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DU Wetlands No. 1 Weir Planting Plan



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SOUTHERN NEVADA WATER AUTHORITY Las Vegas Wash Project Coordination Team

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Table of Contents

Table of Contents	ii
List of Tables	ii
List of Figures	ii
1.0 PURPOSE AND GOALS OF THE PLANTING PLAN	1
2.0 PROJECT SUMMARY	1
2.1 Site Location	1
2.2 Prior Conditions	1
3.0 REVEGETATION DESIGN	1
3.1 Emergent Wetland Planting Areas	5
3.2 Non-Wetland Planting Areas	6
3.2.1 Non-Wetland Planting Design	7
4.0 PERMIT COMPLIANCE	7

List of Tables

List of Figures

Figure 1.	Location of the DU Wetlands No. 1 planting areas within the Clark County		
	Wetlands Park		
Figure 2.	Location of DU Wetlands No. 1 Weir planting areas		
Figure 3.	Salinity contours across the DU Wetlands No. 1 South non-wetland planting site4		
Figure 4.	Depth to water contours across the DU Wetlands No. 1 South non-wetland planting		
	site4		

Page No.

Figure 5.	Emergent wetland planting areas at DU Wetlands No. 1 Weir
Figure 6.	Non-wetland planting area at DU Wetlands No. 1 Weir
Figure 7.	Non-wetland planting layout at DU Wetlands No. 1 Weir

1.0 PURPOSE AND GOALS OF THE PLANTING PLAN

The purpose of this plan is to describe the revegetation strategies to be implemented at the DU Wetlands No. 1 Weir focusing primarily along the south side of the Las Vegas Wash (Wash). This site will provide additional erosion control and increase habitat for the diverse fauna found along the Wash. The general goals for this and other revegetation activities along the Wash are to develop ecologically functioning wetland, riparian, and upland areas that are self-sustaining in the long-term. Revegetation activities are coordinated by staff from the Southern Nevada Water Authority's (SNWA) Las Vegas Wash Project Coordination Team. Specific planning and strategies required to successfully revegetate the DU Wetlands No. 1 Weir site are described herein.

This plan describes only the planting design for the wetland/emergent areas as well as the southern non-wetland area. The northern non-wetland area adjacent to the DU Wetlands No. 1 Weir will be used by contractors during the construction of additional erosion control structures in the future. A new planting plan including these areas will be drafted once the area is vacated by construction activities.

2.0 PROJECT SUMMARY

2.1 Site Location

The DU Wetlands No. 1 Weir is located within the Clark County Wetlands Park (Figures 1 and 2). It is located along the lower Wash, approximately 1.2 miles downstream of the discharge of the Clark County Water Reclamation District. The project is located within the eastern half of Section 26 and western half of Section 25, Township 21 South, Range 22 East, MDB&M. APN 161-26-601-002 and APN 161-26-601-001.

2.2 Prior Conditions

Prior to construction, the footprint of the planting area was primarily dominated by salt cedar (*Tamarix ramosissima*) and common reed (*Phragmites australis*). Native vegetation documented on the site included quailbush (*Atriplex lentiformis*), arrowweed (*Pluchea sericea*), smartweed (*Polygonum lapathifolium*), southern cattail (*Typha domingensis*), and willow baccharis (*Baccharis salicina*). Wetland areas only had three species present; salt cedar, southern cattail, and common reed.

3.0 REVEGETATION DESIGN

Plantings at the DU Wetlands No. 1 Weir will be divided into two separate planting schemes; non-wetland and wetland. Soil salinity and depth to water measurements were taken at locations throughout the non-wetland planting area (Figures 3 and 4). These measurements were used in the decision making process as to which particular plant species would be used in the planting design of the non-wetland planting areas. Both wetland and non-wetland plant design was heavily influenced on successful species establishment at the DU Wetlands No. 2 Weir located just upstream to the northwest of the site. Extending this planting scheme will result in a contiguous habitat which will benefit local wildlife and thereby improve overall ecosystem function.



Figure 1: Location of the DU Wetlands No. 1 planting areas within the Clark County Wetlands Park.



Figure 2: Location of DU Wetlands No. 1 Weir planting areas.



Figure 3: Salinity contours across the DU Wetlands No. 1 South non-wetland planting site.



Figure 4: Depth to water contours across the DU Wetlands No. 1 South non-wetland planting site.

3.1 Emergent Wetland Planting Areas

The emergent planting areas are located along the banks of the Wash on both the north and south side of the channel, as well as within the Wash channel itself (Figures 2 and 5). The majority of plantings will take place where the riprap bank protection meets the water's edge. These plantings will consist of transplanted emergent material and pole cuttings. Beginning in the winter of 2013, emergent plant material will be harvested from nearby locations along the Wash, as well as the Demonstration Wetland within the Henderson Bird Viewing Preserve. In regards to plantings within the Wash channel itself, the area depicted in Figure 2 is an approximation. Field crews doing the actual plantings will identify specific areas where sediment is substantial enough to hold the transplanted plants, therefore the final plant layout is more likely to be scattered throughout the channel rather than a rectangle; the total acreage planted is expected to be similar. A total of 1.34 acres of wetlands are planned.

Wetland species harvested from the Wash and Demonstration Wetland and planted at DU1 Emergent (DU1E) areas are bulrush (*Schoenoplectus acutus* var. *occidentalis*), Olney three-square (*Schoenoplectus americanus*), and California tule (*Schoenoplectus californicus*). The quantity of each species is subject to change due to abundance and availability of each species in the areas in which transplants will be taken. Pole plantings will exclusively come from established areas along the Wash. Species collected will include sandbar willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), Fremont's cottonwood (*Populus fremontii*), and seep willow (*Baccharis salicifolia*).



Figure 5. Emergent wetland planting areas at DU Wetlands No. 1 Weir.

3.2 Non-Wetland Planting Areas

As part of the construction requirements of the DU Wetlands No. 1 Weir, the non-wetland area was hydroseeded with native plant seeds. The species included in the hydroseed mix were desert saltbush (*Atriplex polycarpa*), four-wing saltbush (*A. canescens*), and alkali sacaton (*Sporobolus airoides*). Container plantings will compliment these hydroseeded species to enhance the restoration of the area. The planting is scheduled to take place as part of the Las Vegas Wash Coordination Committee's 22nd semi-annual Green-Up event in the spring of 2013.

The non-wetland planting area (Figures 2 and 6) has depth to water and salinity concentrations that will likely provide a good planting substrate for typical non-wetland plants that have been planted in previous plantings along the Wash. A mixture of honey mesquite (*Prosopis glandulosa* var. *torreyana*) and screwbean mesquite (*Prosopis pubescens*) will provide the largest component of the new plantings. In addition to these trees, a mixture of shrubs and grasses will help provide a diversity of plant types mimicking nearby natural areas: willow baccharis (*Baccharis salicina*), globemallow (*Sphaeralcea ambigua*), desert marigold (*Baileya multiradiata*), desert wolfberry (*Lycium andersonii*), and alkali sacaton. A total of 3000 individual plants will be planted: 800 mesquites and 2200 shrubs and grasses (Table 1). The non-wetland area is just over seven acres in size, resulting in approximately 427 plants per acre.



Figure 6. Non- wetland planting area at DU Wetlands No. 1 Weir.

Baccharis salicina	Willow baccharis	400
Baileya multiradiata	Desert marigold	500
Lycium andersonii	Wolfberry	400
Prosopis glandulosa var. torreyana	Honey mesquite	400
Prosopis pubescens	Screwbean mesquite	400
Sporobolus airoides	Alkali sacaton	500
Sphaeralcea ambigua	Globemallow	400
TOTAL		3000

Table 1. DU Wetlands No. 1 Weir South revegetation species and quantity.

3.2.1 Non-Wetland Planting Design

The design of the non-wetland area was done to mimic natural establishment while acknowledging that the area is within a public park and will be visited by the public. Species will be generally grouped into areas commonly dominated by a single species, the exception being a large area with a mixture of smaller flowering shrubs (Figure 7). Where individual areas border each other, a transitional area will be created resulting in mixture of species from each adjoining area. Species locations were determined by the salinity and depth to water measurements (Figures 3 and 4). Specifically, alkali sacaton and both mesquites were placed in areas with the highest salinity. Depth to water did not have a significant impact on plant placement - only plant selection.

4.0 PERMIT COMPLIANCE

A single 404 permit from the U.S. Army Corps of Engineers (Corps) was granted for the DU Wetlands No. 1 Weir. The wetlands mitigation requirement under this permit (SPK-2010-00285-SG) is 1.22 acres. It is anticipated that the planting along the banks and within the Wash channel will be sufficient to meet this requirement. These wetland areas will be monitored to ensure they are meeting the criteria agreed upon between the Corps and SNWA in a letter dated July 15, 2010. Annual reports will be submitted to the Corps in regards to this project until all mitigation requirements have been met.

The contractor responsible for the construction of the DU Wetlands No. 1 Weir was issued a stormwater permit by the Nevada Division of Environmental Protection. This permit covers areas on the north and south side of the channel for the DU Wetlands No. 1 Weir, as well as two other weirs built concurrently downstream of this site (Duck Creek Confluence and Upper Narrows). The revegetation requirement to close this permit is to establish vegetation at 70% of the pre-existing total cover. Detailed monitoring was not done prior to construction; however, aerial imagery shows that approximately 50% of the area had pre-existing vegetative cover. Assuming it was all native vegetation, the requirement would be to establish 35% cover. It is expected that the plant density at the time of planting will ensure permit closure in one growing season, as well as far exceeding this permit's requirements once plantings have taken place at all three weirs.



Figure 7. Non-Wetland planting layout at DU Wetlands No. 1 Weir.