

Honorable Chair and Members of the
City Council Citizen Development and Enrichment Committee

City Hall
Torrance, California

Members of the Committee and Board:

SUBJECT: Torrance Bridge Maintenance and Beautification- Vegetation and Wooden Guardrailing Removal.

RECOMMENDATION

Recommendation of the City Manager and the Public Works Department that the Torrance City Council Citizen Development and Enrichment Committee concur with staff recommendation to make changes to the Torrance Bridge Maintenance and Beautification Project regarding vegetation and wooden guardrailing removal.

BACKGROUND/ANALYSIS

Public Works staff previously met with the Torrance City Council Citizen Development and Enrichment Committee on August 2, 2011 to discuss the maintenance and beautification of the Torrance Bridge. During the meeting, several members of the Historical Society, the Centennial Committee, and Torrance residents discussed their enthusiasm with the idea that the bridge would be restored to highlight Irving Gill's original work, and create a pleasant entry way into the city. Staff was also directed to seek the services of a qualified professional, experienced in historical preservation, to provide oversight of the plans, specifications, and construction of the proposed improvements. The intent of this oversight was to insure that the design and construction of the work is performed in a manner that will preserve all historical characteristics of the bridge.

Since this meeting, Council approved the Committee's recommendation for staff to acquire a reputable and experienced team of consultants to design the repairs in accordance with the Secretary of Interior Standards for Historic Preservation. The proposed improvements included the following:

- Repair spalls, delamination, and cracking on the bridge deck and columns
- Repair broken wooden railings
- Remove and/or trim old plants and ivy overgrowth from the bridge surface
- Properly remove graffiti and paint, while adding a protective coating
- Add energy efficient flood lights to highlight bridge arches (not to be attached to bridge)

Three teams of consultants submitted proposals to perform the design. After careful evaluation of experience and references, staff selected the most qualified team which consisted of Krakower and Associates, a structural engineering firm, Chattel Architects, a Historical Preservation Consultant with 18 years of experience in historical preservation, and Preservation Arts, masonry restoration experts.

During the design phase, Chattel Architects has been analyzing historical features of the bridge. As such, they have studied the existing vines growing on the bridge and have made a recommendation based on their findings that the "complete and sustained removal of vines" is necessary for the following reasons:

1. Vines obscure the bridge exterior, preventing thorough assessment of conditions.
2. Vines trap moisture against the structure, exacerbating decay of historic materials.
3. Vines were not a character-defining feature during the bridge's period of significance.

In addition to the vegetation, it was discovered that the wooden guardrails, which were added sometime after 1920, were not part of the original design and are not a contributing feature to the bridge. Additionally, some of the cracking to be repaired on the concrete face of the bridge originates from the bolts that attach the guardrail to the structure. Our thoughts regarding the railings are to remove them permanently, along with the vegetation, to provide a more complete bridge repair and beautification.

Because this information is different than what has been previously discussed at the Committee meeting and Council meeting, staff would like to present two options for consideration prior to moving forward to complete the design of the maintenance and beautification of the bridge:

1. Per the recommendation of the historical preservationist - Remove all ivy and guardrails from the bridge in order to return the bridge to the condition, as Irving Gill envisioned, without plans to re-establish vines or vegetation on the bridge.
2. Remove all ivy and guardrails from the bridge during this construction phase of repairs, with the intent of reestablishing both the vegetation and guardrails in a future, second design and construction phase. This proposed second phase may include a planned landscaping feature offset from the structure and an ADA compliant guardrailing that is less visible and therefore less intrusive to the historical contributing features of the bridge.

Staff recommends that the City Council Citizen Development and Enrichment Committee concur with the recommendation regarding the vegetation and guardrailing removal. Design is anticipated to be complete by June 2012. Construction is expected to begin this Fall and be complete by the year end.

Respectfully submitted,

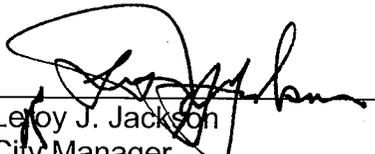
Rob Beste
PUBLIC WORKS DIRECTOR

By 
Robert Beste, P. E.
Public Works Director

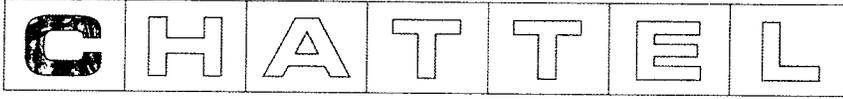

Elizabeth Overstreet, P. E.
Engineering Manager

for 
Lea Reis
Associate Engineer

CONCUR:


Leroy J. Jackson
City Manager

Attachment: A: Recommendation from Chattel Architecture dated April 18, 2012



Chattel Architecture Planning & Preservation, Inc.

April 18, 2012

VIA E-MAIL

Ms. Lea Reis, Associate Engineer
 Public Works Department, Engineering Division
 City of Torrance
 20500 Madrona Avenue
 Torrance, CA 90503

Re: Pacific Electric Railroad Bridge
 Recommendation for complete and sustained removal of vines

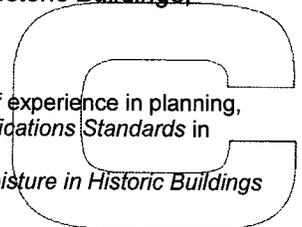
Dear Lea:

As a follow-up to our April 3, 2012 meeting, we would like to emphasize our recommendation for complete and sustained removal of vines currently growing on the 1913 Irving Gill (Gill)-designed Pacific Electric Railroad Bridge (bridge), which spans over Torrance Boulevard and Union Pacific Railroad tracks between Bow Street and South Western Avenue in Torrance, California. As you know, our firm is serving as the qualified historical architect¹ on a team led by Krakower & Associates Structural Engineers (Krakower) working for the City of Torrance (City) on bridge stabilization and rehabilitation. Constructed of reinforced concrete, the bridge exhibits exterior damage, including cracks and spalls (loss of surface material). As it is listed in the National Register of Historic Places (National Register), the bridge qualifies as a historical resource for purposes of California Environmental Quality Act (CEQA) review. Work that is consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards)* is generally considered a less than significant impact and, thus, acceptable under CEQA. Consequentially, our goal is to develop a project that conforms with the *Secretary's Standards*. Vine removal is necessary for the following reasons:

1. **Vines obscure the bridge exterior, preventing thorough assessment of conditions.**
 Identification and documentation of all damaged bridge areas is critical to ensuring that the proposed project effectively meets rehabilitation and stabilization goals. Existing vines mask areas with potential damage. Without vine removal, it is difficult to quantify damage in a thorough and comprehensive manner.
2. **Vines trap moisture against structures, exacerbating decay of historic materials.**
 Moisture penetration is a primary cause of bridge damage, and vines growing against bridge surfaces contribute to and exacerbate decay. National Park Service (NPS) guidance, including *Preservation Brief 39: Holding the Line, Controlling Unwanted Moisture in Historic Buildings*,²

¹ Both a licensed general contractor and architect in California with more than 25 years of experience in planning, design, and construction, firm President Robert Chattel meets the *Secretary of the Interior's Qualifications Standards* in architectural history and historic architecture.

² Sharon C. Park, AIA, *Preservation Brief 39: Holding the Line, Controlling Unwanted Moisture in Historic Buildings* (Washington, D.C.: National Park Service, 1996).



Preservation Brief 15: Preservation of Historic Concrete,³ and *Preservation Tech Notes: Restoring Vine Coverage to Historic Buildings*⁴ (attached) emphasize the connection between common signs of concrete deterioration, like cracks and spalls, and water penetration, which is intensified by vines and other vegetation growing directly against a concrete surface. Although cracking is a common concrete characteristic, cracks provide convenient channels for moisture penetration, leading to corrosion of embedded reinforcing steel.⁵ Expansion of corrosion by-products increases stress against adjacent concrete, yielding spalls and worsening cracks. Further damage results when roots of vines enter into existing cracks. To prevent water-related damage, *Preservation Brief 39* recommends keeping vegetation off structures and repairing damaged materials.

3. Vines were not a character-defining feature during the bridge's period of significance.

Prepared in 1989, the bridge National Register nomination provides that the structure is significant under National Register Criterion C for its architecture. The period of significance is the year of construction, 1913.⁶ Appearance during the period of significance should serve as the basis for future rehabilitation and stabilization tasks. Extant character-defining features from the period of significance that should be preserved include the following (included in historic photos in Attachment A): six arches at east and west elevations, in addition to five perpendicular arches; smooth concrete exterior surface; and railroad track remnants at deck. Non-contributing features include wood guardrails added after the 1920s, contemporary signs posted on east and west elevations, and vines added after 1953. Removal of non-contributing features would not compromise bridge integrity. *Preservation Tech Notes* specifically instructs that "climbing vegetation should not be added to historic buildings if it did not occur historically," based on potential damage that can be attributed to such organic growth. As vines are not a character-defining feature, retention of vines to provide sense of historical character is inappropriate.

The bridge exemplifies Gill's Modern, understated style. Nevertheless, extensive vines currently growing on the bridge convolute its original design and mask substantial portions of character-defining concrete surface. Gill did state that, "we should build our house simple, plain, and substantial as a builder, then leave the ornamentation of it to Nature."⁷ Nevertheless, he did not intend for vegetation to cover exteriors in the dense manner of the bridge's existing vines. When featured in Gill's renderings, delicate vines are generally shown at limited building areas, including edges of planar surfaces and pergolas, exhibiting balance between organic landscape and Modern architectural expression.⁸

We understand that the City is considering alternatives to either retain or temporarily remove and replant vegetation following thorough assessment and documentation of bridge conditions. Although neither of these options is encouraged, if replanting of any vegetation is pursued, a plan for ongoing plant management and maintenance should be developed to maintain integrity of bridge design and mitigate any possible future water-related damage. This may involve constructing a trellis or green screen⁹ to keep

³ Paul Gaudette and Deborah Slaton, *Preservation Brief 15: Preservation of Historic Concrete* (Washington, D.C.: National Park Service).

⁴ Karen E. Day, *Preservation Tech Notes: Site, Number 1, Restoring Vine Coverage to Historic Buildings* (Washington, D.C.: National Park Service, 1991). While this publication includes techniques on restoring vine coverage when vegetation is a significant character-defining feature, it emphasizes that vines should not be added if they did not historically contribute to a structure or building.

⁵ Martin E. Weaver, *Conserving Buildings: a Guide to Techniques and Materials* (New York, NY: John Wiley & Sons, Inc., 1993) 145.

⁶ The National Register nomination identifies the period of significance as 1912; however, the bridge was completed in 1913. The period of significance is thus interpreted to be the year of construction.

⁷ Bruce Kamerling, *Irving J. Gill, Architect* (San Diego, CA: San Diego Historical Society, 1993) 57.

⁸ Although structural drawings are available and have been referenced, renderings of the bridge have not been accessed. Sources consulted for rendering availability include the University of Southern California Regional History Collection; Inventory of the Dominguez Land Corporation at California State University, Dominguez Hills; Huntington Library; Torrance Historical Society; and Irving John Gill Collection at University of California, Santa Barbara.

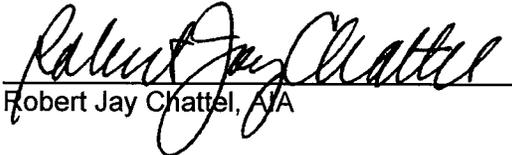
⁹ With a name attributed to the company called greenscreen, a green screen is a three-dimensional, self-supporting trellis system.

Ms. Lea Reis
April 18, 2012
Page 3

vines off the structure.

If you have any questions regarding this subject or wish to further discuss alternatives, please contact Shane Swerdlow or me at (818) 788-7954.

Sincerely,

By: 
Robert Jay Chattel, AIA

cc: Michael Krakower, Structural Engineer
Beth Overstreet, P.E., Engineering Manager, City of Torrance Public Works Department

ATTACHMENT A
HISTORIC PHOTOS COURTESY OF TORRANCE HISTORICAL SOCIETY

PACIFIC ELECTRIC RAILROAD BRIDGE
HISTORIC PHOTOS COURTESY OF TORRANCE HISTORICAL SOCIETY



Figure 1: Bridge, note absence of wood guardrails and lack of vegetation on bridge (soon after construction)



Figure 2: Torrance Boulevard with bridge in background (c1920s)

PACIFIC ELECTRIC RAILROAD BRIDGE
HISTORIC PHOTOS COURTESY OF TORRANCE HISTORICAL SOCIETY



Figure 3: Torrance Boulevard with bridge in background (c1920s)

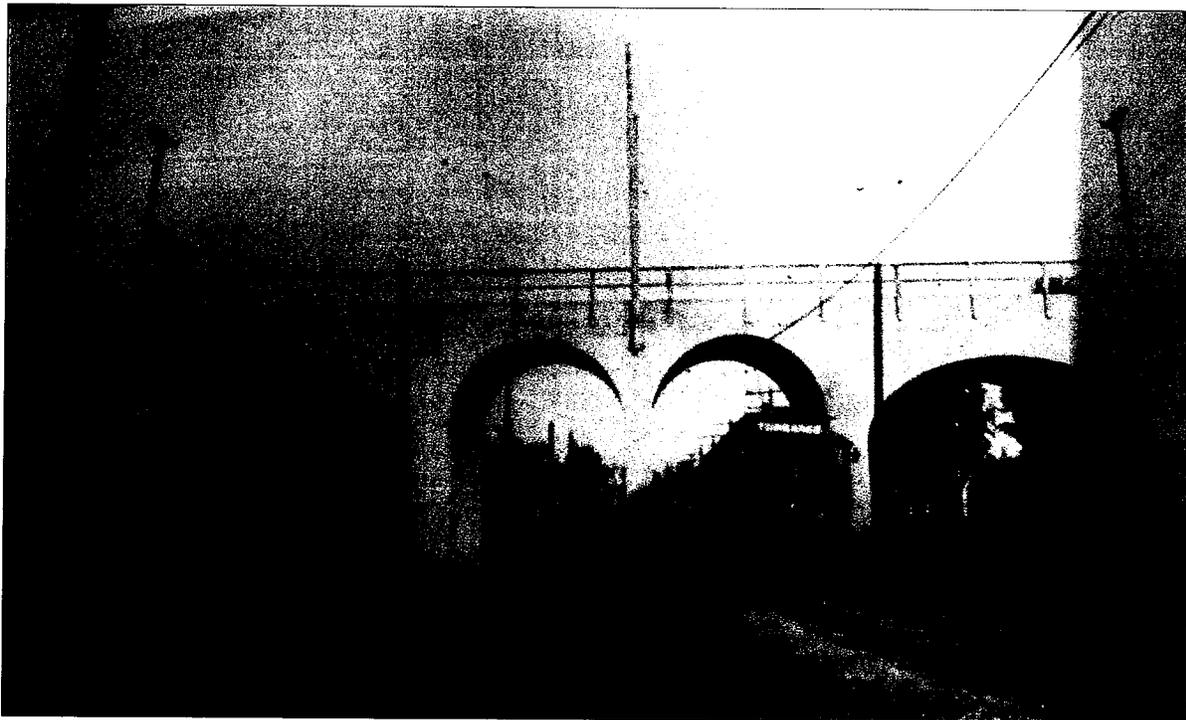


Figure 4: Bridge, note addition of wood guardrails and poles supporting overhead catenary and telephone wires (bolts in bridge east and west elevations associated with center poles are still extant), note lack of vegetation on bridge (1940)

PACIFIC ELECTRIC RAILROAD BRIDGE
HISTORIC PHOTOS COURTESY OF TORRANCE HISTORICAL SOCIETY

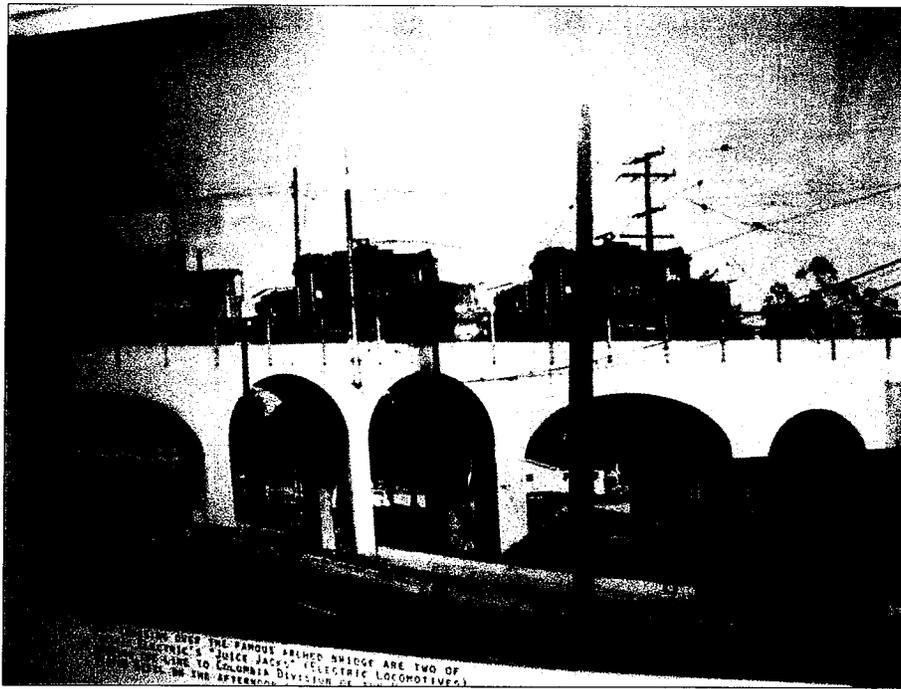


Figure 5: Bridge, note lack of vegetation on bridge (1953)



Figure 6: Bridge, note growth of vegetation on and adjacent to bridge (c1970s)

PACIFIC ELECTRIC RAILROAD BRIDGE
HISTORIC PHOTOS COURTESY OF TORRANCE HISTORICAL SOCIETY

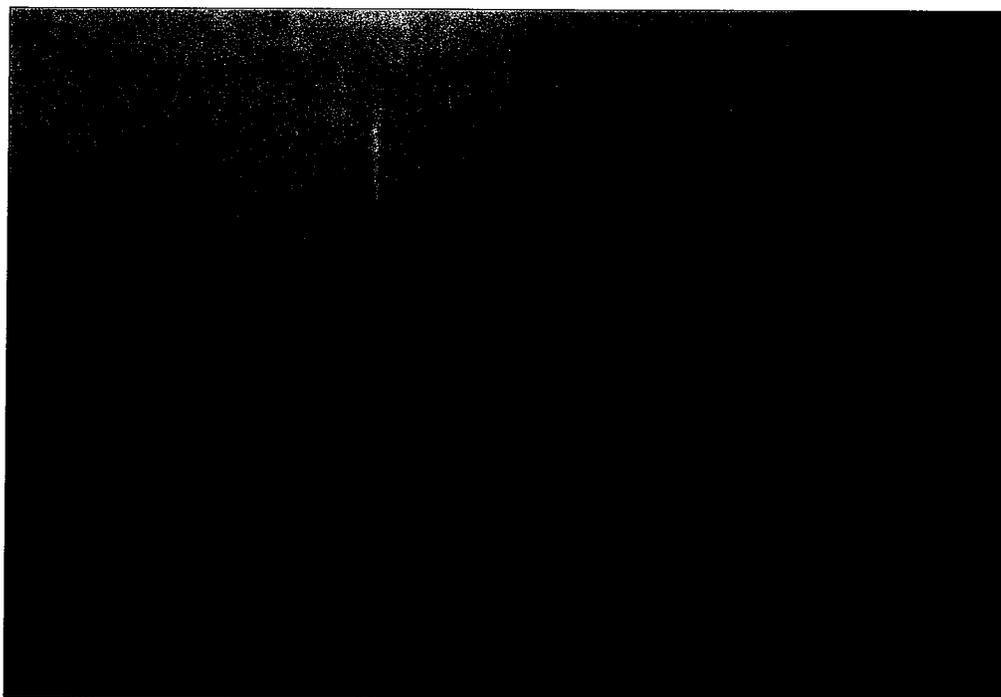


Figure 7: Bridge, note growth of vegetation on and adjacent to bridge (1984)