

Project Information Submittal Form

Project Submitter/Owner: Environmental Working Group of the Borrego Springs Watermaster

Project Name: Groundwater Dependent Ecosystems (GDE) Monitoring Program

Contact Information

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Project Summary

Please provide a summary of the Project description. Use as much space as you need.

The technical work that supported the Watermaster's Groundwater Management Plan (GMP) indicated that all existing GDEs within the Borrego Springs Subbasin (Subbasin) have never been, or are no longer, dependent on groundwater in the Subbasin. The major GDE identified as once dependent on the regional aquifer within the Subbasin was a honey mesquite community in the vicinity of the Borrego Sink (Mesquite Bosque).

The Watermaster's Environmental Working Group (EWG) contends that a GDE Monitoring Program is necessary to check/verify the conclusions of the technical work that supported the GMP. For the Project proposed herein, a GDE Monitoring Program will be developed and implemented in a phased approach under the guidance of the EWG and the direction of the Watermaster Board over an approximate three-year period concluding by June 30, 2025. The major tasks and subtasks are:

- **Task 1: Prepare the GDE Monitoring Program Workplan.** The Watermaster will prepare a GDE Monitoring Program Workplan (Workplan) under the guidance of the EWG and the Watermaster Board. Subtasks to prepare the Workplan include:
 - *Task 1a - Review the technical work that supported the conclusions in the GMP.*
 - *Task 1b - Prepare a draft Workplan and distribute to the EWG for review and comment.* The Workplan task will include: (i) a precise articulation of the gaps in the current understanding regarding all potential GDEs within the Subbasin and (ii) the detailed steps and costs to fill the gaps in understanding.
 - *Task 1c - Prepare a final Workplan based on the feedback from the EWG.* The final Workplan will be approved by the Watermaster Board.
- **Task 2: Implement the GDE Monitoring Program.** The Watermaster will implement the GDE Monitoring Program Workplan under the guidance of the EWG and the Watermaster Board. In this grant application, the Workplan is conceptual but will likely include the following

activities:

- *Task 2a - Update the mapping and characterization of the historical GDEs in the Subbasin.* This type of work was previously performed to support the GMP. The work proposed in this subtask will build upon the GMP, and may include:
 - Maps of the extent and health of the potential GDEs using air photos and remote sensing data (e.g., Normalized Difference Vegetation Index [NDVI]) to display the extent and health of GDEs over time.
 - Charts and data graphics that reveal/demonstrate the relationships between changes in GDEs and changes in those factors that could influence the GDEs (e.g., groundwater production, groundwater levels, surface water discharge, and climate).
 - A comparison of the history of GDEs in the Borrego Springs Subbasin to the GDEs in the Ocotillo-Clark Valley Groundwater Basin (which has not experienced the same magnitude of groundwater-level declines).

A task memorandum will be prepared to document the results and conclusions of this subtask and will include recommendations for the subsequent subtasks. The recommendations will be used to update the GDE Monitoring Program Workplan that was prepared in Task 1.

- *Task 2b - Fill gaps in understanding.* In this subtask, the gaps in understanding as identified in the GMP and the GDE Monitoring Program Workplan will be filled. The work proposed in this subtask may include:
 - Field-mapping and photo-documentation of potential GDEs to characterize GDE composition and establish baseline conditions.
 - Investigation of rooting-depth and source-water of the Mesquite Bosque in the Borrego Sink.
 - Construction and equipping of a shallow dual-nested monitoring well facility within the GDE near the Borrego Sink. This monitoring well is expected to support the investigation of rooting-depth and source-water of Mesquite Bosque (second bullet above).¹
 - Construction and equipping of a surface-water monitoring station in the Borrego Sink. This monitoring site is expected to support the investigation of rooting-depth and source-water of Mesquite Bosque (second bullet above).¹
- *Task 2c - Conduct interim monitoring program through 2024.* This subtask will include the collection and analysis of data from the monitoring program (e.g., NDVI, groundwater production, groundwater levels, surface-water discharge, and climatic parameters). The maps and data graphics prepared for the technical memorandum in

¹ Budget for construction and equipping of groundwater and surface-water monitoring facilities are not included herein, but are included in the separate Watermaster Project Submittal for Monitoring, Reporting, and GMP Update.

Task 2a will be updated and shared with the EWG and Watermaster Board.

- **Task 3: Prepare GDE Monitoring Program Report and Recommendations.** The Watermaster will summarize the findings of Task 2 and prepare a technical report that describes the results, conclusions, and recommendations of the GDE Monitoring Program.
 - If the monitoring program indicates that GDE(s) **are dependent** on the regional aquifer within the Subbasin, then the EWG will provide recommendations to the Watermaster Board for revisions to the GMP to protect the environmental beneficial uses of groundwater pursuant to the requirements of the SGMA.
 - If the monitoring program indicates that GDE(s) **are not dependent** on the regional aquifer within the Subbasin, then the GMP will not be modified. Any continuation of GDE monitoring will only be conducted at the recommendation of the EWG and at the discretion of the Watermaster Board.

Describe the project location, current conditions, and the benefitting areas. Please attach, separately, a regional and Project map depicting the site(s) location, current conditions, and benefitting areas.

The project location is the Borrego Springs Subbasin and the potential GDEs that exist or existed within the Subbasin. A “control area” in the Ocotillo-Clark Valley Groundwater Basin is also expected to be included in the project. Exhibit A (attached) is a map from the GMP that shows the potential GDE areas within the Subbasin, particularly the Mesquite Bosque within the Borrego Sink. This potential GDE are the potential environmental users of groundwater, and hence, represent the benefitting areas.

What is the nexus of the Project to the Sustainability Goal of the Borrego Springs Subbasin Groundwater Management Plan (GMP)? Is the Project listed in the GMP? How does the Project help achieve the goals of the GMP?

The Project is not listed as a standalone project or management action (PMA) in the GMP. However, the SGMA requires that all beneficial uses and users of groundwater, including GDEs, be considered in the development and implementation of Groundwater Sustainability Plans (GSP) (Water Code § 10723.2). GDEs are specifically defined under the SGMA as “ecological communities of species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface” (23 CCR § 351(m)). The GSP Regulations include specific requirements to identify GDEs and consider them when determining whether groundwater conditions are having potential effects on beneficial uses and users.

The Watermaster's Groundwater Management Plan (GMP) is a repurposed GSP that is part of the Physical Solution under the Stipulated Judgment. The GMP is intended to avoid “undesirable results” as defined in the SGMA, such as adverse impacts to environmental uses/users of groundwater within the Borrego Springs Subbasin (e.g., GDEs). The GMP identified and characterized several historical and current GDEs overlying the Subbasin and within the tributaries of the mountain-front watersheds. However, the GMP concluded that all existing GDEs have never been, or are no longer, dependent on the regional aquifer of the Subbasin. The major GDE identified as once dependent on the regional aquifer of the Subbasin was a honey mesquite community in the vicinity of the Borrego Sink.

The main conclusions and recommendations of the GMP regarding GDEs are as follows [Appendix D4: Borrego Springs Subbasin Groundwater Dependent Ecosystems, page 26]:

“A review of available pertinent spatial datasets, historical data including stream flow and groundwater levels, satellite-derived vegetation metrics, and geology was completed to develop a robust HCM [hydrogeologic conceptual model] to evaluate nexus of GDEs with Subbasin regional groundwater levels. Because of the long-term imbalance of pumping with available natural recharge, an irreversible impact has likely occurred on the honey mesquite community from a decline in groundwater levels, an impact which, based on the best available science, was completed and became permanent sometime prior to 1985. The comprehensive assessment revealed potential GDEs identified within the Subbasin no longer have direct reliance on groundwater emerging from aquifers or on groundwater occurring near the ground surface, and instead are sustained by periodic stormwater flows, soil moisture, and potentially perched groundwater where present. These findings indicate that based on best available data there is no need for the GSP to address minimum groundwater level thresholds with respect to potential GDEs. Detailed mapping of vegetation is lacking for the area in the vicinity of the Borrego Sink. Groundwater level monitoring of wells located in the vicinity of the Borrego Sink should continue.”

Section IV.H of the Stipulated Judgment provides that:

An Environmental Working Group (EWG) will be established to advise the Watermaster on GDE and any other matters approved by the Watermaster.

The EWG held its inaugural meetings in February and May 2021 to discuss and prioritize activities that the EWG could engage in pursuant to its purview and duties as defined by the Judgment. Some EWG members contend that more study is necessary to determine if existing GDEs are dependent on the regional aquifer of the Subbasin, or not.

The Project proposed herein is intended to clarify this uncertainty through the development and implementation of a GDE Monitoring Program conducted by the Watermaster under the guidance of the EWG. If the results and conclusions of the monitoring program indicate that GDE(s) are dependent on the regional aquifer of the Subbasin, then the EWG will provide recommendations for revisions to the GMP to protect the environmental beneficial uses of groundwater pursuant to the requirements of the SGMA.

What are the specific goals and needs for the Project, and how will the project achieve the goals and meet the needs?

The main objective of the project is to determine if the potential GDEs within the Subbasin are dependent on the regional aquifer of the Subbasin, or not. A GDE Monitoring Program is needed to make this determination. A final technical report will describe the results, conclusions, and recommendations of the GDE Monitoring Program.

The GDE Monitoring Program will be developed and implemented under the guidance of the technical experts participating on the EWG. Technical subconsultants, with demonstrated expertise in surface-water and groundwater hydrology, desert ecology, and GDEs, will likely be needed to execute the monitoring program.

If the monitoring program indicates that GDE(s) **are dependent** on the regional aquifer within the Subbasin, then the EWG will provide recommendations to the Watermaster Board for revisions to the GMP to protect the environmental beneficial uses of groundwater pursuant to the requirements of the SGMA. If the monitoring program indicates that GDE(s) **are not dependent** on the regional aquifer within the Subbasin, then the GMP will not be modified.

What are the quantifiable benefits of the Project (e.g., protect or enhance water quality, water conservation, enhanced understanding of the groundwater basin, etc.)? How will those benefits be quantified and evaluated?

The project will enhance the understanding of the groundwater basin, and potentially, will result in revisions to the GMP to protect the environmental beneficial uses of groundwater pursuant to the requirements of the SGMA. These benefits will be quantified and described in the interim and final deliverables of the project.

In addition, there are monitoring facilities, such as monitoring wells, that are expected to be constructed in to support the project. These monitoring facilities will generate data and information to assist the Watermaster with other basin management initiatives, including the periodic Redetermination of the Sustainable Yield, groundwater-level and groundwater-quality monitoring programs, annual reporting to the DWR, etc.

Please describe the communities served by the Project. Will the Project benefit an Underrepresented Community, a Disadvantaged Community (DAC), and/or a Severely Disadvantaged Community (SDAC)? If so, please provide a map.

Exhibit B is a map of the Basin and the area defined as a SDAC. While the Project activities will be focus within the primary GDE within the Borrego Sink, the Project will serve the entire Basin, including the community of Borrego Springs and the area classified as a SDAC, because it is designed to better understand and (potentially) protect the natural resources within the Subbasin.

- A primary driver of the economy in Borrego Springs is ecotourism associated with the Anza-Borrego State Park and the flora and fauna of the region. The Project is designed to better understand and (potentially) protect the natural resources within the community, and thereby support economic activity within Borrego Springs.
- The Watermaster was officially formed in April 2021. Expenses to conduct Watermaster activities are relatively new costs that are ultimately funded by the residents and rate payers within the community. The grant funding will help offset the new costs and provide financial relief to the residents and rate payers.
- The community's water supply is solely dependent on the Basin. The Project is related to the larger project of implementation of the Judgment and GMP, which will ensure that the groundwater basin remains an affordable, high-quality source of water for the community in perpetuity.

Will the Project or Component positively impact issues associated with small water systems or private shallow domestic wells (e.g., groundwater contamination vulnerability, drawdown, etc.)? If so, please provide justification such as water system maps or domestic well census results.

N/A

Does the Project address the needs of the State Water Board’s SAFER Program, designed to ensure Californians who lack safe, adequate, and affordable drinking water receive it as quickly as possible, and that the water systems serving them establish sustainable solutions?

N/A

How does the Project address the Human Right to Water (AB 685 Section 106.3) which states that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes?

N/A

Please describe how the project contributes to addressing the risks in the region to water supply and water infrastructure arising from climate change. If possible, please provide the amount of greenhouse gas emissions reduced and carbon sequestered resulting from the project.

GDEs can act to sequester carbon through the process of biosequestration, which is the capture and storage of the atmospheric carbon dioxide by natural vegetation. The Project is designed to better understand and (potentially) protect the GDEs and their function within the Earth’s carbon cycle.

Work Plan

The Work Plan must contain descriptions of the anticipated tasks necessary to complete the project. Tasks should be organized by the five budget categories, as applicable: (a) Project Administration, (b) Planning/Design/Environmental, (c) Construction/Implementation, (d) Monitoring/Assessment, and (e) Interested Parties Outreach/Education. The Work Plan should also identify the anticipated deliverables for each task.

Add additional tasks and subtasks as needed to provide a detailed work plan. Some examples and suggested language have been provided.

Budget Category (a): Project Administration

Task 0 – Project Management. This task includes: preparation and submission of supporting grant documents and coordination with the Grantee; preparing invoices including relevant supporting documentation for submittal to DWR via the Grantee; tracking project budget and schedule progress; and coordinating with staff, partnering agencies, and consultants/contractors.

Deliverables: Invoices and necessary documentation.

Budget Category (b): Planning/Design/Environmental

Task 1 – Prepare the GDE Monitoring Program Workplan. The Watermaster will prepare a GDE Monitoring Program Workplan under the guidance of the EWG and final approval of the Watermaster Board. Subtasks to prepare the Workplan include:

Task 1a – Review the technical work that supported the conclusions in the GMP.

Task 1b – Prepare a draft Workplan and distribute to the EWG for review and comment.

Task 1c – Prepare a final Workplan based on the feedback from the EWG.

Deliverables: Draft and final versions of the GDE Monitoring Program Workplan

Budget Category (c): Construction/Implementation

Task 2b – Fill gaps in understanding. In this subtask, the gaps in understanding as identified in the GMP and the GDE Monitoring Program Workplan will be filled. The work proposed in this subtask may include:

Task 2b(iii) – Construct and equip a dual-nested monitoring well in the Borrego Sink.

Task 2b(iv) - Construct and equip a surface-water monitoring station in the Borrego Sink.

Deliverables: Draft and final technical specifications for the monitoring sites; contractor bid documents; and final completion reports for the monitoring facilities.

Budget Category (d): Monitoring/Assessment

Task 2a - Update the mapping and characterization of the historical GDEs in the Subbasin. This type of work was previously performed to support the GMP. The work proposed in this subtask will build upon the GMP, and may include:

- Maps of the extent and health of the potential GDEs using air photos and NDVI to display the extent and health of GDEs over time.
- Charts and data graphics that reveal/demonstrate the relationships between changes in GDEs and changes in those factors that could influence the GDEs (e.g., groundwater production, groundwater levels, surface water discharge, and climate).
- A comparison of the history of GDEs in the Borrego Springs Subbasin to the GDEs in the Ocotillo-Clark Valley Groundwater Basin (which has not experienced the same magnitude of groundwater-level declines).

Deliverables: A task memorandum will be prepared to document the results and conclusions of this subtask and will include recommendations for the subsequent subtasks. The recommendations will be used to update the GDE Monitoring Program Workplan that was prepared in Task 1.

Task 2b - Fill gaps in understanding. In this subtask, the gaps in understanding as identified in the GMP and the GDE Monitoring Program Workplan will be filled. The work proposed in this subtask may include:

Task 2b(i) - Field-mapping and photo-documentation of potential GDEs to characterize GDE composition and establish baseline conditions.

Task 2b(ii) - Investigation of rooting-depth and source-water of the Mesquite Bosque in the Borrego Sink.

Deliverables: Draft and final technical reports to document the investigations and technical work.

Task 2c - Conduct interim monitoring program through 2024. This subtask will include the collection and analysis of data from the monitoring program (e.g., NDVI, groundwater production, groundwater levels, surface-water discharge, and climatic parameters).

Deliverables: The maps and data graphics that were prepared for the Task 2a technical memorandum will be updated annually and shared with the EWG and Watermaster Board.

Task 3 - Prepare GDE Monitoring Program Report and Recommendations. The Watermaster will summarize the findings of Task 2 and prepare a technical report that describes the results, conclusions, and recommendations of the GDE Monitoring Program.

Deliverables: Draft and final GDE Monitoring Program Report and Recommendations.

Budget Category (e): Interested Parties Outreach/Education

Task 4 - Conduct EWG Meetings. At least two EWG meetings per year will be necessary to: receive updates on project progress; provide guidance and input to the Watermaster Technical Consultant and subcontractors; review draft and final project deliverables and make recommendations to the Watermaster Board.

Deliverables: Meeting agendas/packets; PowerPoint presentations; summary meeting notes; and memorandums with recommendations to the Watermaster Board. All EWG meeting deliverables will be posted to the Watermaster's website.

Budget

DWR required budget categories have been included below. Add tasks as applicable; additional rows must be added under the applicable categories to present the cost of each task described in the Work Plan.

		(a)	(b)	(c)	(d)
Category		Requested Grant Amount	Local Cost Share: Non-State Fund Source*	Total Cost	% Local Cost Share (Col(b))/(Col(c))
(a)	Project Administration				
	Task 0. Project Management	30,000		30,000	0%
(b)	Planning/Design/Environmental				
	Task 1. Prepare the GDE Monitoring Program Workplan	50,000		50,000	0%
(c)	Construction/Implementation				
	Task 2b(iii) – Construct and equip a dual-nested monitoring well in the Borrego Sink ²				
	Task 2b(iv) – Construct and equip a surface-water monitoring station in the Borrego Sink ²				
(d)	Monitoring/Assessment				
	Task 2a – Update the mapping and characterization of the historical GDEs in the Subbasin	125,000		125,000	0%
	Task 2b(i) – Field-mapping and photo-documentation of	105,000		105,000	0%

² Budget for construction and equipping of groundwater and surface-water monitoring facilities are not included herein, but included in the separate Watermaster Project Submittal for Monitoring, Reporting, and GMP Update.

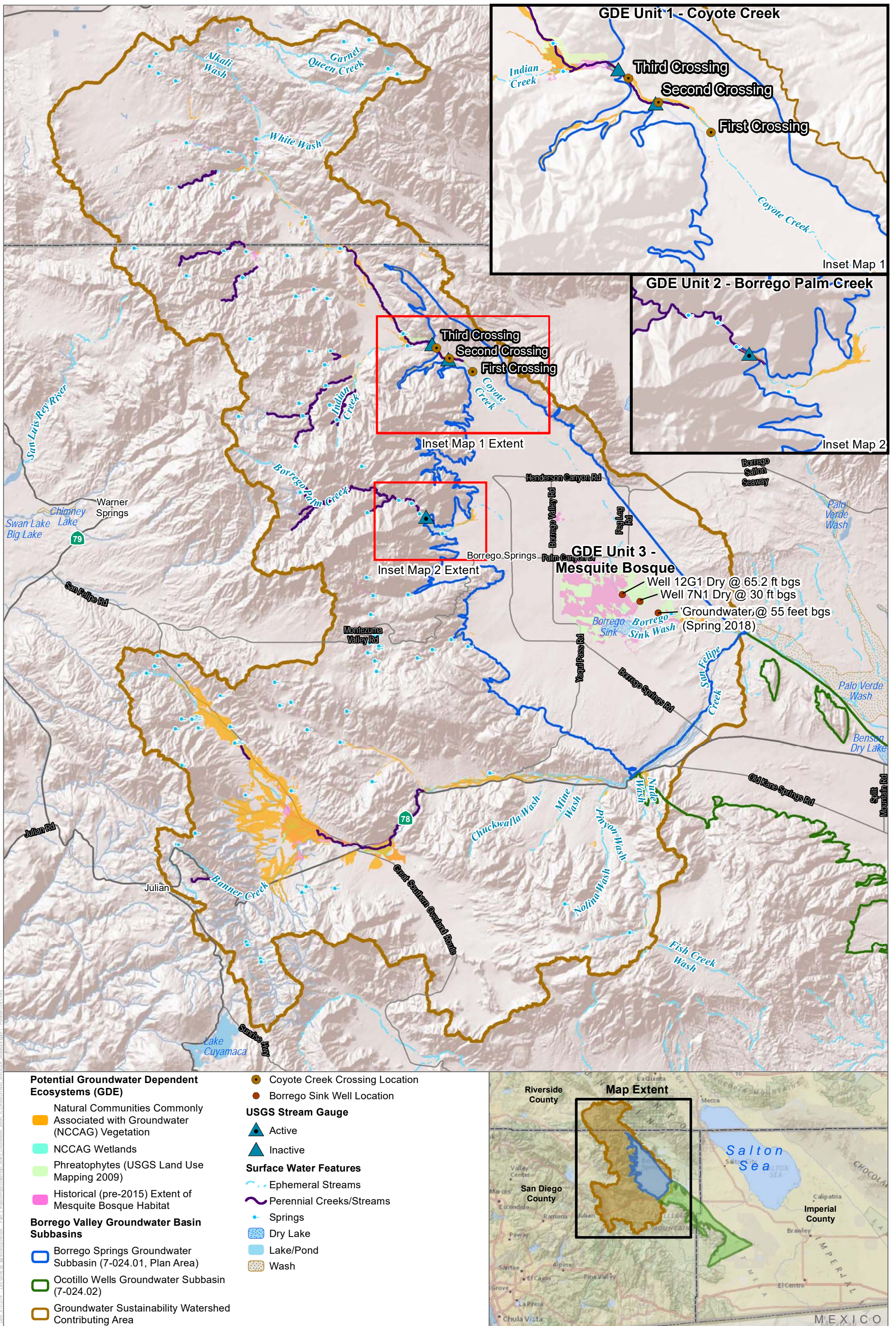
	potential GDEs to characterize GDE composition and establish baseline conditions				
	Task 2b(ii) – Investigation of rooting-depth and source-water of the Mesquite Bosque in the Borrego Sink	105,000		105,000	0%
	Task 2c – Conduct interim monitoring program through 2024	30,000		30,000	0%
	Task 3 – Prepare GDE Monitoring Program Report and Recommendations	90,000		90,000	0%
(e)	Interested Parties Outreach/Public Education				
	Task 4 – Conduct EWG Meetings	50,000		50,000	0%
(f)	Grand Total (Sum rows (a) through (e) for each column)	585,000		585,000	0%

* List sources of Local Cost Share funding:

Schedule

The Schedule must be organized in a manner that is consistent with the Work Plan and Budget that will be contained in the Grant Agreement. The Schedule Table presented below is a template that must be completed for each project in the proposal. The required budget categories have been included below. Add additional rows for each task as described in the Work Plan and Budget.

Categories		Start Date (Earliest Start Date)	End Date (Latest End Date)
(a)	Project Administration	4/1/2022	6/30/2025
	Task 0. Project Management	4/1/2022	6/30/2025
(b)	Planning/Design/Environmental	4/1/2022	8/1/2022
	Task 1. Prepare the GDE Monitoring Program Workplan	4/1/2022	8/1/2022
(c)	Construction/Implementation	7/1/2022	10/1/2023
	Task 2b(iii) – Construct and equip a dual-nested monitoring well at the Borrego Sink	4/1/2022	10/1/2023
	Task 2b(iv) – Construct and equip a surface-water monitoring station at the Borrego Sink	4/1/2022	10/1/2023
(d)	Monitoring/Assessment	4/1/2022	6/30/2025
	Task 2a – Update the mapping and characterization of the historical GDEs in the Subbasin	4/1/2022	1/1/2023
	Task 2b(i) – Field-mapping and photo-documentation of potential GDEs to characterize GDE composition and establish baseline conditions	4/1/2022	10/1/2023
	Task 2b(ii) – Investigation of rooting-depth and source-water of the Mesquite Bosque in the Borrego Sink	4/1/2022	10/1/2023
	Task 2c – Conduct interim monitoring program through 2024	1/1/2023	1/1/2025
	Task 3 – Prepare GDE Monitoring Program Report and Recommendations	1/1/2025	6/30/2025
(e)	Interested Parties Outreach/Public Education	4/1/2022	6/30/2025
	Task 4 – Conduct EWG Meetings	4/1/2022	6/30/2025



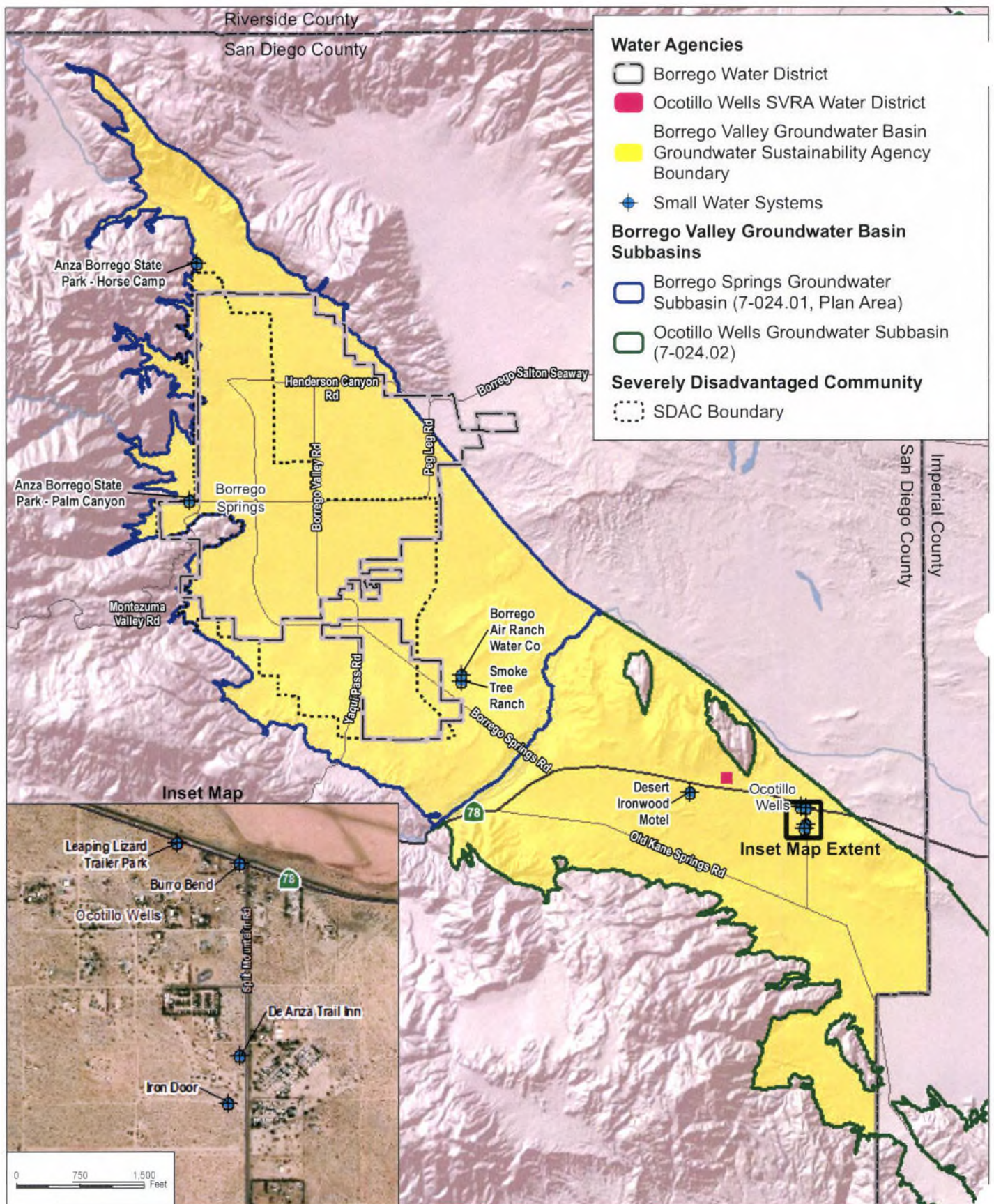
DRAFT March 2019

DATUM: NAD 1983. DATA SOURCE: DWR 2018; USGS NHD 2017; State Parks 2017; SanGIS 2017

January 2020 0 2 4 Miles

Figure 1
Borrego Springs Subbasin and Potential Groundwater Dependent Ecosystems

Borrego Springs Subbasin Potential Groundwater Dependent Ecosystems



DATUM: NAD 1983. DATA SOURCE: DWR 2015; San Diego County

January 2020



Figure 2.1-2

Water Purveyors within the Groundwater Sustainability Agency Boundary

Groundwater Sustainability Plan for the Borrego Springs Groundwater Subbasin

Borrego Springs Youth and Seniors Center, Inc.

PO Box 1362

Borrego Springs, CA 92004

A 501(C)(3) Charitable Nonprofit Corporation

January 17, 2022

To: California Department of Water Resources (DWR)

We understand that the Borrego Springs Watermaster is submitting several Project proposals to include in a grant application "spending plan" for the DWR's Sustainable Groundwater Management Grant Program under Proposition 68 and the 2021 Budget Act. We understand the Watermaster's project proposals to be the following:

- **Watermaster Monitoring, Reporting, and Update to the Groundwater Management Plan.** This project covers a broad range of Watermaster tasks that include: conducting monitoring programs (e.g. groundwater-level and water quality); reporting on the monitoring programs; and updating the Groundwater Management Plan as required by the DWR. The activities included in this project will help the Watermaster comply with the Judgment and the Groundwater Management Plan, and will support the sustainable management of the Borrego Springs Groundwater Subbasin.
- **Biological Restoration of Fallowed Lands.** This project is recommended by the Watermaster's Environmental Working Group. The project will develop information to guide the use of "biological restoration" as a technique to mitigate the potential adverse impacts associated with the fallowing of lands that is expected to occur within the Subbasin due to future reductions in groundwater pumping needed to achieve sustainable groundwater management. Reducing the potential for airborne dust emissions and enhancing habitat are the primary objectives of this project.
- **Groundwater Dependent Ecosystems (GDE) Monitoring Program.** This project is also recommended by the Watermaster's Environmental Working Group. This project is designed to determine if the historical GDEs within the Subbasin (particularly the Mesquite Bosque in the Borrego Sink) are dependent on the regional aquifer of the Subbasin, or not. The results of this project could be used to update and improve the Groundwater Management Plan to protect the environmental uses of groundwater in the basin.

These projects will have multiple benefits to the severely disadvantaged and underrepresented community of Borrego Springs:

- The community's water supply is solely dependent on the groundwater basin. These projects will help to ensure that the groundwater basin remains an affordable, high-quality source of water for the community.
- The Watermaster was officially formed in April 2021. Expenses to conduct Watermaster activities are relatively new costs that are ultimately funded by the residents and rate payers within the community. The grant funding will help offset the new costs and provide financial relief to our severely disadvantaged community.
- A primary driver of the economy in Borrego Springs is ecotourism associated with the Anza-Borrego State Park, dark and clear night skies, and the beautiful flora and fauna of the region. These projects will help maintain or enhance the physical and biological environment within the community, and thereby support economic activity within Borrego Springs.

We support the projects described in this letter, and the Watermaster's efforts to achieve sustainable groundwater management in Borrego Springs.

Daniel Wright,

Board President