

## **4.0 SITE 3 PROJECT DESCRIPTION**

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### **4.1 SITE ALTERNATIVE OVERVIEW**

A substation at Site 3 would require the same substation equipment and layout as detailed in the PEA; however, the associated power line and distribution work would include:

- replacing an existing wood pole on the Fulton No. 1 60 kV (eventually 115 kV) Power Line with a new tubular-steel pole (TSP) located between the substation site and the railroad tracks. From the new pole, an approximate 100-foot, 60 kV power line loop would be built between the new substation and the Fulton No. 1 Power Line;
- installing approximately 1,200 feet (0.23 mile) of underground distribution line along Patrick Lane and through the public works yard from the Fulton No. 1 60 kV Power Line to Windsor Road; and
- rebuilding approximately 2,700 feet (0.51 mile) of the existing Fulton No. 1 60 kV Power Line between Patrick Lane and Trione Circle to support a new, double-circuit 12 kV distribution line. This distribution “underbuild” would require replacing the existing wood poles with new, taller wood poles to accommodate the required minimum spacing between the co-located distribution and transmission conductors.

The specific location of a substation at Site 3 would depend upon the Town of Windsor’s plans for the reconfiguration of existing wastewater treatment storage ponds.

Operations and maintenance of the facilities at Site 3 would be the same as for the proposed project (see Section 1.8 of the PEA).

### **4.2 SITE LOCATION**

Site 3 is in the Town of Windsor within a portion of a 24-acre public works yard at 8400 Windsor Road, between Patrick Lane and Plant Road (see Figure 4.2-1). The lot is zoned Public/Institutional and includes wastewater treatment storage ponds, which the Town of Windsor is considering rearranging. Site 3 is approximately 750 feet east of Windsor Road and is bounded on the west by a fire station, on the east by the existing Fulton No. 1 60 kV Power Line and the Northwestern Pacific Railroad (NWPRR), on the south by wastewater treatment and other facilities within the public works yard, and on the north by Patrick Lane. Patrick Lane is a private road fronted by seven residences (2 on the south side and five on the north side) and a vacant lot (north side), all zoned Surrounding Residential. Within the public works yard, areas on the west and north sides of the wastewater treatment storage ponds are densely covered by hydrophilic vegetation, annual grasses, and weeds, and there is an approximately 1.12-acre seasonal wetland feature. To the northwest of Patrick Lane is land zoned for Surrounding Residential development. Approximately 0.50 mile to the south are residential neighborhoods, on the west side of Windsor Road is Windsor High School, and on the east side of the NWPRR is vacant land zoned High Density Residential and slated for future multi-family residential development. Figure 4.2-1 depicts current land uses and the boundaries of the 24-acre public

works yard. In order to avoid the wetlands on Site 3, the substation would need to be located in the northeast corner of the site immediately adjacent to the Fulton No. 1 60 kV Power Line, a location that would be contingent upon the reconfiguration of the wastewater treatment storage ponds. This substation location would maximize the distance from the existing residences along Patrick Lane, although it would also place the substation closer to the potential High Density Residential uses that may eventually be developed at Site 2 across the railroad tracks (refer to Figure 1.1-1). For purposes of the analysis in this section, the substation location is assumed to be in this location and out of the wetlands.

#### **4.2.1 Substation**

The proposed substation at Site 3 would contain the same major equipment as described in Section 1.5.1 of the PEA. The permanent footprint of the substation (walled and fenced areas) would measure approximately 268 feet by 220 feet, as described in the PEA application Section 1.5.1.

The following differences apply to the substation facilities at Site 3:

- Walls, fencing and/or screening around the substation would be developed as appropriate for Site 3 in coordination with the Town of Windsor.
- Construction power to Site 3 would be provided from an existing distribution line on Windsor Road. A temporary overhead construction service tap and meter set would be installed just inside the substation property.

#### **4.2.2 Power Line Interconnection and Distribution Lines**

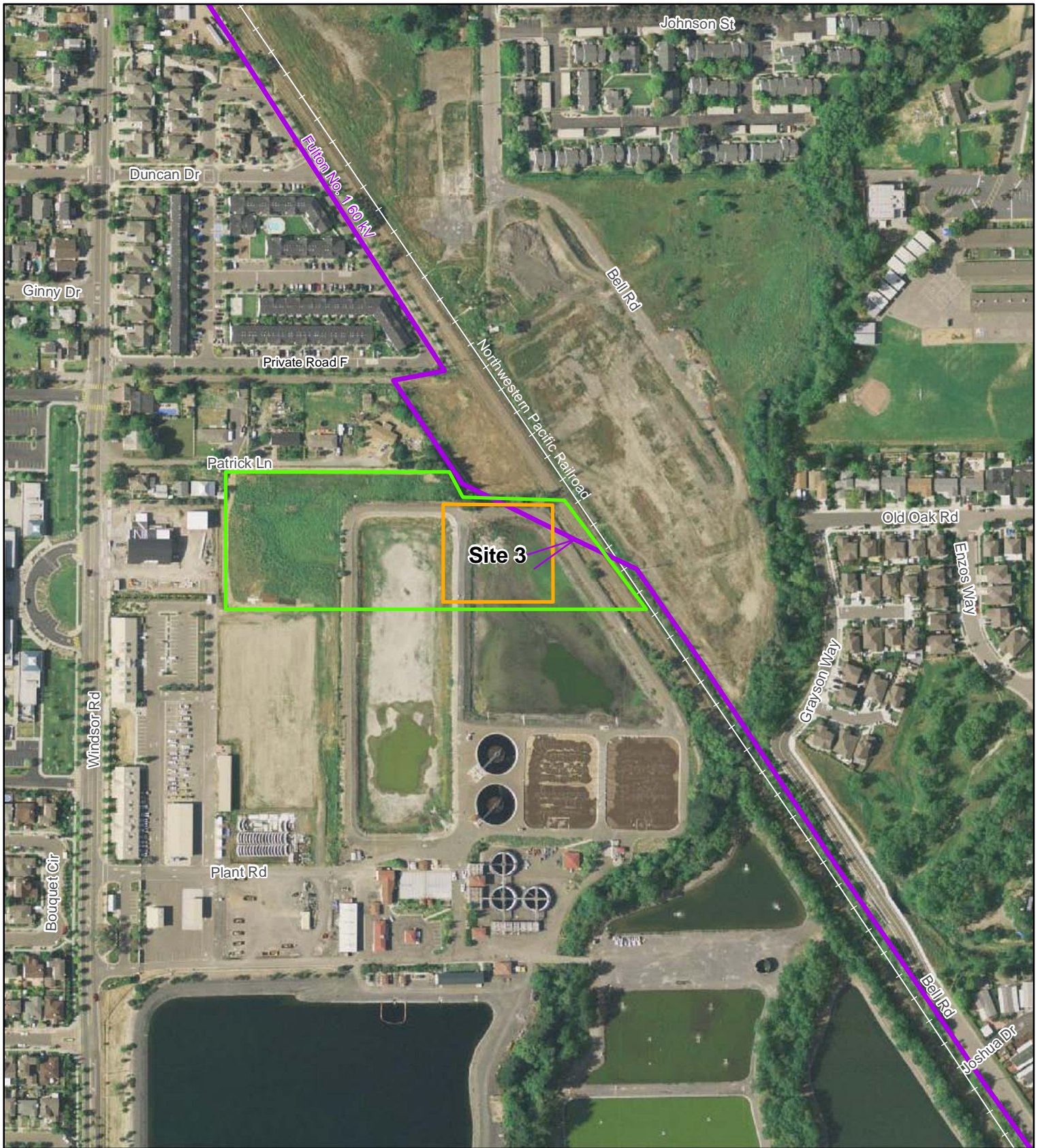
##### ***4.2.2.1 Power Lines***

A project at Site 3 would include looping the existing Fulton No. 1 60 kV circuit into and out of the east side of the substation. PG&E would replace an existing wood pole located on the Fulton No. 1 60 kV Power Line (approximately 50 feet east of the substation site on the west side of the railroad tracks) with a new, 75-foot-tall TSP to support a short power line loop extending to the dead-end structures in the substation.

##### ***4.2.2.2 Distribution Lines***

Table 4.2-1 summarizes the length of the initial two 12 kV distribution circuits (i.e., Circuits 1 and 2) and the future distribution circuits associated with Site 3. Circuit 1 would extend underground north from the substation to Patrick Lane and then west within Patrick Lane and tie into an existing underground line located on Windsor Road. Circuit 2 would extend underground east across the public works parcel and rise up on a newly replaced pole located along the Fulton No. 1 60 kV Power Line (one of 10 existing wood poles that would be replaced). Circuit 2 would continue southeast on replaced poles on the Fulton No. 1 60 kV Power Line until tying into the existing distribution line near Trione Circle.









**Figure 4.2-1**

Site 3

Windsor Substation Project



-  Site 3
-  Potential Area for Substation
-  Proposed 115 kV Loop  
(Initially 60 kV Loop)
-  Fulton No. 1 60 kV

Preliminary and subject to change based on California Public Utilities Commission requirements, final engineering, and other factors.

1:3,600

1 inch = 300 feet

0 75 150 300  
ft



photo: April 2009

**BACK OF FIGURE 4.2-1**

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**Table 4.2-1: Distribution Circuits at Site 3**

Circuit	Approximate Length and Locations of Circuit Installation		
	Underground	Overhead	Total
1 and Future 3 and 4	1,000 feet - Circuit 1 and conduits for future Circuits 3 and 4 would extend north approximately 200 feet to Patrick Lane and then west approximately 800 feet to Windsor Road. Conduits for future Circuits 3 and 4 would be stubbed and capped for future use.	0	1,000 feet
2 and Future 8 and 9	200 feet - Circuit 2 and conduits for future Circuits 8 and 9 would extend east across the substation parcel to the Fulton No. 1 60 kV Power Line easement. Conduits for future Circuits 8 and 9 would be stubbed and capped for future use.	2,700 feet - Circuit 2 would extend south on the Fulton No. 1 60 kV Power Line.)	2,900 feet
Future 5, 6, and 7	1,000 feet - Conduits would extend north approximately 200 feet to Patrick Lane and then west approximately 800 feet to Windsor Road where they would be stubbed and capped for future use.	0	1,000 feet
Future 10, 11, and 12	200 feet - Conduits would extend east across the substation parcel and would be stubbed and capped at the Fulton No. 1 60 kV Power Line for future use.	0	200 feet

At the present rate of growth in electric demand, the remaining 10 circuits would be installed roughly two circuits every other year. However, to minimize future disruption to the mature substation landscaping, partial extension of all 10 future distribution-circuit conduits would be installed as part of the initial development. Five future circuit conduits would extend north from within the substation footprint to Patrick Lane and then west to Windsor Road, parallel to the initial Circuit 1 (two conduits within the same trench and three conduits within a separate trench, offset approximately 6 feet), where they would be stubbed and capped just west of Windsor Road within a vault in the public utility easement. Five future circuit conduits would extend east, parallel to the initial Circuit 2 (two future circuits in the same trench as Circuit 2, and three future circuits in a separate trench, offset approximately 6 feet), to the Fulton No. 1 60 kV Power Line where they would be stubbed and capped within PG&E's existing easement.



### **4.2.3 Access and Laydown Areas**

During construction, access to the substation site and the Fulton No. 1 60 kV Power Line would be via Highway 101, Shiloh Road, Windsor Road, Bell Road, Patrick Lane, and Trione Circle. Access to the substation site would likely be directly off of Patrick Lane for both construction and operation of the substation. The existing road would be extended to the substation and would involve, but not be limited to, removing existing vegetation and topsoil, grading and possibly importing fill material, possibly creating ditches on either side of the road, importing and compacting baserock on the final road subgrade, and paving the road with asphalt concrete. Alternatively, temporary access to the substation site parcel could be off a private lane, immediately south of Private Road F and one block north of Patrick Lane. From the private lane, a temporary access road would be cleared and graded approximately 400 feet south through a vacant lot. Portions of the public works site or the vacant lot could be used during construction for parking and lay down, and staging for construction materials and equipment; no additional lay down areas would be required.

## **4.3 GENERAL CONSTRUCTION METHODS AT SITE 3**

### **4.3.1 Typical Construction Equipment**

Typical construction equipment and machinery that would be used during construction of the substation, access road, power line loop, and distribution lines at Site 3 would be the same as discussed in Section 1.6.1 of the PEA.

### **4.3.2 General Construction Sequence**

Construction activities would generally occur in the same order as discussed in Section 1.6.2 of the PEA.

### **4.3.3 Substation Construction**

Substation construction would be similar to what is described in Section 1.6.3 of the PEA. The following differences apply to substation construction at Site 3:

- Site 3 is located outside the Town of Windsor's recycled water service area; therefore, irrigation of any landscaping would be completed using potable water supplied by the Town of Windsor. Site 3's irrigation system would likely connect to an existing potable water valve box located on Windsor Road west of the substation. Water used for construction purposes, such as dust control, would come from the same water valve box.

### **4.3.4 Power Line Interconnection Construction**

Construction techniques associated with the power line interconnection at Site 3, including pole installation and replacement, would be similar to what is described in Section 1.6.4 of the PEA. The wood pole that would be replaced on the Fulton No. 1 60 kV Power Line is on the west side of the railroad tracks approximately 50 feet east of the substation site. To interconnect the substation at Site 3, the pole would be removed and replaced with a TSP with a diameter of approximately 30 inches at ground level that tapers slightly toward the top, on a concrete

foundation with a diameter of approximately 5.5 feet at ground level. The TSP would be a maximum of approximately 75 feet in height and would have three cross arms on each side. The foundation holes would be approximately 20 feet deep, depending on soil characteristics.

#### **4.3.5 Distribution Line Installation**

The increased capacity provided by the substation at Site 3 would require installation of new lines as described in Table 4.2.1 and illustrated on Figure 4.3-1.

##### ***4.3.5.1 Pole Replacement and Installation, and Power Line Underbuild***

Pole replacement and installation, and power line underbuild, would be similar to what is described in Sections 1.6.5.1 and 1.6.5.2, respectively, of the PEA.

The following differences apply to pole replacement and underbuild activities associated with Site 3:

- Installing a new distribution line on the Fulton No. 1 60 kV Power Line would require replacing approximately 10 existing wood poles with one new TSP and nine new wood poles that would be approximately 20 feet taller.
- Replacement poles installed would have two wood-cross arms on each side that extend 4 feet (laterally) on either side of the pole, each containing three insulators and conductors, separated by a minimum of 10 feet (vertically).
- Pole replacement would be immediately adjacent to existing poles and require an approximately 50-foot radius of temporary impact for wood poles, 75-foot radius for the TSP.
- Several pull and tension locations along the Fulton No. 1 60 kV Power Line would be necessary for the reconductoring operation; pull and tension sites would be located at dead end or angle pole locations within the street whenever possible, and would be approximately 50 feet long by 100 feet wide.

##### ***4.3.5.2 Underground Installation***

Underground Installation would be similar to what is described in the PEA in Section 1.6.5.3. The following differences apply to underground installation at Site 3:

- The 1,200 feet of undergrounded conductor extending along Patrick Lane and within the public works site from Windsor Road to the Fulton No. 1 60 kV Power Line would be completed using open trenching.

- The two 1,000-foot underground segments, 200 feet north and 800 feet west within Patrick Lane (one trench for Circuit 1, future Circuit 3 and 4, and one trench for future Circuit 5, 6, and 7), would result in excavation of approximately 240 cubic yards each. The two 200-foot underground segments east (one trench for Circuit 2 and future Circuits 8 and 9, and one trench for future Circuits 10, 11, and 12) within the public works parcel would result in the excavation of approximately 48 cubic yards each.

#### **4.3.6 Vegetation Clearance**

Vegetation clearance would be similar to what is described in Section 1.6.6 of the PEA.

#### **4.3.7 Construction Workforce**

The size and composition of the workforce would be similar to what is described in Section 1.6.8 of the PEA, with the exception of the distribution line work, which would require a maximum workforce of approximately 16 workers over approximately four to five months.

### **4.4 CONSTRUCTION SCHEDULE**

Due to the Town's request to explore other site options, the project schedule has been delayed by several months. Construction would be scheduled to begin in September 2012 to meet an in-service date of May 2013.

### **4.5 RIGHT-OF-WAY ACQUISITION**

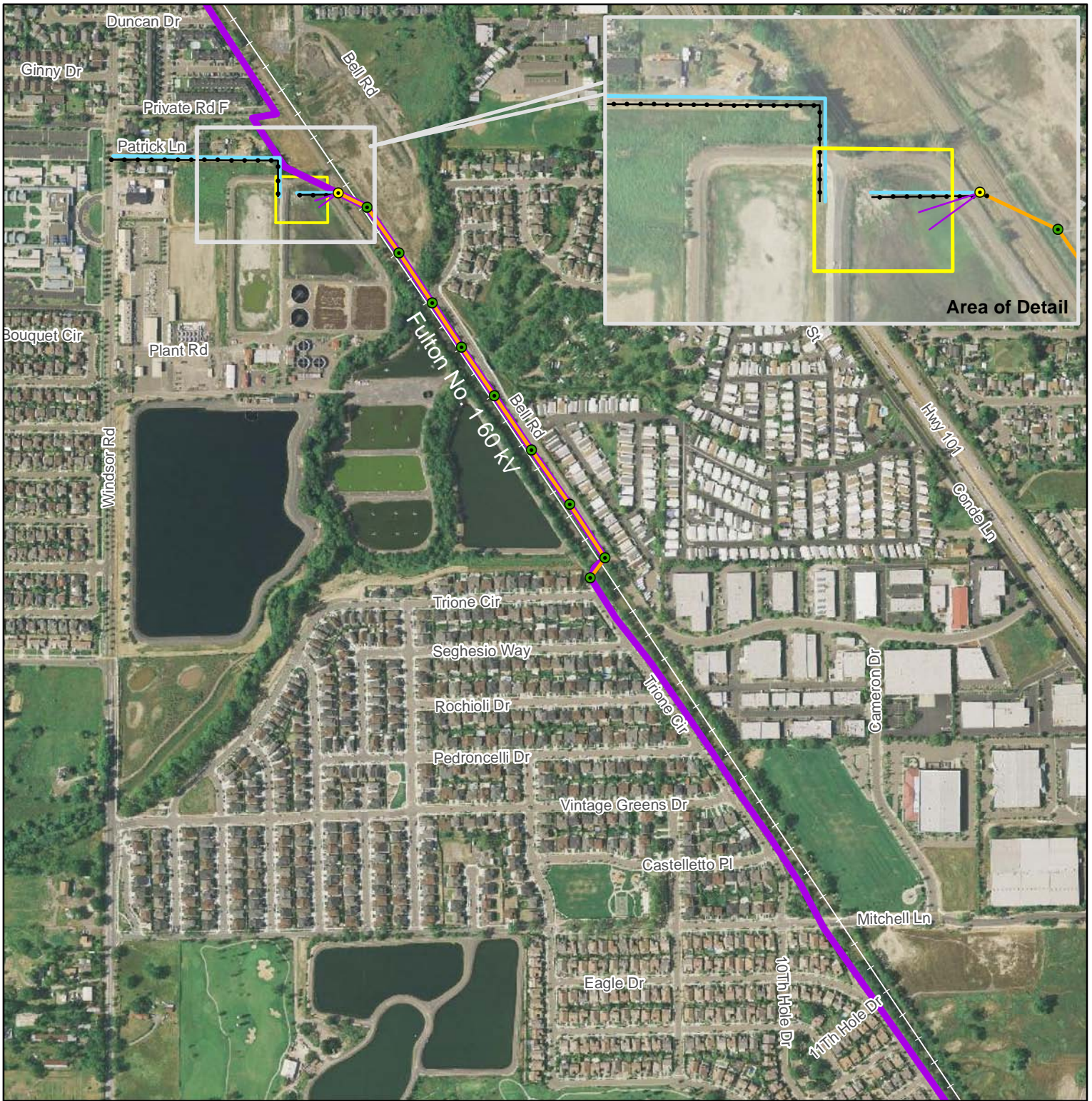
PG&E would purchase the proposed substation site from the Town of Windsor. PG&E would acquire a new easement along Patrick Lane for associated distribution line work and on the east side of the substation site for the power line interconnection to PG&E's existing easement on the Fulton No. 1 60 kV Power Line. PG&E would obtain ministerial encroachment permits to conduct work in public rights-of-way in accordance with State and the Town of Windsor requirements.

Land entitlement issues are not part of this regulatory proceeding, in which the California Public Utilities Commission is considering whether to grant or deny PG&E's application for a Permit to Construct. Rather, any land rights issues would be resolved in subsequent negotiations and/or condemnation proceedings in the proper jurisdiction, following the decision by the Commission on PG&E's application (for example, see Jefferson-Martin 230 kV Transmission Project, A.02-04-043, D.04-08-046, p. 85).

### **4.6 AVOIDANCE AND PROTECTION MEASURES**

The project would incorporate APMs discussed in Section 1.10 of the PEA to ensure there are no significant impacts associated with the project (see Attachment A, Table A-1). In addition, the measures included in Attachment A, Table A-3, would be implemented.





**FIGURE 4.3-1**  
 Associated Reconductoring - Site 3  
 Windsor Substation Project

1:8,000  
 1 inch = 667 feet

0 250 500 1,000  
 ft



Preliminary and subject to change based on California Public Utilities Commission requirements, final engineering, and other factors.

- Wood-to-Wood Pole Replacement
- Wood-to-Steel Pole Replacement
- Future Underground Distribution Line Conduits
- Overhead Double Circuit 12 kV Distribution Line Underbuild of Existing Fulton No. 1 60 kV Power Line
- Underground Reconductoring of Existing 12 kV Distribution Line
- Proposed 115 kV Loop (Initially 60 kV Loop)
- Fulton No. 1 60 kV
- Site 3

**BACK OF FIGURE 4.3-1**

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