitats. The Recommended Practices of the Illuminating Engineering Society of North America should be consulted for lighting levels and quality of light.

Chapter 12. Conclusions

Assessment of potential impacts on visual resources and aesthetics resulting from implementation of the Humboldt Bay Trail South project, and viewer response to these impacts, would be less than significant for the project as a whole. Although the cumulative net change to the existing views afforded travelers and neighbors resulting from the presence of the trail and the minor changes that would be made to the visual character of the proposed trail alignment were found to be negative (-1.7 [Moderately Low/Less than Significant]) based on the assessment methodology used in Chapter 8, this rating indicates that there would be no substantial reduction in visual quality. Implementation of the Humboldt Bay Trail South would enhance opportunities for the public to experience the panoramic vistas of Humboldt Bay and the coastal environment.

Dryad, LLC

October 8, 2018

County of Humboldt
Hank Seemann, Deputy Director
Department of Public Works – Environmental Services
1106 Second Street
Eureka, California, 95501

Project name: Humboldt Bay Trail South -Limited Visual Tree Risk Assessment
Project no.: 715036

Mr. Seemann, et al;'

I am under contract, as a Consulting Arborist, with Humboldt County for the specific assessment of trees relative to the planned Humboldt Bay Trail (HBT) construction project (Segment 7). My assignment consists of evaluating a stand of bluegum trees (*Eucalyptus globulus*), parallel to the west edge of Highway 101 between the former CA Redwood Co. mill site (south) and the Indianola Cutoff intersection (north). This letter and the accompanying Attachments comprise my report.

Scope of Services: The contract Scope of Services includes the following (paraphrased and summarized):

- Conduct a Level 1 Basic[1], ground-level, visual, stand-level evaluation of the condition, risk, and mitigation potential for the northern group of *Eucalyptus* trees situated along Segment 7 of the proposed HBT.
- Review provided documents
- Field inspection of site and trees
- Identification (genus-species)
- Evaluate the trees as to condition including health, stability (structure), risk and species suitability
- Evaluate environmental and climatic conditions, effects of pruning and the potential for damage from trail construction
- Identify previous failure patterns
- Address potential mitigation options for health and risk
- Develop exhibits of typical conditions
- Provide a formal letter-report of data, observations, evaluations and exhibits
- Present an in-person summary report to a meeting of the Board of Supervisors and respond to questions

In preparation for the field work, I reviewed a number of internet sites that included historical images of the vicinity as well as documents you provided. The documents you provided included the following:

1. Department of Public Works County of Humboldt, Comment Evaluation Memo, dated July 16, 2018
2. Maps and Photographs of Eucalyptus Trees along the future segment of the Humboldt Bay Trail, dated August 2, 2018
3. Attachment C Examples of Eucalyptus Tree Safety Incidents in California (undated)
4. Humboldt Bay Trail eucalyptus exhibits 9-27-2018 (PowerPoint file)

I met briefly with you and previewed the site and trees on September 13, 2018. On September 14, 2018, I inspected the site and trees[A], selected and tagged example trees, recorded measurements and images and performed limited micro-resistance testing[B]. Ten example trees were tagged with pre-numbered, blue aluminum tags installed at approximately eye-level, and highlighted with a spot of blue paint on the tree trunk. Katie Krebs, Consulting Arborist[2], assisted me with the field work.

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[1] This description, quoted from the contract, combines two levels of inspection as defined in the referenced document *American National Standards Institute, 2017. Standard Practices for Tree, Shrub and other Woody Plant Maintenance, Tree Risk Assessment, a. Tree Failure*, American National Standards Institute (ANSI A300 Part 9, 2017), as follows: "95.9 limited visual assessment (Level 1): A visual assessment from a defined perspective… of an individual tree or a population of trees, to assess risk to specified targets from obvious defects or specified conditions." and "95.4 basic tree risk assessment (Level 2): A tree risk assessment that includes a 360-degree, ground-based visual inspection of the tree crown, trunk, trunk flare, aboveground roots, tree related site conditions, and significant targets. The assessment may include the use of common hand tools."

[2] Katie J. Krebs, Consulting Arborist; ISA Certified Arborist no. WE-8731A, ISA Tree
Consulting Arborist under contract with and not an employee of Dryad, LLC.

Field assessment process:

- A Level 1 Limited Visual Tree Risk Assessment[C] was performed on all trees in the stand >8" diameter (dsh)[D].[3]
- A Level 2 Basic Tree Risk Assessment[C] was performed on all trees in the stand >8" diameter (dbh).
- A Level 3 Advanced Tree Risk Assessment[C] was performed on six trees (nos. 1, 3, 5, 6, 9 & 10) of the ten trees selected as examples of typical tree condition within the stand. Advanced techniques included micro-resistance drilling, limited to one or two locations on the tree trunks of these six.
- Sampling: Samples collected included soil, water (drainage), foliage and wood (drillings). Samples were blended as per laboratory protocol, and not representational of specific individual trees.

I submitted the collected samples of soil, foliage and water to Perry Laboratory[4] on September 17, 2018. I also collected wood samples, submitted on September 17, 2018 to the University of CA at Berkeley Forest Pathology and Mycology labs for DNA assay of wood decay fungi[5]. The reports from Perry Laboratory are included in the attachment documents. The UC lab typically takes many weeks to process samples and report findings, so those results will be forwarded when received. It is my opinion that the DNA assay results, even if no specific fungi are detected, cannot improve upon my opinions of the condition of the trees as presented in this report, but the presence of some species of wood decay fungi could enhance the urgency for risk mitigation.

SUMMARY: The contract cites approximately 219 individual trunks over 8" diameter and we counted approximately 129 separate trees, many of which are multi-trunked or growing too close to differentiate.

This stand of trees, combined with similar nearby stands of bluegums, provides a striking, unique and visually pleasing border between the highway and Humboldt Bay. At one time, they clearly provided a significant windbreak and screening of the railroad tracks and associated activities. The removal of many trees and virtually all primary limb architecture[E] has resulted in negligible screening benefits. As the tracks are no longer in use and related activities in the vicinity no longer occurring, the trees now serve primarily as an obstruction to a view of Humboldt Bay.

Although I was provided no information on the maintenance activities or schedule for these trees, their proximity to the highway is the likely motivation for the severe and repeated pruning and topping. Pruning has included significant height reduction through topping[F] and the removal of nearly all primary, lateral limbs and many codominant stems[G] as well as the complete removal of many trees. It was also apparent that the profuse debris typically shed by bluegums, including exfoliated bark, declining leaves, seed capsules and branches has been regularly cleared from beneath the trees, along with the many benefits of organic soil cover (mulch[H]; soil horizon O[I]).

There is little variation in the condition of the trees or specific conditions. I selected ten trees as representational of typical overall condition and for illustration of specific conditions. The Attachments document accompanying this report includes exhibits for each of these ten example trees as well as the conditions described throughout this report.

The trees as a whole are in an advanced state of physiological decline[J], exhibiting little ability to compartmentalize[K] wounds[L], very limited woundwood[M] formation on the most recent pruning cuts, almost non-existent sprouting and profuse dieback of twigs and entire branches and stems[N]. The foliage and soil testing indicates high concentrations of salts and low fertility[4]. The adjacent drainage water is also high in salts[4]. These conditions in combination with repeated and severe pruning, desiccation from frequent winds and the poor water-holding capacity of the soil are likely the combined cause of decline. I observed no signs of significant insects or diseases.

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[3] The protocol for each level is included in each successive level. *American National Standards Institute, 2017. Standard Practices for Tree, Shrub and other Woody Plant Maintenance, Tree Risk Assessment, a. Tree Failure*, American National Standards Institute (ANSI A300 Part 9, 2017).

[4] Refer to the Perry Laboratory analyses and report in the Attachments document.

[5] Wood decay fungi DNA assay: UC Forest Pathology and Mycology labs (https://nature.berkeley.edu/garbelottowp/?page_id=146); DNA analysis results typically take 60-90 days or more to be reported. The identification of any decay organisms only indicates their presence, and not the extent of damage or any judgment as to tree condition. Samples are collected by collecting drilling residue (sawdust) via a 1/8" diameter bit. The residue is typically collected at several locations on an individual tree and mixed to produce a single sample.

This stand of trees exhibits a number of structural[O] weaknesses that can result in failures. These conditions include decay at the base of tree trunks, columns of decay on trunk interiors, decay at pruning wound sites, large dead limbs, weak attachments of limbs and tops[P] and codominant stems. The targets[Q] for such failures include the planned Humboldt Bay Trail[6] to the west and the immediately adjacent Highway 101[7] to the east. There is a high potential for both significant property damage and serious personal injury or death should whole trees or tree parts fail.

In my opinion, there is no reasonable method for mitigating these risks through pruning[R], cabling and bracing[S] or the moving of targets. If allowed to remain, the risk of failures will increase over time. The health of these trees will continue to decline, as their growing environment is inherently inhospitable to plant growth due to soil structure and low fertility, salinity of both water and soil and the natural senescence of aged trees.

RECOMMENDATIONS: The following recommendations are listed in order of priority.

1. **I recommend removing the entire stand to grade.** The physiological and structural conditions that render these trees a risk will worsen over time and cannot be effectively mitigated except via removal.
2. **If removal of all of the trees is delayed or precluded,** at least perform promptly the recommended mitigation measures, for the example trees assessments that cite the Humboldt Bay Trail as a target for either Tree Part 1 or Tree Part 2 (tree nos. 2, 3-5, 7, 8 & 10) [8].
3. **Perform a second risk assessment of all remaining trees** that present risk to the Humboldt Bay Trail promptly (trees other than the example trees), before construction or other activities take place within the striking distance of the trees. This is necessary to develop mitigation recommendations for these trees.
4. **Replacement:** If all or any of the trees are removed, in consideration of the risk presented by large trees in this location and the inhospitable growing environment, I recommend replacing only with native, coastal plants of smaller stature that are known to be tolerant of these site conditions[4].

DISCUSSION:

Tree risk: Tree risk is defined in the industry standards[9] as "*the likelihood of a tree failure impacting a target and the likely severity of the consequences*." Trees are living, changing organisms affected by innumerable factors beyond human control. Trees fail in ways and because of conditions, we do not fully understand. Arborists cannot detect or anticipate every condition or event that could possibly lead to the structural failure of a tree. Conditions are often hidden within the trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, for any specific period or when a tree or its parts may fail. Further, all large landscape trees in proximity to people, structures, utilities or roadways present some degree of risk regardless of their condition. Such risk must be accepted in order to enjoy the benefits of large trees. To live near trees, regardless of their condition, is to accept some degree of risk. Tree removal is the only way to eliminate the risks associated with trees.

The example trees were selected to illustrate the range of typical conditions within the stand as a whole. To maintain the integrity of the stand-level assessment, potential targets and overall tree condition were not considered in the selection process. Although not the focus of this project, Highway 101 is included as it is the only target of potential tree failures other than the Humboldt Bay Trail[10]. In my opinion, eliminating Highway 101 as a target would result in a serious mischaracterization of overall stand condition and risk.

For assessing the risk from the example trees in this project, I assessed risk for the tree part I deemed most likely to fail first, within a time-frame of 1-3 years. In general, the most common first failure risk is from falling dead limbs. All risks were identified and rated based on existing condition at the time of the inspection.

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[6] For the purposes of the tree assessments and this report, the Humboldt Bay Trail is presumed constructed as described in provided documents.

[7] These trees were not assessed for risk relative to Highway 101 as the primary target. A tree-by-tree formal risk assessment specifically relative to Highway 101 as the primary target must be performed in order to rate tree risk and recommend mitigation measures.

[8] Refer to the Attachments document accompanying this report.

[9] American National Standards Institute, 2017. *Standard Practices for Tree, Shrub and other Woody Plant Maintenance, Tree Risk Assessment, a. Tree Failure*, American National Standards Institute (ANSI A300 Part 9, 2017).

[10] ANSI A300 Part 9, 2017,.pg. 9, "92.2 Tree risk assessors should consult with the owner, owner's agent, or controlling authority to assess site use, and identify significant known and foreseeable targets within likely striking distance of the specified tree(s) or tree parts."

The severity assessed for that risk is based upon the likelihood of those limbs striking users of the trail or the highway or their property (e.g., vehicles). However, the first part to fail may not be the most serious. Many of the trees are at risk of the collapse of entire stems or large tree portions, but I was not of the opinion that such failures are imminent. The potential to fail will increase over time and the consequences likely much more severe than the falling of dead limbs.

Therefore, the prescribed Tree Risk Assessment process[11] sometimes results in an overall risk rating (Tree Part 1) that may be low at the time of assessment and yet there may be a very serious risk looking forward (Tree Part 2). It is my opinion that this is the case with many of the trees in this stand and therefore, delaying their removal is ill-advised.

Stand density: It is likely that at one time, these trees provided an effective windbreak, but the cumulative effect of removing entire trees, stems and all lower limbs has reduced stand density to a fraction of what it once was. The small volume of remaining foliage is now concentrated at the tops. The foliage is declining and branches dying. There is almost no sprouting along the trunks and limbs in spite of *Eucalyptus* species having a propensity to produce profuse sprouting in response to severe pruning and exposure of limbs and trunks to sunlight. These are all signs of low vigor[T].

Physiological health: Bluegum trees (*Eucalyptus globulus*) are by character, extremely vigorous, fast growing and tolerant of severe pruning and difficult growing environments. They are noted as tolerant of seaside conditions, wet or dry soils, drought, full or partial sunlight and other typically detrimental conditions. Branch strength is considered typically weak and the species is not fire resistant. Bluegums also have the ability to grow to tremendous size and within a few decades, can achieve well over 100 feet in height with trunks of several feet in diameter[12].

This stand of trees is in advanced decline and many are near death with a tiny fraction of the necessary foliage to survive[U]. Described as planted in 1921[13], the trees have failed to achieve anything near even average size for nearly 100-year-old blue gum trees. The trees exhibit multiple signs of decline including branch dieback, extensive decay, lack of sprout growth, minimal response growth over pruning cuts and stunted overall growth. Undoubtedly, this is a result of the combined and continuous impact of repeated severe pruning, limited rooting space, impervious soil cover (highway), saline water and soil, low soil fertility, lack of organic soil cover (mulch) and regular significant winds.

Future impacts from the inevitable pruning and removal of additional trees required for highway safety and the clearing of organic soil cover ensures the rate of decline will continue and likely increase. Should climate change result in greater storm extremes and/or rising bay water levels, the effects of salinity in the wind spray, soil and available water will further exacerbate and increase the rate of decline as well. The low vigor of these trees will not allow them to adapt over time to increased wind stress and will inevitably result in an increased rate of failure.

Tree structure and architecture: I was provided images of severe pruning and topping of these trees, underway in 1969[14]. It was apparent the trees have been subsequently re-topped several times. Periodic pruning removed entire stems and virtually all primary, lateral limb architecture, which concentrates foliage at the tree tops. Branches well-spaced throughout the height of a tree and branches along the length of primary limbs are critical to the development of the taper[V] of these parts. Stems and limbs with little taper, particularly when compromised by decay, lose dynamic strength and are more prone to failure. This condition is prevalent in this stand and the resulting risk enhanced by pruning and stand thinning that has increased wind exposure.

The canopies of these trees consist primarily of sprouts from topping cuts that have matured to significant size, but are weakly attached. Many of the topping cuts have decayed, further jeopardizing the strength of

[11] TRAQ: an International Society of Arboriculture (ISA) qualification program that trains arborists how to use the methodologies outlined in the ISA Best Management Practices for Tree Risk Assessment. This qualification promotes the safety of people and property by providing a standardized and systematic process for assessing tree risk. The results of a tree risk assessment can provide tree owners and risk managers with the information to make informed decisions to enhance tree benefits, health, and longevity.

[12] Urban Forestry Ecosystem Institute, Cal-Poly San Luis Obispo, SelecTree (https://selectree.calpoly.edu/tree-detail/eucalyptus-globulus).

[13] Department of Public Works County of Humboldt, Comment Evaluation Memo, dated July 16, 2018.

[14] Maps and Photographs of Eucalyptus Trees along the future segment of the Humboldt Bay Trail, dated August 2, 2018.

attachments. The majority of pruning cuts are flush cuts[W], which typically result in significant decay. Many of these cuts have resulted in internal columns of decay, weakening wood strength and reducing flexibility under wind stress.

Potential impact of trail construction: The rooting area for these trees is very limited, with asphalt within a few feet to the east and a saline drainage ditch to the west. Any medium that can support roots is therefore valuable. If roots exist in the berm of the railroad tracks, they will be lost to construction via removal or through the addition of substantial fill soil. Root loss will exacerbate the rate of decline of the trees. It is unlikely, based on current information available to me, that construction will result in root loss that will directly affect tree stability (i.e., supporting roots).

Mitigation options: The risk from some trees and certain conditions can sometimes be reduced via techniques such as pruning and/or cabling and bracing, preventing access within or moving the targets outside of the tree fall zone. It is my opinion that the trees in the subject stand offer no opportunity for viable long-term solutions such as these.

1. **Removal:** Removing all trees in this stand is the only method of eliminating the risk of their failure. Doing so would also present opportunity for landscape-redesign and open up the views of the adjacent Humboldt Bay.
2. **Pruning:** Due to the completely lacking primary limb structure, there is no opportunity for effective tree reduction pruning or restructuring.
3. **Heading (topping) for height reduction**: While risk could be temporarily reduced via repeating severe topping, as was performed in 1969, such pruning would hasten decline and the resulting regrowth, if any, would result in a new era of risk of failures via decay and weak attachment. Should the trees survive, high maintenance would be necessary to reduce or remove the resulting sprouting.
4. **Support systems (cabling and/or bracing)[S]:** There is no support method that can provide reasonable risk reduction for the weak tops. While cables might reduce the risk of failure of some codominant stems, that risk cannot be eliminated, support systems are not permanent and are not a guarantee against failure. Cables would not provide protection against whole tree failure or uprooting.
5. **Phased, prioritized removals:** Removing selected trees deemed most likely to fail would alter the stand and reduce wind buffering between trees, exposing the remaining trees to a sudden increase in stresses they are not adapted to. The potential for failures would therefore increase and the need for removal of the remaining trees would remain inevitable. Further, the risk of various failures is so prevalent that attempting to prioritize removals would be substantially ineffective.

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Stand & canopy density:

03/07/1949 (above): Historically , the stand was very dense with many more trees (Image excerpted from document 2.Maps and Photographs of Eucalyptus Trees along the future segment of the Humboldt Bay Trail, dated August 2, 2018.).
09/14/2018 (below): Similar view illustrating the current lack of density, increased height and top-heavy canopy, and trees devoid of lateral limbs and lower foliage.

Bird Use Monitoring Report for Eucalyptus Trees along the Eureka-Arcata Highway 101 Corridor

Prepared for
Humboldt County Public Works Department

Prepared by
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Submitted: June 3, 2020

INTRODUCTION

The County of Humboldt Department of Public Works (County) is preparing design plans and permit applications for the Humboldt Bay Trail South project situated along the Eureka-Arcata Highway 101 and railroad corridor immediately north of Eureka, California. The current proposed alignment for the project is situated parallel to the northern segment of a row of blue-gum eucalyptus trees (*Eucalyptus globulus*) along the west side of Highway 101. The current proposed alignment for the project would avoid the southern segment of eucalyptus trees by occupying the levee around the California Redwood Company (CRC) former mill site; however, the proposed alignment could change in the future if right-of-way on the levee cannot be acquired. During the preliminary design and environmental review phase for the project, the northern segment of trees was identified as a significant safety hazard for the future trail, and the County proposes to remove these trees in conjunction with project construction. In December 2019, the County retained S.E. McAllister & Associates to assist with gathering technical data and information regarding avian activity within both northern and southern segments of the eucalyptus trees and the habitat quality of these trees.

Our monitoring results provide a snapshot of bird use at the study site from late fall 2019 into early spring 2020, a period that would capture winter roosting and early nesting, especially by resident raptors and wading birds (herons and egrets) -- all of which are fully protected under state and federal regulations.

STUDY AREA

The study area involves an approximately 1.2-mile row of single mature blue gum trees situated between north Humboldt Bay on the north east side and the state Highway 101 corridor on the south west side. Highway 101 in this section has four lanes, two in each direction, which are divided by a vegetated median strip. The row of trees is continuous such that their canopies nearly intermingle except for a 180-meter gap at the entrance to the CRC Mill site. This gap marks the separation between the northern and southern segments as referred to in this report (Figure 1). The southern segment is backed on the west by the CRC Mill site (including a large lumber deck and large mill building) which sits on a lobe of land that juts out into the bay near Fay Slough, separating the bay from the trees by up to nearly ¼ mile, whereas the northern segment of trees lies immediately adjacent to the bay shore, separated from it only by railroad tracks -- part of the old Northwestern Pacific Railroad mainline (now in disuse). The northern segment appears to have received more pruning over time, as evidenced by sparser canopy structure and less continuity in the canopy from one tree to the next.

The subject trees are mature cohorts, nearly 100 years old, and are all of similar height and size. Due largely to years of pruning, but also as part of the species natural physical form, the foliage is rather

sparse and is concentrated near the crowns. Scattered smaller saplings occur adjacent to the railroad tracks just west of the mature trees. Because of the general lack of dense foliage, the perceived bird habitat value afforded by these trees is limited to primarily perching and foraging opportunities while there value as nesting habitat is minimal. Please see Appendix A and B for representative photographs of the trees.

Figure 1. Aerial view of study site

BACKGROUND

Blue gum eucalyptus was first introduced into California from Australia circa 1856 and was widely distributed. Since then they have naturalized in many parts of the state and altered native landscapes and ecosystem processes (Wolf and DiTomaso 2016). The fast growth rate, size, and aesthetic attributes

have been attractive features supporting the interest in continuing the spread of the species (Santos 1997). Eucalyptus generally tend to have strong survivability and growth within the coastal fog belt. Humboldt County has been identified as one of the counties at most risk for the continued spread of Eucalyptus trees, having increased by 52% between 1908 and 1989 (Wolf and DiTomaso 2016). Although Eucalyptus is known to provide suitable roosting and nesting habitat for raptors and colonial waterbirds in California, this use has been reported to be coincident with the absence of adjacent native woodland and other exotic trees (Suddjian 2004). Nest sites are often reduced in density within Eucalyptus stands and cavity-nesting species are notably underrepresented (Suddjian 2004). The row of Eucalyptus occurring along the Highway 101 safety corridor is narrow and the canopies of the trees are sparsely linked offering limited dense cover (Young 2018). Furthermore, the surrounding wetlands, fields, forests and bay all provide higher quality habitat for foraging, roosting and nesting sites.

METHODS

Monitoring began 28 October 2019 and concluded on 2 April 2020 which captured the late fall migration period when many raptors pass through the area; winter; and early spring when resident birds begin nesting.

Due to the long, linear arrangement of the subject trees, multiple observation points were used. From the Fay Slough Wildlife Area trail (E5) the stand in its entirety can be observed and monitored at a distance for medium-large birds. The bank of the slough adjacent to the Mid-City auto dealership (E3 and E4), the pullout across from the entrance to the lumber mill (E2), and the parking area for 'Cash and Carry'(E1) all provide closer but more constricted views of the stands. (Figure 2).

Figure 2. Aerial image showing primary observation locations (E1-E5)

Surveys were conducted during both morning and evening beginning within 1 hour of sunrise and sunset respectively in order to capture any evidence of the stand being used as an overnight roosting site. To standardize our monitoring effort each survey visit was time-constrained to 2 hours and surveyors would move between observation points as needed to identify and record all birds.

Surveys were conducted twice (two mornings and two evenings) per week for a total of 72 visits over 37 survey days; during the hunting season we avoided surveying on hunt days to minimize potential disturbance-biased results. When species were detected in the subject trees we recorded the following information: (1) stand location (north or south); (2) location within each stand (southern, middle or northern third) and relative height (lower, middle or upper third); (3) total time present within the stand (a bird detected briefly leaving the stand only to immediately return was recorded as a new event); (4) behavior (foraging, roosting or nesting; preening behavior was recorded as roosting).

Surveys were performed during any weather conditions as long as birds were reasonably detectable and identifiable in the trees throughout the survey.

RESULTS

Species composition, abundance and frequency of occurrence

During 144 observation hours (72 visits; 37 dates) we recorded 138 detections involving 510 individual bird sightings, represented by 19 species, including 7 raptors (Table 1). Three of the identified species (Rock Pigeon, Eurasian Collared-dove, and European Starling) are non-native. Twenty-two of 72 (30.6%) survey visits had zero bird detections. The most frequently (n=72) observed species were Common Raven (detected during 40.3% of surveys), European Starling (38.9%) and Red-tailed Hawk (30.6%). Five species were detected only once throughout all surveys. A detection of a single flock of at least 200 European starlings (*Sturnus vulgaris*) accounts for a hefty share of the 510 individual bird detections that were made during the study.

Table 1. List of species (19) observed within the stand of *Eucalyptus globulus* along the Highway 101 corridor between Fay Slough to the south and the Indianola Cutoff in the north, recorded between 28 October 2019 and 2 April 2020, Humboldt county, California.

Species	Times Detected	Individuals Detected	Frequency of Detection (n=72)
Rock Pigeon (*Columba livia*)	2	4	2.78
Eurasian Collared-Dove (*Streptopelia decaocto*)	1	1	1.39
Anna's Hummingbird (*Calypte anna*)	2	2	2.78
Unidentified *Selasphorus* hummingbird species	1	1	1.39
Northern Harrier (*Circus hudsonius*)	2	2	2.78
Bald Eagle (*Haliaeetus leucocephalus*)	1	1	1.39
Red-shouldered Hawk (*Buteo lineatus*)	2	2	2.78
Red-tailed Hawk (*Buteo jamaicensis*)	22	22	30.56
American Kestrel (*Falco sparverius*)	4	4	5.56
Merlin (*Falco columbarius*)	1	1	1.39
Peregrine Falcon (*Falco peregrinus*)	14	14	19.44
Common Raven (*Corvus corax*)	29	34	40.28
Chestnut-backed Chickadee (*Poecile rufescens*)	5	11	6.94
Red-breasted Nuthatch (*Sitta canadensis*)	1	2	1.39
Ruby-crowned Kinglet (*Regulus calendula*)	2	2	2.78
European Starling (*Sturnus vulgaris*)	28	371	38.89
House Finch (*Haemorhous mexicanus*)	4	8	5.56
White-crowned Sparrow (*Zonotrichia leucophrys*)	2	2	2.78
Red-winged Blackbird (*Agelaius phoeniceus*)	2	3	2.78
Yellow-rumped Warbler (*Setophaga coronata*)	10	13	13.89
Unknown passerine sp.	3	10	4.17
Totals	138	510	

Behavior

Most birds were observed either foraging (39.9%) or roosting (36.9%). Some (19.7%) of the behavioral observations were classified as unknown as the sightings were either too brief or obscured from view to determine behavior. Of the 59 roosting detections, red-tailed hawk (*Buteo jamaicensis*) and peregrine falcon (*Falco peregrinus*) comprise the majority, with 21 and 14 detections, respectively. Small passerines accounted for all 33 foraging detections: yellow-rumped warblers (*Setophaga coronata*), were detected 9 times flittering through the foliage after small insects and hummingbirds were observed nectaring on eucalyptus flowers on three occasions.

Table 2. Summary of species and the percentage of observed behavior within the stand of *Eucalyptus globulus* along the Highway 101 corridor between Fay Slough to the south and the Indianola Cutoff in the north, recorded between 28 October 2019 and 2 April 2020, Humboldt county, California.

Species	Foraging n=33	Roosting n=59	Nesting n=22	Unknown n=24
Rock Pigeon (*Columba livia)*	0%	50%	0%	50%
Eurasian Collared-Dove(*Streptopelia decaocto)*	0%	100%	0%	0%
Anna's Hummingbird (*Calypte anna)*	100%	0%	0%	0%
Unidentified *Selasphorus* hummingbird species	100%	0%	0%	0%
Northern Harrier (*Circus hudsonius)*	0%	100%	0%	0%
Bald Eagle (*Haliaeetus leucocephalus)*	0%	0%	0%	100%
Red-shouldered Hawk (*Buteo lineatus)*	0%	50%	0%	50%
Red-tailed Hawk (*Buteo jamaicensis)*	0%	95%	0%	5%
American Kestrel (*Falco sparverius)*	0%	100%	0%	0%
Merlin (*Falco columbarius)*	0%	100%	0%	0%
Peregrine Falcon (*Falco peregrinus)*	0%	100%	0%	0%
Common Raven (*Corvus corax)*	0%	21%	76%	3%
Chestnut-backed Chickadee (*Poecile rufescens)*	80%	0%	0%	20%
Red-breasted Nuthatch (*Sitta canadensis)*	100%	0%	0%	0%
Ruby-crowned Kinglet (*Regulus calendula)*	100%	0%	0%	0%
European Starling (*Sturnus vulgaris)*	25%	25%	0%	50%
House Finch (*Haemorhous mexicanus)*	75%	0%	0%	25%
White-crowned Sparrow (*Zonotrichia leucophrys)*	100%	0%	0%	0%
Red-winged Blackbird (*Agelaius phoeniceus)*	0%	0%	0%	100%
Yellow-rumped Warbler (*Setophaga coronata)*	90%	0%	0%	10%
Unknown passerine sp.	67%	33%	0%	0%
TOTALS	39.9%	36.9%	3.6%	19.7%

Nesting behavior by a pair of Common Ravens (*Corvus corax*) -- the only nesting that was observed -- accounted for the remaining 3.6% of all observed behaviors (Table 2). The ravens were first observed

nest-building in the southern stand on 3 March 2020 (Appendix B). The nest was positioned in the crook of the tree near the crown surrounded by foliage and was composed of small twigs and branches, lined with small clumps of reddish bark-like material. The nest remained active through the conclusion of the survey period on 2 April 2020.

Red-tailed Hawks roosted on average for approximately 20 minutes, about the same as American Kestrel (*Falco sparverius*) and slightly longer than Peregrine falcon and Common Raven (*Corvus corax*), which roosted for an average of 16 and 12 minutes, respectively.

Comparison of north and south segments

For all observed species, there were equal or more detections in the southern stand of trees than in the northern stand (Table 3). Indeed, there were vastly more detections overall (122; 88.4%) in the southern stand than the north (16; 11.6%). Red-tailed hawk and Common Raven detections occurred overwhelmingly within the southern stand whereas peregrine falcon stand use was distributed equally between the two stands.

Table 3. Summary of stand use in relation to species detections within the stand of *Eucalyptus globulus* along the Highway 101 corridor between Fay Slough to the south and the Indianola Cutoff in the north, recorded between 28 October 2019 and 2 April 2020, Humboldt county, California.

Species	South	North
Rock Pigeon (*Columba livia)*	2	0
Eurasian Collared-Dove(*Streptopelia decaocto)*	1	0
Anna's Hummingbird (*Calypte anna)*	2	0
Unidentified *Selasphorus* hummingbird species	1	0
Northern Harrier (*Circus hudsonius)*	2	0
Bald Eagle (*Haliaeetus leucocephalus)*	0	1
Red-shouldered Hawk (*Buteo lineatus)*	2	0
Red-tailed Hawk (*Buteo jamaicensis)*	20	2
American Kestrel (*Falco sparverius)*	4	0
Merlin (*Falco columbarius)*	1	0
Peregrine Falcon (*Falco peregrinus)*	7	7
Common Raven (*Corvus corax)*	28	1
Chestnut-backed Chickadee (*Poecile rufescens)*	5	0
Red-breasted Nuthatch (*Sitta canadensis)*	1	0
Ruby-crowned Kinglet (*Regulus calendula)*	2	0
European Starling (*Sturnus vulgaris)*	23	5
House Finch (*Haemorhous mexicanus)*	4	0
White-crowned Sparrow (*Zonotrichia leucophrys)*	2	0
Red-winged Blackbird (*Agelaius phoeniceus)*	2	0
Yellow-rumped Warbler (*Setophaga coronata)*	10	0
Unknown passerine sp.	3	0
	122	16

Time of Day

Morning surveys produced more detections (82) than evening surveys (53) (Table 4).

Table 4. Summary of species detections in relation to survey periods within the stand of *Eucalyptus globulus* along the Highway 101 corridor between Fay Slough to the south and the Indianola Cutoff in the north, recorded between 28 October 2019 and 2 April 2020, Humboldt county, California.

Species	Morning	Evening
Rock Pigeon (*Columba livia)*	2	0
Eurasian Collared-Dove(*Streptopelia decaocto)*	1	0
Anna's Hummingbird (*Calypte anna)*	1	1
Unidentified *Selasphorus* hummingbird species	0	1
Northern Harrier (*Circus hudsonius)*	2	0
Bald Eagle (*Haliaeetus leucocephalus)*	1	0
Red-shouldered Hawk (*Buteo lineatus)*	2	0
Red-tailed Hawk (*Buteo jamaicensis)*	15	7
American Kestrel (*Falco sparverius)*	1	3
Merlin (*Falco columbarius)*	1	0
Peregrine Falcon (*Falco peregrinus)*	10	4
Common Raven (*Corvus corax)*	13	16
Chestnut-backed Chickadee (*Poecile rufescens)*	3	2
Red-breasted Nuthatch (*Sitta canadensis)*	1	0
Ruby-crowned Kinglet (*Regulus calendula)*	2	0
European Starling (*Sturnus vulgaris)*	16	12
House Finch (*Haemorhous mexicanus)*	4	0
White-crowned Sparrow (*Zonotrichia leucophrys)*	1	1
Red-winged Blackbird (*Agelaius phoeniceus)*	2	0
Yellow-rumped Warbler (*Setophaga coronata)*	7	3
Unknown passerine sp.	1	2
TOTALS	86	52

DISCUSSION

Habitat Value

In many of California's introduced eucalyptus groves, Red-tailed hawks, Red-shouldered Hawks or Great horned owls are known to nest -- especially where they are the only large trees available. Eucalyptus trees on the shores of San Leandro's Lake Chabot host a large heron rookery. In Santa Cruz County, Suddjian (2004) found that great egrets, great blue herons, and double-crested cormorants nest exclusively in eucalyptus. Some birds can build nests in the loose bark on eucalyptus trunks, and woodpeckers sometimes excavate nest holes where wood has been softened by rot, but they and other cavity nesters otherwise have a difficult time excavating holes in the trees' dense wood. Nectivores such as hummingbirds, orioles and some warblers, as well as (most notably) monarch butterflies feed on the nectar from the flowers. Suddjian counted more than 90 bird species that make regular use of Monterey County eucalyptus habitats, including at least 59 species that nest in them.

However, birds fare best in less densely planted eucalyptus stands that include large, mature trees with spreading, complex branch structures that can support nests. The high stem density of the Humboldt Bay eucalyptus trees, and more so the severe and repeated pruning or topping of them has prevented them from attaining any real depth or complexity despite their mature age. Even the best nesting locations are highly exposed to wind, rain and potential predators.

It was notable that no large herons or egrets (*Ardea sp*.), night-herons (*Nycticorax nycticorax*), snowy egrets (*Egretta thula*), nor double-crested cormorants (*Phalacrocorax auritus*) were detected using the subject trees during the study period though they are known to use stands of Eucalyptus as both roosting and nesting habitat in other areas of California (Suddjian 2004). Locally, heron and egret rookeries occur primarily in stands of Monterey Pine (*Pinus radiata*) or Monterey Cypress (*Cupressus macrocarpa*). On Indian Island in Humboldt Bay, where a large rookery occurs, there are a few Eucalyptus trees mixed in with the more abundant cypress trees but the nesting occurs primarily in the cypresses which offer more substantial nest platforms for the birds (S. McAllister, pers. obs.). Furthermore, red-shouldered hawk (*Buteo lineatus*), a highly adaptable species which, on the central California coast is known to nest predominantly in eucalyptus trees (Rottenborn 2000) was only detected twice within the southern stand, though they were detected incidentally during nearly every survey visit, roosting in other trees in the surrounding area. It is likely the site quality limits roosting and nesting activity in the study area. Rottenborn's assessment was that nest-site selection and success was correlated with stands of Eucalyptus trees that provided better stability and cover in relation to native trees. In contrast, the stand within the study area is of poor health and lacking density as outlined by Young (2018).

Ten species of raptors were observed incidentally in surrounding habitats during our surveys, including two owl species, as were great blue heron, great egret and double-crested cormorants. Red-tailed and red-shouldered hawks were detected nearly every survey period and are species known to use

Eucalyptus as roosting and nesting habitat. Nearly all detections of these raptors and waders occurred in the surrounding Fay Slough wetlands and fields. It is likely that although these species are known to use Eucalyptus stands elsewhere, the eucalyptus trees in the study area are of such poor quality habitat and are surrounded by superior native forest habitat and less disturbed areas around the bay that the site is of little significance to our local breeding avifauna. In relation to bird use, the stands are generally a better source of foraging habitat than roosting and nesting. Our data suggest that the southern section of trees is of higher quality compared to the northern section.

If or when the subject trees are ultimately removed, the planting of native trees and shrubs as replacement habitat would likely result in improved and increased use of the area by resident and migratory birds and other wildlife, while simultaneously decreasing potential hazards to the public. Should any of the trees remain they would certainly require continued maintenance that would thereby continue to limit their value as habitat.

Mitigation Monitoring and Reporting Program
Humboldt County Humboldt Bay Trail South Project

Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
Biological Resources				
BIO-1 Avoidance and Protection Measures for Special-status Plants	The County of Humboldt shall implement the following avoidance and protection measures for special-status plants: 1. Due to the mobility and fluctuation of populations of Humboldt Bay owl's-clover, and Point Reyes bird's beak specifically, seasonally appropriate pre-construction surveys shall occur approximately one year prior to construction within the planned area of disturbance for the project, during the appropriate blooming time (spring or summer) for the target species. Impacts to special-status annual salt marsh plants such as Humboldt Bay owl's-clover, Point Reyes bird's beak, and western sand spurrey shall be avoided to the extent feasible. If these plants occur within the project footprint, and permanent impacts cannot be avoided, they shall be conserved through re-seeding (by hand, by a qualified biologist) into suitable habitat in the immediate project area. Seed will be collected in the late summer or early fall the year before construction when seeds from each target species are mature. Seed will be stored and spread post project construction in the best possible suitable habitat, near areas where impacts have occurred. Seeds should be spread in high elevation tidal marsh environments in the vicinity of salt grass if possible for Point Reyes bird's beak and near other native high salt marsh species, and in areas where invasive cordgrass is absent or sparse. 2. If future pre-construction surveys determine that other special-status species are present within the project footprint, these plants will also be avoided to the extent feasible, and if not feasible, they shall be conserved by measures appropriate for the individual species which may include methods such as plant relocation, seed collection, and/or nursery plant propagation. 3. Pre-construction surveys will also be performed within the planned area of disturbance, less than seven days prior to ground disturbance within habitat appropriate for Humboldt Bay owl's-clover, Point Reyes bird's beak and western sand spurrey. At this time any newly identified impacts to special-status plant species within the planned area of disturbance that cannot be feasibly avoided will be quantified and mapped. In the event that mature seed is available for Humboldt Bay owl's-clover, Point Reyes bird's beak and western sand spurrey and plants cannot be feasibly avoided, the seed will be collected, stored, and spread post construction and as described in this mitigation measure. All special-status plant species found at this time within the planned area of disturbance, but outside the trail footprint will be flagged for avoidance during construction. 4. Any plants that could not be feasibly avoided and that will be impacted will be mapped, and the number of individuals documented prior to construction. The approximate quantity of seed collected from these plants and the dates the seed was collected and spread will also be reported. No monitoring is proposed for the seeded areas as assessing the success of these areas is impractical given the mobility of seeds in the tidally influenced salt marsh environment. 5. Any seed mixes or other vegetative material used for re-vegetation of disturbed sites will consist of locally adapted native plant materials to the extent practicable.	County of Humboldt	County of Humboldt	Prior to construction (surveys) and post construction (monitoring)

EXHIBIT NO. 8

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HUMBOLDT COUNTY DPW
PROPOSED MMRP
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Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
BIO-2 Avoidance and Minimization Measures for Fish	The County of Humboldt shall implement the following avoidance and protection measures for ESA-listed and other special-status fishes: 1. Prior to complete dewatering of any in-channel or in-bay work areas, coffer dams or barrier nets shall be placed to block off the area. Any fish remaining inside the coffer dams or barriers will be carefully removed by a qualified biologist. In order to minimize potentially adverse effects to aquatic organisms, all translocation/removal of fishes will be conducted by qualified fisheries biologists. Any fish that cannot be herded by seines from the work areas and must be physically handled will be immediately released in suitable habitat away from the action area, with comparable habitat and water quality conditions. Immediately following completion of in-channel or in-bay work, any cofferdams or block nets will be removed allowing free fish passage through the project area during the remainder of the construction period. 2. To minimize the potential hydroacoustic effects on fish of driving piles for bridge footings in and adjacent to tidally influenced stream/slough channels ("in-channel") and on intertidal mudflat areas ("in-bay"), a vibratory driver will be used to the maximum extent practicable. It is anticipated that piles would need to be proofed by driving the final 5 feet with an impact hammer to achieve design tip elevation and to verify load capacity. 3. To protect the most vulnerable life stages of sensitive fish species that occur within the action area, all in-channel and in-bay work will be restricted to the period between July 1 and September 31. This seasonal work window correlates to the period of the year when sensitive fish species are least likely to occur in the action area. To further reduce the potential for hydroacoustic effects on fish potentially occurring in the action area, all pile driving, using either vibratory or impact hammers, of piles placed in-channel and in-bay mudflat areas will be scheduled to occur between the latter 2-hours of outgoing tides and beginning 2-hours of incoming tides, when tidal inundation of work areas is minimal and so that all pile driving will occur out of the water.	County of Humboldt	County of Humboldt	Prior to and during construction
BIO-3 Tidewater Goby Avoidance and Minimization Measures	The County of Humboldt shall implement the following avoidance and minimization measures for tidewater goby: 1. To avoid crushing adult gobies and their breeding burrows, no construction equipment will operate within potential goby habitat and no workers shall walk within the wetted channel in potential goby habitat areas. 2. To avoid barotrauma injury to gobies or damage to breeding burrows, no impact or vibratory equipment shall be used within an active, wetted channel in or contiguous with potential goby habitat or in any location where it could have an adverse effect on breeding burrows and gobies. In addition, heavy equipment used outside the wetted channel, must be operated at a distance as far as possible from suitable breeding habitat to avoid barotrauma injury and/or damage to goby breeding burrows. 3. No pile driving is permitted in the wetted channel within potential goby habitat. 4. New access roads must not enter a wetted channel or watercourse within potential goby habitat.	County of Humboldt	County of Humboldt	During construction

Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
BIO-4 Northern Red-legged Frog Avoidance and Minimization Measures	The County of Humboldt shall implement the following avoidance and minimization measures for northern red-legged frogs: 1. Construction in waterways and wetlands with standing water shall be limited to the period of the year between July 1 and October 30 to avoid disturbance to breeding northern red-legged frogs. 2. No more than one week prior to commencement of ground disturbance within 50 feet of suitable northern red-legged frog habitat, a qualified wildlife biologist shall perform a preconstruction survey for the northern red-legged frog and shall relocate any specimens that occur within the work -impact zone to nearby suitable habitat. 3. In the event that a northern-red legged frog is observed in an active construction zone, the contractor shall halt construction activities in the area where observed and the frogs shall be moved to a safe location in similar habitat outside of the construction zone.	County of Humboldt	County of Humboldt	Prior to construction
BIO-5 Avoidance and Protection Measures for Nesting Birds	The County of Humboldt shall implement the following measures to ensure no significant impacts to native migratory bird species: 1. The County will attempt to remove trees and other vegetation that could potentially contain nesting birds outside the bird nesting season (March 15 to August 15). If vegetation removal occurs outside the bird nesting season, no further mitigation is necessary. If vegetation removal occurs between March 15 and August 15, the County shall have a qualified wildlife biologist conduct preconstruction surveys within the vicinity of the impact area, to check for nesting activity of native birds and to evaluate the site for special-status bird species such as Little Willow Flycatcher and White-tailed Kites. The biologist shall conduct a minimum of one preconstruction survey within the seven-day period prior to vegetation removal activities. If vegetation removal work lapses for seven days or longer during the nesting season, a qualified biologist shall conduct a supplemental avian survey before project work is reinitiated. 2. If an active nest is found, the biologist will determine the extent of an appropriate construction-free buffer zone to be established around the nest and/or operational restrictions in consultation with the California Department of Fish and Wildlife. Buffer zones will be delineated with flagging and maintained until the nests have fledged or nesting activity has ceased. Buffer sizes would take into account factors such as (1) highway and other ambient noise levels, (2) distance from the nest to the highway and distance from the nest to the active construction area, (3) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (4) distance and amount of vegetation or other screening between the construction site and the nest; and (5) sensitivity of individual nesting species and behaviors of the nesting birds.	County of Humboldt	County of Humboldt	Prior to construction

Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
BIO-6 Avoidance and Minimization Measures for Waters of the United States and Waters of the State	The County of Humboldt shall implement the following avoidance and protection measures for Waters of the United States and Waters of the State: 1. The County shall attempt to avoid or minimize impacts to wetlands/waters to the greatest extent feasible in the final design plans. 2. Areas where wetland and upland vegetation are to be removed shall be clearly identified in the construction documents and reviewed by the County prior to issuing for bid. 3. Within 10 days of completion of construction in those areas where subsequent ground disturbance will not occur for 10 calendar days or more, disturbed areas shall be temporarily stabilized to reduce the potential for short-term erosion. Prior to a rain event or when there is a greater than 50 percent possibility of rain within the next 24 hours, as forecasted by the National Weather Service, appropriate BMPs will be installed upon completion of the day's activities to control erosion and prevent sediment laden stormwater from leaving the construction area. 4. Suitable perimeter control BMPs, such as silt fences, or straw wattles shall be placed below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These BMPs shall be installed prior to any clearing or grading activities. 5. If spoil (or stockpile) sites are used, they shall be located such that they do not drain directly into a surface water feature, if possible. If a spoil site drains into a surface water feature, swales shall be constructed to intercept sediment before it reaches the feature. Spoil sites shall be graded and vegetated to reduce the potential for erosion. 6. Sediment control measures shall be in place prior to the onset of the rainy season and will be monitored and maintained in good working condition until disturbed areas have been revegetated. 7. A site-specific spill prevention plan shall be implemented for potentially hazardous materials. The plan shall include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting any spills. If necessary, containment berms shall be constructed to prevent spilled materials from reaching surface water features. 8. Equipment and hazardous materials shall be stored 50 feet away from surface water features.	County of Humboldt	County of Humboldt	Prior to, during, and after construction
BIO-7 Compensatory Mitigation for Wetlands Impacts	The County shall compensate for wetlands impacts through restoration, rehabilitation, and/or creation of wetlands. If the wetland mitigation project being led by Caltrans on the Lanphere Parcel in the Arcata Bottoms does not have sufficient capacity to fully compensate for the Humboldt Bay South project's wetland impacts, then the County will identify an alternative site and develop a specific plan for that property to create the necessary wetland amount. A Wetlands Mitigation and Monitoring Plan shall be prepared in coordination with the USACE, NCRWQCB, CCC, and CDFW. Compensation for wetlands shall occur so there is no net loss of wetland habitat. Mitigation ratios will be determined in consultation with the USACE, NCRWQCB, CCC, and CDFW. The Wetland Mitigation and Monitoring Plan shall include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; plant species; planting design and techniques; maintenance activities; plant storage; irrigation requirements; success criteria; monitoring schedule; and remedial measures. The Plan shall be implemented by the County.	County of Humboldt	County of Humboldt	Prior to construction

Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
Cultural Resources				
CR-1 Protect Archaeological Resources during Construction Activities	If cultural materials such as chipped or ground stone, historic debris, building foundations, or bone are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery. Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the materials and offered recommendations for further action. If the find is determined to constitute either an historical resource or a unique archaeological resource per CEQA Guidelines sections 15064.5, the archaeologist shall develop appropriate mitigation to protect the integrity of the resource and ensure that no additional resources are affected. Mitigation could include but would not necessarily be limited to avoidance, preservation in place, archival research, subsurface testing, or excavation and data recovery.	County of Humboldt	County of Humboldt	During construction
CR-2 Protect Human Remains if Encountered during Construction	The County's contractor shall immediately notify the Humboldt County Coroner should human remains, associated grave goods, or items of cultural patrimony be encountered during construction, and the following procedures shall be followed as required by Public Resources Code § 5097.9 and Health and Safety Code § 7050.5. In the event of the coroner's determination that the human remains are Native American, the Native American Heritage Commission would be contacted and would appoint a Most Likely Descendant (MLD). A qualified archaeologist, the County and the MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects. The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects.	County of Humboldt	County of Humboldt	During construction
Hazards and Hazardous Materials				
HAZ-1 Procedures for Encountering Unknown Hazardous Materials	In the event any hazardous, toxic, noxious, objectionable, or unknown chemicals are encountered during trail construction, construction shall be halted by the construction crew on duty and reported to the general contractor for the project and the County of Humboldt. Prior to resuming any work the County shall be responsible for obtaining a soil sample for analysis. The findings of the analysis shall be submitted, as applicable, to the North Coast Regional Water Quality Control Board (NCRWQCB) and any other appropriate regulatory agencies. Work shall not continue until and unless written approval is obtained from these agencies. The County shall comply at all times with the requirements and regulations of the NCRWQCB and other appropriate regulatory agencies with regard to the handling, transport, and disposal of hazardous materials such as contaminated soils to the satisfaction of these agencies. Disposal of all hazardous materials would be in compliance with all applicable California hazardous waste disposal laws. Construction specifications will include the following measures to reduce potential impacts to vegetation and aquatic habitat resources in the project area associated with accidental spills of pollutants (e.g., fuel, oil, and grease): 1. A site-specific spill prevention plan shall be implemented for potentially hazardous materials. The plan shall include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting any spills. If necessary, containment berms shall be constructed to prevent spilled materials from reaching surface water features. 2. Equipment shall use non-toxic vegetable oil for operating hydraulic equipment instead of conventional hydraulic fluids. 3. Place plastic materials under asphaltic concrete paving equipment, while not in use to catch and/or contain drips and leaks. 4. Minimize sand and gravel from any new asphalt from getting into storm drains, streets, and creeks by	County of Humboldt	County of Humboldt	During construction

Impact	Mitigation Measure	Implementation Responsibility	Monitoring/ Reporting Responsibility	Timing
	sweeping. Old or spilled asphalt must be recycled or disposed as approved by the Resident Engineer. 5. During any and sweeping operations, petroleum or petroleum covered aggregate must not be allowed to enter any storm drain or water courses. Use silt fence until installation is complete. 6. Use only non-petroleum based substances to coat asphalt transport trucks and asphalt spreading equipment. 7. Drainage inlet structures and manholes shall be covered with filter fabric during application of seal coat, tack coat, slurry seal, and/or fog seal. 8. Seal coat, tack coat, slurry seal, or fog seal shall not be applied if rainfall is predicted to occur during the application or curing period. 9. If dewatering is not required for other purposes, removal of seepage water in the coffered work areas may be ceased after new abutment concrete is poured and is curing (for at least 72 hours after pour) within the form structures, provided that pH of the water inside the cofferdam enclosures and in contact with the concrete forms does not exceed a difference of 0.5 pH units from that of ambient water quality in main slough channel outside of the cofferdams (e.g., 50 ft. upstream and downstream of the new bridge alignment) . If the difference in pH within the cofferdam exceeds 0.5 units, water levels within the coffered area will be kept below the level of the concrete abutment forms and pumped to temporary retention basins or Baker tanks and treated as above for erosion and sediment control.			
HAZ-2 Preliminary Site Investigation and Sampling	The County shall ensure that in areas of ground disturbance, a Preliminary Site Investigation (PSI) that includes pre-construction soil borings is conducted prior to finalization of plans/specifications in order to characterize soil and groundwater in anticipation of implementation of construction activities. Once the areas of ground disturbance and potential dewatering are confirmed, the PSI Workplan shall identify potential contaminants of concern for laboratory analysis, location, and number of borings necessary for pre-characterization, and depth for sample collection. Laboratory analytical results of soil and groundwater samples collected from the borings shall be utilized to ascertain whether health and safety concerns are present for construction workers and determine potential soil and/or groundwater handling and disposal options. Proposed soil borings and/or grab groundwater sample locations shall be determined following identification of the areas and depths of soil excavation and dewatering activities. If soil and/or groundwater impacts are identified, site workers involved in excavation activities shall be Hazardous Waste Operations and Emergency Response (HAZWOPER) trained (Occupational Safety and Health Administration [OSHA] 1910.120).	County of Humboldt	County of Humboldt	Prior to and during construction

Photo 1 (March 12, 2020): View facing southwest of Eureka Waterfront Trail connection (Segment 1), Eureka Slough Bridge (Segment 2), and Segments 3 and 4 between Eureka Slough and Brainard.

Photo 2 (Undated): View facing northeast of Eureka Slough Bridge (Segment 2)

EXHIBIT NO. 9

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SITE PHOTOS
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Photo 3 (August 6, 2019): View facing east of Eureka Slough Bridge (Segment 2).

Photo 4 (September 6, 2019): Test of flangeway filler products on Eureka Slough Bridge (Segment 2).

Photo 5 (Undated): View facing west of Eureka Slough Bridge (Segment 2).

Photo 6 (February 25, 2014): View facing east of Segment 3.

Photo 7 (March 12, 2020): View facing west of Segment 3 and Eureka Slough Bridge (Segment 2).

Photo 8 (March 12, 2020): View facing east of Segment 4 and Brainard mill site (Segment 5).

Photo 9 (February 25, 2014): View facing southeast of erosion along shoreline (Segment 4).

Photo 10 (March 18, 2020): View facing east of Brainard levee (Segment 5).

Photo 11 (March 18, 2020): View facing northeast of Brainard levee (Segment 5).

Photo 12 (March 18, 2020): View facing south of Brainard levee (Segment 5).

Photo 13 (October 25, 2017): View facing northeast of Brainard levee (Segment 5).

Photo 14 (March 18, 2020): View facing southwest of proposed bridge connection (Segment 6) between Brainard levee (Segment 5) and railroad prism (Segment 7).

Photo 15 (March 18, 2020): View facing southeast of railroad along shoreline with eucalyptus trees (Segment 7).

Photo 16 (May 2, 2019): View facing northeast of erosion of railroad prism (Segment 7).

Photo 17 (February 9, 2017): View facing northeast of erosion of railroad prism (Segment 7).

Photo 18 (December 1, 2017): View facing north of disarrayed rubble along shoreline and erosion of railroad prism (Segment 7).

Photo 19 (December 1, 2017): View facing south of eucalyptus trees in the railroad prism (Segment 7).

Photo 20 (December 1, 2017): View facing east of erosion of railroad prism (Segment 7).

Photo 21 (approx. 2017): View facing west of flooding through damaged railroad prism (Segment 7).

Photo 22 (February 25, 2014): View facing northeast of shoreline (Segments 7 and 8).

Photo 23 (approx. 2018): View facing south of eucalyptus trees and billboards (Segment 7).

Photo 24 (April 30, 2019): View facing south of eucalyptus trees and billboards (Segment 7) and areas of erosion and disarrayed revetment (Segment 8).

Photo 25 (March 18, 2020): View facing east of eucalyptus trees and billboards (Segment 7).

Photo 26 (April 30, 2019): View facing south of railroad and shoreline near Indianola Cutoff (Segment 8). September 9, 2020

Photo 27 (March 18, 2020): View facing northeast of shoreline near Indianola Cutoff (Segment 8).

Photo 28 (December 31, 2005): View facing south of flooding on Highway 101 (near Segment 8).

Photo 29 (March 18, 2020): View facing east of erosion on railroad prism (Segment 8).

Photo 30 (February 25, 2014): View facing east of erosion of shoreline and railroad prism (Segment 8).

Photo 31 (April 30, 2019): View facing south of Segment 8.

Photo 32 (February 25, 2014): View facing southeast of Bracut (Segment 9), Segment 8, and Segment 7.

Photo 33 (April 30, 2019): View facing south of entrance to Bracut Industrial Park (Segment 9).

Photo 34: Example of fence type (welded wire) proposed along property line at Bracut Industrial Park.

Photo 35 (May 31, 2020): View facing north of railroad crossing at Brainard Slough (Segment 9).

Photo 36 (May 31, 2020): View facing southeast of railroad crossing at Brainard Slough (Segment 9).

Photo 37 (April 30, 2019): View facing south of railroad crossing at Brainard Slough (Segment 9).

Photo 38 (April 30, 2019): View facing south of southern terminus of Humboldt Bay Trail North and Brainard Slough (Segment 9).

Photo 39 (February 3, 2018): View facing south of southern terminus of Humboldt Bay Trail North.

Photo 40 (January 7, 2018): View facing south of trail users on Humboldt Bay Trail North.