

Appendix E
Bayou Lafourche Alignment Conveyance
Alternative Matrix/Water Level Profiles

TABLE E-1

Bayou Lafourche Alignment Conveyance Alternative Matrix

Profile No.	Railroad ^a	Check Structure ^b	Dredging ^c	Maximum Water Surface Limit ^d	Mississippi River Resultant Quantity	Palo Alto Bridge Resultant Quantity	Donaldsonville WSE ^f (feet)	Confluence WSE (feet)		Bayou Lafourche Dredging (cy) ^g
					(cfs) ^e RS 226	(cfs) RS 211		Upstream RS 212	Downstream RS 211	
1	NM	NA	ND	E	215	NA	--	--	--	--
2	NM	NA	ND	MLW	289	NA	--	--	--	--
3	NM	NA	ND	MW	688	NA	--	--	--	--
4	NM	NA	2	E	373	NA	8.2	--	--	4,770,000
5	NM	NA	2	MLW	480	NA	8.8	--	--	4,770,000
6	NM	NA	2	MW	1,030	NA	11.6	--	--	4,770,000
7	NM	NA	8	E	379	NA	8.1	--	--	8,620,000
8	NM	NA	8	MLW	487	NA	8.8	--	--	8,620,000
9	NM	NA	8	MW	1,040	NA	11.5	--	--	8,620,000
10	NM	NA	8-2@RM29	E	385	NA	8.2	--	--	6,732,000
11	NM	NA	8-2@RM29	MLW	485	NA	8.8	--	--	6,732,000
12	NM	NA	8-2@RM29	MW	1,040	NA	11.5	--	--	6,732,000
13	NM	NA	2-0@RM29	E	375	NA	8.2	--	--	2,850,000
14	NM	NA	2-0@RM29	MLW	480	NA	8.8	--	--	2,850,000
15	NM	NA	2-0@RM29	MW	1,025	NA	11.5	--	--	2,850,000
16	M	NA	ND	E	234	NA	8.1	--	--	--
17	M	NA	ND	MLW	315	NA	8.8	--	--	--
18	M	NA	ND	MW	833	NA	11.5	--	--	--
19	M	NA	2	E	850	NA	7.9	--	--	4,770,000
20	M	NA	2	MLW	1,020	NA	8.7	--	--	4,770,000
21	M	NA	2	MW	1,800	NA	11.6	--	--	4,770,000
22	M	NA	8	E	1,300	NA	7.6	--	--	8,620,000
23	M	NA	8	MLW	1,600	NA	8.8	--	--	8,620,000
24	M	NA	8	MW	2,470	NA	11.5	--	--	8,620,000
25	M	NA	8-2@RM3.4	E	850	NA	7.0	--	--	4,926,000
26	M	NA	8-2@RM3.4	MLW	1,250	NA	8.8	--	--	4,926,000
27	M	NA	8-2@RM3.4	MW	2,000	NA	11.5	--	--	4,926,000
28	M	NA	2-0@RM3.4	E	220	NA	7.4	--	--	225,800
29	M	NA	2-0@RM3.4	MLW	420	NA	8.8	--	--	225,800
30	M	NA	2-0@RM3.4	MW	970	NA	11.5	--	--	225,800
31	M	NA	8-2@RM29	E	1,100	NA	7.0	--	--	6,732,000
32	M	NA	8-2@RM29	MLW	1,530	NA	8.8	--	--	6,732,000
33	M	NA	8-2@RM29	MW	2,340	NA	11.5	--	--	6,732,000

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Bayou Lafourche Alignment Conveyance Alternative Matrix

Profile No.	Railroad ^a	Check Structure ^b	Dredging ^c	Maximum Water Surface Limit ^d	Mississippi River Resultant Quantity	Palo Alto Bridge Resultant Quantity	Donaldsonville WSE ^f (feet)	Confluence WSE (feet)		Bayou Lafourche Dredging (cy) ^g
					(cfs) ^e RS 226	(cfs) RS 211		Upstream RS 212	Downstream RS 211	
34	M	NA	8-0@RM29	E	580	NA	5.2	--	--	4,341,000
35	M	NA	8-0@RM29	MLW	1,300	NA	8.7	--	--	4,341,000
36	M	NA	8-0@RM29	MW	2,100	NA	11.6	--	--	4,341,000
37	M	NA	2-0@RM29	E	580	NA	6.8	--	--	2,850,000
38	M	NA	2-0@RM29	MLW	970	NA	8.8	--	--	2,850,000
39	M	NA	2-0@RM29	MW	1,650	NA	11.5	--	--	2,850,000

Notes:

- a. NM = No modification to existing railroad bridge culverts
M = Modification to existing railroad bridge culverts

- b. Y = Check structure in-place
N = No check structure
NA = Not applicable for BL alignment

Check structure assumptions:

Location: Immediately upstream of confluence
Flow input upstream of check structure = 100 cfs

- c. ND = No dredging

RM = River Mile

2 = Dredge template characteristics:

Depth = 2 feet below existing bottom for 56 miles

Side slopes = 2.5:1 (horizontal:vertical)

Channel bottom width = variable over 17 subreaches

8 = Dredge template characteristics:

Depth = 8 feet below existing bottom for 56 miles

Side slopes = 2.5:1 (horizontal:vertical)

Channel bottom width = variable over 18 subreaches

8-2@RM3.4 = Combined dredging template characteristics:

Dredge 8 feet upstream of Palo Alto Bridge (RM 3.4) and 2 feet downstream

2-0@RM3.4 = Combined dredging template characteristics:

Dredge 2 feet upstream of Palo Alto Bridge (RM 3.4) and 0 feet downstream

8-2@RM29 = Combined dredging template characteristics:

Dredge 8 feet upstream of RM 29.0 near Thibodaux and 2 feet downstream

2-0@RM29 = Combined dredging template characteristics:

Dredge 2 feet upstream of RM 29.0 near Thibodaux and 0 feet downstream

8-0@RM29 = Combined dredging template characteristics:

Dredge 8 feet downstream of RM 29.0 near Thibodaux and 0 feet downstream

- d. E = Existing water level
MLW = Mean low water level
MW = Mean water level
- e. cfs = cubic feet per second
- f. WSE = water surface elevation
- g. cy = cubic yard

TABLE E-2
Smoke Bend Alignment Conveyance Alternatives Matrix

Profile No.	Railroad ^a	Check Structure ^b	Dredging ^c	Maximum Water Surface Limit ^d	Mississippi River Resultant Quantity (cfs) ^e RS 226	Palo Alto Bridge Resultant Quantity (cfs) RS 211	Confluence WSE ^f (feet)		Bayou Lafourche Dredging (cy) ^g	Smoke Bend Excavation							
							Upstream RS 212	Downstream RS 211		Deep Channel			Shallow Channel				Excavation Quantity
										WSE (feet)		Excavation Quantity (cy) ^g	WSE (feet)				
										U/S ^h	D/S ⁱ		U/S ^h	D/S ⁱ	Confluence Elevation ^j	Delta ^k	
40	NM	N	ND	E	NA	215	--	--	--	14.8	7.2	127,216	20.0	12.4	7.2	5.2	51,365
41	NM	N	ND	MLW	NA	438	8.6	8.6	--	12.3	8.6	320,234	20.0	16.3	8.6	7.7	118,943
42	NM	N	ND	MW	NA	1,051	11.2	11.1	--	13.0	11.1	543,141	20.0	18.2	11.1	7.0	292,338
43	NM	N	2	E	NA	830	6.3	6.3	4,545,000	8.4	6.3	699,440	20.0	17.8	6.3	11.6	230,649
44	NM	N	2	MLW	NA	1,400	8.6	8.6	4,545,000	10.0	8.6	852,204	20.0	18.5	8.6	10.0	388,926
45	NM	N	2	MW	NA	2,300	11.3	11.2	4,545,000	12.2	11.2	1,037,963	20.0	19.0	11.2	7.8	635,951
46	NM	N	8	E	NA	1,320	6.4	6.3	8,237,000	7.9	6.3	962,557	20.0	18.4	6.3	12.1	366,849
47	NM	N	8	MLW	NA	2,000	8.6	8.5	8,237,000	9.7	8.5	1,116,981	20.0	18.8	8.5	10.3	553,798
48	NM	N	8	MW	NA	3,100	11.3	11.2	8,237,000	12.4	11.2	1,308,289	20.0	18.9	11.2	7.6	852,193
49	NM	N	8-2@RM29	E	NA	980	5.6	5.5	6,351,000	7.5	5.5	833,120	20.0	18.1	5.5	12.5	272,578
50	NM	N	8-2@RM29	MLW	NA	1,810	8.6	8.6	6,351,000	9.8	8.6	1,032,782	20.0	18.8	8.6	10.2	501,691
51	NM	N	8-2@RM29	MW	NA	2,780	11.3	11.2	6,351,000	11.9	11.2	1,382,118	20.0	19.3	11.2	8.1	878,982
52	NM	N	2-0@RM29	E	NA	560	5.5	5.4	2,625,000	8.4	5.4	564,555	20.0	17.0	5.4	11.6	154,208
53	NM	N	2-0@RM29	MLW	NA	1,230	8.6	8.5	2,625,000	10.2	8.5	773,476	20.0	18.4	8.5	9.8	341,972
54	NM	N	2-0@RM29	MW	NA	2,050	11.2	11.2	2,625,000	12.3	11.2	944,618	20.0	18.9	11.2	7.7	567,499
55	NM	Y	ND	E	NA	215	5.8	7.3	--	14.9	7.3	125,450	20.0	12.4	7.3	5.1	51,365
56	NM	Y	ND	MLW	NA	415	5.8	8.5	--	12.4	8.5	303,736	20.0	16.1	8.5	7.6	112,228
57	NM	Y	ND	MW	NA	1,120	5.8	11.2	--	12.9	11.2	570,330	20.0	18.2	11.2	7.1	311,429
58	NM	Y	2	E	NA	830	5.8	6.3	4,545,000	8.4	6.3	699,440	20.0	17.8	6.3	11.6	230,649
59	NM	Y	2	MLW	NA	1,390	5.8	8.6	4,545,000	10.0	8.6	847,617	20.0	18.5	8.6	10.0	386,168
60	NM	Y	2	MW	NA	2,290	5.8	11.2	4,545,000	12.2	11.2	1,034,237	20.0	19.0	11.2	7.8	633,215
61	NM	Y	8	E	NA	1,320	5.8	6.3	8,237,000	7.9	6.3	962,557	20.0	18.4	6.3	12.1	366,849
62	NM	Y	8	MLW	NA	2,000	5.8	8.5	8,237,000	9.7	8.5	1,116,981	20.0	18.8	8.5	10.3	553,798
63	NM	Y	8	MW	NA	3,080	5.8	11.2	8,237,000	12.3	11.2	1,305,250	20.0	18.8	11.2	7.7	846,724
64	NM	Y	8-2@RM29	E	NA	980	5.8	5.5	6,351,000	7.4	5.5	834,412	20.0	18.1	5.5	12.6	272,578
65	NM	Y	8-2@RM29	MLW	NA	1,810	5.8	8.6	6,351,000	9.8	8.6	1,032,782	20.0	18.8	8.6	10.2	501,691
66	NM	Y	8-2@RM29	MW	NA	2,780	5.8	11.2	6,351,000	11.9	11.2	1,382,118	20.0	19.3	11.2	8.1	878,982
67	NM	Y	2-0@RM29	E	NA	560	5.8	5.4	2,625,000	8.4	5.4	564,555	20.0	17.0	5.4	11.6	154,208
68	NM	Y	2-0@RM29	MLW	NA	1,230	5.8	8.5	2,625,000	10.2	8.5	773,476	20.0	18.4	8.5	9.8	341,972
69	NM	Y	2-0@RM29	MW	NA	2,050	5.8	11.2	2,625,000	12.3	11.2	944,618	20.0	18.9	11.2	7.7	567,499

TABLE E-2

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							Upstream RS 212	Downstream RS 211		Deep Channel		Shallow Channel					
										WSE (feet)		Excavation Quantity (cy) ^g	WSE (feet)				Excavation Quantity
										U/S ^h	D/S ⁱ		U/S ^h	D/S ⁱ	Confluence Elevation ^j	Delta ^k	

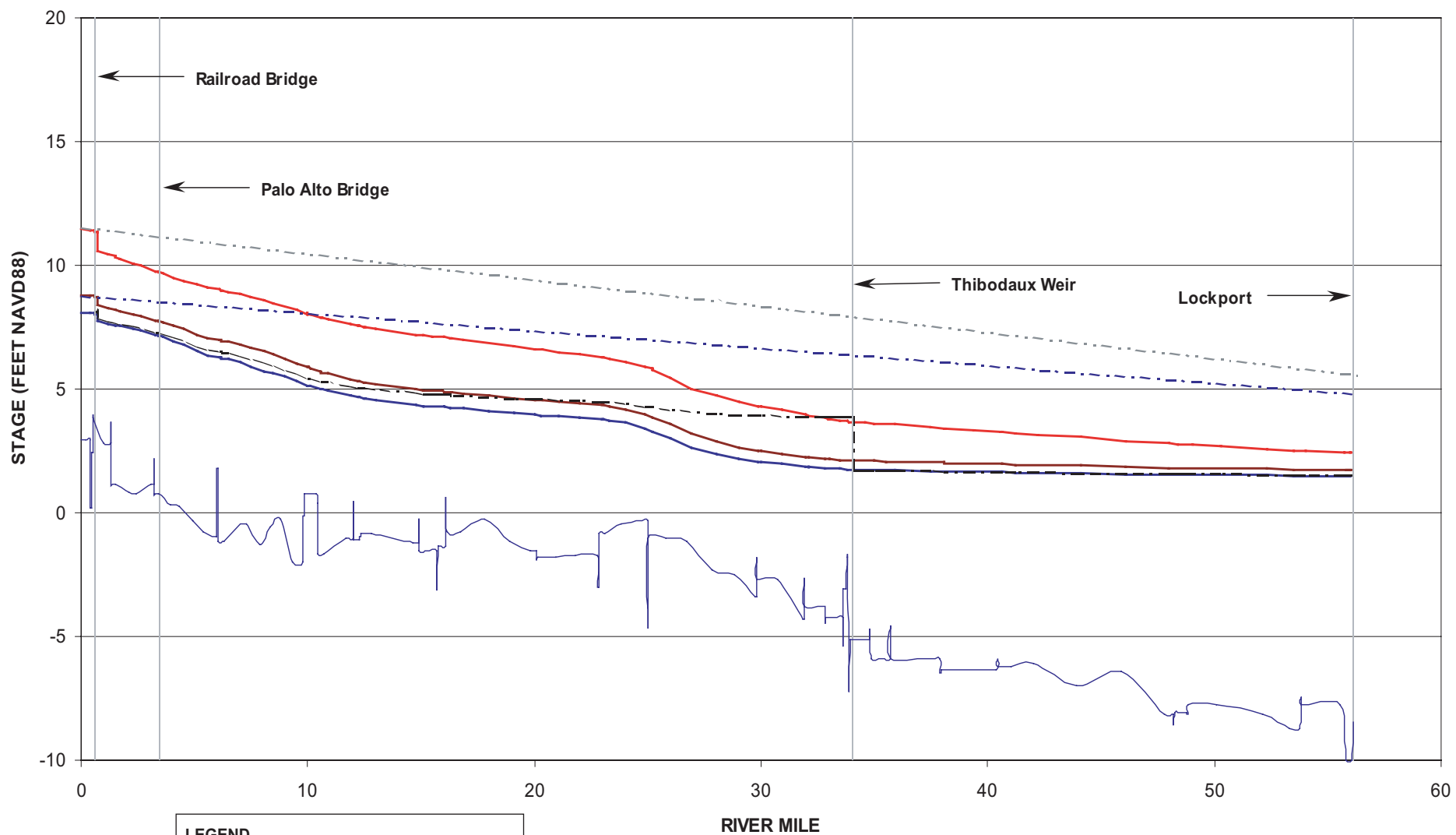
Notes:

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- b. Y = Check structure in-place
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Check structure assumptions:

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Side slopes = 2.5:1 (horizontal:vertical)
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- 8-2@RM3.4 = Combined dredging template characteristics:
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- 2-0@RM3.4 = Combined dredging template characteristics:
Dredge 2 feet upstream of Palo Alto Bridge (RM 3.4) and 0 feet downstream
- 8-2@RM29 = Combined dredging template characteristics:
Dredge 8 feet upstream of RM 29.0 near Thibodaux and 2 feet downstream
- 2-0@RM29 = Combined dredging template characteristics:
Dredge 2 feet upstream of RM 29.0 near Thibodaux and 0 feet downstream
- 8-0@RM29 = Combined dredging template characteristics:
Dredge 8 feet upstream of RM 29.0 near Thibodaux and 0 feet downstream
- d. E = Existing water level
MLW = Mean low water level
MW = Mean water level
- e. Flow diverted from Donaldsonville pump station
cfs = cubic feet per second
- f. Water surface elevations (WSE) upstream and downstream of check structure
- g. Excavation quantity, cubic yards (cy) for Smoke Bend bypass
- h. Water surface upstream (U/S) in the Smoke Bend bypass channel
- i. Water surface downstream (D/S) in the Smoke Bend bypass channel
- j. WSE in Bayou Lafourche D/S of confluence with Smoke Bend bypass
- k. Difference in water surface between Smoke Bend bypass (D/S) and Bayou Lafourche (confluence)



LEGEND

- MW MODELED (688 CFS), ALT. 3
- MLW MODELED (289 CFS), ALT. 2
- EX MODELED (215 CFS), ALT. 1
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT

FIGURE E-1 (PROFILE FOR ALTS. 1-3)

BAYOU LAFOURCHE NO DREDGE

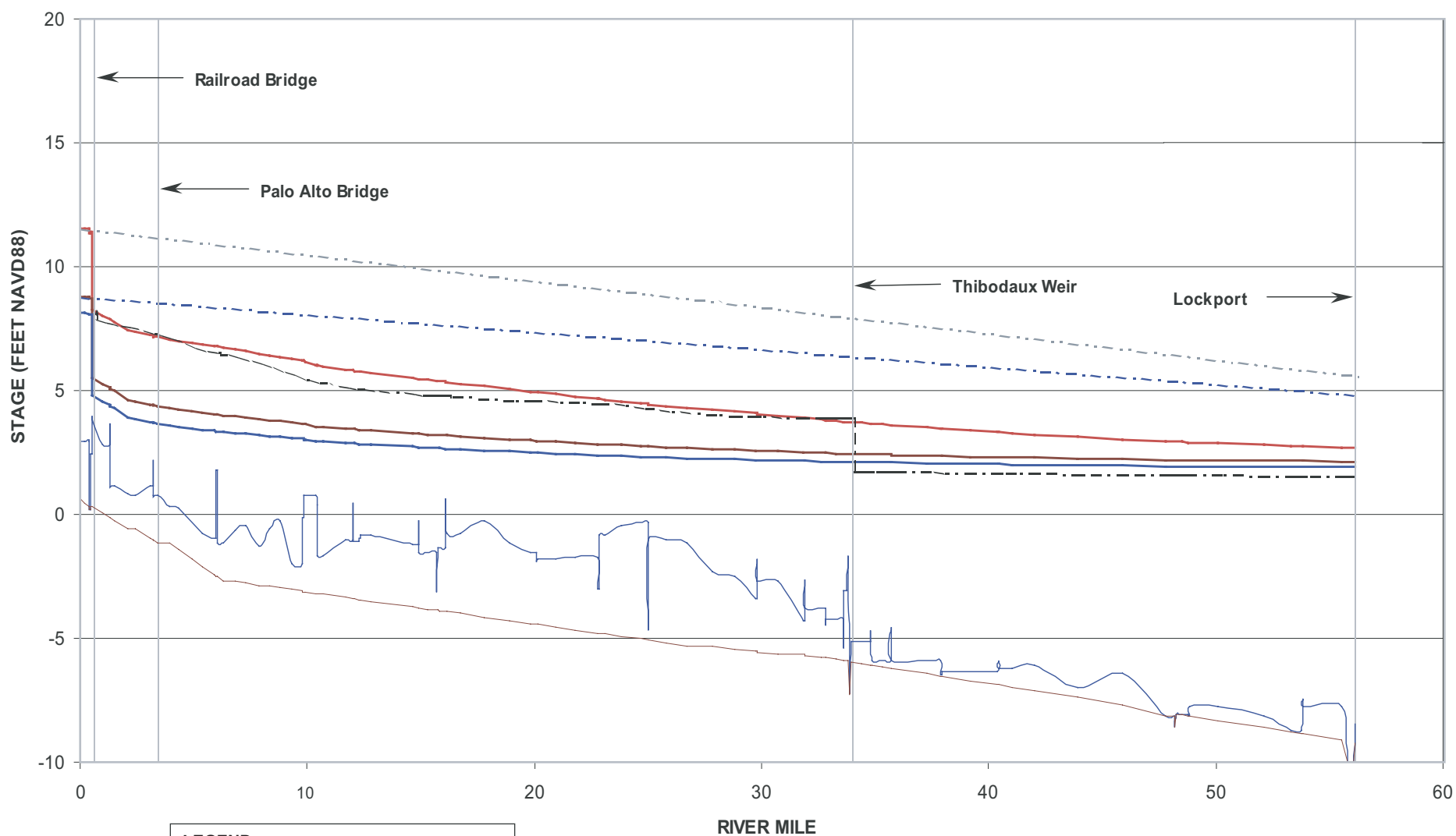
EXISTING CONDITION –

NO MODIFICATION TO RAILROAD CULVERT

MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
LOUISIANA DEPARTMENT OF NATURAL RESOURCES

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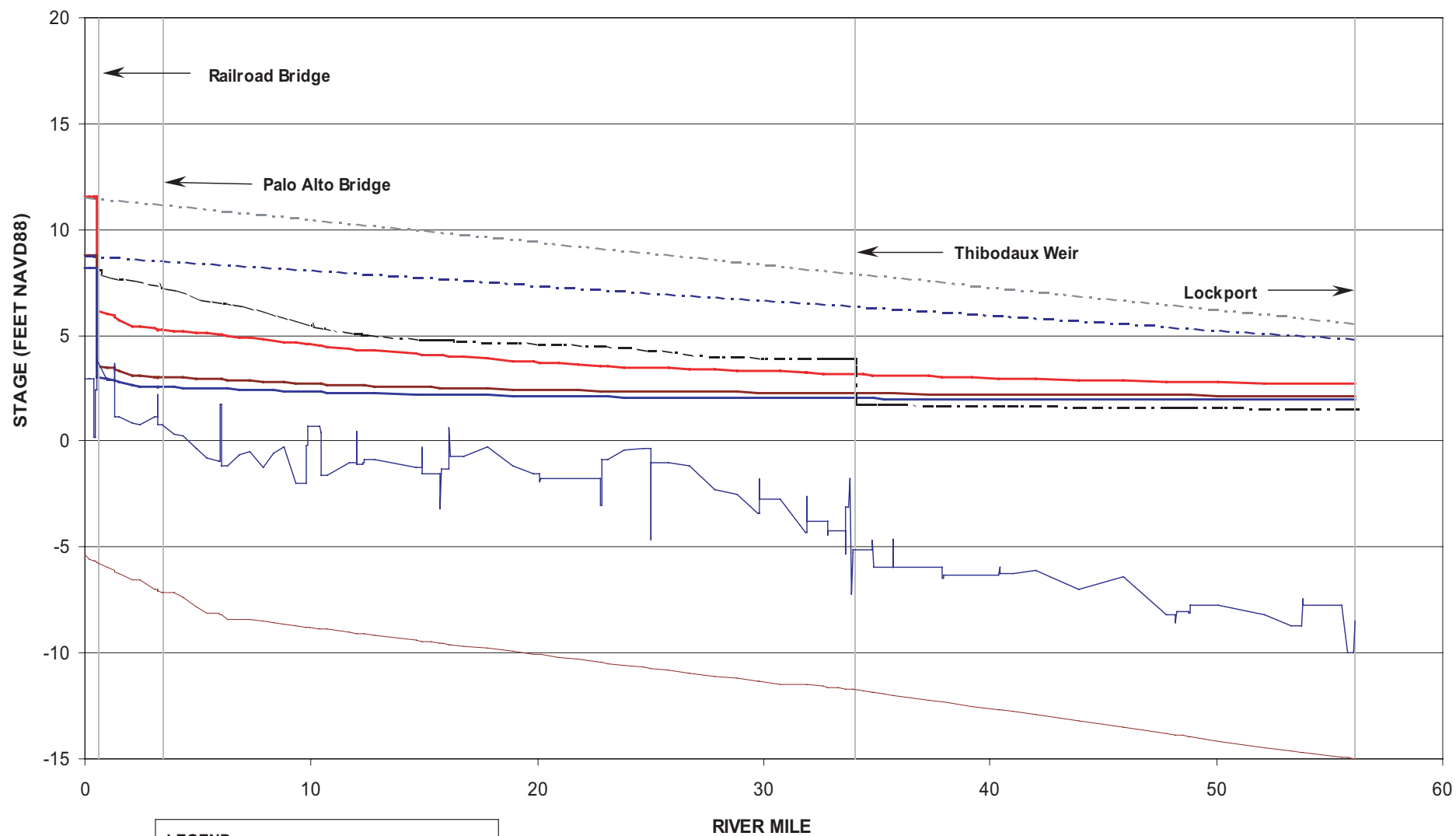
CH2MHILL



LEGEND

- MW MODELED (1,030 CFS), ALT. 6
- MLW MODELED (480 CFS), ALT. 5
- EX MODELED (373 CFS), ALT. 4
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

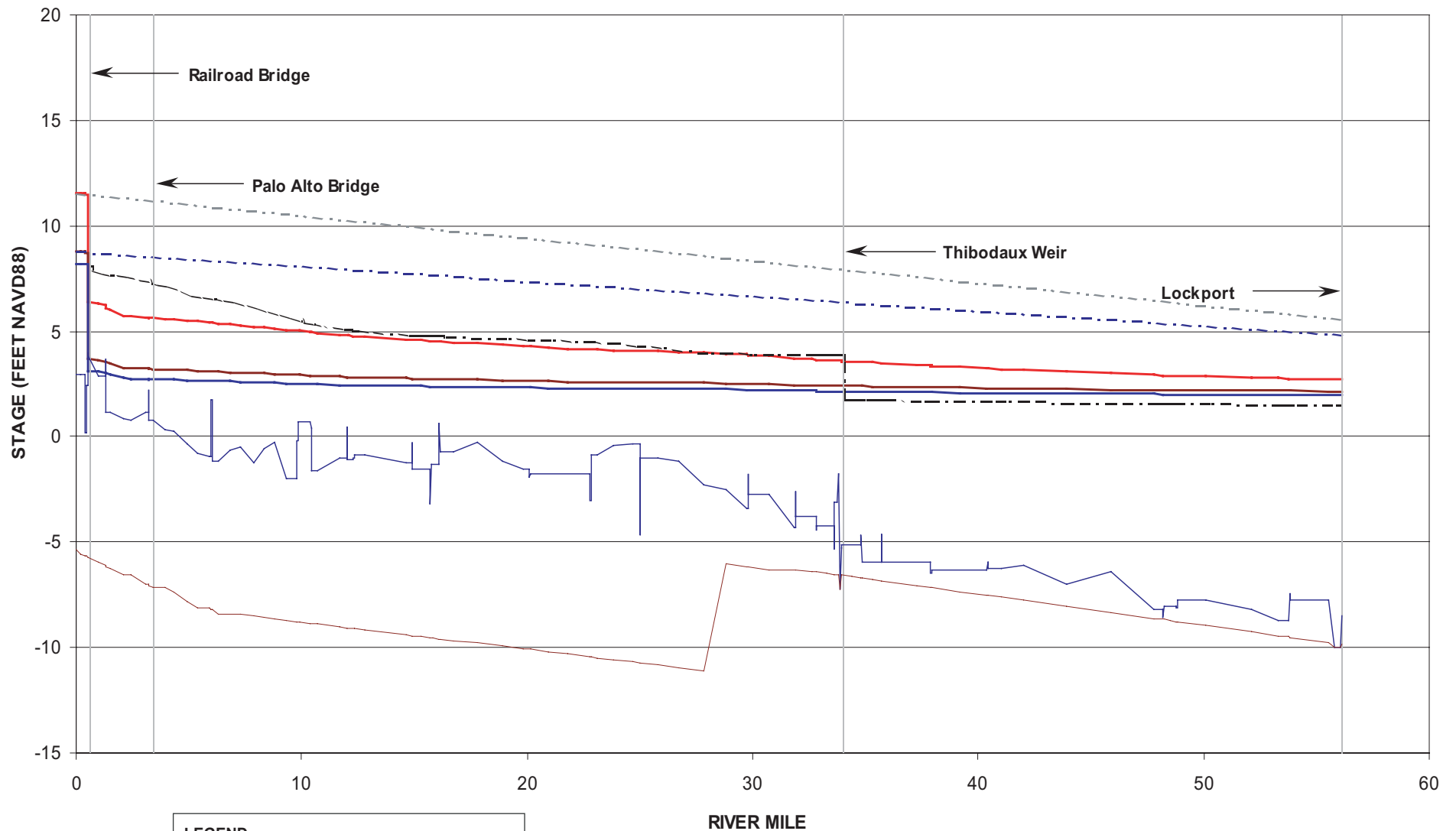
FIGURE E-2 (PROFILE FOR ALTS. 4-6)
BAYOU LAFOURCHE 2-FOOT DREDGE –
NO MODIFICATION TO RAILROAD CULVERT
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LEGEND

- MW MODELED (1,040 CFS), ALT. 9
- MLW MODELED (487 CFS), ALT. 8
- EX MODELED (379 CFS), ALT. 7
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

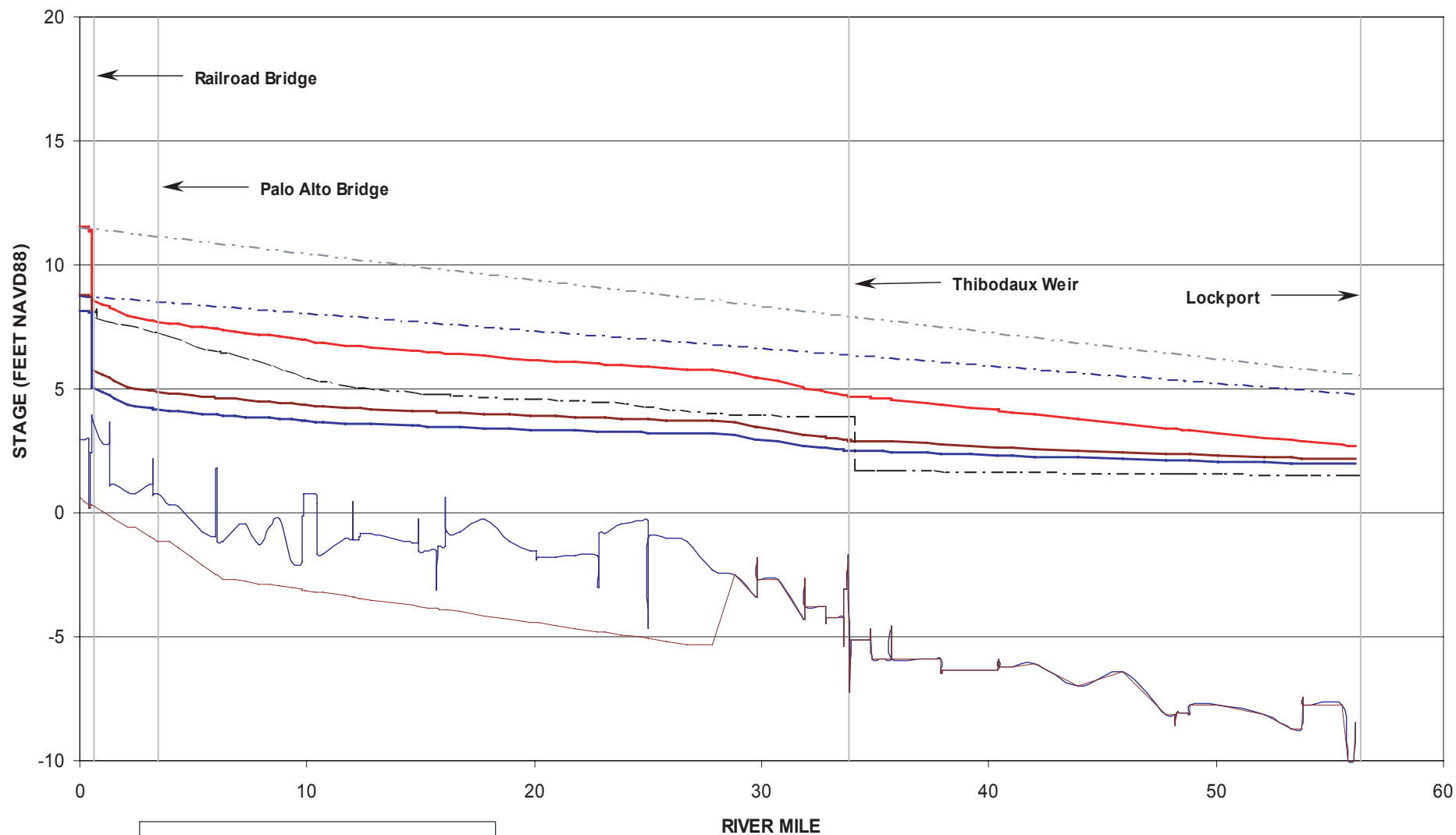
FIGURE E-3 (PROFILE FOR ALTS. 7-9)
BAYOU LAFOURCHE 8-FOOT DREDGE –
NO MODIFICATION TO RAILROAD CULVERT
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LEGEND

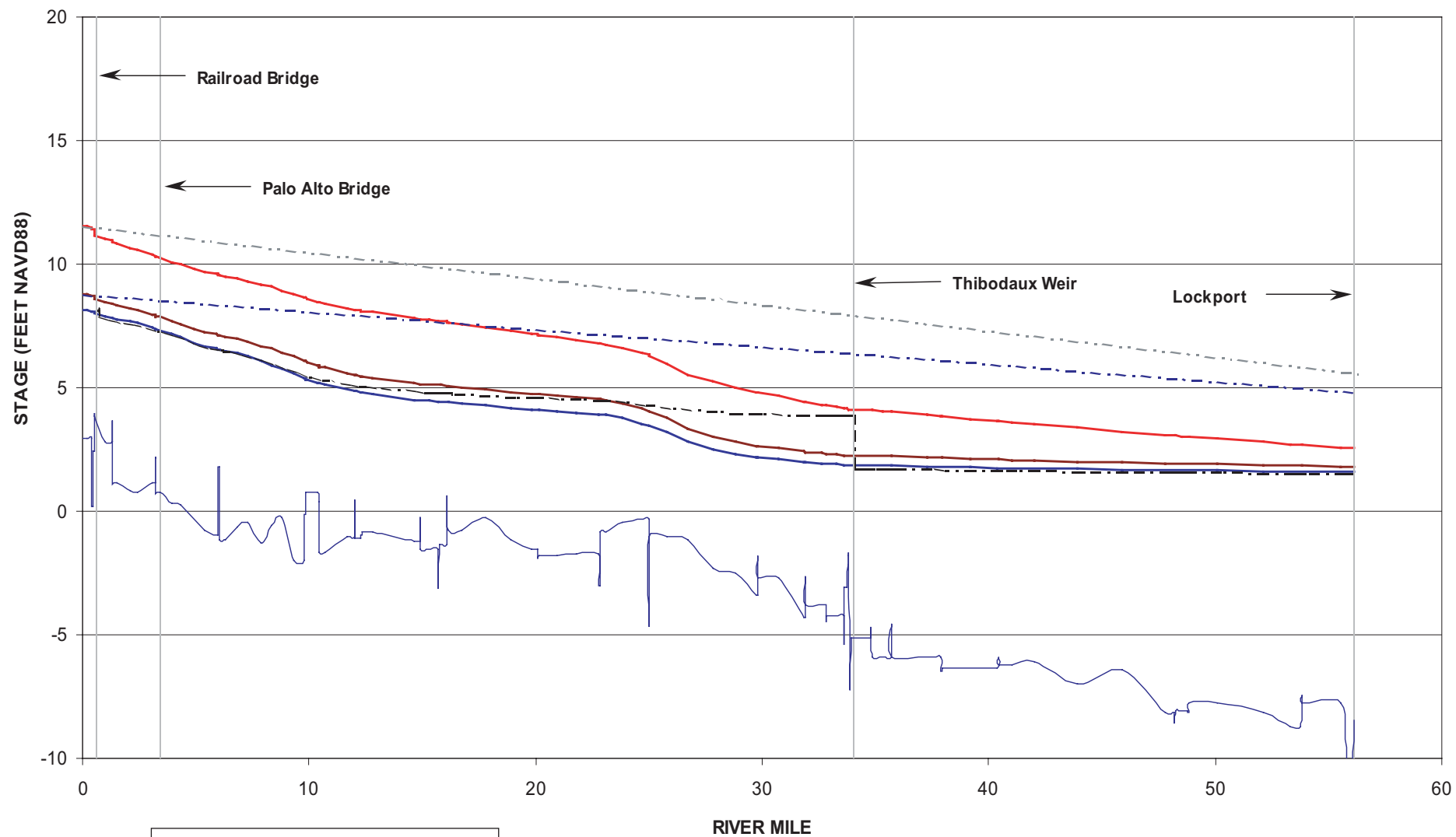
- MW MODELED (1,040 CFS), ALT. 12
- MLW MODELED (485 CFS), ALT. 11
- EX MODELED (385 CFS), ALT. 10
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-4 (PROFILE ALTS. 10-12)
BAYOU LAFOURCHE 8- TO 2-FOOT DREDGE AT RM 29 –
NO MODIFICATION TO RAILROAD CULVERT
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- LEGEND**
- MW MODELED (1,025 CFS), ALT. 15
 - MLW MODELED (480 CFS), ALT. 14
 - EX MODELED (375 CFS), ALT. 13
 - - - MW TARGET
 - - - MLW TARGET
 - - - EX TARGET
 - BRIDGE LOCATIONS
 - EX CHANNEL INVERT
 - DREDGED CHANNEL INVERT

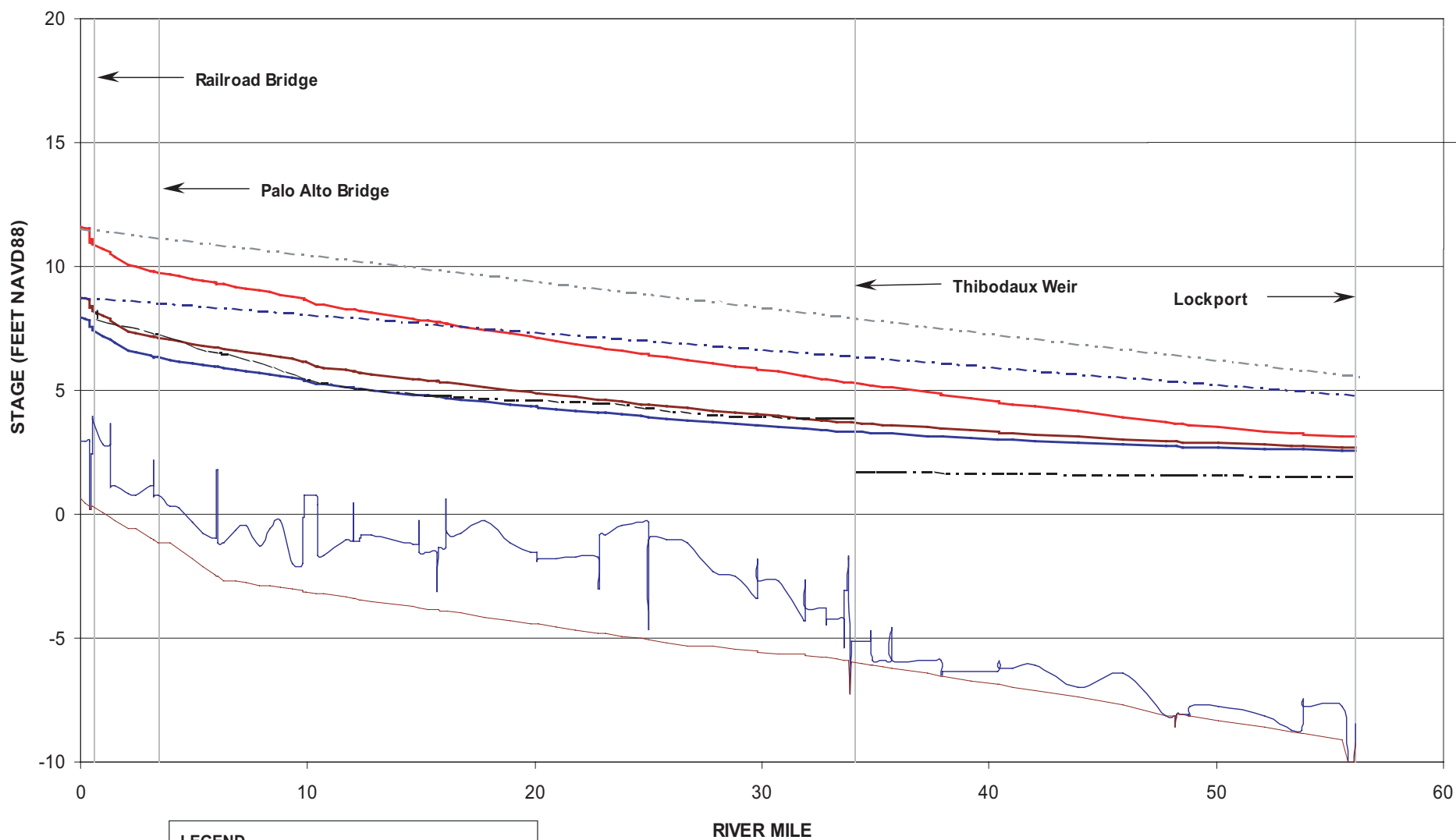
FIGURE E-5 (PROFILE ALTS. 13-15)
BAYOU LAFOURCHE 2- TO 0-FOOT DREDGE AT RM 29 –
NO MODIFICATION TO RAILROAD CULVERT
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LEGEND

- MW MODELED (833 CFS), ALT. 18
- MLW MODELED (315 CFS), ALT. 17
- EX MODELED (234 CFS), ALT. 16
- - - - MW TARGET
- - - - MLW TARGET
- - - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT

FIGURE E-6 (PROFILE ALT. NO. 16-18)
BAYOU LAFOURCHE NO DREDGE EXISTING
CONDITION – MODIFIED RAILROAD CULVERT
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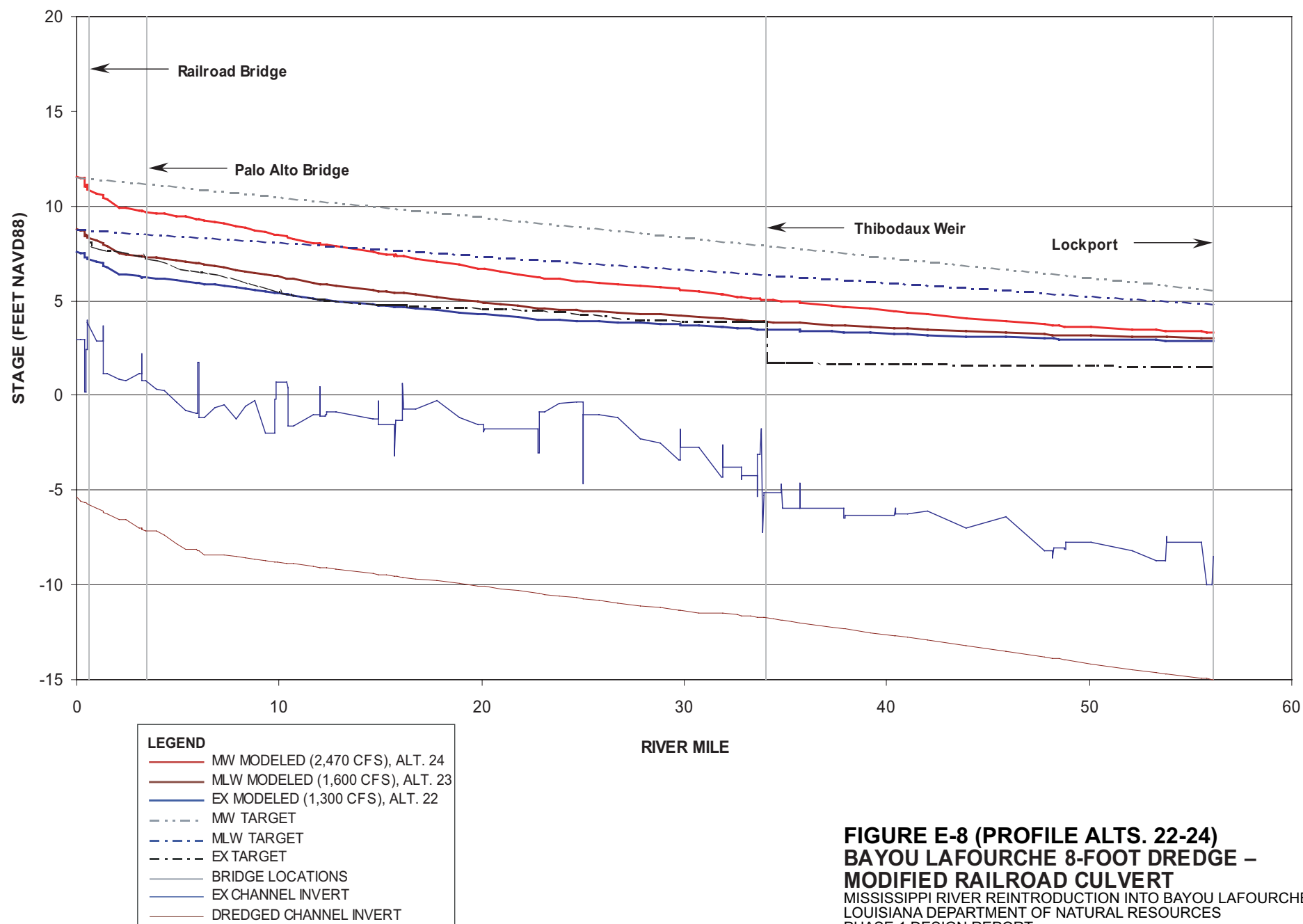


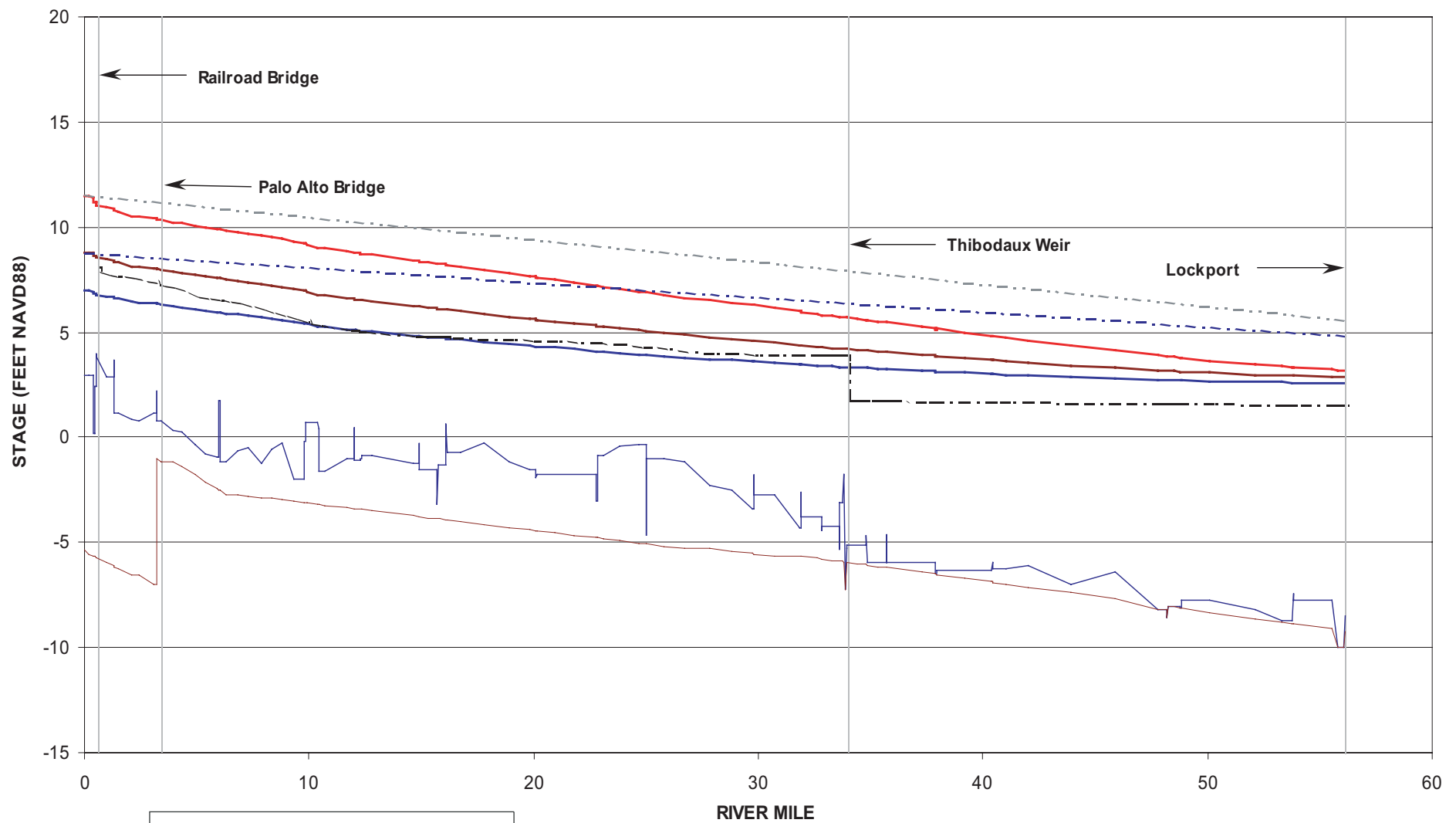
LEGEND

- MW MODELED (1,800 CFS), ALT. 21
- MLW MODELED (1,020 CFS), ALT. 20
- EX MODELED (850 CFS), ALT. 19
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-7 (PROFILE ALTS. 19-21) BAYOU LAFOURCHE 2-FOOT DREDGE – MODIFIED RAILROAD CULVERT

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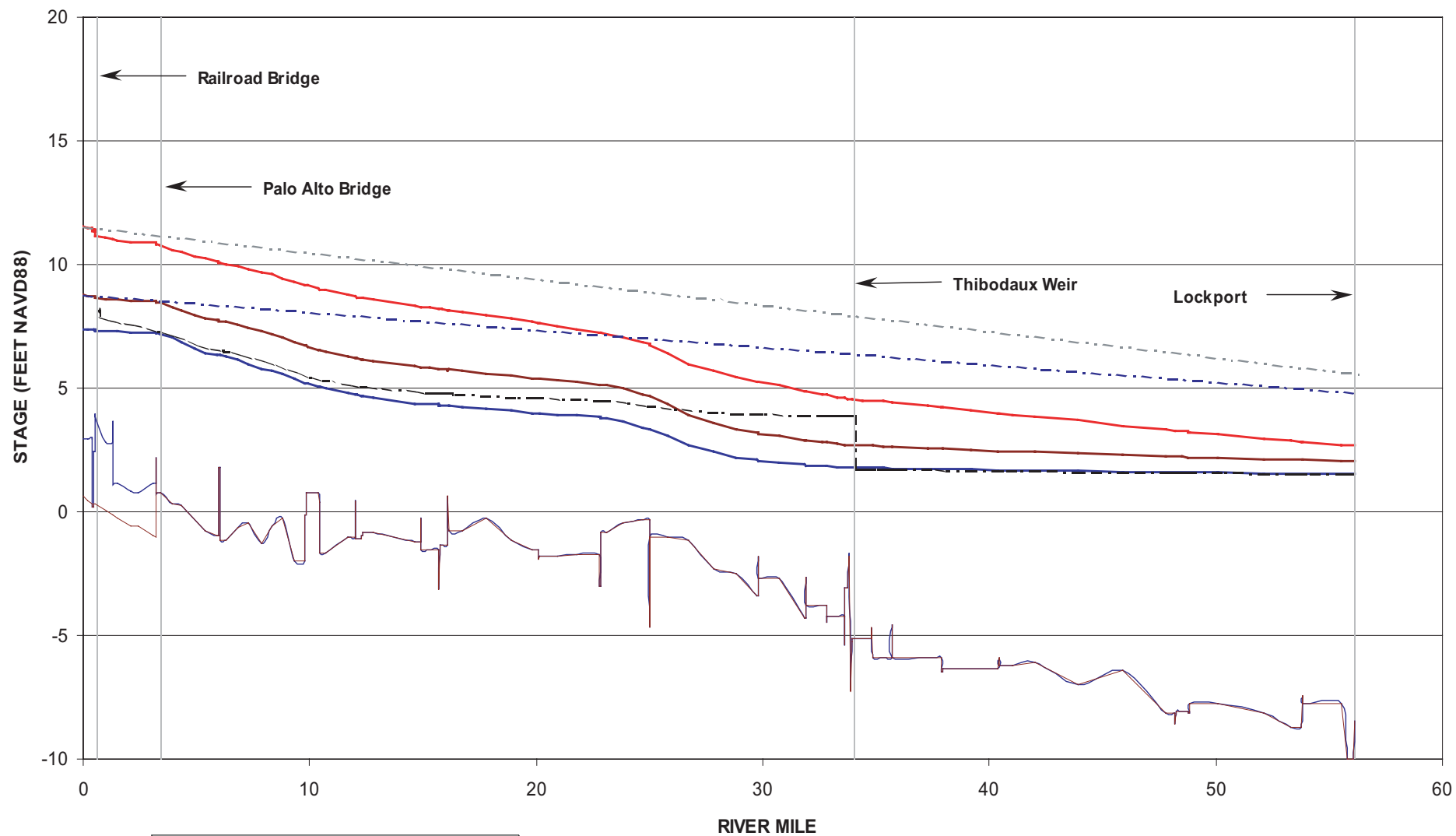




LEGEND

- MW MODELED (2,000 CFS), ALT. 25
- MLW MODELED (1,250 CFS), ALT. 26
- EX MODELED (850 CFS), ALT. 27
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-9 (PROFILE ALT. NO. 25-27)
BAYOU LAFOURCHE 8- TO 2-FOOT DREDGE
AT RM 3.4 – MODIFIED RAILROAD CULVERT
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LEGEND

- MW MODELED (970 CFS), ALT. 30
- MLW MODELED (420 CFS), ALT. 29
- EX MODELED (220 CFS), ALT. 28
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-10 (PROFILE ALT. NO. 28-30)
BAYOU LAFOURCHE 8- TO 0-FOOT DREDGE
AT RM 3.4 – MODIFIED RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
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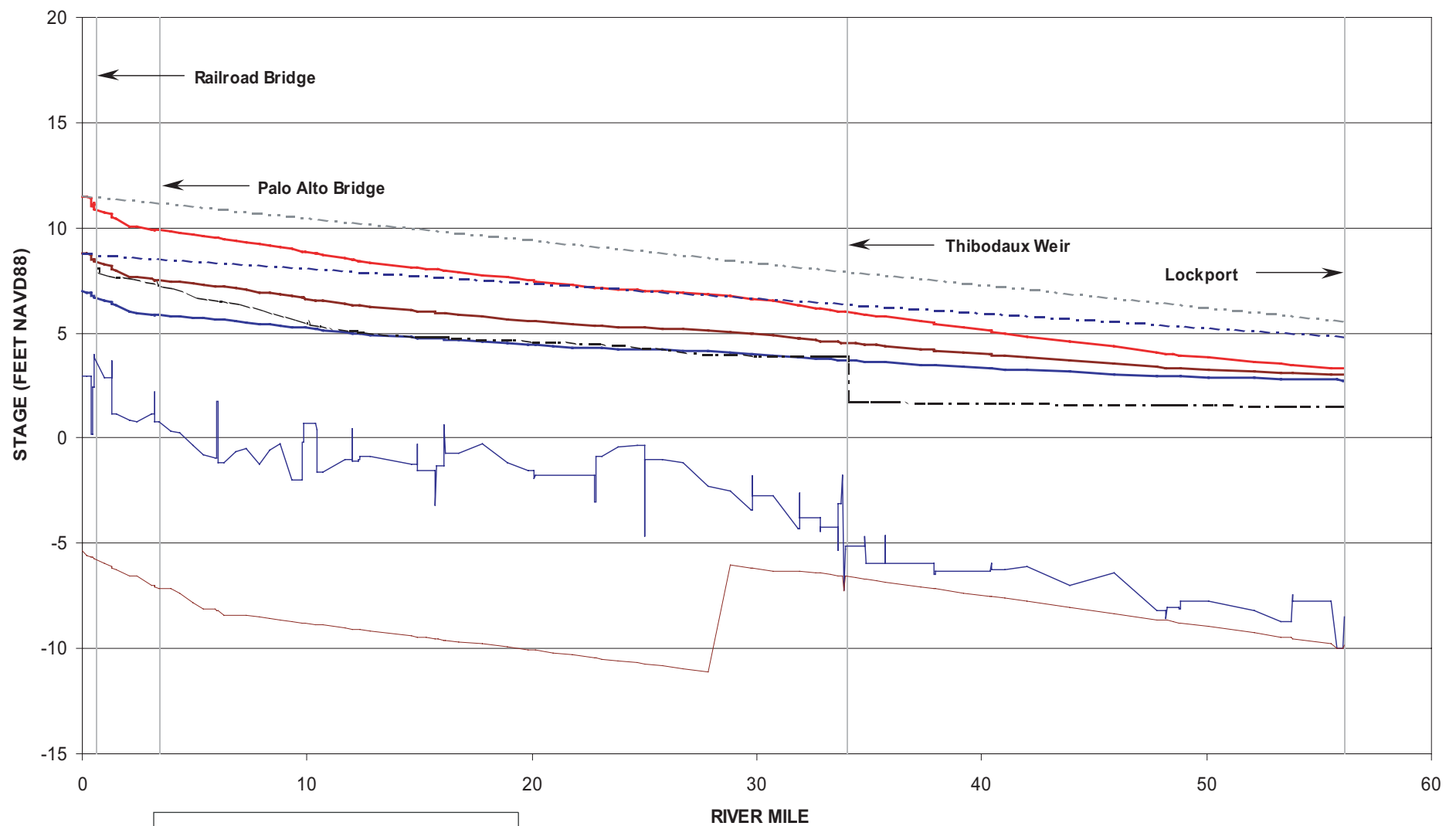
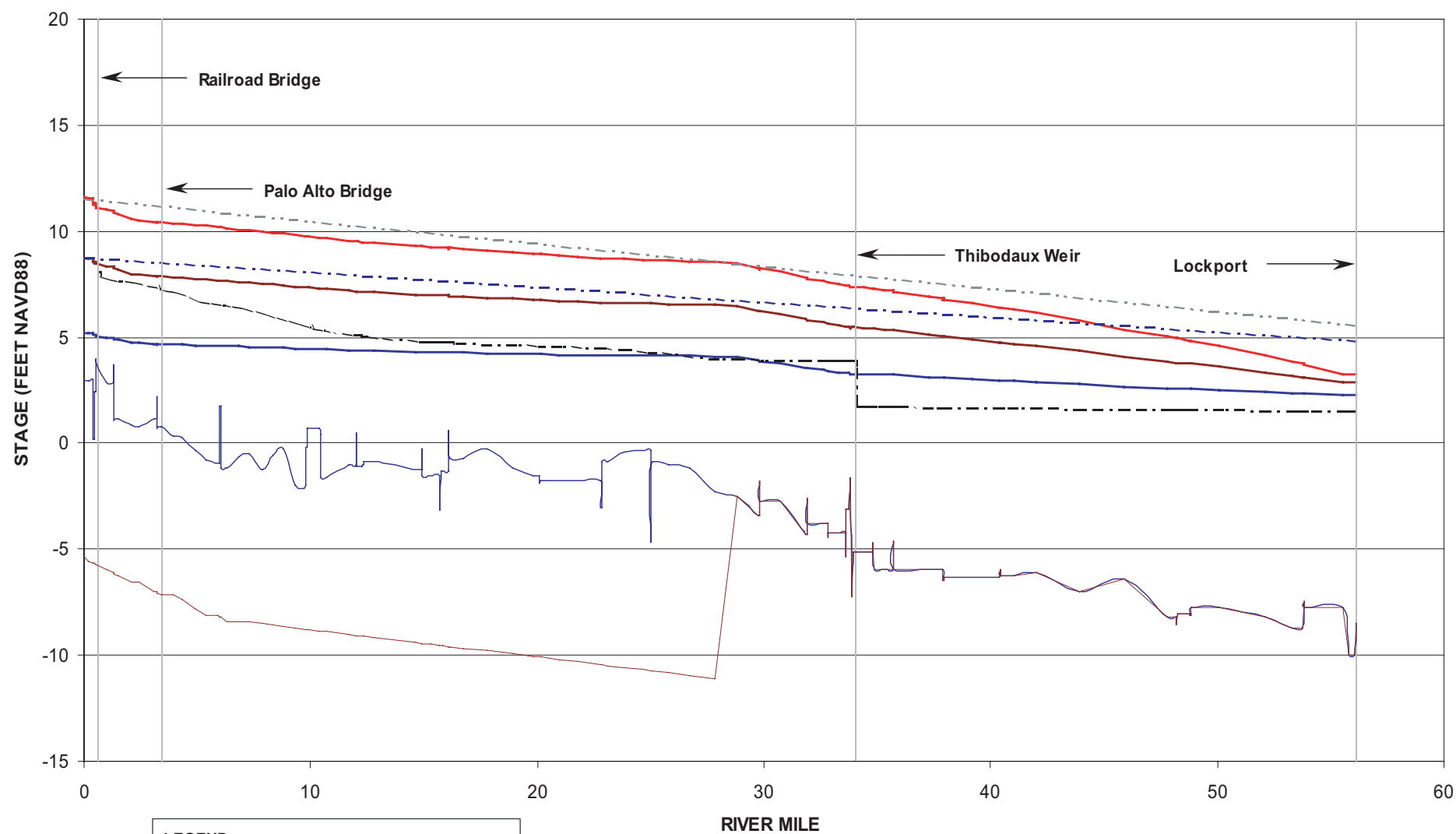


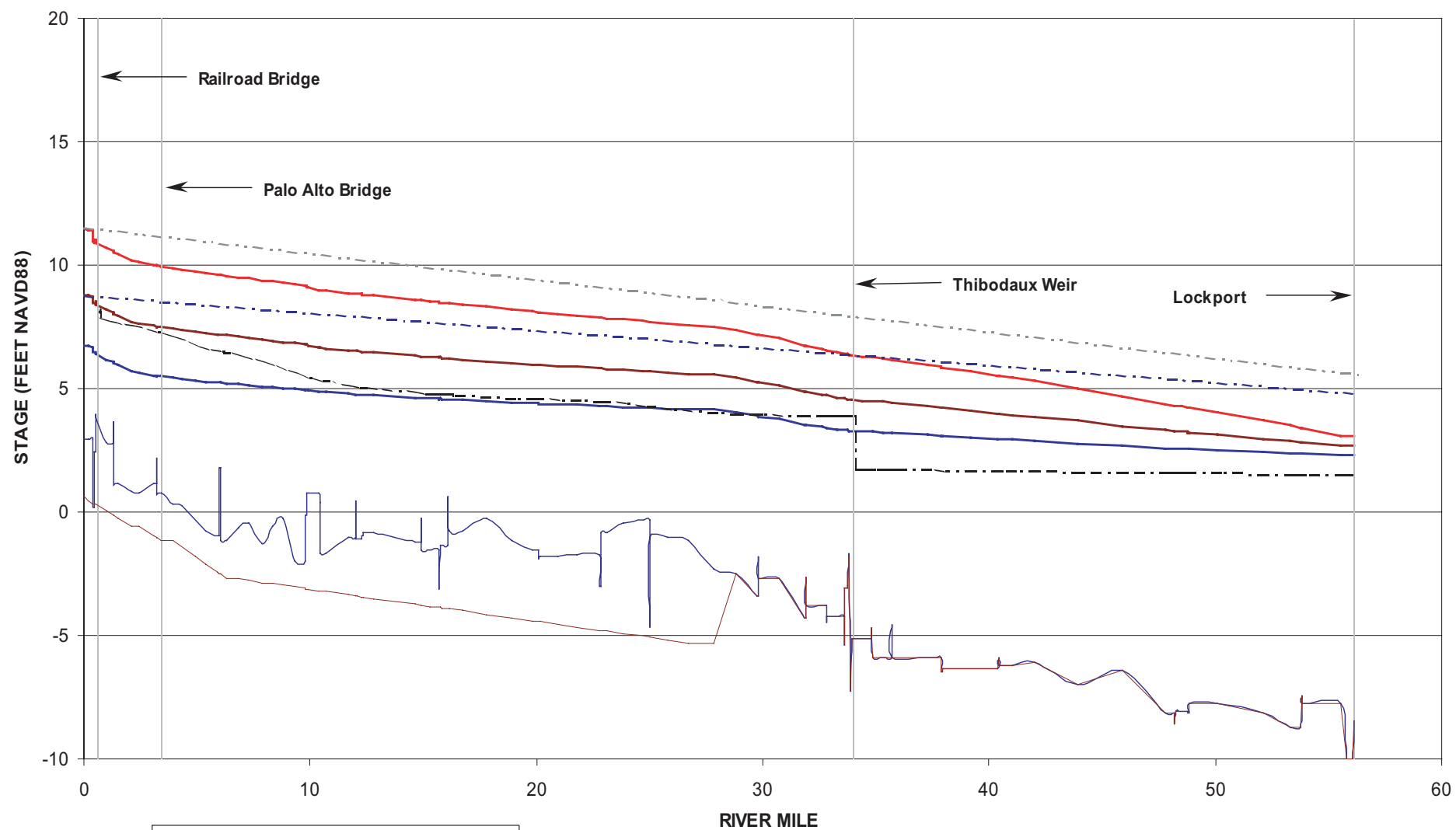
FIGURE E-11 (PROFILE ALT. NO. 31-33)
BAYOU LAFOURCHE 8- TO 2-FOOT DREDGE
AT RM 29 – MODIFIED RAILROAD CULVERT
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LEGEND

- MW MODELED (2,100 CFS), ALT. 36
- MLW MODELED (1,300 CFS), ALT. 35
- EX MODELED (850 CFS), ALT. 34
- MW TARGET
- MLW TARGET
- EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

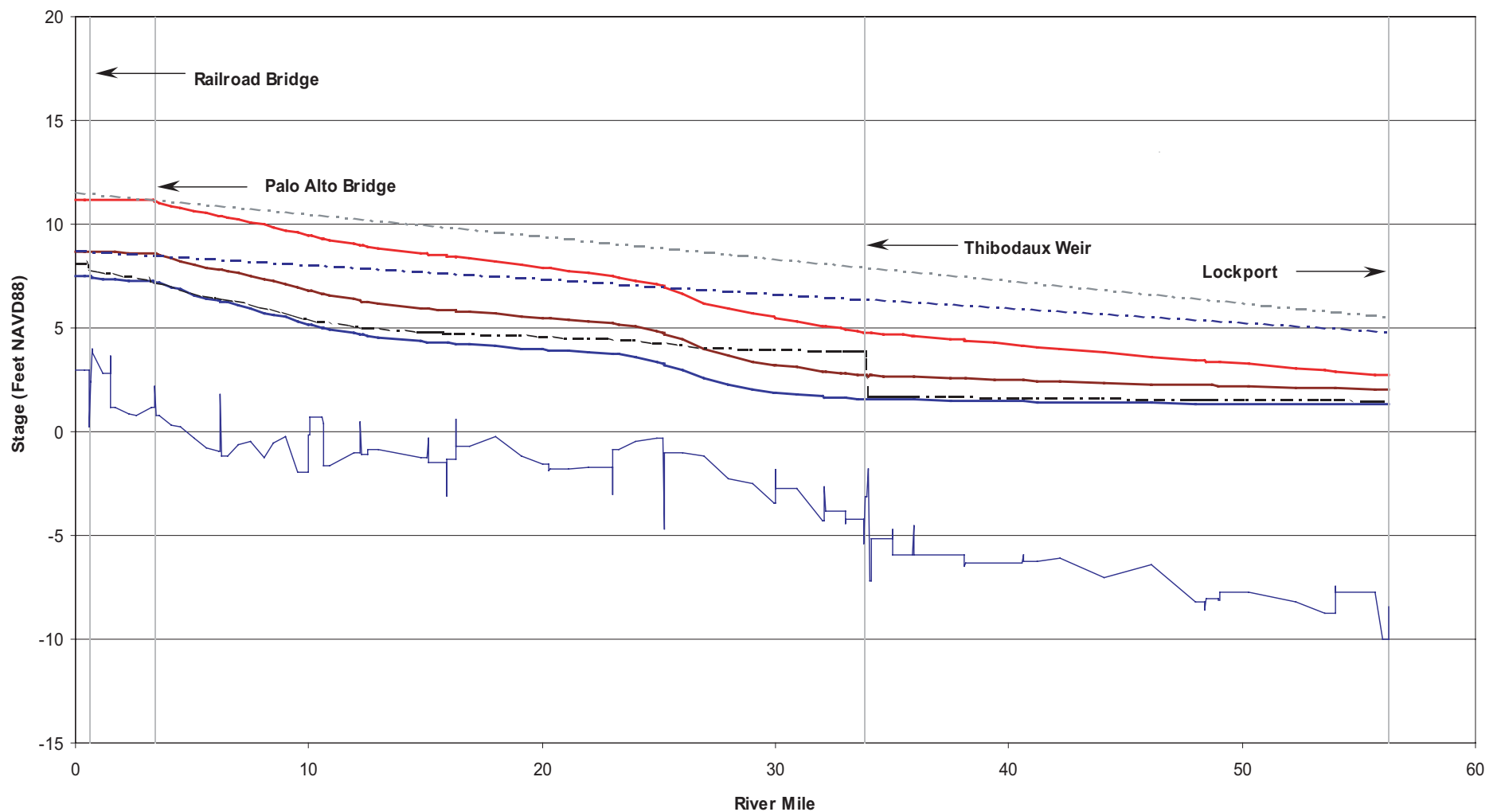
FIGURE E-12 (PROFILE ALT. NO. 34-36)
BAYOU LAFOURCHE 8- TO 0-FOOT DREDGE
AT RM 29 – MODIFIED RAILROAD CULVERT
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 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (1,650 CFS), ALT. 39
- MLW MODELED (970 CFS), ALT. 38
- EX MODELED (580 CFS), ALT. 37
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

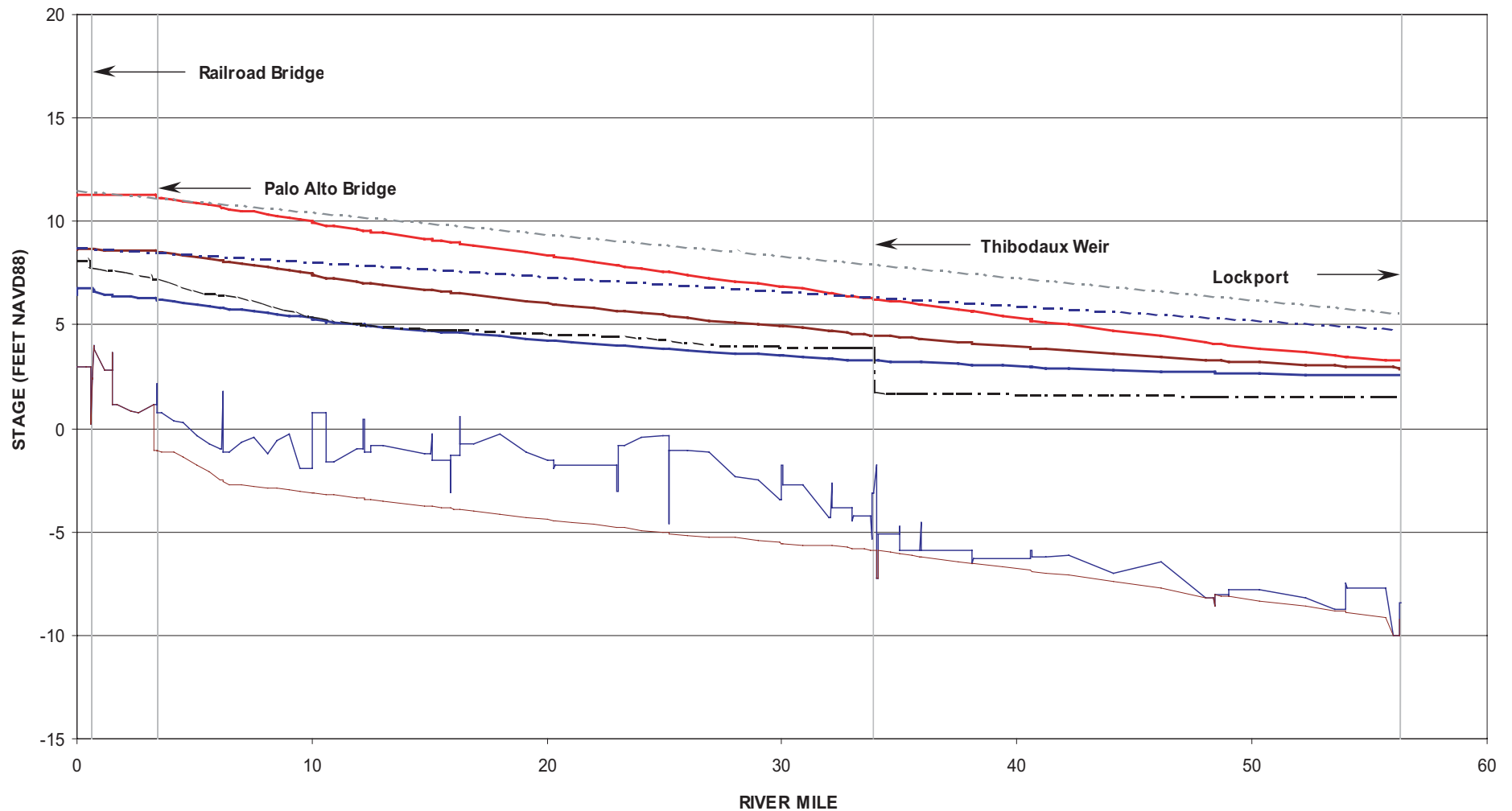
FIGURE E-13 (PROFILE ALT. NO. 37-39)
BAYOU LAFOURCHE 2- TO 0-FOOT DREDGE
AT RM 29 – MODIFIED RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (1,051 CFS), ALT. 42
- MLW MODELED (438 CFS), ALT. 41
- EX MODELED (215 CFS), ALT. 40
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT

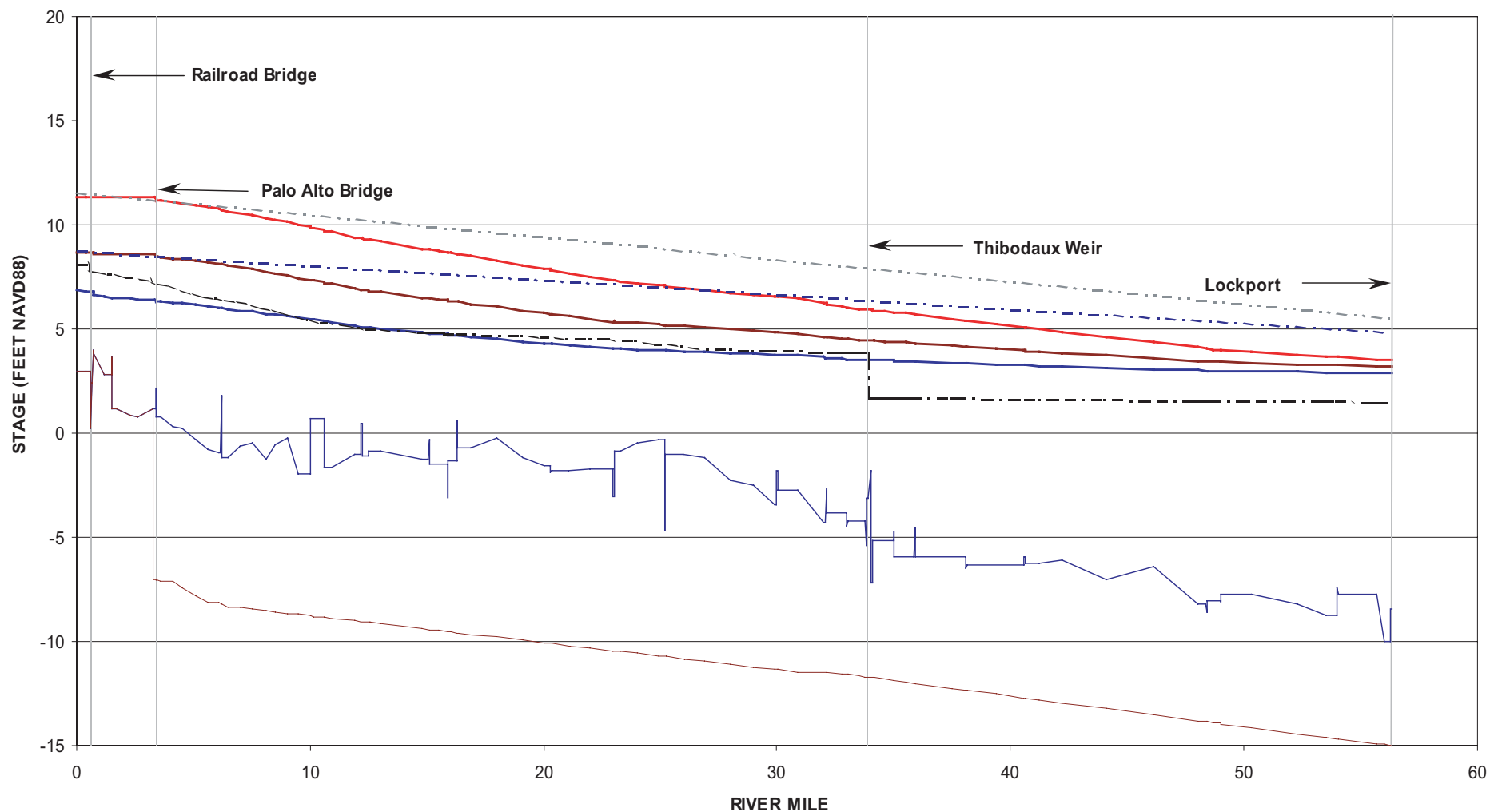
FIGURE E-14 (PROFILE ALT. NO. 40-42)
SMOKE BEND NO DREDGE –
NO CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (2,300 CFS), ALT. 45
- MLW MODELED (1,400 CFS), ALT. 44
- EX MODELED (830 CFS), ALT. 43
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

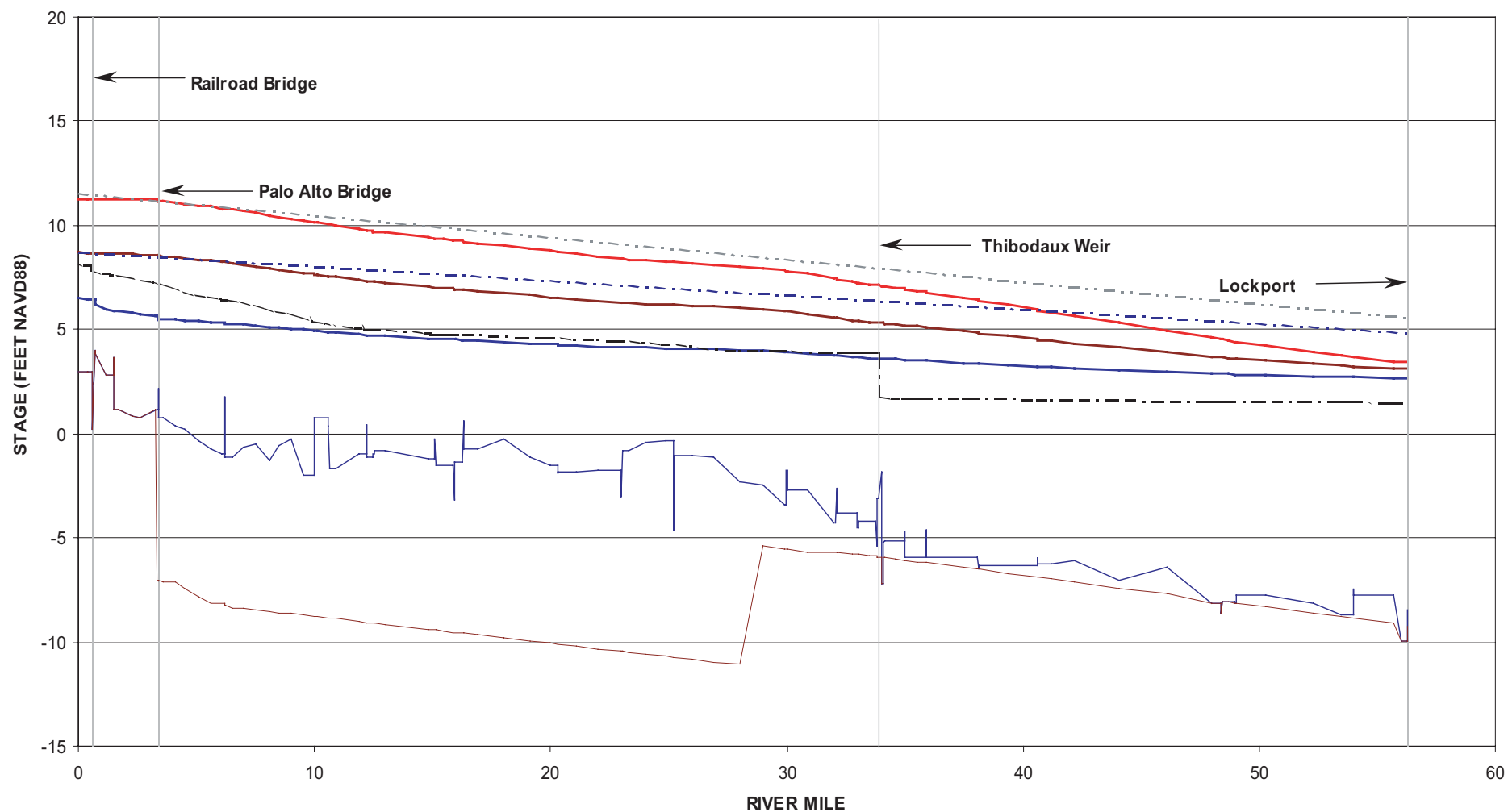
FIGURE E-15 (PROFILE ALT. NO. 43-45)
SMOKE BEND 2-FOOT DREDGE –
NO CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (3,100 CFS), ALT. 48
- MLW MODELED (2,000 CFS), ALT. 47
- EX MODELED (1,320 CFS), ALT. 46
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

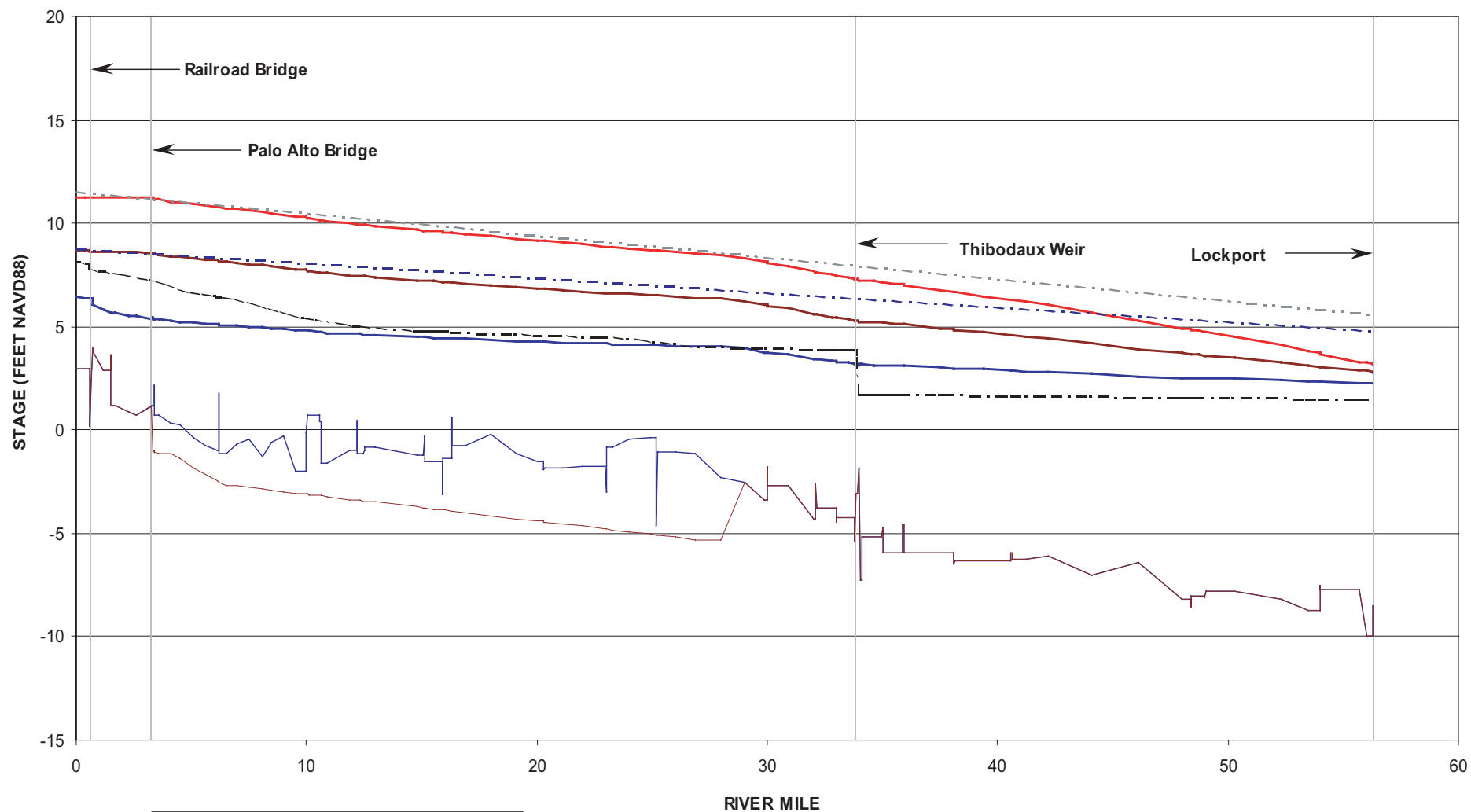
FIGURE E-16 (PROFILE ALT. NO. 46-48)
SMOKE BEND 8-FOOT DREDGE –
NO CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (2,780 CFS), ALT. 51
- MLW MODELED (1,810 CFS), ALT. 50
- EX MODELED (980 CFS), ALT. 49
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

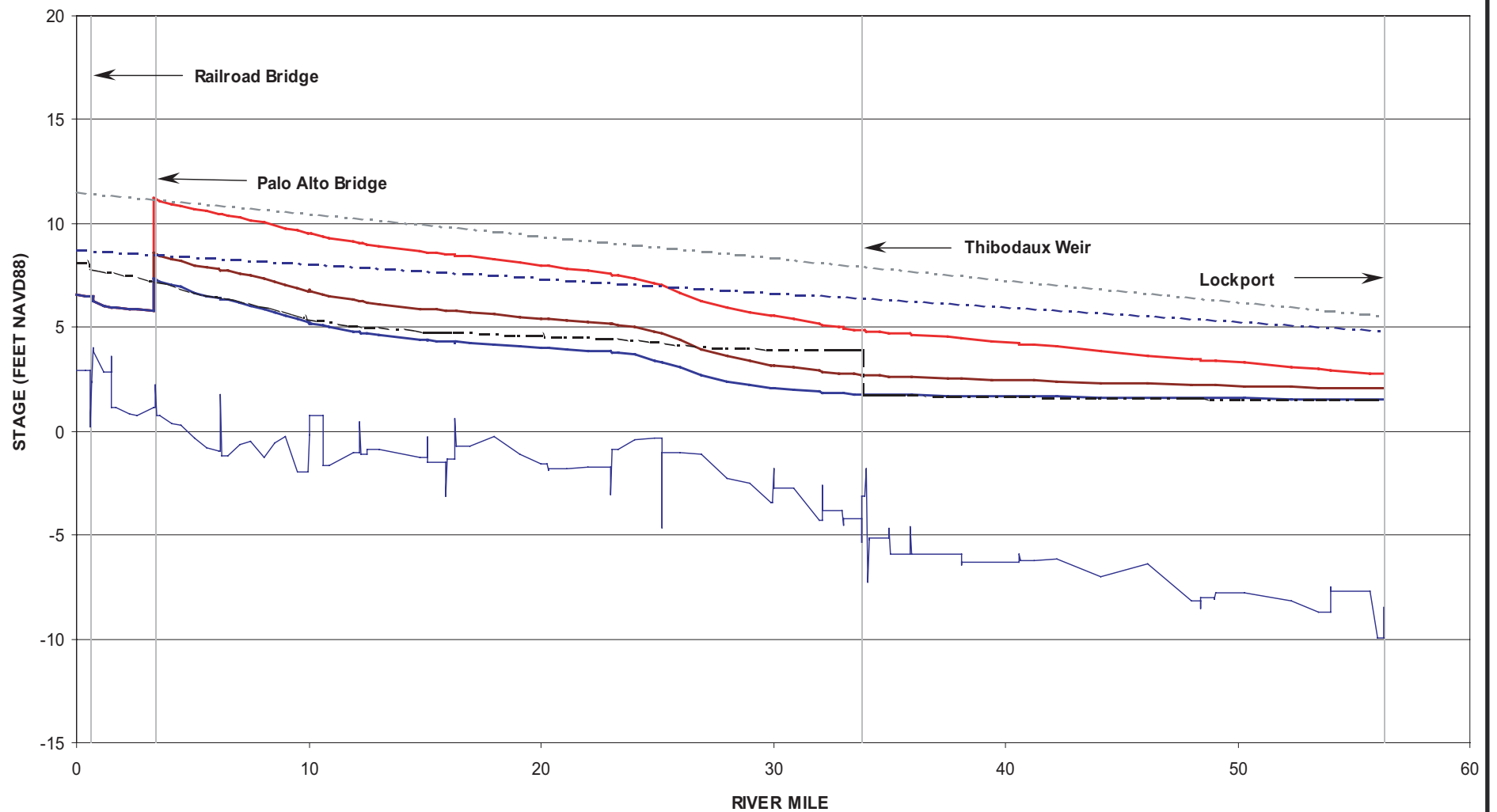
FIGURE E-17 (PROFILE ALT. NO. 49-51)
SMOKE BEND 8- TO 2-FOOT DREDGE AT RM 29 –
NO CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (2,050 CFS), ALT. 54
- MLW MODELED (1,230 CFS), ALT. 53
- EX MODELED (560 CFS), ALT. 52
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

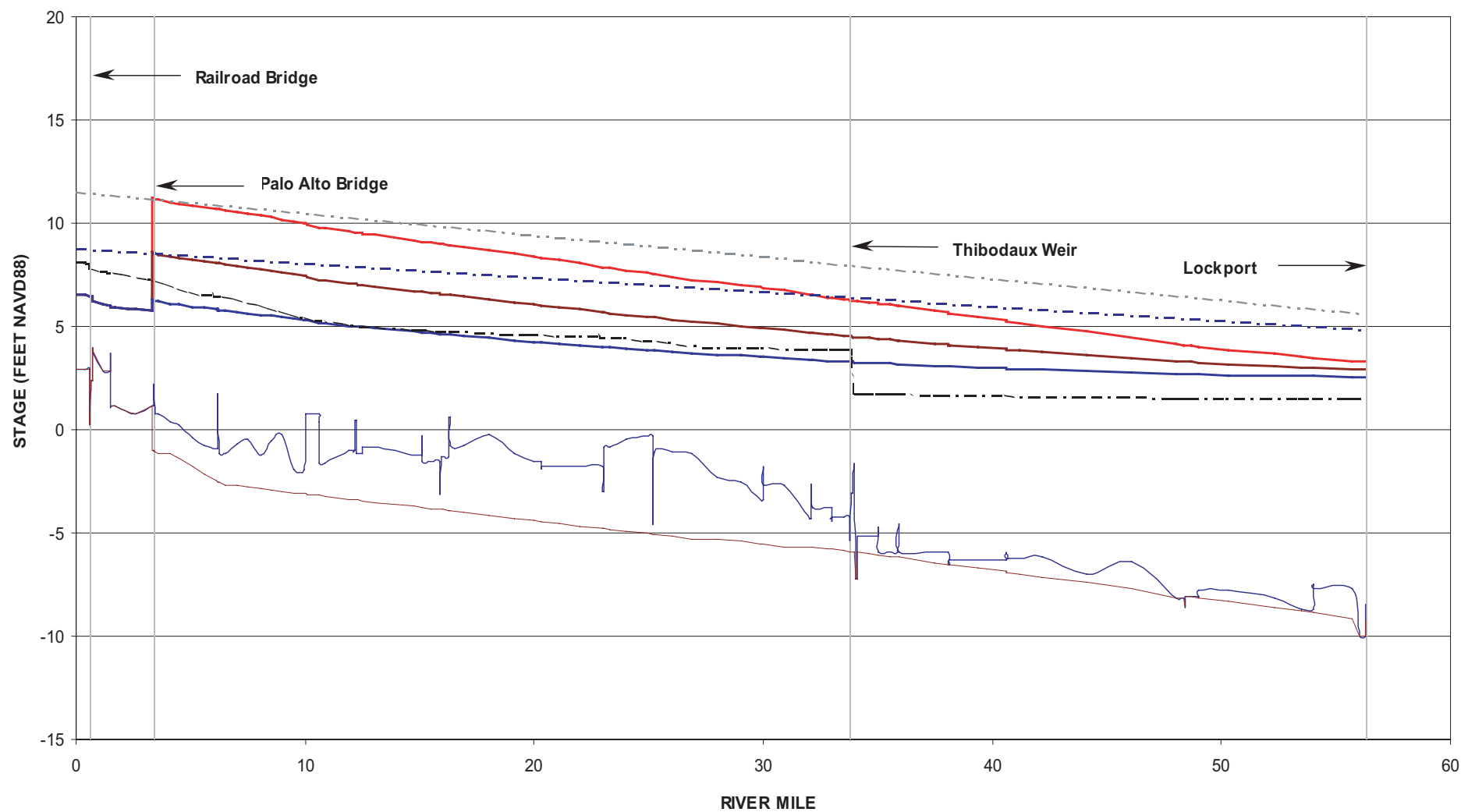
FIGURE E-18 (PROFILE ALT. NO. 52-54)
SMOKE BEND 2- TO 0-FOOT DREDGE AT RM 29 –
NO CONTROL AND NO MODIFICATION
TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (1,120 CFS), ALT. 57
- MLW MODELED (415 CFS), ALT. 56
- EX MODELED (215 CFS), ALT. 54
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT

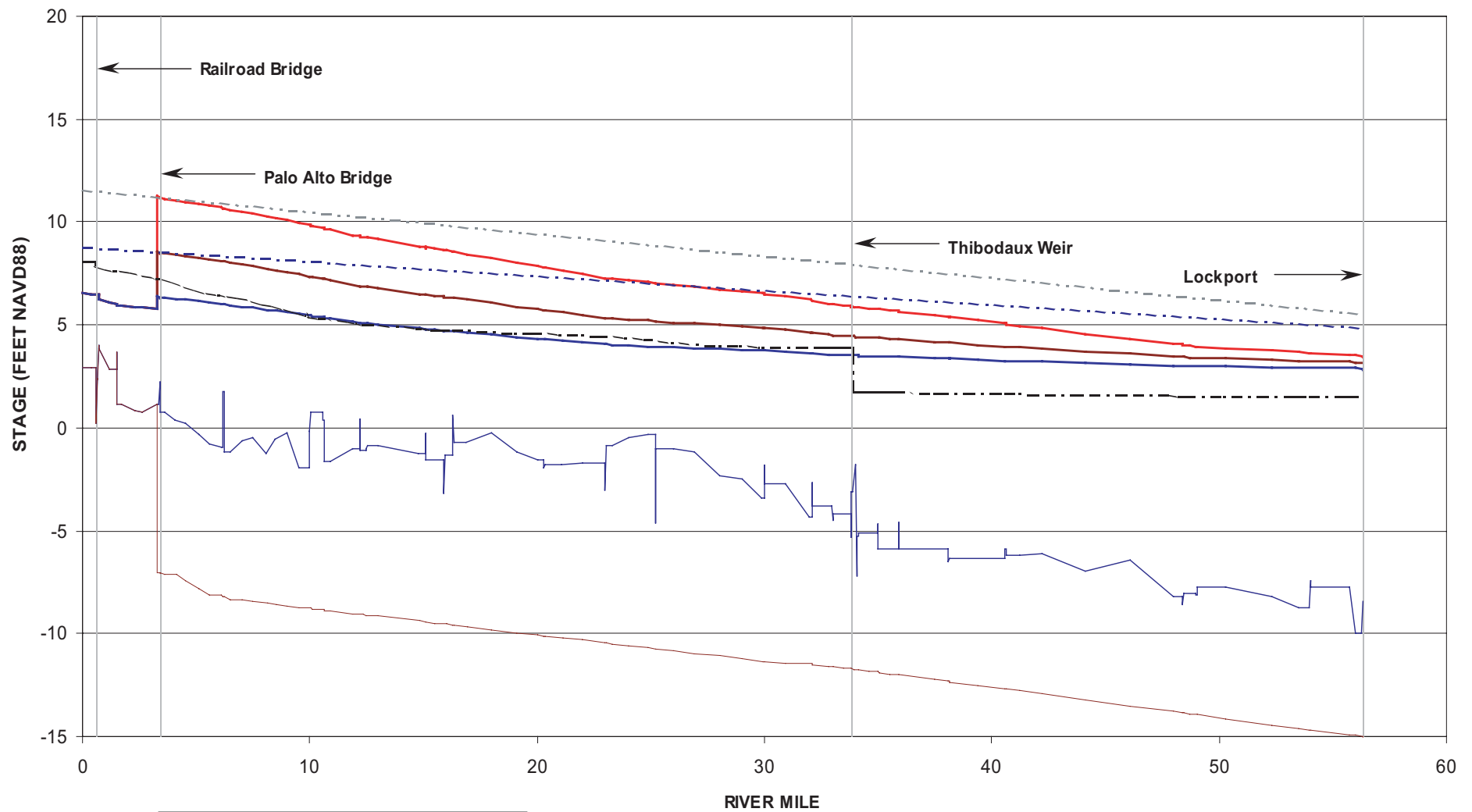
FIGURE E-19 (PROFILE ALT. NO. 55-57)
SMOKE BEND NO DREDGE
WITH CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (2,290 CFS), ALT. 60
- MLW MODELED (1,390 CFS), ALT. 59
- EX MODELED (830 CFS), ALT. 58
- - - - MW TARGET
- - - - MLW TARGET
- - - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

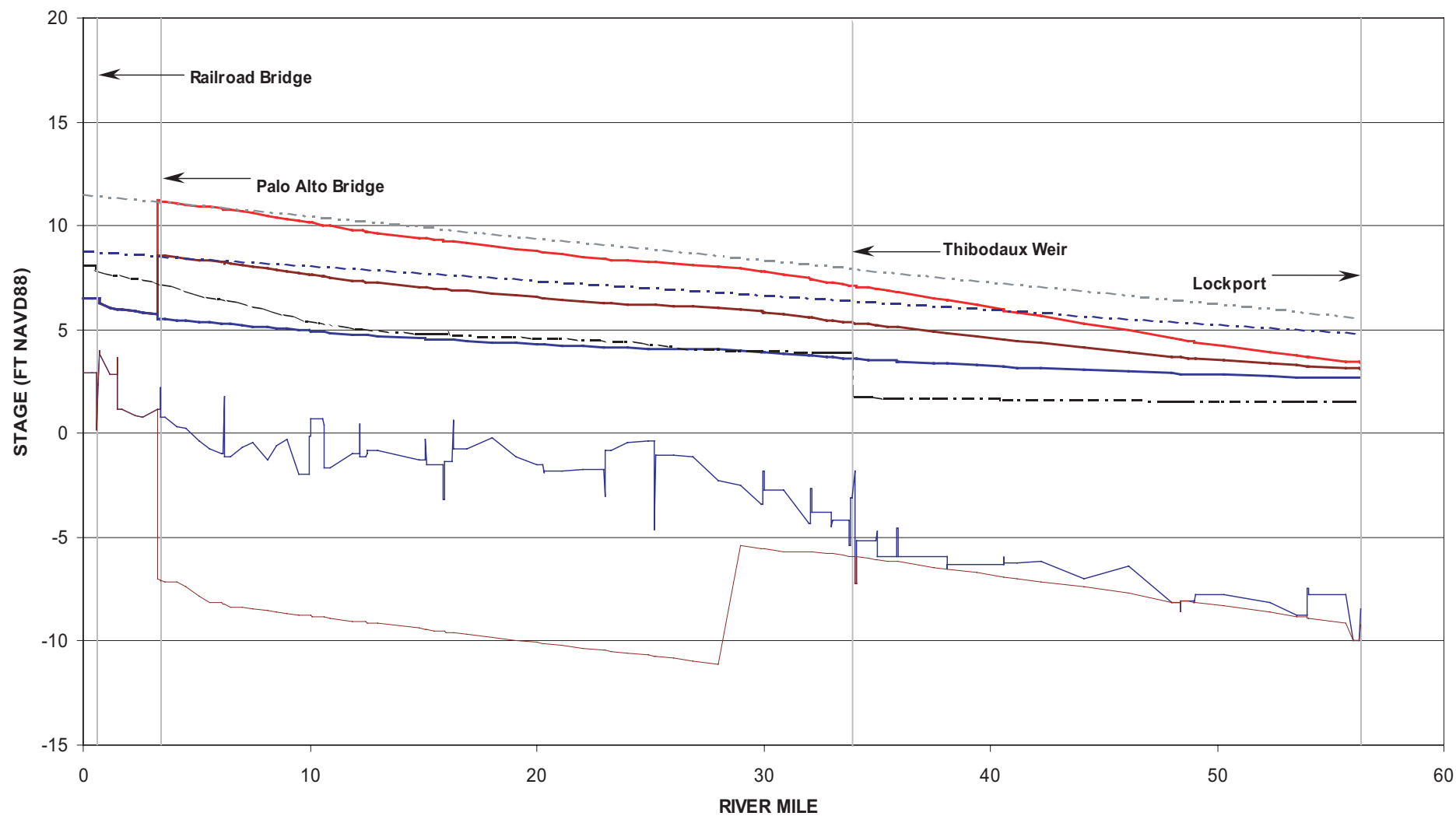
FIGURE E-20 (PROFILE ALT. NO. 58-60)
SMOKE BEND 2-FOOT DREDGE
WITH CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (3,080 CFS), ALT. 63
- MLW MODELED (2,000 CFS), ALT. 62
- EX MODELED (1,320 CFS), ALT. 61
- - - - MW TARGET
- - - - MLW TARGET
- - - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-21 (PROFILE ALT. NO. 61-63)
SMOKE BEND 8-FOOT DREDGE
WITH CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT
 MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT

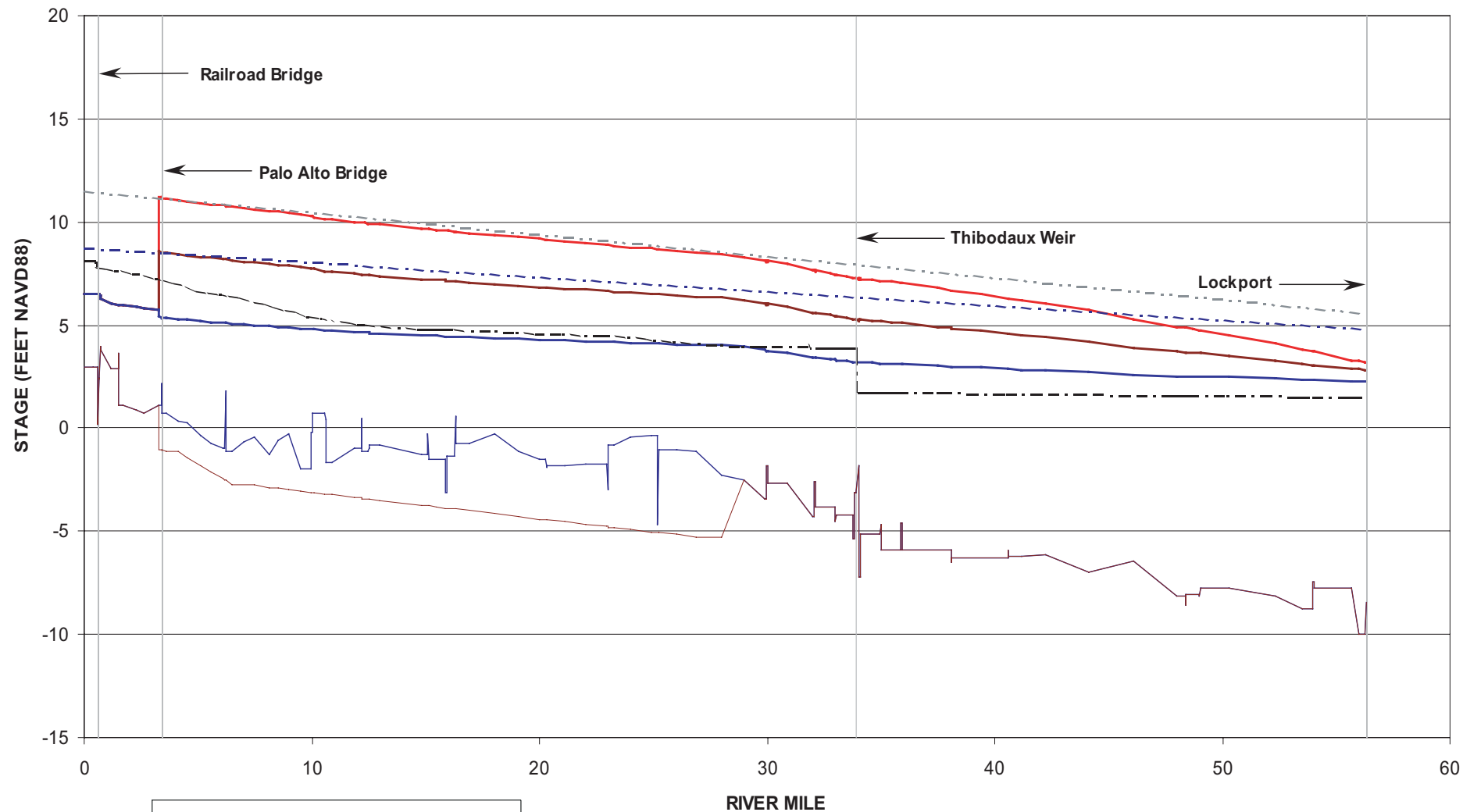


LEGEND

- MW MODELED (2,780 CFS), ALT. 66
- MLW MODELED (1,810 CFS), ALT. 65
- EX MODELED (980 CFS), ALT. 64
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

FIGURE E-22 (PROFILE ALT. NO. 64-66)
SMOKE BEND 8- TO 2-FOOT DREDGE
AT RM 29 WITH CONTROL AND NO MODIFICATION
TO RAILROAD CULVERT

MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
 LOUISIANA DEPARTMENT OF NATURAL RESOURCES
 PHASE 1 DESIGN REPORT



LEGEND

- MW MODELED (2,050 CFS), ALT. 69
- MLW MODELED (1,230 CFS), ALT. 68
- EX MODELED (560 CFS), ALT. 67
- - - MW TARGET
- - - MLW TARGET
- - - EX TARGET
- BRIDGE LOCATIONS
- EX CHANNEL INVERT
- DREDGED CHANNEL INVERT

**FIGURE E-23 (PROFILE ALT. NO. 67-69)
SMOKE BEND 2- TO 0-FOOT DREDGE
AT RM 29 WITH CONTROL STRUCTURE AND
NO MODIFICATION TO RAILROAD CULVERT**
MISSISSIPPI RIVER REINTRODUCTION INTO BAYOU LAFOURCHE
LOUISIANA DEPARTMENT OF NATURAL RESOURCES
PHASE 1 DESIGN REPORT