Preliminary Waste Management Plan for the Castlerock Project, City of San Diego Project No. 10046

Prepared for

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1.0 Introduction

The purpose of this Waste Management Plan (WMP) for the Castlerock project is to identify the tons of waste that would be generated by the project and to identify measures to reduce the amount of solid waste entering landfills. The proposed project site is currently located within the East Elliot Community Plan Area (CPA) in the City of San Diego (Figure 1). The project includes two scenarios; the Annexation Scenario (Figure 2) and the No Annexation Scenario (Figure 3).

Under the Annexation Scenario, the project site would be annexed from the City of San Diego to the City of Santee. The Annexation Scenario would result in the construction of 283 detached single-family residences, 147 single-family detached units clustered on larger lots (referred to as green court units), and supporting parks and infrastructure. Currently, the site is undeveloped; therefore, no demolition would be needed for this project. Under this Scenario, the City of Santee would be responsible for providing solid waste service to the site through their City franchisee, and waste would be taken to the Sycamore Landfill.

The project would remain in the City of San Diego under the No Annexation Scenario. The No Annexation Scenario (Figure 3) would include 282 detached single-family residences, 140 single-family green court units, and supporting parks and infrastructure. As mentioned above, the site is currently undeveloped, and no demolition would be required. The City of San Diego would provide solid waste disposal through their franchisee. Waste would be taken to the Miramar Landfill, the Sycamore Sanitary Landfill, or the Otay Landfill.

The direct impact threshold of significance for the City of San Diego is projects that generate over 1,500 tons of waste per year, which would likely occur when developments are over 1 million square feet. Projects that generate more than 60 tons of waste per year would have a cumulative impact on solid waste facilities and are required to prepare a WMP to demonstrate how the project would reduce solid waste impacts to below a level of significance (City of San Diego 2011).

The City of Santee relies on the California Environmental Quality Act (CEQA) Guidelines Appendix G to determine solid waste impacts. Based on Appendix G, implementation of a project may have a significant solid waste impact if the project would be served by a landfill with insufficient permitted capacity to accommodate the solid waste disposal needs generated by the project. The WMP includes three sections corresponding to the progress of site development: Grading, Construction, and Occupancy (post-construction) phases. Each phase addresses the amount of waste that would be generated by project activities, waste-reduction goals, and the recommended techniques to achieve the waste-reduction goals. More specifically, for each phase, the WMP addresses:

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Project Boundary

FIGURE 1

Project Location

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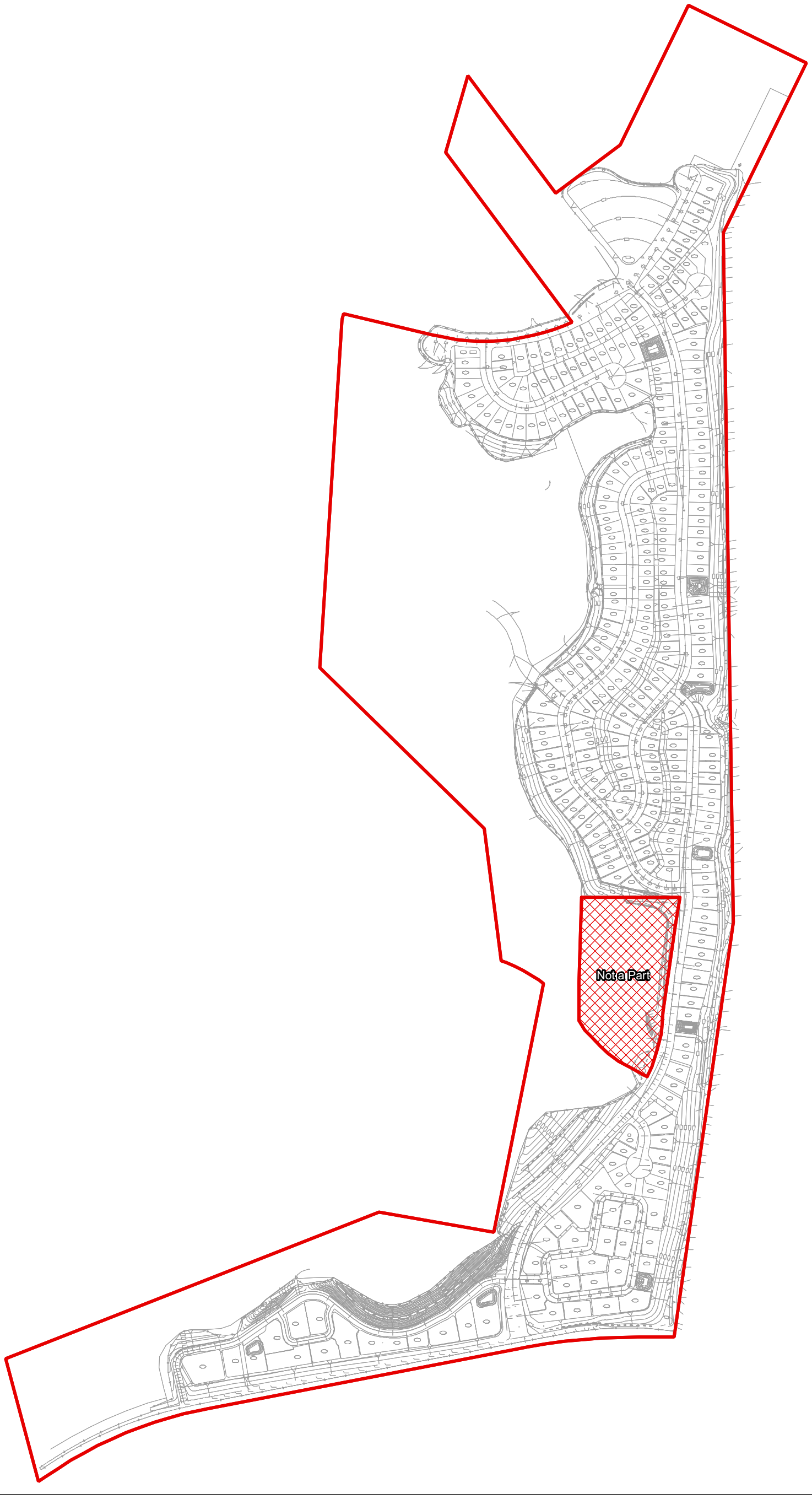

Project Boundary

SDG&E Substation

Plan Lines

0 Feet 500

FIGURE 2

Annexation Scenario Project Site Plan

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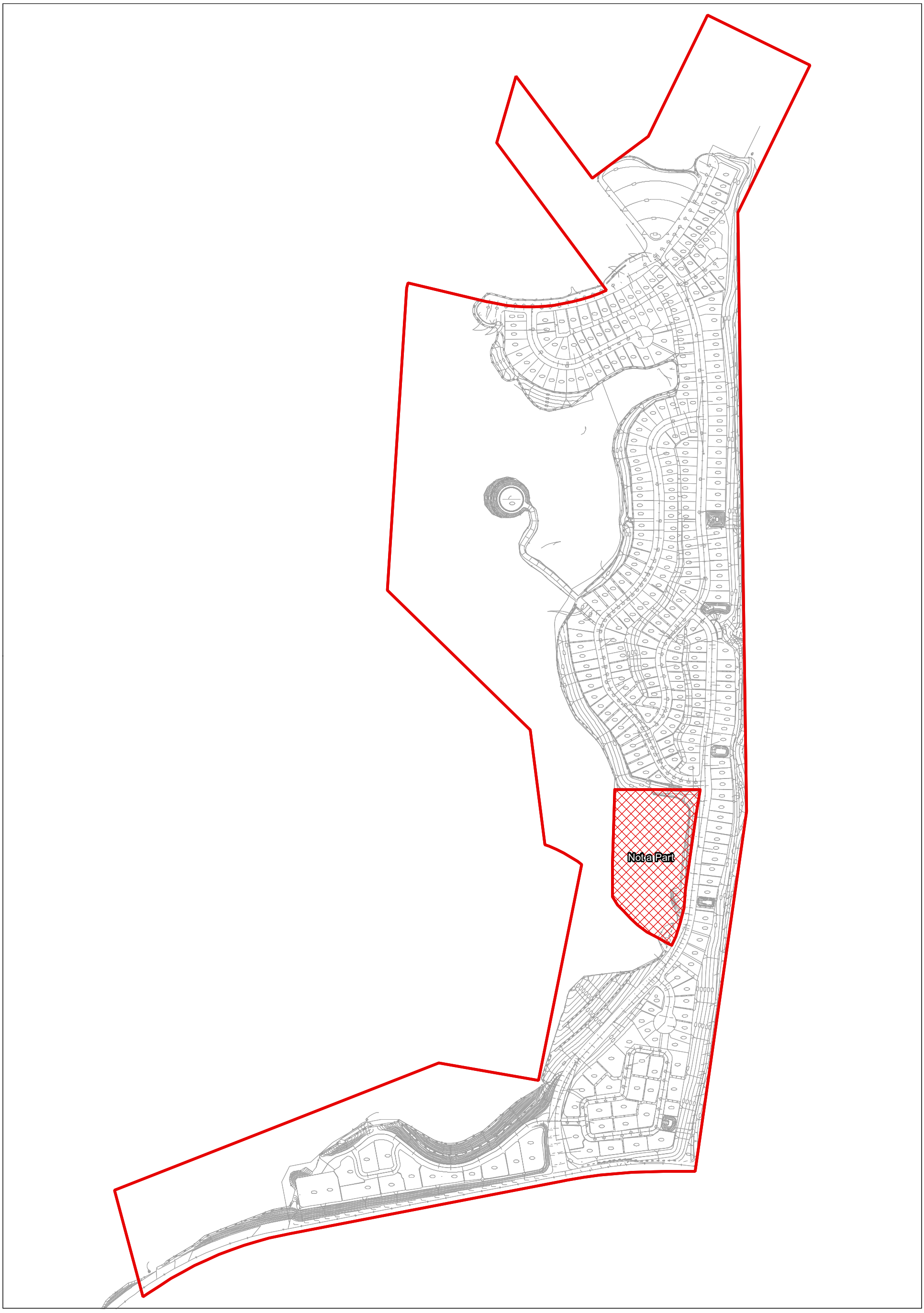

FIGURE 3

No Annexation Scenario Project Site Plan

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- Tons of waste anticipated to be generated
- Material/type and amount of waste anticipated to be diverted
- Project features that would reduce the amount of waste generated
- Project features that would divert or limit the generation of waste
- Source separation techniques for waste generated
- How materials shall be reused on-site
- Name and location of recycling, reuse, or landfill facilities where waste shall be taken.

2.0 Background

In 1989 the California Legislature passed Assembly Bill 939 (AB 939): Integrated Waste Management Act, which mandated that all cities reduce waste disposed in landfills from generators within their borders by 50 percent by the year 2000 (State of California 1989). Approved in October 2011, Assembly Bill 341 sets a policy goal of 75 percent waste diversion by the year 2020.

2.1 City of San Diego

The City of San Diego Environmental Services Department (ESD) developed the Source Reduction and Recycling Element, which incorporates waste management policies and programs to meet the City's long-term disposal needs and achieve the mandated waste reduction.

The direct impact threshold of significance for the City of San Diego is projects that generate over 1,500 tons of waste per year, which would likely occur when developments are over 1 million square feet. The City of San Diego considers projects that generate more than 60 tons of waste to have potentially cumulatively significant solid waste impacts. Developments that include 40,000 square feet of building space have potential to generate 60 tons of waste. To avoid potentially significant solid waste impacts, projects exceeding these thresholds are required to prepare a WMP demonstrating compliance with the City solid waste reduction regulations.

The City's Recycling Ordinance, adopted November 2007, requires on-site recyclables collection for all single- and multi-family residential and commercial uses (City of San Diego 2007). The ordinance requires recycling of plastic and glass bottles and jars,

paper, newspaper, metal containers, and cardboard. The focus of the ordinance is on education, with responsibility shared between the ESD, haulers, and building owners/managers. ESD is to provide on-site technical assistance, educational materials, templates, and service provider lists. Property owners/managers are to provide on-site recycling services and educational materials annually and to new tenants. Effective July 1, 2011, residents, commercial properties, and institutional properties must also recycle rigid plastics including clean food waste containers, jugs, tubs, trays, pots, buckets, and toys. On July 1, 2008, the Construction and Demolition (C&D) Debris Deposit Ordinance was adopted by the City (City of San Diego 2008). The ordinance requires that the majority of construction, demolition and remodeling projects requiring building, combination, and demolition permits pay a refundable C&D Debris Recycling Deposit and divert at least 50 percent of their debris by recycling, reusing, or donating usable materials. The ordinance is designed to keep C&D materials out of local landfills and ensure they get recycled.

The City's ESD Department has set the proposed project construction phase recycling rate goal at 75 percent. This goal was set based on the requirements set forth by AB 341. In addition, the City generally considers this goal achievable by large-scale residential developments.

2.2 City of Santee

The City of Santee Public Services Division provides a variety of services to the City of Santee, including solid waste. To reduce solid waste going to landfills, the City of Santee requires mandatory recycling. Municipal Code Section 13.36.110 requires all generators of solid waste in the city to separate all recyclables from solid waste for recycling purposes, and to participate in recycling programs. The City of Santee has Residential Recycling Guidelines to educate residents on how to sort their recyclables. The City also has a household hazardous waste disposal program where residents can dispose of small quantities of hazardous materials for free at Permanent Household Hazardous Waste Collection facilities.

Santee does not have a solid waste generation tonnage threshold, but relies on the CEQA Guidelines Appendix G. Based on Appendix G, implementation of a project may have a significant solid waste impact if the project would be served by a landfill with insufficient permitted capacity to accommodate the solid waste disposal needs generated by the project. Under this scenario, waste would be taken to the Sycamore Sanitary Landfill.

The Sycamore Sanitary Landfill (Sycamore Landfill) has a permitted capacity of 48,124,462 cubic yards (cy) with 47,388,428 cy of capacity remaining as of 2006. The Sycamore Landfill, based on a 3,965 ton per day limit, is expected to operate until 2031 (State of California 2011). In order to meet the region's long-term (year 2050) solid waste needs, the Sycamore Landfill expansion is proposed. The Sycamore Landfill Master Plan proposes to increase the landfill capacity to 157 million cubic yards, which would allow an increase from 3,965 tons per day to approximately 11,450 tons per day. With the proposed expansion, the landfill would be operational until approximately 2050. This increase in landfill capacity is not currently approved or permitted, and therefore cannot be guaranteed to be completed at this time. Other landfills in the area that may be utilized include the Otay Landfill and Miramar Landfill, which are expected to operate until 2021 and 2017, respectively (State of California 2011).

3.0 Existing Conditions

The 203.64-acre Castlerock project site (see Figure 1) is located within the City of San Diego, along the east edge of the East Elliott CPA abutting the City of Santee. It is the only residentially designated area within San Diego's East Elliott Community Plan, with the majority of the planning area designated as open space. All contiguous property, with the exception of the single-family residential development to the east and West Hills High School to the south, is designated as open space. The Sycamore Landfill is located in the central portion of the East Elliott CPA and there is a small area of office designation, which is currently vacant, in the southern part of the plan area. The project site is currently undeveloped. The project site is zoned RS-1-8 (Residential zone, RS-1-8 requires minimum 40,000-square-foot lots).

4.0 Proposed Conditions

The Project Development Summary (Table 1) includes the proposed project Annexation Scenario (see Figure 2) and the No Annexation Scenario (see Figure 3). The Annexation Scenario would include 283 single-family units and 147 green court units, while the No Annexation Scenario would include 282 single-family units and 140 green court units. The single-family residential units would be approximately 6,400 square feet per unit, and the green court units would be approximately 4,525 square feet per unit. The project also proposes open space, public streets, public parks, pocket parks, a vernal pool restoration site, detention basins, manufactured slopes, and other public improvements. Since City of San Diego water service is not provided in the project vicinity, the No Annexation Scenario would also include a water tank and a pump station. Access to the project would be provided from Mast Boulevard from the south.

TABLE 1
PROJECT DEVELOPMENT SUMMARY

	Annexation Scenario		No Annexation Scenario	
Land Use	Units	Acres	Units	Acres
Single-family residential	283	41.39	282	41.25
Green court units	147	15.27	140	14.57
Open space (Lots N, O, P, U, V)	-	90.03*	-	89.21*
Water Tank (Lot Y)	-	-	-	1.62
Pump Station	-	-	-	0.21
Public streets	-	18.16	-	18.16
Public Park (Lot Q)	-	4.00†	-	4.00†
Vernal Pool Restoration Lot (Lot AA/AB)	-	1.92	-	1.92
HOA Lots				
Detention Basins (Lots M, R, S, T, W)	-	0.98	-	0.98
Public Improvements (Lots Y/Z, Z/AA)	-	1.01	-	1.67
Manufactured slopes (Lots A–G, I, K)	-	30.24	-	29.55
Pocket Parks (Lots H, J, L, X)	-	0.64‡	-	0.50§
PROJECT TOTAL	-	**203.64**	**-**	203.64

*The MHPA area includes the open space lots in addition to other open space areas.
†Of this total, 3.0 acres are usable
‡Of this total, 0.49 acre is usable.
§Of this total, 0.39 acres are usable.

5.0 Grading and Construction Phases

Construction and demolition waste constituted the largest single component of disposed waste in San Diego in 2000. With almost 590,000 tons of waste being disposed, construction/demolition waste composed 34 percent of the total mass of waste disposed that year (City of San Diego 2000a). The Integrated Waste Management Act (AB 939) requires the diversion of 50 percent of all solid waste, including construction and demolition waste. The City has set a 75 percent diversion rate goal for this project based on Assembly Bill 341.

5.1 Grading Phase

Implementation of the Annexation Scenario project would require 108.72 acres (53.5 percent of the property) to be graded. The Annexation Scenario grading would total approximately 1,245,000 cubic yards of cut and fill (balanced) over the graded area. The No Annexation Scenario would involve 108.91 acres of grading, and 1,242,500 cy of balanced cut and fill. Site grading would stay within the project boundary, and there would be no net soil export. The vegetation removed would primarily consist of sage scrub and grassland habitat, with a patch of eucalyptus woodland. Vegetation removed is estimated to be 53,000 tons for both scenarios. Other anticipated wastes associated with this phase include a negligible amount of trash generated by contractors working on-site during the grading process.

5.2 Construction Phase

Construction would proceed with trenching, paving, building construction, and architectural coatings. Construction would take approximately 16–24 months to complete. Construction activities would generate packaging materials and unpainted wood, including wood pallets, and other miscellaneous debris.

Specifically, the types of construction waste anticipated to be generated would include materials such as:

- Inert granule products (asphalt and concrete)
- Wood waste products
- Ferrous metals
- Cardboard
- Carpet
- Dirt
- Glass
- Plaster
- Plastics
- Roofing and insulation materials
- Tile
- Wallboard
- Landscaping materials
- Miscellaneous trash

At this time, the project specific quantity of each material listed above is not known. According to the U.S. Environmental Protection Agency (1998), residential construction projects typically generate 5.4 pounds per square feet of building construction. It is estimated that the project would generate 6,686.2 tons under the Annexation Scenario and 6,583.4 tons under the No Annexation Scenario.

5.3 Waste Diversion

The project shall utilize the source separation recycling method for the grading phase and the mixed debris recycling method for the construction phase to achieve at least a 75 percent overall waste diversion rate. These strategies are described below and shall be discussed at the mandatory preconstruction meeting. ESD staff would be invited by the Applicant (or Applicant's successor in interest) to attend any Development Services Department (DSD) required preconstruction meetings.

5.3.1 Source Separation Recycling

The project would utilize source separation during the grading phase of the project. Source separation of grading debris on the project site would facilitate recycling of materials. Recycling and disposal options would be determined before the job begins. Vegetation removed would be source separated and recycled as green waste. Source separation recycling for green waste approaches a 100 percent diversion rate. Thus, the estimated 53,000 tons of green waste generated by the project grading activities would be diverted from the landfill.

Large containers for green waste shall be provided. The recycling area and bins shall be clearly identified with large signs. Lists of acceptable/unacceptable materials would be posted on the green waste bins and shall be visible on at least two sides of haul containers. Recycling bins would be placed in areas that would be readily accessible and would minimize misuse or contamination. The Solid Waste Management Coordinator (discussed below) would be responsible for these efforts and would be reviewed at the preconstruction meeting. Materials for recycling would be redirected to appropriate recipients selected from ESD's directory of facilities that recycle green waste.

5.3.2 Mixed Debris Recycling

"Mixed debris" recycling, where all material waste is disposed of in a single container at a mixed C&D transfer station, has a typical diversion rate of 68 percent. The project proposes to use the mixed debris recycling method for the construction phase. Table 2 shows how much project construction waste would be diverted utilizing the "mixed debris" recycling method. As shown in Table 2, "mixed debris" recycling would result in the diversion of 4,546.6 tons under the Annexation Scenario and 4,476.7 tons under the No Annexation Scenario.

TABLE 2
CONSTRUCTION PHASE WASTE GENERATION AND DIVERSION

Land Use	Amount (square feet)	Generation Rate (pounds per square foot)[1]	Tons Generated	"Mixed Debris" Recycling Percent Diverted	Tons Diverted	Tons Disposed
Annexation Scenario						
Single-family Residential	2,476,386	5.4	6,686.2	68%	4,546.6	2,139.6
No Annexation Scenario						
Single-family Residential	2,438,300	5.4	6,583.4	68%	4,476.7	2,106.7

[1]U.S. Environmental Protection Agency 1998 rate.

5.3.3 Contractor Education and Responsibilities

Contractors would be educated regarding the solid waste management plan. Solid waste management plans would be distributed to all entities when they first begin work on-site and when training workers, subcontractors, and suppliers on proper waste management procedures applicable to the project. The waste management plan requirements shall be discussed at pre-construction meetings.

5.3.4 Solid Waste Management Coordinator

A Solid Waste Management Coordinator (SWMC) for the project shall be designated to ensure that the contractors and subcontractors are educated and that procedures for waste reduction and recycling efforts are implemented. Specific responsibilities of the SWMC include:

- Review the Solid Waste Management Plan, including the SWMC responsibilities.
- Work with the contractors to estimate the quantities of each type of material that would be salvaged, recycled, or disposed of as waste then assist in documentation.
- Review and enforce procedures for materials separation and verify availability and signage of containers.
- Coordinate solid waste mitigation implementation with other requirements such as storm water requirements, which may specify related measures, such as the placement of bins to minimize the possibility of runoff contamination.
- Review and enforce procedures for transportation of materials to recycling and disposal facilities.
- Return or reuse excess materials and packaging.

5.3.5 Total Diversion

Given that the project would not require demolition, the amount of waste generated and diverted would occur only during the grading and construction phase. The grading phase would not involve soil export and would only generate green waste from vegetation clearing. All 53,000 tons of green waste would be recycled; thus, the project would achieve a 100 percent diversion during grading. The construction phase would generate approximately 6,600 tons of debris. Assuming the debris would be recycled using the "mixed debris" method, the construction phase would recycle about 4,500 tons. Overall, the project grading and construction would generate 59,600 tons and would recycle 57,500 tons, for a diversion rate of 96.5 percent. Thus, the project construction phase would achieve the minimum 75 percent diversion rate. A Solid Waste Management Coordinator would be designated and Contractor Education would occur to ensure that these methods would be carried out adequately.

6.0 Occupancy Phase

Unlike construction, occupancy is an ongoing process. Therefore, it requires an ongoing plan to manage and reduce waste in order to meet the waste reduction goals established by local and state policy.

6.1 Waste Generation

The expected annual waste to be generated during occupancy of the project was calculated using ESD waste generation factors. Table 3 summarizes the occupancy phase waste generation. As shown, the Annexation Scenario would generate a total of about 688 tons of waste per year, and the No Annexation Scenario would generate a total of about 675.2 tons of waste per year.

TABLE 3
OCCUPANCY PHASE ANNUAL WASTE GENERATION

Land Use	Amount	Generation Rate	Waste Generated
Annexation Scenario			
Single-family Residential	430 units	1.6 tons per year per unit	688 tons
No Annexation Scenario			
Single-family Residential	422 units	1.6 tons per year per unit	675.2 tons

6.2 Waste Reduction Measures

The Applicant (or Applicant's successor in interest) would be responsible for implementing a long-term solid waste management program that would ensure that the development meets or exceeds the requirements set forth in AB 939 and, as applicable, the San Diego Municipal Code and the City of Santee Municipal Code. Specific program measures would include the following:

- The Applicant (or Applicant's successor in interest) would provide recycling services which include all of the following provisions:

    1. Collection of recyclable materials required by and in accordance with applicable City Ordinances

    2. Provide dedicated recycling collection and storage areas required by and in accordance with applicable City Ordinances

    3. Provide signage required by and in accordance with applicable City Ordinances.

- The Applicant (or Applicant's successor in interest) shall educate tenants about the recycling services as follows:

    1. Information, including the types of recyclable materials accepted, the location of recycling containers, and the tenants' responsibility to recycle shall be distributed to all tenants annually

    2. All new tenants shall be given educational information about recycling programs and procedures and instructions upon occupancy

    3. All tenants shall be given information and instructions upon any change in recycling service to the facility.

These measures would be required of the property manager via contract stipulation.

6.3 Exterior Storage

Both the City of San Diego and City of Santee include exterior trash enclosure requirements for multi-family and commercial uses. While the proposed residences are single-family, the clustered residences are expected to be regulated by the exterior trash enclosure requirements.

6.3.1 City of Santee (Annexation Scenario)

The City of Santee requires trash enclosures for all developments within the R-7, R-14, R-22, and R-30 zones (City of Santee Municipal Code Section 17.10.040). Specifically, a minimum of two trash enclosures shall be provided on-site when dumpsters and commercial waste disposal are to be provided for the development. The enclosures shall be designed to the satisfaction of the director and shall include a minimum six-foot-high decorative wall or solid fence with a solid metal gate painted to match the on-site buildings. All dumpsters shall have an attached waterproof cover that shall be kept closed at all times. Curbside trash collection for individual units is an acceptable alternative when access to receptacles is adequate, subject to the satisfaction of the director of development services. The Annexation Scenario would comply with the City of Santee Municipal Code.

6.3.2 City of San Diego (No Annexation Scenario)

The City of San Diego requires refuse and recyclable materials storage for new multifamily residential developments (City of San Diego Municipal Code Sections 142.0810 and 142.0820). While the proposed project includes only single-family units, the green court units are considered multi-family since they would be located on a shared lot. Table 4 shows exterior storage area requirements for the proposed green court units. According to the table, the project would be required to provide a minimum of approximately 384 square feet of refuse storage area and a minimum of approximately 384 square feet of recyclable material storage. This makes the total exterior refuse/recyclable material storage an area of approximately 768 square feet.

TABLE 4
TOTAL REFUSE AND RECYCLABLE MATERIALS STORAGE AREAS REQUIREMENTS

Number of Units/Area	Refuse Storage Required (ft^2)*	Recyclable Material Storage Required (ft^2)*	Total Area Required (ft^2)	Area Provided (ft^2)
140 green court units	384	384	768	768

* Per City of San Diego Municipal Code §142.0820, 384 square feet of storage plus 48 square feet of storage for every 25 dwelling units above 201 multi-family units.

An ongoing plan to manage solid waste disposal in order to meet state and City waste reduction goals will be implemented by the property manager through a solid waste management program. Included in this program will be the provision of a minimum of 384 square feet of exterior refuse storage area and 384 square feet of exterior recyclable material storage area, as required by the Municipal Code.

6.4 Landscaping and Green Waste Recycling

The project includes landscaping and landscape maintenance. Drought-tolerant plants will be used per the landscaping plan to reduce the amount of green waste produced. Green waste will be collected and disposed of at recycling centers that accept green waste.

7.0 Conclusion

No demolition materials or export soils would be generated. The project would divert all green waste generated through clearing and grubbing by utilizing the source separating method. Construction waste would be recycled utilizing the mixed debris method. Overall, the project grading and construction would generate 59,600 tons and would recycle 57,500 tons, for a diversion rate of 96.5 percent. Thus, the project would meet the City of San Diego construction-related waste diversion requirements.

The Annexation Scenario would generate a total of about 688 tons of waste per year, and the No Annexation Scenario would generate a total of about 675.2 tons of waste per year. During occupancy, plans for a solid waste management program would include providing sufficient interior and exterior storage space for refuse and recyclable materials, tenant education about the recycling services and protocol, and a means of handling landscaping and green waste materials. By incorporating these and other solid waste management strategies, the project would meet or exceed the City of San Diego's requirements for waste diversion, and solid waste impacts would be reduced to below a level of CEQA significance.

This preliminary WMP is being submitted in compliance with a mandate from the City of San Diego's ESD. This WMP is preliminary and may not necessarily represent the final design. Once the project reaches final design status, a final WMP will be submitted to the ESD for review and approval.

8.0 References Cited

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