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ANCHOR QEA

June 27, 2025

Dayna Roane
Grand Lake Estates Homeowners Association
P.O. Box 588
Grand Lake, Colorado Zip

Re: Draft Proposal for Planning and Implementing Marina Dredging Project

Dear Ms. Roane and GLEHOA team:

Thank you for contacting Anchor QEA regarding the Grand Lake Estates Homeowners Association's (GLEHOA's) need to perform dredging at your marina on Shadow Mountain Reservoir in the Town of Grand Lake, Colorado. Anchor QEA has extensive expertise with marina dredging projects across the United States, and our Colorado-based team would be pleased to assist you.

This proposal presents a scope of work for planning and implementing a dredging project for GLEHOA. We have subdivided the work into a series of chronological tasks and propose that we undertake these efforts in two phases because the findings and conclusions from the first phase of work (Phase 1: Tasks 1 through 3) will greatly influence the approach and level of effort needed for subsequent implementation (Phase 2: Tasks 4 through 6). Our proposed budgets for Phase 2 are preliminary at this time and may require adjustment based on the results of Phase 1.

We are proposing that GLEHOA first approve Anchor QEA to undertake Phase 1 of work before formally approving the implementation in Phase 2.

Project Understanding

To date, we have toured the marina site and reviewed a marina property survey and map of sediment and water depths. Furthermore, we understand that GLEHOA recently commissioned a reserve study[1] that included estimated budgets for future marina maintenance and dredging activities. Costs for dredging of the total area were tabulated on the basis of 7,000 square yards of water surface area, dredged at a price of $43 per square yard, for a total projected cost of $301,000 if conducted in 2026, per the reserve study. We further understand that GLEHOA's preference would be to complete the work for a lesser price if possible.

[1] Reserve Advisors, 2025. *Full Reserve Study, Grand Lake Estates Homeowners Association, Grand Lake, CO.* May 20, 2025.

Phase 1 – Preparatory Work

The following three tasks compose the preparatory work that will be needed to implement the project. We recommend authorizing only Phase 1 at this time and waiting until its completion before finalizing the strategy and budget for Phase 2.

Task 1. Sediment Characterization

The first step in the dredging program will be to establish an understanding of the physical and chemical characteristics of the sediment to be dredged. This will necessitate obtaining a series of sediment cores from key locations throughout the marina.

To plan our sediment coring work, we will first seek out and compile existing information that is available on sediment and water conditions in the immediate area. This includes a map provided by GLEHOA showing water depths and sediment thicknesses in the marina (date and author unknown) and can include any other documents that GLEHOA has on file regarding sediment conditions or previous dredging activities.

We will consider certain features of the marina site in our initial evaluation, including the inflow point for Little Columbine Creek, which carries sediments from the surrounding watershed into the marina. The presence of other nearby operations, such as the Fire Protection District building across the street, may also be relevant.

We anticipate that 1 day of field work will be sufficient to collect the necessary sediment samples, using two staff members operating from a small pontoon boat or work barge supplied by GLEHOA. We will provide the core tubes and plan to collect sediment cores from six to eight locations. Based on the sediment thickness map provided by GLEHOA, we assume that core depths will not exceed 3 to 4 feet, using manual advancement to full depth. Accordingly, the budget does not include vibracoring or other mechanized coring equipment.

Our field team will also use a weighted lead-line measurement to collect water depths in the marina area to supplement the depth survey map provided by GLEHOA.

Each core will be carefully logged and characterized by our field personnel. Discrete samples will be collected and archived from each core, then combined into two composite samples to represent sediment conditions across the dredging area. We will have an accredited laboratory run analyses on the samples for relevant chemical concentrations, such as metals, petroleum hydrocarbons, pesticides, and PFAS, based on anticipated requirements and approvals for upland placement or disposal. We will also test the physical properties of the sediment, including solids content and grain size.

We are assuming that analysis of the two composite samples will be sufficient to confirm that there are no significant contaminant concentrations in the sediment. However, if any significant concentrations are detected, it may be necessary to analyze similar tests on selected individually archived samples to better understand what areas of the marina are impacted. This would require additional cost and would only be conducted with approval.

The remainder of the samples collected will be archived at the laboratory in case further testing might be requested by other parties or regulators. This may include, for example, elutriate testing to evaluate concentrations in water expressed from the material stockpiled on land.

Task 2. Develop Conceptual Dredge Plan

The next step in planning and executing a successful dredging program is to develop a conceptual dredging plan that establishes dredging extents, removal volume, and the location and methods to be used for placing or disposing of the dredged materials. We will use information collected in Tasks 1 and 2, along with guidance provided by GLEHOA regarding the marina's specific water depth needs, to develop a conceptual dredging plan memorandum and figures, which will include the following:

- Information on water depths in the marina overlaid on the site's surveyed property limits and key in-water features
- Required water depths for vessel movement and berthing in the marina, expressed as target dredge elevations and extents
- Extents and allowable side slope inclinations around the dredge areas
- Overdredging allowances that establish how precise the dredger's work will need to be
- Expected dredging volume
- Offset distances from existing shorelines and structures, to avoid undermining or destabilizing adjacent land, docks, and properties
- Concept for sediment trap feature near Little Columbine Creek outfall to facilitate future sediment removal
- Final sediment placement area(s), including potential use of geotextile tubes for sediment containment, and collection of drainage water from the placed sediment
- Available area(s) for contractor staging

For now, our scoping and budgeting assumes that the dredged material will be placed on site, rather than needing to be hauled off site.

We will prepare two dredging plan figures showing the site in plan view and in profile, along with a short (two-page) memorandum discussing how the work will be performed. The dredging plan will be provided first as a draft for your review and then as a final version, which will be used to plan and implement the subsequent tasks.

Task 3. Meet with Town, County, and Regulatory Agencies

Once the conceptual dredging plan is completed, we will use it as the basis for a meeting with the Town of Grand Lake and meetings with the U.S. Army Corps of Engineers (USACE), the Colorado Department of Public Health and Environment (CDPHE), the U.S. Forest Service (USFS), and Grand County.

The meeting with the Town of Grand Lake will be an opportunity to lay out the plans for the dredging and the placement of sediment on adjoining vacant property. It will also be an opportunity to discuss what kinds of public engagement might be most appropriate for GLEHOA moving forward.

The pre-application meetings with USACE, CDPHE, USFS, Town, and Grand County will allow for confirmation of what permits are needed and, if so, the appropriate permitting process and level of effort needed to secure the permits.

Following these discussions, we will be prepared to enter into the implementation phase of the project (encompassing permitting, design, and construction).

Phase 2 – Implementation of Work

The following three tasks are described and budgeted in a preliminary manner for planning purposes and will require revising after the completion of Phase 1. Further development of Phase 2 tasks will be informed by the results of Phase 1 tasks.

Task 4. Apply for and Obtain Permits

Anchor QEA can lead the permitting process for the proposed project. We anticipate coordinating with the Town of Grand Lake, CDPHE, and USACE.

Required permits may include a USACE Nationwide Permit, CDPHE Temporary Authorization, and/or a CDPHE Section 401 Water Quality Certification. The need for each, or the possibility that some will be unnecessary, will be confirmed or adjusted based on the results of our discussions with the agencies under Task 3.

To facilitate the agencies' review and approval process, Anchor QEA will coordinate directly with them on behalf of GLEHOA. Our preliminary budget for this task assumes that one set of permit applications will be prepared and submitted to each relevant agency. The Dredge Plan developed in Task 1 will be used to develop a Project Description that will be included in the formal permit application package. We would then prepare draft responses to any requests for additional information from USACE or CDPHE staff during their review of the application.

Our preliminary budget for permitting is based on the following assumptions:

- We have assumed that no permits will be required from the Town of Grand Lake or Grand County.
- We have assumed that agency comments can be answered without needing additional technical studies or reports.
- We have assumed that no in-field biological, cultural, or historical surveys, studies, or mitigation plans will be required by agencies.
- All permit applications and reporting fees will be paid by GLEHOA directly, as the applicant. No permitting fees are included in the task-level budget.

Task 5. Develop Bid-Ready Construction Drawings

Ultimately, once Tasks 1 through 3 are completed, and the permit applications are in the process of being reviewed by agencies, Anchor QEA can develop a set of construction drawings with technical requirements, which can be used to solicit bids from dredging contractors and then to direct their performance of the work. We will prepare the drawings in an initial draft form for GLEHOA review and then as a final bid-ready set.

Our preliminary budget for preparing bid-ready construction drawings is based on the following assumptions:

- No additional bathymetric survey of the marina is included or necessary to complete the design.
- We have not included the development of any general contractual language. We recommend that GLEHOA confer with their legal counsel on appropriate general terms and conditions to apply. We have included nominal budget for Anchor QEA to provide technical advice as needed.
- The only deliverable associated with this task includes a design drawing set and will not include a package of technical specifications.

Task 6. Bidding and Contractor Selection

Anchor QEA has extensive experience assisting clients with contractor selection and the bidding process. We are familiar with qualified dredging contractors throughout Colorado and the surrounding region and can identify and notify appropriate firms about the bid solicitation.

Once bids are received, Anchor QEA can support GLEHOA by reviewing the proposals, facilitating bid evaluations, and providing a recommendation for contractor selection based on both technical qualifications and cost considerations. The selected contractor would enter into a construction agreement directly with GLEHOA, as Anchor QEA, in its role as design consultant, is not licensed to contract construction services directly.

Construction phase services, after bidding is completed, are not included in this scope of work or the task budgets. Anchor QEA is qualified and experienced in providing construction phase-services, such as construction observation and oversight, to improve the execution of construction. If desired, additional scope and budget can be added to this authorization to include construction phase services.

Fee and Schedule Estimate

Table 1 provides a summary of our proposed engineering fees for the two proposed phases of work. The tasks in each phase could be accomplished separately but will be most useful and productive if done simultaneously.

Table 1
Summary of Proposed Task-by-Task Schedules and Budgets for Phase 1, Preparatory Work

Task	Task Name	Schedule Expectation	Proposed Budget
Task 1	Sediment Characterization	30 days	$ 13,976
Task 2	Develop Conceptual Dredge Plan	30 days	$ 7,338
Task 3	Meet with City and Regulatory Agencies	30 days	$ 5,184
	Total for All Tasks Listed	**3 months**	**$ 26,498**

Table 2
Summary of Preliminary Budgets for Phase 2, Implementation of Work

Task	Task Name	Schedule Expectation	Proposed Preliminary Budget*
Task 4	Apply for and Obtain Permits	3–6 months	$ 13,000*
Task 5	Develop Bid-Ready Construction Drawings	1 additional month	$ 17,000*
Task 6	Bidding and Contractor Selection	1 additional month	$ 3,000*
	Total for All Tasks Listed	**5–7 months**	**$ 33,000***

Note:
*To be confirmed or modified following the completion of Phase 1 tasks.

Please let us know if you have any questions or adjustments that you may wish to make regarding project approach, schedule, assumptions, or fees. We look forward to collaborating with you on the successful development of this interesting project.

Sincerely,

Michael Whelan, PE
Principal Engineer
Anchor QEA

Kyle Gustafson, PE
Senior Engineer
Anchor QEA