

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

Introduction

On November 7, 2014 the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Executive Committee (EC) authorized release of a Request for Qualifications (RFQ) for the remainder of the technical work to be completed by CV-SALTS. The Larry Walker Associates (LWA) Team¹ responded to the RFQ on December 19, 2014 and based on the CV-SALTS Selection Committee's recommendation, on February 20, 2015 the EC accepted the LWA Team as a qualified firm to receive proposal requests for remaining CV-SALTS technical work. At the EC Administration meeting on November 6, 2015, the EC authorized the LWA Team to develop work plans to conduct the Economic and Antidegradation Analyses to support the Central Valley Salt and Nitrate Management Plan (SNMP).²

Consistent with the overarching goals of CV-SALTS and the Recycled Water Policy for the State of California³, CV-SALTS is developing a comprehensive SNMP for the Central Valley Regional Water Quality Control Board's (Central Valley Water Board's) jurisdictional boundaries. The SNMP, which is being developed in a collaborative setting with stakeholders and regulatory and partner agencies, identifies the approach and establishes the basis for the short- and long-term management of salt and nitrate in the Central Valley region. The knowledge base, technical analyses, and associated documentation developed as part of the SNMP will form the basis for corresponding Basin Plan Amendments (BPAs) to the Water Quality Control Plans (Basin Plans) for the Sacramento/San Joaquin Basin and Tulare Lake Basin. BPAs may include changing existing beneficial use classifications, altering beneficial use designations, redefining salinity water quality objectives, and adding or changing existing implementation plans related to salinity or nitrates. To support the development of the SNMP and the corresponding BPAs, CV-SALTS is also developing the corresponding documentation (Substitute Environmental Documentation (SED), including Environmental Checklist, Economic Analysis, and Antidegradation Analysis) needed to support the Basin Plan amendment and staff report.

Pursuant to the contract authorization noted above, the LWA Team has developed this Work Plan to identify the key tasks that will be completed for the *Central Valley SNMP Antidegradation Analysis*⁴. An antidegradation analysis is required to assess the consistency of elements of the proposed SNMP and corresponding BPA with state and federal antidegradation policies. This information will be used to support the findings contained in the Central Valley Water Board staff report supporting the proposed

¹ The LWA Team consists of the following firms: Larry Walker Associates, Carollo Engineers, Kennedy/Jenks Consultants, Systech Water Resources, PlanTierra, Luhdorff and Scalmanini Consulting Engineers, Giorgos Kourakos, and Formation Environmental.

² Development of a Central Valley SNMP serves the purpose of the *Recycled Water Policy* by establishing a comprehensive approach for managing salt and nitrates on a regional or watershed basis and for all sources, rather than through individual recycled water projects. Although there has been significant discussion regarding nitrates versus nutrients within the Central Valley, it was determined that the focus of the Plan would be on nitrates as the highest priority since there are concentrations of nitrates within groundwater that are impacting groundwater quality and domestic drinking water wells.

³ http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2013/rs2013_0003_a.pdf

⁴ Due to the time constraints and budget limitations, existing summaries and data analyses will be used to complete the tasks. Therefore, no new data analyses are included as a part of this Work Plan. Any new data analyses will require additional time and budget.

CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment Final Antidegradation Analysis Work Plan

BPA. The nature and content of the analysis that is required will depend on the proposed elements of the SNMP and BPA. The resources applied to the assessment of potential impacts to surface water versus groundwater will depend on the degree to which elements of the final SNMP and related polices address those impacts.

The sections below provide a description of the scope of services that will be completed as a part of the Antidegradation Analysis Work Plan. The scope of work follows the overarching approach described herein and is based on a number of stated assumptions regarding the level of effort required.

Since it is important that the SED, Economic, and Antidegradation Analyses are consistent with regard to the definition of current conditions (“No Project”), alternatives (“Proposed Project”), and the approach to the analyses, the LWA Team will work closely with the CDM-Smith/RBI Team which is working on the SED. To meet the extremely aggressive schedule, some tasks will necessarily be completed concurrently, and there will need to be timely review of the draft final technical work products. Any delays in the review of documents will have a corresponding impact on the ability to address comments received.

The individuals from the LWA Team who will be assisting with this work include the following:

- Strategic Advisor – Tom Grovhoug (LWA)
- Project Manager and Strategic Advisor – Karen Ashby (LWA)
- Antidegradation Analysis Lead – Michael Trouchon (LWA)
 - General Technical Support – Mitch Mysliwicz (LWA) & Danielle Moss (LWA)
 - Engineering Analysis – Carollo
 - Agriculture Loading/Modeling – PlanTierra & Formation Environmental
 - Groundwater Modeling – LSCE
 - Agriculture Economics – Dr. Richard Howitt (upon availability)

The specific tasks are outlined below and discussed in additional detail in the body of the document.

- Task 1 – Management and Coordination Activities

This task describes the process that will be utilized for this project in order to allow the LWA Team and CV-SALTS management and committees to coordinate the activities, maintain a clear focus on the assignments, clearly communicate progress on the development of necessary technical information, and apply the knowledge gained effectively.
- Task 2 – Describe Regulatory and Water Quality Setting

This task will describe current regulatory and water quality conditions pertinent to the management of salts and nitrates in the Central Valley.
- Task 3 – Define ‘No Project’ and ‘Proposed Project’ Alternatives
 - This task will define the “No Project” alternative, which will establish the baseline conditions against which the Proposed Project will be compared for the purposes of identifying potential water quality impacts.
 - This task will also define the “Proposed Project” alternative, which will establish the future, proposed conditions against which the No Project will be compared for the purposes of identifying potential water quality impacts.
- Task 4 – Conduct Antidegradation Analysis for Specific Elements of Project Alternatives

CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment Final Antidegradation Analysis Work Plan

An antidegradation analysis will be performed by the LWA Team to support elements of the proposed SNMP, associated new policies proposed by the Central Valley Water Board, and the corresponding BPA. Such work includes planning level analyses of potential water quality impacts anticipated to occur as a result of implementation of (1) the No Project alternative and (2) the Proposed Project's program of implementation.

- Task 5 – Develop Antidegradation Analysis Report

The purpose of this task is to compile the information developed as a part of Tasks 2-4 to develop an Antidegradation Analysis Report that will be included as a part of the supporting information for the Central Valley SNMP and corresponding BPA.

Project Management Plan

Although the LWA Team is comprised of several firms that have joined together to respond to this RFP, our Team is comprised of individuals that have been strategically selected from each firm so that we can efficiently and cost-effectively assist CV-SALTS. Each individual was selected based on their expertise and experience and has experience working for CV-SALTS.

The management and coordination activities that will be utilized by the LWA Team are described below. These activities will be employed to maintain a clear focus on the assignments, to clearly communicate progress on the development of necessary technical information, to receive early feedback from CV-SALTS, and to apply the knowledge gained most effectively. Given the compressed schedule for this work, it will be important to streamline the project management approach and deliverable approval process, track progress closely, communicate frequently, and support the sharing of information and advice needed to complete the project.

The key roles and responsibilities for project coordination between the LWA Team and CV-SALTS includes the following:

- The CV-SALTS Program Manager will be Pam Buford with support from Jeanne Chilcott.
- The CV-SALTS day-to-day contacts will be Daniel Cozad, Central Valley Salinity Coalition (CVSC) Executive Director (ED) and Richard Meyerhoff, the CV-SALTS Technical Program Manager (TPM).
- On behalf of CV-SALTS and CVSC, Joe McGahan, representing the San Joaquin Valley Drainage Authority (SJVDA), will oversee the contracting and contract administration services. As Project Manager (PM), Ms. Ashby will work closely with Mr. McGahan to ensure that all of the invoicing and related monthly reports are completed and submitted on time.
- As the PM, Karen Ashby will provide overall project management and oversight and will be the day-to-day contact on behalf of the LWA Team.
 - The Strategic Advisors will provide review and advisory support at key decision points during the project.
 - The Task Leads will provide oversight for their related tasks and coordinate closely with Ms. Ashby and the Strategic Advisors.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

- The CV-SALTS Project Committee (PC) will provide technical/policy direction to the LWA Team. The PC will also provide approval for the deliverables. Deliverables for PC review will be provided in as timely a manner as possible, but at least two business days before comments are requested. The PC includes the following individuals:
 - Casey Creamer, South San Joaquin Water Quality Coalition
 - Daniel Cozad, CVSC Executive Director
 - Debbie Webster, CVCWA
 - David Cory, SJVDA
 - J.P. Cativiela, Dairy Cares
 - Jeanne Chilcott, Central Valley Water Board
 - Phoebe Seaton, LCJA
 - Roger Reynolds, Summers Engineering
 - Tess Dunham, Somach, Simmons & Dunn
- The TPM will function as the day-to-day contact for the PC and EC, and will compile all comments received on deliverables and reconcile conflicting comments. The TPM will provide one consolidated set of comments to the LWA Team for all deliverables undergoing review⁵.
- The CV-SALTS Technical Advisory Committee (TAC) and EC will receive updates and feedback from the CV-SALTS TPM regarding the status of the work products and upcoming deliverables.

In addition to the specific sub-tasks listed below, during the duration of the project, the following project management and coordination approaches will be used as a part of each task and sub-task to ensure that the work is completed efficiently and cost-effectively:

- Ms. Ashby will maintain the master schedule and budget and update and submit them at least monthly as a part of the invoicing process. The budget report will identify the total budget, the expenditures to date, the amount remaining, and the estimated percent completion by task.
- Ms. Ashby will work closely with the Task Leads and the CV-SALTS TPM and/or CVSC ED to ensure that the work meets the overall project needs and is completed on schedule and within budget.
- For quality control and consistency purposes, the schedule for each deliverable includes the following review process:
 - CV-SALTS TPM and/or CVSC ED review work product before providing to CV-SALTS PC or EC.
 - All final deliverables will be provided to the CV-SALTS TPM and Program Manager.
- To facilitate communication, LWA Team members will communicate as needed with key CV-SALTS individuals to promote their understanding of the project or to answer key questions that may be raised.
 - To the extent possible, and as needed, the telephonic communication with CV-SALTS individuals and/or committees will include Ms. Ashby.

⁵ Given the schedule and budget for the completion of the work, each deliverable includes one draft document, one final document (with the comments received on the draft incorporated into the final), and the completion of the Response to Comments matrix.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

- For those telephonic communications that do not involve Ms. Ashby, telephone logs will be prepared and provided within 24 hours of the call(s).
- All email communication from the LWA Team members will be copied to Ms. Ashby.

DATA MANAGEMENT

The work products developed as a part of this Work Plan will be evaluated by the LWA Team PM, the LWA Team Strategic Advisors, and the CV-SALTS TPM to ensure that they will support the development of an administrative record for the BPA. A critical review of the work products and guidance by Strategic Advisors on the Team will also provide the necessary assurances that the criteria for a BPA administrative record have been met. As a part of the work effort, the project documents, files, and data will be maintained in an appropriate form and location. The data management will mainly include the following:

- Project Documents – The final project deliverables will be saved electronically as PDFs and Word documents
- Reference Documents – Any documents referenced within the final project deliverables will be saved electronically as PDFs and/or Word documents depending upon the source document received.
- Data – Any data used or referenced as a part of the final project deliverables will be saved electronically in Excel and/or Microsoft Access and/or another format depending upon the source of the data. The data files will include raw and calculated data, as well as data analysis output files. These files will be provided after the work is completed and approved by the EC.

References within the documents will follow the Central Valley Water Board's reference format guidance (to be provided by Board staff). In addition, references may include electronic versions and/or websites. At the conclusion of the project, the documents and data listed above will be transferred to either CV-SALTS and/or maintained by the LWA Team until the information is requested.

Task 1 - Management and Coordination Activities

Applying the management process described within this task will allow the LWA Team and CV-SALTS management to coordinate the activities and maintain a clear focus on the assignments. Given the compressed schedule and identified budget, it will be important to communicate effectively with rapid responses to obtain the advice needed in order to complete the studies in accordance with the tight time constraints. The specific sub-tasks include:

Sub-Task 1.1 Coordination Meetings

There are several types of coordination meetings that need to take place to ensure that the deliverables meet the goals and objectives of the scope of work as well as the aggressive schedule. The coordination meetings include:

- LWA Team Calls – Throughout the duration of the project the LWA Team members⁶ will participate in conference calls as needed to ensure that work is on schedule and budget. These meetings will be focused on the work that is currently being completed as well as the upcoming tasks for which the Team needs to plan. Any issues that are being encountered with the project will be discussed during these calls.
- LWA/CDM Smith RBI Team Calls – Throughout the duration of the project the LWA Team will participate in conference calls as needed with the CDM-Smith RBI Team to ensure that work is highly coordinated. These meetings will be focused on the work that is currently being completed as well as the upcoming tasks for which the Teams need to plan. Any issues that are being encountered with the project will be discussed during these calls.

Deliverables: Team calls, as needed (typically weekly or every other week)
LWA/CDM Smith RBI calls, as needed (typically weekly or every other week)

Sub-Task 1.2 Coordination Meetings with CV-SALTS Management

Regular conference calls/meetings will be held to ensure that there are clear lines of communication to discuss project progress. The PM will be responsible for coordinating the Team's activities and regularly communicating with the CV-SALTS management to discuss work status and/or reviews. It is anticipated that the coordination activities and meetings may include the following:

- PM Calls – The LWA Team PM is responsible for coordinating the technical activities and regularly communicating with the CVSC ED and CV-SALTS TPM to discuss technical work status, major discussion items in upcoming meetings, actual or projected issues or difficulties, and/or near-term plans. Throughout the duration of the project, the LWA Team PM will participate in conference calls with the CV-SALTS TPM and/or the CVSC ED as needed to ensure that work is on schedule and budget⁷. These calls will typically be focused on the work that is currently being

⁶ The LWA Team members participating on the call will fluctuate depending on the specific tasks that are in progress. However, the Team members will typically include the PM, one or more Strategic Advisors, one or more Task Leads, and any technical support staff as needed.

⁷ Other LWA Team Strategic Advisors and/or key Team members will participate in these calls on an as-needed basis.

CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment Final Antidegradation Analysis Work Plan

completed, as well as upcoming tasks as needed. Any issues that are being encountered with the project will be discussed during these calls.

- Coordination with the Project Committee – Given the amount of work that needs to be completed and the aggressive schedule for the development of the documents, the LWA Team will need to continue to closely coordinate with the PC upon completion of the draft technical report. The CV-SALTS TPM will be responsible for consolidating and providing direction on the comments received from the PC so that the LWA Team receives one set of reconciled comments.

Deliverables: PM calls, as needed (typically weekly or every other week)

Coordination calls with the PC, as needed (see other Task deliverables below)

Sub-Task 1.3 Maintain Relevant Project Documents, Files, and Data

The work products, files, and data will be maintained in an accessible format and location and evaluated by the Team experts on BPAs for completeness. A critical review of the work products and guidance by Strategic Advisors on this Team will provide the necessary assurances that the criteria for a BPA have been met⁸.

Deliverables: Project files and data

Sub-Task 1.4 Provide Monthly Progress Reports

On a monthly basis, the LWA Team (via the PM) will provide a written progress report to the SJVDA (attached to the invoice) to document the project progress on a task-by-task basis. The monthly reports will document:

- The work completed during the current month;
- The work planned for the next month; and
- Any project concerns that need to be communicated (such as those that may affect the project scope of work, deliverable schedule, or project budget).

In addition to the written monthly progress report, the Team will provide an updated schedule and monthly budget report (on a task-by-task basis) submitted with the invoice to provide the Program Manager and/or Contract Manager with the context for the project necessary to understand what has been completed to date, what still needs to be completed, and how this relates to the remaining budget and schedule. The invoices and monthly reports will be provided no later than the 15th of each month⁹. This information will also be shared, as needed, during regularly scheduled PM conference calls.

Deliverables: Monthly invoices, which will include:

- *Written progress reports*
- *Budget Report*
- *Updated Master Schedule*

⁸ This includes a complete listing of all references, copies of the referenced documents cited within the documents developed, and electronic files with all of the data used, calculations made, and documentation of the content files.

⁹ The LWA Team members will provide the corresponding information to the LWA Team PM by the 5th of each month for compilation into the monthly progress report.

Task 2 – Prepare Current Regulatory and Water Quality Settings

The Regulatory Setting will focus on Central Valley Water Board water quality objectives, programs of implementation, and policies that would be changed by the SNMP, or otherwise relate to implementation of the SNMP (e.g., WDRs and Conditional Waivers). Similarly, the Water Quality Setting establishes the affected environment and baseline or existing conditions against which changes to the affected environment resulting from implementation of the SNMP are assessed.

The LWA Team will, using the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (SRSJR Basin Plan), and the *Water Quality Control Plan for the Tulare Lake Basin* (TLB Basin Plan) (collectively referred to as “Basin Plans”), along with existing technical reports and associated information, describe the current regulatory and summary-level salt and nitrate water quality conditions in the Central Valley¹⁰. The final write up will summarize the following:

- Current surface water and ground water regulatory programs (as described in the current Basin Plans);
- The level of regulation of various discharge categories that is currently occurring;
- The state of knowledge regarding water quality (for salt and nitrate¹⁰); and
- Known data gaps.

Deliverables: Draft current regulatory and water quality setting – July 25, 2016).
Conference call with PC (2 day review)
Final current regulatory and water quality setting to be included in the Task 5 deliverables

Task 3 – Define ‘No Project’ and ‘Proposed Project’ Alternatives

The LWA Team will work with Central Valley Water Board staff as well as the CV-SALTS PC to, at a minimum, define the “No Project” and “Proposed Project” alternatives¹¹. Additional Project Alternatives may be considered by the PC and LWA Team for analysis¹². The No Project alternative will establish the baseline conditions against which the Proposed Project will be compared for the purposes of identifying the potential water quality impacts anticipated for the selected alternative (Task 4). In order to define this alternative, the LWA Team will, using existing technical reports and information, describe the regulatory mechanisms governing future salt and nitrate discharges in the Central Valley absent a

¹⁰ The Secondary Maximum Contaminant Level (MCL) Policy analysis will also include metals.

¹¹ The PC must ultimately provide direction to the LWA Team as to what should be included in each of the alternatives that are analyzed.

¹² The budget currently assumes a No Project and Proposed Project alternative. If additional Project Alternatives are identified for analysis, the LWA Team will evaluate the impact of the additional work on the budget and report back to the TPM.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

Central Valley SNMP¹³. The description will include the short- and long-term regulatory consequences for various discharge categories under the No Project alternative.

The Proposed Project alternative will establish the future, proposed regulatory conditions, anticipated changes in salt and nitrate water quality¹³, and proposed program of implementation actions under the Central Valley SNMP against which the No Project alternative will be compared for the purposes of identifying potential water quality impacts. In order to define this alternative, the LWA Team will, using existing Central Valley SNMP documentation, describe the proposed, future regulatory conditions, anticipated changes in salt and nitrate water quality¹³, and proposed program of implementation actions under the SNMP.

It is recognized that this Task is necessary for the Economic Analysis and Antidegradation Analysis. As a result, this task is included in each Work Plan and cost-shared amongst them.

*Deliverables: Draft 3-4 page write up describing the No Project and Proposed Project alternatives (or others as identified)- Aug 19
Conference call with PC (2 day review)
The Final write up for these alternatives will be included in the Task 5 deliverables.*

Task 4 – Conduct Antidegradation Analysis for Specific Elements of Project Alternatives

An antidegradation analysis, using existing, readily available data analyses and summaries, will be performed by the LWA Team to support the proposed SNMP, associated new policies proposed by the Central Valley Water Board, and the corresponding BPA and staff report¹⁴. Such work includes planning level analyses that estimate potential changes in salt and nitrate water quality in groundwater and surface water anticipated to occur as a result of implementation of (1) the No Project alternative and (2) the Proposed Project’s program of implementation¹⁵. Future changes in water quality – both improvements and degradation – anticipated to occur as a result of implementation of project alternatives will primarily be described in qualitative terms. Select examples of potential quantitative changes in water quality will be provided where existing CV-SALTS modeling scenarios enable such analysis¹⁶.

Proposed Project implementation elements for consideration of an antidegradation analysis are presented in **Table 1**. Implementation of the No Project alternative will also produce changes in salt and nitrate groundwater quality due to the Central Valley Water Board’s requirement to regulate discharges

¹³ The Secondary Maximum Contaminant Level (MCL) Policy analysis will also include metals.

¹⁴ Due to the time constraints and budget limitations, no new data analyses are included as a part of this Work Plan.

¹⁵ The Secondary Maximum Contaminant Level (MCL) Policy analysis will also include metals.

¹⁶ The existing modeling scenarios that may be used for this analysis include those conducted as a part of the CV-SALTS Management Zone Archetype Analysis: Alta Irrigation District project (Baseline, Greater Irrigation Efficiency & Artificial Recharge, Post-Regulatory Lower N Loading, Irrigation Efficiency N Loading and Artificial Recharge changes, and Extreme No-Agriculture). The analysis may also include the new Restoration Scenario (if approved by CV-SALTS and time permitting) and/or the High Resolution mapping results.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

to groundwater so that water quality objectives (WQOs) are met in the first encountered groundwater and in surface waters (see footnote 15). Future antidegradation considerations, presented qualitatively in the Antidegradation Report, under existing Basin Plan regulations and requirements include the following:

- Improvements in discharge water quality based on limited granting of assimilative capacity that could result in: additional treatment, improvement in source water supply, change in crops and/or management practices;
- Reductions in mass loadings of salt and nitrate as a result of: change in crops and/or management practices, taking land out of agricultural production, ceasing discharge, prohibition of a discharge; and
- Localized, controlled groundwater degradation through (1) approved, limited-term case-by-case exception or (2) site-specific de-designation of beneficial use(s).

Table 1: Program Implementation Elements for Consideration for an Antidegradation Analysis of the Proposed Project Alternative.

SNMP Programmatic Documents and Draft Policies	Implementation Element for Antidegradation Analysis
CV SNMP Implementation Program	TBD – Only Executive Summary currently available
Nitrate Implementation Measures Study (NIMS)	NIMS nitrate management solutions will protect beneficial uses and slow degradation, but may not eliminate it
Strategic Salt Accumulation Land and Transport Study (SSALTS)	SSALTS salt accumulation and out-of-valley transport solutions will slow degradation but may not eliminate it
Nitrate Permitting Strategy	Some degradation can be allowed as determined by project-specific antidegradation analysis with implementation of maximum benefit strategy
Salinity Permitting Strategy	Some degradation can be allowed as determined by project-specific antidegradation analysis with implementation of maximum benefit strategy (document not yet available)
Management Zone Policy	Some localized degradation can be allowed as determined by a Management Zone (MZ) specific antidegradation analysis; MZ Policy designed to reduce rate of degradation to improve overall ambient water quality
Exceptions Policy	Short-term degradation allowed to facilitate long-term attainment of water quality standards or to provide time needed to implement long term strategies and/or revise inappropriate water quality standards or use designations.
Offsets Policy	Some degradation can be allowed, but extent of degradation will depend on maximum benefit demonstration. Offset project will likely result in offset ratio > 1:1
Secondary Maximum Contaminant Level (MCL) Policy ¹⁷	Assess whether there is degradation. Some degradation can be allowed, but extent of degradation will depend on maximum benefit demonstration.
Agricultural Beneficial Use (AGR)	Some localized degradation can be allowed as determined by

¹⁷ The Secondary Maximum Contaminant Level (MCL) Policy analysis will also include metals.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

SNMP Programmatic Documents and Draft Policies	Implementation Element for Antidegradation Analysis
Policy	project-specific antidegradation analysis; AGR Salinity Policy designed to reduce rate of degradation to improve overall ambient water quality.
Conservation and Drought Policy	Short-term degradation can be allowed, but extent of degradation will depend on maximum benefit demonstration.
Maximum Benefit Guidance	TBD – document not yet available
Assimilative Capacity Guidance	TBD – document not yet available
Monitoring and Reporting Program	Not applicable

The final write up will summarize the following:

- Description of anticipated qualitative changes in salt and nitrate water quality for the No Project and Proposed Project alternatives, except in select cases where quantitative water quality changes can be estimated based on results from completed CV-SALTS modeling efforts¹⁷.

Deliverables: The description and results of the antidegradation analysis will be included in the Task 5 deliverables.

Task 5 – Prepare Antidegradation Analysis for Combined Report

The purpose of this task is to compile the information developed as a part of Tasks 2-4 to develop a Combined Economic and Antidegradation Analysis Report (Combined Report) that will be included as a part of the supporting information for the Central Valley SNMP and corresponding BPA and staff report. It is assumed that this Combined Report will be about 75-125 pages in length.

*Deliverables: Draft Combined Report to PC – week of September 19, 2016)
Comments from PC (2 day review)
Final Combined Report with Response to Comments Matrix (October 3, 2016)*

Project Schedule

The project schedule presented herein (within the deliverables for each task) pertains to the activities and deliverables as described in this Work Plan. This schedule has been developed based upon the specified deliverables and to identify how the project tasks will be coordinated with CV-SALTS. As such, the schedule identifies the deliverable dates and necessary review times in order to finalize the documents.

The time frame for the project requires compression of a great deal of communication, analysis and consultation into a short duration. Such a schedule naturally constrains the time available for the LWA Team to develop, revise, and finalize analyses and work products, as well as time available for crucial consultation and review with CV-SALTS. Adherence to the proposed schedule will require that work product development and review timelines be met.

Parameters used to frame this schedule included the following:

- The Contractor Agreement will be executed and the Notice to Proceed will be issued by July 12, 2016;
- Due to contractual and funding obligations, the work must be completed by October 3, 2016 (thus, work beyond this date is not authorized);
- Coordination with the CDM Smith-RBI Team and the Project Committee are included within the Work Plan to avoid substantial late revisions near the project deadline; and
- It is assumed that all reviews and approvals of work products will be completed within the timeframes identified within the schedule. If the schedule is not met, a revised approach/schedule will be discussed with the TPM.

In general, the schedule will be reviewed and revised as needed during the completion of the tasks described in the Work Plan and in consultation with CV-SALTS.

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

CEQA, Economic, Antidegradation Work Plans		Week of Each Month													
		July				Aug				Sept				Oct	
		4	11	18	25	1	8	15	22	29	5	12	19	26	3
	Work Plan Development	■	■												
	CV-SALTS Approval of Work Plans		■												
1	Management and Coordination Activities														
2	Current Regulatory and Water Quality Setting														
	Draft Deliverable		■	■	■										
	Call with PC (Anticipated 2 day review)				■										
	Final Deliverable					■	■	■	■	■	■	■	■	■	■
3	Define No Project and Proposed Project Alternatives														
	Draft Deliverable ¹		■	■	■	■	■								
	Call with PC (Anticipated 2 day review)								■						
	Final Deliverable									■	■	■	■	■	■
4	Conduct Analysis (Econ/Antideg Work Only)									■	■	■	■	■	■
4/5	SED & Economics/Antidegradation Combined Report														
	Draft Deliverable										■	■	■	■	
	Call with PC (Anticipated 2 day review)													■	
	Final Deliverable (Submit Oct 3)														■
Finalize CV-SALTS Policy and SNMP Implementation Documents															
	Approval of CV-SALTS policies (August 11 Policy Meeting)								■						
	Revised SNMP (September 15 CV-SALTS Policy Meeting)													■	
¹ This date is based on the CV-SALTS Executive Committee finalizing policies and identifying any alternatives for analysis at its August 11, 2016 Policy meeting															
	■ LWA Team and/or CDM Smith/RBI Team														
	■ CV-SALTS Input														
	■ Project Committee Reviews/Meetings														

**CV-SALTS Salt and Nitrate Management Plan and Basin Plan Amendment
Final Antidegradation Analysis Work Plan**

Cost Estimate

The cost estimate includes the following for each Task/Sub-Task:

- The total estimated costs for each major task; and
- Assumptions/ key factors that drive the cost of the task.

It should be noted that, in order to keep costs down and assist CV-SALTS with the completion of this work, the prime consultant (LWA) did not include the standard 10% markup on the subconsultant's costs for the project. **Table 2** provides a summary of the costs for each Task/Subtask.

Table 2. Budget Summary by Task

Task	Task Description	Estimated Cost
	Work Plan Development [previously authorized²]	\$10,000
Task 1	Management and Coordination Activities	\$15,000
1.1	Coordination Meetings (LWA Team Calls & LWA-CDM Smith Team Calls)	
1.2	Coordination Meetings with CV-SALTS Management	
1.3	Maintain Relevant Project Documents, Files, and Data	
1.4	Provide Monthly Progress Reports	
Task 2	Prepare Current Regulatory and Water Quality Settings	\$10,000
Task 3	Define 'No Project' and 'Proposed Project' Alternatives (or others as identified by the PC)	\$10,000 ¹
Task 4	Conduct Antidegradation Analysis for Specific Elements	\$50,000
Task 5	Prepare Combined Economic and Antidegradation Analysis Report	\$40,000
Total		\$135,000

¹ The budget currently assumes a No Project and Proposed Project alternative. If additional Project Alternatives are identified for analysis by the PC, the LWA Team will evaluate the impact of the additional work, if any, on the budget and report back to the TPM.

² The development of the Work Plan was previously authorized by CV-SALTS in November 2015. However, the development of this Work Plan was delayed due to additional time necessary to develop the Central Valley SNMP.