

Appendix 3.14-B
High-Speed Train Effects on Confined
Animal Agriculture

Executive Summary

This appendix is composed of two analyses: (1) an examination of the effects of the Fresno to Bakersfield High-Speed Train (HST) Project on confined animal agricultural operations and (2) the effects of the project on wastewater application lands used by confined animal agricultural operations.

Within the project study area, most of the confined animal operations that are affected are dairies. Sixteen dairies are located along the BNSF Alternative: 1 in Fresno County, 13 in Kings County, and 2 in Tulare County. Six dairies in Kings County are located along the Hanford West Bypass 1 Alternative. Four dairies in Kings County are located along the Hanford West Bypass 2 Alternative. Two dairies in Tulare County are located along the Corcoran Bypass and Corcoran Elevated alternatives. Other types of animal operations, such as feedlots and poultry farms, would be affected as well. One poultry farm in Fresno County, one feedlot in Kings County, and one feedlot in Tulare County are located along the BNSF Alternative. One feedlot in Kings County is located along the Corcoran Bypass and Corcoran Elevated alternatives.

The HST alignments and related improvements would affect confined animal operations, and the effects would range in severity, from the potential for relocation of the entire operation or the need to relocate key facilities elsewhere on the operation (e.g., animal holding areas and wastewater treatment lagoons) to minor effects resulting from project acquisition of non-facility land (i.e. land that does not contain any key facilities used in the operation). The severity of the effect on confined animal agricultural operations was determined using the following criteria¹:

- Severe: Operations are unlikely to continue in same location.
- Moderate: Relocation of facilities at current location, but operations are likely to continue.
- Negligible: No facilities are affected and acquisition of non-facility land would not bisect the operation.

The indirect noise and vibration effects on dairy cattle were also evaluated. Based on existing research, the Federal Railroad Administration (FRA) has established a threshold for high-speed train noise effects on livestock of 100 dBA SEL and for vibration effects at levels of 75 VdB (FRA 2005). As discussed in Section 3.4, Noise and Vibration, the noise level for project operations on all alternatives would reach 100 dBA SEL at a distance of up to 100 feet, and the vibration level would reach 75 VdB at a distance of up to 70 feet from the track centerline. Therefore, for animal-holding areas located closer than 100 feet to the track centerline, the noise and vibration effects would be considered moderate and could require relocation of the animals or the implementation of sound mitigation measures.

Table 1 provides a listing of all affected confined animal agricultural operations in the study area, and Table 2 summarizes the effects, by alignment, on confined animal operations. Descriptions of the effects on each operation are provided in Section II of this appendix.

¹ The determination as to whether an operation is likely to continue in the same location and the general severity of the effect in terms of lost economic value and the need for site reconfiguration will be made during negotiations for right-of-way acquisition following the selection of a preferred alternative.

Table 1
 Affected Confined Animal Agricultural Facilities

Figure #	Address	APN	Operation Type	County	Alternative	Acres Affected	% of Parcel Affected
Severe Effects							
B-19	9846 Lansing Avenue	28206005000	Dairy	Kings	Hanford West Bypass 1 Alternative	17	18.5
Moderate Effects							
B-1	7750 East Davis Avenue	05603055S	Dairy	Fresno	BNSF Alternative	15	23.8
B-7	7615 7½ Avenue	014090007000	Dairy	Kings	BNSF Alternative	4.5	6.3
B-8	7601 Fargo Avenue	014130058000	Dairy	Kings	BNSF Alternative	0.4	1.2
B-11	7315 Houston Avenue	016200035000 016200034000	Dairy	Kings	BNSF Alternative	15	21.1
B-16	8480 Kansas Avenue	028202030000	Dairy	Kings	BNSF Alternative	1.3	0.01
B-21	Nevada Avenue and 8 th Avenue	028290017000	Feedlot	Kings	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	17	32.1
B-24	2400 Avenue 136	291030043	Dairy	Tulare	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	10.6	18.3
B-22	2799 Avenue 136	291020022	Dairy	Tulare	BNSF Alternative, Corcoran Bypass and Corcoran Elevated alternatives	10.7	11
B-4	6502 13 th Avenue	006050004000	Dairy	Kings	Hanford West Bypass 1 and Hanford West Bypass 2 alternatives	2.5	5.3
Negligible Effects							
B-2	8000 East Davis Avenue	05603044S	Poultry	Fresno	BNSF Alternative	0.5	0.3
B-5	7705 Flint Avenue	014090002000	Dairy	Kings	BNSF Alternative	0.2	0.2
B-6	7334 7 th Avenue	014090035000	Dairy	Kings	BNSF Alternative	6	8.4
B-9	11336 7 th Avenue	016130047000	Dairy	Kings	BNSF Alternative	0.4	0.5

Table 1
 Affected Confined Animal Agricultural Facilities

Figure #	Address	APN	Operation Type	County	Alternative	Acres Affected	% of Parcel Affected
B-102	12270 7 th Avenue	016200005000	Dairy	Kings	BNSF Alternative	0.4	1.0
B-12	12652 7 th Avenue	016200026000	Dairy	Kings	BNSF Alternative	3.7	4.7
B-13	7577 Jackson Avenue	028080001000	Dairy	Kings	BNSF Alternative	11	14.0
B-15	8520 Kent Avenue	028160031000	Dairy	Kings	BNSF Alternative	6	3.5
B-18	8800 Lansing Avenue	028205004000	Dairy	Kings	BNSF Alternative	7.5	6.4
B-20	8000 Lansing Avenue	028260005000	Dairy	Kings	BNSF Alternative and Hanford West Bypass 2 Alternative	18	2.9
B-23	3800 Avenue 120	291060019	Feedlot	Tulare	BNSF Alternative	11	3.1
B-3	4024 1 ¼ Avenue	002230007000	Dairy	Kings	Hanford West Bypass 1 and Hanford West Bypass 2 alternatives	7.6	9.3
B-25	7057 14 th Avenue	009010028000	Dairy	Kings	Hanford West Bypass 1 and Hanford West Bypass 2 alternatives	14	12.4
B-14	16500 11 th Avenue	028150023000	Dairy	Kings	Hanford West Bypass 1 Alternative	0.3	0.8
B-17	9846 Lansing Avenue	028220059000	Dairy	Kings	Hanford West Bypass 1 Alternative	3	1.6
Acronyms and Abbreviations: APN = Assessor's Parcel Number % = percent # = number							

Table 2
 Effects on Confined Animal Agricultural Facilities by Alternative

Alternative/Option	Severe	Moderate	Negligible	Total
BNSF Alternative	0	8	11	19
	Changes Relative to BNSF Alternative			
Hanford West Bypass 1 Alternative, At-Grade Option	+1	-4	-6	6
Hanford West Bypass 1 Alternative, Below-Grade Option	+1	-4	-6	6
Hanford West Bypass 2 Alternative, At-Grade Option	0	-4	-7	4
Hanford West Bypass 2 Alternative, Below-Grade Option	0	-4	-7	4
Corcoran Elevated Alternative	0	-1	+1	3
Corcoran Bypass Alternative	0	-1	+1	3

This appendix also examines the potential project effects associated with project acquisition of manure management land (wastewater lands) utilized by confined animal operations in Kings County. Animal operations in Kings County face restrictions on the amount of manure-enriched wastewater that can be spread per acre of farmland (Kings County 2002). Some operations may have enough cropland on site to manage all of their manure. In this analysis, this is referred to as onsite wastewater land. Other operations must move manure wastewater off site to comply with these regulations, which in this analysis is referred to as offsite wastewater lands. Therefore, project acquisition of onsite and offsite manure management land could force operations to alter their current manure management plans and could create a need to find new replacement locations for wastewater application. If replacement lands are not available or if it is not economically feasible for an operation to move its wastewater to available lands, operations would then be required to reduce manure production (i.e., reduce the number of animals housed at the facility).

The amount of wastewater land affected was evaluated by reviewing aerial imagery of wastewater-permitted land to determine the acreage of land with the potential for manure management. Along the BNSF Alternative, 218.7 acres of onsite and offsite wastewater lands would be affected. Along the Hanford West Bypass 1 Alternative, at-grade option, 110.8 acres would be affected, and along the Hanford West Bypass 2 Alternative, at-grade option, 85.8 acres would be affected. Along the Hanford West Bypass 1 Alternative, below-grade option, 110.8 acres would be affected, while along the Hanford West Bypass 2 Alternative, below-grade option, 85.8 acres would be affected. For the Hanford heavy maintenance facility (HMF), 298.5 acres would be affected. Along the Corcoran Bypass and Corcoran Elevated alternatives, 8.7 acres would be affected.

To be conservative, it was assumed that operations would need to reduce their production in the “short term” by reducing animal head count until the operation could find a replacement for its lost wastewater land. The financial implications of these displaced wastewater lands are detailed in Section 3.12, Socioeconomics, Communities, and Environmental Justice. It was also assumed that all onsite croplands are used for wastewater application. Section II of this appendix

describes the effects on these acres, and Section III of this appendix provides details on all offsite wastewater application parcels that would be affected by the project.

1.0 Confined Animal Agriculture Operations

This section describes the effects on each of the confined animal operations affected by the project. The operations are grouped according to the severe, moderate, and negligible criteria discussed above.

1.1 Severe Effects

Dairy — 9846 Lansing Avenue (Figure B-19)

Hanford West Bypass 1 Alternative

The dairy located at 9846 Lansing Avenue in Kings County would experience severe effects from the construction of the HST project under the Hanford West Bypass 1 Alternative. The tracks, traction power substation, and road overpass would require approximately 17 acres of land, or 18.5% of the parcel, which would bisect the property from the northwestern to the southwestern corner. The affected land contains cattle holding areas on the northern portion of the operation that would be bisected, and a large percentage of the holding areas and a residence on the southern portion of the operation would be displaced. Relocation of the affected facilities would require approximately 31 acres of land. After the project acquired land for the tracks, traction power substation, and road overpass, 40 acres of adjacent continuous unaffected land would be available.

Due to the number of facilities affected and the limited available unaffected acreage, it is likely that this dairy would need to be relocated in order to continue operation. If the operation is not relocated but rather facilities are rearranged on the current parcel, any holding areas reestablished would likely be within 100 feet of the HST track centerline, and therefore indirect noise and vibration effects would be moderate. During the right-of-way acquisition process, engineering solutions may be identified that would make it possible for continued operation in the current location. For example, right-of-way agents could work with alignment engineers to minimize the acquisition associated with the road overpass and traction power substation and also to provide noise mitigation. However, this is a speculative outcome, and at this time it is assumed that the severity of the effect likely precludes the ability of the dairy to continue operation at this location.

1.2 Moderate Effects

Dairy — 7750 East Davis Avenue (Figure B-1)

BNSF Alternative

The dairy located at 7750 East Davis Avenue in Fresno County would experience moderate effects from construction of the HST project under the BNSF Alternative, including construction of the tracks, an associated roadway overpass, and a traction power substation. The overpass and traction power substation would require acquisition of approximately 15 acres of agricultural land, or 24% of the parcel, on the northern portion of the property. The alignment would displace about 1 acre on the eastern portion of the property, which contains cattle holding areas and associated buildings. Relocation of the affected facilities would require 2.5 acres of land. After the project acquired land for the tracks, roadway overpass and traction power substation, 11.6 acres of continuous unaffected land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be

approximately 50 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be moderate.

Dairy — 7615 7½ Avenue (Figure B-7)

BNSF Alternative

The dairy located at 7615 7½ Avenue in Kings County would experience moderate effects from construction of the HST project under the BNSF Alternative. The project would require acquisition of approximately 4.5 acres of land, or 6.3% of the parcel, which would bisect the property. However, all dairy facilities are located in the eastern portion of the property and would not be separated. The land directly affected by the alignment contains cattle holding areas and associated buildings as well as a residence. Relocating the affected facilities would require approximately 9 acres of land. After the project acquired land for the tracks there would be 20 acres of adjacent continuous unaffected land remaining. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 50 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be moderate.

Dairy — 7601 Fargo Avenue (Figure B-8)

BNSF Alternative

The dairy located at 7601 Fargo Avenue in Kings County would experience moderate effects from the construction of a road overpass along the HST alignment under the BNSF Alternative. The road overpass would require acquisition of a small (0.4 acre) portion of land, or 1.2% of the parcel, on the property that contains cattle holding areas; however, no structures would be affected. Relocating the affected cattle holding area would require 2.7 acres of land. After the project acquired land for the road overpass, approximately 2.7 acres of continuous unaffected land would remain. The available unaffected acreage is limited, and therefore special consideration would need to be given to finding adjacent lands if the holding area is relocated. Due to the relatively small size of the acquired land, it is likely the dairy would continue operation at this location. The HST track centerline would be approximately 160 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be negligible.

Dairy — 7315 Houston Avenue (Figure B-11)

BNSF Alternative

The dairy located at 7315 Houston Avenue in Kings County would experience moderate effects from the construction of a road overpass along the HST alignment under the BNSF Alternative. The road construction would require acquisition of 15 acres of agricultural land, or 21% of the parcel. The neighboring property contains a residence and facility buildings that probably support the dairy facility and cattle holding areas on the adjacent property at 12270 7th Avenue. Relocating the residence and facility buildings would require 3 acres of land. After the project acquired land for the road overpass, 52 acres of adjacent continuous land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 600 feet from the closest animal holding area, and therefore the indirect noise and vibration effects that would occur would be negligible.

Dairy — 8480 Kansas Avenue (Figure B-16)

BNSF Alternative

The dairy located at 8450 Kent Avenue in Kings County would experience moderate effects from the construction of the HST project under the BNSF Alternative. The alignment would require the acquisition of approximately 1.3 acres of land, or 0.01% of the parcel, which contains a wastewater treatment lagoon. Relocation of the wastewater treatment lagoon would require 5.4 acres of land. After the project acquired land for the tracks, 105 acres of adjacent continuous land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 240 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be negligible.

Feedlot — Nevada Avenue and 8th Avenue (Figure B-21)

BNSF Alternative, Corcoran Bypass Alternative and Corcoran Elevated Alternative

The heifer feedlot located at the intersection of Nevada Avenue and 8th Avenue in Kings County would experience moderate effects from the construction of the HST project under the BNSF Alternative and a negligible effect from the Corcoran Bypass and Corcoran Elevated alternatives, including the construction of tracks and a roadway. Under the BNSF Alternative, tracks and road construction would require acquisition of approximately 17 acres of land, or 32.1% of the parcel, along the east and southeast corner of the property. The affected land contains cattle holding areas, storage facilities, and a wastewater treatment lagoon. The road construction would occur over an existing access road through the parcel. Relocation of the affected facilities would require 37 acres of land. After the project acquired land for the tracks and roadway, 166 acres of adjacent continuous unaffected land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the feedlot to continue operation. The BNSF Alternative track centerline would be approximately 50 feet from the closest cattle holding area, and therefore the indirect noise and vibration effects would be moderate. The Corcoran Bypass and Corcoran Elevated alternatives would have less of an effect because the HST track alignment for these alternatives would be located off of the parcel and east of the existing railroad. Therefore, the overall effect on the operation from the Corcoran Bypass and Corcoran Elevated alternatives would be negligible.

Dairy — 2400 Avenue 136 (Figure B-24)

BNSF Alternative, Corcoran Bypass Alternative and Corcoran Elevated Alternative

The dairy located at 2400 Avenue 136 in Tulare County would experience moderate effects from the construction of the HST project under the BNSF Alternative and the Corcoran Bypass and Corcoran Elevated alternatives. The tracks and road closure would require approximately 10.6 acres of land, or 18.3% of the parcel, along the east and southeast corner of the property. The affected land contains cattle holding areas and storage facilities. Relocating the facilities would require 6 acres of land. After the project acquired land for the tracks and road closure, 45 acres of adjacent continuous unaffected land would remain. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operation. The HST track centerline would be approximately 50 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be moderate.

Dairy — 2799 Avenue 136 (Figure B-22)

BNSF Alternative, Corcoran Bypass Alternative and Corcoran Elevated Alternative

The dairy located at 2799 Avenue 136 in Tulare County would experience moderate effects from the construction of the HST project under the BNSF Alternative and the Corcoran Bypass and Corcoran Elevated alternatives). The alignment tracks and the road closure would require acquisition of approximately 10.7 acres of land, or 11% of the parcel, on the north and eastern portion of the property. The land contains animal holding areas and associated buildings, storage facilities, and wastewater treatment lagoons. Relocating the facilities would require 17.6 acres of land. After the project acquired land for the tracks and road closure, approximately 10.4 acres of continuous unaffected land would remain. The available unaffected acreage is limited and therefore special consideration would need to be given to finding adjacent lands if these facilities are to be relocated. Due to the relatively small size of the affected acreage, it is likely the dairy will continue operating at this location. The HST track centerline would be approximately 50 feet from the closest cattle holding area, and therefore the indirect noise and vibration effects would be moderate.

Dairy — 6502 13th Avenue (Figure B-4)

Hanford West Bypass 1 Alternative and Hanford West Bypass 2 Alternative

The dairy located at 6502 13th Avenue in Kings County would experience moderate effects from the construction of a road overpass for the HST project under the Hanford West Bypass 1 and Hanford West Bypass 2 alternatives. The road overpass would require approximately 2.5 acres of land, or 5.3% of the parcel, on the southwestern corner of the property. Relocating the affected cattle holding areas would require 19 acres of land. After the project acquired land for the road overpass there would be 107 acres of continuous unaffected land remaining. Thus, there appears to be sufficient available unaffected acreage to enable the dairy to continue operating. The HST track centerline would be approximately 300 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be negligible.

1.3 Negligible Effects

Poultry Operation — 8000 East Davis Avenue (Figure B-2)

BNSF Alternative

The poultry operation located at 8000 East Davis Avenue in Fresno County would be partially affected by the construction of the HST project under the BNSF Alternative. The alignment would require acquisition of about 0.5 acres, or 0.3% of the parcel, on the southwestern corner of the property. Because no facilities would be affected and the acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be approximately 200 feet from the closest poultry buildings, and therefore indirect noise and vibration effects would be negligible.

Dairy — 7705 Flint Avenue (Figure B-5)

BNSF Alternative

The dairy located at 7705 Flint Avenue in Kings County would be partially affected by the construction of the HST project under the BNSF Alternative, including the construction of tracks and a roadway overpass. The overpass would require the acquisition of a very small (0.1 acre) portion, or 0.1% of the parcel, on the northwestern corner of the property and would not affect any dairy facilities. The alignment would also require acquisition of a very small (0.1 acre)

amount of land on the eastern portion of the property for the relocation of the canal on the property. Because no facilities would be affected and the acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 75 feet from the animal holding areas, and therefore indirect noise and vibration effects would be moderate.

Dairy — 7334 7th Avenue (Figure B-6)

BNSF Alternative

The dairy located at 7334 7th Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative. The alignment would require acquisition of approximately 6 acres of agricultural land, or 8.4% of the parcel. Because no facilities would be affected and the acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,500 feet west of the dairy facilities, and therefore noise and vibration effects would be negligible.

Dairy — 11336 7th Avenue (Figure B-9)

BNSF Alternative

The dairy located at 11336 7th Avenue in Kings County would be affected by the construction of a roadway overpass along the HST project under the BNSF Alternative. The overpass would require acquisition of approximately 0.4 acres of agricultural land, or 0.5% of the parcel. Because no facilities would be affected and the acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,700 feet west of the dairy facilities, and therefore indirect noise and vibration effects would be negligible.

Dairy — 12270 7th Avenue (Figure B-10)

BNSF Alternative

The dairy located at 12270 7th Avenue in Kings County would be affected by the construction of a roadway overpass along the HST project under the BNSF Alternative, which would require acquisition of a small (0.4 acre) portion of land, or 1% of the parcel, at the northern part of the property. Because no facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,200 feet west of the dairy facilities, and therefore indirect noise and vibration effects would be negligible.

Dairy — 12652 7th Avenue (Figure B-12)

BNSF Alternative

The dairy located at 12652 7th Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative. The alignment would require acquisition of approximately 3.7 acres of agricultural land, or 4.7% of the parcel, on the eastern portion of the property. Because no facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 2,000 feet west of the dairy facilities, and therefore indirect noise and vibration effects would be negligible.

Dairy — 7577 Jackson Avenue (Figure B-13)

BNSF Alternative

The dairy located at 7577 Jackson Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative, including the construction of tracks and a road and roadway overpass. The alignment and roads would require acquisition of approximately 11 acres of land, or 14% of the parcel, on the eastern portion of the property. This land contains a residence and agricultural land. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,400 feet east of the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy — 8520 Kent Avenue (Figure B-15)

BNSF Alternative

The dairy located at 8520 Kent Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative, including the construction of the tracks and traction power substation. The alignment would require the acquisition of approximately 6 acres of agricultural land, or 3.5% of the parcel, which would bisect the property; however, all dairy facilities would remain together in the western portion of the property. The traction power substation would require a small amount of land (0.3 acres) on the eastern portion of the property that contains agricultural land. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be approximately 1,000 feet from the closest cattle holding area, and therefore indirect noise and vibration effects would be negligible.

Dairy — 8800 Lansing Avenue (Figure B-18)

BNSF Alternative

The dairy located at 8800 Lansing Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative. The alignment would require acquisition of approximately 7.5 acres of agricultural land, or 6.4% of the parcel, and would bisect the property. The dairy facilities would not be affected and would all remain on the western portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 300 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy — 8000 Lansing Avenue (Figure B-20)

BNSF Alternative and Hanford West Bypass 2 Alternative

The dairy located at 8000 Lansing Avenue in Kings County would be affected by the construction of the HST project under the BNSF Alternative and the Hanford West Bypass 2 Alternative, including the construction of tracks and a traction power substation. The Hanford West Bypass 2 Alternative Alignment would require acquisition of approximately 2.6 acres, or 0.2% of the parcel, in the southwestern corner of the property that contains agricultural land. The BNSF Alternative and its associated traction power substation would require acquisition of approximately 15 acres of agricultural land, or 2.7% of the parcel. The cattle holding areas and associated buildings would remain together on the eastern portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located

approximately 1,400 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Feedlot — 3800 Avenue 120 (Figure B-23)

BNSF Alternative

The feedlot at 3800 Avenue 120 in Tulare County would be affected by the construction of a roadway overpass associated with the HST project under the BNSF Alternative. The overpass would require the acquisition of 11 acres of agricultural land, or 14% of the parcel, on the southwestern portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,400 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy—4024 13 ¼ Avenue (Figure B-3)

Hanford West Bypass 1 Alternative and Hanford West Bypass 2 Alternative

The dairy located at 4024 13 ¼ Avenue in Kings County would be affected by the construction of the HST project under the Hanford West Bypass 1 and Hanford West Bypass 2 alternatives), including the construction of tracks and a traction power substation. The alignment and traction power substation would require approximately 7.6 acres of agricultural land, or 9.3% of the parcel, on the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects would be negligible. The HST track centerline would be located approximately 1,200 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy — 7057 14th Avenue (Figure B-25)

Hanford West Bypass 1 Alternative and Hanford West Bypass 2 Alternative

The dairy located at 7057 14th Avenue in Kings County would be affected by the construction of the HST project under the Hanford West Bypass 1 and Hanford West Bypass 2 alternatives, including the construction of tracks and a roadway overpass. The alignment and overpass would require approximately 14 acres of land, or 12.4% of the parcel. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects on the dairy facilities would be negligible. The HST track centerline would be located approximately 1,000 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy — 16500 11th Avenue (Figure B-14)

Hanford West Bypass 1 Alternative

The dairy located at 16500 11th Avenue in Kings County would be affected by the construction of a roadway underpass along the HST alignment under the Hanford West Bypass 1 Alternative. The roadway underpass would require acquisition of approximately 0.3 acres, or 0.8% of the parcel, at the southern portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects on the dairy facilities would be negligible. The HST track centerline would be located approximately 500 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

Dairy — 9846 Lansing Avenue (Figure B-17)

Hanford West Bypass 2 Alternative

The dairy located at 9846 Lansing Avenue in Kings County would be affected by the construction of the HST project under the Hanford West Bypass 1 Alternative. The alignment would require acquisition of approximately 3 acres, or 1.6% of the parcel, at the northern portion of the property. Because no dairy facilities would be affected and acquisition of non-facility land would not bisect the operation, the effects on the dairy facilities would be negligible. The HST track centerline would be located approximately 1,600 feet from the cattle holding areas, and therefore indirect noise and vibration effects would be negligible.

2.0 Offsite Wastewater Application Lands

Table 3 provides a parcel-by-parcel listing of all the offsite wastewater application lands that are affected by each of the project alternatives. This table provides the total acres affected on each parcel as well as the number of these total acres that have the potential to be used for wastewater application. This potential for wastewater application was determined using aerial imagery of croplands and excluding acreage that is currently not used for crop production (e.g., storage yards, roads, and parking areas). The effects on these parcels can be viewed in the designated figure.

Table 3
 Affected Wastewater Lands by Alternative (including HMF)

Figure	APN	Total Acres Affected	Acres with Potential for Manure Management
BNSF Alternative			
B-30	014060006000	4.4	4.4
B-33	016200011000	3.0	3.0
B-37	016260001000	3.0	3.0
B-34	016200010000	10.3	10.3
B-35	016260026000	0.8	0.8
B-32	016260019000	17.5	17.5
B-39	016260014000	15.9	15.9
B-41	028050016000	5.0	5.0
B-42	028050015000	0.3	0.3
B-44	028050003000	0.3	0.3
B-43	028050006000	4.1	4.1
B-45	028080008000	7.7	7.7
B-46	028170040000	5.9	5.9
B-48	028170041000	3.2	1.4
B-47	028160011000	7.3	7.3
B-51	028202005000	23.9	23.9
B-52	028202003000	2.9	2.9
B-53	028202012000	5.3	5.3
B-49	028170042000	0.7	0.7

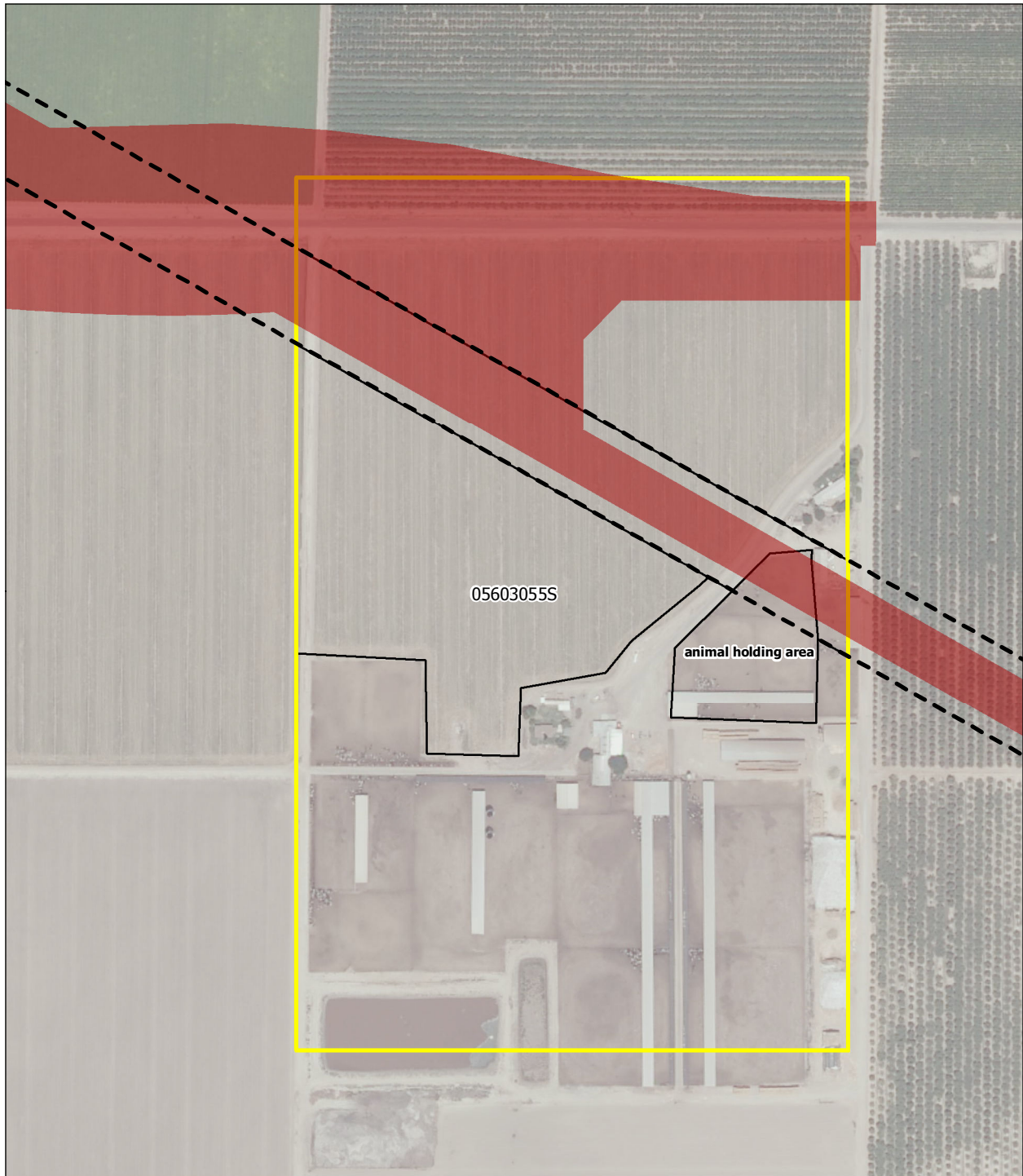
Table 3
 Affected Wastewater Lands by Alternative (including HMF)

Figure	APN	Total Acres Affected	Acres with Potential for Manure Management
Hanford West Bypass 1 Alternative (At-Grade and Below-Grade Options)			
B-26	002220034000	2.16	2.16
B-28	006020003000	0.36	0.36
B-27	006020004000	0.41	0.41
B-29	006050020000	7.80	7.80
B-31	009010032000	75.1	6.57
B-36	018250033000	145.6	15.08
B-40	028020059000	82.2	3.08
B-50	028150021000	8.57	8.57
B-54	028220060000	6.3	6.3
B-56	028260035000	13.05	13.05
B-58	028260036000	3.73	3.73
B-60	028260040000	13.38	13.38
B-55	028220058000	1.11	1.11
B-62	028260019000	0.46	0.46
Hanford West Bypass 2 Alternative (At-Grade and Below-Grade Options)			
B-26	002220034000	2.16	2.16
B-28	006020003000	0.36	0.36
B-27	006020004000	0.41	0.41
B-29	006050020000	7.80	7.80
B-31	009010032000	75.1	6.57
B-36	018250033000	145.6	15.08
B-40	028020059000	82.2	3.08
B-57	028260033000	9.00	9.00
B-59	028260039000	16.80	16.80
B-61	028260005000	2.9	2.9
Hanford HMF			
B-38	016200019000	57.8	57.8
B-33	016200011000	123.5	117.3
B-37	016260001000	123.4	123.4
HMF = heavy maintenance facility			

3.0 References

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Kings County. 2002. "Dairy Element of the Kings County General Plan." Hanford, CA: Kings County Community Development Agency. July 30, 2002. <http://www.countyofkings.com/planning/dairy.html>



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

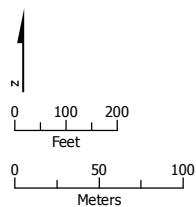


Figure B- 1
APN 05603055S



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

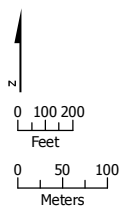
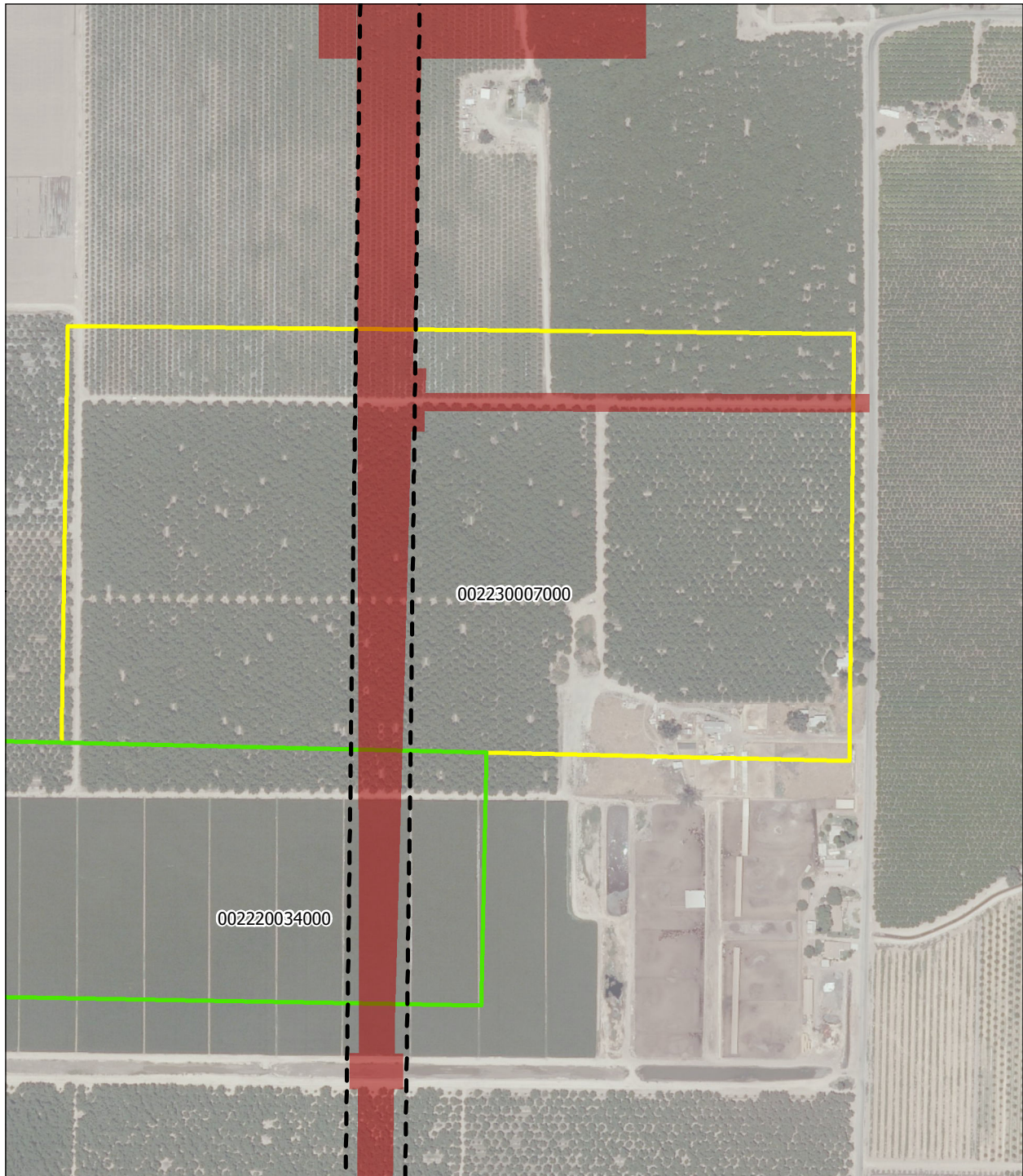


Figure B- 2
APN 05603044S



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

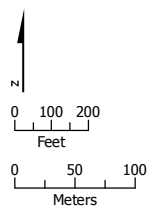
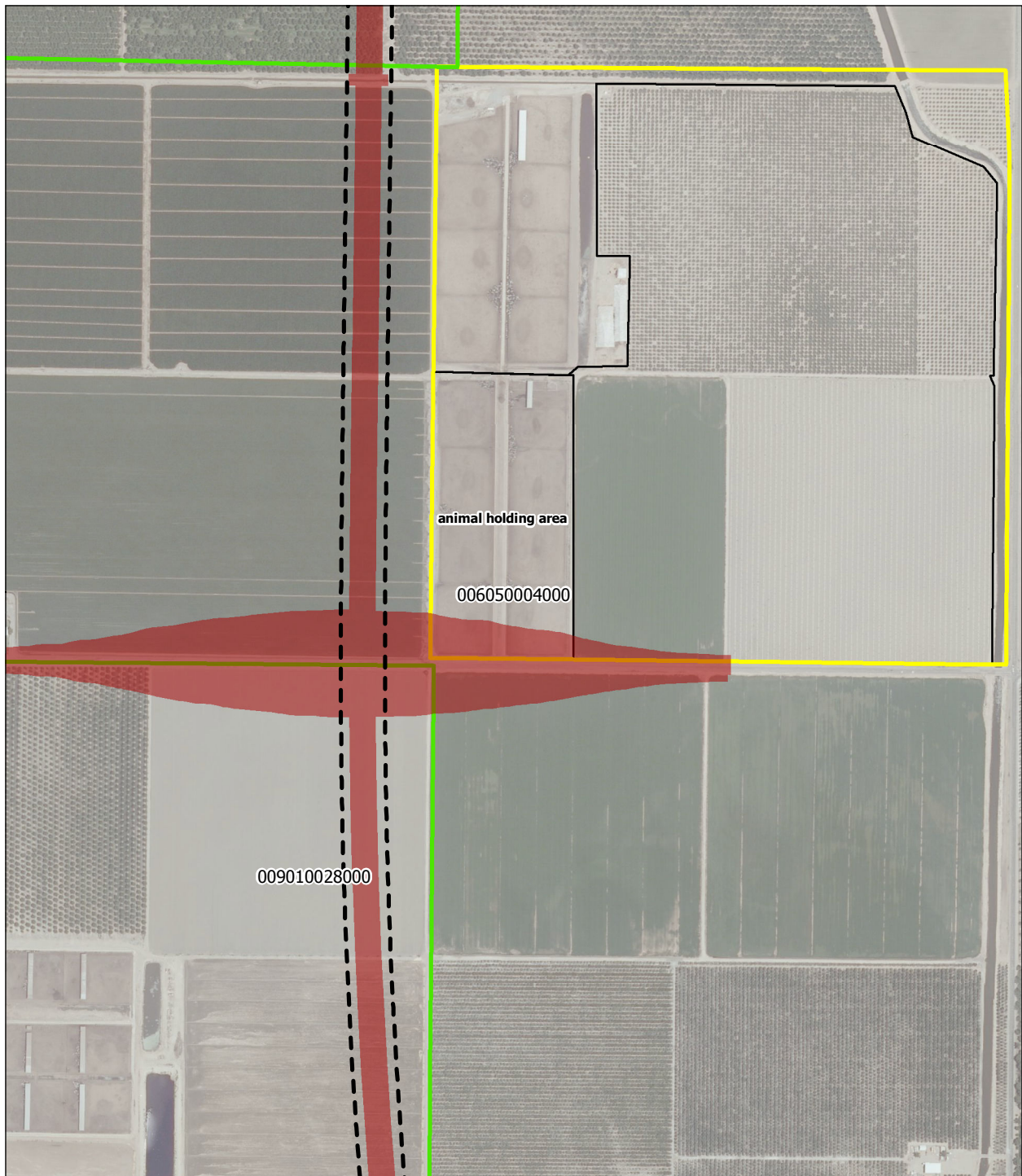


Figure B- 3
APN 002230007000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

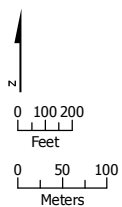
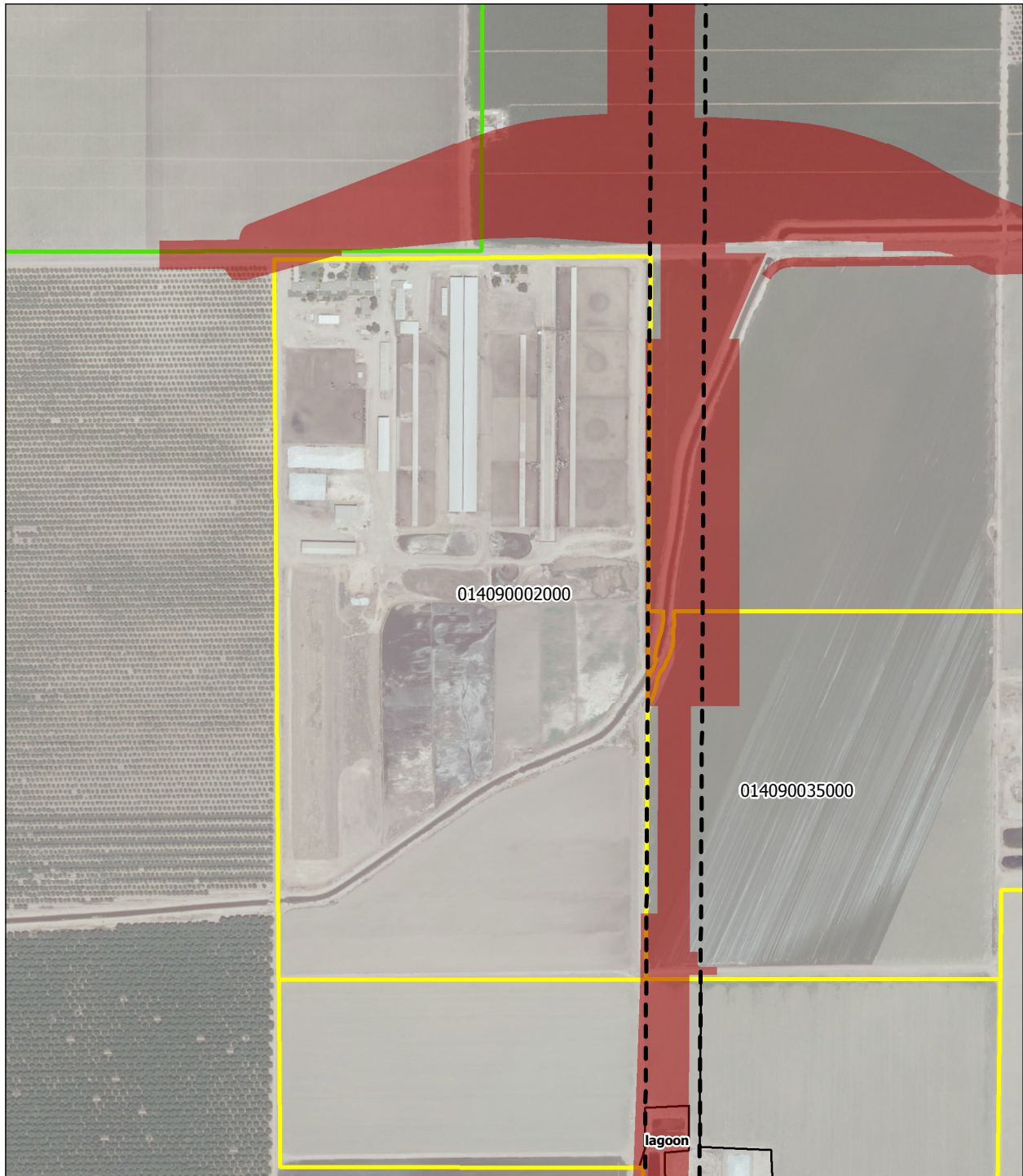


Figure B- 4
APN 006050004000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

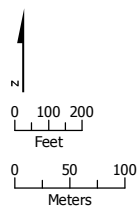
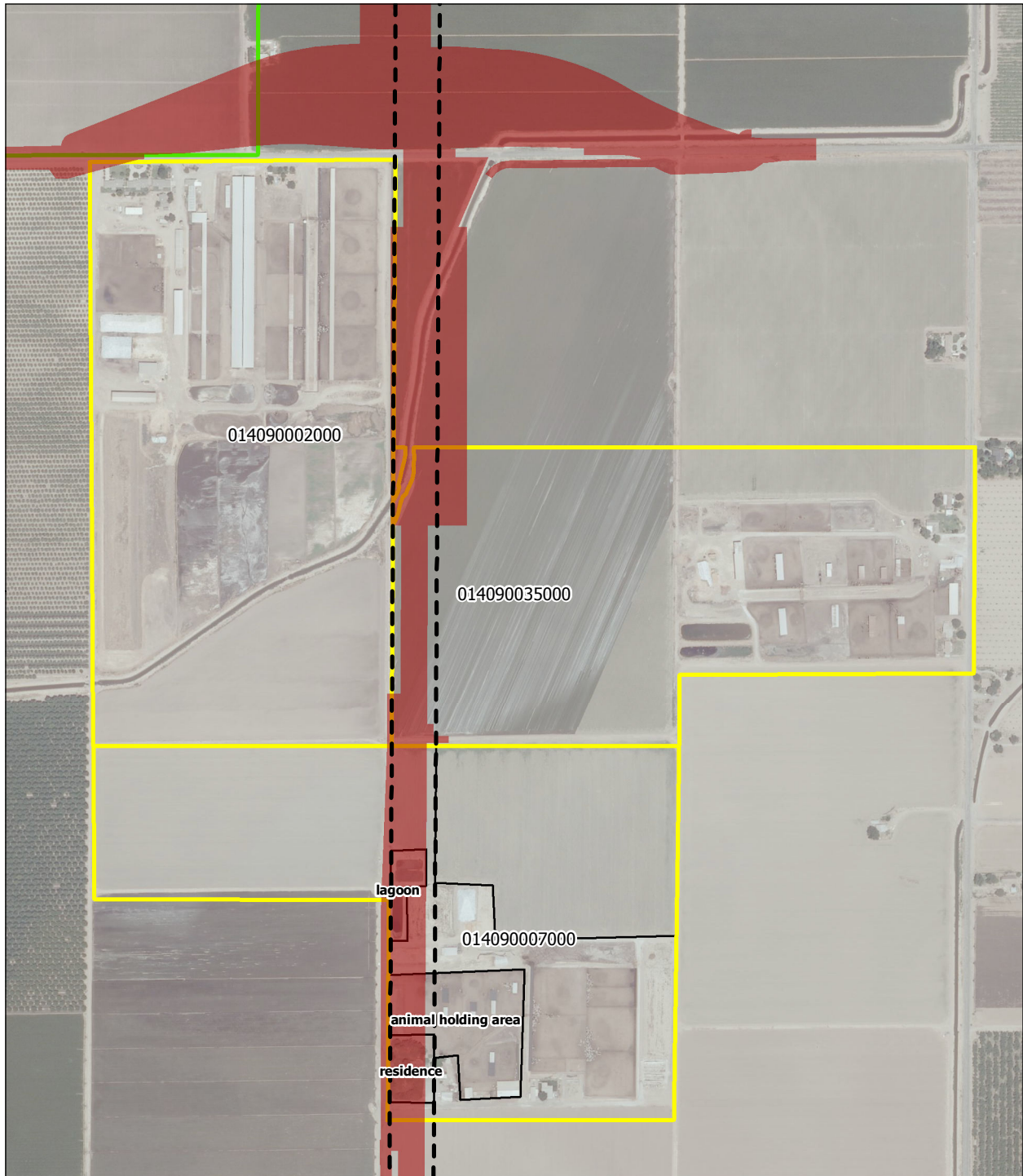


Figure B- 5
 APN 014090002000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

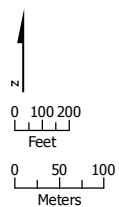
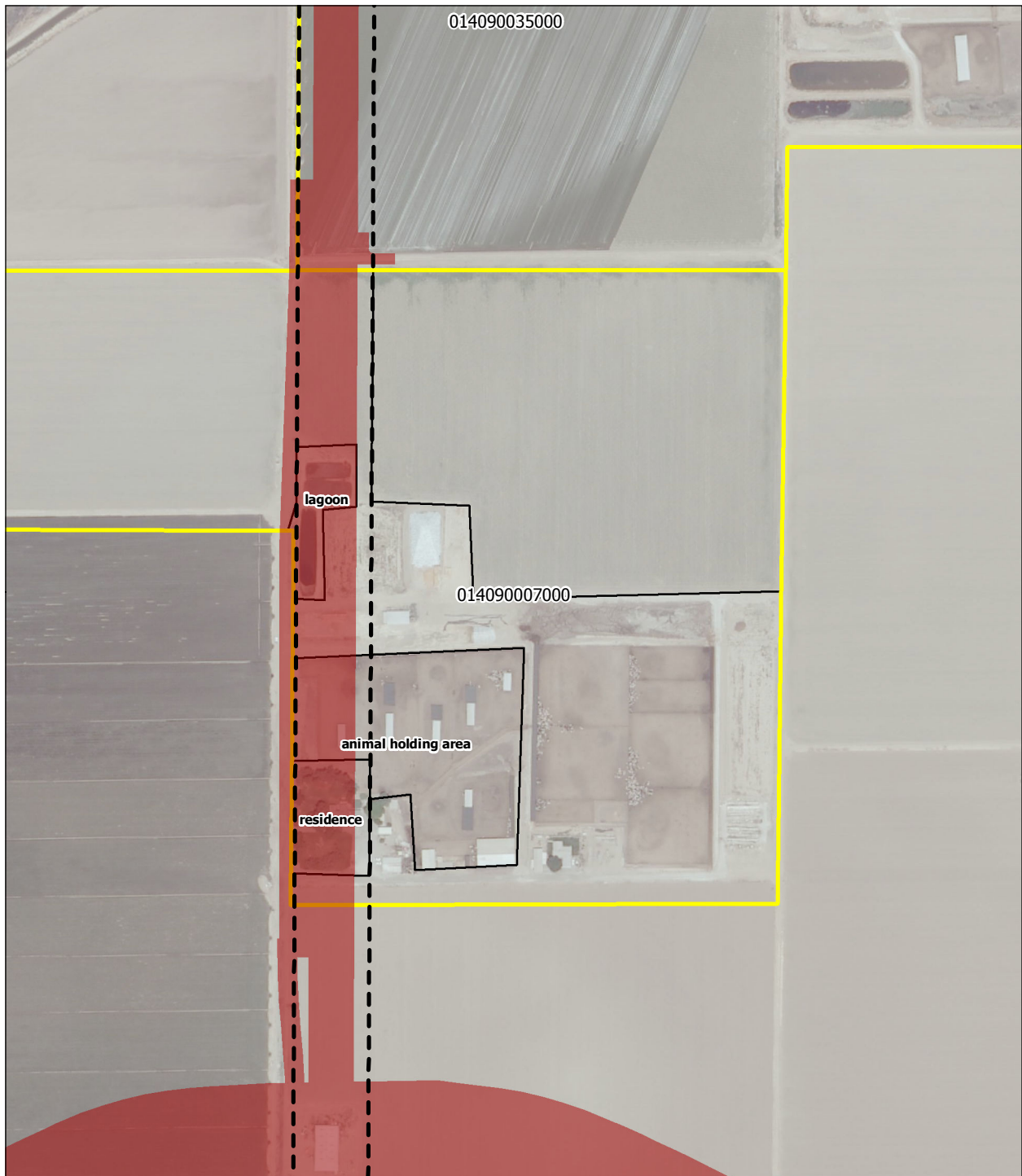


Figure B- 6
 APN 014090035000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

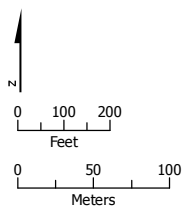
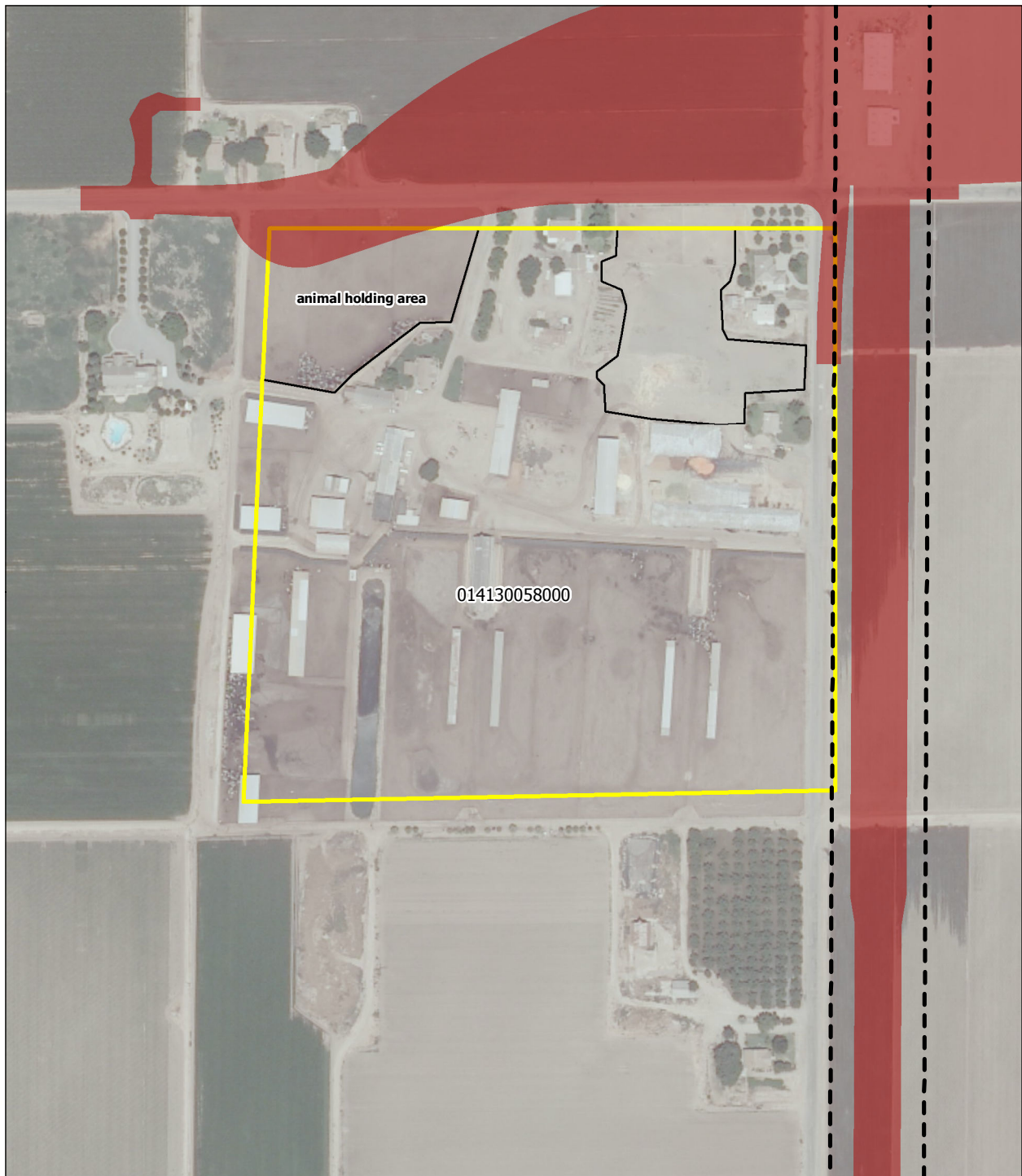


Figure B- 7
APN 014090007000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

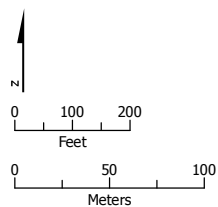
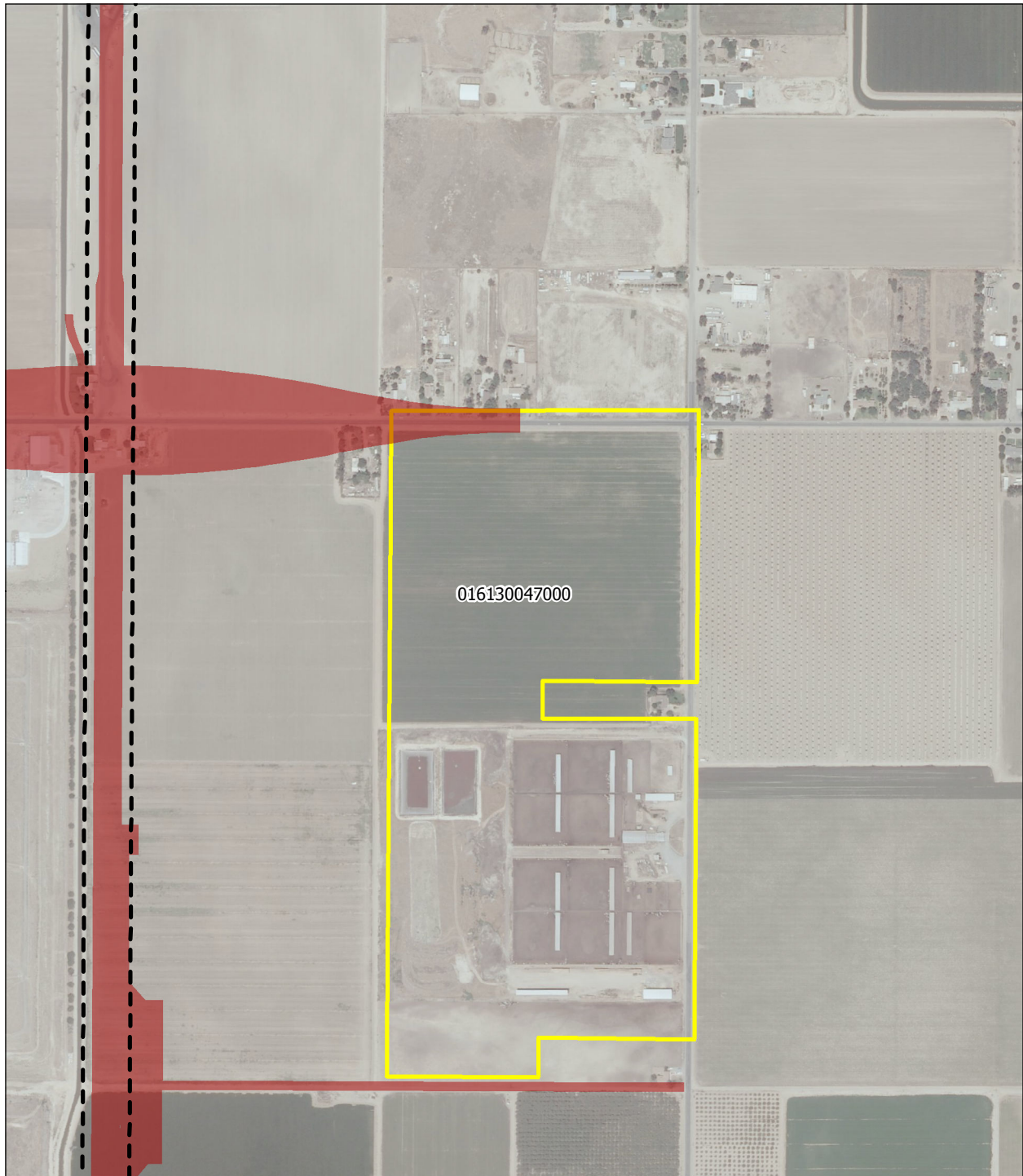


Figure B- 8
APN 014130058000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

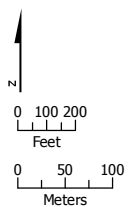
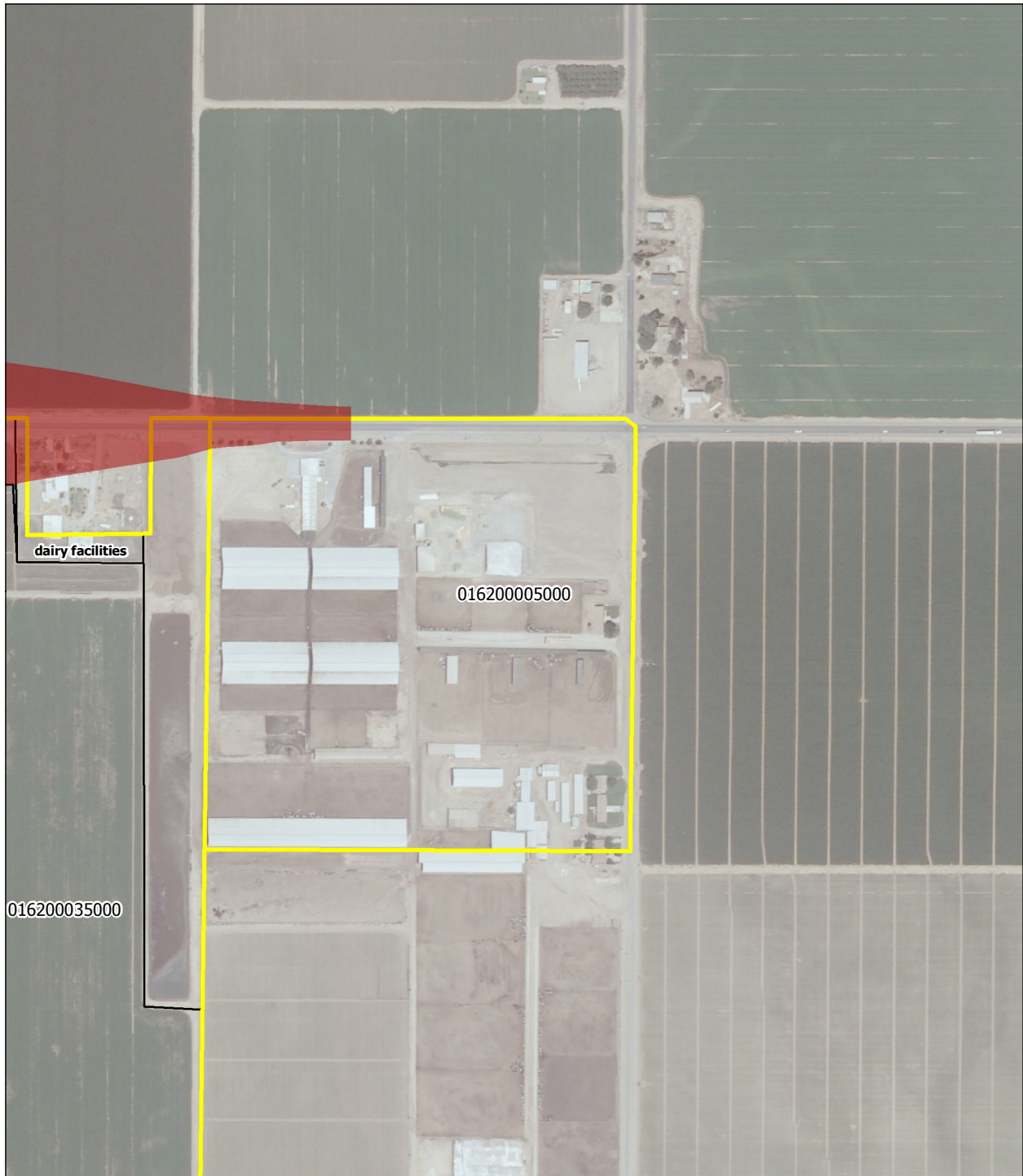


Figure B- 9
APN 016130047000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

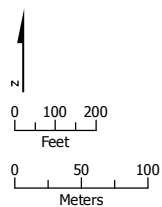
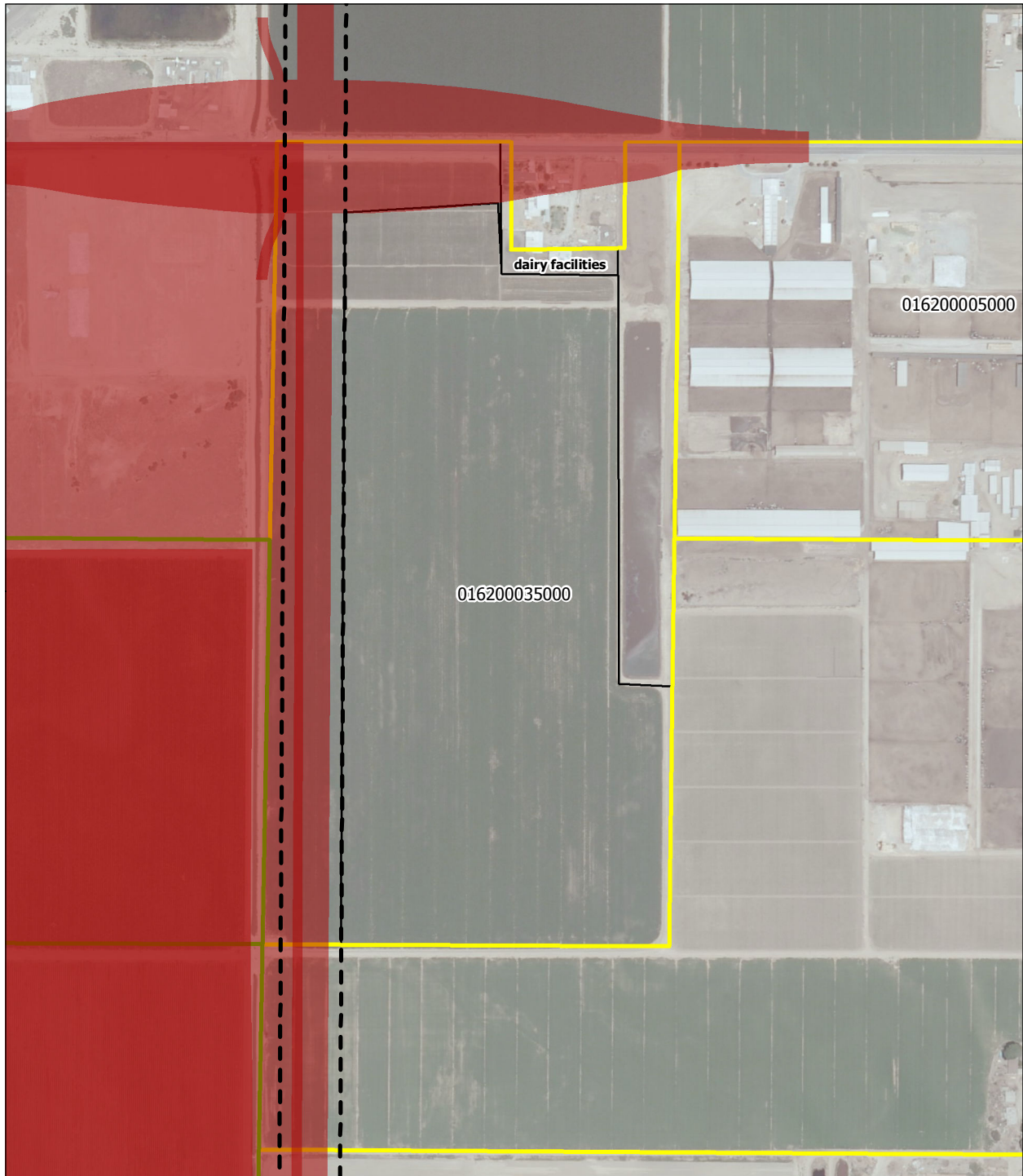


Figure B- 10
APN 01620005000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

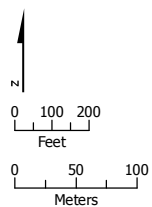
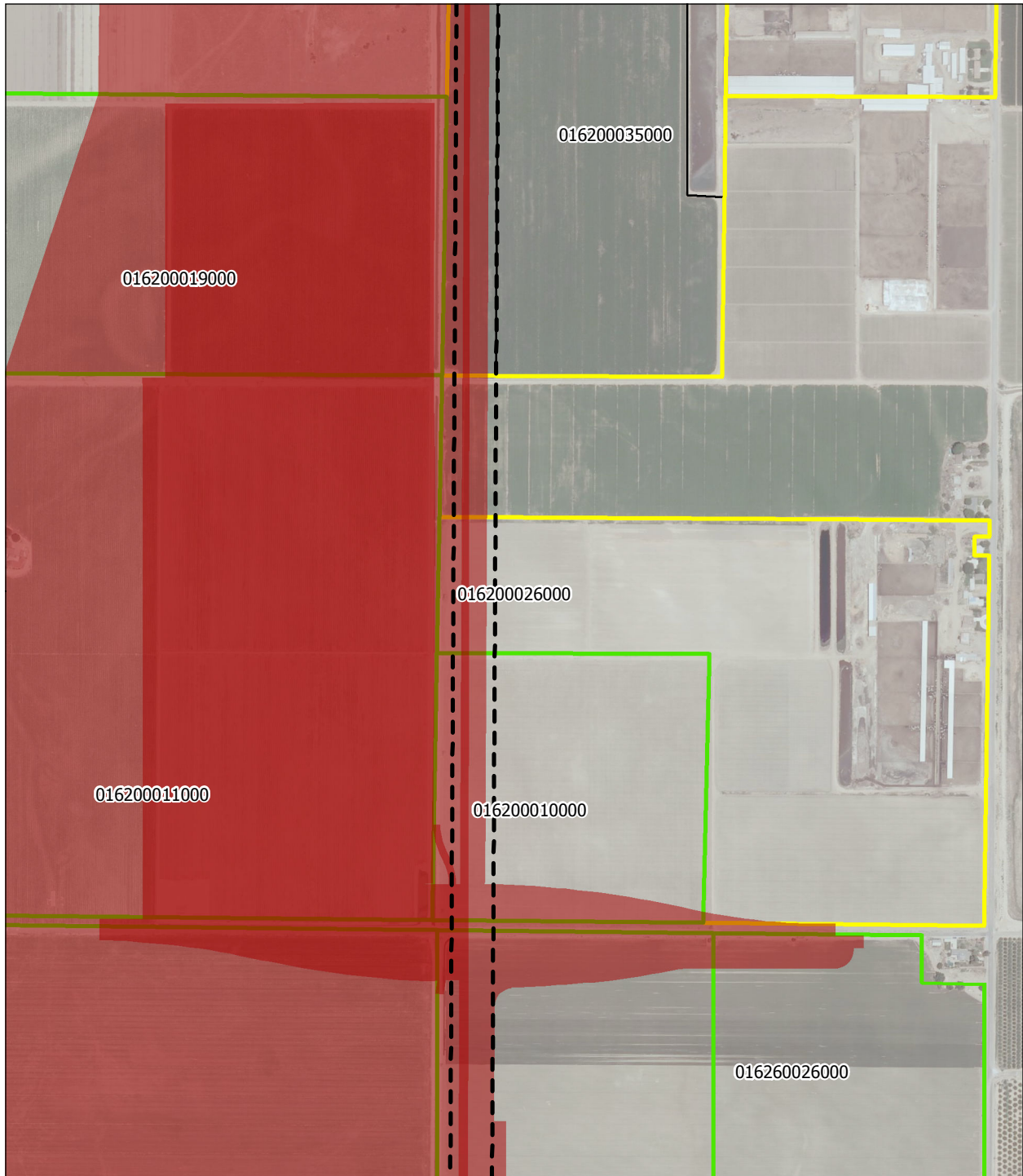


Figure B- 11
APN 016200035000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

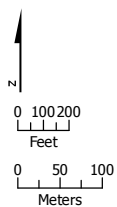
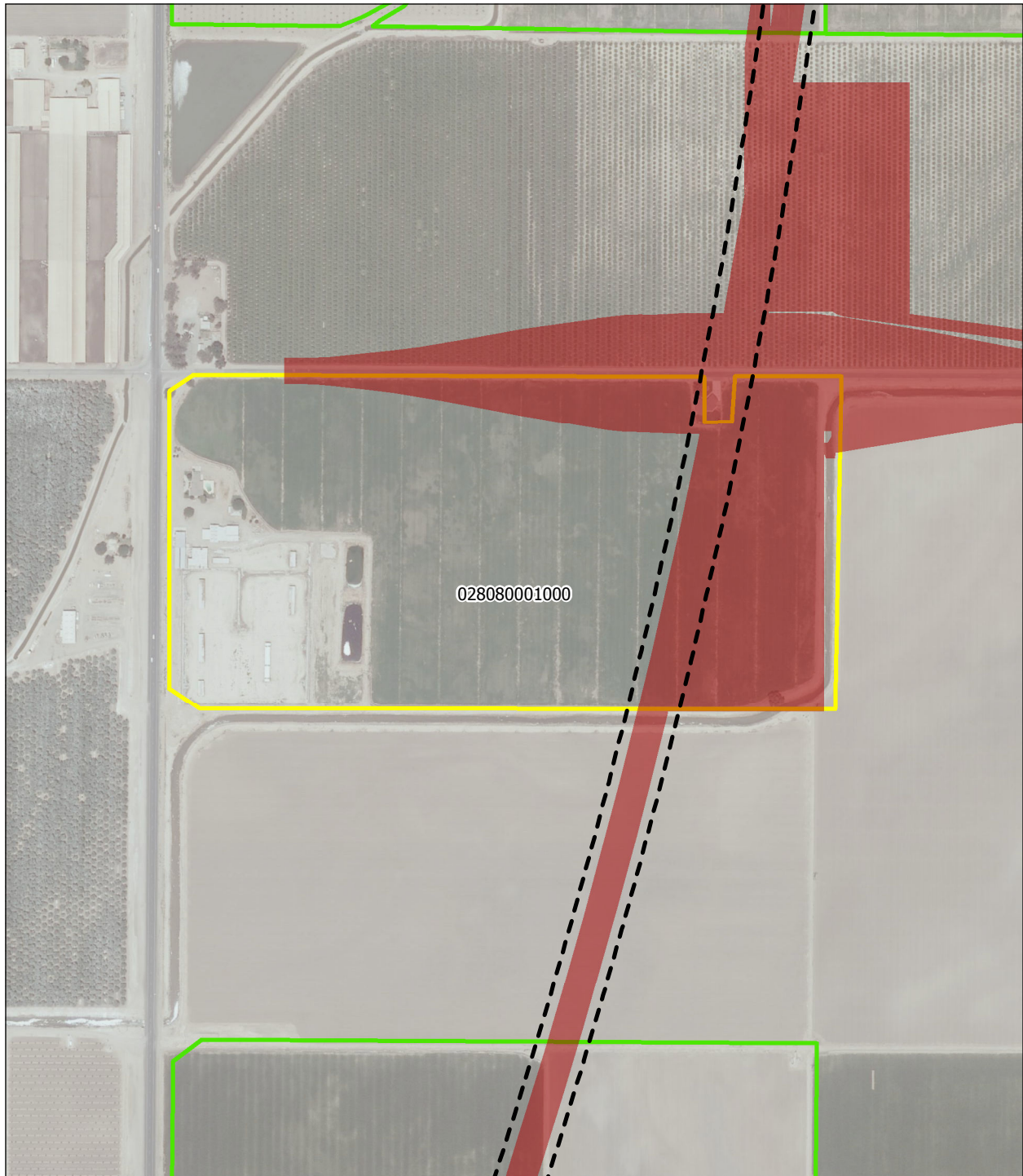


Figure B- 12
 APN 016200026000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

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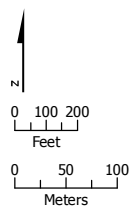
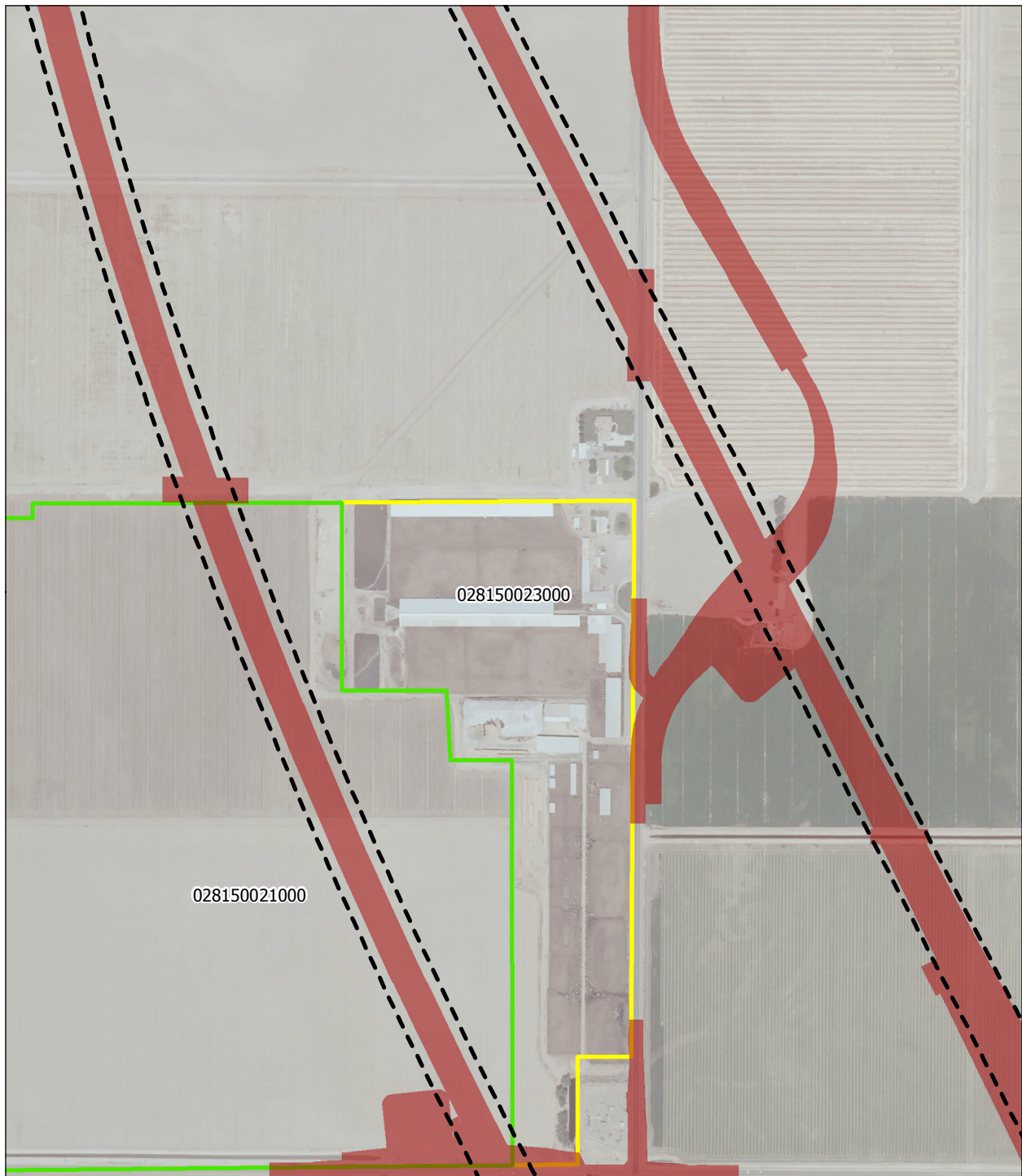


Figure B- 13
APN 028080001000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

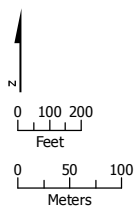
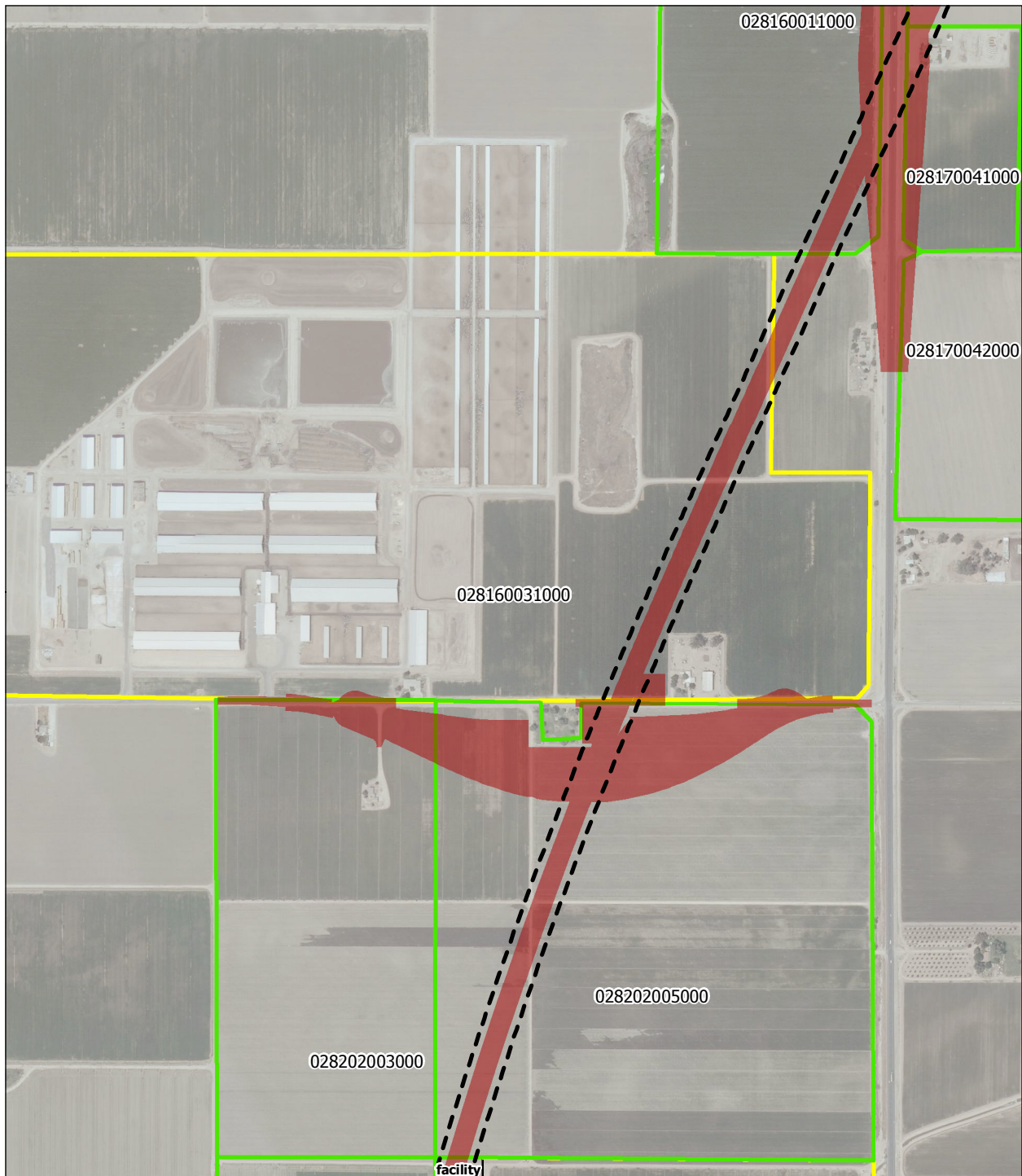


Figure B- 14
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PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

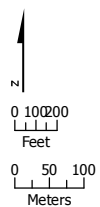
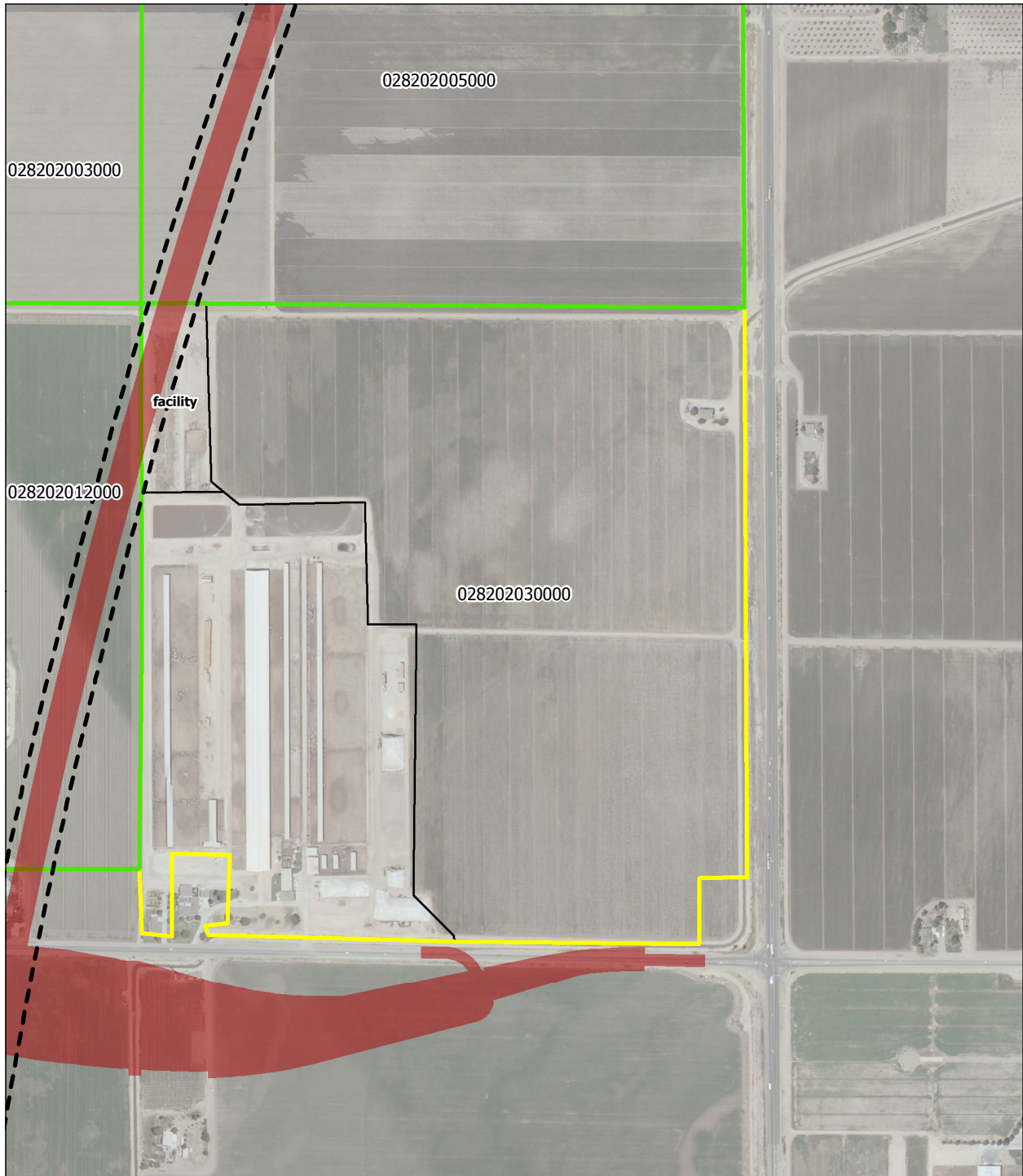


Figure B- 15
 APN 028160031000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

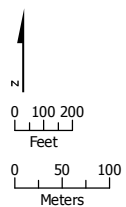
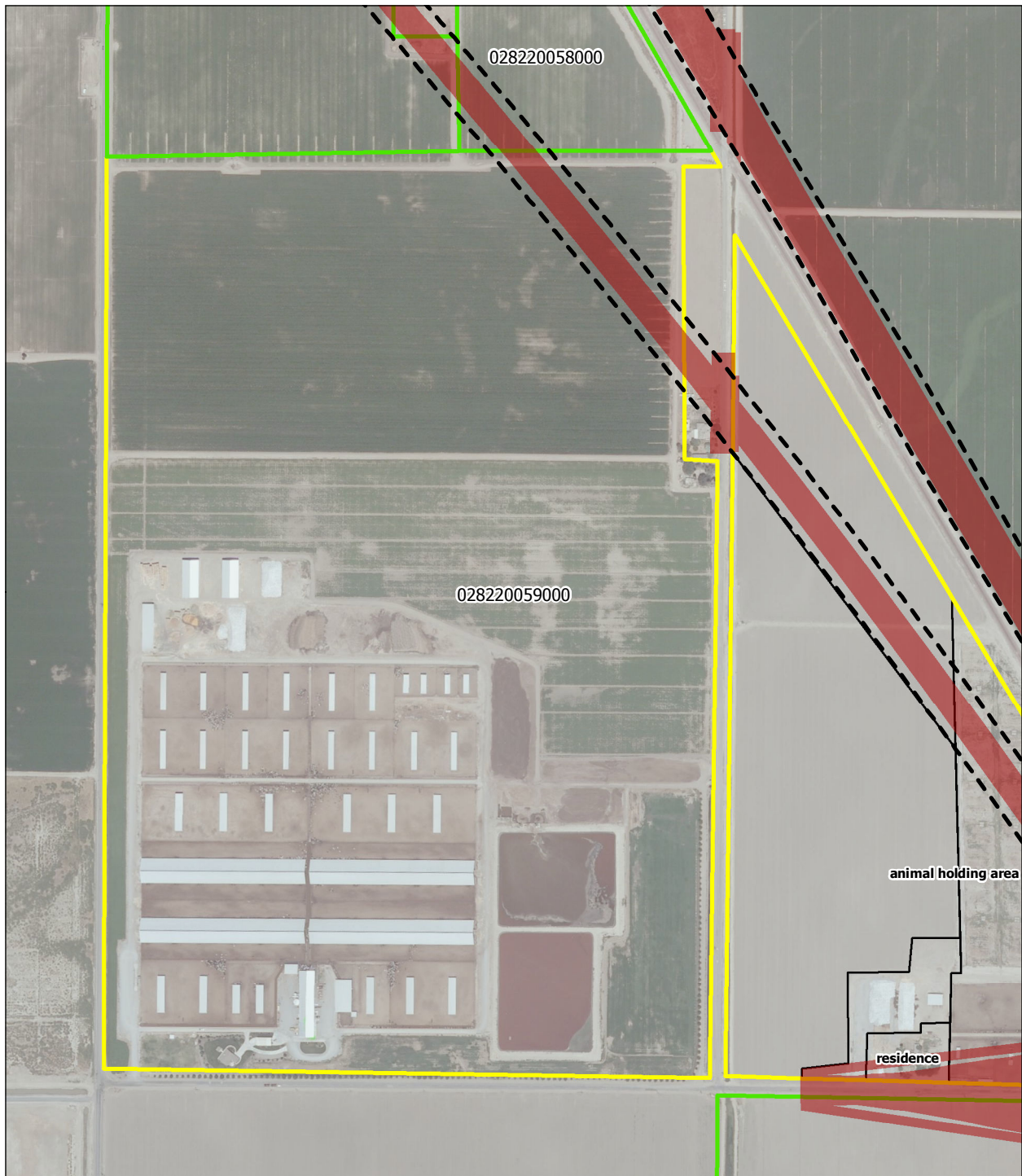


Figure B- 16
 APN 028202030000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

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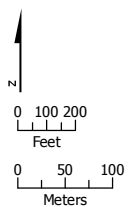
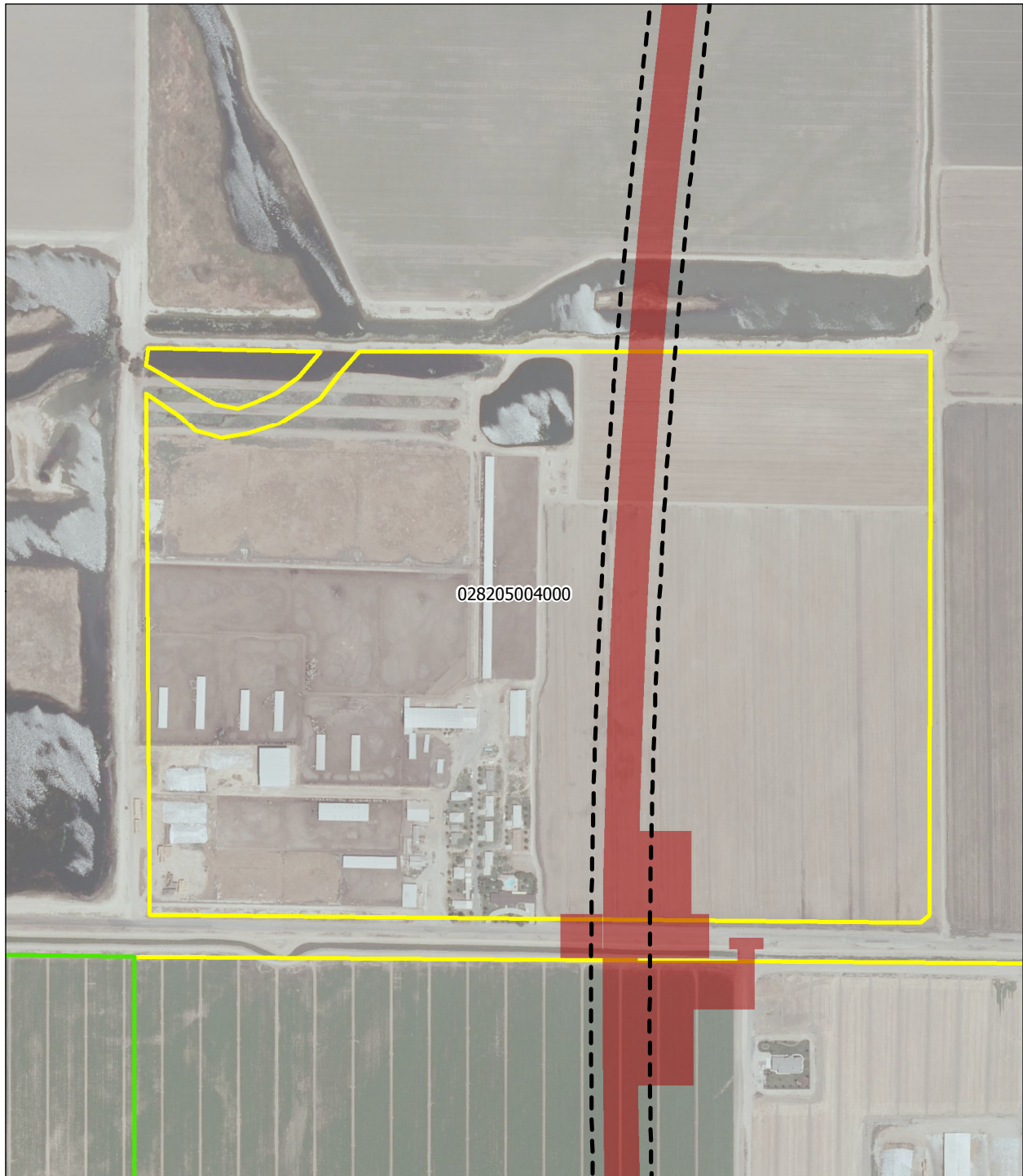


Figure B- 17
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PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

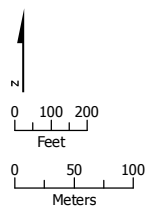
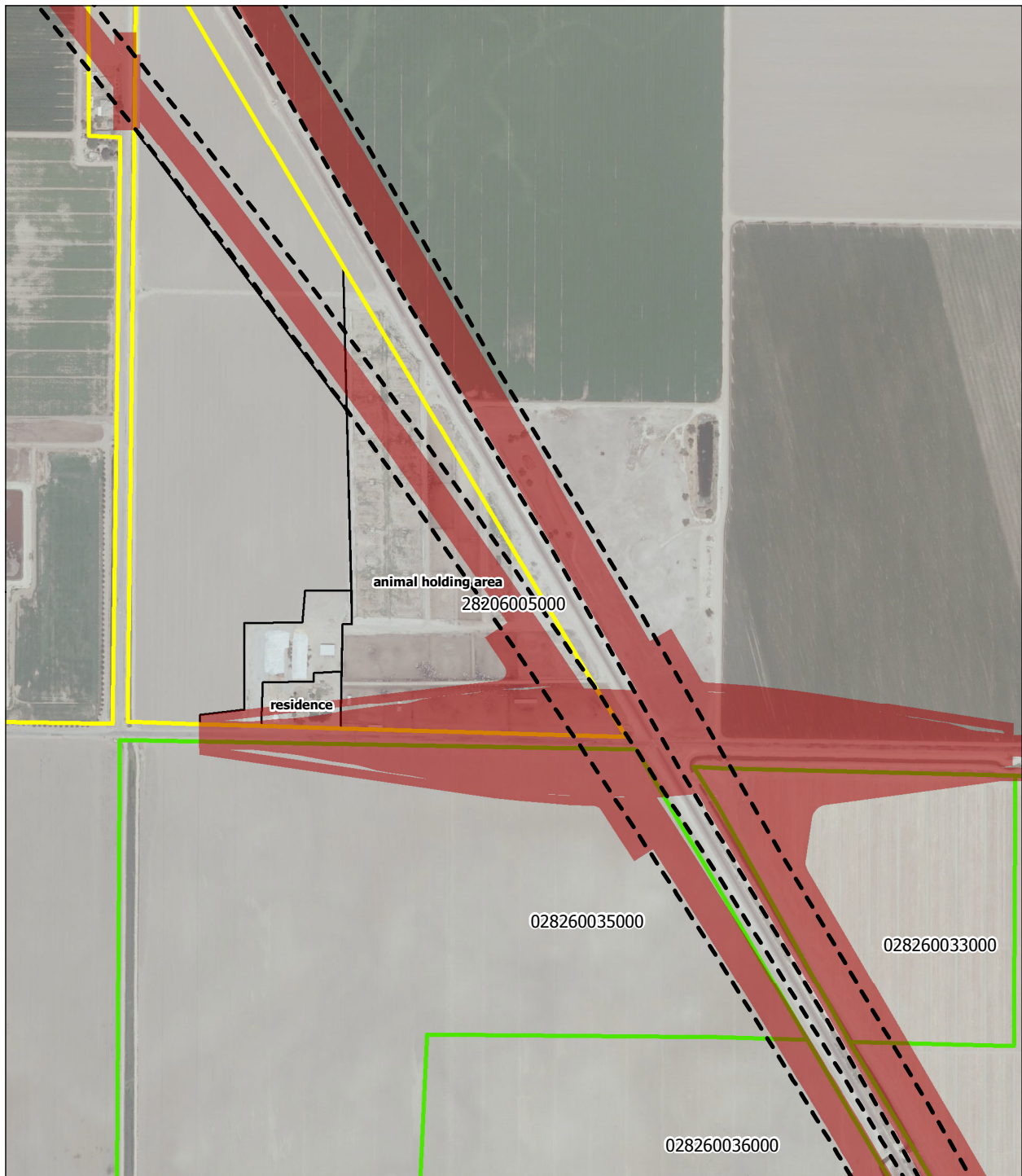


Figure B- 18
APN 028205004000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

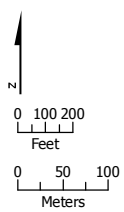
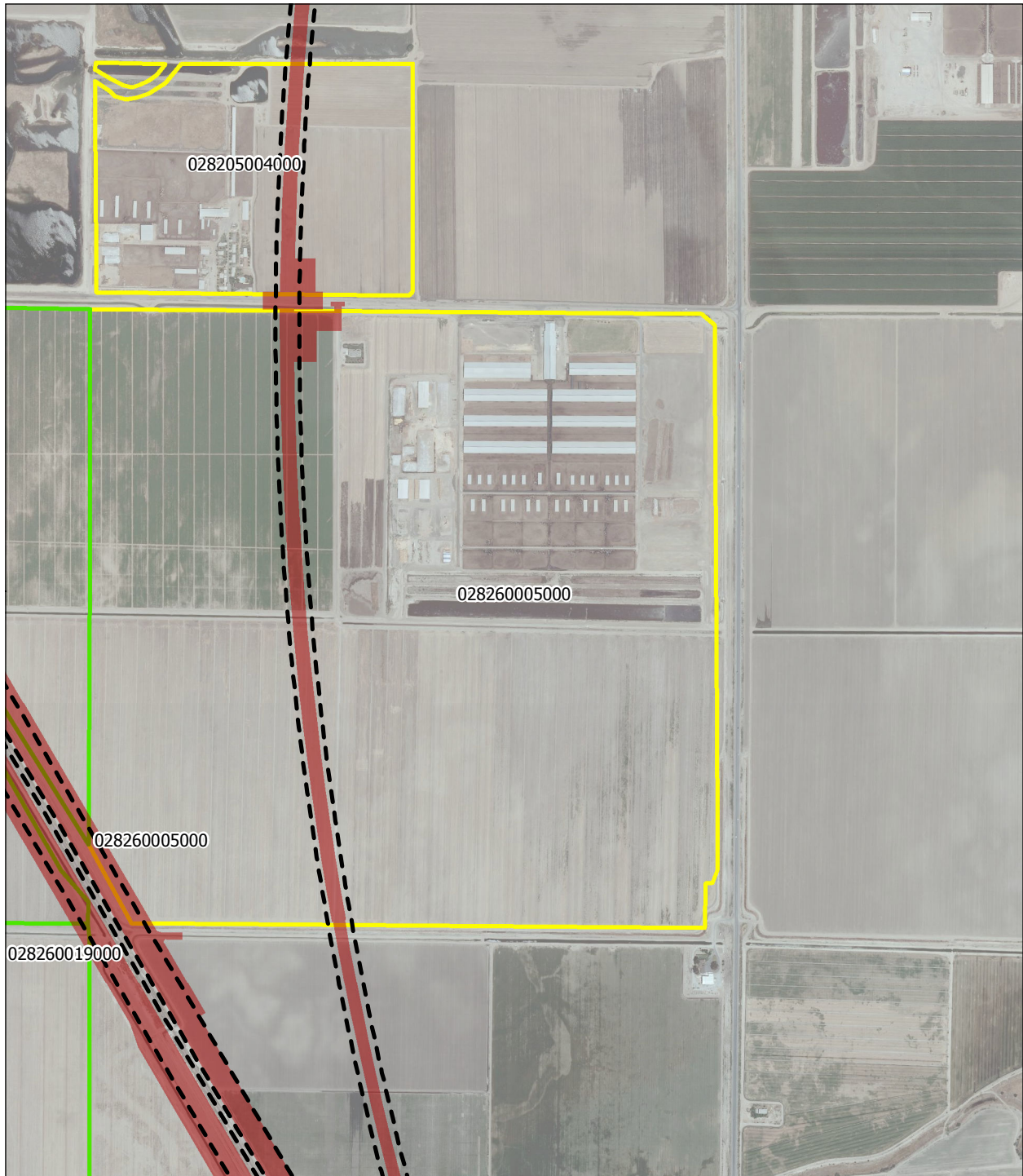


Figure B- 19
 APN 28206005000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

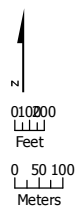
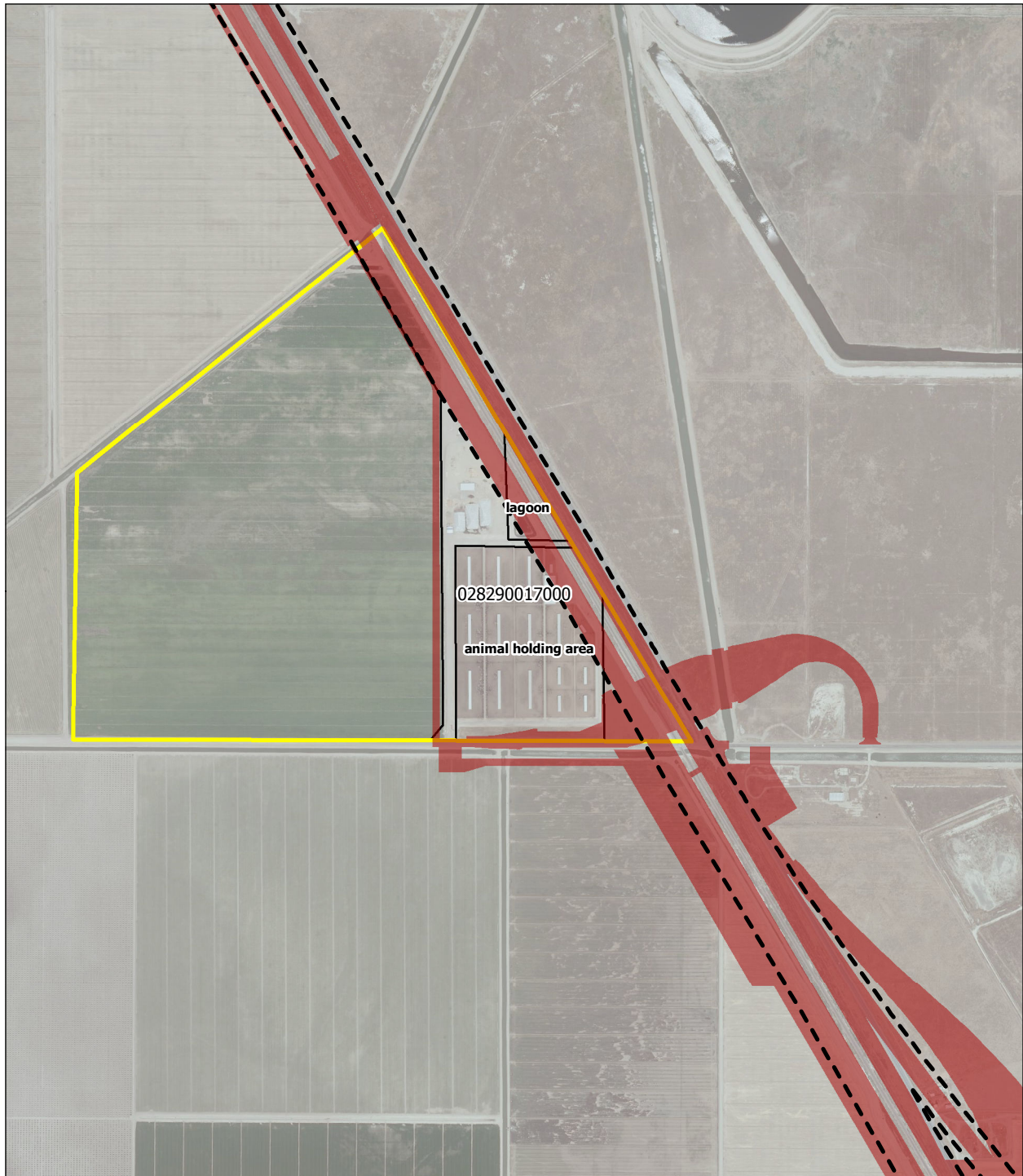


Figure B- 20
 APN 028260005000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
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April 9, 2012

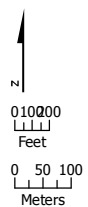
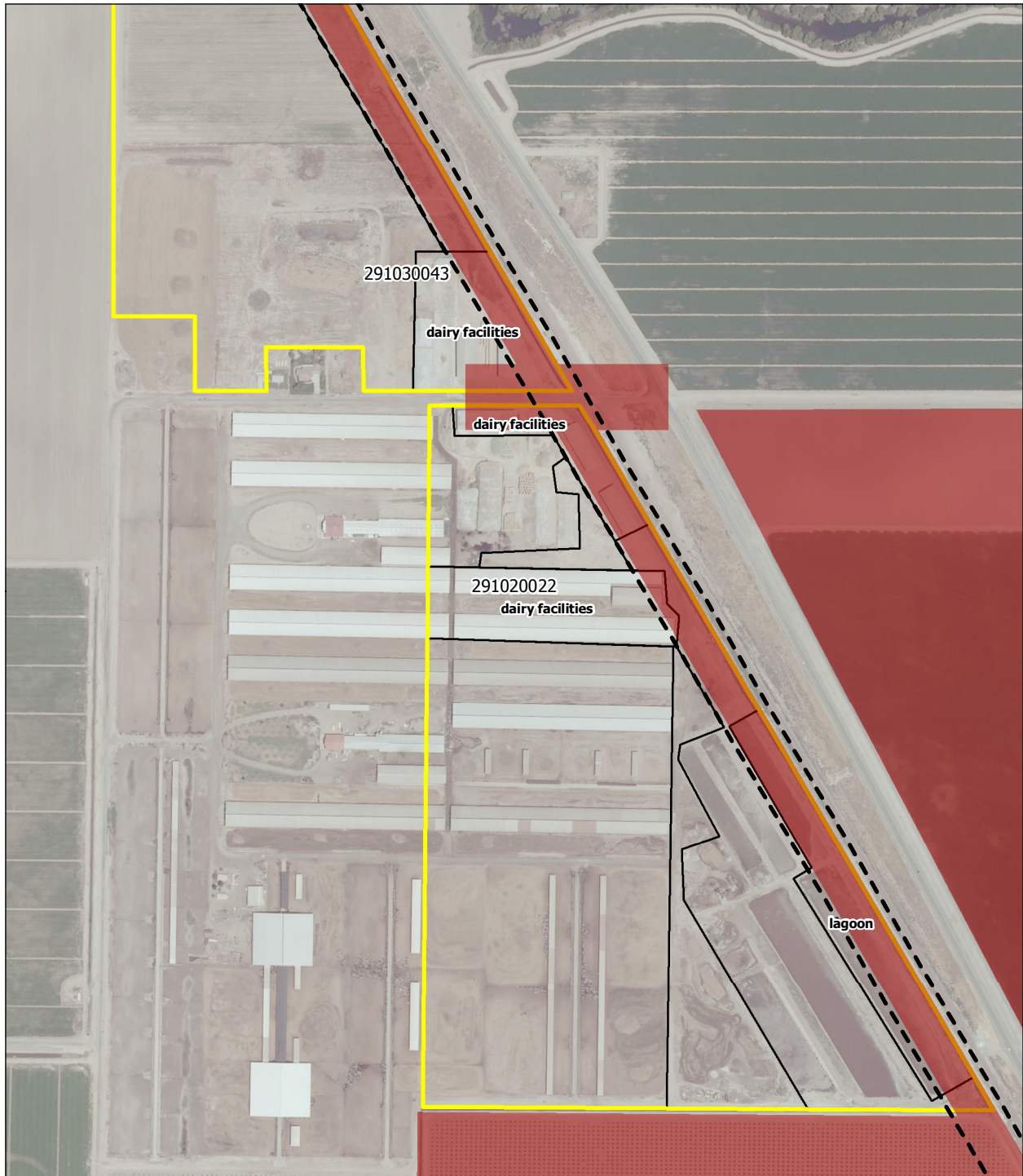


Figure B- 21
 APN 028290017000



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 Source: URS, 2012

April 9, 2012

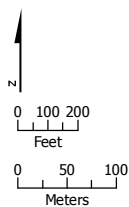
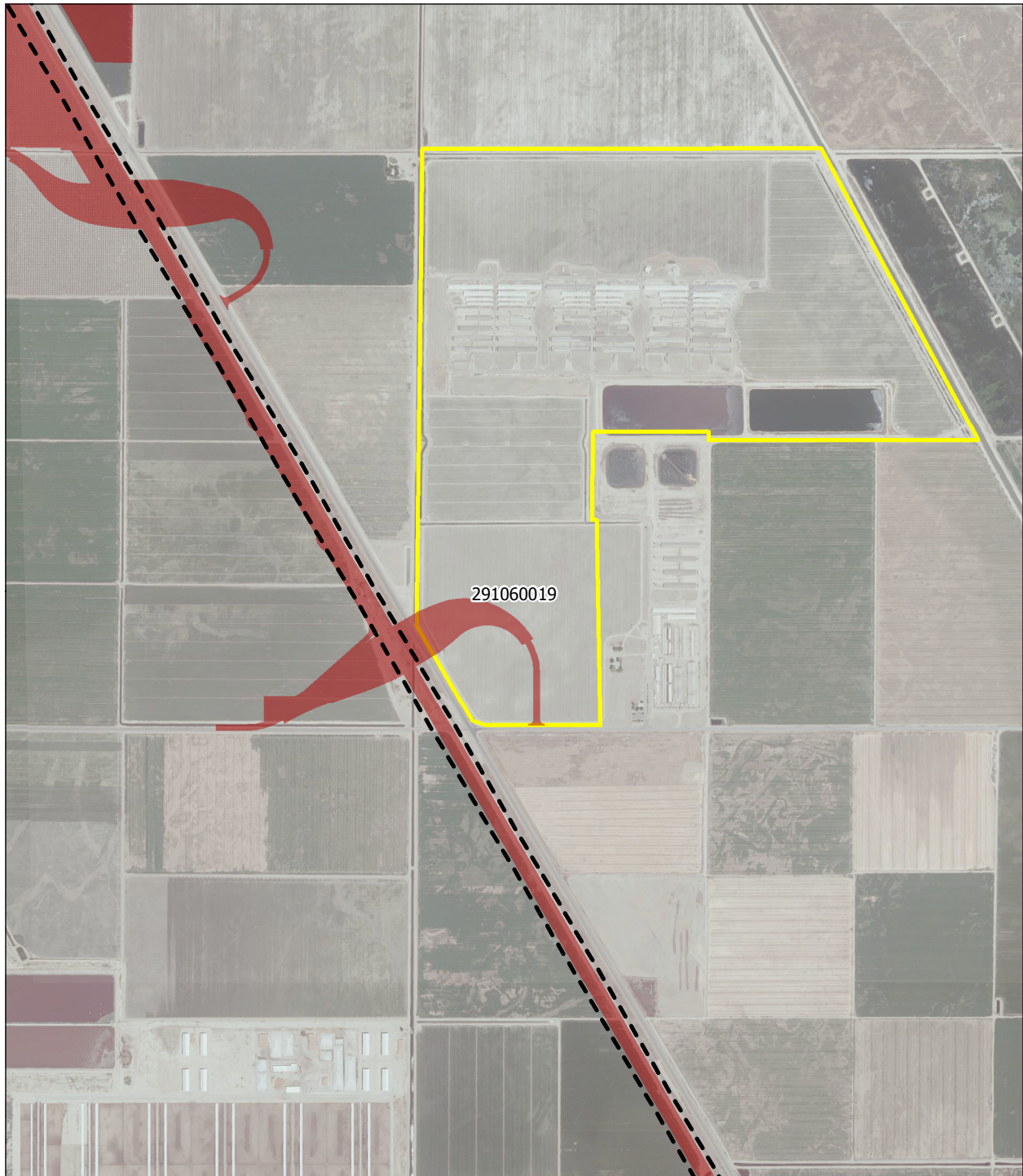


Figure B- 22
 APN 291020022



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

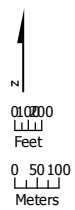
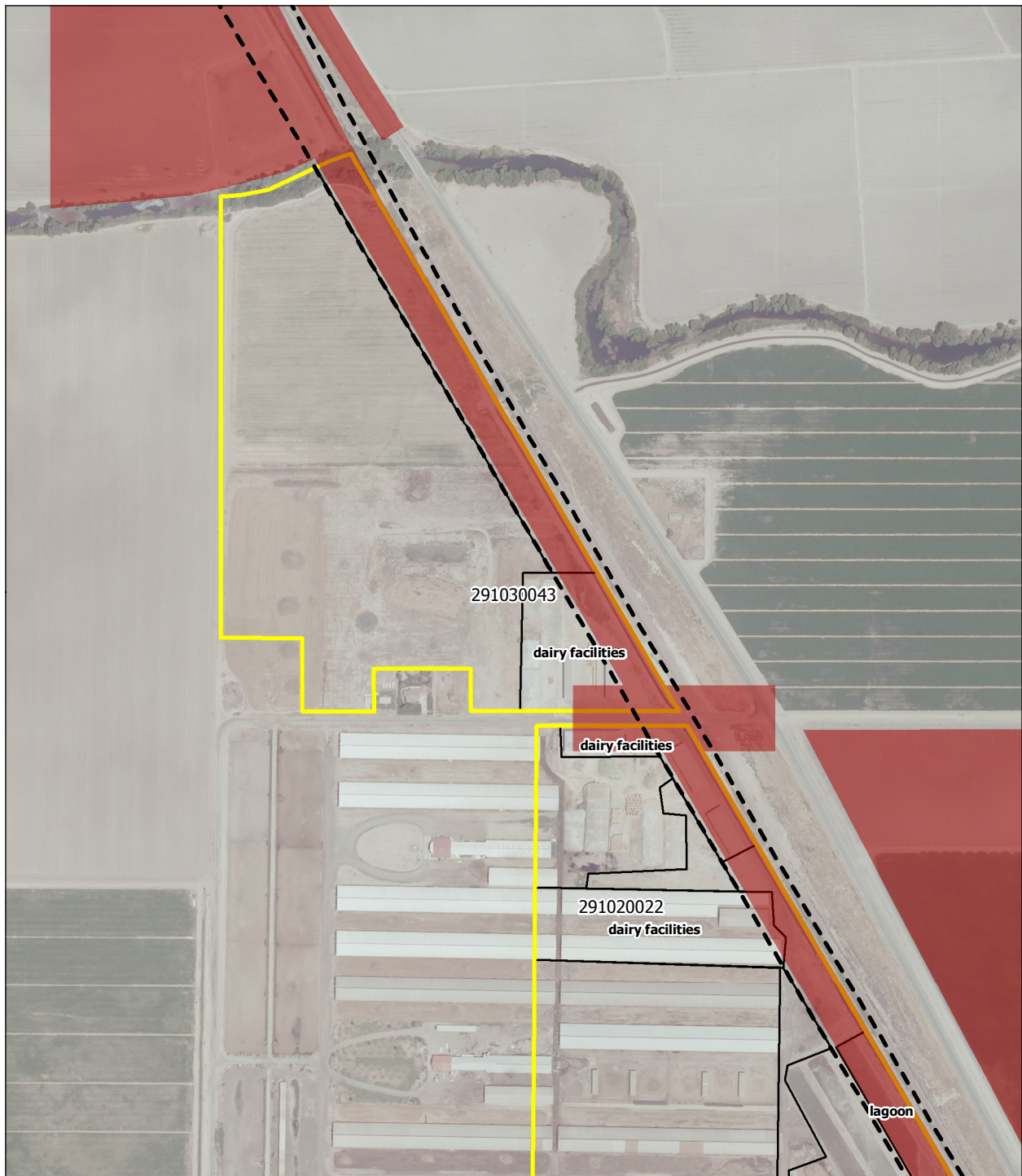


Figure B- 23
APN 291060019



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 Source: URS, 2012

April 9, 2012

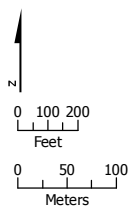
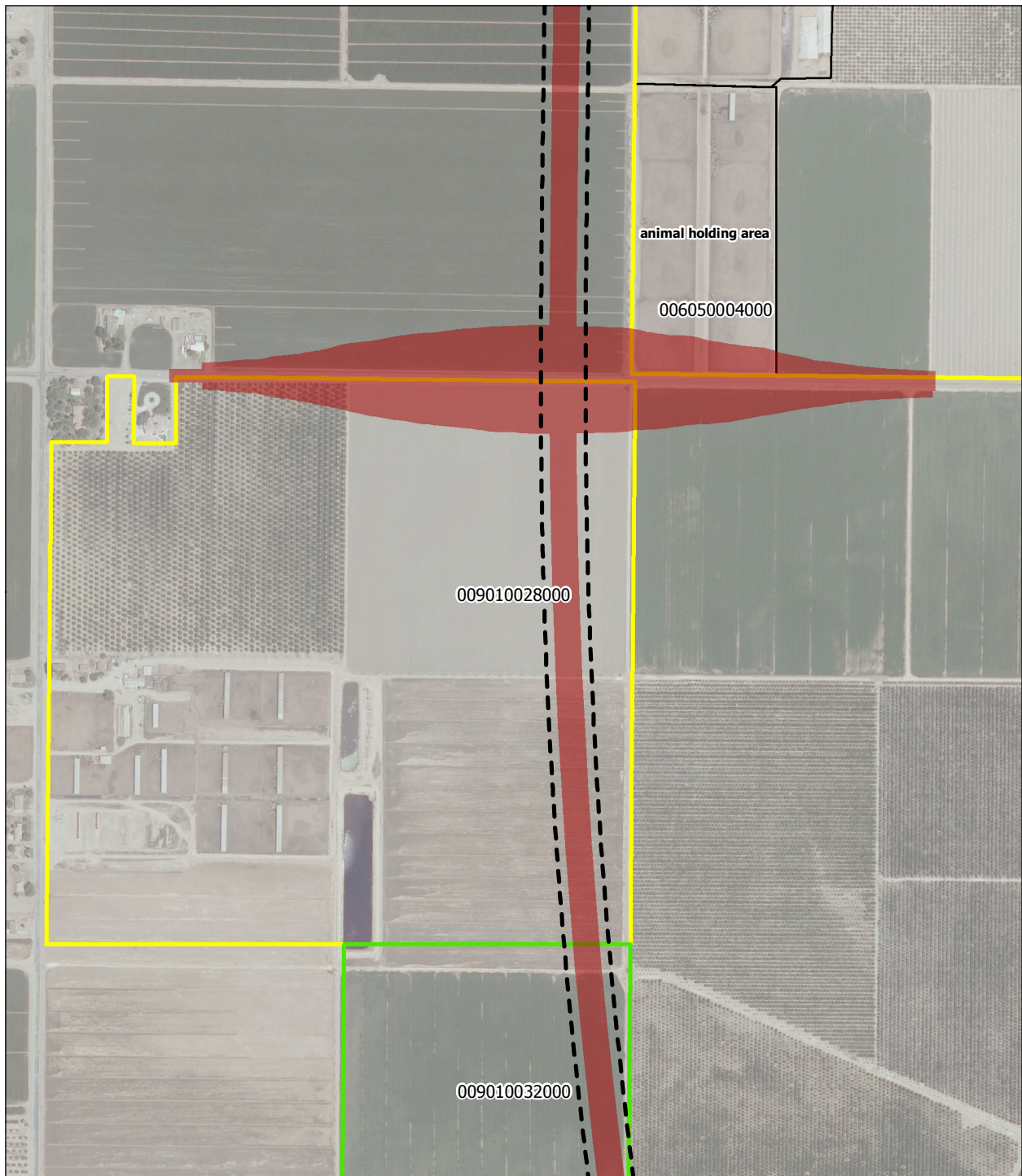


Figure B- 24
 APN 291030043



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April 9, 2012

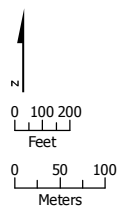
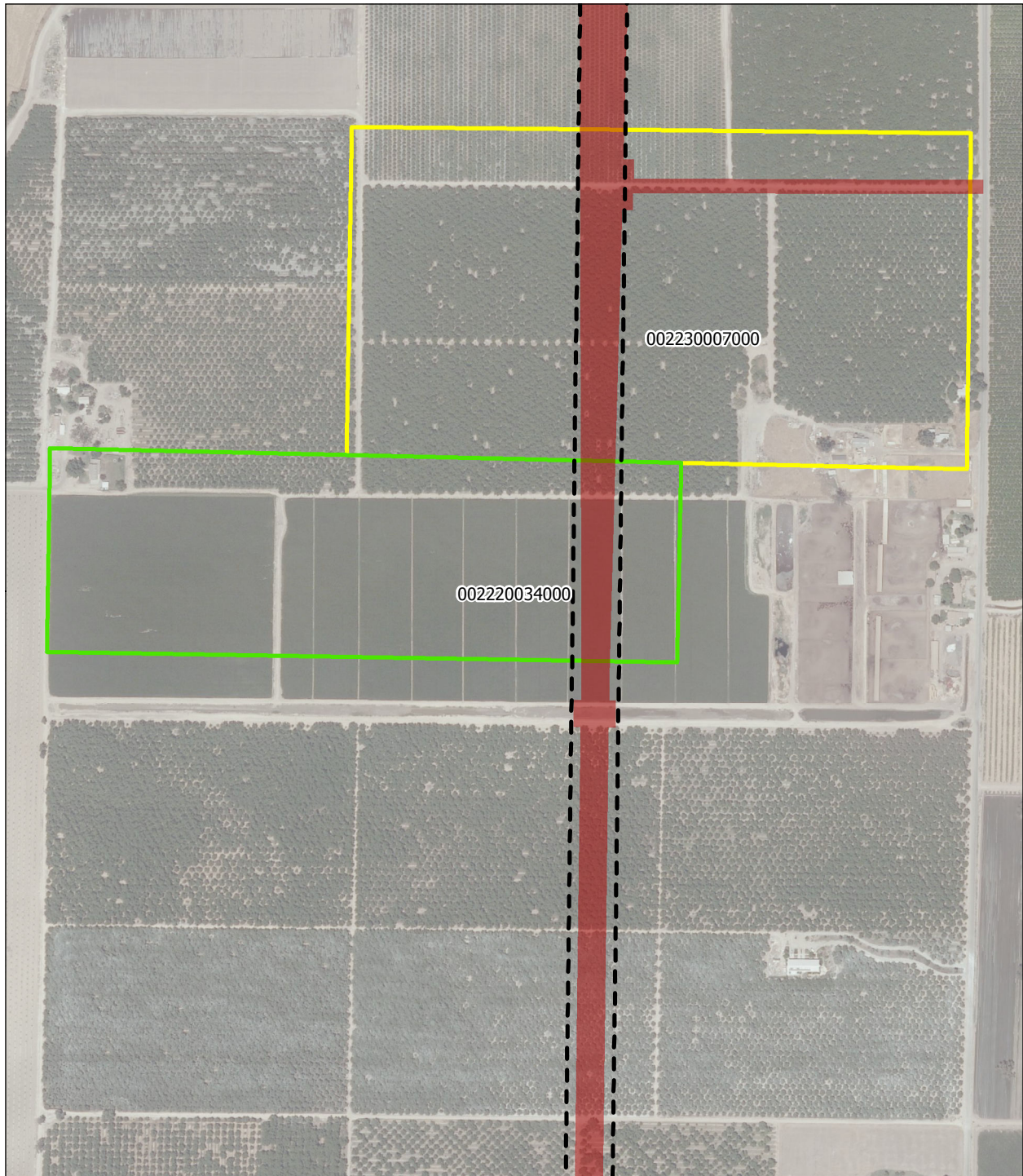


Figure B- 25
APN 009010028000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

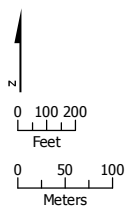
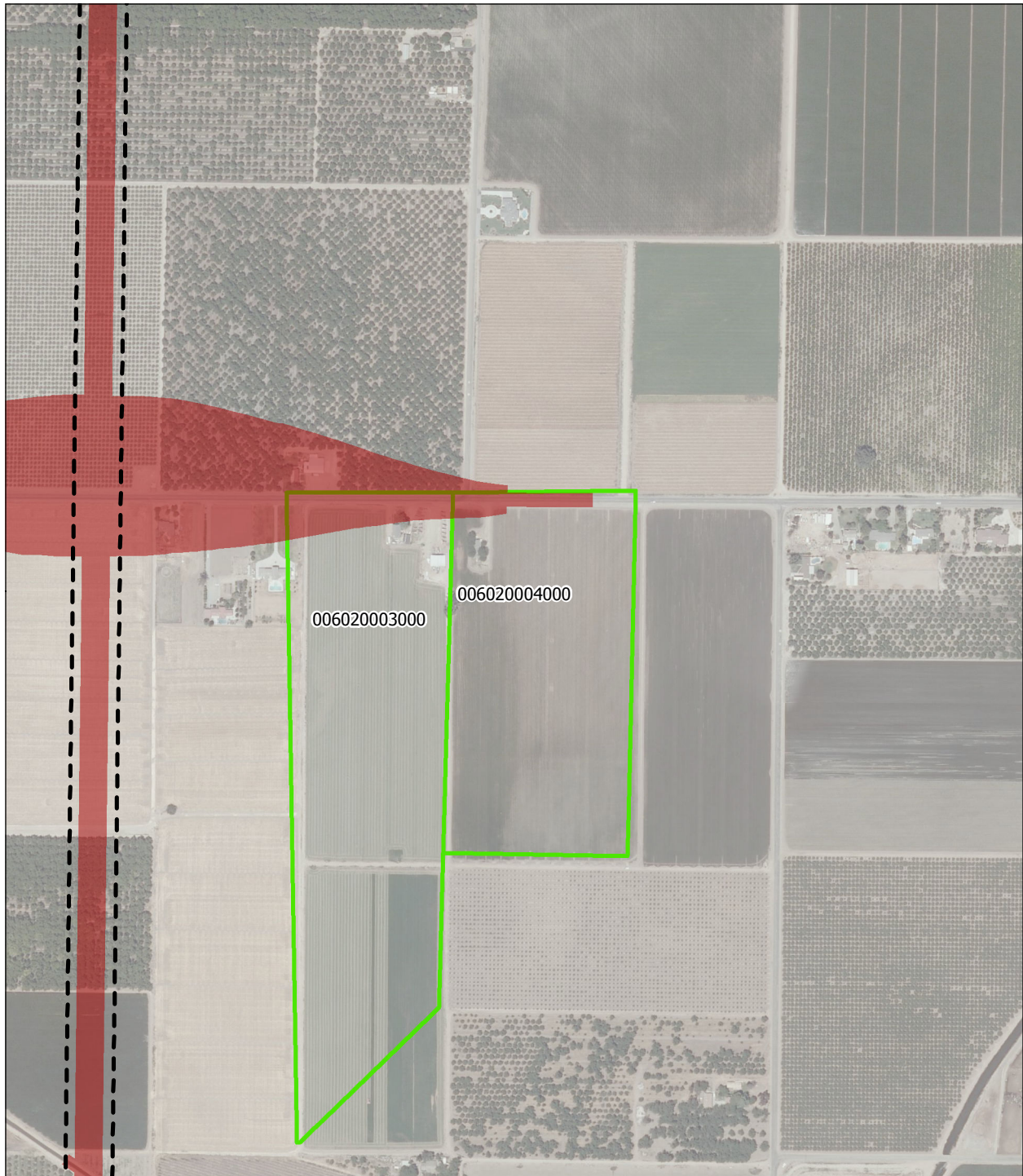


Figure B- 26
 APN 002220034000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

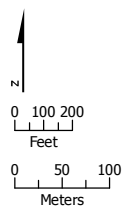
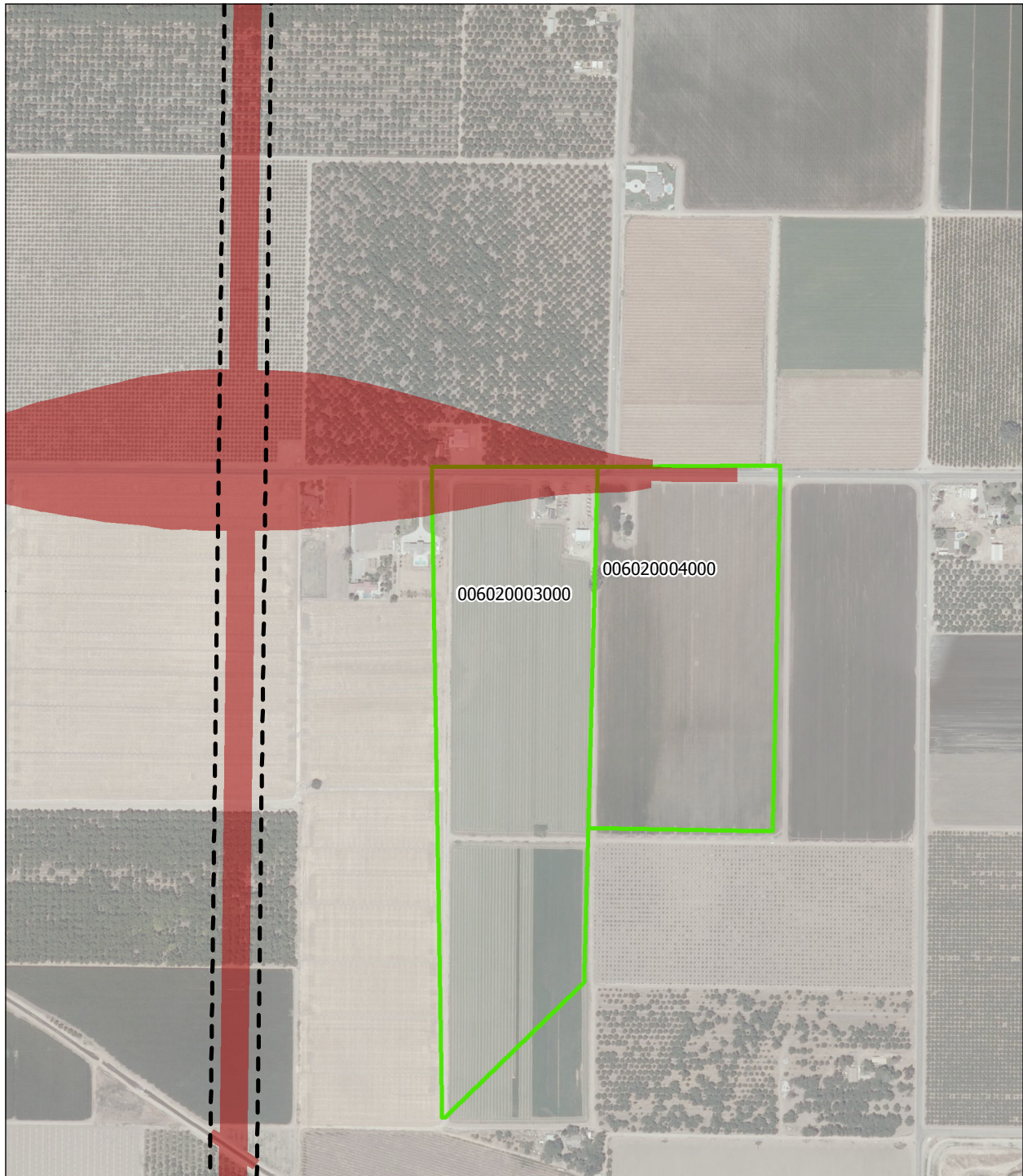


Figure B- 27
 APN 006020004000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

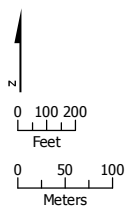
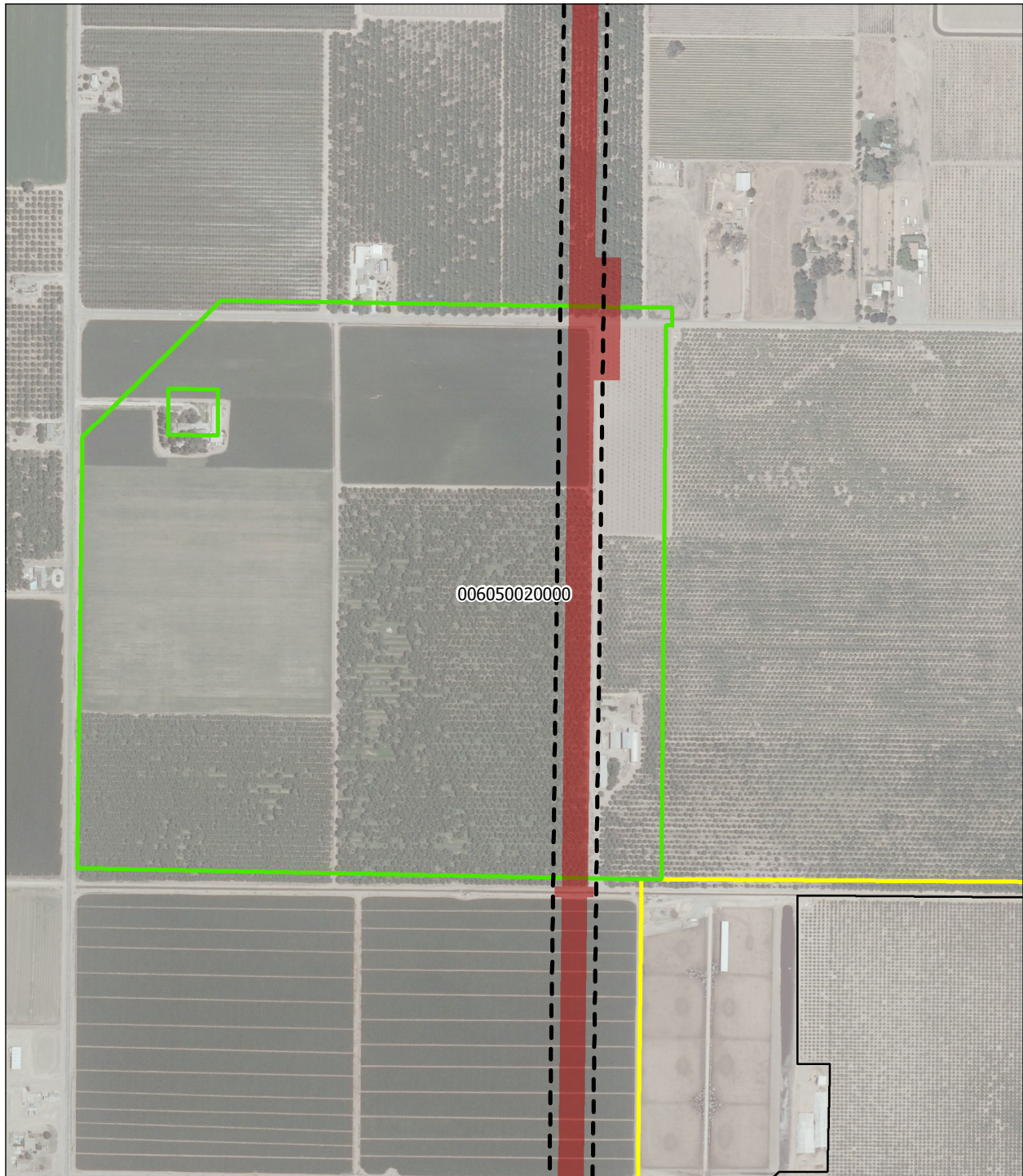


Figure B- 28
APN 006020003000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

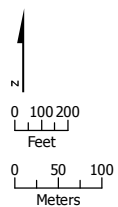
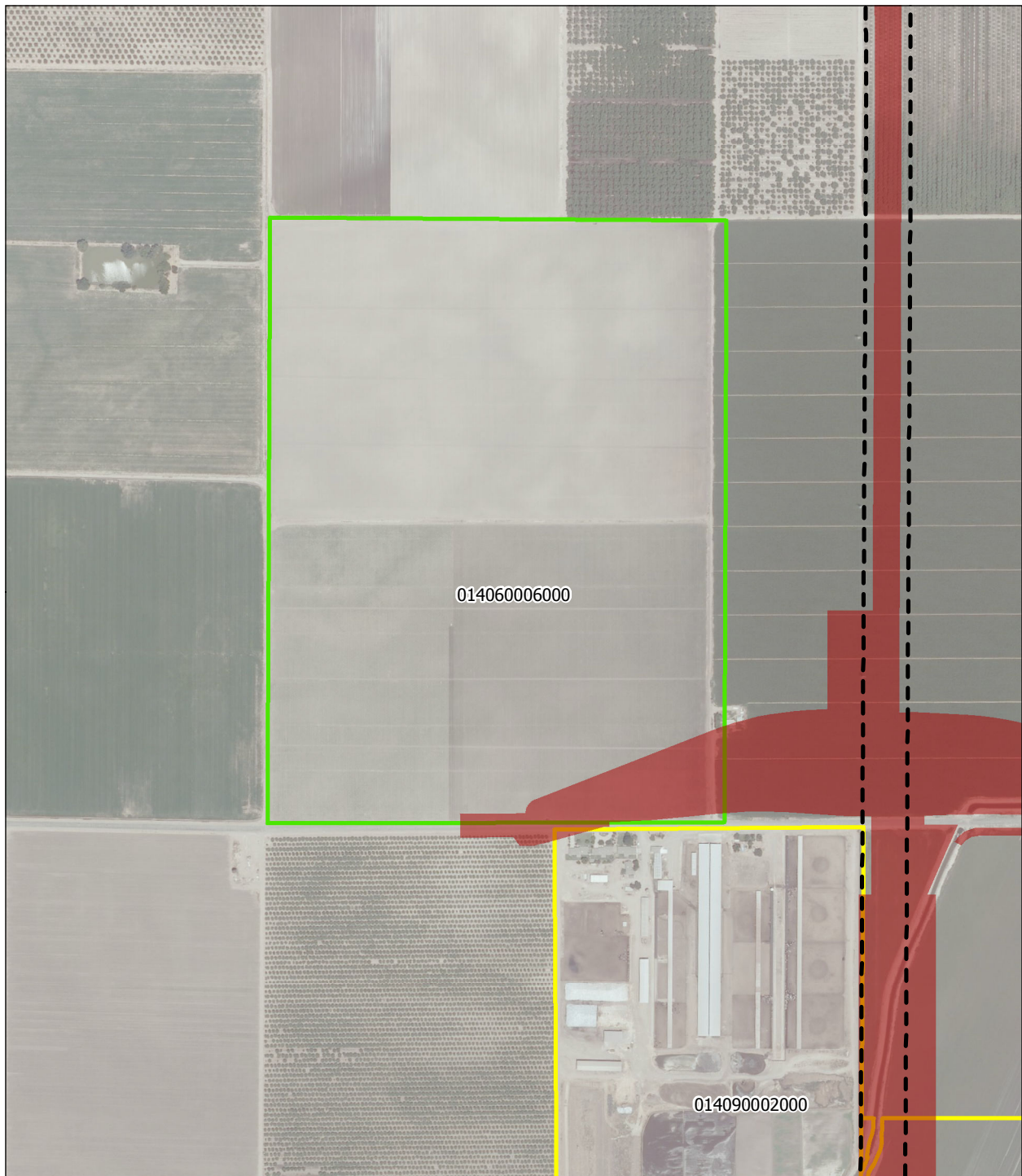


Figure B- 29
APN 006050020000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

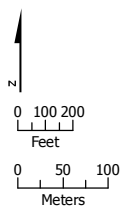
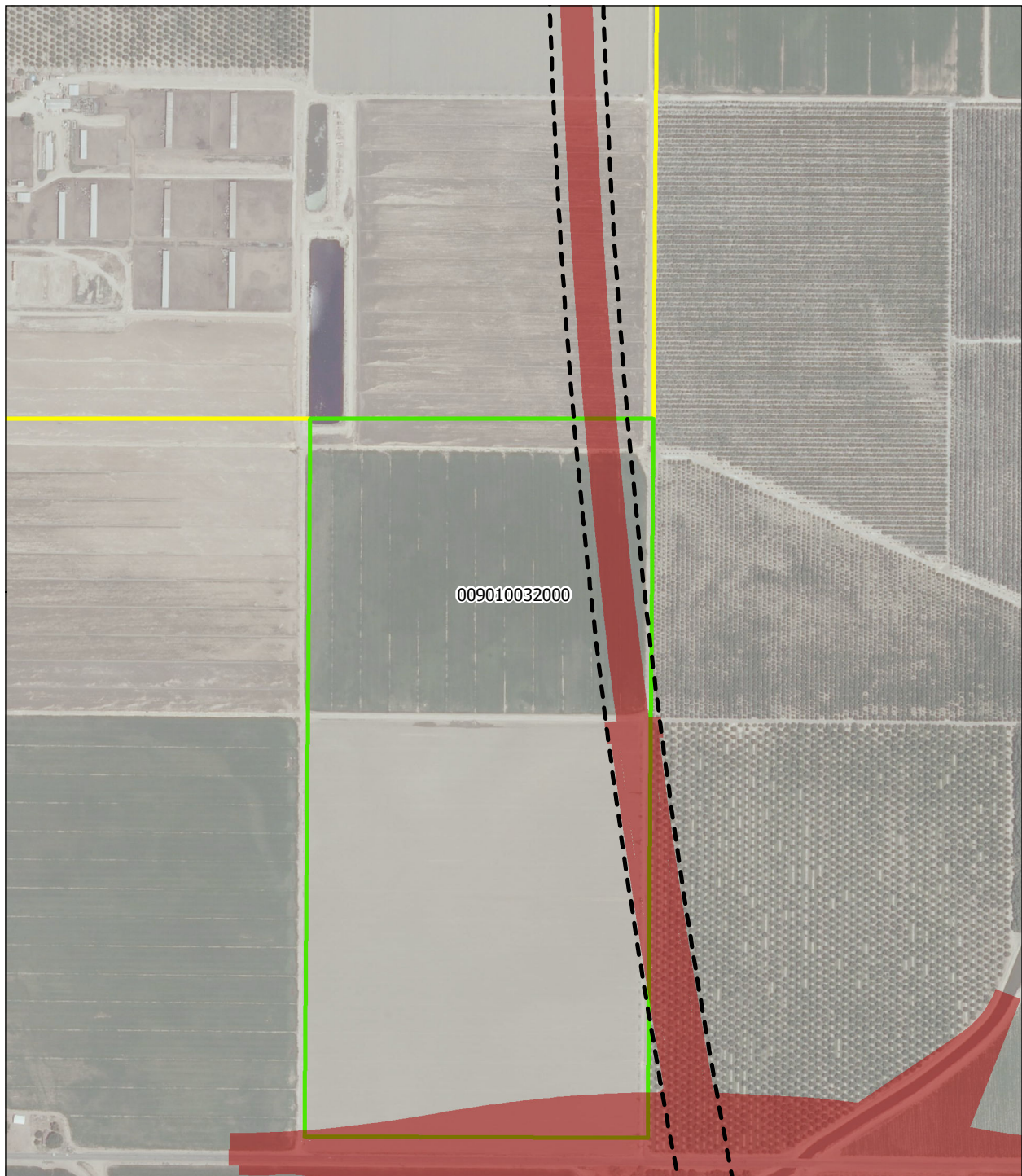


Figure B- 30
 APN 014060006000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

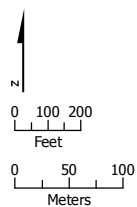
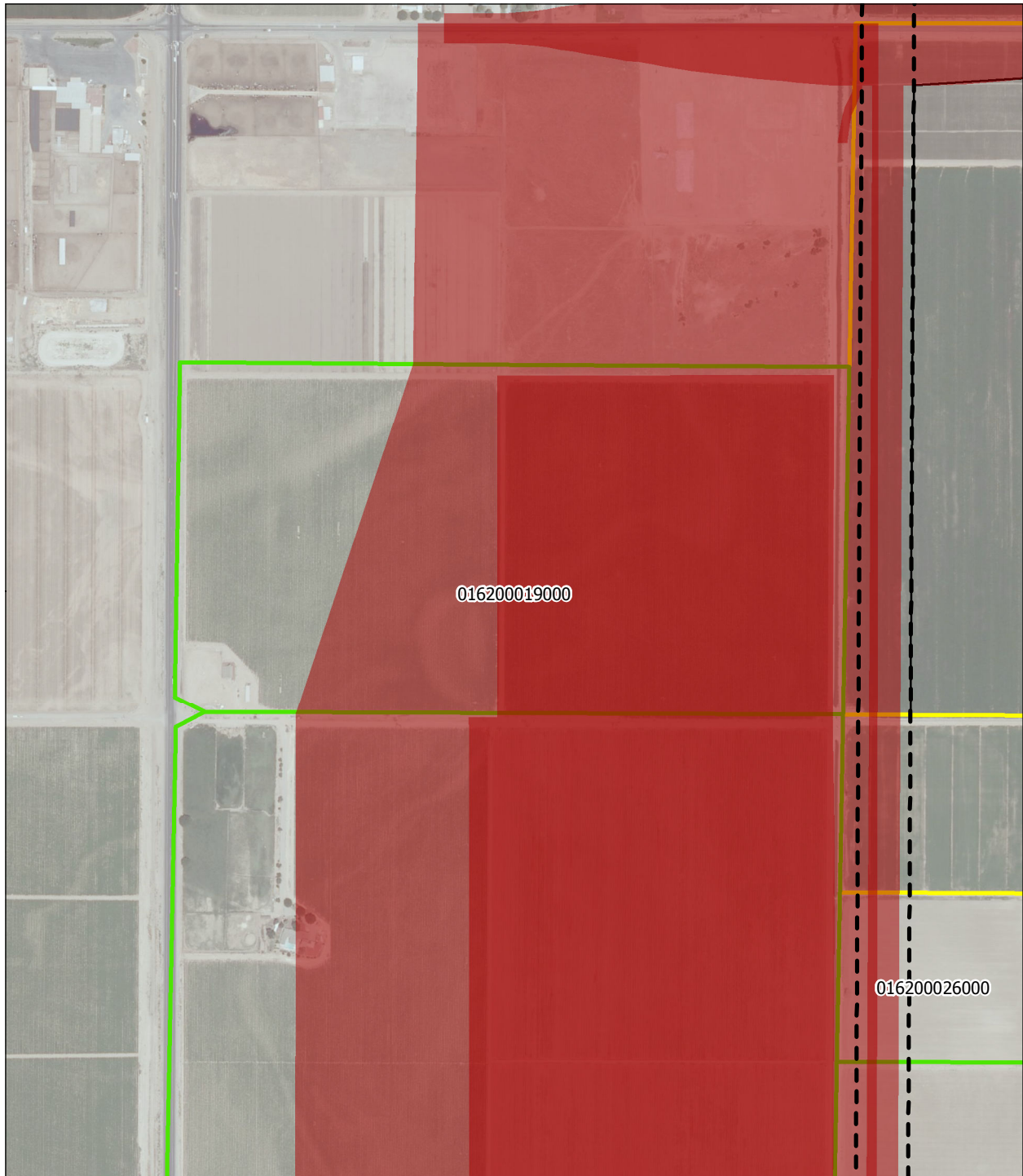


Figure B- 31
APN 009010032000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

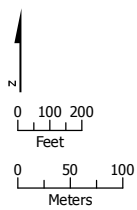
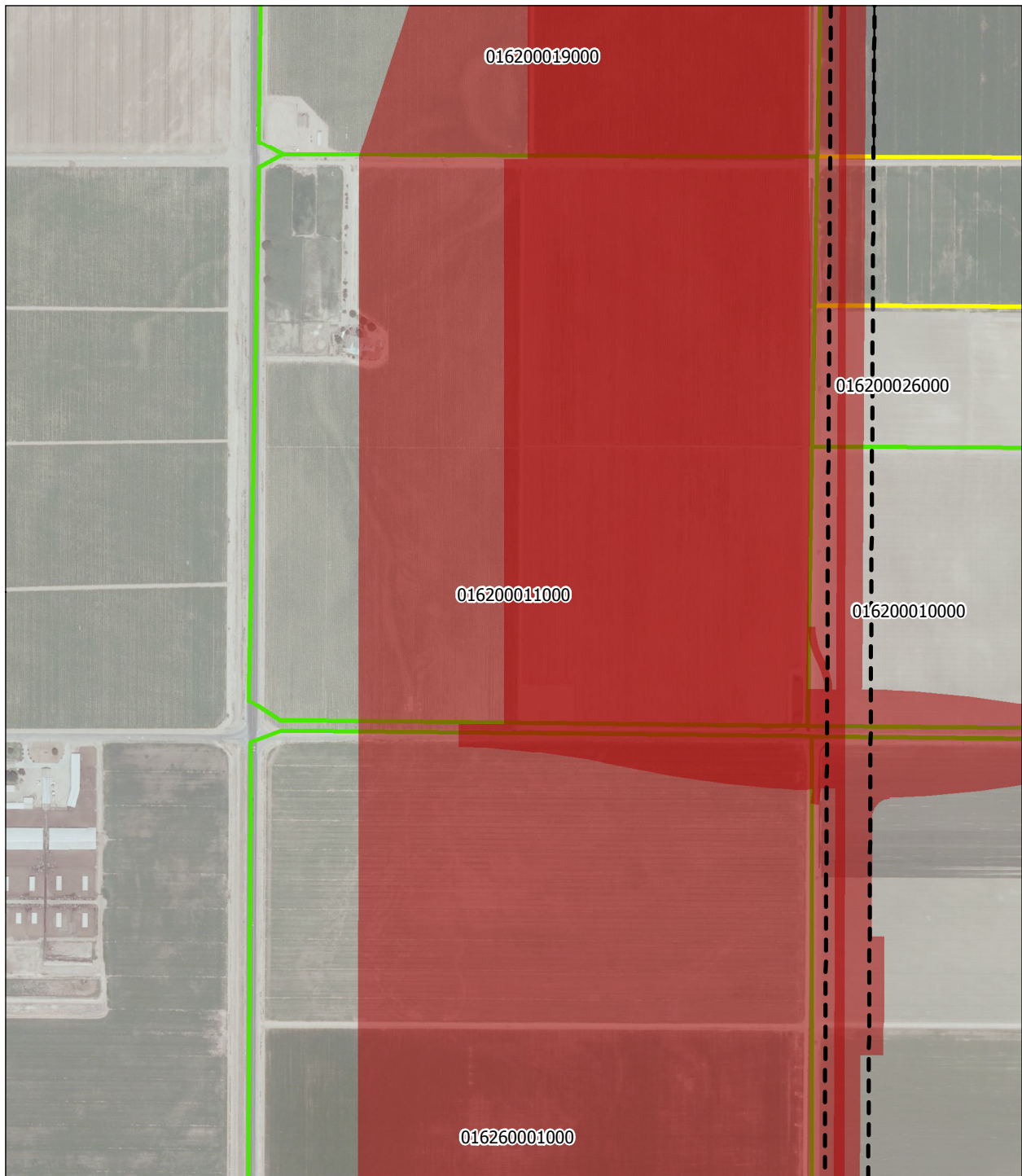


Figure B- 32
APN 016200019000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

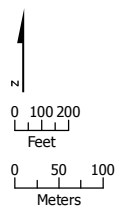
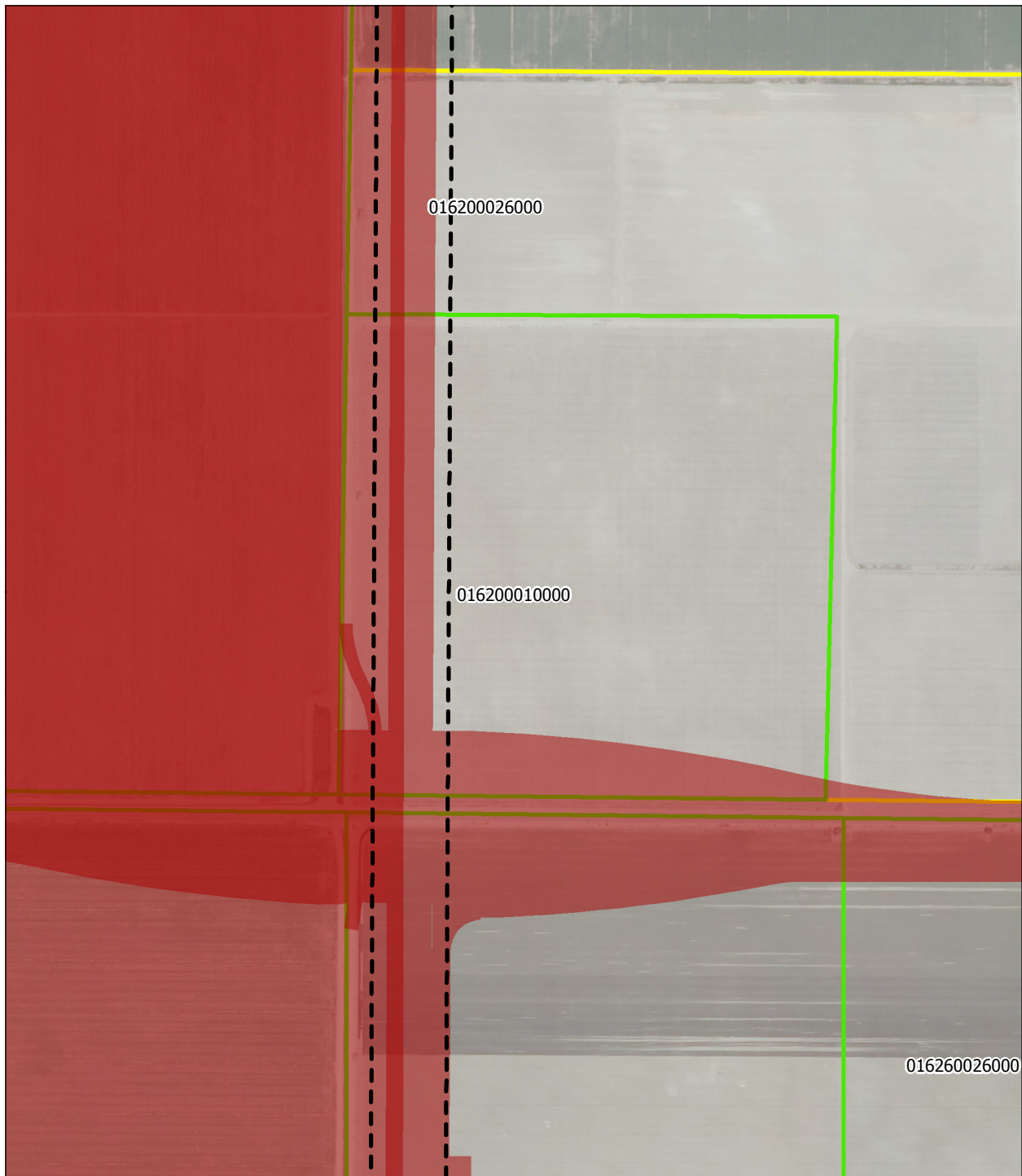


Figure B- 33
 APN 016200011000



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Source: URS, 2012

April 9, 2012

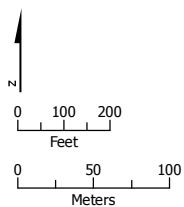
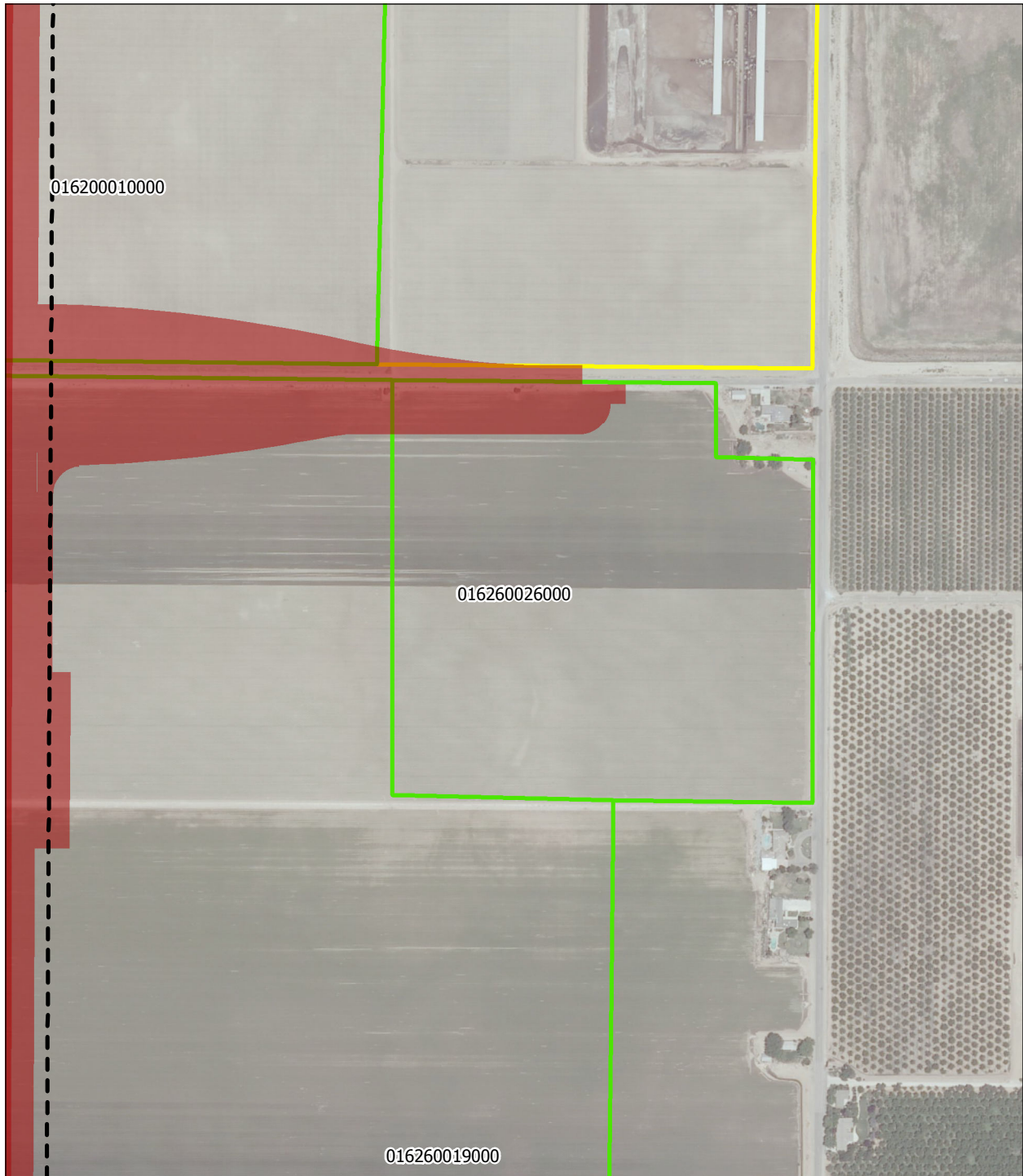


Figure B- 34
APN 016200010000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

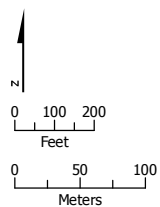
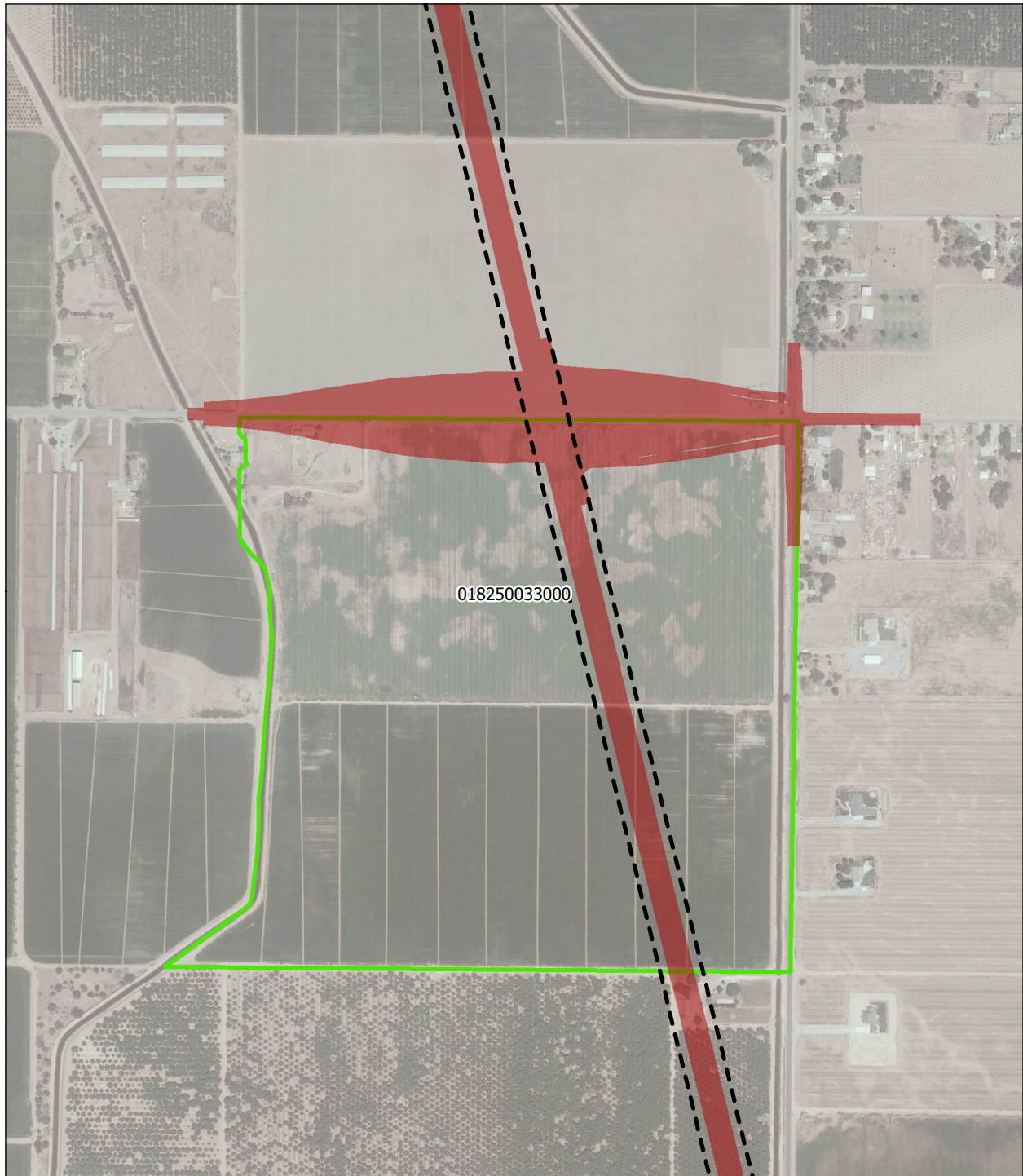


Figure B- 35
APN 016260026000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

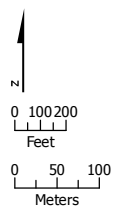
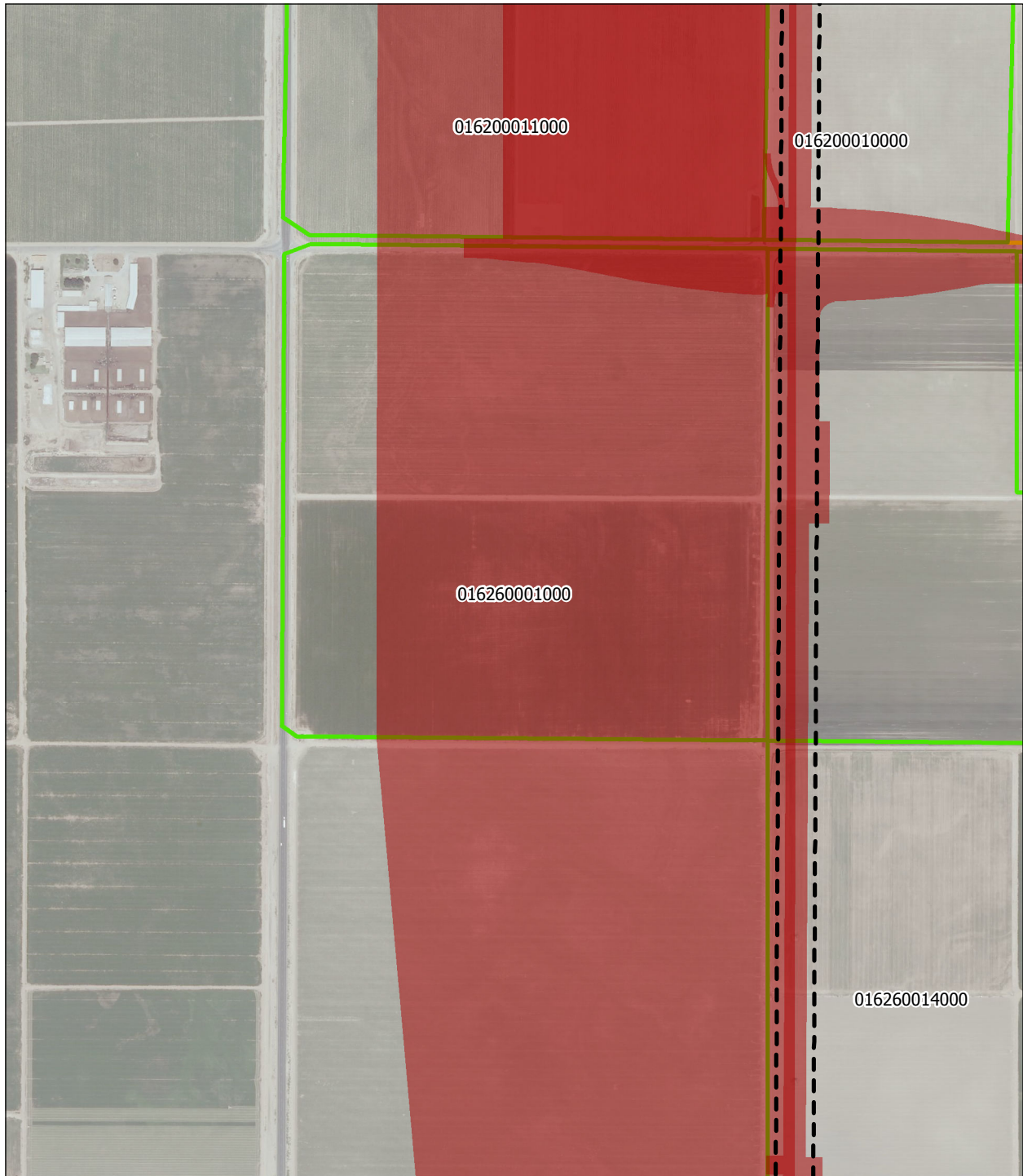


Figure B- 36
APN 018250033000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

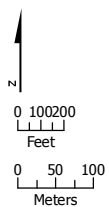
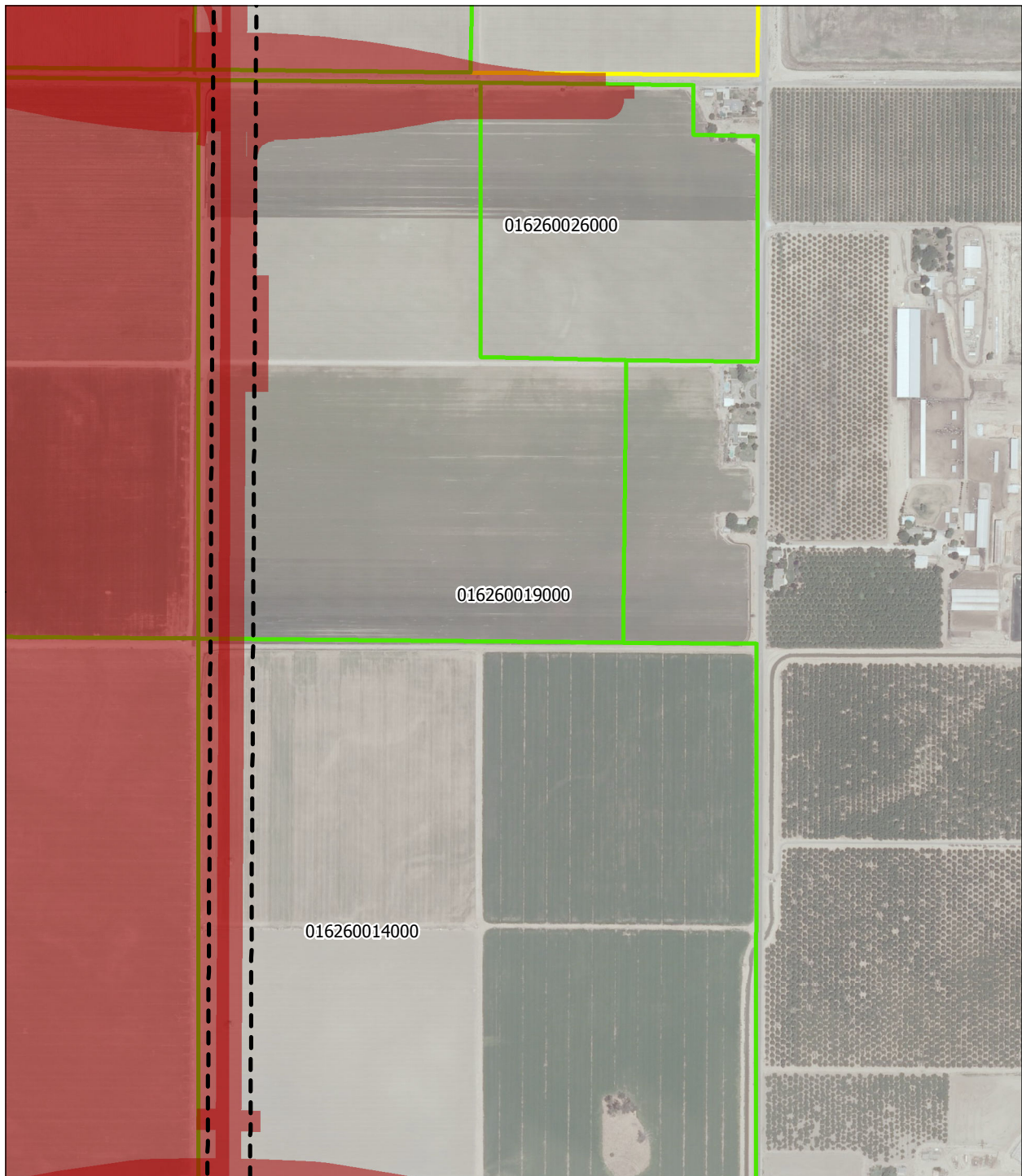


Figure B- 37
APN 016260001000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

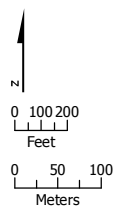
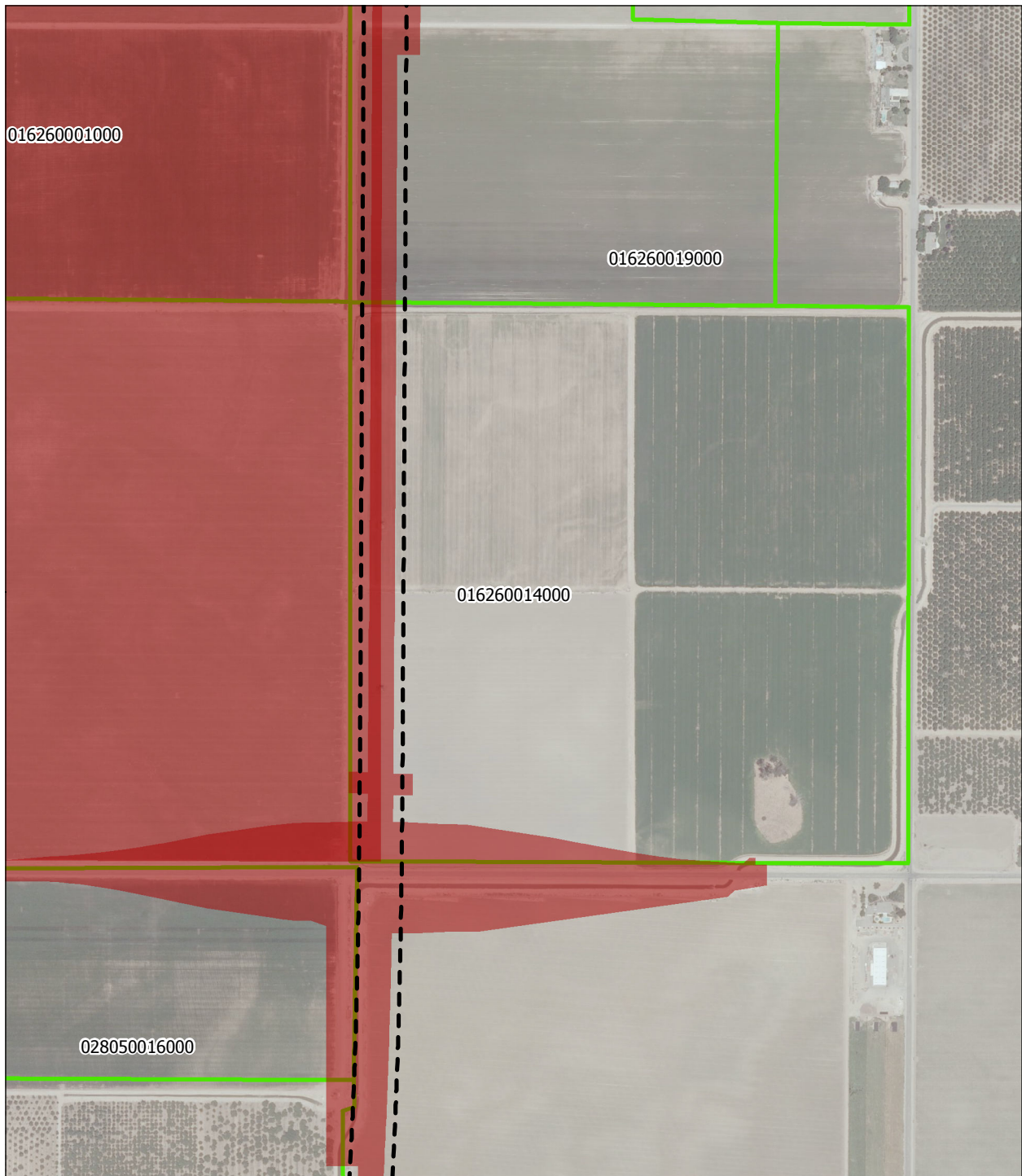


Figure B- 38
APN 016260019000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

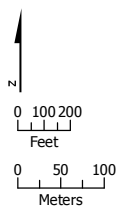


Figure B- 39
APN 016260014000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

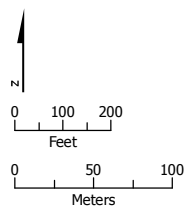
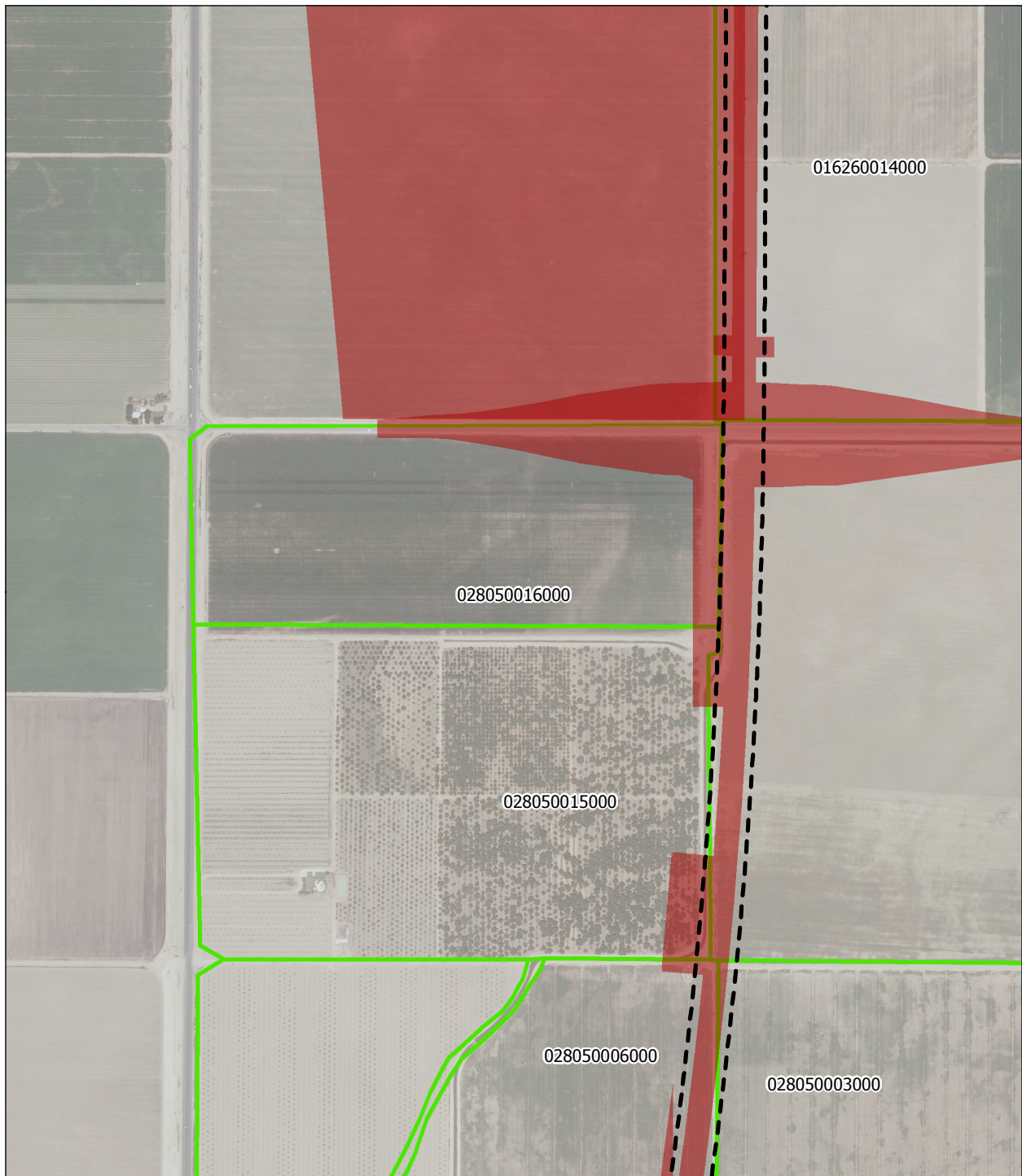


Figure B- 40
APN 028020059000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

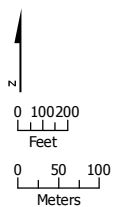
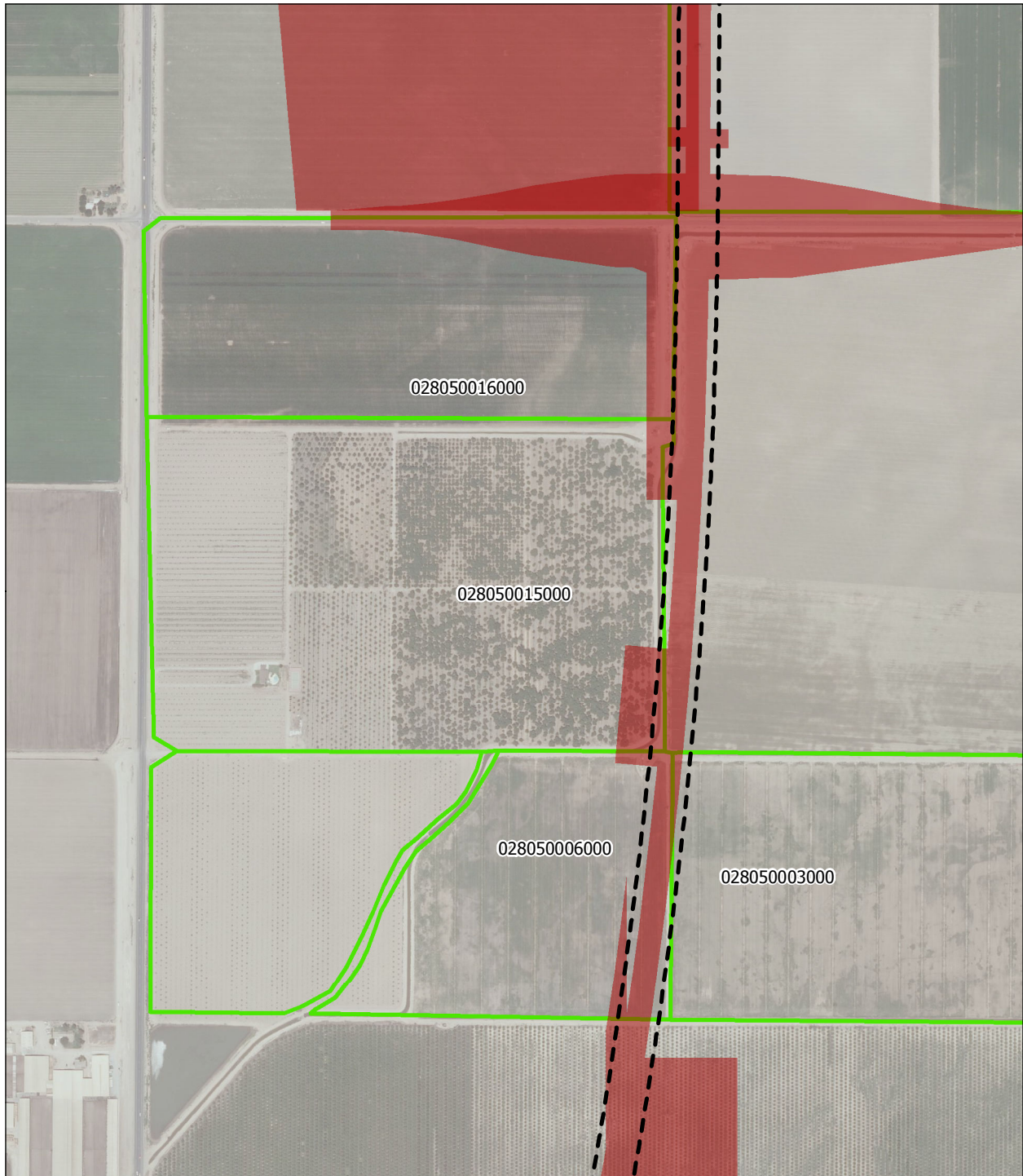


Figure B- 41
APN 028050016000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

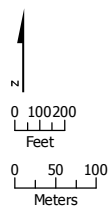
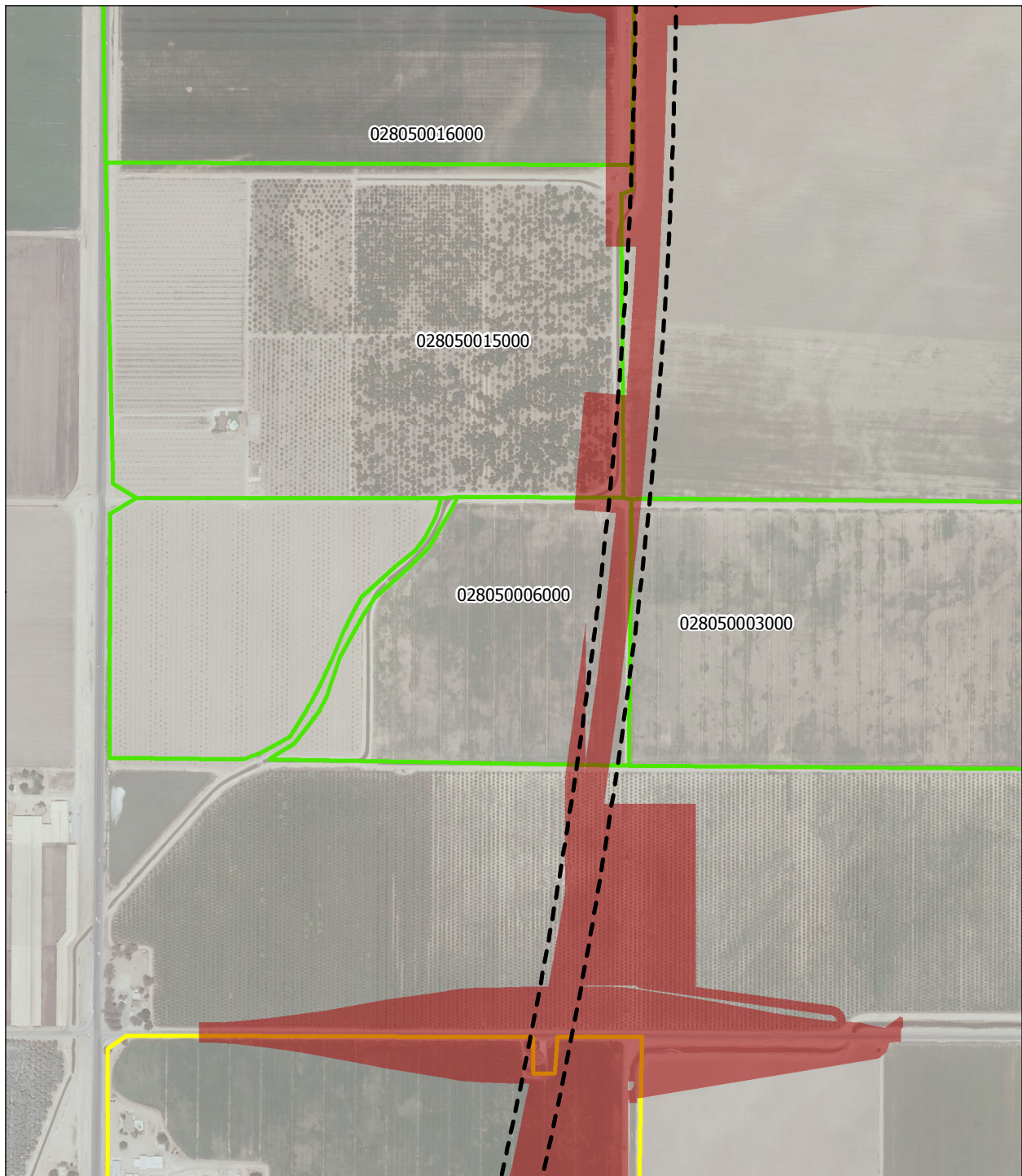


Figure B- 42
APN 028050015000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

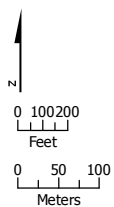
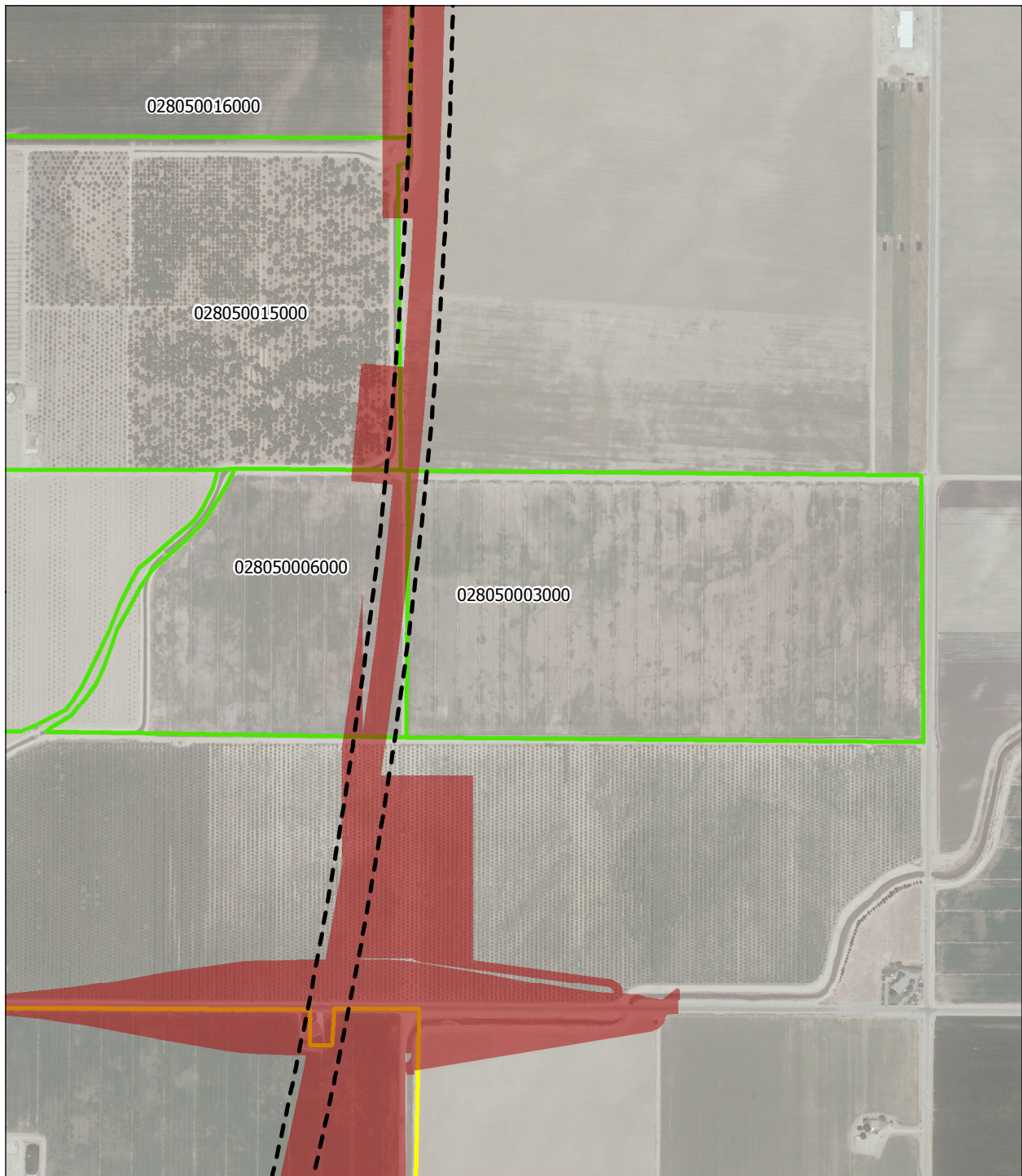


Figure B- 43
 APN 028050006000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

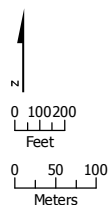
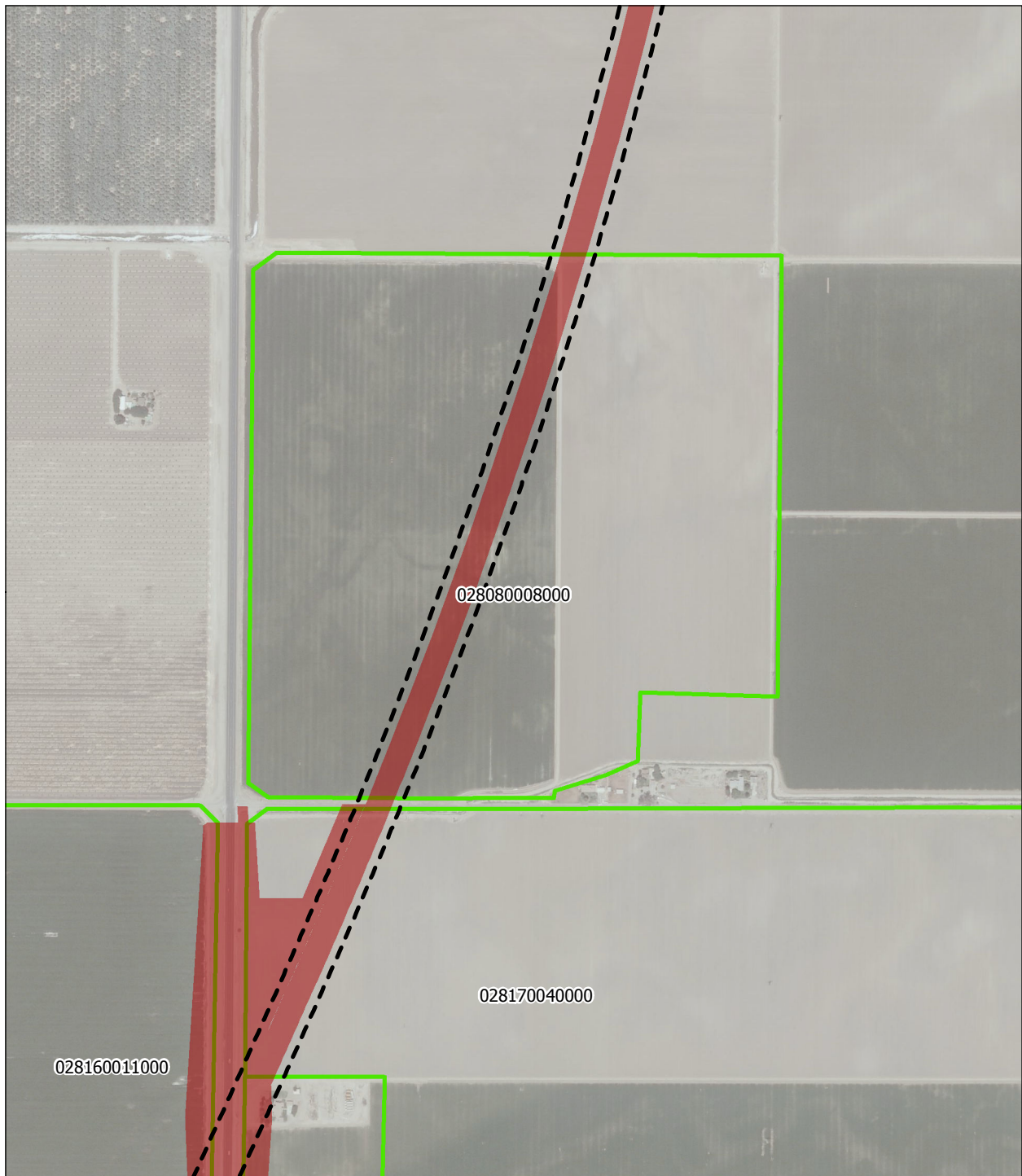


Figure B- 44
 APN 028050003000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

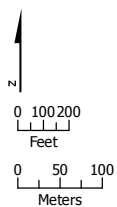
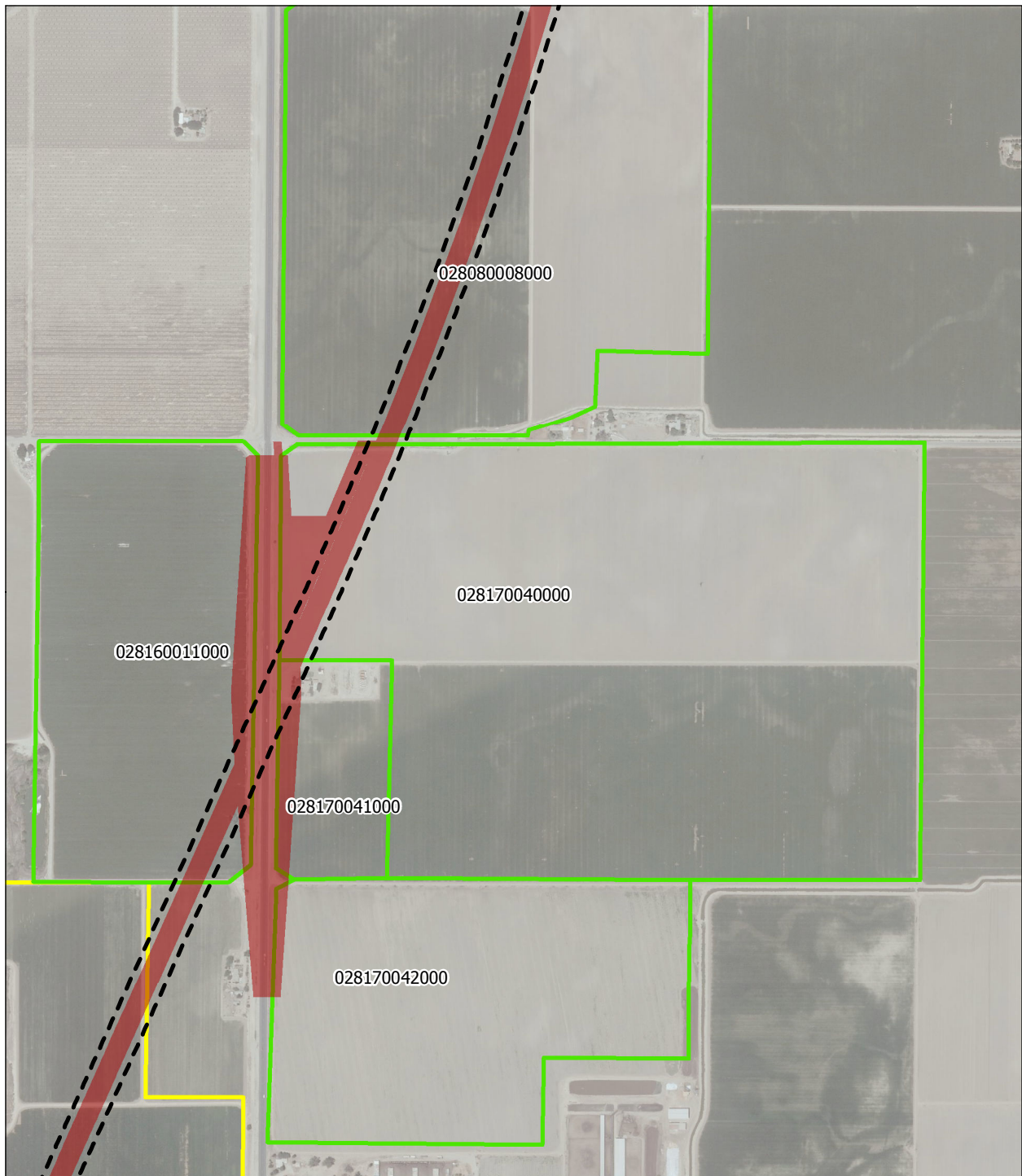


Figure B- 45
APN 028080008000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

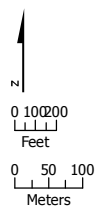
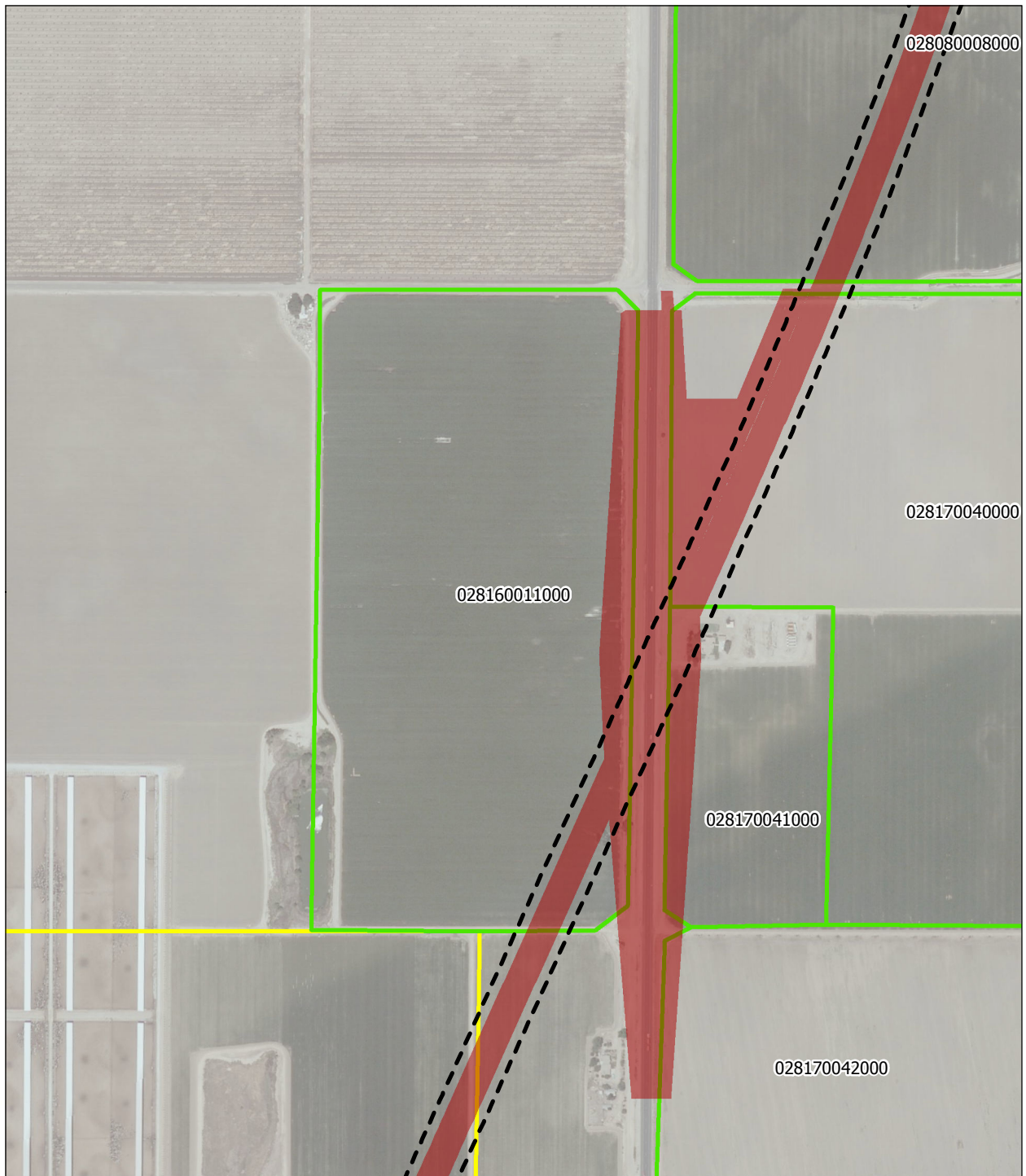


Figure B- 46
 APN 028170040000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

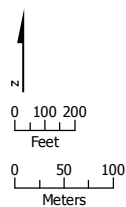


Figure B- 47
 APN 028160011000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

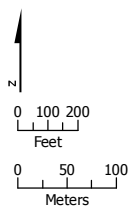
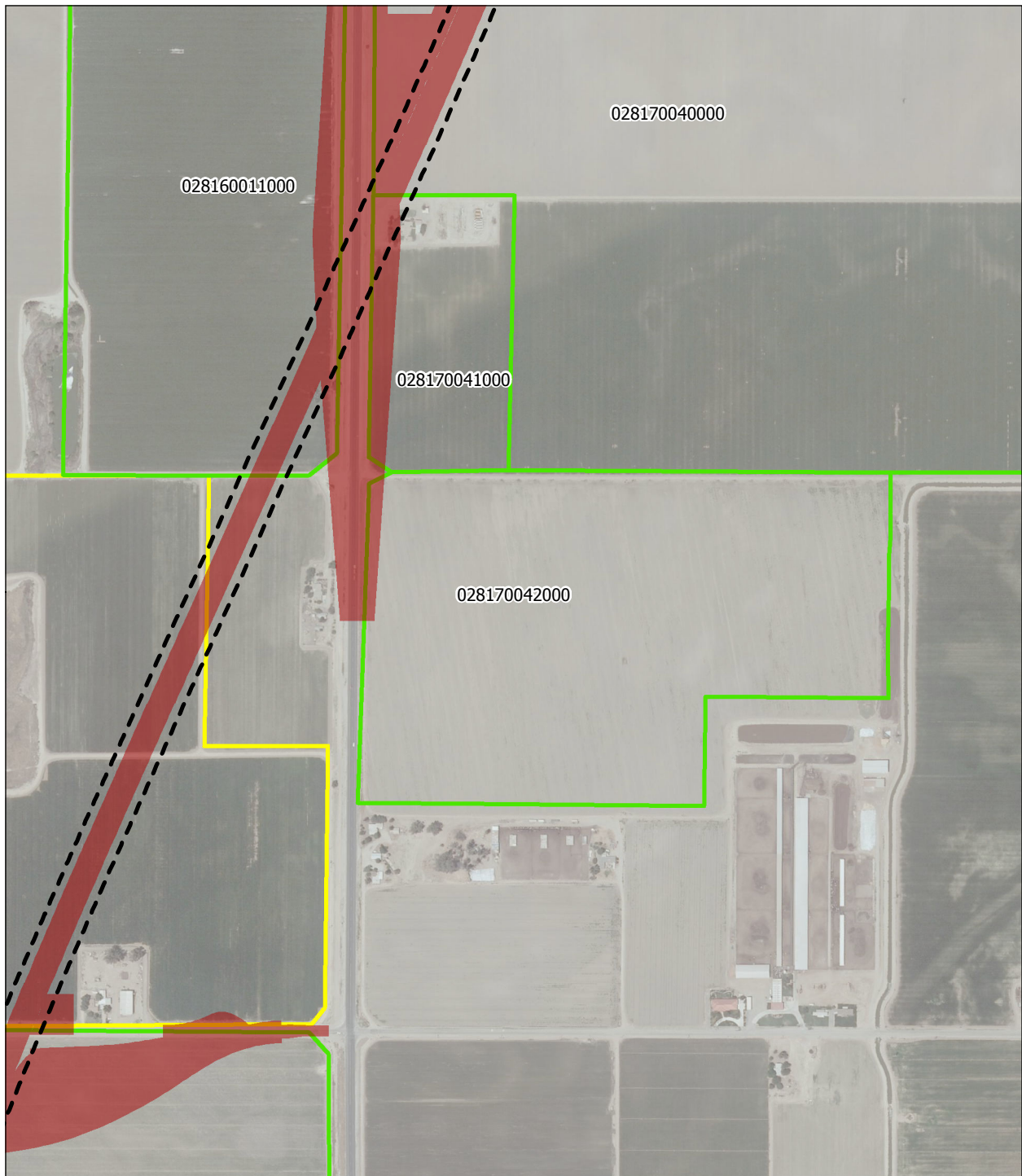


Figure B- 48
APN 028170041000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

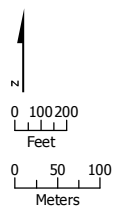
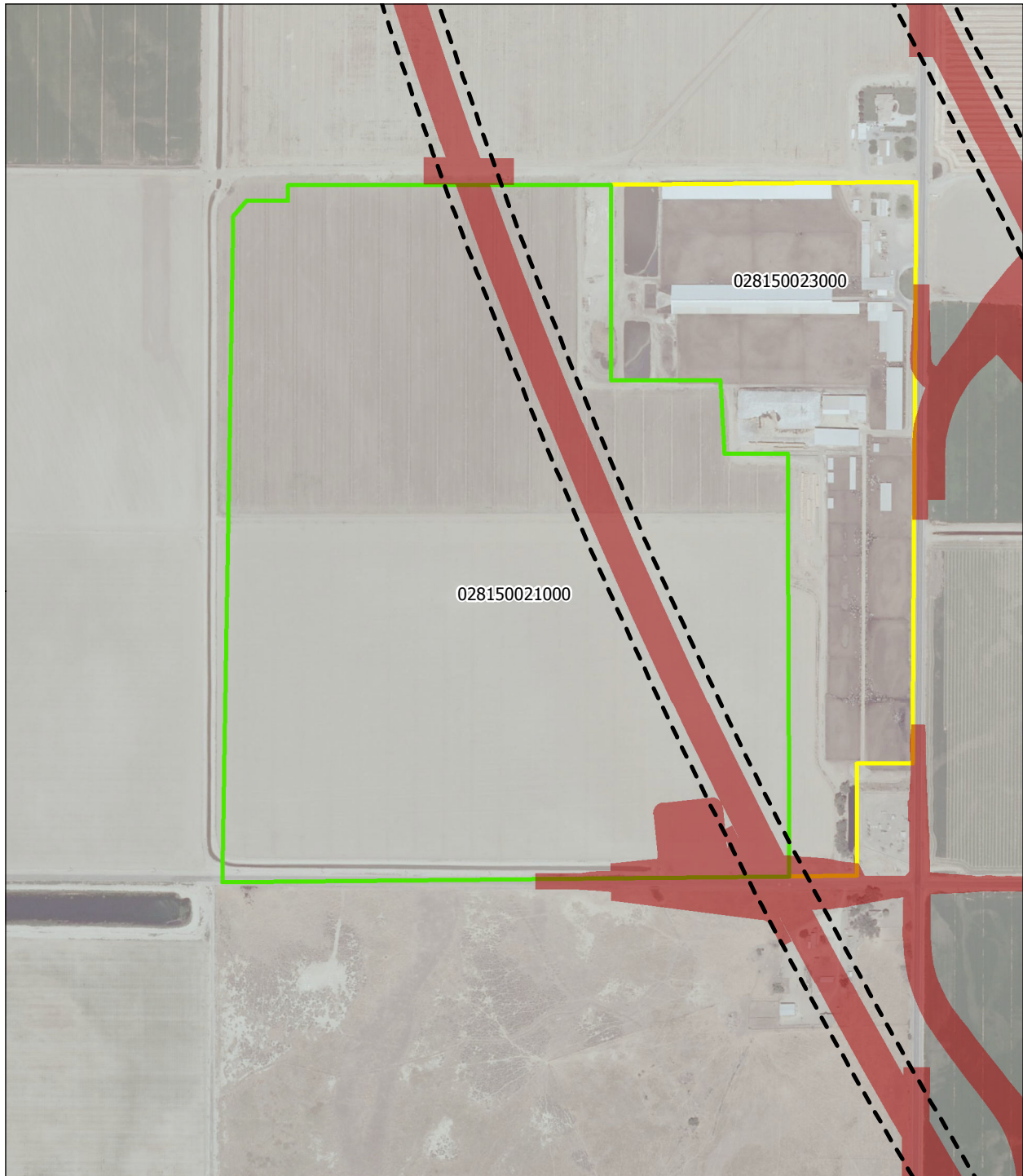


Figure B- 49
APN 028170042000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

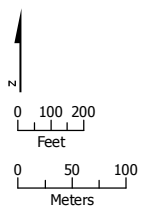
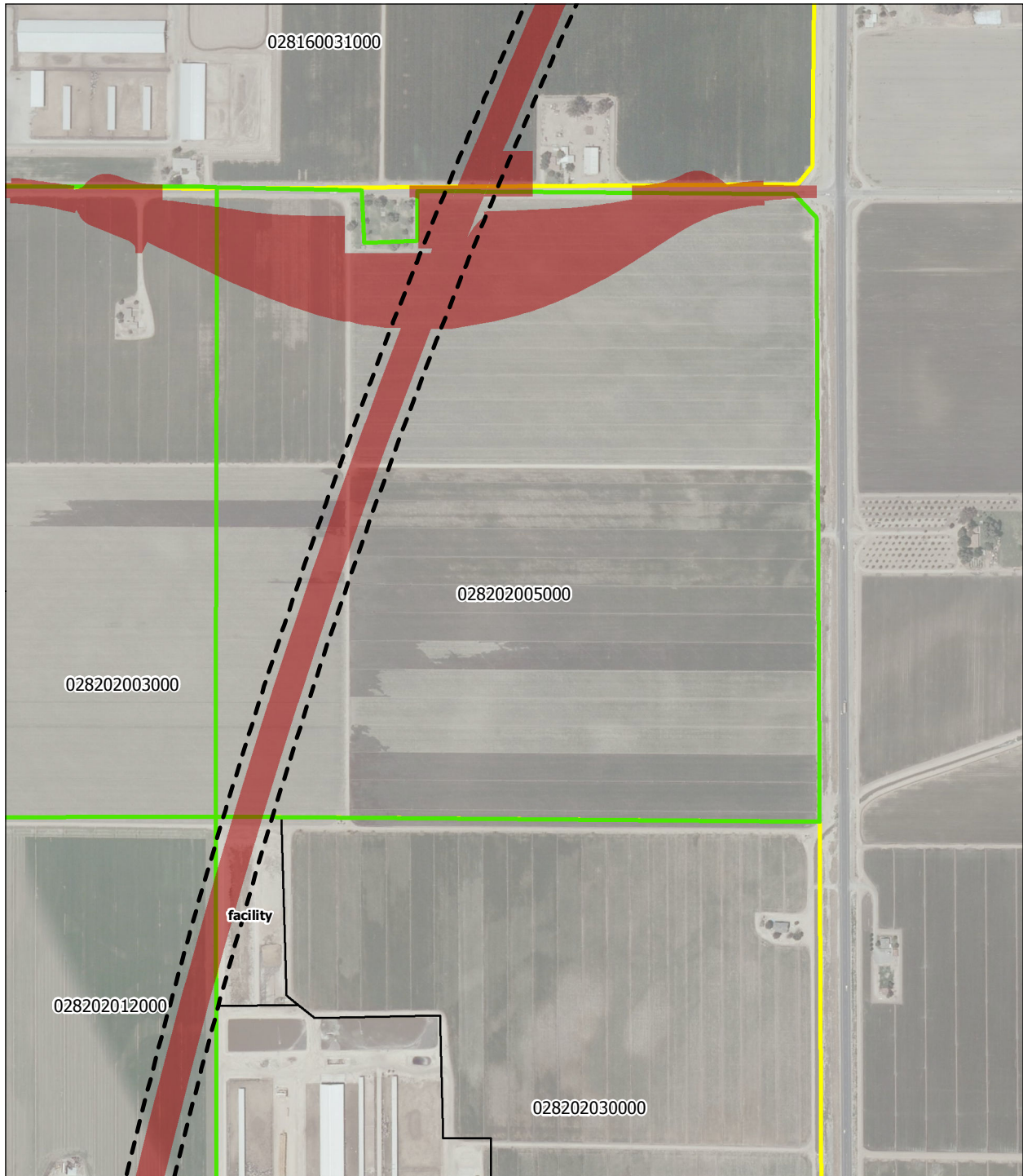


Figure B- 50
APN 028150021000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

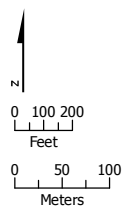
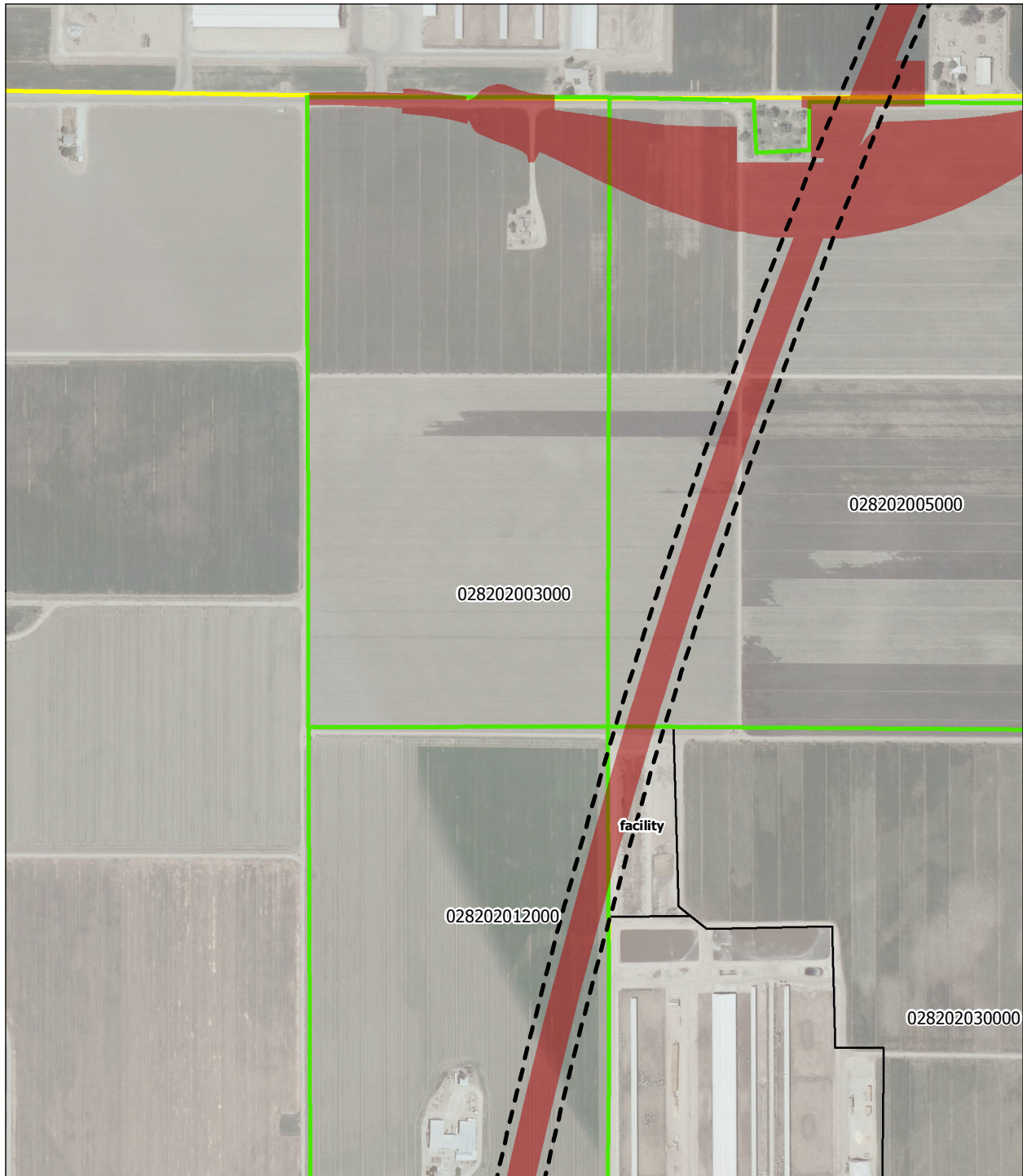


Figure B- 51
 APN 028202005000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

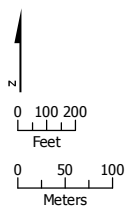
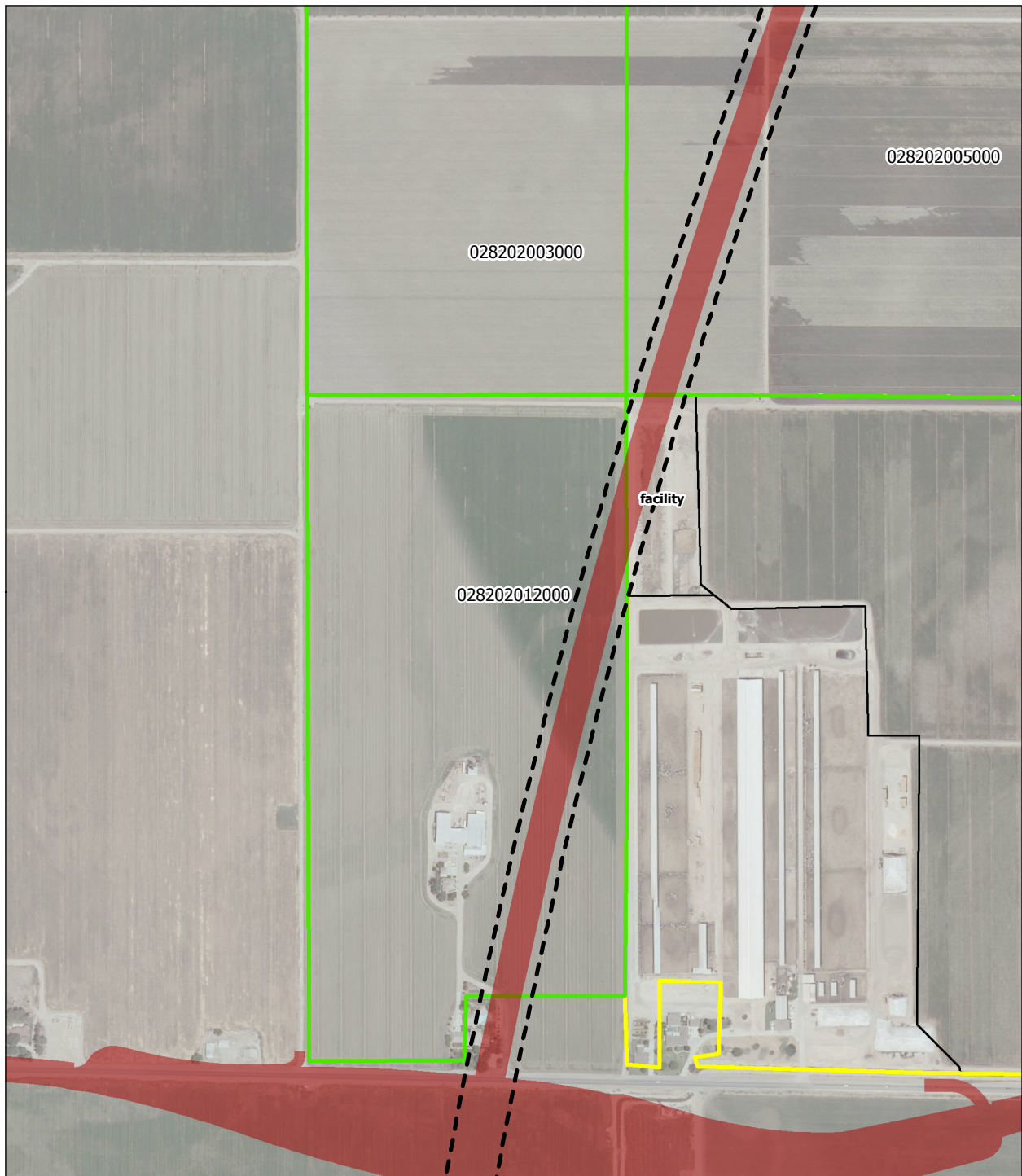


Figure B- 52
APN 028202003000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

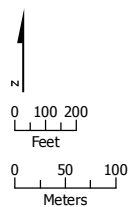
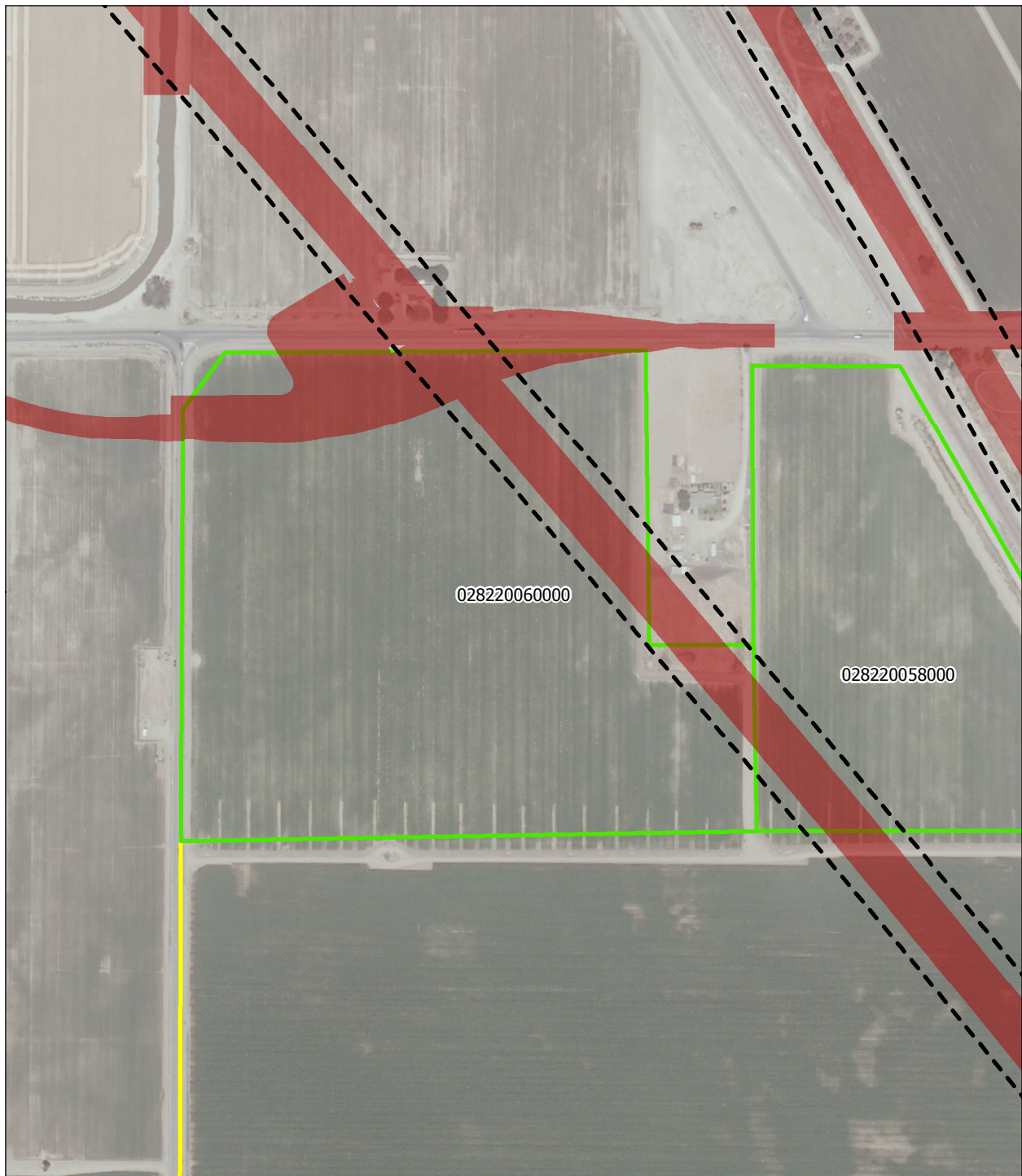


Figure B- 53
 APN 028202012000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

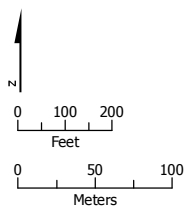
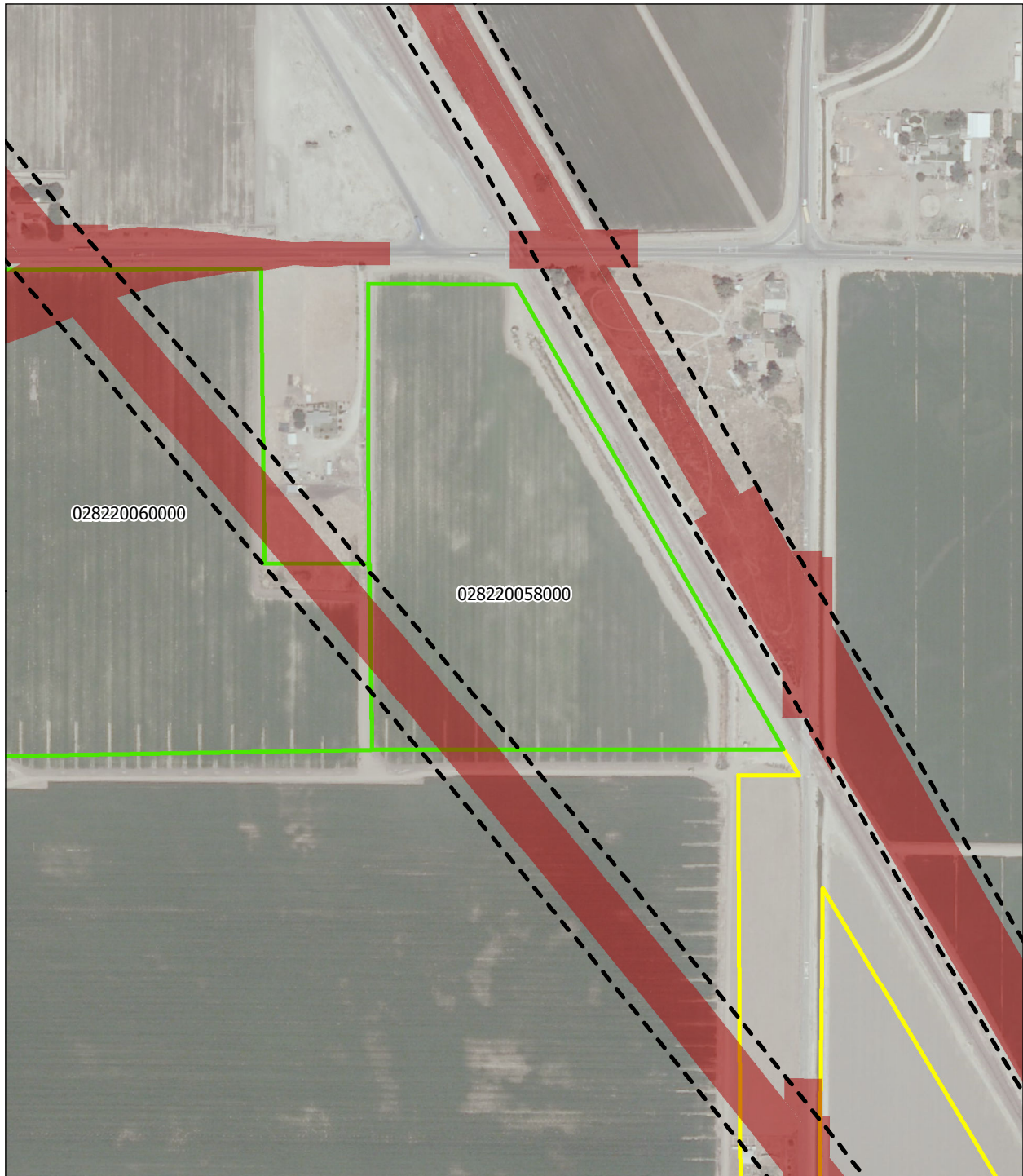


Figure B- 54
APN 028220060000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

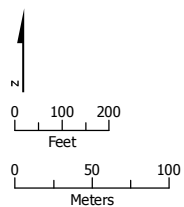
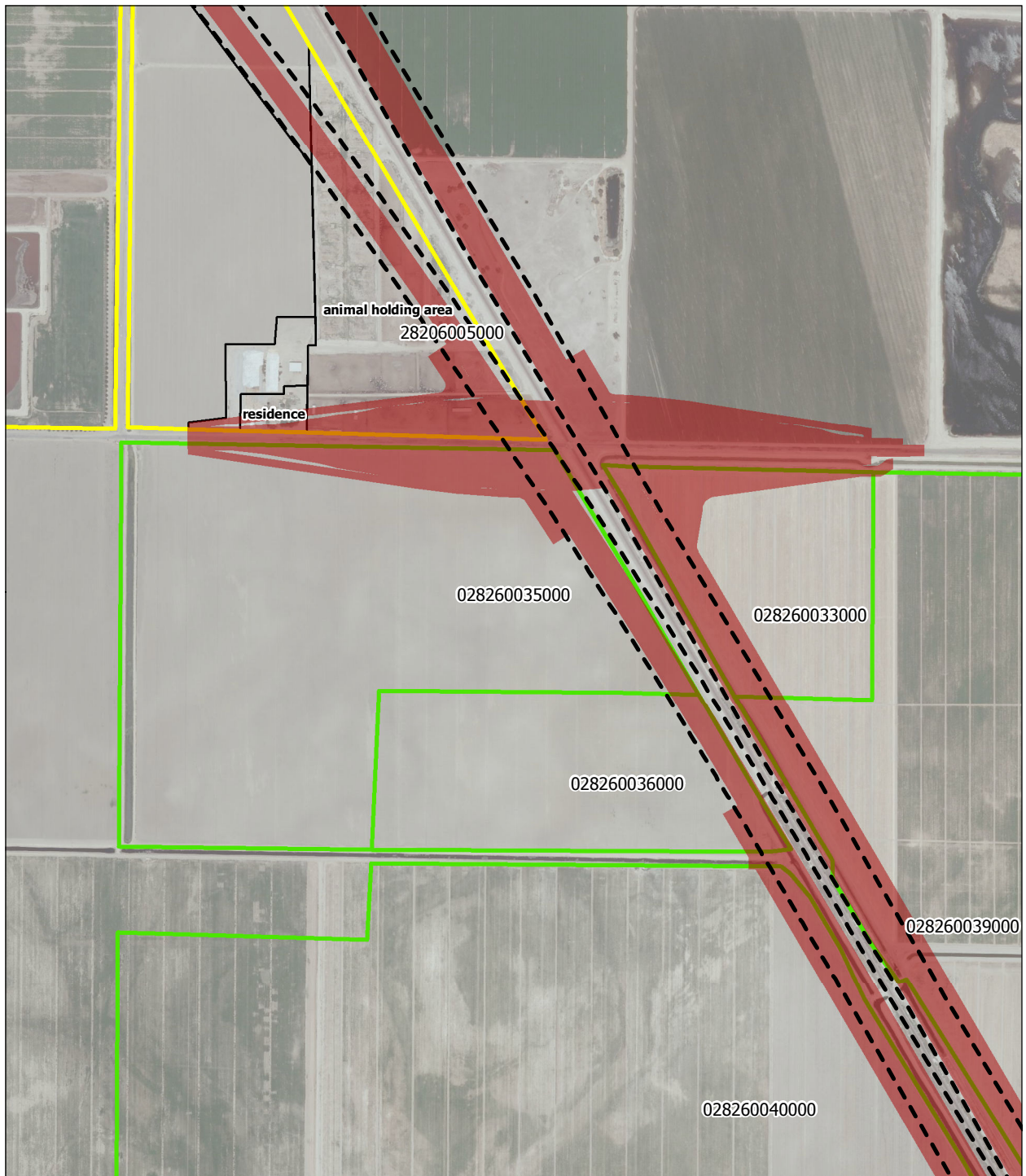


Figure B- 55
APN 028220058000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2012

April 9, 2012

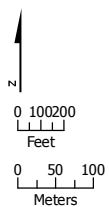
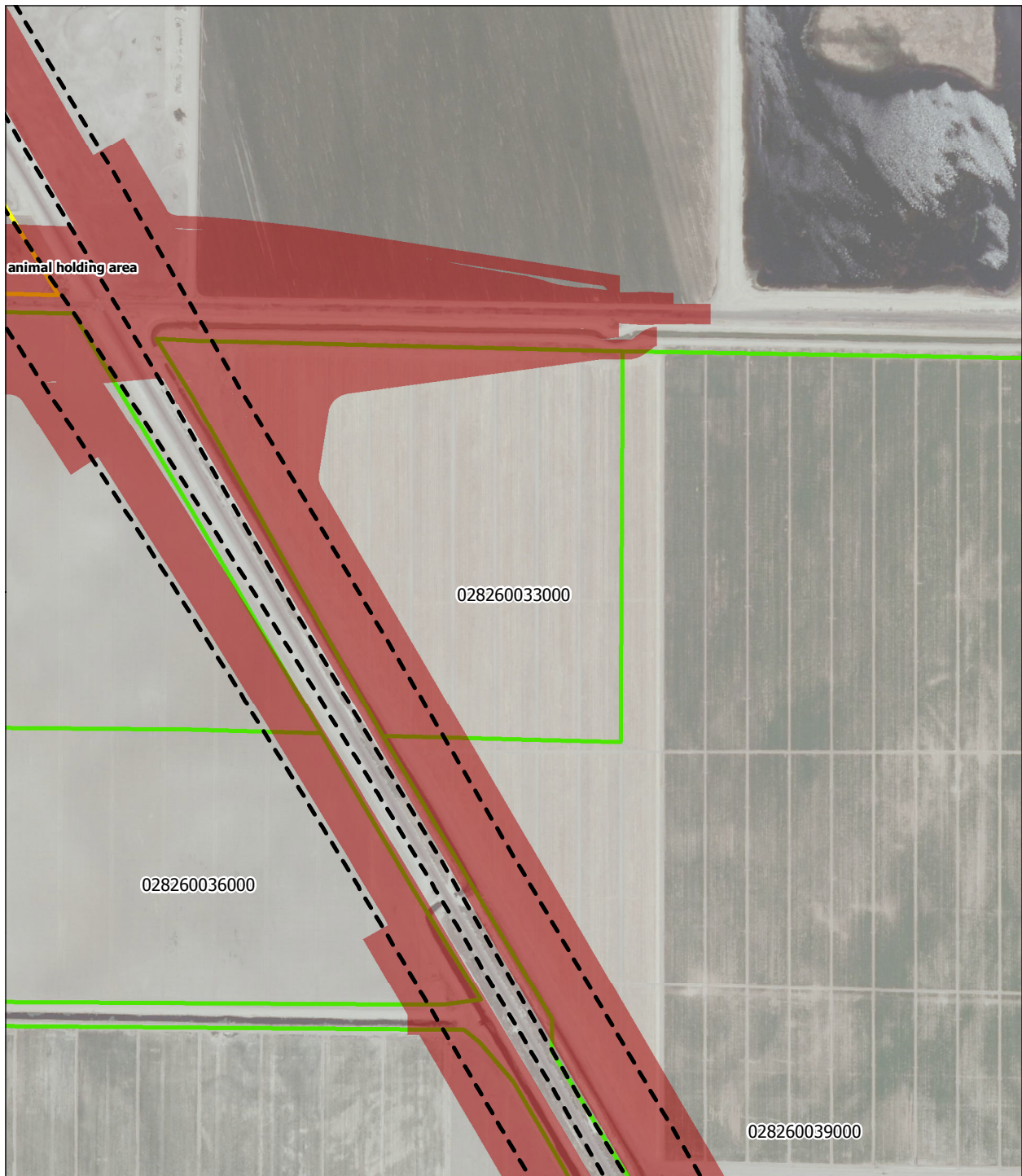


Figure B- 56
APN 028260035000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

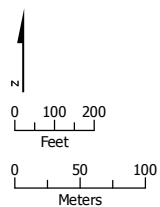
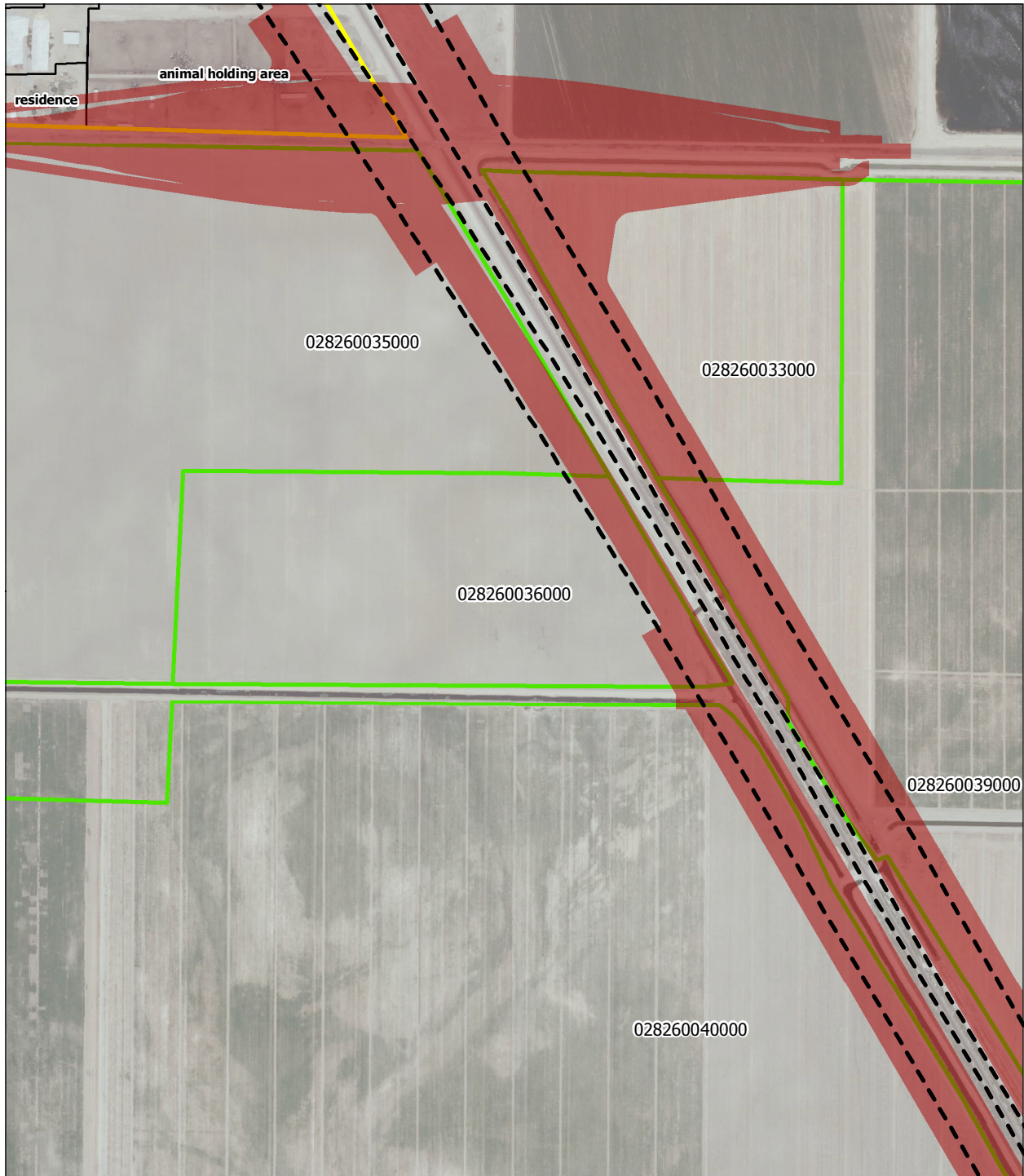


Figure B- 57
 APN 028260033000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

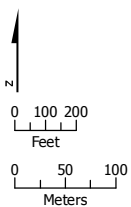
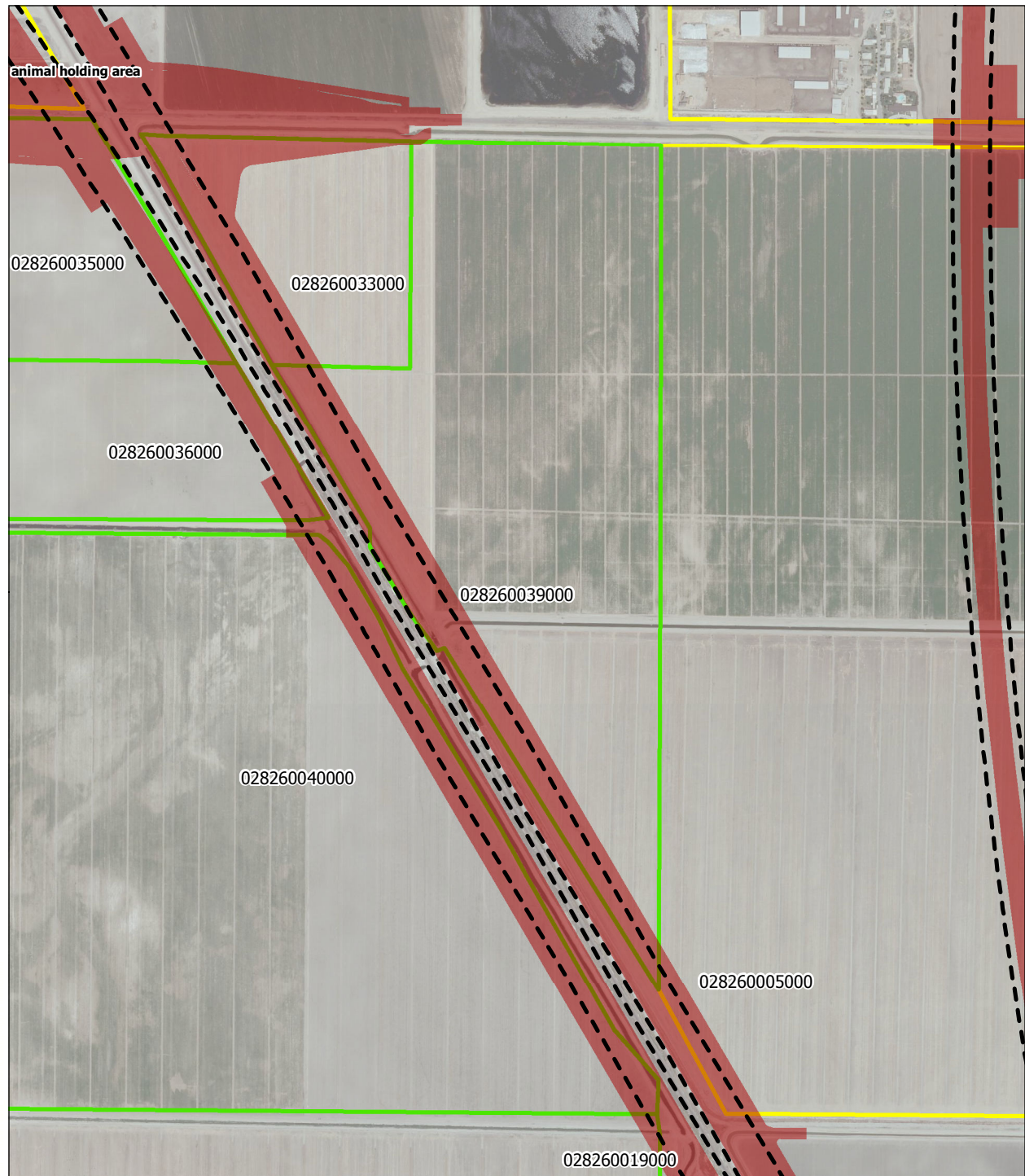


Figure B- 58
 APN 028260036000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

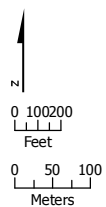
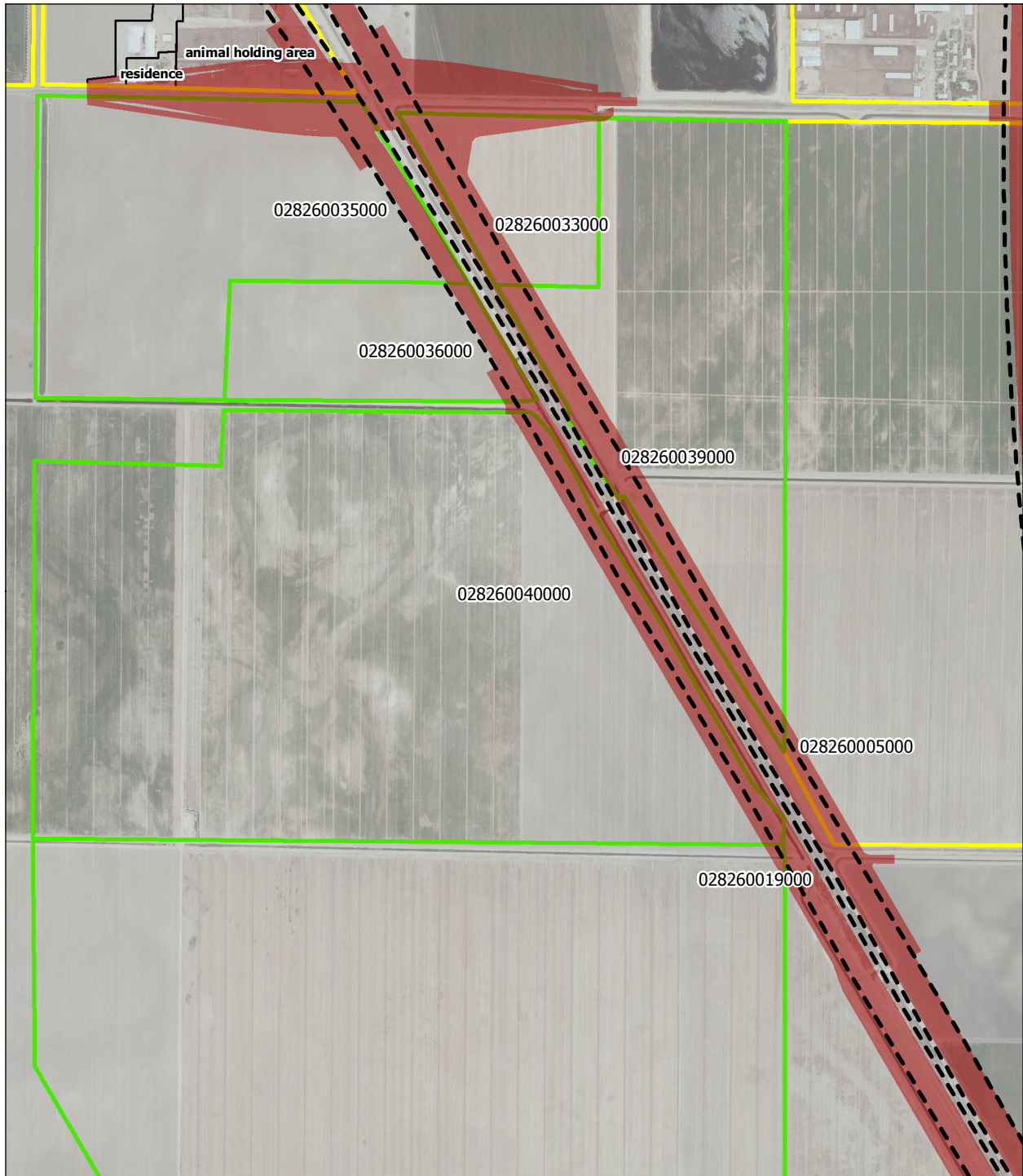


Figure B- 59
 APN 028260039000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

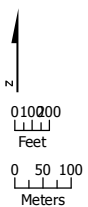
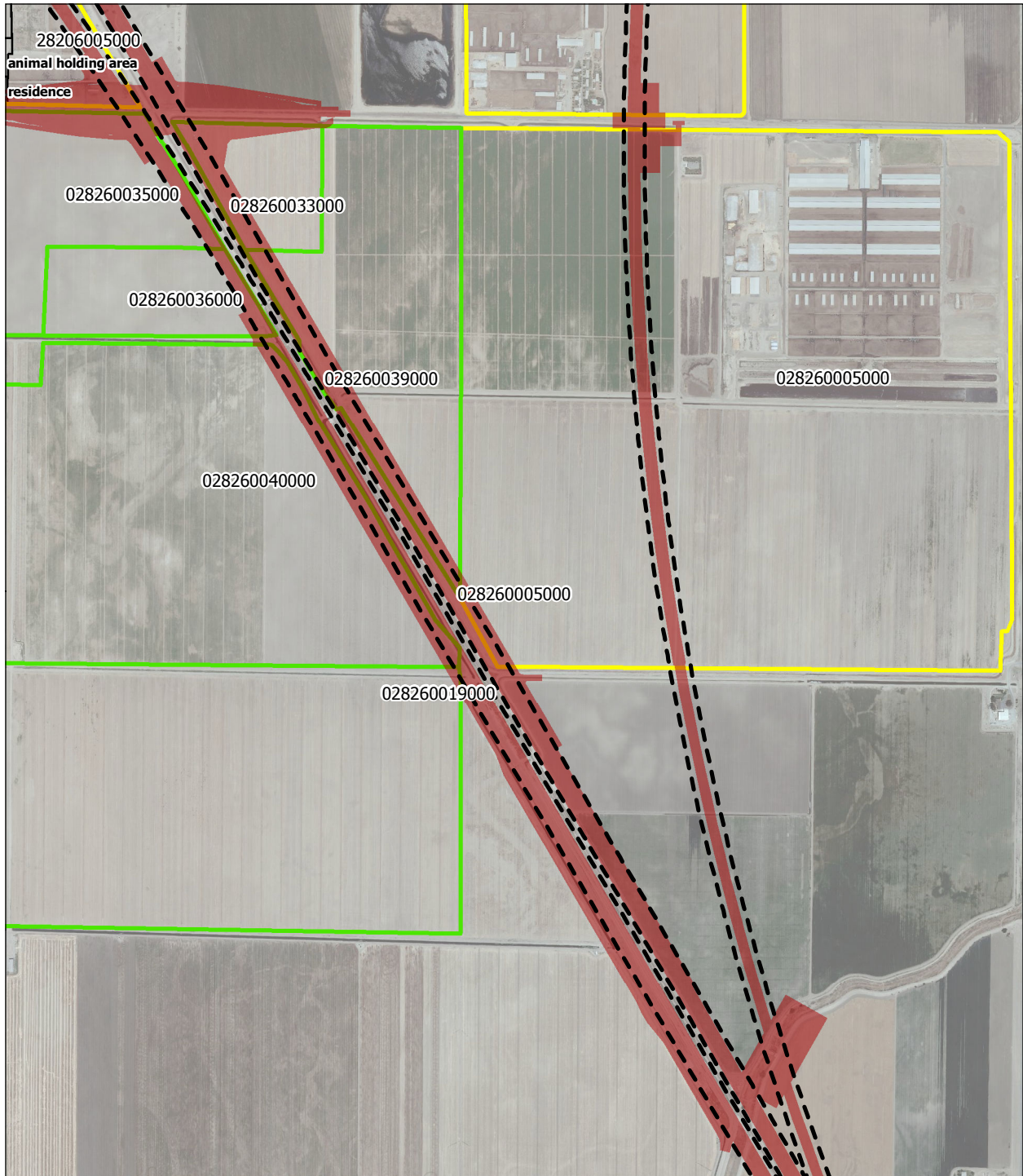


Figure B- 60
 APN 028260040000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

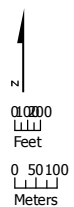
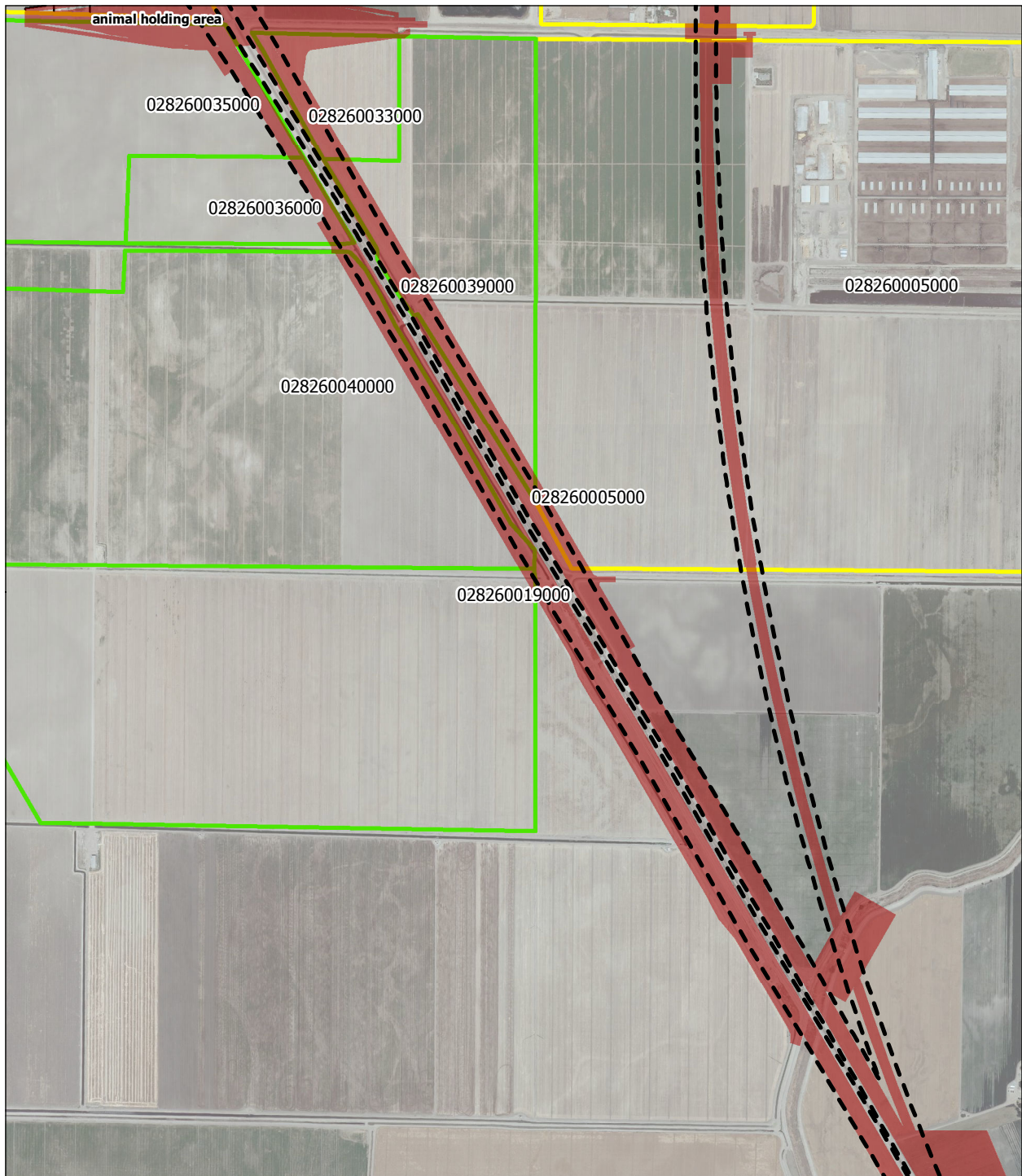


Figure B- 61
 APN 028260005000



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
 Source: URS, 2012

April 9, 2012

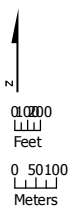


Figure B- 62
 APN 028260019000