

Table of Contents

EXECUTIVE SUMMARY	ES-1
CHAPTER 1 - INTRODUCTION	1-1
1.1 STUDY AUTHORITY	1-1
1.2 STUDY PURPOSE	1-1
1.3 STUDY SCOPE.....	1-1
1.4 STUDY AND REPORT PROCESS.....	1-2
1.5 STUDY PARTICIPANTS AND COORDINATION	1-3
1.6 PRIOR STUDIES AND REPORTS	1-4
<i>1.6.1 Federal – Corps of Engineers.....</i>	<i>1-4</i>
<i>1.6.2 Local Agencies.....</i>	<i>1-6</i>
1.7 EXISTING PROJECTS	1-7
1.8 MITIGATION SITES	1-8
CHAPTER 2 - WITHOUT-PROJECT CONDITIONS.....	2-1
2.1 GENERAL	2-1
2.2 STUDY AREA.....	2-1
<i>2.2.1 Aliso and Wood Canyons Wilderness Park</i>	<i>2-4</i>
<i>2.2.2 Aliso Creek Wildlife Enhancement Project (ACWHEP).....</i>	<i>2-5</i>
<i>2.2.3 SOCWA Coastal Treatment Plant</i>	<i>2-6</i>
<i>2.2.4 Aliso Creek Golf Course.....</i>	<i>2-6</i>
<i>2.2.5 Estuary Area and Ocean Outlet.....</i>	<i>2-7</i>
2.3 WATERSHED RESOURCES TREND	2-7
<i>2.3.1 Historic Conditions.....</i>	<i>2-7</i>
<i>2.3.2 Development and Growth in the Watershed.....</i>	<i>2-8</i>
2.4 EXISTING CONDITIONS	2-9
2.4.1 Physical Environment.....	2-9
2.4.1.1 Study Sub-Reaches.....	2-9
2.4.1.2 Hydrology.....	2-14
2.4.1.3 Hydraulics	2-15
2.4.1.4 Geomorphology.....	2-19
2.4.1.5 Sedimentation Analysis.....	2-25
2.4.1.6 Sand Delivery to the Ocean and Coastal Sediment Budget.....	2-25
2.4.1.7 Water Quality	2-26
2.4.1.8 Site Geology.....	2-28
2.4.1.9 Fire History	2-29
2.4.2 Biological Environment.....	2-30
2.4.2.1 Vegetation	2-30
2.4.2.2 Wildlife	2-32
2.4.2.3 California Species of Concern.....	2-32
2.4.2.4 Threatened and Endangered Species	2-34
2.4.2.5 Invasive Vegetation.....	2-37
2.4.2.6 Habitat Assessment Methodology	2-37
2.4.3 Cultural Resources	2-40
2.4.3.1 Records and Literature Search Results.....	2-40

2.4.4	<i>Hazardous, Toxic, and Radioactive Waste Environment</i>	2-41
2.4.5	<i>Socioeconomic Environment</i>	2-41
2.4.5.1	Population and Income.....	2-41
2.4.5.2	Land Use and Ownership	2-41
2.4.5.3	Flooding and Erosion	2-42
2.4.6	<i>Recreation</i>	2-45
2.5	FUTURE WITHOUT-PROJECT CONDITIONS	2-46
2.5.1	<i>Physical Environment</i>	2-46
2.5.1.1	Geomorphology.....	2-46
2.5.1.2	On-Going Geomorphic Assessment	2-49
2.5.1.3	Sediment Delivery to the Ocean and Coastal Sediment Budget.....	2-49
2.5.1.4	Climate Change	2-49
2.5.1.5	Water Quality	2-50
2.5.2	<i>Biological Environment</i>	2-51
2.5.3	<i>Cultural Resources</i>	2-54
2.5.4	<i>Hazardous, Toxic, and Radioactive Waste Environment</i>	2-54
2.5.5	<i>Socioeconomic Environment</i>	2-54
2.5.6	<i>Recreation</i>	2-55
CHAPTER 3	- PLAN FORMULATION	3-1
3.1	PLAN FORMULATION PROCESS	3-1
3.2	PROBLEMS AND OPPORTUNITIES	3-1
3.3	OBJECTIVES AND CONSTRAINTS	3-6
3.4	NATIONAL OBJECTIVES	3-7
3.5	FORMULATION OF MEASURES AND ALTERNATIVE PLANS	3-8
3.5.1	<i>Assumptions</i>	3-8
3.5.2	<i>Preliminary Measures</i>	3-8
3.5.3	<i>Screening of Preliminary Measures</i>	3-12
3.5.4	<i>Preliminary Alternative Plans</i>	3-13
3.5.4.1	Preliminary Plans Eliminated from Further Consideration	3-13
3.5.4.2	Preliminary Plans for Further Consideration.....	3-13
3.5.5	<i>Conclusion from the Formulation of Preliminary Alternatives</i>	3-14
CHAPTER 4	- SUMMARY OF COORDINATION, PUBLIC VIEWS, AND	
COMMENTS	4-1
4.1	PUBLIC INVOLVEMENT	4-1
4.2	PUBLIC WORKSHOP	4-1
4.3	PUBLIC CONCERNS	4-1
4.4	STAKEHOLDERS WORKSHOP	4-5
4.5	INSTITUTIONAL INVOLVEMENT	4-5
CHAPTER 5	- REFERENCES	5-1

List of Tables

Table 1.1	Study Participants.....	1-3
Table 2.1	California Species of Concern with Potential to Occur in the Study Area.....	2-33
Table 2.2	Threatened and Endangered Species with Potential to Occur in the Study Area.....	2-34

List of Figures

Figure 2.1	Aliso Creek Watershed.....	2-2
Figure 2.2	Aliso Creek Ecosystem Restoration Study Reach.....	2-3
Figure 2.3	Study Sub-Reaches.....	2-11
Figure 2.4	Peak Discharge History in Aliso Creek.....	2-14
Figure 2.5	Aliso Creek Streambed and 2-Year Water Surface Elevation Profiles: 1998, 2003, and 2006.....	2-17
Figure 2.6	Aliso Creek Streambed and 100-Year Water Surface Elevation Profiles: 1998, 2003, and 2006.....	2-18
Figure 2.7	Comparison of Historical Cross Sections.....	2-20
Figure 2.8	100-Year Floodplain	2-21
Figure 2.9	Historical Thalweg Migration	2-22
Figure 2.10	Historical Streambed Profiles.....	2-24
Figure 2.11	Habitat Types	2-31
Figure 2.12	Sensitive Bird Species Observed within Study Area (2009).....	2-36
Figure 2.13	Habitat Accounting and Appraisal Method.....	2-38
Figure 2.14	Habitat Units by Habitat Type.....	2-39
Figure 2.15	Corrected Baseline Habitat Value by Habitat Type as Determined by HUs Proportions ..	2-39
Figure 2.16	Land Use Designation	2-43
Figure 2.17	Land Ownership	2-44
Figure 2.18	Aliso Creek Future Without-Project Conditions Bed Elevation	2-48
Figure 2.19	Potential Shift in Habitat Types over the Period of Analysis.....	2-53
Figure 2.20	Wildlife-Habitat Acreage over Period of Analysis	2-54

List of Appendices

- A. Hydrology and Hydraulic Appendix
- B. Geotechnical Appendix
- C. Without-Project Economic Analysis
- D. Draft Baseline Environmental Conditions and Future Without-Project Conditions Report
(Under Separate Cover)