

Las Vegas Wash Coordination Committee

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Lower Narrows and Homestead Weirs Planting Plan



September 2011



SOUTHERN NEVADA
WATER AUTHORITY



**Lower Narrows and Homestead Weirs
Planting Plan**

**SOUTHERN NEVADA WATER AUTHORITY
Las Vegas Wash Project Coordination Team**

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1.0 PURPOSE AND GOALS OF THE PLANTING PLAN

Lower Narrows and Homestead Weirs are part of a large erosion control project currently being implemented along the Las Vegas Wash (Wash) as part of a comprehensive stabilization and ecological restoration strategy. These activities include the construction of weirs and bank stabilization structures. Because portions of these structures are constructed within the boundaries of jurisdictional waters of the U.S., they are subject to regulatory compliance as outlined by the Clean Water Act. Erosion control structures that are constructed along the Wash are typically permitted under the nationwide permit program. Nationwide permits (NWP) are a type of general permit issued by the U.S. Army Corps of Engineers (Corps) and are designed to regulate with little, if any, delay or paperwork certain activities having minimal impacts to jurisdictional waters of the U.S. Current stabilization activities in the Wash are permitted under NWP 27 (stream and wetland restoration activities) and NWP 3 (maintenance). Although stabilization activities are permitted under the NWP program, post-construction mitigation is required, and mitigation activities typically consist of planting native vegetation on areas adjoining the erosion control structure.

The purpose of this plan is to describe the revegetation strategies to be implemented at the recently completed Lower Narrows and Homestead Weirs. Not only do these revegetation activities help us meet our regulatory requirements, but they also provide for additional erosion control and habitat for the diverse fauna found in the Wash ecosystem (Appendix B). 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 Southern Nevada Water Authority's Las Vegas Wash Project Coordination Team. Specific activities required to successfully revegetate areas near the Lower Narrows and Homestead Weirs are described herein.

2.0 PROJECT SUMMARY

2.1 Site Location

The Lower Narrows and Homestead Weirs are located within the Clark County Wetlands Park (Figures 1 and 2). They are located along the lower Wash, approximately 4.4 and 4.8 miles downstream of the discharge of the Clark County Water Reclamation District, respectively. These two weirs were constructed simultaneously and adjacent to each other. Consequently, the areas to be used for revegetation for both weirs will be planned and planted as a single project. Planting locations are located on both the north and south side of the Wash channel. The total project spans from upstream of the Lower Narrows Weir to downstream of the Homestead Weir.

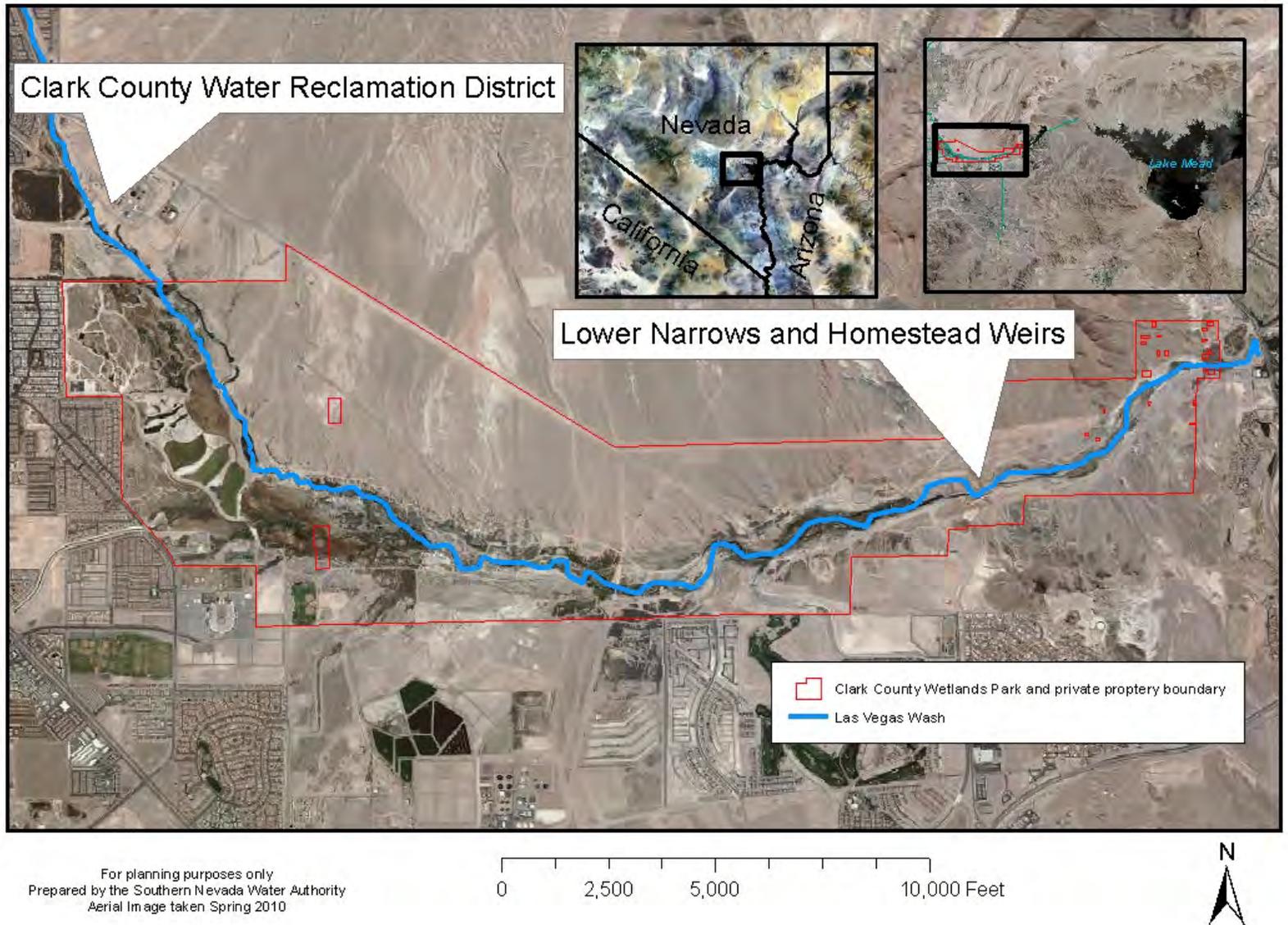


Figure 1: Project location within the Clark County Wetlands Park

2.2 Prior Conditions

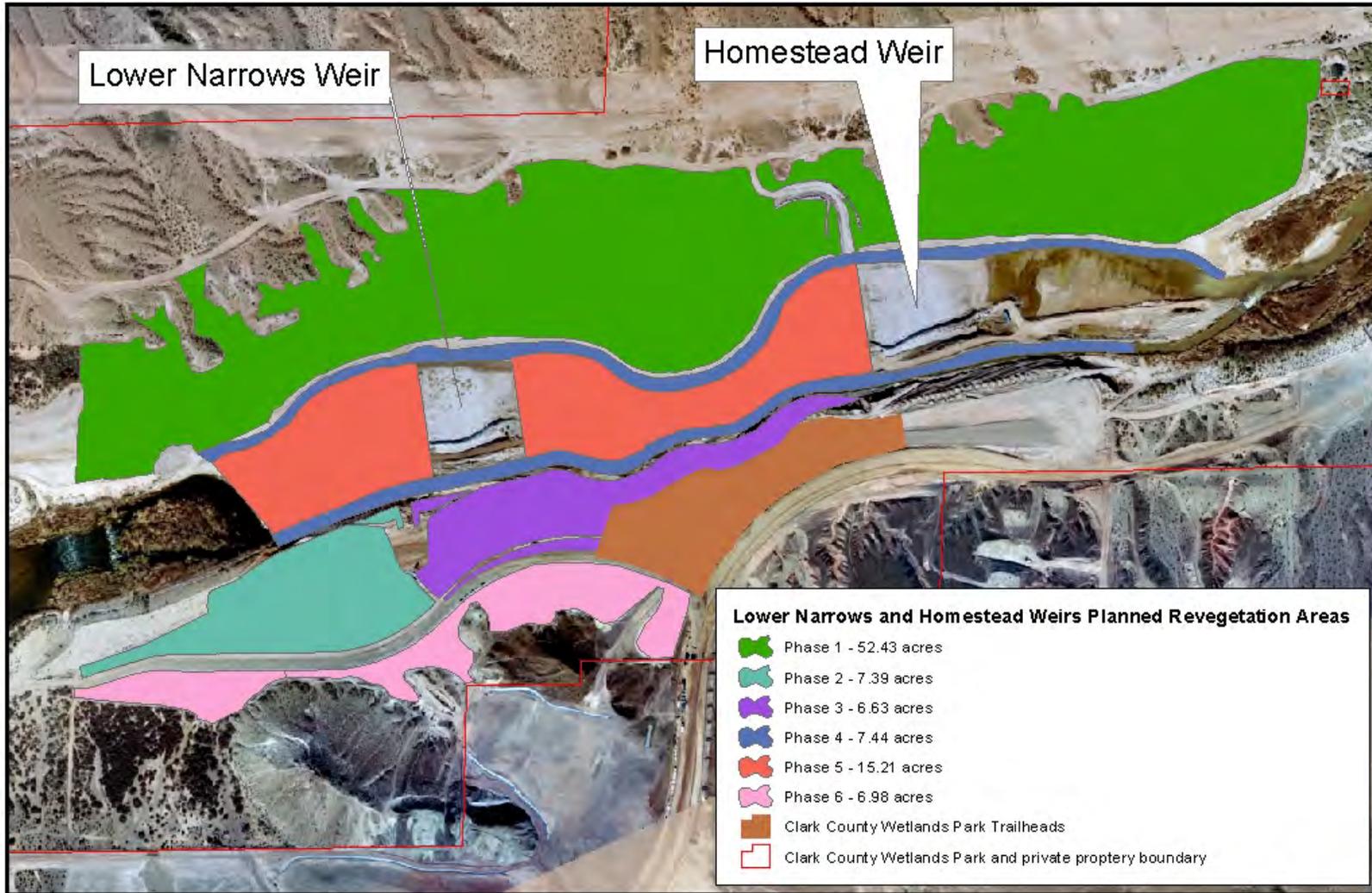
Prior to construction, the footprint of activity where the Lower Narrows and Homestead Weirs are currently was dominated by salt cedar (*Tamarix ramosissima*; Figure 2). This included wetland and riparian areas as well as non-wetland areas. The location where wetland and riparian vegetation existed prior to construction was completely removed and replaced with a new channel. Non-wetland areas which included salt cedar also included areas with substantial saltbush populations were altered near the channel. However the only significant change was the removal of all vegetation prior to construction commencing.



Figure 2: Conditions of Lower Narrows Weir prior to construction

3.0 REVEGETATION DESIGN

The predominant planting areas associated with these two weirs will involve upland or xeric plantings. These areas have been designated phases 1 through 6 (described below) and are illustrated in Figure 3. All upland areas will have hydroseeding applied as the final component of the weir construction. The seed mixture includes four-wing saltbush (*Atriplex canescens*), desert saltbush (*Atriplex polycarpa*), and alkali sacaton (*Sporobolus airoides*). Seed quantities and distribution amounts is described in Table 1. Wetland areas are described in phases 4 and 5, also illustrated in Figure 3. The only vegetation that will be present prior to planting are those individual plants that passively establish in the area.



For planning purposes only
 Prepared by the Southern Nevada Water Authority
 Aerial Image taken Spring 2010

0 500 1,000 2,000 Feet



Figure 3: Location of revegetation areas associated with the Lower Narrows and Homestead Weirs

Seeded Plant Species	Pure Live Seed lb Per Acre	Percent Mix By Weight	Number seeds per pound	Number seeds per ft ²
Four-wing Saltbush	7.5	65.0	52,000	8.95
Desert Saltbush	2.0	17.5	800,000	36.73
Alkali Sacaton	2.0	17.5	1,758,000	80.72
TOTAL	11.5	100.0	2,610,000	126.40

Table 1: Lower Narrows and Homestead Weirs hydroseed quantity and distribution

Phase numbers have been assigned to assist in planning the revegetation of the Lower Narrows and Homestead Weirs and don't necessarily represent the order in which they will be planted. As with all plantings along the Wash, site conditions regularly change and it will be important to regularly adjust planting schedules in order to achieve the best results and meet legal requirements and LVWCC obligations.

3.1 Phase 1 Revegetation

Phase 1 of the Lower Narrows and Homestead Weirs revegetation will be the largest phase of the project. Consisting of the entire upland portion on the north side of the Wash, this area measures 52.43 acres. The hydroseeding of this area took place in December of 2010. The seeding began to sprout and both *Atriplex* species began to grow after substantial rainfall in the spring of 2011. The irrigation system was installed in July of 2011 and has been irrigating approximately once a week. Strictly overhead irrigation will be used on this area.

There are no plans to plant additional plant material on this area. Recent hydroseeding followed immediately by irrigation along the Wash has yielded positive results. This area will be used to better quantify how effectively hydroseeding can be used to revegetate areas along the Wash without the addition of potted plant material.

3.2 Phase 2 Revegetation

Located upstream and to the south of the Lower Narrows Weir, phase 2 will be planted as part of the fall 2011 Green-Up event. The hydroseeding of this area took place in August of 2011. Measuring 7.39 acres, this area will have 3,855 plants planted by volunteers on October 8, 2011. A breakdown of the plants to be planted is in Table 1. Plants were chosen for this area by surveying surrounding natural areas and attempting to mimic or recreate vegetation communities that would naturally occur in this location.

The more xeric species; creosote bush, galleta grass, cheesebush, and white bursage will be predominantly located on the southern side of this area. The remaining species, which are more facultative, will be located on the northern side of this area, closer to the water. However, there will be some overlap of plant communities as would naturally occur. Irrigation for this site will include overhead irrigation which will cover the entire site in addition to drip irrigation being installed on all tree species.

Scientific name	Common Name	Quantity
<i>Gutierrezia sarothrae</i>	Snakeweed	1000
<i>Lepidium fremontii</i>	Fremont's pepperweed	1000
<i>Larrea tridentata</i>	Creosote Bush	975
<i>Ambrosia dumosa</i>	White Bursage	500
<i>Pleuraphis rigida</i>	Galleta grass	250
<i>Hymenoclea salsola</i>	Cheesebush	250
TOTAL		3975

Table 2: Lower Narrows and Homestead Weirs phase 2 revegetation species and quantity

3.3 Phase 3 Revegetation

Phase 3 is scheduled to be planted as part of the spring 2012 Green-Up. This will be the 20th Green-Up held at the Wash. The area is located directly to the south of the Lower Narrows Weir as well as in between the two weirs on the southern bank. The hydroseeding of this area took place at the same time as Phase 2. The plant palate is similar to that of Phase 2 as both sites are nearly identical in characteristics. The list of plants planned for this area is in Table 2. This area will be adjacent to the CCWP's Wells Trailhead, scheduled to be completed in 2011. Irrigation on this area will match phase 2 with overhead irrigation across the site and drip irrigation on tree species.

Scientific name	Common Name	Quantity
<i>Larrea tridentata</i>	Creosote Bush	1000
<i>Ambrosia dumosa</i>	White Bursage	1000
<i>Pleuraphis rigida</i>	Galleta grass	250
<i>Hymenoclea salsola</i>	Cheesebush	250
<i>Encelia virginensis</i>	Brittlebush	1000
TOTAL		3500

Table 3: Lower Narrows and Homestead Weirs phase 3 revegetation species and quantity

3.4 Phase 4 Revegetation

The rock rip rap banks lining both the north and south will be planted in phase 4 of the revegetation. These areas will be the location of riparian woody species to be planted in this area. Pole plantings of cottonwoods (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), sandbar willow (*Salix exigua*), and seep willow (*Baccharis salicifolia*) will be planted within the crevices of the rocks as well as directly adjacent to the bank protection within the Wash channel. Pole cuttings will be collected from existing plant material along the Wash. Collections will take place when in the deepest dormancy, January and February of 2012. Poles will be soaked until planting, an estimated week or two after collection.

3.5 Phase 5 Revegetation

Emergent plant material will be planted within the Wash channel in phase 5 of the revegetation. Various *Schoenoplectus* species will be harvested from other areas to be planted in areas upstream and downstream of the Lower Narrows Weir and upstream of the Homestead Weir. Species selected for harvesting include tule (*S. acutus* var. *occidentalis*), Olney three-square (*S.*

americanus), and California tule (*S. californicus*). The water depth in both areas is approximately 18 inches. Therefore transplanted plugs will need to have two and a half to three feet of top growth at the time of planting.

Locations currently being explored for harvesting emergent plant material are the Pahranaagat National Wildlife Refuge, the demonstration wetlands within the Henderson Bird Viewing Preserve, and from established populations within the Wash. All of these locations have been harvested from in the past and have yielded positive growth.

In addition to the harvesting of emergent plant material, it is expected that many wetland and riparian plants will passively establish in these areas. This will require maintenance to assure that the area has a minimum amount of invasive species.

3.6 Phase 6 Revegetation

This area is the furthest from the Wash channel of all planting areas at the southern end of the Lower Narrows and Homestead Weirs project area. This upland site had hydroseeding take place at the same time as phases 2 and 3. The center portion of this site is not complete. It is at a lower elevation than necessary and will have soil added during the construction of the Demonstration Replacement Weir. This will likely take place in two to three years. Portions of the site may be planted prior to this if the opportunity arises. Plants would be similar to those planted in phases 2 and 3.

4.0 PERMIT COMPLIANCE

A single 404 permit from the U.S. Army Corps of Engineers was granted for both the Lower Narrows and Homestead Weirs (SPK-2008-01417-SG). The wetland mitigation requirement under this permit is 16.3 acres. It is anticipated that the combination of the banks and emergent areas, phases 4 and 5, should be sufficient areas to meet these requirements. These wetland areas will be monitored to ensure they are meeting the criteria agreed upon between the Corps and SNWA, i.e. that mitigation areas are reaching functional attributes of a natural wetland system.

Stormwater permits issued by the Nevada Division of Environmental Protection also have requirements including keeping a minimum of 70%. With phases 2 and 3 receiving both hydroseeding and plantings during the Green-Ups, there is no reason to believe that this goal cannot be attained. Phases 1 and 6 however will have only hydroseed applied. It will be important to carefully monitor all sites to make sure that the combined areas are meeting the permit requirements. This will allow staff to implement additional plantings if necessary to meet the permit requirements.