APPLICATION NUMBER 11-
Farmington Bay Waterfowl Management Area
Project Title: Farmington Bay Waterfowl Management Area Channel Cleaning Proposal
(FBWMA's Second Priority Project)

UTAH DIVISION OF WATER QUALITY
195 North 1950 West
PO Box 144870
Salt Lake City, Utah 84114-4870

Red Butte Creek Project Proposal Form

NOTE: Proposal must be no longer than 6 pages. Supplemental documents such as letters of support, information to demonstrate previous project implementation and other relative supportive documents may be submitted in addition to this form.

Applicant Name: Rich Hansen

Co-Applicant Name(s) (if applicable):

Project Title: **Farmington Bay Waterfowl Management Area Channel cleaning**

Agency or Business Name (if applicable): Utah Division of Wildlife Resources

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☐ Individual ☐ Non-Profit ☒ Govt. Agency ☐ Academic ☐ Commercial ☐ Other

1. **Estimated Project Costs:**

Labor	$ 98,000
Materials	$ 39,200
Equipment	$137,200
Administration	$ 39,200
Miscellaneous	$ 78,400
TOTAL	**$392,000**

Other sources of project funding:

____	$____	____	$____
Source	Amount	Source	Amount

Total project cost including other sources of funding: $392,000
(please include bids for labor, equipment, rentals, etc.)

2. Describe the purpose and need of the project:

This project is for channel cleaning and sediment removal at Farmington Bay Waterfowl Management Area (FBWMA). There are approximately 10 miles of water delivery channels that need to be cleaned out to improve water management capabilities at FBWMA.

Farmington Bay WMA is comprised of approximately 12,000 acres (with an indefinite west boundary into the Great Salt Lake), and is located at the base of the

Jordan River delta along the southeast bay of the Great Salt Lake in Davis and Salt Lake Counties. For management purposes, it is divided into four units; Unit 1, Unit 2, Turpin Unit, and the Crystal Unit. Private lands surround the majority of the WMA, with the Great Salt Lake bordering on the west. The development of FBWMA began on July 1, 1935 with a plan to convert the alkaline lake bed into productive waterfowl habitat. The first impoundments, Units 1 and 2, were completed in 1940 by the Civilian Conservation Corps.

At FBWMA, there are over 26.5 miles of channels and water delivery systems, over 42 miles of dikes and over 200 water control structures. The water is stair-stepped through a series of dikes and units to maximize the available water. Within the dikes are the water control structures that provide the ability to manage units at different water depths at different times of the year thus maximizing the benefit to waterfowl and shorebirds.

Since FBWMA is located at the end of the Jordan River watershed, the area receives an extreme amount of sedimentation annually. The general maintenance plan for FBWMA, and for all UDWR marshes on the Great Salt Lake, provides for silt removal and channel cleaning of all channels and water delivery systems every 5-8 years; however the pace of sediment accumulation is increasing and the ability to efficiently and effectively deliver and manage water throughout FBWMA is being negatively affected.

This channel cleaning project will result in an enhanced water delivery and management system, thereby improving approximately 12,000 acres of diverse wetland habitats. These habitats provide critical foraging, nesting, brooding and staging habitat for the thousands of shorebirds and waterfowl that annually use FBWMA. In addition, by removing sediments from the water delivery systems, any residual oil and oil-associated contaminants from the Red Butte oil spill that may have made it below the Burnham Dam and settled out in the water channels would potentially be removed with this project.

The two Chevron Oil Spill events in 2010 discharged oil into Red Butte Creek, the Jordan River and Liberty Park Pond, and impacted both wild and domestic waterfowl. Some birds had direct mortality, some had to be euthanized due to their injuries, while others became coated with oil and were hand-washed. It is UDWR's understanding that 391 birds were recovered and 65 waterfowl died as a result of the spill. The majority of these birds were wild Canada geese and mallards. In addition, waterfowl nesting and feeding habitats in these waterways were also negatively affected by the oil spill. This project will greatly enhance waterfowl habitats on FBWMA and will provide some measure of compensatory mitigation for both the Chevron Oil Spill impacts.

3. Estimated time frame

This project would be completed by September 1, 2014. With the removal of approximately 156,444 cubic yards of material, the estimated time to complete the project is approximately 156 days. A dragline machine is recommended for this project as it can

move an average of 1,000 cubic yards of material a day. The project would be undertaken during low water periods, typically January – March, unless water can be drawn down in certain ponds at other times of the year.

4. Location of the project

This project would include all of the major water delivery systems at FBWMA within both Davis and Salt Lake counties (approximately 10 miles of channels) (please reference the attached maps). The legal description of the areas would include: Township 2N Range 1W and occur in parts or in all of Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, and 22; in Township 3N Range 1W, in parts of Section 34, 35, and 36; in Township 2N Range 1W, in parts of Sections 13, 24, and 25.

5. Describe how the project will specifically enhance and protect waterways affected by the Red Butte releases

Beneficial uses of the Jordan River, which include warm water fish, water birds, and aquatic organisms in their food chains, are protected by a variety of water quality standards, but every segment of the Jordan River has been found to be impaired for one or more beneficial uses due to exceeding one or more water quality standards. Segments of the lower Jordan River are currently impaired due to low levels of dissolved oxygen, organic enrichment, total dissolved solids, high water temperatures, and *E. coli.* The Jordan River receives pollutants from many sources, including Utah Lake, wastewater treatment facilities, tributaries, stormwater, and diffuse runoff. While the quality of Jordan River water is not ideal for supporting the uses by fish and wildlife, it nevertheless serves as the life-blood of a series of ponds and wetlands at the lower end of the Jordan River and Farmington Bay. Management of the Jordan River is crucial to protecting the existing beneficial uses and potentially improving the condition of this waterway and wetland habitat that is supported by it.

The waterways of FBWMA will be enhanced by the removal of sediments that were potentially contaminated from the Red Butte oil spill releases. The sediment will be stacked on the dikes so that it can aerate. Removal of sediment will also reduce the sediment pool of nutrients that are available for transport to Farmington Bay wetlands, which are in a degraded condition because of eutrophication. Also, by having the sediment on the dikes and out of the wetlands, natural processes will break down the contaminated sediments over time in a terrestrial environment and prevent transport of any potentially harmful contaminant metabolites throughout aquatic habitat.

Another way FBWMA will be enhanced is an improved ability to move water through the FBWMA water conveyance system. With clean channels, water can be moved to and through all of the wetlands of FBWMA at the appropriate time of year. In the winter when all of the wetland ponds are drained, the enhanced ability to move water will allow for more total water to be drained from the ponds. This should increase the amount of contaminants and excess nutrients removed from the ponds and channels and potentially influence cycling of Great Salt Lake ecosystem contaminants of concern,

(including nutrients, selenium, and mercury), in a manner that will be beneficial to fish and wildlife; and reduce waterfowl and shorebird exposure to contaminants.

A side benefit of this project is that following wetland pond and channel drainage, carp will be more concentrated in the channels and will be easier to remove from the wetland ecosystem. Carp are non-native fish that are bottom feeders. Their feeding habits make the water turbid, so that submergent aquatic vegetation is unable to photosynthesize and grow; thus there is an overall reduction of aquatic vegetation and invertebrates for shorebird and waterfowl consumption.

Finally, with fewer contaminants and excess nutrients in the ponds, the sago pondweed productivity is anticipated to increase. With increased sago pondweed production, larger numbers of migrating waterfowl will be attracted to the area.

6. The Projects connectivity to other natural areas

Utah's GSL ecosystem is one the most important areas for migratory waterfowl in North America. It is a designated Western Hemispheric Shorebird Reserve Network (WHSRN) site with five separate Globally Important Bird Areas and it supports up to four million migrating and wintering waterfowl. At times, millions of waterbirds (waterfowl, shorebirds and wading birds) may be found on the GSL and the surrounding wetland/upland habitat complexes. Since the GSL is a dynamic system with the lake elevation changing seasonally and annually, the abundance and location of salt, brackish and freshwater habitats continually change over time. These changes create a continual diversity and continuity of available habitats, such that wildlife, especially waterfowl and shorebirds, will move around the GSL to find those habitats that supply their needs for nesting, feeding and staging. It is because of these habitats that the GSL has become so critically important to wildlife, with the Lake sometimes supporting over 50% of the worldwide populations of some avian species. For example, in an average year GSL wetlands support 25% of the continental northern pintail population, nearly 75% of the western tundra swan population, 55% of the western snowy plover population, the world's largest white-faced ibis breeding population, one of the largest concentrations of breeding redheads in North America, the most important cinnamon teal breeding area in North America, the largest gadwall breeding ground in the western United States, the largest ruddy duck breeding ground outside of the prairie pothole region, the world's largest breeding population of California gulls, and the world's largest staging concentration of Wilson's phalaropes.

The FBWMA is located immediately adjacent to the GSL and its freshwater ponds and marshes annually support thousands of waterbirds. With the increased ability to move water inside of FBWMA, the ability to move water outside of the western-most dikes into the GSL will also increase. Currently, wetlands outside of FBWMA impounded units are supported by a sheet flow of water. The sediment accumulation in the water delivery channels has severely limited the ability to effectively disperse this sheet flow water. This uniform sheet flow would greatly increase the production of Alkali bulrush, salt grass, Salicornia and other beneficial wetland plants. With this increase in production of beneficial wetland plants, there will also be an increase in

wildlife use of these wetlands within the GSL. The increased number of wetland plants would also improve water quality as these flows enter into the Great Salt Lake.

This project would not only enhance wetland habitats on the 12,000 acres of FBWMA, but also enhance approximately 6,000 acres of wetlands and saline playas of the Great Salt Lake.

7. **Describe any additional Social benefits of implementing this project:**

The increased production of beneficial wetland plants due to this project will attract more waterfowl, shorebirds and wading birds to Farmington Bay Waterfowl Management Area and surrounding GSL wetland habitats. Also, with the enhanced ability to control and move water when and where it needs to go, there should be an increased production in both waterfowl and shorebird species. The increased production would primarily result from nests not being flooded during storm events which can increase water levels beyond the channel and pond capacity. A higher nest success rate should translate into an increase in species viability over time which benefits not only that individual waterbird species, but also bird populations throughout the flyway. Overall societal benefits include increased consumptive and non-consumptive recreational opportunities, and an increase in the health of waterfowl populations. With more birds present, more birdwatchers, photographers, school groups, and hunters will visit and enjoy wildlife on FBWMA.

Also, with an increased ability to move water and concentrate carp populations, the ability to remove carp from the ponds will be much more successful. With a lot of dead carp, wintering bald eagles will be attracted to the area, which will then attract thousands of bird watchers and photographers. Bald Eagle Day, an annual watchable-wildlife event, is held at FBWMA and can attract 3,500 public visitors (2010).

8. Project plans and details, including rights to work on specified piece of land:

The FBWMA is owned and managed by the Utah Division of Wildlife Resources (UDWR). An RFP will be released requesting bids for this project. The dredging of sediment from channels is standard practice on all 24 state waterfowl management areas. UDWR prefers that a drag line be used for this project as the drag line has a longer reach than a track hoe and would not undercut our existing dikes. The material would be dredged from the channels and water delivery systems and side-cast on the existing dikes. By stacking the material on the existing dike, no wetlands would be filled from project activities. The material would be able to dry and aerate, and release any excess nutrients. After the material dries, a bull dozer will be used to level the material on top of the dike so that the dikes would again permit vehicle access.

On average, the 10 miles of channels are 20 feet wide and have 4 feet of sediment. With this calculation, it is estimated that 156,444 cubic yards of material will have to be removed from the channels and stacked on the dikes. A dragline machine will move approximately 1,000 cubic yards per day on average. It will take approximately 156 days to complete the project. It will cost $2.50/cubic yard removed.

While cleaning of water delivery channels is not typically regulated by the U.S. Army Corps of Engineers, the Army Corps of Engineers will be contacted and permits obtained if necessary.

9. Describe your experience in implementing projects of similar scope and magnitude:

I have worked for the Utah Division of Wildlife Resources for nine years. I was the assistant at Ogden Bay WMA for one year, the assistant at FBWMA for two years and I have been the manager of FBWMA for the last six and a half years. During that time, we have constructed a new unit (The Doug Miller Unit), cleaned approximately 8 miles of channels, breached and repaired a dike due to flooding, replaced ten failed water control structures and repaired miles of damaged dikes. In addition to this maintenance, we have sprayed thousands of acres of noxious weeds and improved the habitat quality for waterfowl, shorebirds, and wading birds. We have also managed 60 acres of wetlands and uplands for the Utah Transit Authority that was mitigation for Frontrunner transit project. We have met all of the U.S. Army Corps of Engineers mitigation requirements for this project. We have also created a 4 acre pond with islands as mitigation for the FBWMA Nature center road and parking lot.

10. Describe how ongoing maintenance of the project will be funded and carried out:

Ongoing maintenance of the project will be funded by obtaining funds through the UDWR Habitat Council. Following project implementation, FBWMA anticipates developing an annual rotational schedule to clean problem channel areas before they have a large sediment build-up.

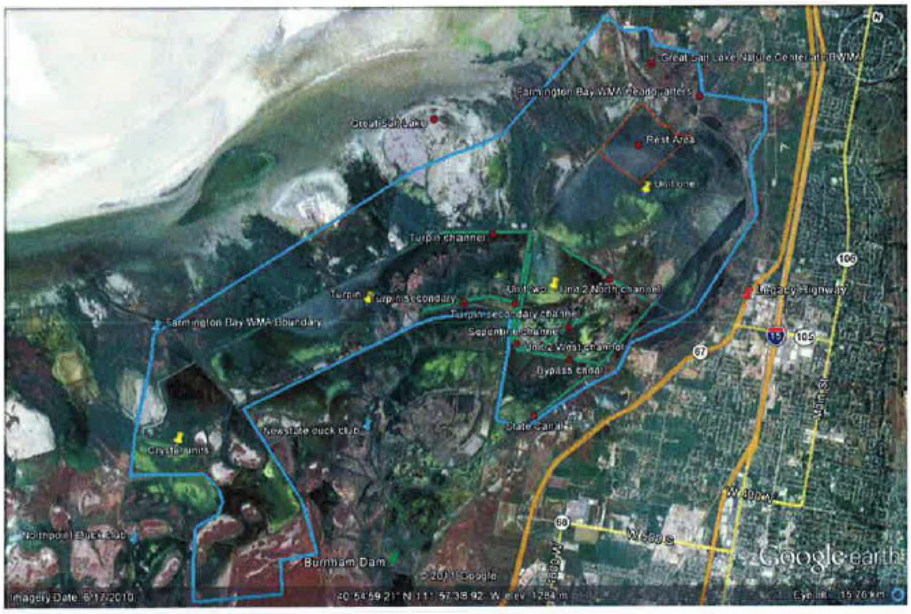
11. List consultants or agency partners that have participated in project development:

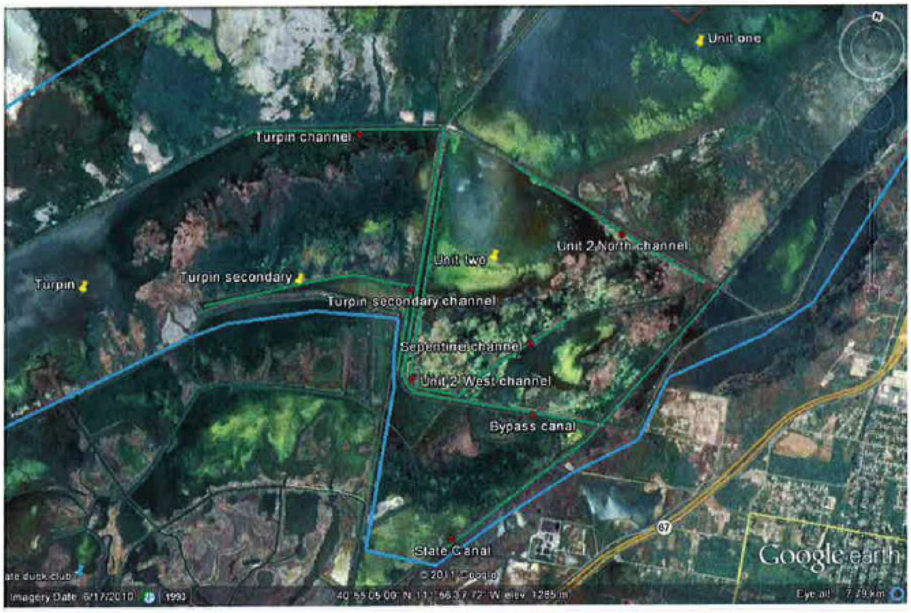
Ducks Unlimited supports the project and is willing to help out with engineering and Technical Assistance. Although these mitigation funds cannot be used to leverage additional federal funds, Ducks Unlimited can use these monies as non-match and show support towards a NAWCA grant that would benefit additional wetlands of the Great Salt Lake ecosystem. Please see the attached letter of support.

The following organizations also support this project. Please see the attached letters of support:

- USFWS
- Utah Airboat Association
- Delta Waterfowl
- Utah Mud Motor Association
- Utah Waterfowl Association

Signature Richard D Hanson Date 12/13/11
Applicant





SAME LETTERS OF SUPPORT AS APPLICATION NUMBER 10