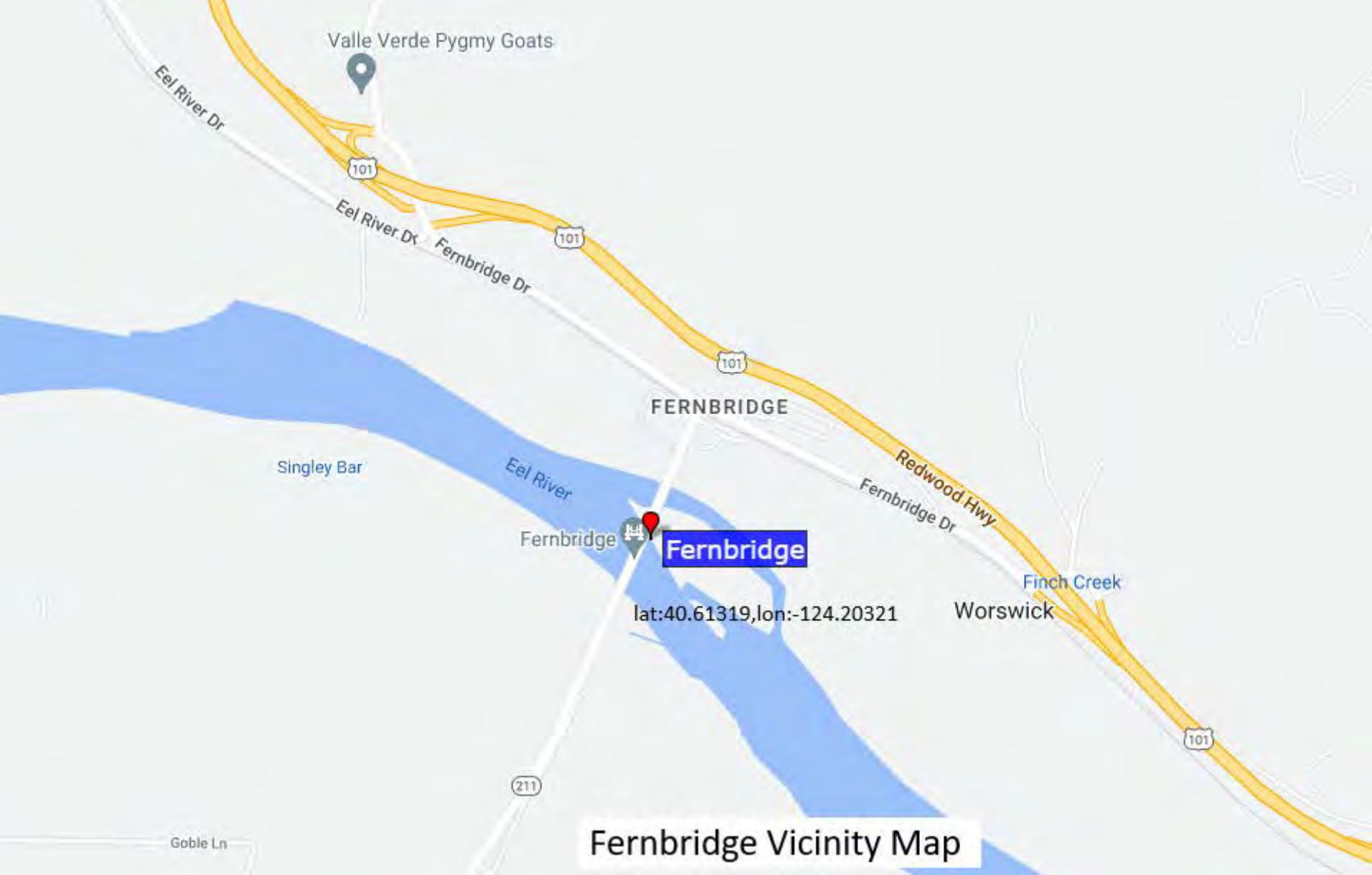




Fernbridge

lat:40.614167,lon:-124.202222

Fernbridge spans the Eel River between the communities of Fernbridge and Ferndale along California State Route 211
View from the south bank on the west side of the bridge.



Valle Verde Pygmy Goats

Eel River Dr

101

Eel River Dr

Fernbridge Dr

101

101

FERNBRIDGE

Redwood Hwy
Fernbridge Dr

Singley Bar

Eel River

Fernbridge

Fernbridge

lat:40.61319,lon:-124.20321

Finch Creek

Worswick

101

211

Goble Ln

Fernbridge Vicinity Map

From National Register of Historic Places Nomination Form

Located on California's north coast, Fernbridge spans Eel River on State Route 211, leading into the Eel River valley and Ferndale from Highway 101. The reinforced concrete bridge, including approaches, has a total length of 2,408 feet, a two-lane roadway width of 24.5 feet, and a metal-pipe concrete-post railing. Recognized as an engineering feat at the time of its construction in 1911, Fernbridge is a seven-span, earth-filled spandrel arch bridge whose individual spans, which measure 196 feet, are the longest of this design in the State of California. The reinforced concrete approaches, constructed in 1920 and totaling 95 feet, consist of 47, T-girder spans.

The bridge retains its historic integrity with no intrusive alterations. During the dry summer months, Fernbridge spans a narrow channel of water and extends across a wide bed of gravel, but rainy winter months can, almost without warning, bring a bank-to-bank flow, which not infrequently spills over into the valley's farmland. The Eel River floodplain, which extends along the lower reaches of the river as it nears its estuary and outlet to the ocean, provides fertile soils for the area's important dairy industry.

The bridge's north approach from the little community of Fernbridge is flanked by a creamery and a farm equipment business. The south approach passes through open pasture lands, dotted with dairy cows and farm buildings.

For three-quarters of a century, the stately arches of Fernbridge have stretched reassuringly across Eel River, providing a vital link between its valley and the outside world.

In recognition of its engineering excellence, exhibited in both structural beauty and durability, and its 75 years of service to the residents of the Eel River valley, Fernbridge is nominated to the National Register of Historic Places. Attributed to noted California engineer, John B. Leonard, the reinforced concrete bridge was an outstanding engineering feat of its time when constructed in 1911 and its 196-foot individual spans are still the longest, earth-filled spandrel arch spans in California. To illustrate and promote the use of the new reinforced concrete technology,

Engineer Leonard and his associate W.P. Day featured Fernbridge in their 1913 publication, *The Concrete Bridge; How it has proven itself in California*. Throughout its history, the bridge has withstood the high waters associated with winter on California's north coast and the major hundred-year floods of 1955 and (i 1964, surviving an Eel River peak flow of one million cubic feet per second during the historic '64 disaster.

The subject of numerous newspaper articles and photographs, the "Queen of Bridges" was dedicated as a California Historic Civil Engineering Landmark by the San Francisco Section of the American Society of Civil Engineers in 1976, appearing in "Historic Civil Engineering Landmarks," edited by William Myers, October 1977. The California Bridge Survey, completed in 1986 by the Department of Transportation, ranks Fernbridge third of all arched bridges in the State for National Register eligibility significance; for earth-filled spandrel arch bridges, Fernbridge ranks number one. Combining an innovative engineering success story, enduring beauty, and 75 years of history, Fernbridge retains a high degree of historic integrity of both site and design, and remains a beloved and significant part of life in the Eel River valley, much deserving of recognition on the National Register of Historic Places.

References

[Fernbridge](#) Wikipedia

[Caltrans Transportation Library](#)

[John B. Leonard](#)

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received MAR 5 1987
date entered

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic Fernbridge

RECEIVED

and/or common Eel River Bridge

MAR 10 1987

2. Location

street & number Across Eel River on State Route 211

N/A not for publication

city, town Fernbridge

N/A vicinity of

state California

code 06

county Humboldt

code 023

3. Classification

Category	Ownership	Status	Present Use	
<input type="checkbox"/> district	<input checked="" type="checkbox"/> public	<input checked="" type="checkbox"/> occupied	<input type="checkbox"/> agriculture	<input type="checkbox"/> museum
<input type="checkbox"/> building(s)	<input type="checkbox"/> private	<input type="checkbox"/> unoccupied	<input type="checkbox"/> commercial	<input type="checkbox"/> park
<input checked="" type="checkbox"/> structure	<input type="checkbox"/> both	<input type="checkbox"/> work in progress	<input type="checkbox"/> educational	<input type="checkbox"/> private residence
<input type="checkbox"/> site	Public Acquisition	Accessible	<input type="checkbox"/> entertainment	<input type="checkbox"/> religious
<input type="checkbox"/> object	<input type="checkbox"/> in process	<input type="checkbox"/> yes: restricted	<input type="checkbox"/> government	<input type="checkbox"/> scientific
	<input type="checkbox"/> being considered	<input checked="" type="checkbox"/> yes: unrestricted	<input type="checkbox"/> industrial	<input checked="" type="checkbox"/> transportation
	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> no	<input type="checkbox"/> military	<input type="checkbox"/> other:

4. Owner of Property

name State of California, Department of Transportation

street & number 1120 N Street

city, town Sacramento

N/A vicinity of

state CA 95814

5. Location of Legal Description

courthouse, registry of deeds, etc. Department of Transportation, District 1

street & number 1656 Union Street, P.O. Box 3700

city, town Eureka

state CA 95501

6. Representation in Existing Surveys

title The California Bridge Survey Federal Highways Administration Det. of Eligibility
has this property been determined eligible? yes no

date 1986

federal state county local

depository for survey records State of California, Department of Transportation

city, town 1120 N Street, Sacramento

state CA 95814

7. Description

Condition		Check one	Check one
<input type="checkbox"/> excellent	<input type="checkbox"/> deteriorated	<input type="checkbox"/> unaltered	<input checked="" type="checkbox"/> original site
<input checked="" type="checkbox"/> good	<input type="checkbox"/> ruins	<input checked="" type="checkbox"/> altered	<input type="checkbox"/> moved date _____
<input type="checkbox"/> fair	<input type="checkbox"/> unexposed		

Describe the present and original (if known) physical appearance

Located on California's northcoast, Fernbridge spans Eel River on State Route 211, leading into the Eel River valley and Ferndale from Highway 101. The reinforced concrete bridge, including approaches, has a total length of 2,408 feet, a two-lane roadway width of 24.5 feet, and a metal-pipe-concrete-post railing. Recognized as an engineering feat at the time of its construction in 1911, Fernbridge is a seven-span, earth-filled spandrel arch bridge whose individual spans, which measure 196 feet, are the longest of this design in the State of California. The reinforced concrete approaches, constructed in 1920 and totalling 954 feet, consist of 47, T-girder spans. The bridge retains its historic integrity with no intrusive alterations. During the dry summer months, Fernbridge spans a narrow channel of water and extends across a wide bed of gravel, but rainy winter months can, almost without warning, bring a bank-to-bank flow, which not infrequently spills over into the valley's farmland. The Eel River floodplain, which extends along the lower reaches of the river as it nears its estuary and outlet to the ocean, provides fertile soils for the area's important dairy industry. The bridge's north approach from the little community of Fernbridge is flanked by a creamery and a farm equipment business. The south approach passes through open pasture lands, dotted with dairy cows and farm buildings. For three-quarters of a century, the stately arches of Fernbridge have stretched reassuringly across Eel River, providing a vital link between its valley and the outside world.

* * * * *

Prior to the selection of the bridge site, County Surveyor George Conners conducted boring tests using a high derrick and drill with a gasoline-powered engine. During the fall of 1909, he drilled to a depth of over fifty feet and being "well pleased with the results" stated that the foundation at the site was suitable for the bridge.

After considerable debate and delay, the contract was awarded to the Pacific Construction Company of San Francisco on September 13, 1910 and work began in February 1911. Descriptions in the Ferndale Enterprise give a good accounting of the bridge's construction:

14 Feb. 1911 The Work at Bridge: A visit to the Greig site, where the Eel river bridge is being built, discloses a lively scene when weather conditions are favorable. A crew of fifty men is employed and construction work is being carried forward on both banks. Dams have been put in and dredging out the excavations for pile driving is well under way.

Material continues to arrive as well as machinery. In the summer, when operations are in full swing, there will be employed eight donkey engines, a steam plant of 150 horse power, three steam

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hammers, as well as numerous dredge buckets, pumps and smaller machinery. A crew of 250 men will be on the job.

C.F. McCarthy, one of the head officials of the Pacific Construction Company, paid a visit of inspection to the work last week, coming up from San Francisco for that purpose... (He) does not consider Eel river a bad stream at all.

28 Feb. 1911 Lively is Scene at the Bridge: With much of the preliminary work such as the establishment of a camp and other similar details finished, and a crew of 52 men on the payroll of the Pacific Construction Company now employed in actual work on the Eel river bridge, Weott, where the big structure is located, is fast becoming a busy place. According to the plans of the officials of the construction company, the present crew of some 50 men will be maintained until about April first when from 100 to 150 additional hands will be added to the force and then all will be exceedingly busy at the site of the bridge.

At present work is being done on the abutments of the bridge at either side of the river. Piling is driven to a distance of 50 feet below water level of the river while 150 piles will be driven at each abutment. An excavation about 25 feet square and some 30 feet deep is being made by the dredges where the piling is driven and heavy timbers are placed around the sides of the excavation and the veritable cave is then pumped dry of water and in the bottom of this pit, piling is driven and forms the foundation for the abutments. When all is in readiness, the piling will be cut off some six feet below the low water mark and the cement will be poured into the pit, forming the huge abutment. In this manner an abutment will be constructed at either side of the bridge and six piers are to be built in the center of the structure, supporting the seven huge spans.

In order to build the piers as foundations for the bridge and forming the spans, it will be necessary to drive piling in six different places in the bed of the river and for this purpose, according to the Times, a temporary bridge is to be thrown across the river as soon as the winter storms are over and low water will allow such work to be done. This temporary bridge will be equipped with four tracks and four huge carriers will be operated thereon, including a big 11,000 pound steam hammer which is now on the ground ready for use as soon as occasion demands.

For the purpose of generating steam to operate the huge pile driver on the Fortuna side of the river, tanks for storing fuel oil are being erected together with boilers for furnishing steam to the engines, making a large power plant in itself while the same will be necessary at other points along the work. Probably

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the largest building at the bridge site is the cement shed, where two huge cement mixers, which will take 18 men each to operate and which will turn out 140 cubic rods of cement each day, are located. Each mixer is operated with a powerful gasoline engine.

The cement building is built in such a manner that through its center a narrow track is run and when the cement work is commenced the big mixers will be run out onto the temporary bridge while supply cars will be operated to the cement shed over the temporary tracks, carrying supplies and cement to the mixers. Rock crushers will work near the bridge site as the gravel which is to be used is to be secured from the river bed and it will not be necessary to transport it any great distance.

21 March 1911 Foundation Could not be Better: The assertion has been made at different times that the foundation of the earth at the Greig site, where the new Eel river bridge is being built, is soft and unsuitable to support the great weight of the immense concrete structure. Listen to the following and see if this bears out this assertion:

Last week one hundred blows of an 11,000 pound steam hammer drove a piling exactly one inch. This test was made while a number of spectators were present and demonstrated that a better foundation could not be desired.

...The superintendent of construction, Mr. Willison, is well pleased with the conditions and is confident that no trouble with the bridge will ever be experienced.

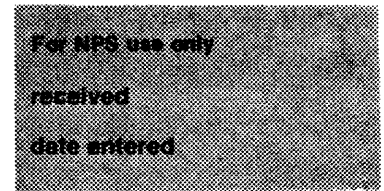
24 March 1911 Bridge Crew is Busy...: A visit to the scene of the Eel river bridge operations these days discloses a scene of great activity. On the Ferndale side, three pile drivers and a crew of about twenty men are working, while on the Weott end, a crew of about fifty or sixty is engaged.

The work under way now consists of driving piles for the foundation of the abutments on both banks and the building of false work across the stream from which the permanent work will be carried on. On this side a hole $41\frac{1}{2}$ feet by $44\frac{1}{2}$ feet in size and some twenty feet deep has been dredged out and protected by a coffer dam. Into the bottom of this excavation, piles are being driven to the number of 360. The piles are driven in at an angle, this giving a better foundation than would be the case if they were driven straight down. The piles are sixty feet in length and are driven as deep into the ground as possible, most of them nearly their full length. Later they will be sawed off and the cement pier built on top.

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23 June 1911 Progress is Rapid on Eel River Bridge: The thud of the pile driver, the noisy rattle of cars, the lusty admonishing of lazy horses, the scraping of shovels and the cackle of chickens all greet one's ear as he approaches the busy scene at the point on Eel river where the new bridge is being constructed.

As busy a picture greets the eye. The score of cabins, some surrounded by growing gardens, the half dozen tents, the five completed arches of the frame work, the wooden bridge beside and parallel to the unfinished concrete structure, the one hundred and thirty men moving to and fro, the huge pile drivers, the black smoke issuing from the concrete mixers, the many moving cars along the track, all bespeak the fact that the building of the second largest concrete bridge in the world is no small task.

The network of lumber forming the five completed arches makes the work show up well. When completed the seven false arches will contain 500,000 feet of lumber, all of which will be cleared away when the bridge is completed.

The steam pile drivers are now driving the last of the piles which help to form the piers on which the great concrete arches will be built. The piers, the foundation of the bridge, are eight in number. The two end piers, stronger than the other six, are the abutments, the remaining six the intermediate piers. The primary work on these piers is the scooping out of the river bed where the pier is to be built. The holes thus formed are surrounded by timbers driven so closely together as to be water tight. Then commences the work of driving the piles within their surroundings. The enclosure for the abutments is 49x37 and for the intermediates, 77x21. The abutments on account of their large area contain three hundred and twenty piles and the intermediate contain two hundred and fifty.

All of the piles are of a uniform length and thickness, the length being fifty feet and the diameter not more than fifteen and not less than twelve inches...the base of each arch, or the arch ring, is made of solid concrete reinforced with steel and varies in thickness from seven feet at the ends to three at the center of the arches. The concrete used in this will consist of a mixture of six tons of gravel and Portland cement...Since each one of these arch rings must be completed when it is started and each will require more than a day for completion, it will necessitate some night work. On each side of the arch ring, a wall of concrete strongly reinforced will be built. Gravel and dirt will be filled in between these walls almost to the road bed which will be of concrete.

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8 Aug. 1911 Eel River Bridge will be Completed in a Month: ...The abutments on both sides of the river are practically finished, the piers are complete and about all that remains to be done is the construction of the arches, which work will be well under way in a short time. The false work is all in place and will be left until the cement is hardened, which will be about two months after it is poured. On top of the bridge will be built a road of gravel, as the bare cement would be slippery and would be poor footing for horses...

A special to the Daily Humboldt Standard (3 Aug. 1911) described construction of the arches:

The method of putting in the cement archways is unique and handy. A big tower erected--80 feet high--is used to elevate the concrete and it then pours down a long tube and the archway 3 to 6 feet thick, is all to be finished in a straight 24-hour job to make the concrete hold together.

The November 21, 1911 issue of the Ferndale Enterprise presented the final facts and figures: over all length, 2501 feet; length of approaches, 500 and 551 feet; width of bridge, 26 feet; height of arch above high water, 23 feet; amount of cement used, 3,600 tons; amount of steel used, 450 tons; estimated weight of bridge, 40,000 tons; number of piles used, 3,000; amount of lumber used, 2,000,000 feet; cost, \$245,967.

The new bridge experienced its first high water and driftwood two months later. The Humboldt Times correspondent from Ferndale noted that should a freshet come, the bridge would be subjected to a severe test; if it survived, that would mean that the bridge "will stand for all time." High water in 1914 put Eel River out of its banks and driftwood badly damaged the north approach. In February 1915, the biggest flood in a generation caused untold damage in the valley and the north approach was again damaged by some cabins being washed against the pilings, making it impossible for vehicles to cross.

In the fall of 1917 in response to concern for the damaged wooden approaches, the Board of Supervisors directed the County Surveyor to prepare plans and specifications for reinforced concrete approaches. Bids received in the spring of 1918 were rejected and the County Surveyor was ordered to repair the approaches because they were "dangerous to travel." Efforts to have reinforced concrete approaches constructed were renewed in Feb. 1919, but plans and specifications were not presented to the Board until February 1920. Padgett and Kelly was awarded the \$50,995 contract for the approaches on March 9, 1920; the work was completed and accepted in November 1920.

A report by the County Surveyor in September 1923 recommended immediate repair of some of the piers and he was ordered to do so without notice. The following May, the Board authorized repair work to some piers because they were in such a "damaged condition as to endanger the whole structure." Pier Six was restored by constructing a cofferdam around it, pumping out the water, removing the earth around the piles, chipping out defective and spalling concrete and pouring a new concrete footing below the original one.

Following the December 1955 flood, which washed out the south abutment and approach span, the end span was eliminated and the first bent from the end became the southerly

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abutment, shortening the bridge by 20 feet. An earthen embankment was built to replace the old span.

In 1963 a deep scour hole under Pier Seven was filled with gravel and two-ton class rock riprap. After the big flood of 1964, the northerly arch span abutment's base was reinforced with sheet metal piling and reinforced concrete.

Other than non-altering maintenance work through the years, the only major change in the original construction was the replacement of the wooden trestle approaches with reinforced concrete approaches in 1920. The original gravel roadway has been paved.

Its design and beauty still intact after 75 years, Fernbridge is currently the subject of much discussion as the result of a Department of Transportation announcement last year that it wanted to put Fernbridge into the State Transportation Improvement Program in order to assess its condition and consider alternatives, which could include replacement, for meeting modern bridge standards. Eel River valley community residents are committed, however, to preserving Fernbridge and support this nomination as a first step to achieving recognition of and a measure of protection for the "Queen of Bridges."

8. Significance

Period	Areas of Significance—Check and justify below			
<input type="checkbox"/> prehistoric	<input type="checkbox"/> archeology-prehistoric	<input type="checkbox"/> community planning	<input type="checkbox"/> landscape architecture	<input type="checkbox"/> religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> archeology-historic	<input type="checkbox"/> conservation	<input type="checkbox"/> law	<input type="checkbox"/> science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> agriculture	<input type="checkbox"/> economics	<input type="checkbox"/> literature	<input type="checkbox"/> sculpture
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> architecture	<input type="checkbox"/> education	<input type="checkbox"/> military	<input type="checkbox"/> social/ humanitarian
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> art	<input checked="" type="checkbox"/> engineering	<input type="checkbox"/> music	<input type="checkbox"/> theater
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> commerce	<input type="checkbox"/> exploration/settlement	<input type="checkbox"/> philosophy	<input type="checkbox"/> transportation
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> communications	<input type="checkbox"/> industry	<input type="checkbox"/> politics/government	<input type="checkbox"/> other (specify)
		<input type="checkbox"/> invention		

Specific dates 1911. **Builder/Architect** 1911 - George W. Conners, Co. Surveyor

Statement of Significance (in one paragraph)

John B. Leonard, Consulting
Engineer
Pacific Construction Company
1920 - A.J. Logan, Co. Surveyor
H.J. Brunnier, Consulting Engineer
Padgett and Kelly, Contractor

In recognition of its engineering excellence, exhibited in both structural beauty and durability, and its 75 years of service to the residents of the Eel River valley, Fernbridge is nominated to the National Register of Historic Places. Attributed to noted California engineer, John B. Leonard, the reinforced concrete bridge was an outstanding engineering feat of its time when constructed in 1911, and its 196-foot individual spans are still the longest, earth-filled spandrel arch spans in California. To illustrate and promote the use of the new reinforced concrete technology, Engineer Leonard and his associate W.P. Day featured Fernbridge in their 1913 publication, The Concrete Bridge: How it has proven itself in California. Throughout its history, the bridge has withstood the high waters associated with winter on California's northcoast and the major hundred-year floods of 1955 and 1964, surviving an Eel River peak flow of one million cubic feet per second during the historic '64 disaster. The subject of numerous newspaper articles and photographs, the "Queen of Bridges" was dedicated as a California Historic Civil Engineering Landmark by the San Francisco Section of the American Society of Civil Engineers in 1976, appearing in "Historic Civil Engineering Landmarks," edited by William Myers, October 1977. The California Bridge Survey, completed in 1986 by the Department of Transportation, ranks Fernbridge third of all arched bridges in the State for National Register eligibility significance; for earth-filled spandrel arch bridges, Fernbridge ranks number one. Combining an innovative engineering success story, enduring beauty, and 75 years of history, Fernbridge retains a high degree of historic integrity of both site and design, and remains a beloved and significant part of life in the Eel River valley, much deserving of recognition on the National Register of Historic Places.

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9. Major Bibliographical References

Daily Humboldt Standard, Eureka; Daily Humboldt Times, Eureka; Ferndale Enterprise, Ferndale. Humboldt County Board of Supervisors Minutes, Courthouse, Eureka. Humboldt County Board of Supervisors Allowance Books, HSU Library, Arcata. Myers, Wm. A. (editor) Oct. 1977. Historic Civil Engineering Landmarks, S.F. Section, ASCE. Pierzinski, Diane, Assoc. Envi. Planner, CalTrans, Sacramento, personal communication, 9/86.

10. Geographical Data

Acree of nominated property about 1.4 acres

Quadrangle name Fortuna

Quadrangle scale 1:24000

UTM References

A

10	398310	4496420
Zone	Easting	Northing

B

Zone	Easting	Northing

C

--	--	--

D

--	--	--

E

--	--	--

F

--	--	--

G

--	--	--

H

--	--	--

Verbal boundary description and justification The bridge is 2,408 feet long and approximately 26 feet wide, spanning Eel River at Fernbridge on Route 211 at Milepost 78.10. The boundary includes the bridge and its approaches.

List all states and counties for properties overlapping state or county boundaries

state N/A code county code

state code county code

11. Form Prepared By

name/title Susie Van Kirk

organization

date 20 Sept. 1986

street & number 1162 C Street

telephone (707) 822-6066

city or town Arcata

state CA 95521

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

national state local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

Kathryn Guattieri

title

date 2/26/87

For NPS use only

I hereby certify that this property is included in the National Register

Entered in the

National Register

date 4/2/87

for *Alton Byers*
Keeper of the National Register

Attest:

Chief of Registration

**United States Department of the Interior
National Park Service**

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Completion of the Eel River bridge at Greig's near Singley's Crossing in November 1911 was the culmination of efforts begun decades earlier. Eel River valley residents and Eureka business people along with the area's newspapers had long advocated a span across the river, which often in winter proved a dangerous barrier to human and freight transport. The rich agricultural valley and the developing sections along the coast and down to the Mattole were often cutoff from the commercial and governmental center of Eureka when high water put the ferries out of operation and made crossing in small boats extremely dangerous.

Early efforts to obtain a bridge leading to Ferndale were renewed in 1893 when a petition was presented to the Board of Supervisors asking for a bridge across Eel River at some point between Grizzly Bluff and the ocean. Arguments accompanying the petition stated that the Eel River was a great natural barrier separating the people of the county and a great obstacle to business and travel. Signers felt that the people south of Eel River had contributed their share towards construction of public buildings and bridges elsewhere in the county and now they were asking the Board of Supervisors to make "a just, a necessary, and a wise public improvement," by constructing a bridge on the Eel River. Editorials in the Ferndale Enterprise and the Humboldt Times supported the petition, which apparently fell on deaf ears and the bridge issue received little serious consideration by the Board until 1909. when a petition was again presented:

We, the undersigned residents and taxpayers of Humboldt County, fully realizing that the increasing commerce and passenger traffic of that portion of our county lying south of Eel river justly demand some better means of crossing that stream than ferries which have been for years inadequate, dangerous, and impossible to maintain during the winter months, and believing that the time is now ripe to improve this service.

We, therefore, petition your honorable body to take such immediate steps as may be necessary for the early completion of a steel bridge in Eel river valley spanning this stream.

(Ferndale Enterprise, 9 Feb. 1909)

The Board took no action on the petition, but the Ferndale Enterprise noted that the people of Ferndale and the valley were "not at all disheartened." The Enterprise continued:

Uncomplainingly for many years, the people of this community and the valley have undergone inconvenience and hardships in being cut off from communication with the rest of the county. These things are too well known to need a repetition of them.

The bridge means everything to Ferndale. It means being in touch the year round with the county seat where our business interests are, where we are

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compelled to be at all seasons of the year, no matter the inconvenience of getting there...The bridge question is of vital importance to the people of this side of the river, however, who trust the Board will be able to see the necessity of early action in the matter and bring things to a head at the next meeting...

(Ferndale Enterprise, 16 April 1909)

Eel River valley supervisor George Hindley "talked himself hoarse" trying to persuade the remaining members of the Board to take action, but they had grave misgivings "as to whether the river would stay beneath the bridge." County Surveyor George Conners had already selected a tentative site above Singley's Crossing at Greig's place and the Board visited the site in May 1909, after which Conners, G.M. Brice and J.A. Shaw were appointed as "viewers" to study the proposed site and make a report to the Board at its June meeting. But the Board again refused to take action, raising the ire of the Eureka Herald editor who called, on June 22, 1909, for the Supervisors to make an appropriation for the bridge's construction and "if they do not do it, we should get a new board of supervisors."

The Eel River Bridge Committee of the Ferndale Chamber of Commerce took the offensive and began discussions with the individual Board members in an effort to "ascertain if possible what further assurance was expected of the people of Eel river valley and the county as to their emphatic desire for a bridge." Editorials in the county's newspapers and an aggressive effort by Eel River residents throughout the summer were successful when the Board adopted at its September 20, 1909 meeting a tax levy of 20 cents on the hundred dollars to be "devoted to the construction of a modern steel bridge across Eel river." That action resulted in "three rousing cheers" for the Supervisors and a gala celebration in Ferndale.

After County Surveyor Conners conducted borings at a site near Alton and at the Greig site, the Ferndale Enterprise happily noted that the 50-foot borings at Greig's indicated that there was "no question that the foundation is suitable for the construction of a bridge at that point." A report by Conners in November 1909 provided estimates for steel bridges at the two sites, but recommended that the bridge be built at Greig's. Finally, at its April 13, 1910 meeting held at the home of dying Board member Brown, the Board voted three to two in favor of the Greig site and authorized County Surveyor Conners to prepare plans for both steel and concrete bridges. Ninety-nine percent of the construction costs were to come from the County's General Fund with the remaining one percent from Road Districts Numbers 1 and 2. A tax levy of 28 cents per one hundred was authorized on September 19, 1910 and again on September 28, 1911 to fund the project, which was completely paid for upon its completion.

The plans and specifications for two steel and two concrete bridges were prepared during the spring and summer of 1910. When the bridge was completed in the fall of 1911, County Surveyor George W. Conners was credited with its design; however, noted San Francisco engineer John B. Leonard, the West Coast's authority on reinforced concrete and its foremost advocate at that time, has been recognized as the designer of Fernbridge by the Department of Transportation for many years.

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When the Board of Supervisors expressed concern about whether or not the river would stay beneath a bridge and later when there was discussion about the most appropriate site for the bridge, County Surveyor Connors suggested to the Board that it hire an engineering consultant to advise on these matters. He apparently felt the need for some expert professional advice. The Board didn't agree, however, and those decisions were handled by the Board and County staff. On the other hand, when it came time to design a bridge using the new reinforced concrete technology for a river as large and powerful as the Eel could be, the Board most likely felt that an engineering consultant, someone who had experience with the new material, would be needed in the completion of the plans. During the summer of 1910, County Surveyor Connors submitted several bills which amounted to about \$130 for travel expenses. These trips could have been to San Francisco to consult with Leonard; however, there is no record in either the Board of Supervisors minutes or its allowance books that Leonard or any other consultant was hired to design the bridge. Throughout the news media's coverage of the bridge's construction and its dedication, Connors is given credit for its design and Leonard's name never appears. Even Department of Transportation copies of the bridge plans showing abutments, piers, and arches have only the name "Geo. W. Connors, County Surveyor" on the sheets. Plans for the reinforced concrete approaches, dated 1918/1920, however, carry the names of both the County Surveyor, A.J. Logan, and the consulting engineer, H.J. Brunnier.

In 1913, Leonard and his associate W.P. Day published a book, The Concrete Bridge: How it has proven itself in California. Promoting both reinforced concrete as a construction material and their own engineering expertise, Leonard and Day included examples of their work in the publication. Fernbridge is among those pictured. Why Leonard was never credited with the design locally and why he is never mentioned in the County's records remain mysteries.

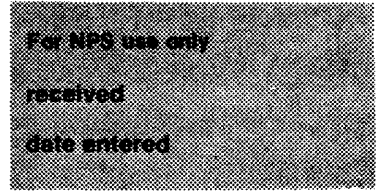
A university-educated engineer, Leonard came to California from his native Michigan in 1888 and the following year to San Francisco. He worked for several firms before establishing his own business in 1897. In 1905 he designed his first reinforced concrete bridge--the Truckee River bridge at Reno--and initiated a bridge-designing career which covered almost forty years and included nearly sixty bridges. He was active in promoting reinforced concrete and worked for many years to amend San Francisco's building codes to allow its use in construction. In 1925, the County of Humboldt hired him to prepare the plans for three bridges on the Van Duzen River and to supervise their construction, an action which was recorded in the Board's proceedings and the newspapers.

Work progressed rapidly and when the bridge's completion was assured by November, plans were made for a November 16th dedication and formal opening. A committee of Ferndale and Fortuna residents planned the day's events which included speeches, a big barbecue, water and bridge races, choral and band music and a dance. Despite the rain, it was among the biggest events ever held in the County with Eel River valley schools and businesses taking the day off to celebrate the opening of the long-sought and hard-won bridge over Eel River.

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Prior to its construction, the bridge was referred to as the Eel River bridge at Singley's or Greig's. In the fall of 1911 just before the bridge opened, the Ferndale Enterprise noted that there was a "movement afoot" to move Singley's station on the Northwestern Pacific Railroad to the new bridge site and rename it "Fern." In May 1913, "Singley" was changed to "Fernbridge" on the NWP schedule. The bridge was often called Eel River bridge at Fernbridge and sometimes simply the concrete bridge at Fernbridge, but the 1918/1920 plans for the reinforced concrete approaches referred to it as "Fern Bridge." At some point, the bridge, itself, became known as Fernbridge. In February 1933, the Board of Supervisors ordered that a 35-mile section of road between the community of Fernbridge and Petrolia be designated for inclusion in the State Secondary Highway System and the bridge became the property of the State of California. It was numbered Eel River Bridge 4-134 on Route 56, later Route 1, and now Route 211.

Surviving innumerable high-water events and the major floods of 1955 and 1964, when more modern bridges fell to the onslaught of water and tons of debris, Fernbridge remains a significant monument to the engineering skills of its designers and builders and a symbolic gateway to a unique Eel River valley community, dedicated to its preservation.

Ferndale Enterprise, 17 Nov. 1911 Completion of Bridge Celebrated Yesterday: The long anticipated celebration in honor of the completion of the Eel river bridge was held yesterday on the bank of the river at this end of the bridge and in spite of the inclemency of the weather was largely attended and resulted in a day of much enjoyment.

It is estimated that in the neighborhood of 700 or 800 people were present. Had the day been fine there is no doubt that this number would have been multiplied many times. Eureka furnished a large delegation, five coaches on the morning passenger train being filled with attendants at the celebration. All parts of the county were represented and considering the bad weather, the crowd was larger than could have been expected.

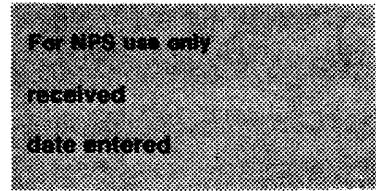
On account of the rain, the parade advertised for the morning was omitted. The bridge, however, presented a busy appearance as automobiles, vehicles, and pedestrians passed over it, after the arrival of the train, on their way to the celebration grounds.

The program of the day commenced when Chairman J.F. Coonan of Eureka called the assemblage to order and announced a selection by the Ferndale Band. At the conclusion of the musical number, Mr. Coonan made a short address, dealing with the history of the bridge from the time the first move was made toward building it up to the present time. He gave credit to all who worked in its behalf and paid an eloquent tribute to Supervisor James Brown, now deceased, who, on his deathbed and only a few days before his decease, signed the resolution which made possible the building of the bridge. He said the massive concrete structure would ever stand as a monument of Jas. H. Brown, also the other Supervisors who ordered it built. Mr. Coonan's address was followed by a selection by the Ferndale Male Chorus, Rev. C.M. Hitchcock directing.

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The song was rendered in a way which called forth much applause from the audience.

District Attorney Otto C. Gregor was the next speaker of the day. Mr. Gregor told of how the bridge has been paid for by direct taxation in three years, and with the nearly \$83,000 a year used for this purpose, Humboldt's taxes have been less than those of many other counties of the state which have had no extra ordinary expense. Mr. Gregor said our supervisors expend their money wisely and he hoped that the next movement taken up would be for a system of good roads.

A selection by the Ferndale Band followed, which was heartily applauded.

Judge C.H. Connick of Eureka spoke in his usual pleasing style and pictured a glorious future for Humboldt. He said we now have the greatest bridge of its kind in the world and depicted in glowing colors the advancement we will make upon the arrival of the railroad.

A song by the Ferndale Male Chorus, a special number composed for the occasion, was next on the program and was much enjoyed by all within hearing.

Dr. H.J. Ring of Ferndale was the next speaker and took occasion in behalf of the people of Ferndale to express the appreciation which they feel toward all who assisted in having the bridge built. Dr. Ring is an interesting speaker and held the close attention of his audience for fifteen minutes or more.

After a selection by the band, Attorney L.F. Puter of Eureka, one of the greatest boosters of the county, spoke in his inimitable style. Mr. Puter said the occasion was a happy one and he hoped to see the county continue to make progress in all matters, a great forward step having been taken in the building of the Eel river bridge.

Another selection by the band and Ex-Judge G.W. Hunter was introduced by the President of the Day. Always an eloquent and forcible speaker, Judge Hunter's effort yesterday was exceptionally good. He told of the advancement made by this county since he was a boy living in the Mattole section and was certain that a new era for Humboldt is just beginning.

A selection by the Male Chorus with band accompaniment closed the literary program and Mr. Coonan called for three cheers for the bridge, three for the Supervisors who ordered the bridge built, three for County Surveyor Connors who designed the bridge, and three for James Willison who built the bridge, all of which were given with a will.

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Then followed the barbecue and lunch. Three beeves and four hogs had been cooked in a pit near the grove where the tables were erected and soon the hundreds of hungry picnickers were gathered around enjoying meat cooked to a turn, sandwiches, coffee and the good things furnished. There was an abundance of eatables and no one left the tables hungry. Volunteers carved the meat and waited upon the crowds gathered about the tables and all were served with dispatch.

The inner man having been satisfied, the program of sports commenced and helped to pass the time during the afternoon in a very agreeable manner.

The celebration was a success in the face of adverse weather conditions and the remark was frequently heard on the grounds that had the day been pleasant, the event would have been the greatest of a like nature in the history of Humboldt.

Daily Humboldt Standard, 21 April 1910 Favors Concrete Bridge for Eel: County Surveyor Bert Conners expects to be busy from now on for some time upon the design for the new county bridge that is to span Eel River. He is quite confident that the Supervisors will decide that a reinforced concrete structure will be the best and cheapest in the long run. Such a bridge, says Mr. Conners, would last indefinitely, growing stronger every year, whereas a steel bridge would probably have to be replaced inside of 25 years, owing to deterioration from the action of salt-charged atmosphere.

Daily Humboldt Standard, 15 Nov. 1911 Eel River Bridge has been accepted by Supervisors: ...Following the inspection of the County Bridge across Eel River yesterday, the Supervisors and several invited guests were given a banquet by Superintendent James Willison of the Pacific Construction Company...Geo. W. Conners, County Surveyor and designer of the bridge, spoke of the efficient work done by the Pacific Construction Company through its Manager James Willison, stating that the construction company had gone beyond specifications in many instances to make the structure a lasting one...

Daily Humboldt Standard, 16 Nov. 1911 Humboldt has World's largest concrete Bridge; Eel River Bridge marks Epoch in concrete Age; Interesting Data concerning the huge stone Structure which connects the Cream City with Eureka: "Eel River bridge just completed by the Pacific Construction Company is one of the finest pieces of public work ever carried out in this county," County Surveyor Geo. Conners.

...The construction of the band [band of enduring rock] is not only one of the most important, but it is the most gigantic undertaking of the county, one that not only marks an era in the progress of

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the county but also it marks an epoch in the concrete age and establishes a record in modern engineering.

The record which is shared by Humboldt County, owner, and the Pacific Construction Company of San Francisco, builder, is that the structure just completed is the largest and longest reinforced concrete bridge for general traffic yet built. This record is claimed on the authoritative statements of the Scientific Press and other standard engineering publications in the East.