SUNSHINE CANYON
Landfill

14747 San Fernando Road
Sylmar, CA 91342

April 30, 2020

Mr. Martins Aiyetiwa, P.E.
Senior Civil Engineer
County of Los Angeles, Department of Public Works
900 South Fremont Avenue
Alhambra, CA 91803-1331

Subject: Sunshine Canyon Landfill, Quarterly Vegetation Report
First Quarter 2020 Vegetation Report

Mr. Aiyetiwa,

This report has been prepared in accordance with the following:

- Condition 18B of the Finding of Conformance;
- Condition 44A of the Condition Use Permit (CUP)
- Los Angeles City Condition [Q] C.8 of the Ordinance No. 172,933.

This report presents the progress of the site's landscaping and revegetation activities for the first quarter of 2020. The intent of these reports is to provide detailed information regarding the site's efforts related to vegetation including vegetation of interim and permanent slopes and activities conducted for the on-site sage mitigation areas.

Architerra Design Group continues to assist site personnel in evaluating current site conditions relating to vegetation and provide recommendations for future efforts. This report includes their assessment of the pilot sage vegetation area as well as recommendations for this area. Architerra's evaluation is in addition to the required quarterly monitoring performed by our consulting biologist.

1.0 Interim Slopes

For the purposes of this report, interim slopes are those defined as slope areas where no activities have taken place for 180 days or longer. CUP Condition 44A requires "a temporary hydroseed vegetation cover on any slope or landfill area that is projected to be inactive for a period of greater than 180 days".

1.1 Hydroseeding Activities

Based on the results of the trial project completed in August 2017, a 57-acre vegetative cover project using the approved seed mix was completed in mid-December 2017. Additionally, the site completed hydroseeding approximately 155 acres; application of the approved seed mix was completed during 2019. The increase in hydroseeding application is a result of our normal winterization efforts along with slope revegetation as a result of the Saddle Ridge Fire that impacted Sylmar, CA. These areas had successful vegetation growth after the recent rains.

2.0 Permanent Slopes

Permanent slopes are defined as those where no landfilling activities will be conducted in the future.

As part of our Saddle Ridge Fire recovery efforts both the City and County permanent slopes of the landfill had hydroseed applied as necessary. This application of hydroseed was completed for soil stabilization purposes.

3.0 Non-Permanent Cut Slopes

Prior quarterly vegetation reports have illustrated one area above the front terminal sedimentation basin and one area near the temporary bypass road as “non-permanent cut slopes”. An evaluation of these areas has been conducted and it has been determined that these areas are “permanent slopes” because no landfilling activities will be conducted against these slopes in the future.

4.0 Activities Conducted in Sage Mitigation Areas – 1Q2020

During the first quarter of 2020, the following activities were conducted in the sage mitigation areas at the landfill.

4.1 City South Sage Pilot Project Area – Deck C

The lower Deck C mitigation project area was impacted by the Saddle Ridge fire in October 2019. As noted in JMA’s City-Side Sage Mitigation Area Lower Deck report a substantial amount of the lower deck was burned or scorched. However, in previous reports they note that because this was an established site, they expect natural re-

establishment of the native vegetation within the first two to three years. During their most recent visit, Architerra design group indicates that there has been a quick rebound of the Saltbrush species, Coast Sunflower, Coyote Bush and Creeping Wild Rye.

4.2 City South Deck B

The Deck B sage mitigation project began on April 9, 2018 and planting was completed by the end of the fourth quarter 2018. Soil samples indicated low pH and high salinity, as a result Deck B underwent a leaching schedule. Additional soil amendments and resampling were completed before planting began, which took place during the fourth quarter 2018. Pacific Restoration Group, Inc (PRG) has been working with Architerra for the completion of project. A summary of the progress is included in Attachment 3. The northwest portion of the of the Middle Deck burned during the Saddle Ridge Fire in October 2019. Architerra design group indicates that there is an abundance of new native seedlings, and that previously barren areas are now covered with a variety of Venturan CSS species.

4.3 County Sage Mitigation Area

The County sage mitigation area is located on the western side of the County portion of Sunshine Canyon Landfill (Drawing 1). As noted in the fourth quarter JMA County-Side Sage Mitigation Area report the upper half of the mitigation site was burned in the Saddle Ridge fire in October of 2019. No revegetation activities were conducted in this area during the first quarter of 2020, and, as noted in multiple JMA progress reports, the conditions in this mitigation area have remained unchanged for some time. JMA notes in their attached 2020 first quarter vegetation report that this area remains problematic for establishment of vegetation. Soil samples from this location indicate low pH, high salinity, and Boron present in native soils.

5.0 Assessments of Sage Mitigation Areas

Assessments of the site's sage mitigation areas are conducted by a qualified biologist on a quarterly basis. The following sections present a summary of the recommendations for the sage mitigation areas from JMA (City and

County sage mitigation areas) and Architerra (City South Sage Pilot Project Area (Deck C) and the proposed actions in response to the recommendations.

5.1 JMA Recommendations for City Sage Mitigation Areas

JMA's progress reports for the City Sage Mitigation Areas for the first quarter of 2020 are provided in Attachment 1. These reports include recommendations based on the assessments. Table 1 presents a summary of these recommendations and the proposed actions.

Table 1 – JMA Recommendations and Proposed Actions – City Sage Mitigation Areas, First Quarter 2020

AREA	RECOMMENDATION		PROPOSED ACTION
Lower, Middle, and Upper Decks (Decks C, B, and A)	1	Weed Control – Implement a year-round weed control program to control non-native species.	A weed control program is already in place on Deck C as part of the pilot project and will continue. A weed control program on Decks B and A will be implemented along with the mitigation plans for these areas.
Lower, Middle, and Upper Decks (Decks C, B, and A)	2	Prohibit Access – Continue to prohibit vehicle access to mitigation areas.	Repairs to the T-post fencing will be made as needed.
Upper Deck (Deck A)	3	Improve root zone and soil conditions	This will be addressed when the plans for Deck A is developed. Actions were taken to address improving the root zone in Decks B & C; it is expected that similar actions will be incorporated into the plans for Deck A.
Upper Deck (Deck A)	4	Plant natives in areas dominated with non-natives	This will be addressed when the plans for Deck A are developed. Various planting methods were used for the construction of the pilot project on Decks B & C; it is expected that similar actions will be incorporated into the plans for Deck A.
Upper Deck (Deck A)	5	Reseeding – apply native seeds during the rainy season after soil mounds have been established	This will be addressed when plans for Deck A are developed

JMA also recommended that a monitoring biologist should be present during weed control activities or the native plants should be flagged to

ensure only non-native species are removed. A monitoring biologist will be consulted prior to any weed control activities to ensure native plants are protected.

5.2 JMA Recommendations for County Sage Mitigation Area

Table 2 presents a summary of the recommendations proposed by JMA based on the assessment of the County Sage Mitigation Area and the proposed actions. Please refer to the full recommendations in the JMA reports in Attachment 2.

Table 2 – JMA Recommendations and Proposed Actions – County Sage Mitigation Area, First Quarter 2020

AREA	RECOMMENDATION		PROPOSED ACTION
County Sage Mitigation Area	1	Create benches to control soil erosion and improve soil conditions to improve plant establishment and seed dispersal	This recommendation will be considered at a later date.
County Sage Mitigation Area	2	Reseed and plant container plants	This recommendation will be considered at a later date.
County Sage Mitigation Area	3	Plant within view sheds	This recommendation will be considered at a later date.
County Sage Mitigation Area	4	Use soil amendments	This recommendation will be considered at a later date.
County Sage Mitigation Area	5	Signage – Install signage indicating revegetation efforts.	Due to the slopes, stormwater channel and overall difficulty to access this area, personnel are limited to access this area.
County Sage Mitigation Area	6	Weed Control – Continue weeding as needed on a quarterly basis.	This recommendation will be considered at a later date.

County Sage Mitigation Area	7	Prohibit Access – continue to prohibit vehicle access to mitigation deck.	This is currently being done, no further effort is planned in the near future.
County Sage Mitigation Area	8	Employee Awareness – conduct employee awareness training.	This is currently being done as part of our Environmental Communication efforts.

5.3 Architerra Inspection for City South Sage Mitigation Pilot Project Area – First Quarter 2020

The inspection report is included in Attachment 3 along with photos of the area taken at the photo stations.

5.4 Quarterly Assessment of City South Sage Pilot Project Area

The methodology for assessment of the City South Sage Pilot Project Area developed by JMA was included in the first quarter 2015 Vegetation Report. The evaluation report for the first quarter of 2020 based on this methodology is included in Attachment 4 and Attachment 5 for Deck C and Deck B, respectively.

6.0 Status of Other Vegetated Areas

Big Cone Douglas Fir Tree Mitigation

As reported in the vegetation report for the first quarter of 2015, 200 Big Cone Douglas fir tree saplings were planted the third week of March 2015. These trees continue to be monitored and maintenance activities will be conducted in this mitigation area for the remainder of 2020.

Please do not hesitate to contact me at (818) 362-2096 if you have any questions.

Sincerely,

Tuong-Phu Ngo, P.E.
Environmental Manager
Sunshine Canyon Landfill

Cc: Ms. Dorcas Hanson-Lugo, SCL LEA
Mr. David Thompson, SCL LEA
Ms. Ly Lam, City of Los Angeles, Department of City Planning
Mr. Nicholas Hendricks, City of Los Angeles, Department of City Planning
Dr. Wen Yang, Los Angeles Regional Water Quality Control Board
Ms. Maria Masis, County of Los Angeles, Department of Regional Planning
Mr. Wayde Hunter, SCL CAC
Mr. Jim Aidukus, UltraSystems
County DPW Landfill Unit

Attachments

Attachment 1	JMA Progress Report, City-Side Sage Mitigation Area
Attachment 2	JMA Progress Report, County-Side Sage Mitigation Area
Attachment 3	Architerra Design Group, Field Observation Report, South City Sage Mitigation Pilot Project – 1Q2020
Attachment 4	JMA Quarterly Monitoring Report - Coastal Sage Scrub Deck C Pilot Study, 1Q2020
Attachment 5	JMA Quarterly Monitoring Report - Coastal Sage Scrub Deck B Pilot Study, 1Q2020

Drawing

Drawing 1	1Q2020 Site Vegetation Status and Activity

ATTACHMENT 1

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SUNSHINE CANYON LANDFILL MITIGATION SITES

Progress Report

City-Side Sage Mitigation Area

Submittal Date: April 28, 2020	**Inspection Date:** April 22, 2020
To: Tuong-phu Ngo, Environmental Manager	**From:** Greg Ainsworth, Monitoring Biologist **Prepared on behalf of Republic Services*

Lower Deck

General Comments:
The lower deck (Deck C) and surrounding area burned during the Saddleridge Fire in October, 2019. The fire burned a substantial amount of the lower deck, scorching some of the vegetation entirely and partially burning some of the vegetation. The irrigation within the lower deck also burned in the fire, as did the staked that marked the corners of the test plots. As such, the location of most of the test plots was approximated during this monitoring inspection. A substantial amount of regrowth has occurred following the fire. The most prevalent native observed within Deck C is currently California sunflower (*Encelia californica*). Areas that were previously dominated with Atriplex are largely replaced with mats of non-native brome grasses (*Bromus sp*.) and foxtail barley (*Hordeum jubatum*). During the inspection, a maintenance was removing shortpod mustard (*Hirschfeldia incana*) from Deck C. The non-native grasses within Deck C are currently flowering and they should be removed as soon as possible to prevent seed drop.

Native Plant Cover:	**Plant Health Issues:**	**Height of Native Species:**	**Native Species Richness:**
[ ] Dense	[ ] Disease/pests	[ ] 0" – 12"	[X] Low
[ ] Moderate	[ ] Plant stress	[X] 12" – 24"	[ ] Medium
[X] Minimal	[ ] Herbivory	[ ] 24" and above	[ ] High
	[X] Fire		

Weed Conditions

[X] Dense weed coverage	[ ] Weeds germinating /vegetative growth
[ ] Moderate weed coverage (seeding in high density)	[ ] Weeds flowering
	[X] Weeds setting seed
[ ] Minimal weed coverage	[ ] Weed desiccant/dormant

Comments: Areas that were previously dominated with Atriplex are largely replaced with mats of non-native brome grasses and foxtail barley. During the inspection, a maintenance was removing shortpod mustard (*Hirschfeldia incana*) from Deck C. The non-native grasses within Deck C are currently flowering and they should be removed as soon as possible to prevent seed drop.

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Middle Deck

General Comments:

The Middle Deck partially burned during the October Saddleridge Fire, including its irrigation system. Approximately 35% of the vegetation that was previously planted was dominated by sage scrub plantings/seedlings and 30% by non-native grasses. A substantial amount of the planted vegetation on the Middle Deck completely burned in the fire; however, a large amount has resprouted, mostly consisting of herbaceous species with an overwhelmingly dominance of yarrow (*Achillea millefolium*).

Native Plant Cover:	**Plant Health Issues:**	**Height of Species:**	**Native Species Richness:**
[ ] Dense [ ] Moderate [X] Minimal	[ ] Disease/pests [ ] Plant stress [ ] Excessive herbivory [X] Fire	[ ] 0" – 12" [X] 12" – 24" [ ] 24" and above	[X] Low [ ] Medium [ ] High

Weed Conditions

[ ] Dense weed coverage [X] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[ ] Weeds germinating /vegetative growth [ ] Weeds flowering [ ] Weeds setting seed [ ] Weed desiccant/dormant

Comments: Seedlings of undetermined non-native grass species are present within the burned areas of the Middle Deck; however, in general, the weed cover is generally low-to-moderate.

UPPER DECK

General Comments: The southern half of the Upper Deck was burned by the Saddleridge Fire. Overall, the upper deck continues to be sparsely covered with native vegetation, and total vegetation coverage is sparse due to compacted and poor soil conditions. However, as observed during previous springtime monitoring events, there is a stand of native California goldfields (*Lasthenia californica*) located in the southern-center of the Upper Deck that is impressive (see photo at end of report). Vegetation is dominant in this portion of the Upper Deck, which includes non-native species, demonstrating that the soils in this portion of the deck are suitable for supporting native vegetation. However, the soils elsewhere on the Upper Deck appear to be heavily compacted and gravelly and vegetation coverage in these areas is especially sparse. Evidence of previous seeding is no longer discernible within the Upper Deck

Non-native herbaceous species that dominate the vegetation on the Upper Deck currently include wild oats (*Avena fatua*), brome grasses (*Bromus sp.*) and shortpod mustard. Buckwheat is the dominant perennial woody plant that is present; however, overall natural recruitment within the Upper Deck is low due to poor and a dry soil conditions.

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Native Plant Cover:	Plant Health Issues:	Height of Species:	Native Species Richness:
[ ] Dense [ ] Moderate [X] Minimal	[ ] Disease/pests [ ] Plant stress [ ] Excessive herbivory	[ ] 0" – 12" [X] 12" – 24" [ ] 24" and above	[X] Low [ ] Medium [ ] High

Weed Conditions	
[ ] Dense weed coverage [X] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[ ] Weeds germinating /vegetative growth [X] Weeds flowering [X] Weeds setting seed [ ] Weed desiccant/dormant

Comments: Weeds continue to grow without any level of control within the Upper Deck. Wild oats, brome grasses, and shortpod mustard are currently dominant.

RECOMMENDATIONS

Lower and Middle Decks

• **Weed control.** Implement a year-round weed control program to control non-native species. The weed control program should incorporate both chemical and mechanical control practices. Following weed control, any dead material harboring seeds should be removed to an off-site location to the extent feasible. In particular, dense areas covered with brome grasses and barley should be controlled by removing flowers and immature seeds heads before they drop. These areas should be reseeded with native herbaceous species that are known to grow well in the lower (and middle) decks, particularly *Leymus triticoides* and *Achillea millefolium*.

A monitoring biologist should be present during weed control activities or flag the native plants that should remain to ensure only non-native species are removed. A biologist should verify that the weed removal methodology is sound and does not encourage re-colonizing of non-natives. Weeding is best performed just before, or at the onset of flowering, but before seed set. If seeds are already present, additional care should be taken to remove the plants with the seeds attached, or the seeds should be removed from the plants prior to the plant removal. A consistent weed abatement schedule will reduce the potential for non-natives to set seed. Soil disturbance should be limited by hand weeding, where possible, and weeds should be disposed of off-site to avoid any reinfestation through reseeding or from plant propagules. If hand weeding is not possible, the monitoring biologist should be consulted regarding the appropriate method of weed removal. For example, using mechanical equipment to remove flowers and immature seed heads may be appropriate where dense mats of non-native grasses have established. If there continues to be high incidence of weed infestation, weed control may need to be increased to every four to six weeks. Otherwise, weeds should continue to be monitored and controlled on a quarterly basis.

• **Prohibit access.** Continue to prohibit vehicle access to mitigation areas.

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Upper Deck

• **Improve root zone and soil conditions.** Continue to investigate ways to import the soil layer to improve the root penetration and saturation zone to enable plant growth in heavily compacted areas. Consider applying soil in random undulations or uneven mounds to improve soil porosity and filtration and to control soluble salts from leaching from existing layer.

If permissible, prior to seeding (broadcast, hydroseeding, or drilling) native species, incorporate a soil amendment or mulch with high organic content by tilling into the top 12 inches of the existing compacted soils to improve soil texture, drainage, porosity, and aerobic conditions. If an organic mulch or soil amendment is not feasible or available, incorporate available soil from on-borrow sites within the landfill that have the appropriate, so long as these borrowed soils have been determined to not have toxic conditions such as boron or high salinity.

• **Plant natives in areas dominated with non-natives.** The vegetated areas on the middle deck that are currently dominated with annual, non-native species have decent soil-texture conditions. These areas are not near as compacted as adjacent areas that are gravelly and mostly void of vegetation. In general, the soil texture within the vegetated areas with non-native vegetation is friable down to approximately 8-12 inches in depth. Various planting methods (i.e., planting container plants and hydroseeding) may be used to re-establish native plants on the middle and upper decks where non-natives currently dominate.

• **Weed control.** Implement a year-round weed control program to control non-native species. The weed control program should incorporate both chemical and mechanical control practices. Following weed control, any dead material harboring seeds should be removed to an off-site location to the extent feasible.

A monitoring biologist should be present during weed control activities or flag the native plants that should remain to ensure only non-native species are removed. A biologist should verify that the weed removal methodology is sound and does not encourage re-colonizing of non-natives. Weeding is best performed just before, or at the onset of flowering, but before seed set. If seeds are already present, additional care should be taken to remove the plants with the seeds attached, or the seeds should be removed from the plants prior to the plant removal. A consistent weed abatement schedule will reduce the potential for non-natives to set seed. Soil disturbance should be limited by hand weeding, where possible, and weeds should be disposed of off-site to avoid any reinfestation through reseeding or from plant propagules. If hand weeding is not possible, the monitoring biologist should be consulted regarding the appropriate method of weed removal. For example, using mechanical equipment to remove flowers and immature seed heads may be appropriate where dense mats of non-native grasses have established. If there continues to be high incidence of weed infestation, weed control may need to be increased to every four to six weeks. Otherwise, weeds should continue to be monitored and controlled on a quarterly basis.

• **Reseeding.** Following the application of soil mounds as previously described, apply native seed (by means of broadcast seeding, hydroseeding or drilling) during the rainy season, between December and March, or prior to a forecasted rain event.

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- **Prohibit access.** Continue to prohibit vehicle access to mitigation areas.

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Progress Report

City-Side Sage Mitigation Area

Photo Locations

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Progress Report

City-Side Sage Mitigation Area

Photo 1. Facing west at lower deck. View of eastern limits that was dominated with *Atriplex* species and California sunflower (*Encelia californica*) prior to the October 2019 Saddleridge Fire. Maintenance crew can be seen removing shortpod mustard.

Photo 2. Facing east at lower deck from western boundary.

No photo of Middle Deck was taken during this monitoring period. See quarterly pilot study report for photos of Middle Deck

Photo 4. Facing west at the easterly-facing slope located between middle and upper decks. The vegetation on the slopes below the upper deck is dominated with CA buckwheat and annual non-native grasses.

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Progress Report

City-Side Sage Mitigation Area

Photo 5. Facing northeast at upper deck. This area is compacted and gravelly and continues to be problematic for supporting vegetation. Annual non-native grasses and some CA buckwheat shrubs are evident in the background.
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Photo 6. Facing southwest at upper deck. The area shown in this photo is dominated by wild oats and California goldfields

ATTACHMENT 2

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SUNSHINE CANYON LANDFILL MITIGATION SITES

Progress Report

County-Side Sage Mitigation Area

Submittal Date: April 28, 2019	**Inspection Date:** April 22, 2019
To: Tuong-phu Ngo, Environmental Manager	**From:** Greg Ainsworth, Monitoring Biologist ***Prepared on behalf of Republic Services***

STATUS OF HYDROSEEDING

Conditions:

[ ] Fully covered [ ] Moderately covered [X] Barely covered

Comments:

Conditions on the county-side sage mitigation area remain relatively unchanged. Areas that are moderately covered with native and non-native vegetation are concentrated. A substantial portion of the county-side mitigation area continues to be bare and problematic for establishment of vegetation, primarily because of highly eroded soils, steep slopes and Boron-toxic soils (See Recommendations).

Native plant coverage is similar to the previous quarterly monitoring reports. The southern-half of the mitigation area has relatively good coverage of native species, mostly California buckwheat (*Eriogonum fasciculatum*) and California sunflower (*Encelia californica*). The native vegetation coverage is assumed to be a direct result of hydroseeding; however, some natural recruitment is apparent based on the various sizes of shrubs and hundreds of California sunflower seedlings that are present within the understory. Due to rocky (hydrophobic) soil conditions, soil erosion and Boron-toxic soils on the northern-half of the county-side mitigation area, minimal plant growth remains to be is present.

SEED MIX

Conditions: [ ] No sign of germination [ ] No cover of native plants from seed mix [ ] Sparse cover of native plants from seed mix	[ ] Dense cover of native plants from seed mix [X] Moderate cover of native plants from seed mix (where vegetation is present)

Comments:

Similar to the hydroseeded areas, the other areas that are moderately covered with vegetation are concentrated. A substantial portion of the county-side mitigation area continues to be bare and problematic for vegetation to become established. However, in areas where vegetation is present, there is a moderate coverage of native species, mostly California buckwheat and California sunflower.

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Germination and plant growth from hydroseeding or seed mix is not discernible. Similar to previous monitoring periods, a moderate cover of native plants exists within vegetated areas. Annual non-native grasses and forbs currently dominate the understory and serve as ground cover in most of the vegetated areas. Brome grasses (*Bromus sp.*), wild oats (*Avena fatua*), and shortpod mustard (*Hirschfeldia incana*) are the dominant non-native vegetation that is present, which, comprises approximately 25 percent of the total cover. California buckwheat dominates the native vegetation coverage with California sagebrush and California sunflower (*Encelia californica*) as co-dominants. These native species comprise of approximately 75 percent of the native vegetation cover in areas where vegetation is present. Other less dominant native species observed include golden bush (*Ericameria linearifolia*), coyote brush (*Baccharis pilularis*), black sage (*Salvia millifera*) and laurel sumac (*Malosma laurina*).

OVERALL NATIVE PLANT CONDITIONS

Plant Cover:	**Plant Health Issues:**	**Height:**	**Species Richness:**
[ ] Dense [X] Moderate [ ] Minimal	[ ] Disease/pests [ ] Plant stress [ ] Excessive herbivory	[ ] 0" – 12" [X] 12" – 24" [ ] 24" and above	[ ] Low [X] Medium [ ] High

Comments:

It should be noted that the plant cover rating above applies where vegetation is dominant in the southeastern portion of the mitigation area. Vegetation cover is moderate in the southeastern portion of the county-sage mitigation area and sparser along the upper slopes where rocky conditions occur. The majority of the northern and upper portions of the mitigation area continue to have minimal coverage. Bare areas and non-native annual grasses are intermixed; however, the northern and upper areas continue to be mostly bare where erosion and rocks are apparent. Native vegetation coverage is good in vegetated areas and the amount of non-native grasses that are present is expected when compared to sparsely covered areas of California buckwheat in the region.

As indicated previously, California buckwheat dominants the native cover with *Encelia californica* as a co-dominant. Establishment of vegetation is problematic due to rocky soils with poor soil structure, and boron toxicity has made plant growth (i.e., seed germination and recruitment) difficult. The species richness is low to medium within vegetated areas; however, species richness is considerably low when considering the entire county-sage mitigation area.

WEED CONDITIONS

Conditions:	
[ ] Dense weed coverage [X] Moderate weed coverage (seeding in high density) [ ] Minimal weed coverage	[ ] Weeds germinating [X] Weeds flowering [X] Weeds setting seed [ ] Weed desiccant/dormant

Comments:

Annual, non-native weed species consist primarily of brome grasses and wild oats, which are currently in flower, as well as patches of short-pod mustard (also currently flowering). Other established weeds that were observed include red-stemmed filaree (*Erodium cicutarium*) and

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(native) telegraph weed (*Heterotheca grandiflora*). Seedlings of Russian thistle (*Salsola kali*) are scattered within the vegetated areas, but in less densities than the other non-native species noted above.

MISCELLANEOUS

Conditions:

[ ] Trash [ ] Vandalism [ ] Erosion

Comments:

None

RECOMMENDATIONS

• **Create benches.** Consider creation of benches throughout the mitigation area to control soil erosion and to improve soil conditions to improve plant establishment and seed dispersal. This technique has been widely used on steep slopes and in areas where soil erosion is problematic. This technique also allows for opportunities to introduce a high quality soil layer above the poor soils that exist.

• **Reseed and plant container plants.** If creation of benches is feasible, planting methods should include Hydroseeding and broadcast seeding just before a forecasted rain event and planting with container plants with supplemental irrigation during the period of establishment. Container plants should only be planted if temporary irrigation source is available.

• **Plant within view sheds**. Consider planting native species on upper portion of the slope that is visible from public view sheds with appropriate native species. Planting should occur prior to fall/winter rains.

• **Use soil amendments.** Incorporate a soil amendment or mulch with high organic content in select areas as determined by a restoration specialist.

• **Signage.** Install signs indicating that the area is undergoing revegetation.

• **Weed control.** Continue weed control program as needed on a quarterly basis.

• **Prohibit access.** Continue to prohibit vehicle access to mitigation area. Extend fencing around southeastern and southern boundary of lower deck and review fencing on the upper deck to determine if additional area can be reasonably enclosed.

• **Employee awareness.** Conduct an employee awareness program to inform staff on the importance of preserving all restoration areas.

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Progress Report

County-Side Sage Mitigation Area

Photo Locations

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Progress Report

County-Side Sage Mitigation Area

Photo 1. Facing west at the county sage slope.

Photo 2. Facing west at the northern-half of the county sage hill, where plant growth has been problematic due to poor soil conditions.

ATTACHMENT 3

ARCHITERRA design group
landscape architecture and planning

ARCHITERRA DESIGN GROUP **FIELD OBSERVATION REPORT**

DATE OF VISIT:	04/14/20
PROJECT:	**Sunshine Canyon Mitigation Sites**
PROJECT NUMBER:	1214
PROJECT MANAGER:	Gregg Denson
SITE INSPECTION #:	
PURPOSE OF VISIT:	Review site conditions/Photo Catalog
TIME OF SITE VISIT:	10:00am
WEATHER/TEMPERATURE:	Windy 60°
ESTIMATED % COMPLETED:	100%
CONFORMANCE WITH SCHEDULE (+, -)	

WORK IN PROGRESS:	Weed abatement / Monitoring Period /Construction Observation
PRESENT ON SITE:	Gregg Denson

A site visit walk and evaluation has been completed to review the Venturan CSS vegetation establishment on the Trial Site (Deck C), Deck B and County Mitigation Slopes. Additional items noted during the site visit are as follows:

City-Side Sage Mitigation (Trial Site):

- Much change on both Deck B and C has happened since the fall Saddle Ridge Fire in the fall of 2019. Recent rains in March has bolstered the growth of both native and non-native exotic weed growth on the decks. As part of an effort to stabilize exposed slopes, new straw wattles were placed in the most exposed areas of Deck C. In some cases, hydroseeded even occurred to help revegetate areas that were graded and/or destroyed by the efforts to extinguish the fire.
- PM10 Berm Oak Trees were severely damaged from the fire, but some early signs of new sprouting are evident on a number of trees. It will take time for these canopies to reestablish to the density of what they were prior to the fire, but active growth is seen in perhaps 75% of the trees. Some have not flushed new growth and have either crown spouted or are so severely damaged, they may not rebound. Undesirable invasive Shortpod Mustard has been quick to establish under the open canopies of the PM10 Berm and needs to be addressed. During my visit of the decks, Oakridge Landscape was present with several workers targeting the Mustard within Deck C. After the deck removals, we suggest removals or at a minimum brush clearance of this area to stubble.
- Due to the burn, Deck C was left exposed and as a result, many new exotic weeds are beginning to establish. Oakridge Landscape needs to continue their weed abatement and remain aggressive during the spring to keep areas from being overrun. Active exotic weed growth on Deck C includes: Shortpod Mustard (*Hirshfeldia incana*), Yellow Star Thistle (*Centaurea solstitialis*) and Red Brome Grass (*Bromus madritensis*). With early spring heat arriving later this week, smaller seedlings of Russian Thistle (*Salsola ssp*.) will explode if not kept in check. Weed abatement within Deck C will need to be an on-going activity

during the spring months due to the damage and open soil areas now available as a result of the fire.

- Beyond the advantageous exotic weeds, there has also been a quick rebound and establishment of the CCS plant community, including the Saltbush species, Coast Sunflower, Coyote Bush and Creeping Wild Rye. Some evidence of Sage species and Deerweed can be seen, but in limited numbers.
- Restaking of the Photo Station locations and Quadrants will occur next quarter.

Flourishing mix of exotic weeds and CSS Venturan Species

New Coast Sunflower establishing adjacent to Shortpod Mustard

New Straw Wattles with emerging seedlings from recent hydroseeding

New Spouting of *Plantago erecta* (Plantain)

PM10 Berm covered in Red Brome Grass and Shortpod Mustard

Lasthenia californica (California Goldfields) blooming in new open area of Deck C

New California Sunflower adjacent to weed pile of Shortpod Mustard

PM10 Berm Oak Tree recovering and beginning to flush new growth

Close up showing recovery and new vegetative growth

Existing PM10 Berm Oak Tree not showing signs of recovery

East end of Deck C abundant with Shortpod Mustard

Weed abatement efforts focused on Shortpod Mustard

Large stand of Yellow Star Thistle

Evidence of quick recovery from Saddle Ridge Fire

December 2019

April 2020

December 2019

April 2020

ARCHITERRA DESIGN GROUP
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Phone (909) 484-2800, Fax (909) 484-2802

December 2019

April 2020

Lady Bugs (*Coccinellidae*) take refuge near the base of a Milk Thistle (*Silybum marianum*)

Overall view of Deck C (looking west)

City-Side Sage Mitigation (Deck B):

- Portions of Deck B burned during the Saddle Ridge Fire, but most of the damage came as a result of fire personnel vehicles driving onto the deck and breaking irrigation lines and moving dirt to fight the fire advancement. Surprisingly, Deck B has flourished with an abundance of new native seedlings. Areas that were mostly barren have now become covered with a variety of Venturan CSS species. The irrigation mainline and laterals are damaged and are not operational, however, due to the late winter and spring rains in March and April, vegetation that has established on the deck may not need irrigation to endure. Typically, irrigation would be dialed back during the spring and summer months after the third winter of growth, but after only two winters, it seems like the Deck B revegetation efforts may be able to persist, even without the additional year of irrigation. ADG will monitor the vegetation during the drier months to see how it responds.
- New straw wattles were placed along swales to minimize erosion and for the most part it was successful.
- Openings along the perimeter edge need to be filled in with the T-Bar stakes to eliminate vehicular traffic onto the deck. Staking was damaged and/or removed during the fire.
- A good portion of the existing CSS stand that was within the middle of the deck burned. Unlike most of the newly revegetated deck area, this middle portion has the most intensive areas of exotic weed establishment. Weeding efforts should begin immediately and focus on removing as much as possible within this area so that the surrounding deck does not become overrun.

December 2019

April 2020

Deck B is abundant in the establishment of California Buckwheat (*Eriogonum fasciculatum*)

Establishment of Bladderpod (*Isomeris arborea*) from seeding

Good diversity of Venturan CSS species growing on Deck B

Some areas remain barren do to fire vehicle damage and displacement of soils

Black Sage, California Sagebush and Desert Encelia seedlings establish within a field of Common Yarrow

Healthy White Sage (*Salvia apiana*) beginning to shoot up flowering spikes

Abundance of Shortpod Mustard seedlings within existing stand of CSS at Deck B

Straw wattles holding back sediment with native grasses (*Leymus*) within swaleline

Healthy stand of CSS with large Menzie's Goldenbush (*Isocoma menziesii*)

Native wildflowers beginning to bloom (California Poppy and Western Blue-Eyed Grass)

Seedling of *Eriodictyon*

Signed: Gregg Denson Date: 4-21-20

DISTRIBUTION

Republic Services	☑	Contractor	☑
Project Manager (Gregg Denson)	☑	Other_____	☐

ATTACHMENT 4

memorandum

date April 29, 2020

to Tuong-phu Ngo, Environmental Manager, Republic Services

from Greg Ainsworth, Consulting Biologist

subject Coastal Sage Scrub City South C Trial Plot Monitoring Report, Sunshine Canyon Landfill – 1st Quarter, 2020

INTRODUCTION

The majority of the Landfill's City South 'C' Trial Plot area, also referred to as Deck C, substantially burned during the Saddleridge Fire in October 2019. Most of the stakes that marked to corners of the sampling plots (i.e., quadrats) were removed by fire equipment and personnel or were burned from the fire. With the exception of quadrats A, B E, F and G, the remainder of the quadrats burned entirely as depicted in the photographs provided at the end of this report. Fire equipment, such as bulldozers, removed and/or crushed the vegetation that did not burn in quadrats A, B E, F and G. Non-native species, most notably brome grasses (*Bromus sp*.) and foxtail barley (*Hordeum jubatum*) have established in areas that were previously dominated with *Atriplex sp*.

On April 22, 2020, biologist Greg Ainsworth monitored the coastal sage scrub revegetation area at the Landfill's City South 'C' Trial Plot, which constitutes the 1st quarter monitoring of the Deck C trial plot for 2020. The sample methodology generally followed the *Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill* (JMA, April 23, 2014). Quadrat sampling of the sage pilot study area consists of four, 50-meter quadrats that are randomly sampled within each of the following three seeded areas: hydroseed, imprint and hand broadcast. The quadrats were randomly selected prior to the first initial monitoring event from a grid that was placed over the entire trial plot, and each quadrat is delineated in the field with wooden stakes. As shown on the attached planting plan, each quadrat that was sampled was given a corresponding letter from A-L.

A total of 200 meters were sampled for each of the three seeded areas and the following data was collected in each quadrat that was sampled:

- **Percent basil cover (shrubs)** –Visual estimate of the amount of basil cover within each quadrat for all shrub species.
- **Percent basil cover (herbs)** – Visual estimate of the amount of basil cover within each quadrat for all herb species.
- **Percent bare ground** – Visual estimate of the amount of available bare ground with no vegetation, but suitable for plant growth.
- **Percent rock or other** – Visual estimate of the amount of unavailable ground for supporting plant growth. Inhibitors generally included rocks and boulders, irrigation lines and valve boxes, and mulch.

- **Percent canopy** – Visual estimate of the percent canopy of each shrub and herbaceous species.
- **Photographs** – A photograph was taken from the southwest corner (facing northeast) of each quadrat.

To obtain estimate cover of each species, the point intercept method was used on quadrats A, B E, F and G, which consisted of data collection points every 0.5 meter along the perimeter of each quadrat. Sampling began at the southwest corner of each quadrat and continued around the quadrat in a clockwise direction. The species located precisely at every 0.5-meter point was tallied, including areas of bare ground, rock and other.

RESULTS

Below are the average data collected for the hydroseed, imprint, and hand broadcast application areas. The number in parenthesis represents the previous quarterly monitoring results.

Quadrat Sampling:

Average Hydroseed – Quadrats A, B, C, D

Percent basil cover (shrubs) – 3% (2%)

Percent basil cover (herbs) – 46% (5%)

Percent bare ground – 32% (83%)

Percent rock or other – 5% (5%)

Percent canopy (shrub) – 12% (8%)

Percent canopy (herb) – 61% (6%)

Average Imprint – Quadrats E, F, G H

Percent basil cover (shrubs) – 6% (10%)

Percent basil cover (herbs) – 24% (5%)

Percent bare ground – 28% (65%)

Percent rock or other – 5% (5%)

Percent canopy (shrub) – 22% (27%)

Percent canopy (herb) – 49% (7%)

Average Hand Broadcast – Quadrats I, J, K L (average)

Percent basil cover (shrubs) – 1% (0%)

Percent basil cover (herbs) –45% (4%)

Percent bare ground – 32% (88%)

Percent rock or other – 7% (7%)

Percent canopy (shrub) – 6% (5%)

Percent canopy (herb) – 64% (5%)

Point Intercept:

The representation of each species within a quadrat was estimated by broad cover classes (<1%, 1-5%, 5-25%, 25-50%, 50-75% and >75%). The percent cover of each species based on the point intercept method is presented in the following tables.

Hydroseed– Quadrats A, B, C, D (average)

	Plot A		Plot B		Plot C		Plot D	
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Adenostema fasciculatum								
Artemisia californica								
Atriplex lentiformis	6	12%	4	8%				
Atriplex polycarpa								
Atriplex spinosa								
Baccharis pilularis								
Encelia californica	2	4%	12	24%	8	16%	7	14%
Mimulus aurantiacus longiflorus								
Salvia apiana								
Salvia mellifera								
Achillia mellifoluim								
Acmispon glaber							1	2%
Eschscholzia californica								
Leymus triticoides								
Nasella pulchra								
Sisyrinchium bellum								
Vulpia microstachys								
Bromus sp.	9	18%	4	8%	5	10%	7	14%

	Plot A		Plot B		Plot C		Plot D	
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Centaurea melitensis								
Echinochloa crus-galli								
Erigeron canadensis							9	18%
Erodium cicutarium	1	2%						
Hirschfeldia incana	2	4%			2	4%	4	8%
Hordeum vulgare	28	56%	29	58%	24	48%	11	22%
Salsola kali								
Bare ground	3	6%			11	22%	19	38%

	Plot A	Plot B	Plot C	Plot D	A,B,C,D Percent Cover (average)
Percent Cover Native Shrub	**16%**	**32%**	**16%**	**14%**	**20%**
Percent Cover Native Herb	**0%**	**0%**	**0%**	**2%**	**1%**
Percent Cover Non-Native Shrub	**0%**	**0%**	**0%**	**0%**	**0%**
Percent Cover Non-Native Herb	**80%**	**66%**	**62%**	**62%**	**68%**
Percent Bare Ground	**6%**	**0%**	**11%**	**38%**	**14%**

Imprint – Quadrats E, F, G H (average)

		Plot E		Plot F		Plot G		Plot H	
	Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Native Shrubs	Adenostema fasciculatum								
	Artemisia californica								
	Atriplex lentiformis			3	6%				
	Atriplex polycarpa			2	4%				
	Atriplex spinosa	2	4%						
	Baccharis pilularis								
	Encelia californica	1	2%			5	10%	14	28%
	Mimulus aurantiacus longiflorus								
	Salvia apiana								
	Salvia mellifera								
Native Herbs	Achillia mellifoluim								
	Acmispon glaber								
	Eschscholzia californica								
	Leymus triticoides								
	Nasella pulchra								
	Sisyrinchium bellum								
	Vulpia microstachys								
Non-Native Herbs	Bromus sp.					4	8%	3	6%
	Centaurea melitensis								
	Echinochloa crus-galli								
	Erigeron canadensis					2	4%	7	14%
	Erodium cicutarium			3	6%				
	Hirschfeldia incana	5	10%	1	2%	1	2%		

		Plot E		Plot F		Plot G		Plot H	
	Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
	Hordeum vulgare	28	56%	25	50%	11	22%	3	6%
	Salsola kali								
	Bare ground	14	28%	15	30%	27	54%	23	46%

		Plot E	Plot F	Plot G	Plot H	E,F,G,H Percent Cover (average)
	Percent Cover Native Shrub	**6%**	**10%**	**10%**	**28%**	**14%**
	Percent Cover Native Herb	**0%**	**0%**	**0%**	**0%**	**0%**
	Percent Cover Non-Native Shrub	**0%**	**0%**	**0%**	**0%**	**0%**
	Percent Cover Non-Native Herb	**66%**	**58%**	**36%**	**26%**	**47%**
	Percent Bare Ground	**28%**	**30%**	**54%**	**46%**	**40%**

Hand Broadcast – Quadrats I, J, K L (average)

		Plot I		Plot J		Plot K		Plot L	
	Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover
Native Shrubs	Adenostema fasciculatum								
	Artemisia californica								
	Atriplex lentiformis								
	Atriplex polycarpa								
	Atriplex spinosa								
	Baccharis pilularis								
	Encelia californica			1	2%			9	18%
	Mimulus aurantiacus longiflorus								
	Salvia apiana								
	Salvia mellifera								
Native Herbs	Achillia mellifoluim								
	Acmispon glaber								
	Eschscholzia californica								
	Leymus triticoides					31	62%		
	Nasella pulchra								
	Sisyrinchium bellum								
	Vulpia microstachys								
Non-Native Herbs	Bromus sp.	21	42%	28	56%			3	6%
	Centaurea melitensis								
	Echinochloa crus-galli								
	Erigeron canadensis							4	8%
	Erodium cicutarium							1	2%
	Hirschfeldia incana	1	2%	1	2%	1	2%		
	Hordeum vulgare	26	52%	8	16%				
	Salsola kali								
	Bare ground	2	4%	10	20%	18	36%	31	62%

		Plot I	Plot J	Plot K	Plot L	I,J,K,L Percent Cover (average)
	Percent Cover Native Shrub	**0%**	**2%**	**0%**	**18%**	**5%**
	Percent Cover Native Herb	**0%**	**0%**	**0%**	**0%**	**0%**
	Percent Cover Non-Native Shrub	**0%**	**0%**	**61%**	**0%**	**15%**
	Percent Cover Non-Native Herb	**96%**	**74%**	**2%**	**16%**	**47%**
	Percent Bare Ground	**4%**	**20%**	**18%**	**62%**	**26%**

DISCUSSION

As noted in the Introduction, the majority of the Landfill's City South 'C' Trial Plot area burned during the Saddleridge Fire in October 2019. With the exception of quadrats A, B E, F and G, the remainder quadrats entirely burned. Fire equipment, such as bulldozers, removed and/or crushed the vegetation that did not burn in quadrats A, B E, F and G. Most of the stakes that marked to corners of the sampling quadrats were removed by fire equipment and personnel or were burned from the fire; therefore, the locations of the quadrats that did not burn were approximated.

The City South 'C' area was planted in 2014 and prior to the Saddleridge Fire had become relatively densely covered with native vegetation that was dominated with saltbush and California sunflower, as well as with other native species in less concentrations, such as purple and black sage and California buckwheat. Seedlings of native sages are prevalent; however, *Atriplex* species do not appear to be recovering near as well. In fact, in many of the areas that were previously dominated by *Atriplex* are now dominated with dense mats of non-native grasses comprised of bromes (*Bromus sp*.) and barley (*Hordeum vulgare*). It is expected that the successional regrowth of herbaceous species and native shrubs will continue. A noticeable amount of California sunflower is currently resprouting throughout the study area.

Wildfires in Southern California have become more common in recent years and have impacted on the native landscape including established restoration sites. Direction that has been provided from such organizations as the California Department of Fish and Wildlife Service and the California Society of Ecological Restoration, recommending that revegetation efforts be focused on non-native weed control for reestablishing restoration sites, including previously undisturbed areas. Successional regrowth of herbaceous non-native species is to be expected within the first two to three years following a wildfire, and native shrubs will recover over a longer period of time through germination of existing seed within the topsoil and basal growth from charred plants. Successional growth of herbaceous species is important for providing natural erosion of topsoil. As the native shrubs begin to sprout, it is essential to control the spread the non-native herbaceous layer to minimize competition for water, nutrients and sunlight. Therefore, during the first two to three years following the fire, weed maintenance should occur no less than every four months, and special attention should be afforded to minimizing impacts to native seedlings and resprouts.

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Photograph Log

Quadrat A. Facing northeast from southwest corner.

Quadrat B. Facing northeast from southwest corner.

Quadrat C. Facing northeast from southwest corner.

Quadrat D. Facing northeast from southwest corner.

Quadrat E. Facing northeast from southwest corner.

Quadrat F. Facing northeast from southwest corner.

Quadrat G. Facing northeast from southwest corner.

Quadrat H. Facing northeast from southwest corner.

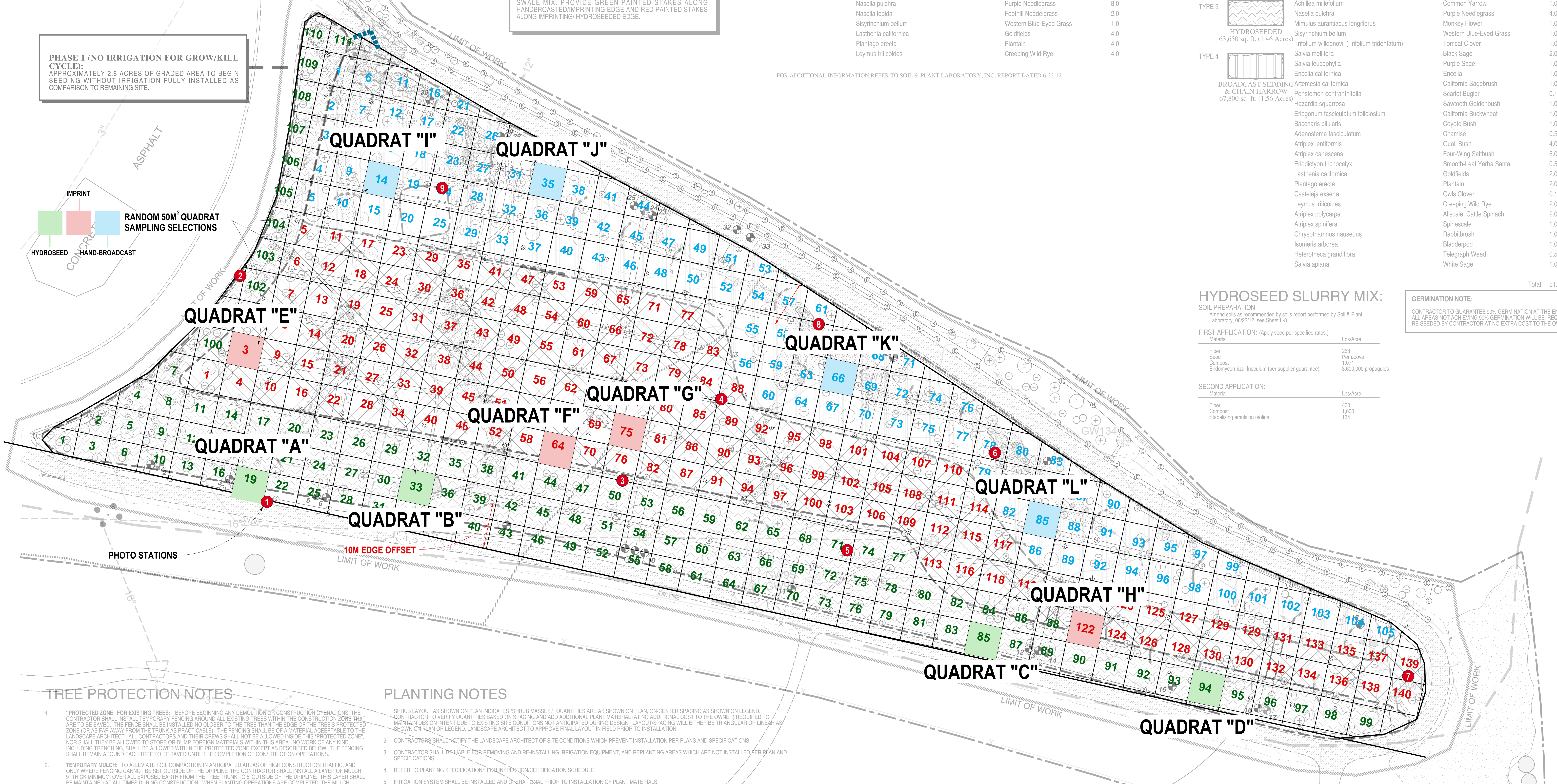
Quadrat I. Facing northeast from southwest corner.

Quadrat J. Facing northeast from southwest corner.

Quadrat K. Facing northeast from southwest corner.

Quadrat L. Facing northeast from southwest corner.

City South ‘C’ Trial Plot Planting Plan and Quadrat Layout



TYPE 2 SEED MIX NOTE:
CONTRACTOR TO COORDINATE TIMING OF SOIL IMPRINT WITH IRRIGATION LATERAL LINE LAYOUT SO THAT IMPRINTING EQUIPMENT CAN OPERATE WITHOUT CONFLICT. CONTRACTOR MAY TEMPORARILY DELAY PORTIONS OF FINAL LATERAL CONNECTIONS TO ALLOW FOR CIRCULATION AND ACCESS ACROSS AREA SHOWN.

AREA DELINEATION NOTE:
CONTRACTOR SHALL DELINEATE SEEDED AREAS BY INSTALLING 6' LONG STEEL T-BAR STAKES PLACED AT 30' O.C. AS SHOWN ON PLANS. STAKES SHALL BE SET 24" INTO GRADE. STAKING IS NOT REQUIRED ALONG OUTSIDE EDGES NEAR ROAD OR ALONG EDGES OF HAND BROADCASTED OVERSEEDED DRAINAGE SWALE MIX. PROVIDE GREEN PAINTED STAKES ALONG HANDBROASTED/IMPRINTING EDGE AND RED PAINTED STAKES ALONG IMPRINTING/ HYDROSEEDED EDGE.

PHASE 1 (NO IRRIGATION FOR GROW/KILL CYCLE):
APPROXIMATELY 2.8 ACRES OF GRADED AREA TO BEGIN SEEDING WITHOUT IRRIGATION FULLY INSTALLED AS COMPARISON TO REMAINING SITE.

HYDROSEEDED AREA AND SOIL IMPRINT AREA DELINEATION, RED MARKER POSTS SHALL BE PLACED AT 30' O.C. SEE AREA DELINEATION NOTE ABOVE.

APPLICATION METHOD
OVERSEEDED DRAINAGE SWALES (TYPE 1 ONLY)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 1 — BROADCAST SEEDING MIX 14,375 sq. ft. (0.33 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	8.0
Lotus scoparius	Deerweed	12.0
Nasella pulchra	Purple Needlegrass	8.0
Nasella lepida	Foothill Neddelgrass	2.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Lasthenia californica	Goldfields	4.0
Plantago erecta	Plantain	4.0
Leymus triticoides	Creeping Wild Rye	4.0

FOR ADDITIONAL INFORMATION REFER TO SOIL & PLANT LABORATORY, INC. REPORT DATED 6-22-12

APPLICATION METHOD
SEED MIX (TYPES 2, 3, 4)

ALL AREAS INDICATED WITH THE FOLLOWING SYMBOLS ARE TO BE SEEDED WITH THE FOLLOWING:

TYPE 2 — SOIL IMPRINTING 71,145 sq. ft. (1.63 Acres)
TYPE 3 — HYDROSEEDED 63,650 sq. ft. (1.46 Acres)
TYPE 4 — BROADCAST SEDDING & CHAIN HARROW 67,800 sq. ft. (1.56 Acres)

Botanical Name	Common Name	Rate (lbs/acre)
Eschscholzia californica	California Poppy	1.0
Lupinus bicolor	Miniature Lupine	2.0
Vulpia microstachys	Small Six-Weeks Grass	4.0
Lotus scoparius	Deerweed	6.0
Achillea millefolium	Common Yarrow	1.0
Nasella pulchra	Purple Needlegrass	4.0
Mimulus aurantiacus longiflorus	Monkey Flower	1.0
Sisyrinchium bellum	Western Blue-Eyed Grass	1.0
Trifolium willdenovii (Trifolium tridentatum)	Tomcat Clover	1.0
Salvia mellifera	Black Sage	2.0
Salvia leucophylla	Purple Sage	1.0
Encelia californica	Encelia	1.0
Artemesia californica	California Sagebrush	1.0
Penstemon centranthifolia	Scarlet Bugler	0.1
Hazardia squarrosa	Sawtooth Goldenbush	1.0
Eriogonum fasciculatum foliolosium	California Buckwheat	1.0
Baccharis pilularis	Coyote Bush	1.0
Adenostema fasciculatum	Chamise	0.5
Atriplex lentiformis	Quail Bush	4.0
Atriplex canescens	Four-Wing Saltbush	6.0
Eriodictyon trichocalyx	Smooth-Leaf Yerba Santa	0.5
Lasthenia californica	Goldfields	2.0
Plantago erecta	Plantain	2.0
Casteleja exserta	Owls Clover	0.1
Leymus triticoides	Creeping Wild Rye	2.0
Atriplex polycarpa	Allscale, Cattle Spinach	2.0
Atriplex spinifera	Spinescale	1.0
Chrysothamnus nauseous	Rabbitbrush	1.0
Isomeris arborea	Bladderpod	1.0
Heterotheca grandiflora	Telegraph Weed	0.5
Salvia apiana	White Sage	1.0
	Total:	51.7

HYDROSEED SLURRY MIX:

SOIL PREPARATION:
Amend soils as recommended by soils report performed by Soil & Plant Laboratory, 06/22/12, see Sheet L-8.

FIRST APPLICATION: (Apply seed per specified rates.)

Material	Lbs/Acre
Fiber	268
Seed	Per above
Compost	1,071
Endomycorrhizal Inoculum (per supplier guarantee)	3,600,000 propagules

SECOND APPLICATION:

Material	Lbs/Acre
Fiber	400
Compost	1,600
Stabalizing emulsion (solids)	134

GERMINATION NOTE:
CONTRACTOR TO GUARANTEE 90% GERMINATION AT THE END OF 90 DAYS. ALL AREAS NOT ACHIEVING 90% GERMINATION WILL BE REQUIRED TO BE RE-SEEDED BY CONTRACTOR AT NO EXTRA COST TO THE OWNER.

TREE PROTECTION NOTES

1. **"PROTECTED ZONE" FOR EXISTING TREES:** BEFORE BEGINNING ANY DEMOLITION OR CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL INSTALL TEMPORARY FENCING AROUND ALL EXISTING TREES WITHIN THE CONSTRUCTION ZONE THAT ARE TO BE SAVED. THE FENCE SHALL BE INSTALLED NO CLOSER TO THE TREE THAN THE EDGE OF THE TREE'S PROTECTED ZONE (OR AS FAR AWAY FROM THE TRUNK AS PRACTICABLE). THE FENCING SHALL BE OF A MATERIAL ACEEPTABLE TO THE LANDSCAPE ARCHITECT. ALL CONTRACTORS AND THEIR CREWS SHALL NOT BE ALLOWED INSIDE THIS "PROTECTED ZONE", NOR SHALL THEY BE ALLOWED TO STORE OR DUMP FOREIGN MATERIALS WITHIN THIS AREA. NO WORK OF ANY KIND, INCLUDING TRENCHING, SHALL BE ALLOWED WITHIN THE PROTECTED ZONE EXCEPT AS DESCRIBED BELOW. THE FENCING SHALL REMAIN AROUND EACH TREE TO BE SAVED UNTIL THE COMPLETION OF CONSTRUCTION OPERATIONS.
2. **TEMPORARY MULCH:** TO ALLEVIATE SOIL COMPACTION IN ANTICIPATED AREAS OF HIGH CONSTRUCTION TRAFFIC, AND ONLY WHERE FENCING CANNOT BE SET OUTSIDE OF THE DRIPLINE, THE CONTRACTOR SHALL INSTALL A LAYER OF MULCH, 9" THICK MINIMUM, OVER ALL EXPOSED EARTH FROM THE TREE TRUNK TO 5' OUTSIDE OF THE DRIPLINE. THIS LAYER SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. WHEN PLANTING OPERATIONS ARE COMPLETED, THE MULCH SHALL BE REDISTRIBUTED THROUGHOUT ALL PLANTING AREAS IN A 3" THICK "PERMANENT" MULCH LAYER.
3. **NECESSARY WORK:** WHEN IT BECOMES NECESSARY TO ENTER THE "PROTECTED ZONE", SUCH AS FOR FINE GRADING, IRRIGATION INSTALLATION, AND PLANTING OPERATIONS, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE FOLLOWING RULES:
   A. EVERY EFFORT SHALL BE MADE TO PRESERVE THE EXISTING GRADE AROUND LARGE TREES IN AS WIDE AN AREA AS POSSIBLE.
   B. TRENCHING WITHIN THE DRIPLINE OF EXISTING TREES SHALL BE PERFORMED BY HAND, AND WITH EXTREME CARE NOT TO SEVER ROOTS 1-1/2" IN DIAMETER AND LARGER. WHERE ROOTS 1-1/2" IN DIAMETER AND LARGER ARE ENCOUNTERED, THE CONTRACTOR SHALL TUNNEL UNDER SAID ROOTS. EXPOSED ROOTS THAT HAVE BEEN TUNNELED UNDER SHALL BE WRAPPED IN WET BURLAP AND KEPT MOIST WHILE THE TRENCH IS OPEN.
   C. WHERE ROOTS 2" IN DIAMETER OR LARGE MUST BE CUT DUE TO EXTENSIVE GRADE CHANGES, THOSE ROOTS MUST BE EXPOSED BY HAND DIGGING AND CUT CLEANLY. RAGGED CUTS GENERALLY DO NOT HEAL PROPERLY, AND MAY LEAVE THE TREE OPEN TO PESTS AND PATHOGENS.
   D. WHERE TRENCHING NEAR TREES HAS ALREADY OCCURRED FROM PREVIOUS CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL MAKE EVERY EFFORT TO CONFINE HIS TRENCHING OPERATIONS TO THE PREVIOUSLY-CREATED TRENCHES, WHILE ADHERING TO THE CONDITIONS SET FORTH IN 3B.
4. **POTENTIAL CONFLICTS:** THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARBORIST SHOULD ANY POTENTIAL CONFLICTS ARISE BETWEEN THESE SPECIFICATIONS AND/OR LARGE ROOTS ENCOUNTERED IN THE FIELD, AND CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT TAKE ANY ACTION IN SUCH CONFLICTS WITHOUT THE ARBORIST'S WRITTEN APPROVAL. THE ARBORIST SHALL HAVE FINAL AUTHORITY OVER ALL METHODS NECESSARY TO HELP ENSURE THE PROTECTION AND SURVIVAL OF EXISTING TREES.
6. **LANDSCAPE AND IRRIGATION (NATIVE OAKS ONLY):** ANY FUTURE LANDSCAPE AND IRRIGATION SHOULD ADHERE TO THE FOLLOWING GUIDELINES:
   A. NO IRRIGATION OR PLANTING SHOULD OCCUR CLOSER THAN 8'-10' FROM THE TRUNK.
   B. WHERE IRRIGATION DOES OCCUR WITHIN THE PROTECTED ZONE, DRIP IRRIGATION SHOULD BE USED WHEREVER POSSIBLE. ADDITIONALLY, ONLY LOW-WATER USING PLANTS SHOULD BE PLANTED WITHIN THE PROTECTED ZONE, SPACED FAR APART CLOSE TO THE TREE. PLANTS MAY BE SPACED CLOSER TOGETHER NEAR THE EDGE OF THE PROTECTED ZONE.

Underground Service Alert

CALL BEFORE YOU DIG

Call: TOLL FREE
1-800
422-4133

TWO WORKING DAYS BEFORE YOU DIG

PLANTING NOTES

1. SHRUB LAYOUT AS SHOWN ON PLAN INDICATES "SHRUB MASSES." QUANTITIES ARE AS SHOWN ON PLAN, ON-CENTER SPACING AS SHOWN ON LEGEND. CONTRACTOR TO VERIFY QUANTITIES BASED ON SPACING AND ADD ADDITIONAL PLANT MATERIAL (AT NO ADDITIONAL COST TO THE OWNER) REQUIRED TO MAINTAIN DESIGN INTENT DUE TO EXISTING SITE CONDITIONS NOT ANTICIPATED DURING DESIGN. LAYOUT/SPACING WILL EITHER BE TRIANGULAR OR LINEAR AS SHOWN ON PLAN OR LEGEND. LANDSCAPE ARCHITECT TO APPROVE FINAL LAYOUT IN FIELD PRIOR TO INSTALLATION.
2. CONTRACTORS SHALL NOTIFY THE LANDSCAPE ARCHITECT OF SITE CONDITIONS WHICH PREVENT INSTALLATION PER PLANS AND SPECIFICATIONS.
3. CONTRACTOR SHALL BE LIABLE FOR REMOVING AND RE-INSTALLING IRRIGATION EQUIPMENT, AND REPLANTING AREAS WHICH ARE NOT INSTALLED PER PLAN AND SPECIFICATIONS.
4. REFER TO PLANTING SPECIFICATIONS FOR INSPECTION/CERTIFICATION SCHEDULE.
5. IRRIGATION SYSTEM SHALL BE INSTALLED AND OPERATIONAL PRIOR TO INSTALLATION OF PLANT MATERIALS.
6. TREES AND SHRUBS SHALL BE PLANTED AFTER GRAVEL PLACEMENT, BUT NOT BEFORE IRRIGATION COVERAGE TEST NO. 1 HAS BEEN APPROVED. (SEE SPECIFICATIONS).
7. LANDSCAPE CONTRACTOR SHALL TAKE FOUR (4) SOIL SAMPLES FROM THE SITE AT LOCATIONS APPROVED BY THE LANDSCAPE ARCHITECT. THE SAMPLES SHALL BE TAKEN AT A DEPTH OF 6" AFTER ROUGH GRADING AND SUBMITTED TO AN APPROVED SOIL AND PLANT LABORATORY FOR AGRICULTURAL SUITABILITY TESTING. THE COST OF TESTING SHALL BE INCLUDED IN THE CONTRACTOR'S BID.
8. THE RECOMMENDATIONS OF THE SOIL REPORT SHALL SUPERSEDE THE SOIL PREPARATION AND BACKFILL MIX SPECIFICATIONS (SEE SPECIFICATIONS). THE CONTRACTOR SHALL SUBMIT A COPY OF ALL SOILS REPORTS TO THE LANDSCAPE ARCHITECT PRIOR TO MODIFICATION OF THESE SPECIFICATIONS.
9. SHREDDED MULCH INSTALLATION: INSTALL SHREDDED MULCH WITHIN BASINS OF ALL TREE AND SHRUB CONTAINER PLANTS PERDETAILS AND SPECIFICATIONS UNLESS OTHERWISE INDICATED ON PLANS.
10. CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS AND/OR REPLACEMENT OF ANY DAMAGED LANDSCAPE AREAS BEYOND THE LIMIT OF WORK, INCLUDING REPAIRING ANY IRRIGATION LINES/SPRINKLER HEADS, THAT IS A DIRECT RESULT OF THE LANDSCAPE CONSTRUCTION AND/OR HIS SUB-CONTRACTOR. REPLACEMENT ITEMS SHALL BE EXACT DUPLICATION OF ORIGINAL WORK OR PLANTS, UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT.
11. CLEAN-UP SHALL TAKE PLACE ON A DAILY BASIS UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN ALL GRADES AND FLOW LINES AS SHOWN ON THE GRADING PLAN.
13. SOIL AMENDMENTS SHALL BE PLACED AND INCORPORATED INTO SOILS AS DESIGNATED IN THE SOILS TEST COMPLETED BY SOILS AND PLANT LABORATORY, INC. DATED JUNE 22, 2012 PRIOR TO INSTALLATION OF PLANTS AND SEEDING. ANY ADDITIONAL SOIL AMENDMENTS NEEDED AS A RESULT OF THE SOIL TESTING, AS REQUIRED BY CONTRACTOR, SHALL BE PLACED PRIOR TO SEEDING AND PLANTING OF CONTAINER PLANTS.
14. PLANT MATERIAL SHALL BE FROM LOCAL SOURCES, AND WHERE POSSIBLE, FROM WITHIN SUNSHINE CANYON REGION.
15. CONTAINER PLANTS SHALL BE OBTAINED FROM A LOCAL SUPPLIER OR COMMERCIAL NURSERY EXPERIENCED IN THE PROPAGATION OF NATIVE PLANT SPECIES. PRIOR TO DELIVERY, THE ROOT SYSTEMS OF THE PLANTS WILL BE INSPECTED BY THE RESTORATION SPECIALIST TO ENSURE THAT ROOTS ARE STRAIGHT AND WELL ESTABLISHED. ROOT-BOUND PLANTS (THOSE WITH COILED ROOTS) WILL NOT BE ACCEPTED.
16. CONTAINER PLANTS SHALL BE INSTALLED ONLY BETWEEN NOVEMBER 1 AND MARCH 1 AND WHEN NATURAL RAINFALL OR IRRIGATION HAS MOISTENED THE SOIL. IN ALL PLANTING AREAS THE SOIL SURFACE WILL CONTAIN RESIDUAL MOISTURE WITHIN THE ROOT ZONE OF THE CONTAINER PLANTS TO BE INSTALLED. IF THE SOIL DOES NOT CONTAIN SUFFICIENT MOISTURE, THEN PRIOR TO INSTALLATION THE PLANTING AREA WILL BE WATERED FOR THREE CONSECUTIVE DAYS TO ADEQUATELY SATURATE THE SOIL TO A MINIMUM DEPTH OF ONE AND ONE-HALF TIMES THE DEPTH OF THE CONTAINERS TO BE PLANTED. WHEN THE SOIL HAS DRAINED TO FIELD CAPACITY (FULL MOISTURE CONTENT AFTER DRAINAGE OF SOIL PORE SPACE), AND WHEN THE SOIL IS DRY ENOUGH TO SUPPORT FOOT TRAFFIC, THE PLANTS INDICATED FOR THE SITE WILL BE PLANTED USING THE FOLLOWING PROCEDURE:
    - WITH A STANDARD EXCAVATION DEVICE (SHOVEL, AUGER, ETC.) EXCAVATE A HOLE SOMEWHAT WIDER THAN THE CONTAINER AND ONE INCH LESS THAN THE DEPTH OF THE CONTAINER TO THE CROWN OF THE ROOT BALL.
    - EACH PLANTING HOLE WILL BE FILLED WITH WATER AND ALLOWED TO DRAIN UNTIL NO FREE MOISTURE REMAINS IN THE HOLE.
    - IMMEDIATELY AFTER DRAINING, THE PLANT WILL BE REMOVED CAREFULLY FROM ITS CONTAINER AND THE ROOT VOLUME LOOSENED SOMEWHAT WITH GENTLE PRESSURE ON THE SIDES OF THE ROOT MASS.
    - THE PLANT WILL IMMEDIATELY BE PLACED IN THE PLANTING HOLE SO THAT THE TOP OF THE CONTAINER SURFACE WILL BE SLIGHTLY HIGHER THAN THE SOIL SURFACE AFTER REFILLING.
    - BACKFILL THE HOLE WITH NATIVE SOIL, MINIMIZING LARGE ORGANIC AND ROCK MATTER THAT MAY INHIBIT ROOT GROWTH.
    - FIRMLY PRESS DOWN SOIL AROUND THE ROOT-BALL TO ELIMINATE AIR SPACE WITHIN THE SOIL AND TO ENSURE GOOD ROOT TO SOIL CONTACT.
    - MAKE SURE THAT THE CROWN OF THE ROOT MASS IS AT OR SLIGHTLY ABOVE GRADE.
    - CREATE A STRUCTURAL BASIN AT THE OUTSIDE EDGE OF THE ROOT BALL TO SEQUESTER RAINWATER IN A LOCATION WHERE IT WILL INFILTRATE THE ROOT BALL.
    - DO NOT CREATE A DEPRESSION THAT WILL CAUSE WATER TO POND IN DIRECT CONTACT WITH THE STEM OF THE PLANT.

PLANTING LEGEND:

SYMBOL CALLOUT	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY
SHRUBS					
S-1	Artemisia californica	California Sagebrush	1 gal.	50/Acre	234
S-2	Baccharis pilularis	Coyote Bush	1 gal.	45/Acre	210
S-3	Mimulus auranticus longiflorus	Monkey Flower	1 gal.	30/Acre	140
S-4	Sambucus mexicana	Blue Elderberry	5 gal.	15/Acre	70
EX-1	Existing Vegetation to remain				

PHOTO SUBMITTAL NOTE:
ALL PLANT MATERIAL, INCLUDING TREES, SHRUBS, AND VINES, SHALL BE INSPECTED AND APPROVED BY THE RESTORATION SPECIALIST AND/OR LANDSCAPE ARCHITECT, VIA PHOTO SUBMITTALS, PRIOR TO DELIVERY TO SITE. PHOTO SUBMITTALS SHALL INCLUDE NURSERY SUPPLIER AND DATE OF PHOTOS. ANY MATERIAL DELIVERED TO SITE WITHOUT APPROVAL IS SUBJECT TO REJECTION. PHOTO SUBMITTALS SHALL BE SENT TO RESTORATION SPECIALIST AND/OR LANDSCAPE ARCHITECT A MINIMUM OF 48 HOURS PRIOR TO SHIPMENT OF MATERIAL. SUBMITTALS SHOULD INCLUDE SOME TYPE OF SCALE REFERENCE IN PHOTO (I.E. PERSON, MEASURING TAPE, ETC.). TREES SHALL BE NOTED WITH HEIGHT (FROM FINISH GRADE IN CONTAINER) AND CANOPY HEAD SIZE. LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF SCHEDULED NURSERY DELIVERY TIMES A MINIMUM OF 24 HOURS PRIOR TO SHIPMENT. REFER TO PLANTING SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS REGARDING QUALITY OF NURSERY STOCK.

SPOTTING OF THE PLANTS:
ALL PLANTS SHALL BE SPOTTED IN GROUPS THROUGHOUT THE SEEDED SITE FOR A NATURAL APPEARANCE AS SHOWN. UNDER THE DIRECTION OF THE RESTORATION SPECIALIST AND/OR THE LANDSCAPE ARCHITECT, MODIFICATIONS MAY BE MADE TO EACH AREA TO ENSURE STRUCTURAL DIVERSITY BASED ON THE SPECIES AND PLANT SIZES. THE SPACING DISTANCES GIVEN IN THE PLANTING PALETTE CAN BE USED AS GUIDELINES FOR AVERAGE DISTANCES, BUT THE LANDSCAPE CONTRACTOR SHALL AVOID REGULAR PATTERNS TO ENSURE A NATURAL APPEARANCE.

LIMITS OF CITY SOUTH C

PLAN CROSS REFERENCES

FOR NOTES AND LEGENDS, SEE THIS SHEET
FOR DETAILS, SEE SHEET L-8
FOR CORRESPONDING GRADING PLAN SEE SHEET L-2
FOR CORRESPONDING IRRIGATION PLAN SEE SHEET L-5

NORTH

ARCHITERRA DESIGN GROUP
LANDSCAPE ARCHITECTURE
SITE PLANNING
10221-A Trademark Street
Rancho Cucamonga, CA 91730
(909) 484-2800
Fax (909) 484-2802
CLARB CERTIFIED LANDSCAPE ARCHITECT
Richard Krumwiede
CA Lic. # 2834
AZ Lic. # 29115
NV Lic. # 446
TX. Lic. # 1884

L.A. SEAL

LICENSED LANDSCAPE ARCHITECT
Richard W. Krumwiede 2834
Signature
7-31-14
Renewal Date
9-28-12
Date
STATE OF CALIFORNIA

PROJECT / CLIENT

CITY SOUTH C TRIAL PLOT
SUNSHINE CANYON LANDFILL
14747 SAN FERNANDO ROAD
SYLMAR, CA 91342

SHEET TITLE

PLANTING PLAN

REVISIONS

DRAWN BY: GPD/JGG
CHECKED BY: JRC
DATE: 9/28/12
SCALE: 1" = 30'
JOB NUMBER: 1214
SHEET NUMBER: L-7

ATTACHMENT 5

memorandum

date April 29, 2020

to Tuong-phu Ngo, Environmental Manager, Republic Services

from Greg Ainsworth, Consulting Biologist

subject Coastal Sage Scrub City South B Trial Plot Monitoring Report, Sunshine Canyon Landfill – 1st Quarter, 2020

1.0 METHODS

On April 22, 2020, biologist Greg Ainsworth monitored the Deck B Coastal Sage Scrub Revegetation at the Landfill, which constitutes the 1st quarter monitoring for 2020. The sample methodology generally followed the *Methodology for Monitoring Percent Cover and Species Richness within Each Seeded Application Method on the Coastal Sage Scrub Pilot Project at the Sunshine Canyon Landfill* (JMA, April 23, 2014). Quadrat sampling of the revegetation area consists of nine, 50-meter quadrats that are randomly sampled throughout the revegetation area. The quadrats were randomly selected prior to the first initial monitoring event from a grid that was placed over the entire trial plot, and each quadrat was given a letter (A-I) and delineated in the field with wooden stakes. As shown on the attached planting plan, five different planting methods were used as follows:

- Soil imprinting with hand broadcast overseeded drainage swales (Quadrats A and G)
- Soil imprinting (Quadrats B, F and H)
- Broadcast seeding (Quadrat C)
- Broadcast seeding with soil imprinting (Quadrat D and I)
- Soil imprinting and hand broadcast (Quadrat E)

1.1 Absolute Cover

The following data was collected in each quadrat to determine the absolute cover of native and non-native herbaceous and woody species:

- ***Percent basil cover (shrubs)*** –Visual estimate of the amount of basil cover within each quadrat for all shrub species.
- ***Percent basil cover (herbs)*** – Visual estimate of the amount of basil cover within each quadrat for all herb species.
- ***Percent bare ground*** – Visual estimate of the amount of available bare ground with no vegetation, but suitable for plant growth.

- ***Percent rock or other*** – Visual estimate of the amount of unavailable ground for supporting plant growth. Inhibitors generally included rocks and boulders, irrigation lines and valve boxes, and mulch.
- ***Percent canopy*** – Visual estimate of the percent canopy of each shrub and herbaceous species.
- ***Photographs*** – A photograph was taken from the southwest corner (facing northeast) of each quadrat.

1.2 Percent Cover

The following data was collected in each quadrat to determine the percent cover of native and non-native species.

- ***Point intercept method*** **-** Sampling began at the southwest corner of each quadrat and continued around the quadrat in a clockwise direction. The species located precisely at every 0.5-meter point was tallied, including areas of bare ground, rock and other.

2.0 RESULTS

Below are the average data collected for each planting method.

2.1 Quadrat Sampling

Soil imprinting with hand broadcast overseeded drainage swales - Quadrats A and G (average)

Percent basil cover (shrubs) – 4%

Percent basil cover (herbs) – 20%

Percent bare ground – 78%

Percent rock or other – 4%

Percent canopy (shrub) – 9%

Percent canopy (herb) – 35%

Soil imprinting - Quadrats B, F and H (average)

Percent basil cover (shrubs) – 4%

Percent basil cover (herbs) – 37%

Percent bare ground – 35%

Percent rock or other – 3%

Percent canopy (shrub) – 19%

Percent canopy (herb) – 57%

Broadcast seeding - Quadrat C

Percent basil cover (shrubs) – 2%

Percent basil cover (herbs) – 7%

Percent bare ground – 80%

Percent rock or other – 3%

Percent canopy (shrub) – 18%

Percent canopy (herb) – 26%

Broadcast seeding with soil imprinting - Quadrat D and I (average)

Percent basil cover (shrubs) – 2%

Percent basil cover (herbs) – 45%

Percent bare ground – 35%

Percent rock or other – 7%

Percent canopy (shrub) – 9%

Percent canopy (herb) – 78%

Soil imprinting and hand broadcast - Quadrat E

Percent basil cover (shrubs) – 3%

Percent basil cover (herbs) – 27%

Percent bare ground – 25%

Percent rock or other – 3%

Percent canopy (shrub) – 14%

Percent canopy (herb) – 64%

2.2 Point Intercept

The representation of each species within a quadrat was estimated by broad cover classes (<1%, 1-5%, 5-25%, 25-50%, 50-75% and >75%). The percent cover of each species based on the point intercept method is presented in the following tables.

Table 1. Soil imprinting with hand broadcast overseeded drainage swales - Quadrats A and G (average)

	Soil imprinting with hand broadcast overseeded drainage swales					
		Quadrat A		**Quadrat G**		
	Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Native Shrubs	Adenostema fasciculatum					
	Artemisia californica					
	Atriplex lentiformis			4	8%	
	Atriplex polycarpa					
	Atriplex spinosa					
	Baccharis pilularis					
	Encelia californica					
	Mimulus aurantiacus longiflorus					
	Salvia apiana					
	Salvia mellifera					
Native Herbs	Achillia mellifoluim	3	6%			
	Acmispon glaber					
	Eschscholzia californica					

	Leymus triticoides	4	8%	21	42%	
	Nasella pulchra					
	Sisyrinchium bellum					
	Vulpia microstachys					
Non-Native Herbs	Bromus sp.					
	Centaurea melitensis					
	Echinochloa crus-galli					
	Erodium cicutarium					
	Hirschfeldia incana	2	4%			
	Hordeum vulgare					
	Salsola kali					
	Bare ground	40	80%	30	60%	

		Quadrat A	Quadrat G	A and G (% cover)
	Percent Cover Native Shrub	**0%**	**8%**	**4%**
	Percent Cover Native Herb	**16%**	**42%**	**29%**
	Percent Cover Non-Native Shrub	**0%**	**0%**	**0%**
	Percent Cover Non-Native Herb	**4%**	**0%**	**2%**
	Percent Bare Ground	**80%**	**60%**	**70%**

Table 2. Soil imprinting - Quadrats B, F and H (average)

	Quadrat B		Quadrat F		Quadrat H		
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Adenostema fasciculatum							
Artemisia californica	1	2%	1	2%			
Atriplex lentiformis			2	4%			
Atriplex polycarpa							
Atriplex spinosa							
Baccharis pilularis					1	2%	
Encelia californica	1	2%					
Encelia farinosa	4	8%					
Eriogonum fasciculatum			2	4%	5	10%	
Mimulus aurantiacus longiflorus							
Salvia apiana							
Salvia mellifera	6	12%					
Achillia mellifoluim	32	64%	2	4%	2	4%	
Acmispon glaber							
Eschscholzia californica							
Leymus triticoides			3	6%			
Nasella pulchra							
Sisyrinchium bellum							
Vulpia microstachys							
Bromus sp.							
Centaurea melitensis							
Echinochloa crus-galli							
Erodium cicutarium							

	Quadrat B		Quadrat F		Quadrat H		
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Hirschfeldia incana							
Hordeum vulgare							
Salsola kali							
Unknown annual grass			19	38%	19	38%	
Bare ground	6	12%	21	42%	23	46%	

	Quadrat B	Quadrat F	Quadrat H	B,F,H (% cover)
Percent Cover Native Shrub	**24%**	**10%**	**12%**	**15%**
Percent Cover Native Herb	**64%**	**10%**	**4%**	**26%**
Percent Cover Non-Native Shrub	**0%**	**0%**	**0%**	**0%**
Percent Cover Non-Native Herb	**0%**	**38%**	**38%**	**25%**
Percent Bare Ground	**12%**	**42%**	**46%**	**33%**

Table 3. Broadcast seeding - Quadrat C

	Quadrat C	
Species	Number of Hits	Percent Cover
Adenostema fasciculatum		
Artemisia californica	1	2%
Atriplex lentiformis		
Atriplex polycarpa	1	2%
Atriplex spinosa		
Baccharis pilularis		
Encelia californica		
Mimulus aurantiacus longiflorus		
Salvia apiana		
Salvia mellifera		
Achillia mellifoluim	8	16%
Acmispon glaber		
Eschscholzia californica		
Leymus triticoides		
Nasella pulchra		
Sisyrinchium bellum		
Vulpia microstachys		
Bromus sp.	1	2%
Centaurea melitensis		
Echinochloa crus-galli		
Erodium cicutarium		
Hirschfeldia incana		
Hordeum vulgare		
Salsola kali		
Unknown grass	7	14%

	Quadrat C	
Species	Number of Hits	Percent Cover
Bare ground	32	64%

	Quadrat C (% cover)
Percent Cover Native Shrub	**4%**
Percent Cover Native Herb	**16%**
Percent Cover Non-Native Shrub	**0%**
Percent Cover Non-Native Herb	**16%**
Percent Bare Ground	**64%**

Table 4. Broadcast seeding with soil imprinting - Quadrat D and I (average)

	Quadrat D		Quadrat I		
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Adenostema fasciculatum					
Artemisia californica					
Atriplex lentiformis	4	8%			
Atriplex polycarpa					
Atriplex spinosa					
Baccharis pilularis					
Encelia californica					
Eriogonum fasciculatum	1	2%			
Mimulus aurantiacus longiflorus					
Salvia apiana	1	2%			
Salvia mellifera					
Achillia mellifoluim	4	8%	1	2%	

	Quadrat D		Quadrat I		
Species	Number of Hits	Percent Cover	Number of Hits	Percent Cover	
Acmispon glaber					
Eschscholzia californica					
Leymus triticoides	1	2%	8	16%	
Nasella pulchra					
Sisyrinchium bellum					
Vulpia microstachys					
Bromus sp.					
Centaurea melitensis					
Echinochloa crus-galli					
Erodium cicutarium					
Hirschfeldia incana					
Hordeum vulgare					
Salsola kali					
Unknown grass	13	26%	20	40%	
Bare ground	28	56%	20	40%	
0%					

	Quadrat D	Quadrat I	D and I (% cover)
Percent Cover Native Shrub	**12%**	**0%**	**6%**
Percent Cover Native Herb	**10%**	**18%**	**14%**
Percent Cover Non-Native Shrub	**0%**	**0%**	**0%**
Percent Cover Non-Native Herb	**26%**	**40%**	**33%**
Percent Bare Ground	**56%**	**40%**	**48%**

Table 5. Soil imprinting and hand broadcast - Quadrat E

	Quadrat E	
Species	Number of Hits	Percent Cover
Adenostema fasciculatum		
Artemisia californica	3	6%
Atriplex lentiformis	1	2%
Atriplex polycarpa		
Atriplex spinosa		
Baccharis pilularis		
Encelia californica		
Eriogonum fasciculatum	2	4%
Mimulus aurantiacus longiflorus		
Salvia apiana		
Salvia mellifera		
Achillia mellifoluim	1	2%
Acmispon glaber	1	2%
Eschscholzia californica		
Leymus triticoides	5	10%
Nasella pulchra		
Sisyrinchium bellum		
Vulpia microstachys		
Bromus sp.		
Centaurea melitensis		
Echinochloa crus-galli		
Erodium cicutarium		
Hirschfeldia incana		
Hordeum vulgare		
Salsola kali		

	Quadrat E	
Species	Number of Hits	Percent Cover
Unknown grass	15	30%
Bare ground	22	44%

	Quadrat E (% cover)
Percent Cover Native Shrub	**12%**
Percent Cover Native Herb	**14%**
Percent Cover Non-Native Shrub	**0%**
Percent Cover Non-Native Herb	**30%**
Percent Bare Ground	**44%**

3.0 DISCUSSION

Table 6 below provides a summary of the percent cover of native and non-native shrubs and herbs, including areas of bare ground.

Table 6. Summary of Percent Cover for Each Planting Method

	Soil imprinting w/ hand broadcast overseeded drainage swales	Soil imprinting	Broadcast seeding	Broadcast seeding w/ soil imprinting	Soil imprinting and hand broadcast
Percent Cover Native Shrub	4%	15%	4%	6%	12%
Percent Cover Native Herb	29%	26%	16%	14%	14%
Percent Cover Non-Native Shrub	0%	0%	0%	0%	0%
Percent Cover Non-Native Herb	2%	25%	16%	33%	30%
Percent Bare Ground	70%	33%	64%	48%	44%

The Deck B Revegetation Area was planted in November 2018. The recent Saddleridge Fire in October 2019 scorched a lot of the Deck B area, but largely spared the sample plots. However, the intense heat from the fire appears to have dried out a lot of the vegetation within the sample plots and the irrigation throughout the Deck B area was damaged and no longer appears to be functioning. Winter rains in December and spring rains in April have enabled germination of grass seedlings and several native shrubs. Non-native weeds seedlings were beginning to flower during this monitoring period. The native plants within the areas that burned appear to be recovering, most notably common yarrow, which has established as a dense ground cover is several of the sample quadrants, most notably in Quadrat B.

Wildfires in Southern California have become more common in recent years and have impacted on the native landscape including established restoration sites. Direction that has been provided from such organizations as the California Department of Fish and Wildlife Service and the California Society of Ecological Restoration, recommending that revegetation efforts be focused on non-native weed control for reestablishing restoration sites, including previously undisturbed areas. Successional regrowth of herbaceous non-native species is to be expected within the first two to three years following a wildfire, and native shrubs will recover over a longer period of time through germination of existing seed within the topsoil and basal growth from charred plants. Successional growth of herbaceous species is important for providing natural erosion of topsoil. As the native shrubs begin to sprout, it is essential to control the spread the non-native herbaceous layer to minimize competition for water, nutrients and sunlight. Therefore, during the first two to three years following the fire, weed maintenance should occur no less than every four months, and special attention should be afforded to minimizing impacts to native seedlings and resprouts.

.

Photograph Log

Quadrat A. Facing northeast from southwest corner.

Quadrat B. Facing northeast from southwest corner.

Quadrat C. Facing northeast from southwest corner.

Quadrat D. Facing northeast from southwest corner.

Quadrat E. Facing northeast from southwest corner.

Quadrat F. Facing northeast from southwest corner.

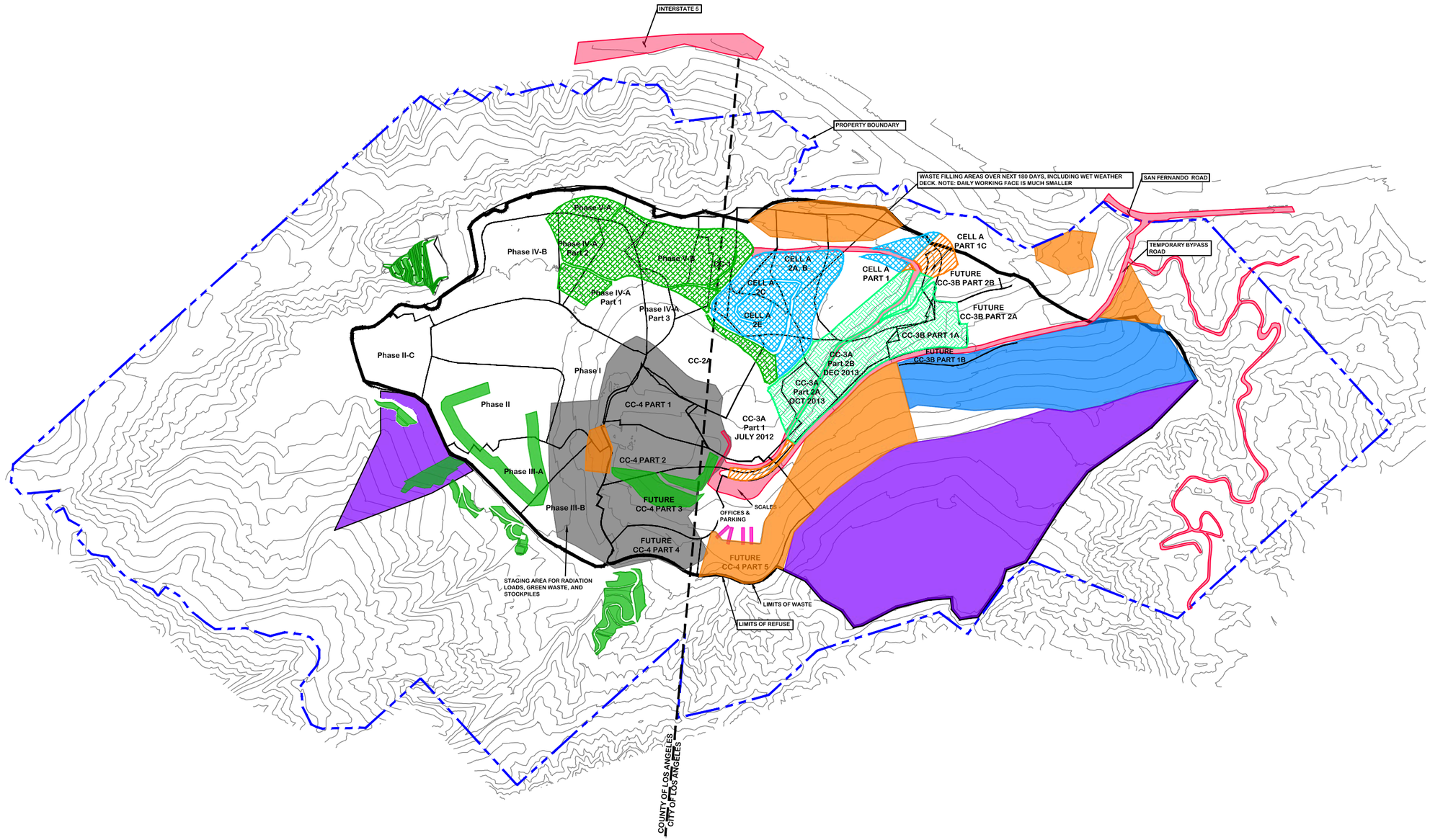
Quadrat G. Facing northeast from southwest corner.

Quadrat H. Facing northeast from southwest corner.

Quadrat I. Facing northeast from southwest corner.

City South ‘C’ Trial Plot Planting Plan and Quadrat Layout

DRAWING 1



NORTH

GRAPHIC SCALE

500' 0' 250' 500' 1000' 2000'

LEGEND

- 1500 EXISTING 50 FT CONTOUR
- PROPERTY BOUNDARY
- EXISTING APPROVED LINERS
- EXISTING ROADS
- LIMITS OF REFUSE

VEGETATION STATUS MD ACTIVITY FIRST QUARTER 2020	
	NON-PERMANENT CUT SLOPES WITH JUTE MATE OR STRAW WATTLES, SAGE SEED MIX (NOT MITIGATION AREA)
	SAGE MITIGATION AREA, FINAL SLOPES
	INTERIM COVER HYDROSEEDING (PRE-2008)
	CURRENT AND NEXT QUARTER ACTIVE AREAS. ALSO INCLUDES ROADS AND BUILDINGS.
	HYDROSEED APPLICATION
	VEGETATION PILOT PROJECT USING INTERIM SEED MIX
	CLOSURE TURF
	POSI-SHELL INSTALLATION
	VEGETATIVE COVER USING INTERIM SEED MIX
	VEGETATIVE COVER OVER DISKED POSI-SHELL

FOR_REVIEW_ONLY

EXISTING TOPOGRAPHY PREPARED BY COOPER AERIAL SURVEYS DATED FEBRUARY 5, 2018

REV. NO.	DATE	DESCRIPTION	APPROVED BY
REV1	DATE1	DESCRIPTION	DRAWN1
REV2	DATE2	DESCRIPTION2	DRAWN2
REV3	DATE3	DESCRIPTION3	DRAWN3
REV4	DATE4	DESCRIPTION4	DRAWN4
REV5	DATE5	DESCRIPTION5	DRAWN5
REV6	DATE6	DESCRIPTION6	DRAWN6

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DIGALERT 811

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REPUBLIC SERVICES

SUNSHINE CANYON LANDFILL
SYLMAR, CALIFORNIA
SITE VEGETATION STATUS AND ACTIVITY
Q1 2020

DWG NO. 1

PROJECT NO. SO18.0001

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