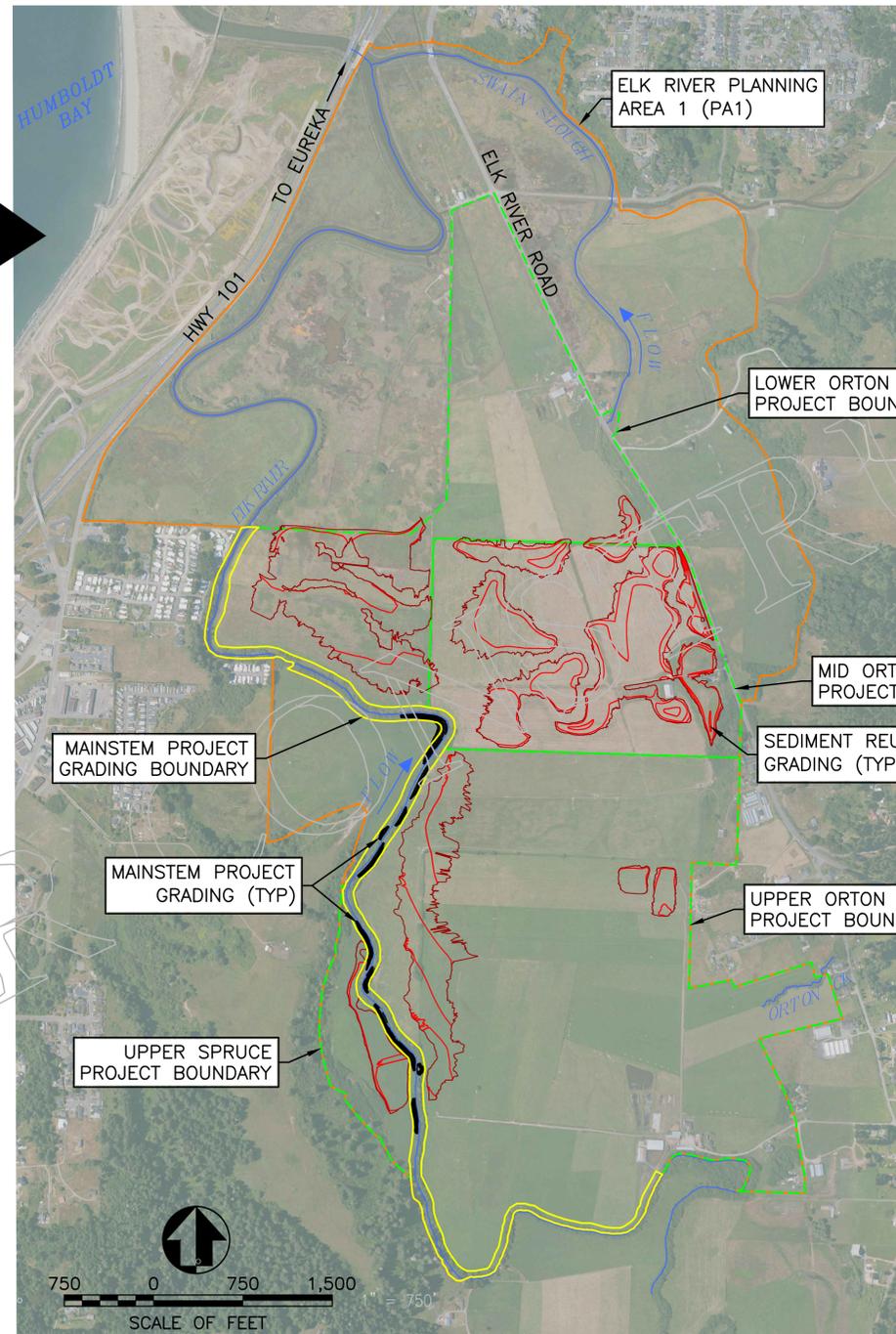


# ELK RIVER PLANNING AREA 1 65% DESIGN: MAINSTEM PERMIT SET HUMBOLDT COUNTY, CALIFORNIA



## SHEET INDEX

CIVIL SHEETS		
1	G1	COVER
2	G2	EXISTING CONDITIONS
3	G3	CONTRACTOR USE AREA & ACCESS
4	C1C	COLOR SITE OVERVIEW 1
5	C2C	COLOR SITE OVERVIEW 2
6	C3C	COLOR SITE OVERVIEW 3
7	C4	SECTIONS - 1
8	C5	SECTIONS - 2
9	C6	ISOPACH 1
10	C7	ISOPACH 2
11	C8C	COLOR SITE OVERVIEW: SEDIMENT REUSE
12	C9	SECTIONS: SEDIMENT REUSE
13	C10	ISOPACH: SEDIMENT REUSE
14	C11	DETAILS

Plotted: 10/14/2025 4:35 PM - By: LICENSED USER - R17.1 - File: G1-COVER-MAINSTEM-65PER-PERMIT

NOT FOR

10/15/2025  
THESE PLANS WERE PREPARED UNDER THE SUPERVISION OF JEFFREY K. ANDERSON P.E. LICENSE # 50713

ELK PA-1 65% DESIGN: PERMIT SET



**Northern Hydrology & Engineering**

- Engineering
- Hydrology
- Geomorphology
- Water Resources

PO BOX 2515, MCKINLEYVILLE, CA 95519 (707) 839-2195

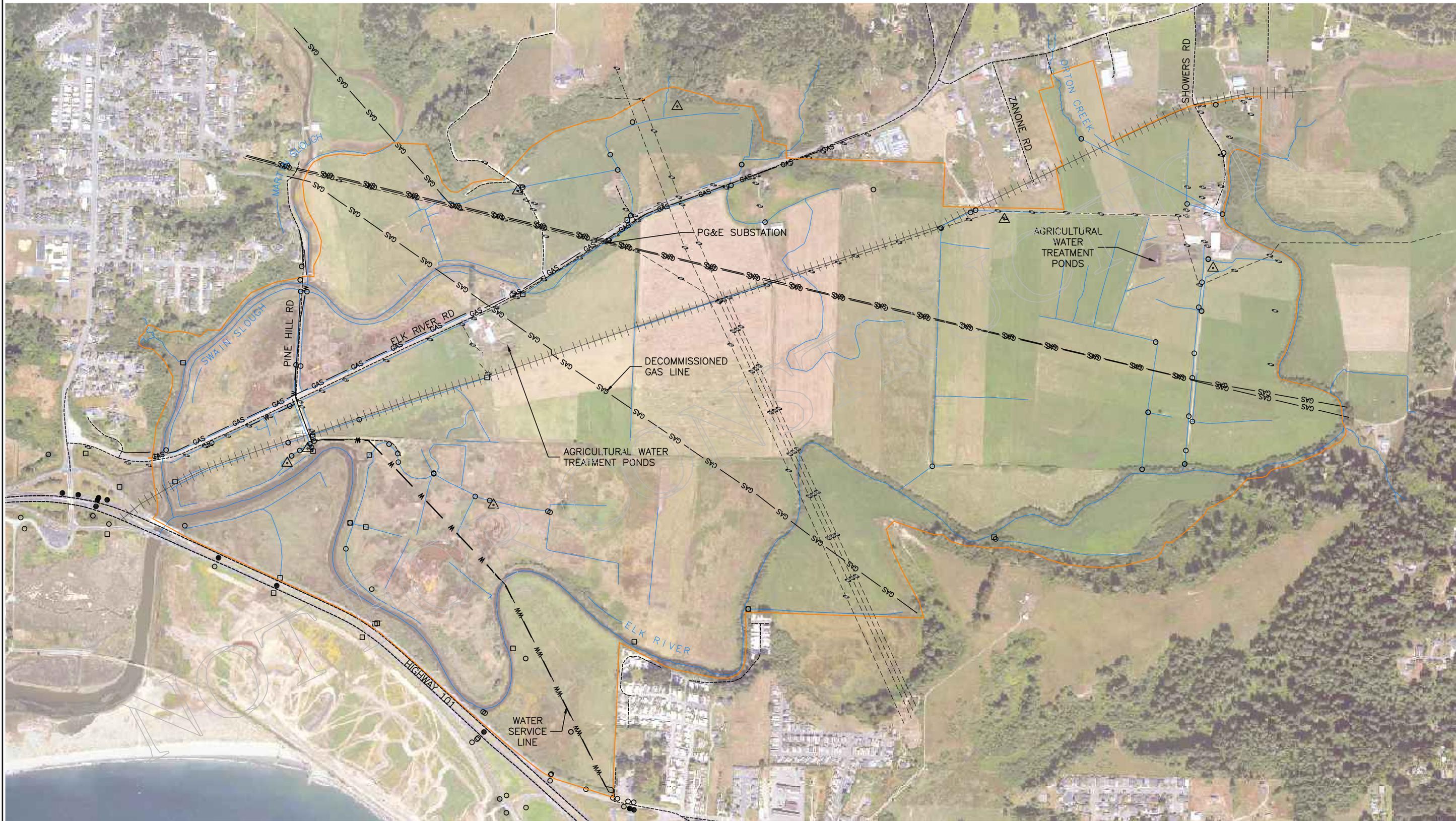
DESIGNED:  
NHE  
BD  
TECH. REVIEW:  
DATE:  
10/15/2025

SUB SHEET NO.  
**G1**

TITLE OF SHEET  
**COVER  
MAINSTEM  
PROJECT**  
HUMBOLDT COUNTY, CA

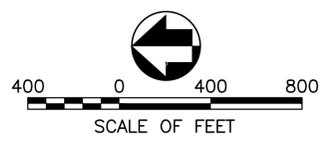
SHEET  
**1**  
OF  
**14**

Plotted: 10/13/2025 2:20 PM - By: LICENSED USER - R17.1 - File: G2-EXISTING-CONDITIONS



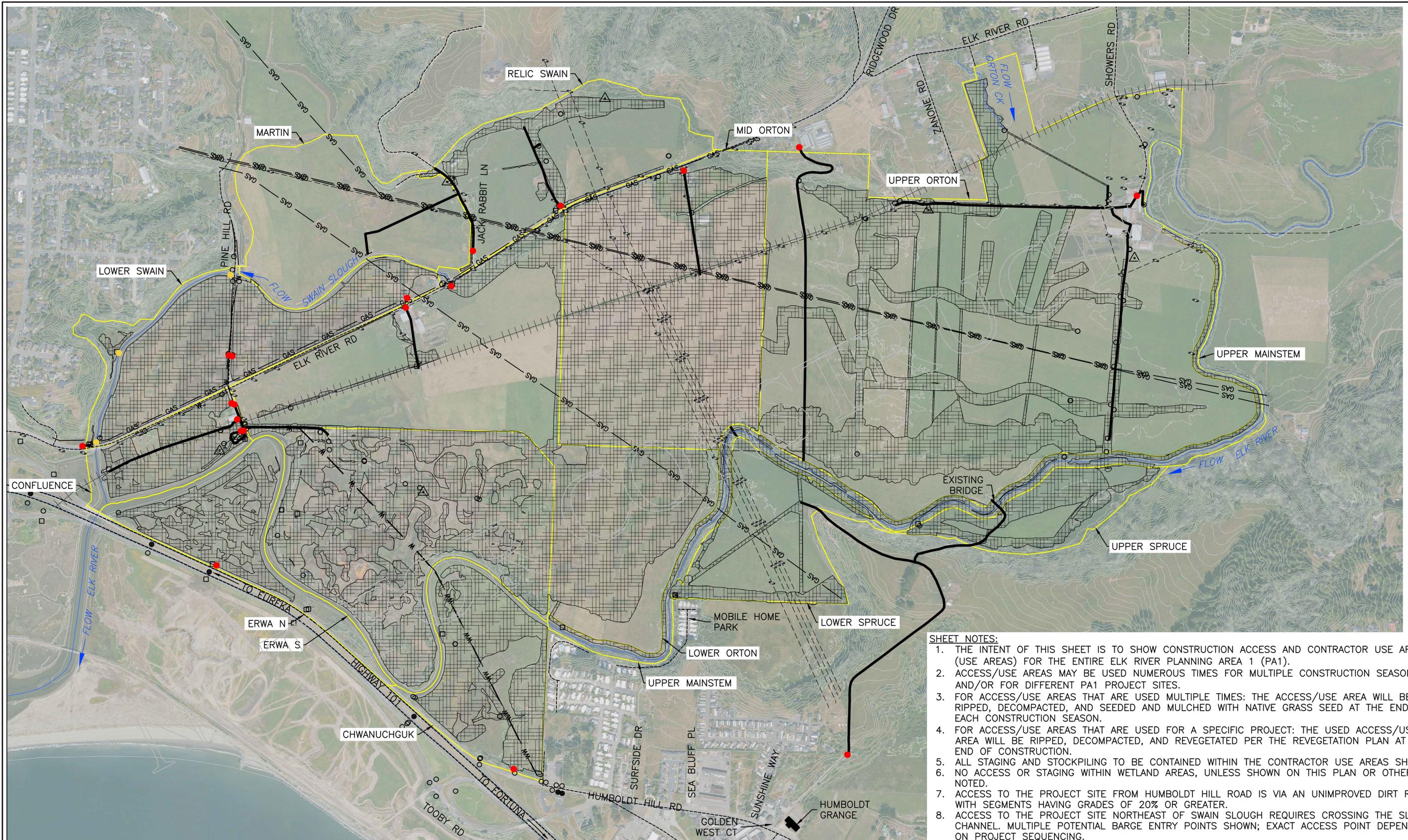
- |  |                    |  |                       |  |               |
|--|--------------------|--|-----------------------|--|---------------|
|  | PLANNING AREA 1    |  | OVERHEAD UTILITY LINE |  | CULVERT       |
|  | HIGHWAY            |  | WATER LINE            |  | DROP INLET    |
|  | MAIN ROAD          |  | RIVER CENTERLINE      |  | TIDE GATE     |
|  | ABANDONED RAILROAD |  | STREAMS               |  | ARTESIAN WELL |
|  | GAS                |  | DRAINAGE CHANNEL      |  | UTILITY POLE  |

**SHEET NOTES:**  
 1) ALL INFRASTRUCTURE LOCATIONS ARE APPROXIMATE.



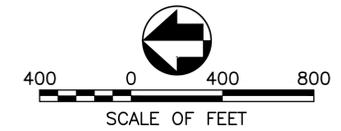
ELK PA1 65% DESIGN: PERMIT SET		TITLE OF SHEET		SHEET
DESIGNED: NHE CV, JRP	SUB SHEET NO. <b>G2</b>	<b>EXISTING CONDITIONS OVERVIEW PLANNING AREA 1</b>		2
TECH. REVIEW: JRP, BSP, JKA		HUMBOLDT COUNTY, CA		OF
DATE: 10/13/2025				14

Plotted: 10/13/2025 2:25 PM - By: LICENSED USER - R17.1 - File: G3-CONTRACTOR USE-&-ACCESS-65PER-PERMIT



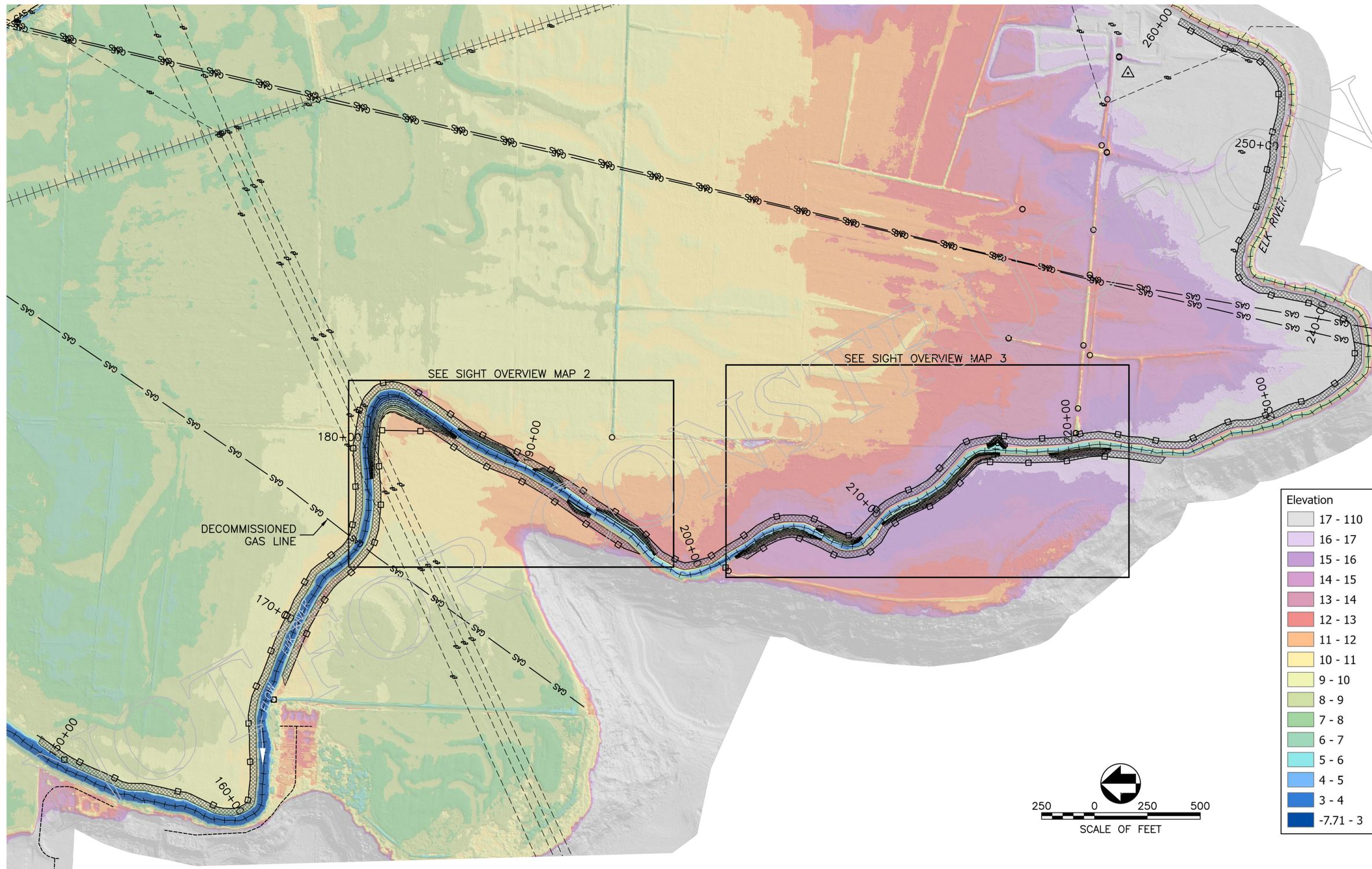
- SHEET NOTES:**
1. THE INTENT OF THIS SHEET IS TO SHOW CONSTRUCTION ACCESS AND CONTRACTOR USE AREAS (USE AREAS) FOR THE ENTIRE ELK RIVER PLANNING AREA 1 (PA1).
  2. ACCESS/USE AREAS MAY BE USED NUMEROUS TIMES FOR MULTIPLE CONSTRUCTION SEASONS AND/OR FOR DIFFERENT PA1 PROJECT SITES.
  3. FOR ACCESS/USE AREAS THAT ARE USED MULTIPLE TIMES: THE ACCESS/USE AREA WILL BE RIPPED, DECOMPACTED, AND SEEDED AND MULCHED WITH NATIVE GRASS SEED AT THE END OF EACH CONSTRUCTION SEASON.
  4. FOR ACCESS/USE AREAS THAT ARE USED FOR A SPECIFIC PROJECT: THE USED ACCESS/USE AREA WILL BE RIPPED, DECOMPACTED, AND REVEGETATED PER THE REVEGETATION PLAN AT THE END OF CONSTRUCTION.
  5. ALL STAGING AND STOCKPILING TO BE CONTAINED WITHIN THE CONTRACTOR USE AREAS SHOWN.
  6. NO ACCESS OR STAGING WITHIN WETLAND AREAS, UNLESS SHOWN ON THIS PLAN OR OTHERWISE NOTED.
  7. ACCESS TO THE PROJECT SITE FROM HUMBOLDT HILL ROAD IS VIA AN UNIMPROVED DIRT ROAD WITH SEGMENTS HAVING GRADES OF 20% OR GREATER.
  8. ACCESS TO THE PROJECT SITE NORTHEAST OF SWAIN SLOUGH REQUIRES CROSSING THE SLOUGH CHANNEL. MULTIPLE POTENTIAL BARGE ENTRY POINTS SHOWN; EXACT ACCESS POINT DEPENDENT ON PROJECT SEQUENCING.

— — — — —	EXISTING CONTOUR (5-FT INTERVAL)	○	CULVERT (E)
— GAS —	GASLINE (E)	⊕	DROP INLET
— — — — —	OVERHEAD UTILITY LINE (E)	△	ARTESIAN WELL
— + + + —	ABANDONED RAILROAD	●	ACCESS POINT (E)
— w —	WATER LINE	●	ACCESS POINT: POTENTIAL BARGE ENTRY LOCATION (SEE NOTE #8)
— — — — —	HIGHWAY	—	ACCESS ROAD (E)
— — — — —	MAIN ROAD	▨	CONTRACTOR USE AREA
○	UTILITY POLE (E)		
□	TIDE GATE (E)		



ELK PA1 65% DESIGN: PERMIT SET		TITLE OF SHEET		SHEET
DESIGNED: NHE	SUB SHEET NO. G3	<b>CONTRACTOR USE AREAS &amp; ACCESS PLANNING AREA 1</b>		3 OF 14
BD	TECH. REVIEW:			
DATE: 10/13/2025		HUMBOLDT COUNTY, CA		

Plotted: 10/14/2025 8:48 PM - By: LICENSED USER - R17.1 - File: C-SHEETS-MAINSTEM-65PER-PERMIT



**SHEET NOTES:**

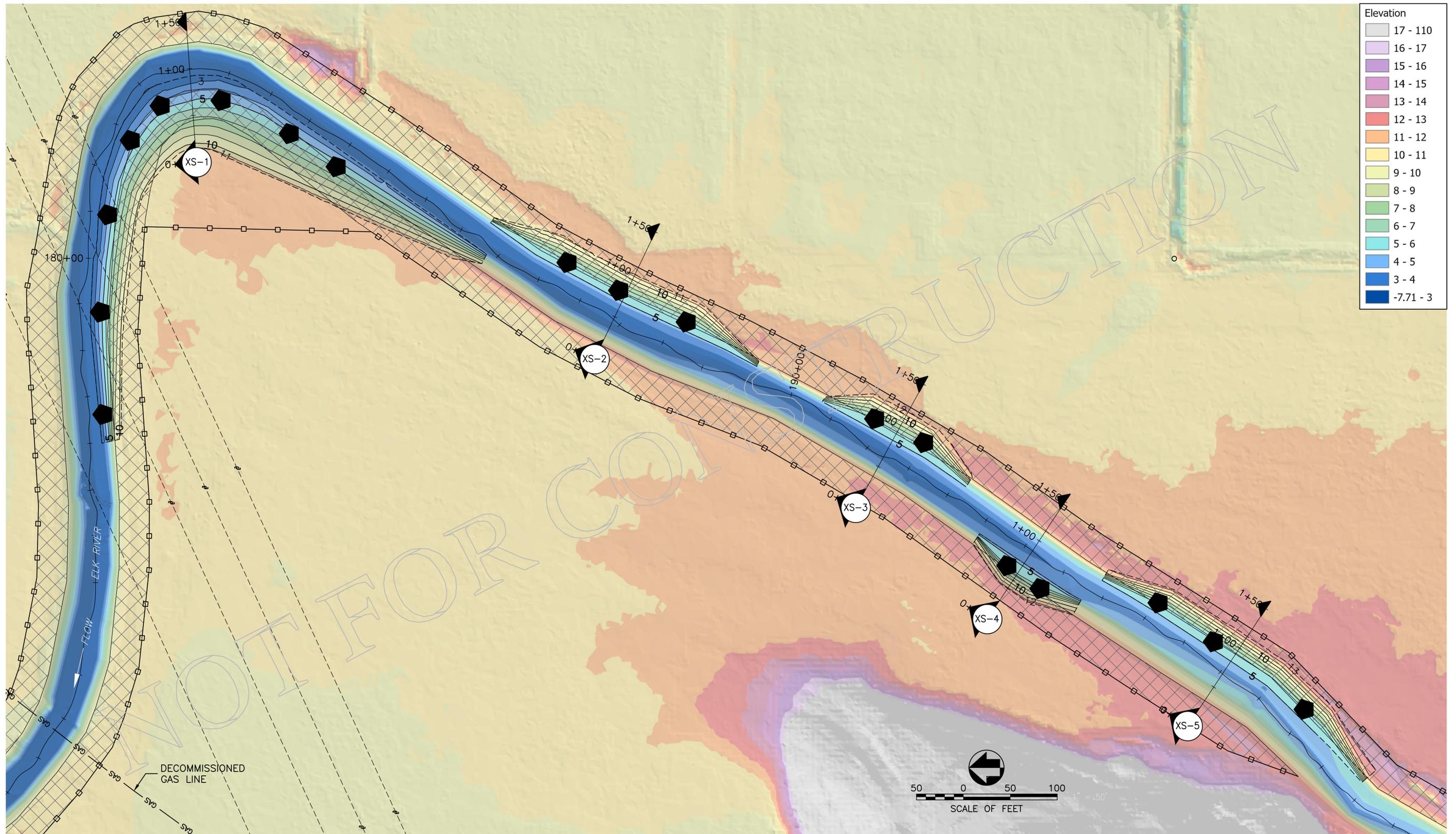
1. TIE FENCE (D) INTO FENCE (E). FENCE (E) NOT SHOWN.  
GATES (D) NOT SHOWN; LOCATIONS TO BE COORDINATED WITH LANDOWNER BEFORE CONSTRUCTION.
2. NOT ALL OVERHEAD UTILITY LINES SHOWN.
3. SEDIMENT REUSE LOCATIONS NOT SHOWN ON THIS SHEET; REFER TO SEDIMENT REUSE OVERVIEW SHEETS C8C-C10.

— GAS —	GASLINE (E)	—	DESIGN CONTOUR (1-FEET INTERVAL)
----	OVERHEAD UTILITY LINE (E)	----	DESIGN CONTOUR (5-FEET INTERVAL)
++++	ABANDONED RAILROAD	----	GRADING BOUNDARY
-----	MAIN ROAD	----	FENCE (D)
○	UTILITY POLE (E)	▨	RIPARIAN CORRIDOR (D)
□	TIDE GATE (E)		
○	CULVERT (E)		
△	ARTESIAN WELL		



ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE	SUB SHEET NO. <b>C1C</b>	TITLE OF SHEET <b>COLOR SITE OVERVIEW 1 MAINSTEM PROJECT</b>
TECH. REVIEW: BD		SHEET <b>4</b>
DATE: 10/15/2025		OF <b>14</b>
HUMBOLDT COUNTY, CA		

Plotted: 10/14/2025 8:47 PM - By: LICENSED USER - R17.1 - File: C-SHEETS-MAINSTEM-65PER-PERMIT



**SHEET NOTES:**

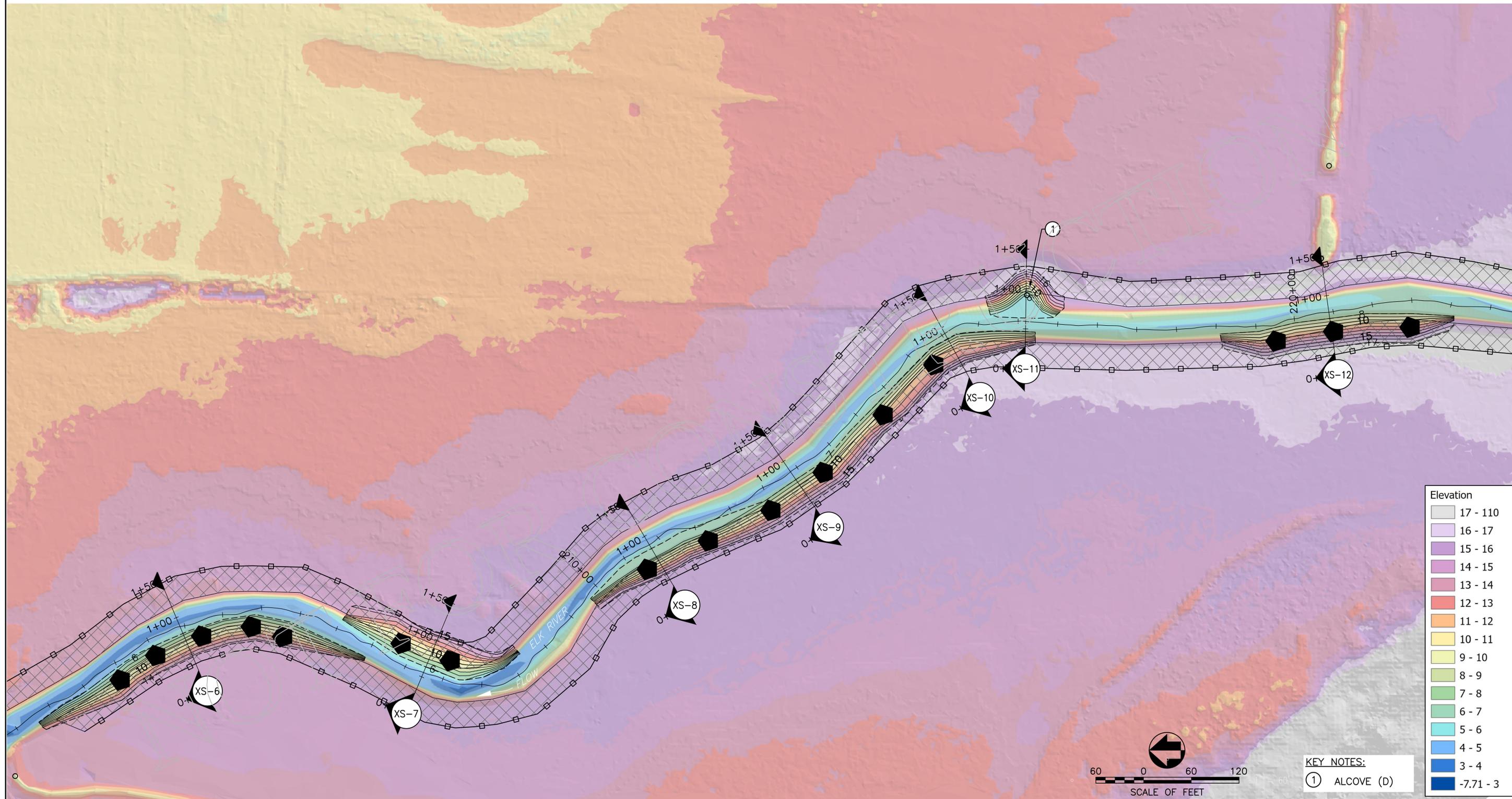
1. (XS-1) REFERS TO CROSS-SECTION LOCATION; SEE CROSS SECTION SHEET.
2. TIE FENCE (D) INTO FENCE (E). FENCE (E) NOT SHOWN. GATES (D) NOT SHOWN; LOCATIONS TO BE COORDINATED WITH LANDOWNER BEFORE CONSTRUCTION.
3. NOT ALL OVERHEAD UTILITY LINES SHOWN.
4. SEDIMENT REUSE LOCATIONS NOT SHOWN ON THIS SHEET; REFER TO SEDIMENT REUSE OVERVIEW SHEETS C8C-C10.

- GAS — GASLINE (E)
- OVERHEAD UTILITY LINE (E)
- ⊕ UTILITY POLE (E)
- DESIGN CONTOUR (1-FIT INTERVAL)
- DESIGN CONTOUR (5-FIT INTERVAL)
- GRADING BOUNDARY
- ⊠ FENCE (D)
- ⊠ RIPARIAN CORRIDOR (D)
- ⬢ WOOD STRUCTURE (D)



ELK PA1 65% DESIGN: PERMIT SET		<b>C2C</b>	<b>COLOR SITE OVERVIEW 2 MAINSTEM PROJECT</b>	HUMBOLDT COUNTY, CA
DESIGNED: NHE BD TECH. REVIEW:	SUB SHEET NO.			
DATE: 10/15/2025				

Plotted: 10/13/2025 2:15 PM - By: LICENSED USER - R17.1 - File: C-SHEETS-MAINSTEM-65PER-PERMIT



1. (XS-1) REFERS TO CROSS-SECTION LOCATION; SEE CROSS SECTION SHEET.
2. TIE FENCE (D) INTO FENCE (E). FENCE (E) NOT SHOWN. GATES (D) NOT SHOWN; LOCATIONS TO BE COORDINATED WITH LANDOWNER BEFORE CONSTRUCTION.
3. SEDIMENT REUSE LOCATIONS NOT SHOWN ON THIS SHEET; REFER TO SEDIMENT REUSE OVERVIEW SHEETS C8C-C10.

○ CULVERT (E)

- DESIGN CONTOUR (1-FEET INTERVAL)
- DESIGN CONTOUR (5-FEET INTERVAL)
- - - GRADING BOUNDARY
- FENCE (D)
- ▨ RIPARIAN CORRIDOR (D)
- WOOD STRUCTURE (D)



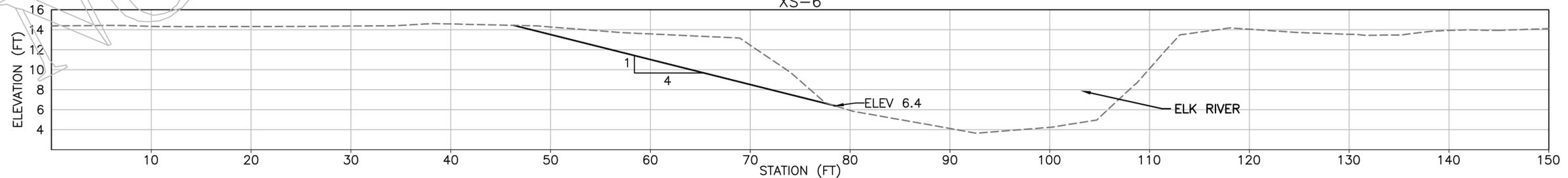
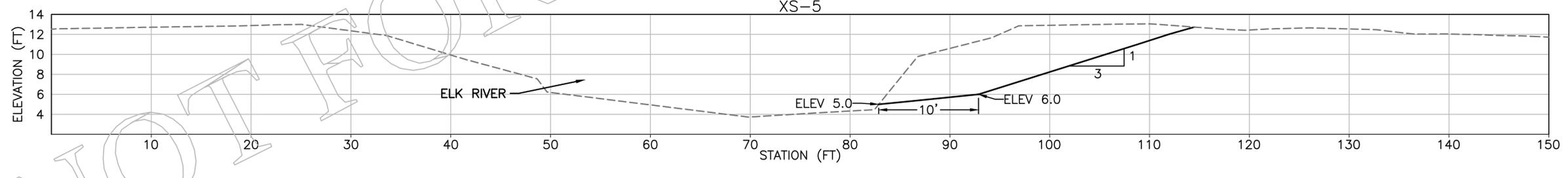
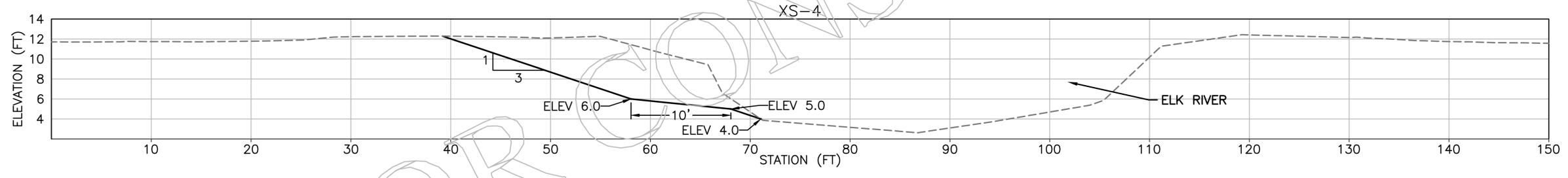
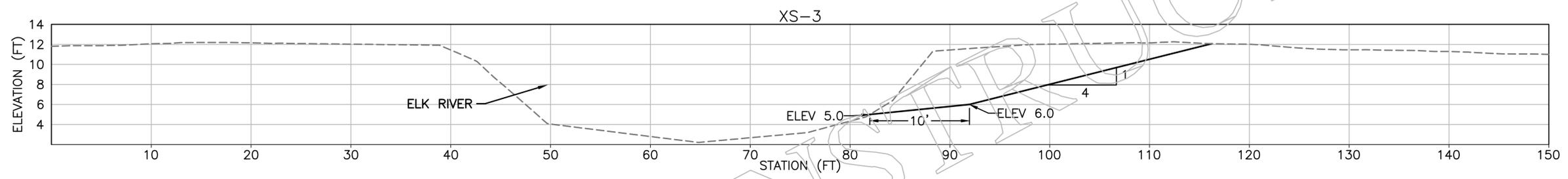
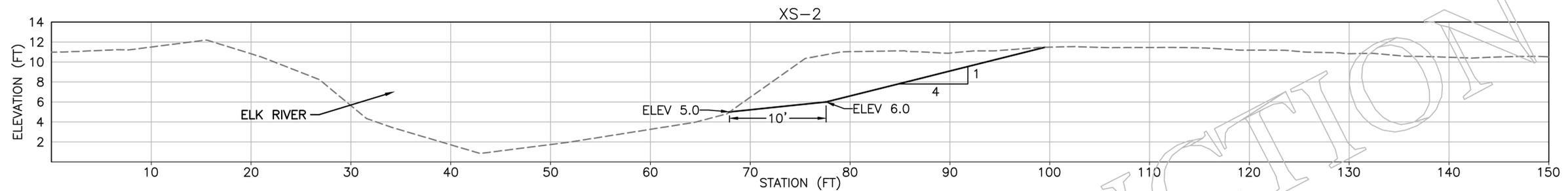
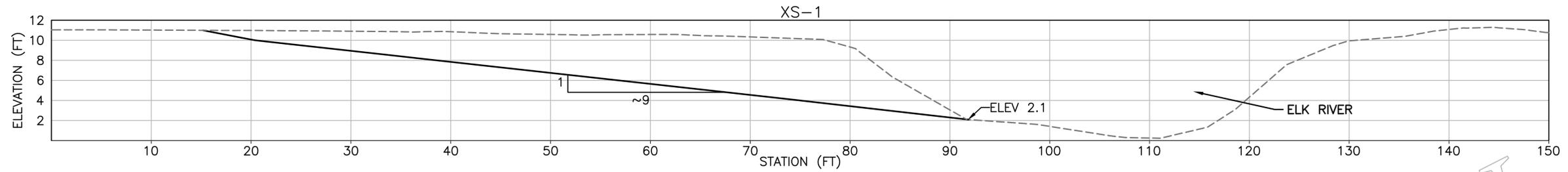
**KEY NOTES:**  
① ALCOVE (D)

Elevation	
17 - 110	
16 - 17	
15 - 16	
14 - 15	
13 - 14	
12 - 13	
11 - 12	
10 - 11	
9 - 10	
8 - 9	
7 - 8	
6 - 7	
5 - 6	
4 - 5	
3 - 4	
-7.71 - 3	



ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C3C</b>	TITLE OF SHEET <b>COLOR SITE OVERVIEW 3 MAINSTEM PROJECT</b>	SHEET <b>6</b>
TECH. REVIEW: BD		HUMBOLDT COUNTY, CA	OF <b>14</b>
DATE: 10/13/2025			

Plotted: 10/8/2025 5:22 PM - By: LICENSED USER - R17.1 - File: C-SHEETS-MAINSTEM-65PER-PERMIT



--- EXISTING GRADE PROFILE  
 — DESIGN GRADE PROFILE

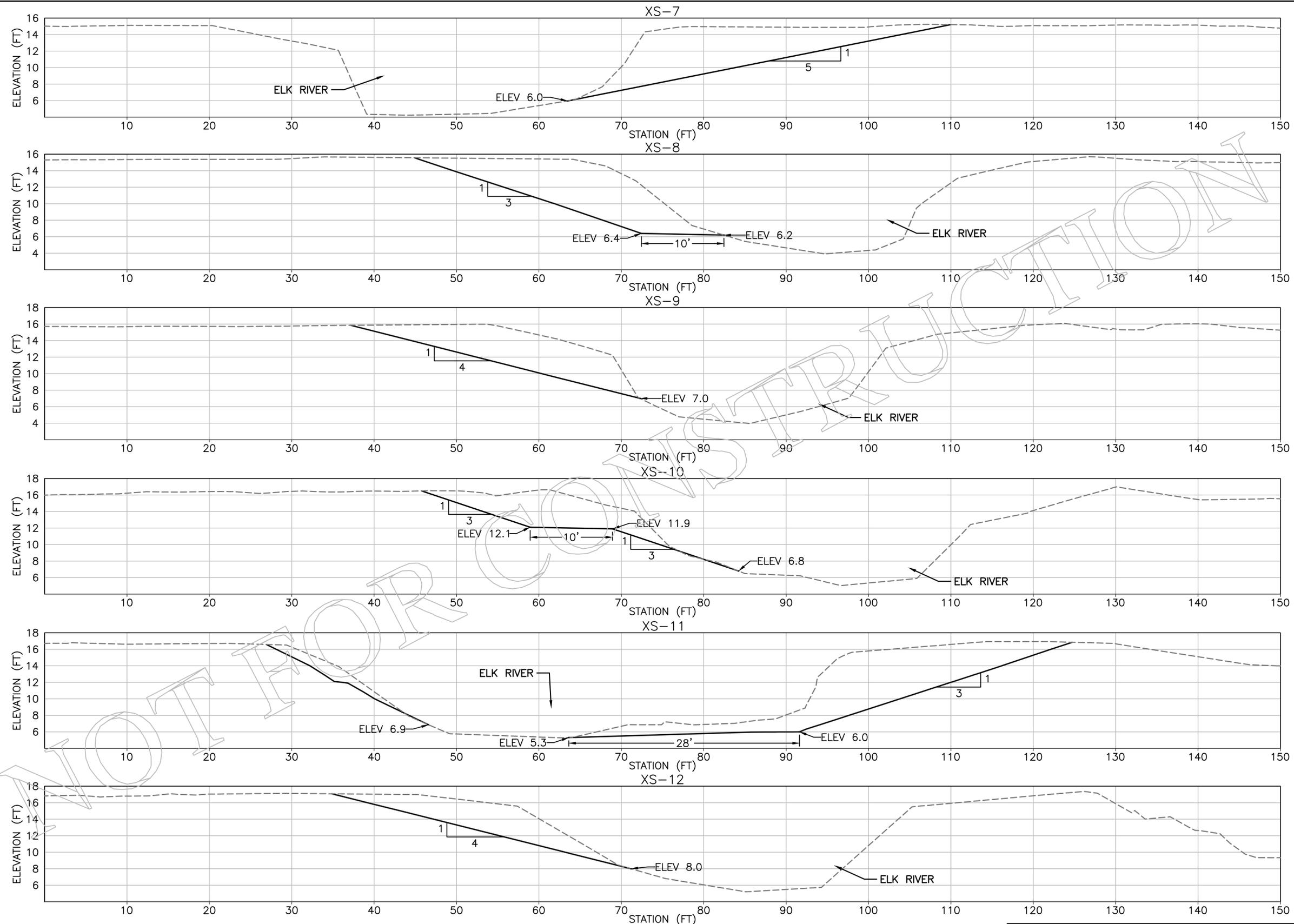
**SHEET NOTES:**

1. SEE SITE OVERVIEW SHEET FOR CROSS-SECTION LOCATIONS.
2. NO VERTICAL EXAGGERATION FOR ALL SECTION VIEWS ON THIS SHEET.
3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES, AND APPROXIMATE LOCATION OF DESIGN ELEMENTS.
4. DESIGN MHHW ~7 FT.



ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE	<b>C4</b>	TITLE OF SHEET <b>SECTIONS 1 MAINSTEM PROJECT</b>
TECH. REVIEW: BD		SHEET 7
DATE: 10/08/2025		OF 14
		HUMBOLDT COUNTY, CA

Plotted: 10/8/2025 5:22 PM - By: LICENSED USER - R17.1 - File: C-SHEETS-MAINSTEM-65PER-PERMIT



--- EXISTING GRADE PROFILE  
 ——— DESIGN GRADE PROFILE

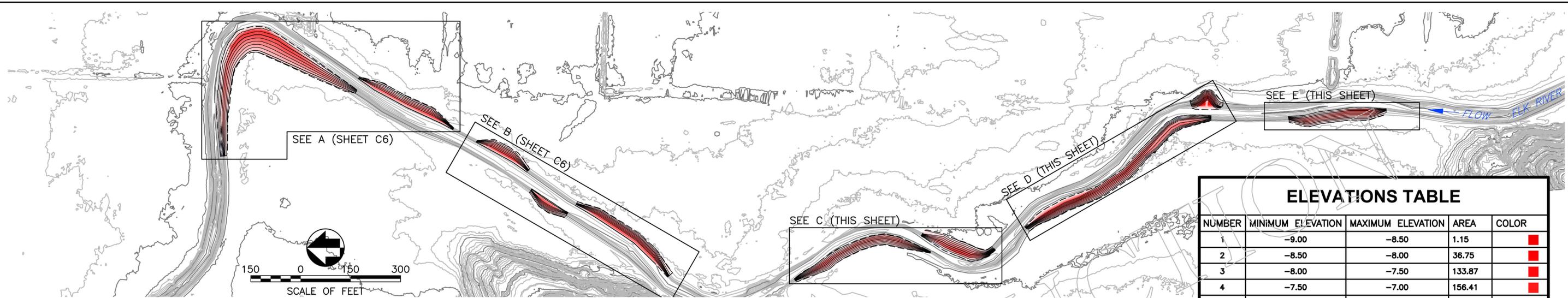
- SHEET NOTES:**
1. SEE SITE OVERVIEW SHEET FOR CROSS-SECTION LOCATIONS.
  2. NO VERTICAL EXAGGERATION FOR ALL SECTION VIEWS ON THIS SHEET.
  3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES, AND APPROXIMATE LOCATION OF DESIGN ELEMENTS.
  4. DESIGN MHHW ~7 FT.



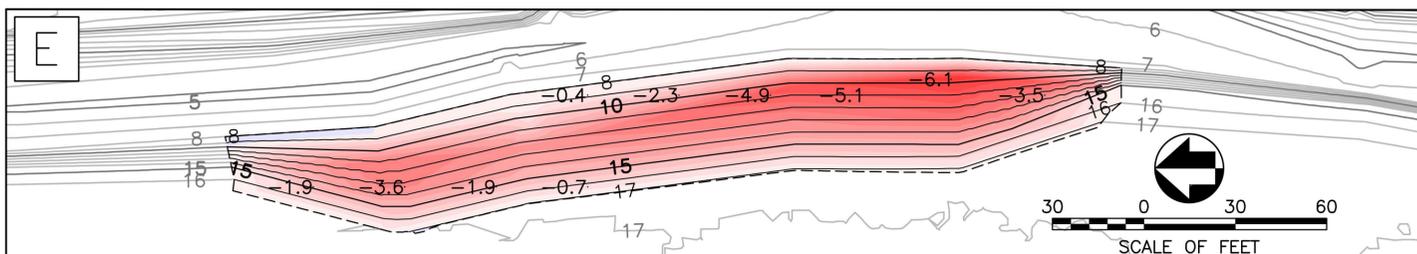
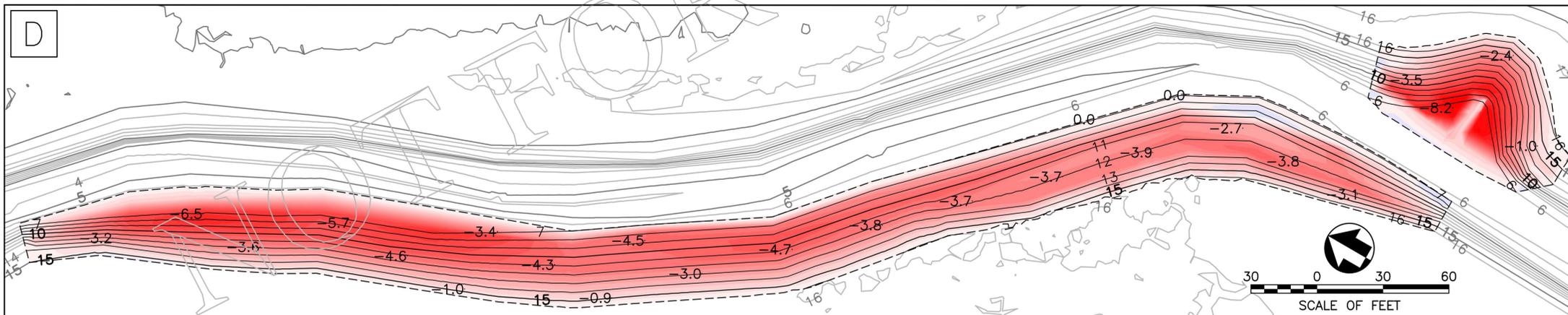
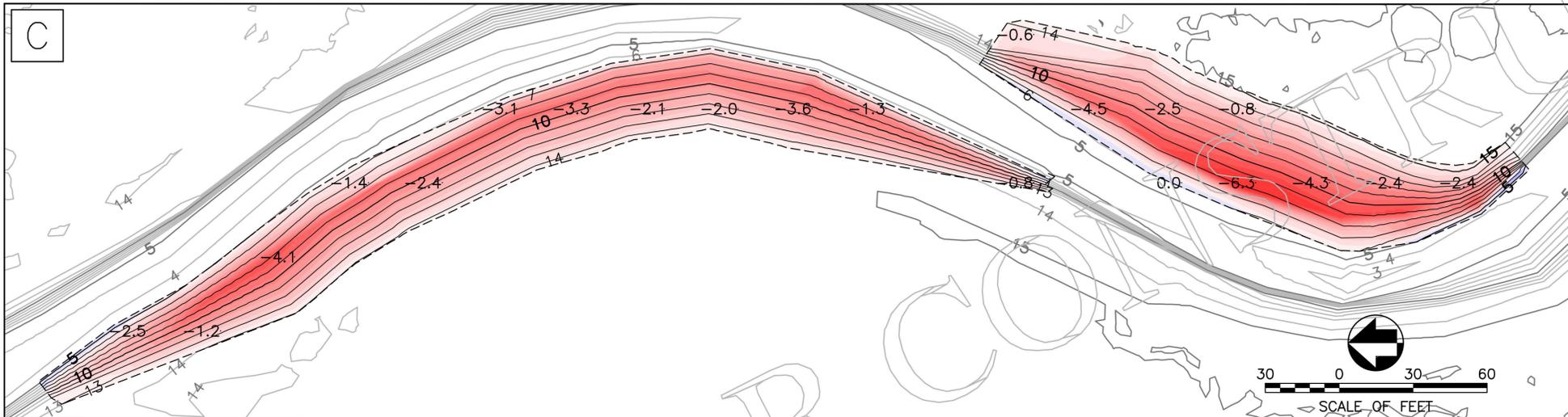
ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE	SUB SHEET NO. <b>C5</b>	TITLE OF SHEET <b>SECTIONS 2 MAINSTEM PROJECT</b>
TECH. REVIEW: BD		SHEET <b>8</b> OF <b>14</b>
DATE: 10/08/2025		HUMBOLDT COUNTY, CA



Plotted: 10/8/2025 5:32 PM - By: LICENSED USER - R17.1 - File: ISOPACH-MAINSTEM-65PER-PERMIT



ELEVATIONS TABLE				
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	AREA	COLOR
1	-9.00	-8.50	1.15	Red
2	-8.50	-8.00	36.75	Red
3	-8.00	-7.50	133.87	Red
4	-7.50	-7.00	156.41	Red
5	-7.00	-6.50	294.83	Red
6	-6.50	-6.00	1648.46	Red
7	-6.00	-5.50	4210.06	Red
8	-5.50	-5.00	6476.11	Red
9	-5.00	-4.50	7324.70	Red
10	-4.50	-4.00	9160.25	Red
11	-4.00	-3.50	10003.63	Red
12	-3.50	-3.00	9887.84	Red
13	-3.00	-2.50	9765.73	Red
14	-2.50	-2.00	9550.86	Red
15	-2.00	-1.50	9681.75	Red
16	-1.50	-1.00	10439.72	Red
17	-1.00	-0.50	11804.81	Red
18	-0.50	0.00	16563.23	Light Red
19	0.00	0.50	1517.55	Light Blue
20	0.50	1.00	29.98	Blue
21	1.00	1.50	5.24	Dark Blue



- EXISTING CONTOUR (1-FT INTERVAL)
- EXISTING CONTOUR (5-FT INTERVAL)
- DESIGN CONTOUR (1-FT INTERVAL)
- DESIGN CONTOUR (5-FT INTERVAL)
- - - GRADING BOUNDARY

- SHEET NOTES:**
1. THE INTENT OF THIS DRAWING IS TO SHOW FINISHED GRADE CUT/FILL DEPTHS RELATIVE TO EXISTING GRADE (EG).
  2. ISOPACH LABELS REPRESENT CUT/FILL DEPTHS IN FEET (RELATIVE TO EG).
  3. SEE SHEETS C1C-C5 FOR ADDITIONAL GRADING DETAILS.

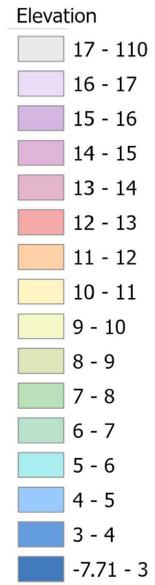


ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C7</b>	TITLE OF SHEET <b>ISOPACH 2 MAINSTEM PROJECT</b>	SHEET <b>10</b>
TECH. REVIEW: BD		HUMBOLDT COUNTY, CA	OF <b>14</b>
DATE: 10/08/2025			

**SHEET NOTES:**

1. THE INTENT OF THIS SHEET IS TO SHOW LIKELY SDEIMENT REUSE SITES FOR ELK RIVER PLANNING AREA 1 (PA1) PROJECT SITES THAT DO NOT BALANCE CUT/FILL WITHIN A SPECIFIC PROJECT SITE.
2. SEDIMENT SOURCES FOR SEDIMENT REUSE SITES WILL LIKELY COME FROM LOWER SPRUCE, UPPER SPRUCE, MAINSTEM, ORTON, AND RELIC SWAIN PROJECT SITES.
3. NOT ALL PA1 PROJECT SITES ARE SHOWN ON THIS SHEET.
4. NOT ALL INFRASTRUCTURE ARE SHOWN ON THIS SHEET.
5. (XS-1) REFERS TO CROSS-SECTION LOCATION; SEE CROSS-SECTION SHEET.

Plotted: 10/8/2025 5:42 PM - By: LICENSED USER - R17.1 - File: 11-SEDIMENT-REUSE-PRELIM-65%-DRAFT-PERMIT-C-SHEETS

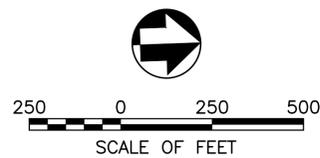


**KEY NOTES:**

- ① SEDIMENT REUSE (D)
- ② UPPER SPRUCE PROJECT (D)
- ③ ERWA-S PROJECT (D)
- ④ ORTON CREEK PROJECT (D)

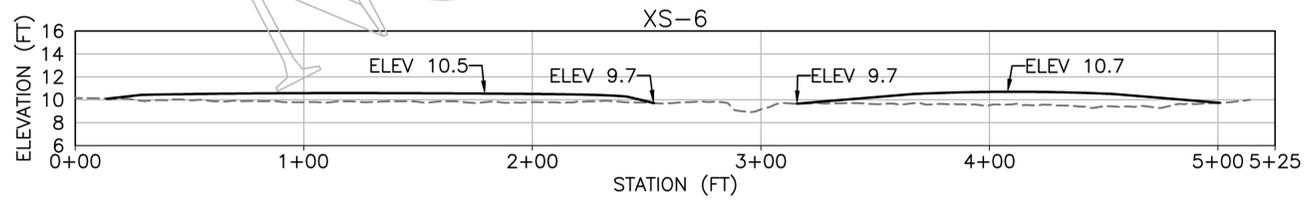
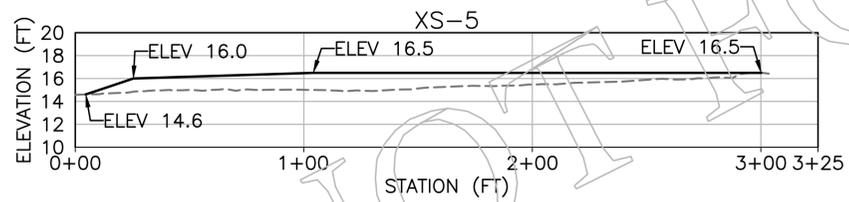
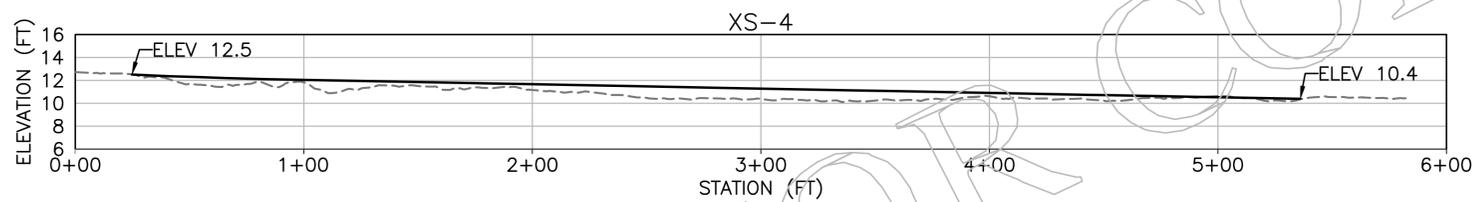
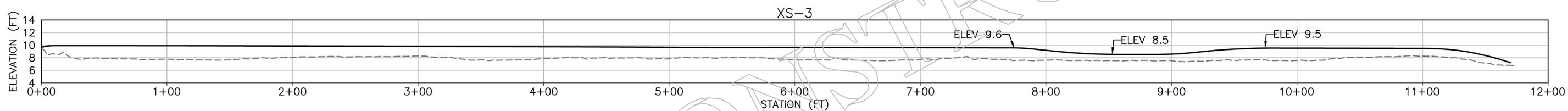
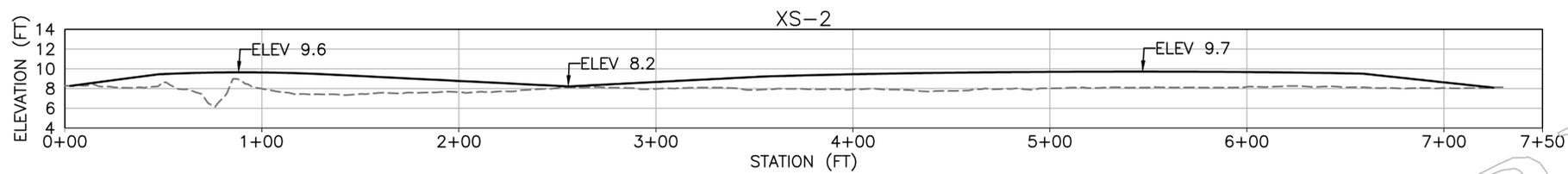
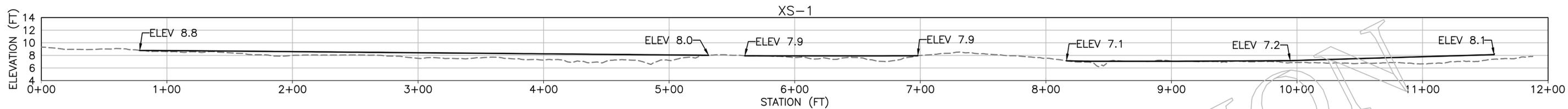
- DESIGN CONTOUR (1-FEET INTERVAL)
- - - DESIGN CONTOUR (5-FEET INTERVAL)
- - - GRADING BOUNDARY
- GAS - GAS LINE
- - - UTILITY LINE

- ▲ ARTESIAN WELL (E)
- UTILITY POLE (E)
- GROUNDWATER MONITORING SITE (E)



ELK PA1 65% DESIGN: PERMIT SET		
DESIGNED: NHE CADD	SUB SHEET NO. <b>C8C</b>	TITLE OF SHEET <b>COLOR SITE OVERVIEW SEDIMENT REUSE PLANNING AREA 1</b>
TECH. REVIEW:	DATE: 10/08/2025	SHEET 11 OF 14
HUMBOLDT COUNTY, CA		

Plotted: 10/8/2025 5:44 PM - By: LICENSED USER - R17.1 - File: 11-SEDIMENT-REUSE-PRELIM-65%-DRAFT-PERMIT-C-SHEETS



**SHEET NOTES:**

1. SEE SITE OVERVIEW SHEET FOR CROSS-SECTION ALIGNMENT LOCATION.
2. VERTICAL EXAGGERATION OF 5 FOR ALL CROSS-SECTION VIEWS ON THIS SHEET.
3. THIS SHEET SHOWS EXISTING AND DESIGN GRADES.

--- EXISTING GRADE PROFILE  
 ——— DESIGN GRADE PROFILE



ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C9</b>	TITLE OF SHEET <b>SECTIONS SEDIMENT REUSE PLANNING AREA 1</b>	SHEET <b>12</b>
TC			OF
TECH. REVIEW:			<b>14</b>
DATE: 10/08/2025		HUMBOLDT COUNTY, CA	

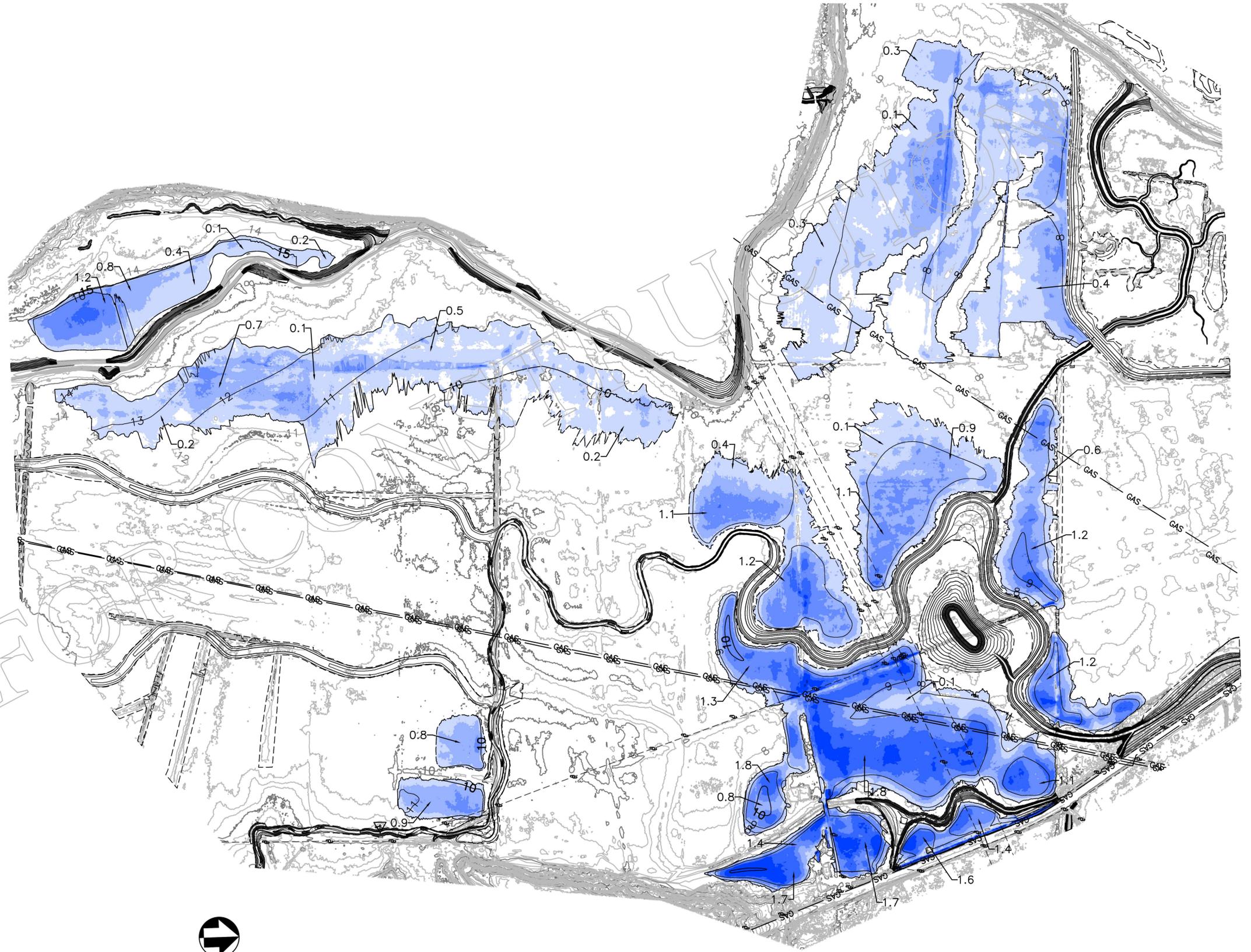
Plotted: 10/16/2025 10:29 AM - By: LICENSED USER - R17.1 - File: 11-SEDIMENT-REUSE-PRELIM-65%-DRAFT-PERMIT-ISOPACH

### ELEVATIONS TABLE

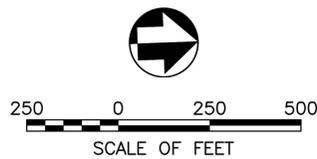
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	AREA	COLOR
1	0.00	0.50	1925095.51	
2	0.50	1.00	1099749.27	
3	1.00	1.50	643635.49	
4	1.50	2.00	315314.04	
5	2.00	3.00	83904.31	
6	3.00	6.00	3716.82	

**SHEET NOTES:**

- 1) THE INTENT OF THIS DRAWING IS TO SHOW FINISHED GRADE SEDIMENT REUSE DEPTHS RELATIVE TO EXISTING GRADE (EG).
- 2) ISOPACH LABELS REPRESENT DEPTHS IN FEET (RELATIVE TO EG).
- 3) SEE SHEET C8C-C9 FOR ADDITIONAL SEDIMENT REUSE GRADING DETAILS.



- EXISTING CONTOUR (1-FT INTERVAL)
- EXISTING CONTOUR (5-FT INTERVAL)
- DESIGN CONTOUR (1-FT INTERVAL)
- DESIGN CONTOUR (5-FT INTERVAL)
- - - GRADING BOUNDARY
- GAS — GAS LINE
- - - UTILITY LINE
- ▲ ARTESIAN WELL (E)
- ⊗ UTILITY POLE (E)



ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE	SUB SHEET NO. <b>C10</b>	TITLE OF SHEET <b>ISOPACH SEDIMENT REUSE PLANNING AREA 1</b>	SHEET <b>13</b>
TC	TECH. REVIEW:	HUMBOLDT COUNTY, CA	OF <b>14</b>
DATE: 10/15/2025			



DETAIL 1: LWS INSTALLATION AND INTEGRATION ALONG STREAM BANK. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 3: LWS INSTALLATION WITHIN FLOODPLAIN. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 5: LWS INSTALLATION ALONG STREAM BANK HIGHLIGHTING ANCHORING WITH PINNING LOGS. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 2: LWS INSTALLATION AND INTEGRATION ALONG STREAM BANK. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.



DETAIL 4: LWS INSTALLATION WITHIN FLOODPLAIN. PHOTO OF LWS INSTALLED AT PRAIRIE CREEK, HUMBOLDT COUNTY.

Plotted: 10/14/2025 9:08 PM - By: LICENSED USER - R17.1 - File: CX-DETAILS-65PER-PERMIT

**SHEET NOTES:**

1. THE INTENT OF THIS SHEET IS TO SHOW GENERAL EXAMPLES OF THE TYPES OF LARGE WOOD STRUCTURES TO BE INSTALLED.
2. THIS SHEET SHOWS APPROXIMATE LARGE WOOD STRUCTURE CONFIGURATIONS AND INSTALLATION TECHNIQUES USING LOG PILES AS PINNING LOG ANCHORS. ACTUAL LOG STRUCTURES WILL VARY DEPENDING ON VARIABLE FIELD CONDITIONS, LOG VARIABILITY, AND OTHER UNFORESEEN CONDITIONS.



ELK PA1 65% DESIGN: PERMIT SET			
DESIGNED: NHE CADD	SUB SHEET NO.  <b>C11</b>	TITLE OF SHEET <b>DETAILS</b>	SHEET <b>14</b>
TECH. REVIEW: BD			OF <b>14</b>
DATE: 10/15/2025		HUMBOLDT COUNTY, CA	