SECTION 4(F) DE MINIMIS FINDING

OAK RIDGE DRIVE BRIDGE REPLACEMENT PROJECT

City of Roseville, Placer County, California

Federal Project Number: BRLO-5182 (057)

03-PLA-Oak Ridge Drive

State of California Department of Transportation

February 16, 2015

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the California Department of Transportation (Caltrans) under its assumption of responsibility pursuant to 23 United States Code (USC) 327.

1.0 INTRODUCTION

The purpose of this report to describe potential impacts on public resources protected under Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 USC 303, that may be associated with the proposed Oak Ridge Drive Bridge Replacement Project. The bridge replacement project is proposed by the City of Roseville (City) and would receive funding from the Highway Bridge Program (HBP), which are funds from the U.S. Department of Transportation, Federal Highway Administration (FHWA), as administered by the California Department of Transportation (Caltrans). The proposed action area includes a portion of the City's multi-use trail that parallels Linda Creek, a City public recreation facility.

Section 4(f) declares that

> *"[I]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."*
>
> *The Secretary [of Transportation] may approve a transportation program or project…requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance – as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site – only if:*
>
> - *There is no prudent and feasible alternative to using that land; and*
> - *The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development, in developing transportation projects and programs that use lands protected by Section 4(f).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA), a federal transportation reauthorization bill signed into law in 2005, simplified the procedures for projects that would have *de minimis* impacts on Section 4(f) properties. An analysis is not required and the Section 4(f) evaluation is complete once it is determine that the use of a Section 4(f) property would result in *de minimis* impacts. The definition of a *de minimis* impact, as set forth is 23 Code of Federal Regulation (CFR) §774.17, is as follows:

For parks, recreation areas, and wildlife and waterfowl refuges, a de minimis impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Responsibility for compliance with Section 4(f) has been assigned to Caltrans pursuant to the National Environmental Policy Act (NEPA) (23 USC 329) and CE Assignment (23 USC 326) Memorandum of Understanding (MOU).

2.0 BACKGROUND

2.1 Location

The proposed project is located within the City of Roseville, in Placer County, California, on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills; refer to Figure 1, *Regional Location*. The proposed project is north of Cirby Way and east of Sunrise Avenue; refer to Figure 2, *Project Location*. Primary access to the City is via Interstate 80 (I-80) and State Route 65 (SR-65). The Project area is within the United States Geological Survey (USGS) Citrus Heights Quadrangle, California.

2.2 Oak Ridge Drive

Oak Ridge Drive, classified as a "collector" roadway by the City of Roseville General Plan, carries approximately 4,200 average daily trips (ADT) through a neighborhood subdivision between two major arterials, Cirby Way to the south and Sunrise Avenue to the north. This section of Oak Ridge Drive also provides direct access to Sierra Gardens Elementary School which is 1,700 feet north of the proposed project.

2.3 Purpose and Need

The existing structure is considered functionally obsolete and fails to meet current safety standards. In addition, the existing bridge is hydraulically inadequate and has been modified with water tight railing and adjoining floodwalls to counter flooding events.

The City has identified the following purposes for this project.

- To construct a safe and standard two-lane facility with standard shoulders and sidewalks consistent with City and American Association of State Highway and Transportation Officials (AASHTO) standards in order to accommodate vehicles, bicycles and pedestrians.
- To remove the bridge from the Highway Bridge Program (HBP) eligibility list for bridge replacements.
- To reduce hydraulic pressure flow against the bridge by raising the roadway/bridge profile and lengthening the bridge to the degree feasible.
- To improve the sites ADA and pedestrian accommodation by lessening the grade of the roadway across the bridge.

- To minimize adverse long term traffic noise and visual impacts that may result from raising the bridge profile.

3.0 PROPOSED ACTION

3.1 Overview

The existing Oak Ridge Drive Bridge (Bridge No. 19C-0180) (Project No. BRLO-5182[057]) is functionally obsolete as well as hydraulically inadequate and was modified in 2001 with water tight railing and adjoining floodwalls on the north side of the channel to control flooding events. The existing bridge northerly abutment was originally constructed on a fill prism placed in the floodway contiguously to the north creek bank. This fill prism and low lying bridge act as a hydraulic constriction to the floodwaters within Linda Creek. The roadway profile leading to and over the bridge is on a relatively steep grade of approximately seven percent.

Reconstruction of the bridge and roadway would be funded completely with Highway Bridge Program (HBP) and Toll Credit funds.

The proposed project would entail the following activities:

- Remove the constricting earthen fill prism from the floodway.
- Remove the functionally obsolete, narrow two-lane bridge.
- Construct a longer, standard two-lane bridge with shoulders and sidewalks.
- Raise the roadway and bridge profile.
- Reconnect the floodwalls with transitions to the new bridge.
- Relocate one sewer and one water line with the new bridge.

As part of the proposed project, roadway, bike trail and property access approaches would be reconstructed to accommodate the necessary profile adjustment. The roadway approaches would include approximately 220 feet on the south and 230 feet on the north to accommodate the relief of hydraulic pressure on the bridge and better accommodate ADA and pedestrian access. The elevation on the north side of the bridge would be raised slightly, a maximum of approximately two feet at the northern bridge abutment and 1.5 feet at the multi-use trail; therefore, the adjacent flood walls that currently connect to the existing bridge would be modified to conform to the new bridge in order to provide the same level of flood protection.

The dimensions of the existing bridge are 56.5 feet long with two lanes, no shoulders (26.4 feet wide) and two, 1.3-foot wide vehicular barrier rails. The project proposes to replace the narrow bridge to accommodate a standard width involving two travel lanes with shoulders (for bike lanes) and sidewalks on each side. The new bridge and roadway profile would be elevated and the bridge may be lengthened in order to pass the 200-year design flood event in Linda Creek. The dimensions of the new bridge would be up to 80 feet long and up to 42 feet wide (two one-foot rails, two five-foot sidewalks, two four-foot shoulders/bike lanes, and two 11-foot travel lanes, refer to Figure 3, *Site Plan*).

The existing bridge configuration behaves as a flow constrictor within the channel with the existing sloped banks and channel invert experiencing erosion over time. The proposed project would remove approximately 400 cubic yards of the northerly abutment fill prism restoring the

native creek bank. The proposed grading at this abutment would not increase hydraulic conveyance beneath the bridge as a large bypass culvert constructed in 2001 to convey flood waters around this bridge site would continue to function and the total flow through and around the bridge site will remain essentially unchanged. However, one benefit that is realized from this increased area beneath the bridge is a slight drop in water surface elevation immediately upstream of the bridge and a measurable reduction in flood water velocity, thus reduced long term scour of the creek banks and thalweg.

The sloped creek banks and channel invert adjacent to the abutments would require erosion protection with rock slope protection or soft armoring. The limits of the erosion protection would extend above the high water surface elevation of the 200-year design flood event, would line the channel invert, and extend upstream and downstream within the high water velocity zone.

The existing bridge and roadway approaches currently lie in a low profile condition across Linda Creek, where overtopping often occurs during major storm events. The current bridge barrier post and railing has been converted to "solid" barriers with metal element retrofitting to emulate a water tight rail that ties into an adjacent floodwall. The new bridge would be raised compared to the existing bridge. As a result, the approach ramps would also be raised and the resulting approach ramp fill prisms would tie into the existing adjacent floodwall system to maintain pre-project levels of flood protection. The new bridge abutment foundations would be constructed outside the ordinary high watermark (OHWM) of Linda Creek and founded on cast-in-drilled-hole (CIDH) concrete piles. Additionally the pier foundation would be founded on CIDH concrete piles and constructed outside the low flow channel.

3.2 Construction Activities

Construction activities would proceed in the following general sequence with the equipment listed in Table 1. Some activities can overlap and be performed in parallel to accelerate the construction schedule.

Table 1: Construction Phase/Equipment

Clearing and Grubbing	
Backhoe	Dump Truck (2)
Excavator	Mulcher
Grader	
Construction of Bridge	
Backhoe	Excavator
Crane	Forklift
Boom Truck	Air Compressor
Cement Truck	
Construction of Roadway	
Backhoe/Loader	Asphalt Paver
Smooth Wheeled Roller	Striping Truck
Vibrating Roller	Excavator
Grader	
Clear Water Diversion	
Crane	Boom Truck

Table 1: Construction Phase/Equipment

Remove Bridge	
Crane	Loader
Cutting Torch and Saw	Dump Truck
Chipping Gun	Air Compressor
Jackhammer	
Erosion Protection Installation	
Dump Truck	Excavator

Clearing and Grubbing: The banks of Linda Creek would be cleared and grubbed to accommodate the new bridge, removal of the constricting northerly abutment fill prism, and widened roadway approaches. This work includes removing above ground material including all vegetation, non-salvageable trees and debris.

Detour: The road would be closed to through traffic to allow unencumbered construction to take place. Traffic would be diverted via established detour routes to permit the removal and construction of the bridge in one season. The detour would be approximately 1.5 miles in length and is depicted on Figure 4, *Preliminary Detour Route*. As shown, the detour route follows Cirby Way, Sunrise Avenue and Coloma Way. The roadway closures, and multi-use rail closure from Oak Ridge Drive to 100 feet east of Oak Ridge Drive, would be conducted in compliance with City traffic control standards and a traffic management plan to be implemented by the City. The signs within the construction zone would include "closed to thru traffic" and "local traffic only" notifications.

Clear Water Diversion: In order to remove the existing bridge, and construct the new bridge pier, it would be necessary to temporarily dewater the construction site and divert creek flows to a pipe for controlled enclosed conveyance through the construction zone (bridge site). A containment dam would be established in conformance with City specifications and regulations as required by the California Department of Fish and Wildlife (CDFW) and National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS). The containment dam would be constructed within the channel banks in the project limits upstream, and possibly downstream, of the construction activities. The City would construct the creek diversion to isolate the work area from Linda Creek using one of three options (or equivalent as may be approved by the agencies): 1) clean gravel material wrapped in a geofabric, 2) a k-rail that is wrapped in a geofabric and backfilled with clean gravel, or 3) bladders that are filled with creek water and placed within the creek channel. It is anticipated that the contractor would use backhoes and excavators from the upslope bank to install and remove the diversion.

Demolish Existing Bridge: After the road is closed and a clear water diversion is in place, the bridge would be demolished. The demolition would begin by removing the bridge railing, then stripping the Asphalt Concrete (AC) overlay from the existing bridge deck. The channel flow below would be protected in the clear water diversion system as described above. This would be followed by removal of the reinforced concrete slab, then pier columns, then exposed abutment by means of jackhammering into manageable sections. The existing bridge would be tested for hazardous materials prior to demolition and the bridge would be dismantled and disposed of in proper landfill facilities based on the finding of the hazardous materials study.

Construct New Bridge: A longer two-span bridge would replace the existing short two-span bridge. CIDH concrete piles would be utilized for the abutment foundations. The type of structure constructed would depend on the desired construction schedule – single season in this case. Regardless, the bridge would require pile placement, abutment construction with wing walls (or installation if pre-cast), superstructure construction (or installation if pre-cast slab panels, in which case this would be followed by construction of the bridge deck), followed by construction of the bridge sidewalks and guardrails.

Construction of the Roadway Approach: The limits of the roadway would first be excavated and graded to the depth of subgrade based on the design profile grade for the roadway. Since the proposed project is being designed to maintain existing drainage flow patterns, the roadway surface would be designed to conform to the general slope and plane of the watersheds. The new bridge would be raised over Linda Creek by approximately three feet at the southern bridge abutment and by approximately two feet at the north bridge abutment, in order to pass the 200-year design flood event. Excavated soils would be used to construct the roadway approach fill prism so it conforms to the raised bridge deck. Some import soil may be required to complete the approach fill prism and tie into the adjacent flood wall system. Once the roadway is excavated and the fill prism is placed and graded, the roadbed would be constructed consisting of an AC-wearing surface on top of an aggregate base over compacted subgrade.

Erosion Protection Installation: Rock slope protection and/or soft armoring would be installed in front of the bridge abutments on the sloped banks of the north side of Linda Creek to a point approximately 25 feet from the abutments, approximately 40 feet upstream and downstream of the bridge, and to a height on the slopped creek bank approximately three feet below the roadway surface.

Utility Relocation: An existing underground six-inch water line and six-inch sewer line are contained within the Oak Ridge Drive right-of-way and across the existing bridge. The water line is supported by the existing bridge deck and the sewer line is suspended beneath the deck within the floodway.

The water line is required to remain in service and would be protected in place as the new water line is constructed above and adjacent to the existing line on a new precast bridge deck element. Once the new water line is in place and ready to be connected to the existing system, the existing pipeline would be isolated and the new pipeline would be connected to the existing system. This would require a brief disruption in the water supply of approximately four hours. Once the water line is reconnected, the system would be placed back in service.

The sewer line is attached beneath the existing bridge by multiple hangers. This line would be handled in one of three ways:

- Temporarily relocated: Temporarily relocating the sewer line would involve temporary supports spanning across the creek (a pipe bridge constructed of supports, anticipated to be timber) adjacent to the eastern side of the bridge site. This temporary relocation would be no more than 45 feet west of the existing bridge and supports would be placed at approximately 20-foot intervals. Once the bridge is reconstructed, the sewer line would be relocated in its final position as noted below.
- Plugging a manhole upstream for removal and replacement: Plugging a manhole would allow removing the sewer line from across the creek while periodically pumping and

trucking the waste or while "manhole jumping" by pumping waste from one manhole into a nearby manhole of another waste water system. The sewer line would be restored to its original location.

- Protecting in place: Protecting the sewer line in place would involve temporarily supporting the sewer line in its current location (a pipe bridge constructed of timber supports) while the existing bridge is removed and the new bridge constructed. Following the construction of the new bridge, the sewer line would be supported in its final position as noted below.

All scenarios for this sewer line would involve encasing the sewer line across the creek. The encasement can be self-supporting (no supports to the bridge), or supported by a new pier, and or supported by hangers from the bridge deck above.

A stormwater outfall is located beneath the existing bridge. As part of the proposed project, a grate would be placed over this storm drain outlet to address neighborhood safety and security concerns.

Access and Staging: All equipment and materials would be stored at a temporary staging area. Staging is located within the project roadway approach limits with an additional potential staging area located on the northwest corner of Coloma Way and Oak Ridge Drive; refer to Figure 5, *Area of Direct Impact*. Construction access would be directly from the existing roadway and no specific temporary access roadways would be necessary.

Right-of-Way: As shown in Figure 5, *Area of Direct Impact*, a temporary construction easement may be required for the retaining wall in the southwest quadrant of the bridge site, adjacent to the property with assessor's parcel number (APN) 470-070-053. Temporary construction easements may also be required for construction of driveway conforms.

3.3 Construction Schedule and Timing

Construction of the proposed project would commence in summer 2017. Anticipated project duration is a single construction season. Given the hydraulic floodway sensitivity at this site, Oak Ridge Drive would be closed to traffic (as discussed above under *Detour*) to permit expedited construction to remove the existing bridge, construct the new bridge, conform the roadway and bicycle pathway, and reconnect the floodwall system to the new bridge in a single season. The CVFPB restricts work within the floodway on Linda Creek between November 1 and April 15. CDFW and NMFS further restrict work within the Linda Creek channel to only occur between June 15 and October 15. Therefore, while work outside the floodway can commence as early as January, the proposed project would restrict work located within the floodway to occur between April 15 and October 15; work within the channel (clear water diversion and bridge pier demolition) would only be allowed between June 15 and October 15. If additional time is required, only construction activities outside of the floodway would be allowed before April 15 or after October 15. Construction activities would be permitted Monday through Friday between 7 AM and 7 PM with evening construction prohibited. However, extended work periods and weekend operations may be necessary to complete this project in one season. If extended work periods are necessary, work would be permitted on Saturdays and Sundays from 8 AM to 7 PM.

4.0 APPLICABILITY OF SECTION 4(F) TO THE CITY MULTI-USE TRAIL

4.1 Section 4(f) Property

The City of Roseville Bicycle Master Plan was developed in 2008 and states that there are approximately 119 miles of existing Class I through Class III bicycle pathways within the City. The Bicycle Master Plan also shows that there are approximately 88 miles of proposed Class I through Class III bicycle pathways. A City of Roseville designated multi-use trail/bicycle facility is located along the north bank of Linda Creek and is identified as Bicycle Master Plan Segment 6i. This trail is paved and extends between Oak Ridge Drive on the west and Meadowlark Way on the east. The multi-use trails turns into a designated Class I bicycle facility at approximately Sierra Gardens Drive. The total length of this multi-use trail/Class I bicycle facility is approximately one mile. The multi-use trail has spurs that go north and south of the main pathway at various points along this one-mile route. The project site includes 100 feet of the multi-use trail, east of Oak Ridge Drive. This multi-use trail qualifies as a Section 4(f) property.

4.2 Use of Section 4(f) Property for the Proposed Action

Within the context of Section 4(f) properties, the term *use* is defined in 23 CFR 774. Specifically, a *use* occurs under any of the following circumstances:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose as determine by the criteria in 23 CFR §774.13(d); or
- When there is a constructive use of a Section 4(f) property as determined by the criteria in 23 CFR §774.15.

The multi-use trail qualifies as a Section 4(f) property. Oak Ridge Drive and the designated multi-use trail intersect on the north side of Linda Creek. The replacement of the Oak Ridge Drive Bridge would result in the raising of the bridge deck, and thus a slight raise in the roadway profile. This would result in the need to adjust the intersection of the multi-use trail and Oak Ridge Drive. The multi-use trail would be temporarily closed from Oak Ridge Drive to 100 feet east of Oak Ridge Drive. This constitutes a *use* under Section 4(f).

4.3 Potential Impacts on Section 4(f) Property

Construction activities would occur on 100 feet of the multi-use trail in order to reconfigure the multi-use trail to match the new Oak Ridge Drive profile. As discussed above, in Section 3.2, *Construction Activities*, under subsection *Detour*, the multi-use trail detour route follows Rampart Drive, Charleston Circle, the designated bicycle path for Linda Creek crossing to the designated multi-use trail on the north bank of Linda Creek. While there is an unofficial pathway along Linda Creek to the west of Oak Ridge Drive, this is not a designated trail or bicycle pathway; therefore, the multi-use trail currently terminates at Oak Ridge Drive. Thus, the impact of temporarily closing the last 100 feet of the multi-use trail would not restrict recreational activities during construction with the implementation of the detour. Access to the

Sierra Gardens Elementary School via this detour would be maintained. The multi-use trail would be reconnected to Oak Ridge Drive and reopened at the end of the construction period. Therefore, the proposed action would not significantly affect the multi-use trail.

5.0 MINIMIZATION OF POTENTIAL IMPACTS ON SECTION 4(F) PROPERTY

The City has incorporated a detour into the proposed action to minimize the potential for adverse impacts on the multi-use trail. The detour route would provide access to Oak Ridge Drive north and south of the bridge over Linda Creek. In addition, it is anticipated that the multi-use trail would be closed for approximately six months, one construction season. The multi-use trail closure would be conducted in compliance with City traffic control standards and a traffic management plan to be implemented by the City, which includes providing notification to the residents, school districts, and City Police and Fire Departments no less than 48 hours in advance of any closures. In addition, the City would ensure its contractor prepares a traffic management plan during the final stage of project design to ensure local multi-use trail users are accommodated during construction and access to residences and schools via the multi-use trail is maintained via a designated detour route.

6.0 AVOIDANCE ALTERNATIVES

There are no alternatives proposed for this project that would avoid the reconstruction of 100 feet of the multi-use trail. The No Build Alternative does not meet the purpose and need of the proposed project. Realignment of the road would not be feasible because of the existing residential land uses immediately adjacent to the proposed project site. Even if realignment of the roadway were feasible, the bike trail would be required to connect to Oak Ridge Drive, and thus would still be impacted.

Alternative bridge types and configurations were considered during the initial design stage of the bridge replacement project. These bridge types would have raised the bridge above the 200-year design flood event water elevation with three feet of freeboard; however, it would have required a substantial roadway vertical profile change. This roadway profile change had the potential to raise Oak Ridge Drive up to approximately six feet. As a result, the bike trail would have been raised more than six feet to tie into the Oak Ridge Drive intersection. The raising of the bike trail by more than six feet would have resulted in construction impacts to the facility extending east approximately 180 feet from Oak Ridge Drive. In addition, this would have eliminated secondary access to adjacent residential properties and extended the potential impact area of the senior living facility driveway access. Therefore, alternative bridge types and configurations to raise the Oak Ridge Drive were not considered prudent and feasible alternatives.

7.0 SECTION 4(F) *DE MINIMUS* DETERMINATION

Caltrans is proposing a determination that the proposed action with incorporation of the minimization measures detailed in Section 5.0, above, will reduce the potential impacts on the multi-use trail to a *de minimis* level. Principal factors of this determination are: 1) construction activities are temporary; 2) the proposed action would not restrict the public's ability to use the multi-use trail beginning at 100 feet east of Oak Ridge Drive; 3) the proposed action would not alter the existing recreational facility beyond the 100 feet adjacent to Oak Ridge Drive; and 4) a detour route would be provided, thus maintaining access to local Oak Ridge Drive, residences and schools north and south of the bridge. The temporary nature of project-related effects and the use of minimization measures would reduce the potential impacts to a *de minimis* level.

FIGURES

)

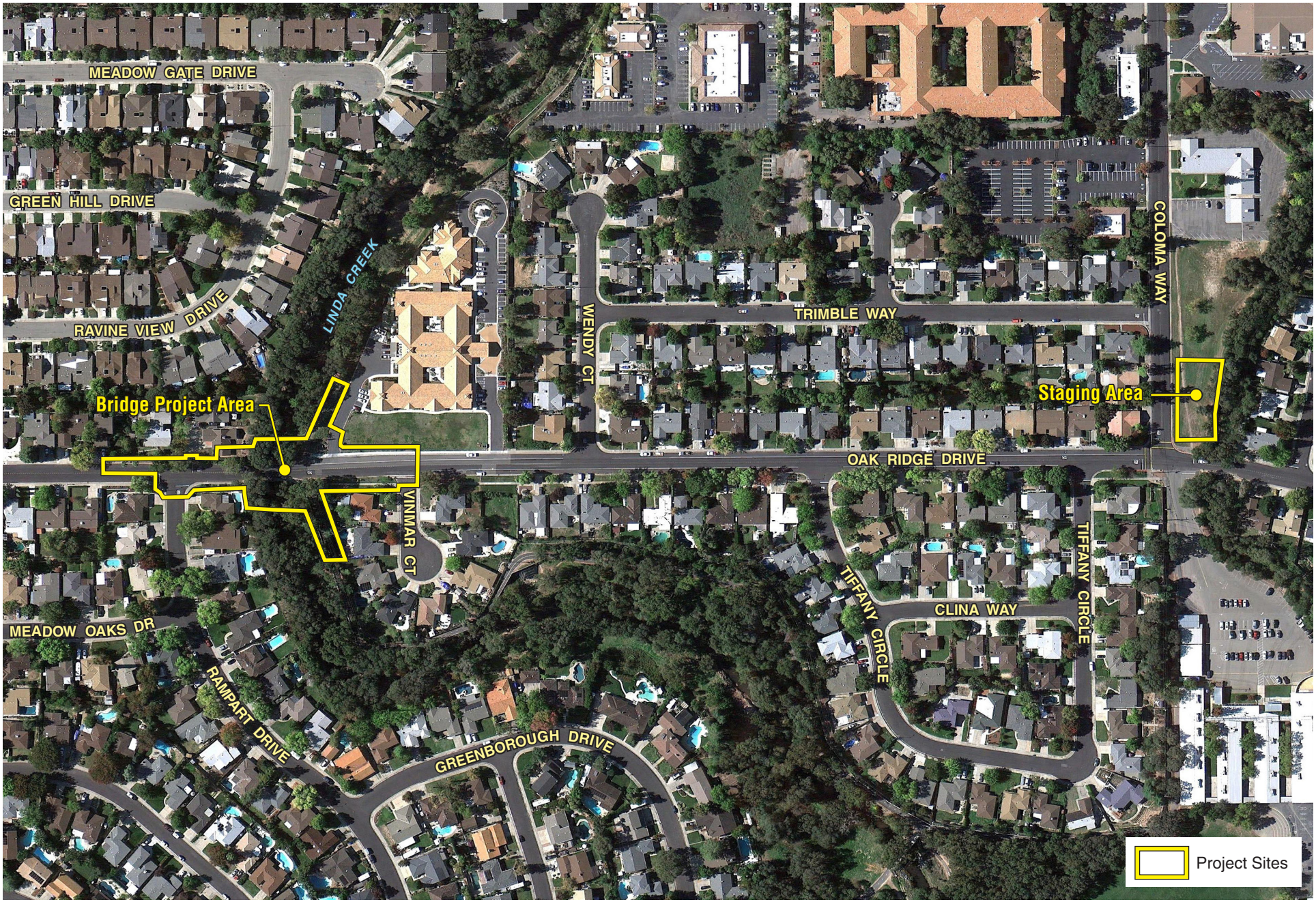
0 10 15 22 miles
APPROXIMATE

02/09/2015 JN 134939-19622

OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

Regional Location

Figure 1



Source: Google Pro Aerial

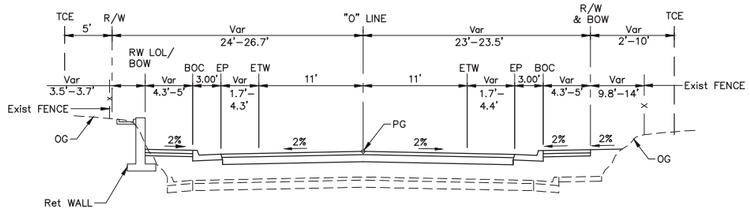
not to scale

OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

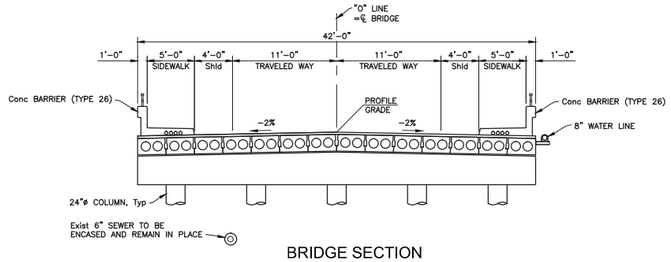
Project Location

02/09/15 JN 134939-19622

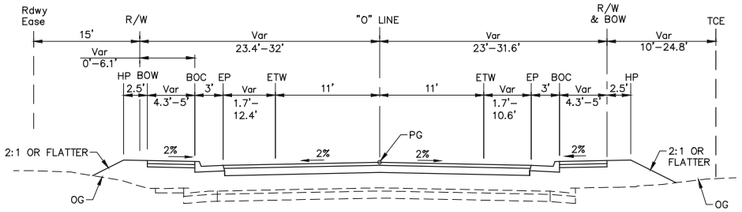
Figure 2



SECTION B-B
NO SCALE

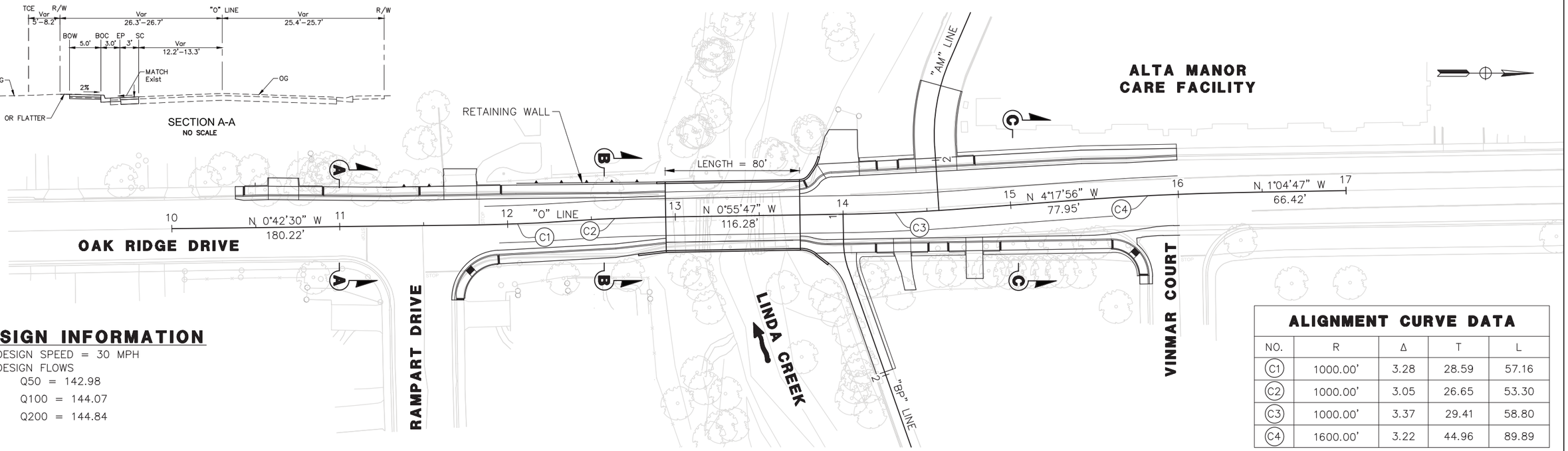


BRIDGE SECTION
NO SCALE



SECTION C-C
NO SCALE

SECTION A-A
NO SCALE

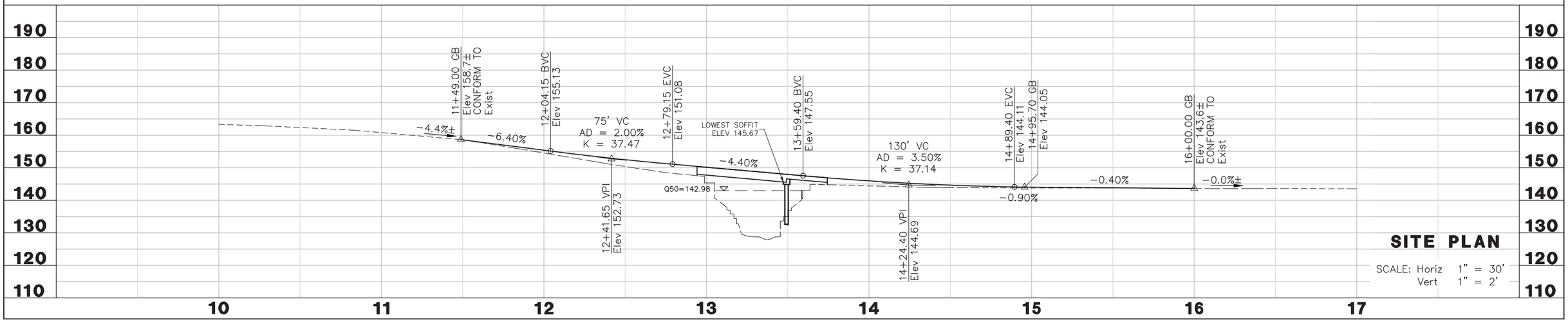


DESIGN INFORMATION

- DESIGN SPEED = 30 MPH
- DESIGN FLOWS
  - Q50 = 142.98
  - Q100 = 144.07
  - Q200 = 144.84

ALIGNMENT CURVE DATA

NO.	R	Δ	T	L
C1	1000.00'	3.28	28.59	57.16
C2	1000.00'	3.05	26.65	53.30
C3	1000.00'	3.37	29.41	58.80
C4	1600.00'	3.22	44.96	89.89



SITE PLAN

SCALE: Horiz 1" = 30'
Vert 1" = 2'

Source: Drake Haglan and Associates, February 2014.

OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

Site Plan

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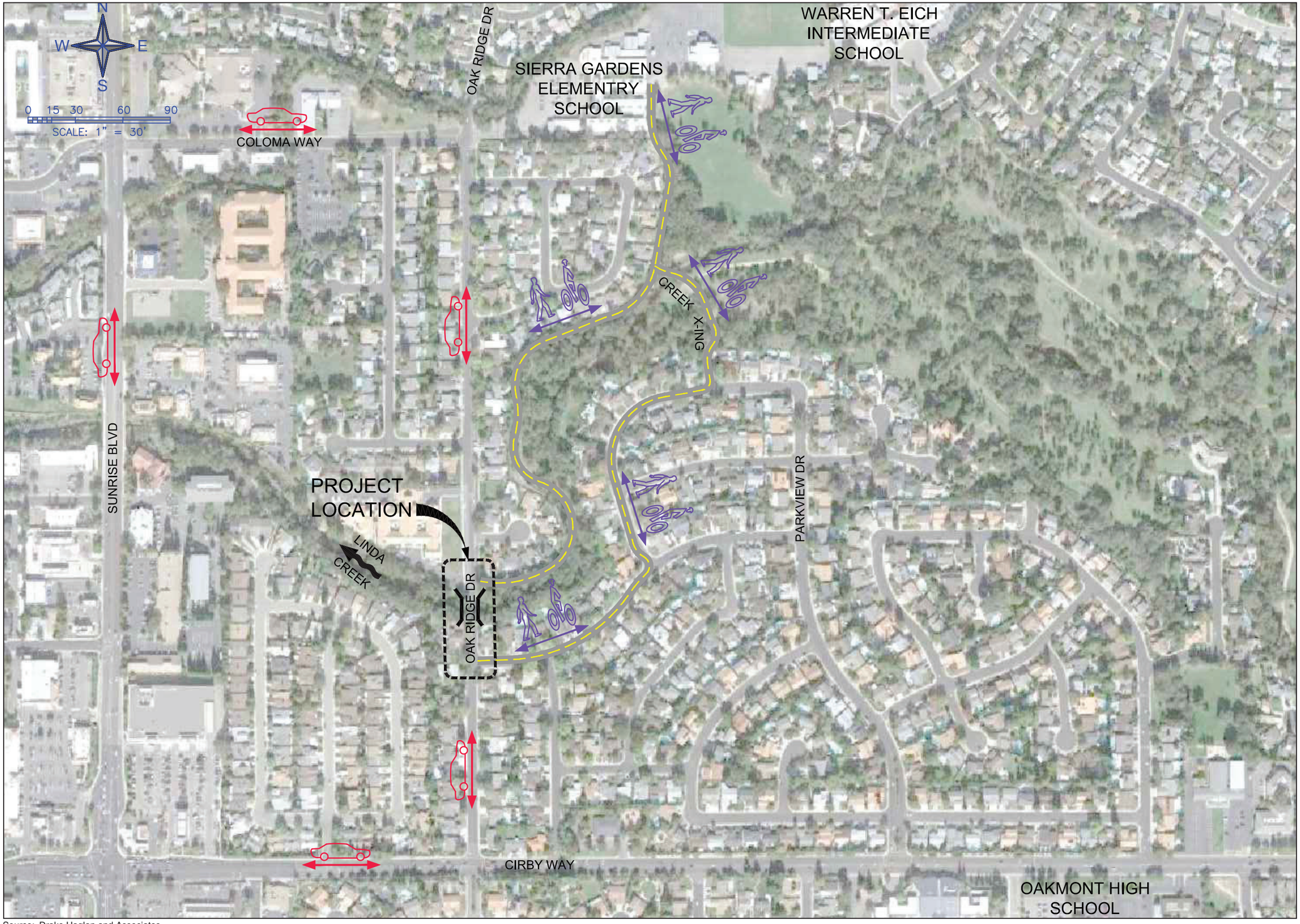
Figure 3



Source: Drake Haglan and Associates.

0 60'

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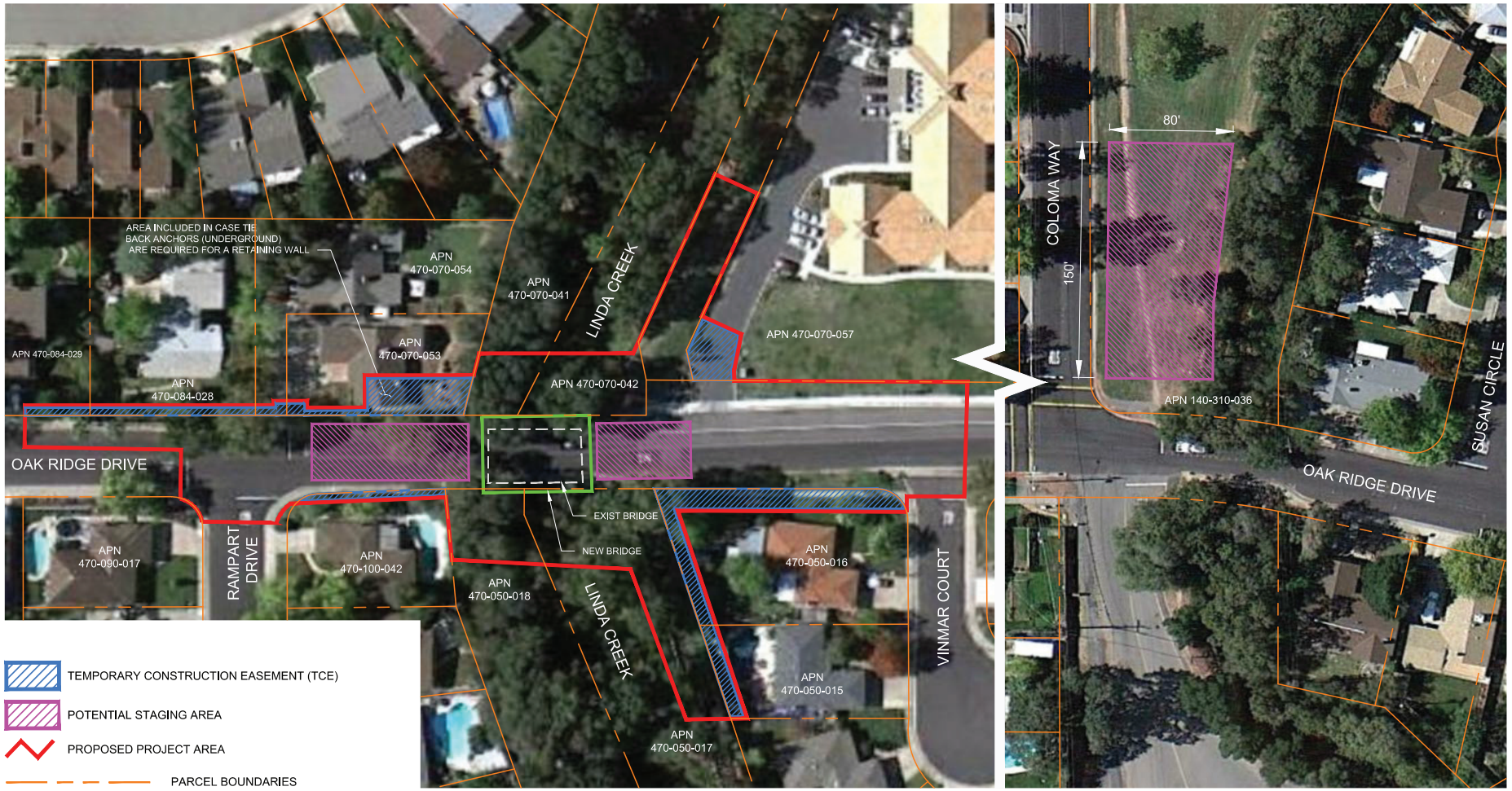
OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

Preliminary Detour Route

Figure 4



0 200'

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OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

Area of Direct Impact

Figure 5

Source: Drake Haglan and Associates, October 2014.

LEGEND

AREA OF IMPACT

RIGHT-OF-WAY (ROW)

PROPERTY LINE (PL)

not to scale

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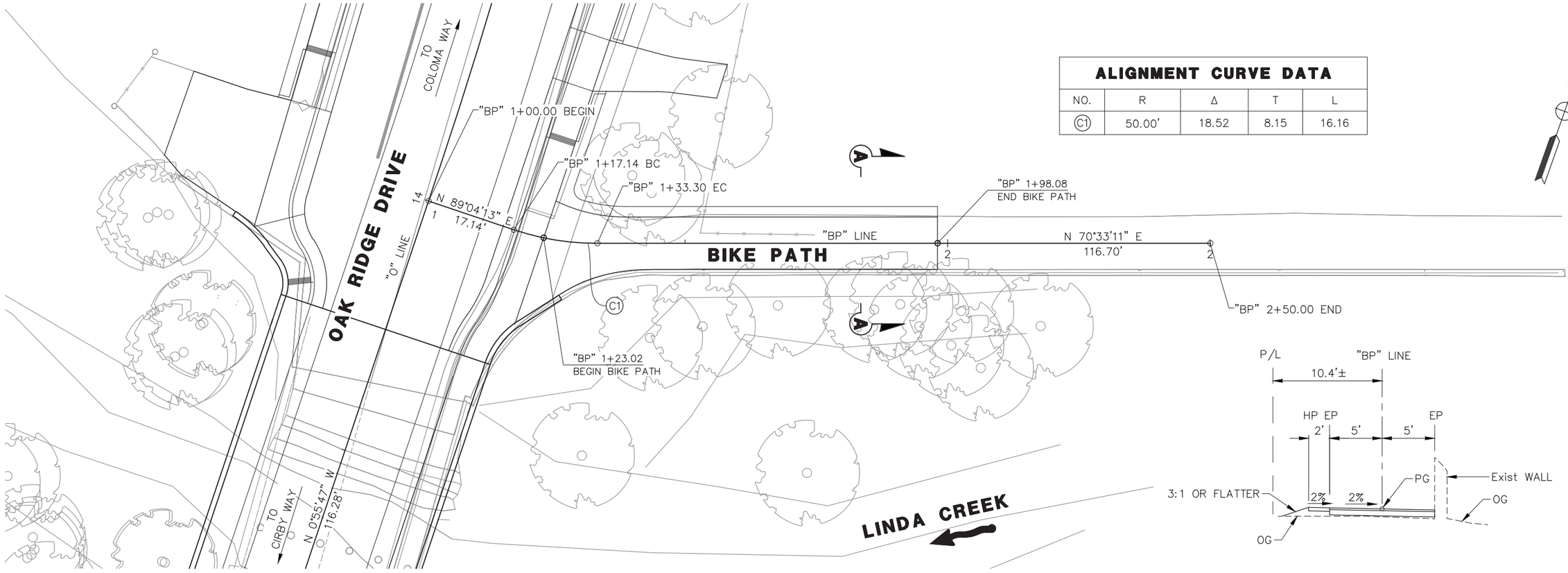
OAK RIDGE DRIVE BRIDGE PROJECT • SECTION 4(f)

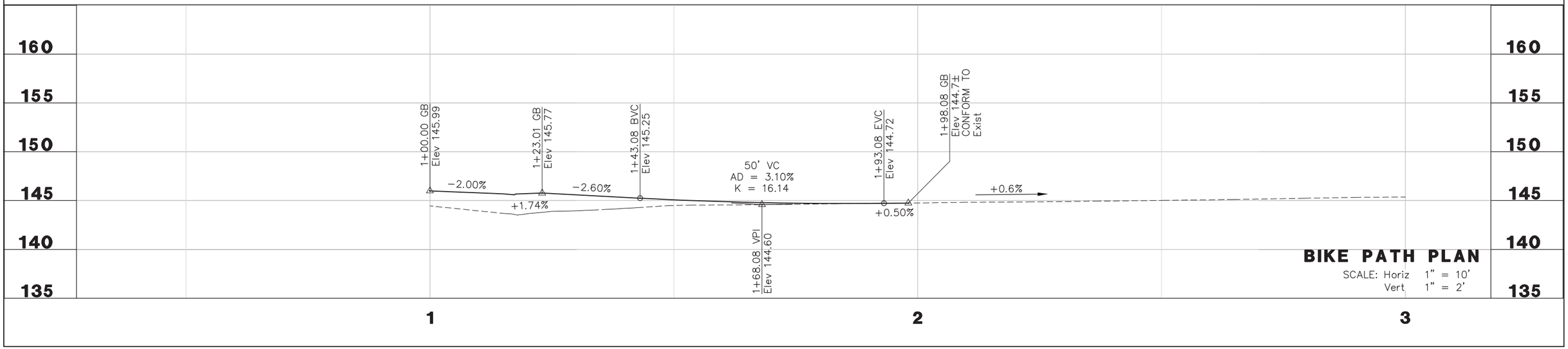
Area of Impact

Figure 6



ALIGNMENT CURVE DATA				
NO.	R	Δ	T	L
C1	50.00'	18.52	8.15	16.16

SECTION A-A
NO SCALE



BIKE PATH PLAN
SCALE: Horiz 1" = 10'
Vert 1" = 2'

Source: Drake Haglan and Associates, October 2014.

Section 4(f) Site Plan

Figure 7