



Clean Water Act Section 401 Water Quality Certification Application

Please refer to the “Clean Water Act Section 401 Water Quality Certification Application Guidance” document for assistance with completing this application.

A. Pre-Filing Meeting	
Please provide the date that a pre-filing meeting was requested from Nevada Division of Environmental Protection (NDEP) Bureau of Water Quality Planning (BWQP). <i>Note: If a pre-filing meeting has not been requested, please schedule a pre-filing meeting with NDEP BWQP.</i>	10/20/2023 – Pre-filing request submitted 11/14/2023 – Pre-filing meeting held; additional information requested

B. Contact Information	
Project Proponent Information	
Company Name: Elk Point Country Club Inc.	Address: PO Box 9
Applicant Name: c/o Richard Rowe, President	City: Zephyr Cove
Phone: 828-606-6389 Fax:	State: NV
Email: president@elkpointcc.org	Zip Code: 89448
Agent Information	
Company Name: Gordon Consulting Inc.	Address: PO Box 4470
Agent Name: Jennifer Quashnick	City: Stateline
Phone: 530-577-4233 Fax:	State: NV
Email: jennifer@gordonconsultinginc.com	Zip Code: 89449

C. Project General Information			
Project Location			
Project/Site Name: Elk Point Marina Rehabilitation & Dredging Project		Name of receiving waterbody:	
Address: 406 Bitlers Road		Type of waterbody present at project location (<i>select all that apply</i>): <input type="checkbox"/> Perennial River or Stream <input type="checkbox"/> Intermittent River or Stream <input type="checkbox"/> Ephemeral River or Stream <input checked="" type="checkbox"/> Lake/Pond/Reservoir <input type="checkbox"/> Wetland <input type="checkbox"/> Other: _____	
City: Zephyr Cove			
County: Douglas			
State: NV			
Zip Code: 89448			
Latitude (UTM or Dec/Deg): 38.983817°		Longitude (UTM or Dec/Deg): -119.955815°	
Township: 13N	Range: 18E	Section: 16	¼ Section: SE

Project Details		
Project purpose:	Replace existing sheetpiles/extend breakwater to improve resilience to waves, boat ramp, reconfigure docks, add ADA ramp, and maintenance dredging.	
Describe current site conditions: Attachments can include, but are not limited to, relevant site data, photographs that represent current site conditions, or other relevant documentation.	See attached Project Description.	
Describe the proposed activity including methodology of each project element:	See attached Project Description.	
Estimate the nature, specific location, and number of discharge(s) expected to be authorized by the proposed activity:	See attached Project Description.	
Provide the date(s) on which the proposed activity is planned to begin and end and the approximate date(s) when any discharge(s) may commence:	See attached Project Description.	
Provide a list of the federal permit(s) or license(s) required to conduct the activity which may result in a discharge into regulated waters (see mandatory attachments):	Letter of Permission	
Provide a list of all other federal, state, interstate, tribal, territorial, or local agency authorizations required for the proposed activity and the current status of each authorization:	USACE LOP (in review), NV State Lands ROE (in review), NDEP Temp Discharge/Work in waterways (to submit 2-3 weeks before discharge begins), TRPA (Marina Project/Rehabilitation; permit acknowledged), and Douglas County Commercial Project permit (to submit within next few months).	
Total area of impact to regulated waterbodies (acres):	0.5 acres	
Total distance of impact to regulated waterbodies (linear feet):	Approx. 260'	
Amount excavation and/or fill discharged within regulated waters (acres, linear feet, and cubic yards):	Temporary:	Permanent:
		64 CY boulder material
Amount of dredge material discharged within regulated waters (acres, linear feet, and cubic yards):	Temporary:	Permanent:
		1,525 CY
Describe the reason(s) why avoidance of temporary fill in regulated waters is not practicable (if applicable):	Boulder jetty being extended to reduce wave impacts to new sheet pile section per review by engineer.	

Describe the Best Management Practices (BMPs) to be implemented to avoid and/or minimize impacts to regulated waters:

See Project Description.

Examples include sediment and erosion control measures, habitat preservation, flow diversions, dewatering, hazardous materials management, water quality monitoring, equipment or plans to treat, control, or manage discharges, etc.

Describe how the activity has been designed to avoid and/or minimize adverse effects, both temporary and permanent, to regulated waters:

See Project Description.

Describe any compensatory mitigation planned for this project (if applicable):

See Project Description.

D. Signature

Name and Title (Print):

Phone Number:

Date:

Richard Rowe, President, Elk Point Country Club Inc.

828-606-6389

March 15 2024

X



Signature of Responsible Official

Mandatory Attachments:

- **Federal Permit or License Identification:**
 - Project proponents seeking a federal general permit or license must include a copy of the draft federal license or permit and any readily available water quality-related materials that informed the development of the draft federal license or permit, or;
 - Project proponents seeking a federal individual permit or license must include a copy of the federal permit or license application and any readily available water quality-related materials that informed the development of the federal license or permit application.
- **Site Map** - A map or diagram of the proposed project site including project boundaries in relation to regulated waters, local streets, roads, and highways.
- **Engineered Drawings** - Engineered drawings are preferred to be submitted at the 70% design level. If only conceptual designs are available at the time of application, plans for construction should be submitted prior to the start of the project. Specific locations of the proposed activities and details of specific work elements planned

for the project should be identified (e.g., staging areas, concrete washouts, perimeter controls, water diversions, or other BMPs).

Submit the completed application materials to NDEP (ndep401@ndep.nv.gov) with the appropriate U.S. Army Corps of Engineers Regulatory Office copied on the communication (<http://www.spk.usace.army.mil/Missions/Regulatory/Contacts/Contact-Your-Local-Office/>).

GORDON CONSULTING INC.

ELK POINT MARINA REHABILITATION AND DREDGING PROJECT PROJECT DESCRIPTION –NDEP

Elk Point Marina, 406 Bitler's Road, Zephyr Cove, Nevada, APN: 1318-16-801-001

PROPOSED PROJECT - SUMMARY

Location:

The project site is a littoral parcel located on the East Shore of Lake Tahoe, at the south end of Elk Point Subdivision. Elk Point Marina (EPM) is located at 406 Bitler's Road, Douglas County, NV; APN: 1318-16-801-001, Township 13 North, Range 18 East, Section 16. It is in the RABE Plan Area Statement, 070B. Marinas are a special use per the PAS. The subject parcel is 568,022 square feet, currently occupied by a harbor and a community beach.

Introduction and Summary:

There are several components to the proposed project, which is anticipated to occur over a five year term (with construction occurring over two boating seasons). Details for each component follow below.

- **Sheet pile replacement** - All sheet piles are anticipated to be replaced over the five-year time frame based on evaluation by Ferrell Civil Engineering.¹
- **Dock Reconfiguration** - The dock will be reconfigured; there will be no increase in number of slips or any changes that will increase marina capacity.
- **Maintenance Dredging** - The project includes dredging of the harbor interior and entryway.
- **Ramp modification/replacement** – The boat ramp will be replaced and extended on the land side and an ADA-accessible ramp will be installed along the north side.

Maintenance dredging of the harbor will be performed after the sheet piles and boat ramp have been replaced in order to also address any material that will need to be removed once the existing sheet piles are removed while minimizing dredging.

An application was submitted to the Tahoe Regional Planning Agency (TRPA) on 4/10/2023 and a conditional permit was approved by the TRPA Hearings Officer on 1/18/2024. Relevant permit conditions have been included in this updated project description.

PROPOSED PROJECT DESCRIPTION AND BACKGROUND

1.A- Sheet pile Replacement and Breakwater extension – Description:

The Elk Point Marina (EPM) was originally constructed in the 1960's. Most of the existing sheet pile walls are the original walls installed during that time and have been corroding, thereby allowing migration of sand into the harbor which decreases the time between dredging and unevenly suspends the docks, causing them to fail prematurely. Corrosion also allows for Aquatic Invasive Species (AIS)

¹ Ferrell Civil Engineering Memo to EPCC Marina Committee, 12/28/2021.

plant material to enter the marina where conditions promote AIS growth, which has been an ongoing problem for EPM. Some sheet pile sections have already required replacement/repairs.

The December 2021 FCE report documented the condition of the marina's infrastructure and recommended replacements that should be performed over the subsequent 5-10 year time frame.

The existing jetty along the southern edge of the marina will be extended in order to dissipate wave energy prior to wall contact. The jetty would also dissipate wave rebound and reduce the movement of beach sands over time.

1.B- Sheet pile replacement and breakwater extension - Construction Methodology:

All sheet pile replacement will be conducted from either an amphibious lark vehicle, barge with an excavator, or land based excavator (based on which contractor's bid is selected for the project). The access to work areas will be by water from the designated watercrafts as well as by land from the parking lot. Material will be transferred to the work area by an access that starts from the parking lot and stretches west to the lakeshore on the northwest edge of the marina. Land based vehicles, i.e. loader / excavator, will transport materials to work areas. The loader and amphibious vehicle will not disturb existing vegetation. All equipment will be cleaned prior to entering the construction site. All upland construction access will be defined by erosion control fencing and vegetation protection fencing. Additional information is enclosed based on consultation with one of the potential contractors (EPM is presently initiating the solicitation of bids).

Due to construction methodology, the new sheet piles will need to be placed approx. 4-5' behind the existing sheet piles, however the replacement will not increase marina capacity. There is no feasible way to replace the sheet piles in their existing footprint. The existing sheet piles will then be removed by the excavator on land (in designated areas) or from the barge.

For the breakwater extension, material will be loaded onto a barge and placed on the lakebed using an excavator.

Best Management Practices (BMPs):

Potential impacts resulting from construction shall be reduced through use of BMPs and specific construction techniques. All construction activities will meet the requirements of the project's specifications and the regulatory permit conditions. Prior to the commencement of the marina sheet pile and jetty construction, a turbidity curtain shall be placed as noted on Sheet C3 (or determined during pre-grade inspection) to contain any sediments suspended in the water. The new sheet piling shall be driven and excavation accomplished prior to removal of the existing pilings.

Once installed, the contractor will remove as much material between the existing and new sheet piles (to a maximum depth of 6,220') as feasible based on the lake's water level and other considerations (material estimated to be 682 CY±; see Sheet C2 and discussion below regarding dred). The existing sheetpiles will be left in place until new sheetpiles have been installed and then removed prior to maintenance dredging. The phasing of the replacements and dredging will be determined based on review by the contractor and engineer, financing, and other components.

The turbidity curtain will remain in place until after the boulders are placed for the breakwater extension and water quality monitoring indicates requirements have been met.

Water quality monitoring:

During construction, water quality monitoring shall occur in the lake outside of the sheet pile replacement areas to assess the success of sediment containment measures. This monitoring schedule shall be established at the time of project review. All material shall be decanted at the location specified on Sheet C2 and trucked out of the basin for disposal at an authorized waste facility. Note that the TRPA permit requires TRPA approval for the disposal location. This requirement has also been incorporated into the Request for Proposals from Contractors (excerpt enclosed).

Specifications:

- Existing SF of harbor: 19,420 SF
- Proposed SF of harbor after sheetpile replacement: 21,674 SF
- Existing sheet pile type/sections: Section type and lengths vary and it is not possible to determine these specifications per engineer
- Proposed sheet pile type/sections: Type is PZ27 (see detail on Sheet D1); 474 sections
- Proposed breakwater: Area = 713 SF, L/W = 9.3' W x 76.75' L, CY = 64 CY

2.A -Dock Reconfiguration - Description:

The project proposes to reconfigure and replace the existing docks in the marina (see Sheet C6). As noted by FCE, the docks are reaching their design life. Even with increased maintenance activities, the docks would likely require replacement in approx. five years. The proposed project will replace/reconfigure the docks to improve boater safety, accommodate larger vessels, and improve accessibility by meeting Americans with Disabilities Act (ADA) requirements. A new ADA-accessible path/ramp will wrap around from the north side of the ramp to the northern docks, which will include two ADA-accessible slips. There will be no increase in the number of slips/capacity of the marina.

2.B- Dock Reconfiguration - Construction Methodology:

New docks will be attached to the sheet piles as shown on Sheet C6. Construction methodology and BMPs will follow the same measures as described above in Section 1.A.2. Additional information is enclosed based on consultation with one of the potential contractors (EPM will request contractor bids upon receiving TRPA-approved stamped plans which are anticipated by 2/16/2024).

Specifications - Docks:

- Existing number of piles: 10
- Proposed number of piles: 10 (see Sheet C6)

Specifications – ADA access ramp:

- Proposed number of piles: 6
- Proposed cement: 40 SF
- Length below HWL (exc. Docks): 40'
- Width: 5'

3.A - Maintenance Dredging - Description:

The project includes maintenance dredging to 6,220', both at the channel leading into the marina and within the harbor. Dredging is necessary to allow for continued operation of the marina, and will decrease prop turbidity, maintain the Tahoe Douglas Fire Protection District (TDFPD) launch point to protect life and property on Lake Tahoe, and remove AIS plants (non-native Eurasian Milfoil and Curlyleaf Pondweed) which endanger the clarity and ecological health of Lake Tahoe.

Channel

Relatively frequent maintenance dredging in the channel has been required. As a result of several years of study by a limnologist (Randy Moory) and coordination with applicable agencies, the breakwaters were reconfigured. The reconfiguration was expected to reduce the frequency of dredging and to improve boater safety/wave attenuation. As discussed below, Randy Moory reviewed the existing conditions and found the sediment movement has occurred as expected per the reconfigured breakwaters. Maintenance dredging of the channel is included in this project.

Harbor:

As a result of sand incursion through holes that have formed in the failing sheet piles and the expected additional material that will slough into the marina from between the existing and new sheet piles once the existing sheet piles are removed, dredging is proposed within the harbor. A review of available information suggests the harbor interior has not been dredged since it was constructed, although some dredging inside of the mouth has been documented. Dredging has generally been confined to the channel.

Per agency regulations, maintenance dredging must not dredge any deeper than 6,220'.

AIS Removal:

Aquatic invasive species are proposed to be removed as a part of this project. Dredging will remove the Milfoil seed bed. EPM will coordinate with professional divers and the Tahoe Resource Conservation District regarding AIS removal. The proposed project includes an AIS Plan to be approved by TRPA, which outlines both short- and long-term activities EPM will implement to remove/reduce AIS within the marina.

Water/sediment movement and Littoral Studies:

During Pre-Consultation with TRPA staff in preparation for this project, the question was raised whether additional water quality monitoring was necessary to assess the outcome of the breakwater project on sediment movement and future dredging.

EPM consulted Randy Moory to follow up on three questions:

- 1) Based on the current bathymetric survey, has sediment movement occurred as anticipated?

Response:

As noted in the enclosed letter from Randy Moory,² sediment movement since the last period of maintenance dredging (fall 2020) has occurred as was expected with the breakwater reconfiguration. *“To date, the new channel and harbor have performed as expected.”*

- 2) Would additional water quality monitoring provide additional information for evaluating question 1?

Response:

Moory concluded: *“[T]he current modeling studies are sufficient to evaluate the impacts of the proposed project. I believe that the changes at the channel entrance will be similar to those experienced currently at the entrance to the harbor. Sediment will continue to accumulate at this location.”* Therefore, no additional littoral monitoring is proposed.

- 3) What are the limnological impacts of the proposed project?

Response:

Moory concluded the widening of the mouth of the marina that will result from locating the new sheet piles farther back from the existing location (see construction methodology) is not anticipated to result in a significant increase in sediment entering the marina. Moory states: *“Sediment will continue to accumulate at this location. However, because the width of the harbor entrance is greater the sediment will be distributed over a larger area. I do not expect that this change will increase the frequency for dredging.”* Moory also notes that replacement of the corroding sheet piles may reduce the frequency of dredging because it should reduce the amount of sediment entering the harbor.

Specifications:

- Total Volume dredged material: est. 1,525 CY±
 - Volume to be removed from harbor (maintenance dredging): est. 843 CY±
 - Volume to be removed between existing and new sheet piles: est. 682 CY±
- Existing SF of ramp below HWL (approx.): 780 SF
- Proposed dimensions/SF of ramp below HWL: 15' W x 60.65' L / 910 SF

3.B- Maintenance Dredging - Construction Methodology:

During dredging, temporary BMPs will be installed. Turbidity curtains will be located as shown on Sheet C2. During the dredging project, the boat ramp will be limited to launch and retrieval of equipment. The lake side of the area of proposed beach replenishment will be protected from erosion by a double silt fence. A previous Tahoe Yellow Cress (TYC) survey found TYC plants on the boat ramp. See additional information regarding TYC impacts and mitigation in the methodology for the boat ramp modification/expansion.

Dredging of the marina will be done via mechanical means with heavy equipment. Dredging will occur as shown on Sheet C2. The two turbidity curtains (18 mm thickness) will be secured in place with a heavy chain. The dredging will be conducted from either an amphibious lark vehicle, barge with an excavator, or land based excavator (based on which contractor's bid is selected for the

² Letter to Tiffany Good from Randy Moory, Wavezne, 10/21/2022.

project). To minimize turbidity, all dredging will be done behind turbidity curtains, which will remain in place until the turbidity is reduced to pre-dredge levels, or as specified by the agencies. The truck loading area and access will be plated by TRPA-approved mats and surrounded by erosion control fencing in order to capture any accidental spillage. Truck access will be from paved parking areas onto the loading area. The access route and truck loading area will be protected by TRPA-approved mats to minimize soil damage and prevent erosion.

Material will be mechanically removed and transported by loader to decant as shown on Sheet C2. The material will then be hauled offsite to a TRPA-approved location.

No hazardous materials are anticipated to be used for dredging. Emergency clean up materials (booms, etc.) as well as an emergency spill prevention plan will be readily available on site during dredging. Turbidity readings will be taken by Gordon Consulting Inc. or another TRPA-approved consultant or contractor. Samples will be taken inside the marina within 5 feet of the turbidity curtain; within 5 feet outside of the turbidity curtain near the shore; and at 10 feet outside of the turbidity curtain near the shore, or per agency requirements. Sampling will begin each day prior to active dredging and every two hours throughout the operation (or per agency requirements). It is expected there will be no plumes of turbidity observed outside the dredge area. Photos of the water will be taken during dredging and submitted in reports to TRPA and NDEP. A copy of this report will be provided to USACE.

4.A – Boat Ramp Replacement – Description:

The project proposes to replace the existing boat ramp in the marina. The concrete for the existing boat ramp is cracking/breaking, posing safety hazards during boat launch and retrieval. During periods of low water levels, the boat trailers may stir up sediments on the marina floor. The improved boat ramp will prevent this turbidity.

In addition, the slope of the existing ramp is approx. 18%. The slope will be reduced and ramp extended by 8.5' on the east side to reduce the slope of the ramp and improve the safety of those launching boats. The resultant slope will be approx. 15 %.

The access ramp on the north side will be modified and widened to comply with the Americans with Disabilities Act requirements.

4.B- Boat Ramp Replacement - Construction Methodology:

A turbidity curtain will be located across the mouth of the marina as shown on Sheet C6. The area where the existing ramp will be removed. The frame for the new boat ramp (and new ramp installed will be blocked off and dewatered (method to be determined based on contractor selection). Existing ramp material will be removed with an excavator, area will be graded/excavated as necessary and the new ramp will be constructed. A water quality monitoring schedule shall be established at the time of project review. The timing of construction will vary based on the construction and phasing of the other project components.

Specifications:

- Riprap: No riprap will be required per engineer
- Existing SF of ramp below HWL (approx.): 780 SF
- Proposed dimensions/SF of ramp below HWL: 15' W x 60.65' L / 910 SF

5.A – Construction Schedule:

The construction schedule is estimated as follows (pending permits, contractor selection, material availability, and other factors):

- 1) Order/manufacture sheetpiles and docks (no on-ground construction) – *Fall 2024*
- 2) Full or partial closure of marina, installation of temporary BMPs, and active construction between May 1–October 15 – *Spring 2025–Fall 2026*
- 3) Maintenance Dredging – at completion of construction est. *Fall 2026*

ADDITIONAL INFORMATION REQUESTED BY NDEP:

6.A - Decanting of dredged materials:

The contractor may (as feasible) place dredged materials within the marina (on the boat ramp) for initial decanting. Material will then be transported to the decanting site shown on Sheet C2. The decanting site will be lined with filter fabric then stockpiled with fiber roll materials to prevent any dredged materials or runoff from exiting the decanting location.

The entire access area will be contained with temporary BMPs as shown on the attached plans. All impacted areas will be cleaned during the dredging operation to avoid tracking any material offsite. Temporary BMPs employed in this area will consist of waddling, construction fencing, and other forms of containment and supervision during loading operations. Visual monitoring will be conducted as part of the project.

The approved TRPA permit requires the following to address concerns regarding AIS:

Due to the known presence of aquatic invasive plant species in the inner harbor and the recent introduction of invasive New Zealand mudsnails in Lake Tahoe, the use of dredged spoil materials for beach replenishment is not approved by this permit. Dredging, dewatering, and disposal of spoil material shall be conducted in a manner that ensures the highest level of mitigation feasible to limit the possibility of aquatic invasive species (hereinafter AIS) spread. As outlined in special condition 2.C of this permit, the applicant shall consult TRPA staff to identify appropriate methodology for AIS surveys prior to, during, and after dredging. If at any point AIS surveys yield positive results for the presence of New Zealand mudsnails, all dredging material thereafter shall be kept within sealed containers until its disposal.

This approval includes that dredging operations can be conducted by a long reach excavator or by barge, as proposed by the applicant and depicted on Sheet C2 (TRPA file number ERSP2023-0365). Alternative methods of dredging, such as suction dredging, would further limit the potential for AIS spread. Such methods are encouraged and may be submitted to TRPA prior to permit acknowledgement for approval. All dredging shall occur landward of two 18-millimeter-thick turbidity curtains, as delineated on Sheet C2.

The applicant shall skim for and remove plant fragments within the marina and along the turbidity curtain daily during dredging and prior to removal of the turbidity curtain. Dewatering of spoil material is authorized to occur in the area delineated on Sheet C2 and labeled as, “proposed marina dredging sand leach area.” The dewatering area shall be secured so that no dredged material return flows, plant fragments, or New Zealand mudsnails can be reintroduced to Lake Tahoe. All dredged spoil material

shall be disposed of at a TRPA-approved location outside of the Lake Tahoe Basin, as outlined in special condition 2.D of this permit. Excavator and truck access to the dredging site shall take place on 10-foot-wide plated mats, surrounded by erosion control fencing, as delineated on Sheet C2. The access plates, paved surfaces, or barge may serve as a staging area for construction equipment and material. No other off-pavement staging is authorized by this permit.

...

Condition 2.D: The permittee shall submit a location outside of the Lake Tahoe Basin for dredging spoil disposal. The location of spoil disposal shall be approved by TRPA staff prior to receiving a passing dredging pre-grade inspection.

Condition 3.A.xi: [A note was added to the plans stating]: “The appropriate jurisdiction in which dredging spoils are transported to and disposed of must be notified in advance that the spoil material potentially contains aquatic invasive species. All applicable approvals within said jurisdiction must be obtained.”

7.A – Decontamination of turbidity curtains

According to one of the potential contractors (bids are currently being sought), 99% of the time the turbidity curtains they use are new. Where curtains are re-used, they are steam-cleaned with a pressure washer at their yard prior to transport to the project site.

ATTACHMENTS:

1. Additional information – Construction methods/equipment
2. Ferrell Civil Engineering Memo to EPCC Marina Committee, 12/28/2021.
3. Letter to Tiffany Good from Randy Moory, Wavezone, 10/21/2022
4. Excerpt from Elk Point Country Club HOA Notice to Contractors for Proposal for Construction of Elk Point Marina Rehabilitation Project regarding dredged material disposal

Additional information – Construction Methods:

BMPs: upland and in lake

Turbidity curtains will be placed around entire marina and construction and silt fencing will be placed upland as shown on Sheet C2. Work is anticipated to take place over 1-2 boating seasons. Curtains and fencing will be placed prior to the start of construction activities each season.

Materials will be hauled by barge and vehicle to location and stored on the barge and upland area as identified on Sheet C2. As required by the TRPA permit, onsite construction equipment and materials will be stored on the barge or on paved/compacted dirt (Enviroseal areas). Offsite storage will depend on which contractor is selected.

Sheet piles:

Contractor will start with replacement on upland (east) side. An excavator will be used to dig the soil behind the existing sheet piles. Excavated soil will be placed directly into a vehicle and hauled offsite to TRPA-approved location.

Contractor will then install new sheet piles using a vibratory hammer (fitted on the excavator) to push sheet piles into soil below. Existing sheet piles will remain in place until all new sheet piles are installed.

For sheet piles in the lake bed, contractor will work from barge. New sheet piles will be installed using the vibratory hammer. The equipment will pick up the new sheet pile and once located in correct place, will vibrate to drive the pile into the ground. This may generate some localized turbidity, however the turbidity curtains will prevent any impacts beyond the construction area. Existing sheet piles will remain in place until all new sheet piles are installed. Example pictures of the equipment and method from other projects are below:



The sheet pile replacement will either occur over one or two building seasons based on financing availability and environmental conditions. In the event the construction is divided into two seasons, one side of sheet piles will be replaced in the first season and the remaining in the second season. All existing sheet piles will remain in place until all new sheet piles are installed.

The extended boulder jetty will be placed after the new sheet piles along the southern side have been installed. Boulders will be placed per plans using an excavator on a barge.

Boat Ramp:

Old sheet piles adjacent to the ramp will be removed as needed to accommodate ramp construction (this will occur after new sheet piles are installed). The existing ramp materials will be removed by an excavator and hauled offsite to a TRPA-approved location.

Three steel piles will be driven into lake bed by vibrating hammer per Sheet C4 and C5. A steel gusset shown on Sheet D1 (Detail 1) will be placed on the pilings and welded into place. Pre-fabricated dry concrete slabs will then be placed using the excavator. Per the engineer, no riprap will be required.

Additional information – BMPs and Alternatives:

BMPs:

Upland BMPs will include temporary construction fencing, fiber rolls/coir logs, plated truck access, and an identified Loading Zone for trucks to park on when loading comprised of a non-permeable membrane under trucks with waddles lining the edge as noted on Sheet C2.

Lake-based BMPs include the installation of turbidity curtains as noted on Sheet C2, cleaning of equipment prior to entering the lake (where applicable), AIS inspections, spill kit requirements, and other on-site requirements per TRPA, Nevada State Lands, the Nevada Division of Environmental Protection, and US Army Corp. of Engineers, as required.

Review of Alternatives:

Requested information-

1. Information, in report form, concerning off-site and on-site practicable alternatives and the relative environmental impacts of those alternatives as compared to the environmental impacts of the proposed activity, in accordance with 33 CFR 325.1 (e) and 323.6 (a). The information must address compliance with the Environmental Protection Agency's 404(b)(1) Guidelines at 40 CFR part 230.

Discussion-

There are no feasible alternatives to the proposed project. Options evaluated include 1) No Action, 2) Replacement with same-sized sheet piles/materials, and 3) Locations for installation of new sheet piles.

- 1) **No Action** – If no action is taken, at minimum, corroded holes will continue to form/enlarge in the sheet pile walls, continuing to allow sediment to enter the marina and requiring more frequent maintenance dredging. This corrosion also allows for Aquatic Invasive Species (AIS) to flow into and/or out of the marina. It is suspected that the quick re-establishment of AIS after the last removal efforts were taken occurred as a result of AIS entering through corroding holes as there was a bubble curtain that had been removing AIS debris from boats entering the harbor

from the lake. Eventually, according to the engineer (Ferrell Civil Engineering, Dec. 2021 Memo) the sheet pile walls will likely fail in the next 5-10 years, which could result in substantial damage to both the environment and property. Sheet pile failure could lead to increased turbidity, increased threat of spread of AIS to the rest of the lake, and other impacts associated with the cleanup/removal of failed sheet piles.

- 2) **Replacement with same-sized sheet piles** – The existing marina was constructed in the 1960s. Current code requirements dictate the use of modern, stronger materials which in some cases are sized/installed differently.
- 3) **Locations for installation of new sheet piles** – It is not physically possible to replace the sheet piles in the same location. There is no feasible way to drain the lake water around the marina so that piles could be removed and replaced in the same location of the lake bed. New sheet piles will need to be installed 'behind' the existing sheet piles; the minimum width this can be done is approx. 4', as noted on the plans. Placing new sheet piles on the 'harbor side' of the existing sheet piles would reduce the size of the marina and require a reduction in capacity as well as pose safety threats for safe passage. In addition, the marina is used by the Tahoe Douglas Fire Protection District (TDFPD) to launch their boat, and reducing the dimensions of the harbor may make it impossible for the boat to navigate through the marina to perform life and safety activities on Lake Tahoe.

December 28, 2021

EPCC Marina Committee
ATTN: Lawrence Fry
Email: fry7@aol.com

RE: Summation of Marina Sheet Pile Review

Dear Mr. Fry,

As you requested, I am providing a summation of our site visit where we reviewed the different sections of the sheet pile surrounding the marina. For this summation I will keep the same wall section delineation as you outline in your "Harbor Wall Dimension" pdf. I feel the pdf accurately portrays the different sections regarding condition and stability. I have also reviewed your written description and will at times correlate my summation with yours.

Summation:

Overall Condition:

I want to make it clear I do not think any of the sections are in a state of eminent failure. In my opinion we have time to start a comprehensive master plan for wall replacement over many years. As I describe below, I recommend we begin permitting at least one section for repair as soon as possible. This is because it may take a few years to design and obtain the permits for replacement. Not because of eminent hazard or collapse.

To clarify: At this time some sections of the walls have many holes where wave action and abrasive sand have worn through. This allows migration of sand into the harbor and decreases the time between dredging or unevenly suspends the docks causing them to fail prematurely. I would consult a local welder and plug weld repair many of the larger holes to both slow down the migration and provide a little more life to the wall sections.

Section A and A-1:

This wall section is in the best condition of those reviewed. There are many rust blooms showing pitting is occurring. However, after scraping off the blooms the pits are minimal in depth and not a structural problem. I am hesitant to put a time limit for the life of this section. It could be 5-years to 20-years. Instead, I recommend it be reviewed over time to determine when replacement is needed.

We noticed that the first 20' of Section A the sheet pile was not driven below the marina depth creating a 6" to 8" gap between the bottom of the wall and marina floor. This is allowing sand to wash under the sheet pile and into the marina. This is further evidenced by the slumping ground above the wall. It was not possible to determine why the sheet pile was not driven to an appropriate depth. This wall is still vertical so in my opinion overturning is not a problem at this time.

Section B:

This wall section is in bad condition and should be the priority for replacement. With the wear shown due to sand and wave abrasion this wall is where the Board should focus its efforts for replacement. As noted, it may take over a year to design and permit the replacement so we should begin the process now. Since this wall takes the brunt of wave action from southwesterly winds it would be prudent to protect the wall with a rock jetty. This will dissipate the wave energy prior to wall contact. A jetty would also dissipate wave rebound and reduce the movement of beach sands over time.

Section C:

This section is also in bad condition. However, because it does not resist the dynamic wave forces Section B resists it is not as high of a priority for replacement. Similar to Section A the rust pits are extensive, but none show serious pitting depth into the wall metal and are not structurally damaging at this time.

The main problem with this wall are the areas where it is not vertical. The wall waves back and forth over its length. This could be caused by many different factors. It could be failing now but it could also be the result of bad construction quality or design.

My recommendation for this section is detailed monitoring for movement over time. As I described on site you should hire a surveyor to set up a series of points on top of the wall that can be surveyed on a regular basis. The surveyor can chart his different surveys to determine if the wall is moving. I would start surveying the points monthly. If the wall shows no movement after a year you can reduce the frequency to every six months.

Section D:

This section is also in bad condition similar to Section B. It also does not resist the dynamic wave forces as Section B but it has in the past and due to abrasion it also has many holes allowing sand to migrate into the marina.

Also noted within this section are the tie-backs to the deadman anchor are missing. This is because the sand washed away and most likely exposed the anchor. They were removed due to the hazard created. This makes me very concerned about the overturning of this section. Work on the design and permitting process for this section should also start now so it can be replaced with Section B.

Docks:

A general review of the docks show they are well maintained but because they are reaching their design life the maintenance is increasing yearly. I noticed on most slips had sections of the decking and side boards replaced. I also notice a few areas in need of repair at this time.

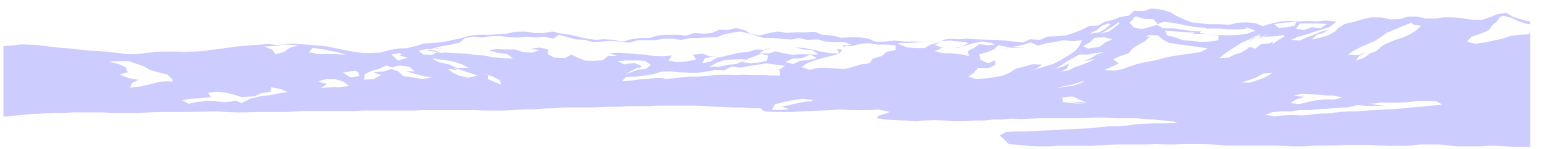
However because they have been well maintained the docks are very serviceable. It appears the float system is intact and the walkways and skirts are floating evenly with no settling due to buoyancy failure. In my opinion with increasing maintenance the dock life could be extended up to 5 to 6 years.

Thank you for the opportunity to provide you this proposal and we look forward to working with you on this project. If you have any questions, please do not hesitate to contact me.

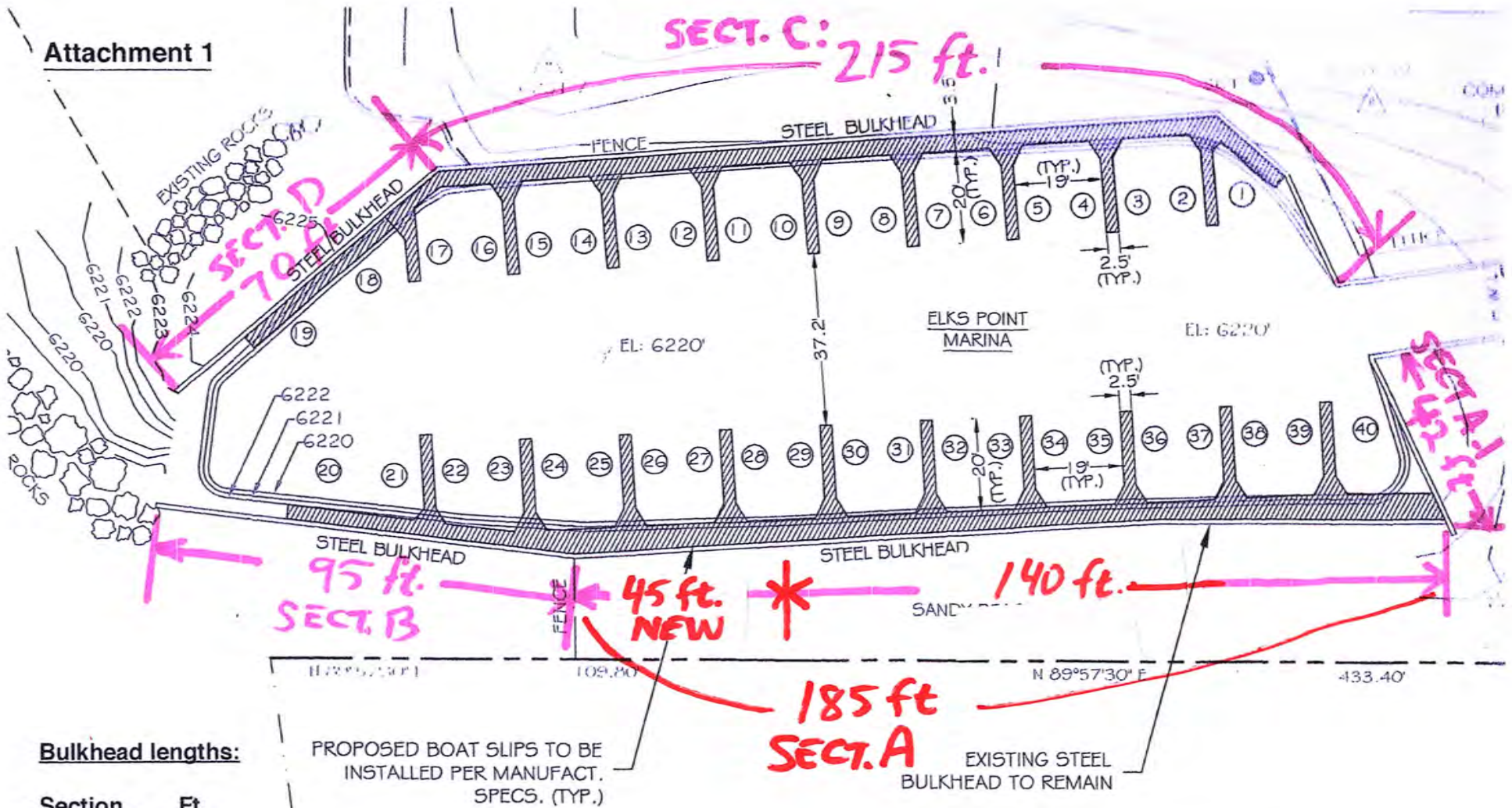
Sincerely,

Tim Ferrell

Timothy K. Ferrell, P.E.
Principal



Attachment 1



Bulkhead lengths:

Section	Ft.
A.1	42
A	185
B	95
C	215
D	70
TTL:	607

A.P.N. 1318-16-801-002

PROPOSED BOAT SLIPS PLAN

SCALE: 1"=30'-0"

S. Side

N. Side

Dimensions (ft.):	Current	Planned	Current	Planned
Berth width	16.2	19	16.9	19
Finger Length	15.4	20	16.2	20
■ Blkhd walk width	2.9	3.5	2.9	3.5



WAVEZNE CONSULTING AND ANALYSIS

916-761-5802 randy.moory@gmail.com 1226 Grand River Drive, Sacramento, CA 95831

October 21, 2022

Tiffany Good
Permitting Program Manager
Tahoe Regional Planning Agency
P.O. Box 5310
Stateline, Nevada. 89445

Dear Ms. Good,

This letter is in regards to the Marina project at the Elk Point Community. Earl Hagadorn and I, in 2010, prepared the shorezone assessment for the project. We examined the waves affecting the project site and alternative configurations to protect navigation into the harbor and reduce the need for dredging. We examined the impacts on littoral transport in the shorezone that might be caused by different configurations to the entrance channel. This study followed on previous work completed by me studying the character of littoral transport of sediment in the shorezone and numerous project studies reports assessing littoral sediment transport in the shorezone. I am attaching the executive study for the report we prepared for the Elk Point Community Club Home Owners Association (EPCC) for your review.

Most of the alternatives studied in either failed to preserve safe navigation in the channel, caused significant degradation of structures within the harbor, or would have significant deleterious affects to littoral sediment transport that could lead to erosion or unwanted deposition in the shorezone. The suggested alternatives were projects that would have installed storm gates at the entrance to the channel or at the entrance to the harbor.

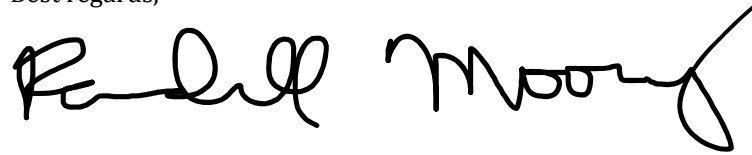
Subsequently, after consulting with the EPCC and representatives of government agencies we concluded that a shorter channel with the channel entrance oriented towards the northwest would provide a navigable channel, protect the interior space of the harbor, and reduce the need for dredging. Dredging the harbor on a less frequent basis was more preferable to constructing other alternatives.

In my opinion the 2010 modeling and report of our findings adequately assess the impact of the new changes at the entrance to the harbor. We made no previous assessment of the harbor itself since it is in the backshore. To date, the new channel and harbor have performed as expected. As such the current modeling studies are sufficient to evaluate the impacts of the proposed project. I believe that the changes at the channel entrance will be similar to those experienced currently at the entrance to the harbor. Sediment will continue to accumulate at this location. However, because the width of the harbor entrance is greater the sediment will be distributed over a larger area. I do not expect that this change will increase the frequency for dredging. In fact, there are factors that could result in a reduction in the frequency for dredging. The repair and replacement of sheet piles in the harbor should reduce the amount of sediment entering the

harbor from the backshore. Nonetheless, sediment will continue to accumulate at the entrance to the harbor.

If I may answer any questions regarding this letter or our report, please feel free to contact me.

Best regards,

A handwritten signature in black ink, appearing to read "Randall Moory". The signature is written in a cursive style with a large, sweeping flourish at the end of the name.

Randall Moory

Principal Investigator

shall separate possible contaminated material and clean material as shown on the plans for decantation of at least 24-hours. Dredging will include installation of turbidity curtains as shown on the plans and follow all rules detailed in attached TRPA permit.

Bid Item No. 11: REMOVAL AND DISPOSAL OF DREDGED MATERIAL TO TRPA APPROVED SITE

The contract unit price paid for Dredging Of Marina shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for removal and disposal of dredged material to TRPA approved site. Material shall be removed after min. 24-hour decantation period. The Contractor shall dispose of the dredged material not suitable for relocation to the beach area at a site approved of by both the Engineer and TRPA. The work will include hauling out of the basin in leak proof trucks. All dump fees and disposal fees will be included within the unit price for the work.

Bid Item No. 12: TEMPORARY EROSION CONTROL / TREE PROTECTION

Temporary Erosion Control / Tree Protection shall be paid for at a lump sum price.

The contract lump sum price paid for Temporary Erosion Control / Tree Protection shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals to install, maintain, and remove all required Temporary Erosion Control / Tree Protection, including drainage inlet protection, gravel bags, fiber rolls, erosion control fencing, tree protection, and any other temporary erosion control measures as may be required by the permits, or permitting agencies, as shown on the construction drawings, as specified herein, and as directed by the Engineer. Included within this lump sum price will be the water quality testing as described in attached Division of Environmental Protection Permit.

Bid Item No. 13: REMOVE/DISPOSE OF EXISTING SHEET PILE WALL

The contract lump sum price paid for Remove/Dispose Of Existing Sheet Pile Wall shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals to remove the existing sheet pile wall. Removal shall include wall itself and any anchoring system that is exposed during the project construction. The wall shall be hauled off-site to a suitable disposal area.

Bid Item No. 14: REMOVE/DISPOSE OF EXISTING BOAT RAMP

The contract lump sum price paid for Remove/Dispose Of Existing Boat Ramp shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals to remove the existing boat ramp. The existing concrete ramp will be hauled off-site to a suitable disposal area.

Bid Item No. 15: REMOVE/DISPOSE OF EXISTING BOAT SLIPS

The contract lump sum price paid for Remove/Dispose Of Existing Boat Slips shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals to remove the existing boat slips and gangways. The slips will be hauled off-site to a suitable disposal area.