

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

**National Register of Historic Places  
Registration Form**

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**1. Name of Property**

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historic name Puente de las Calabazas

other names/site number Bridge #175, Bridge over the Cuyón River

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**2. Location**

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street & number SR 14, km. 39.3, Cuyón Ward  not for publication

city or town Coamo  vicinity

state Puerto Rico code PR county Coamo code 043 zip code 00769

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**3. State/Federal Agency Certification**

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As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this  nomination  request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property  meets  does not meet the National Register Criteria. I recommend that this property be considered significant  nationally  statewide  locally. ( See continuation sheet for additional comments.)

Norma I. Fúster Félix, Architect, Deputy SHPO  
Signature of certifying official/Title

February 12, 2009  
Date

Puerto Rico State Historic Preservation Office  
State or Federal agency or Tribal government

In my opinion, the property  meets  does not meet the National Register criteria. ( See continuation sheet for additional comments.)

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Signature of certifying official/Title

Date

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State or Federal agency and bureau

**4. National Park Service Certification**

I, hereby certify that this property is:

- entered in the National Register  
 See continuation sheet.
- determined eligible for the National Register  
 See continuation sheet.
- determined not eligible for the National Register
- removed from the National Register
- other (explain):

2/17/2009

Signature of the Keeper      Date of Action

**5. Classification**

**Ownership of Property**

- private
- public-local
- public-State
- public-Federal

**Category of Property**

- building(s)
- district
- site
- structure
- object

**Number of Resources within Property**

Contributing

0  
0  
1  
0  
1

Noncontributing

0 buildings  
0 sites  
0 structures  
0 objects  
0 Total

**Name of related multiple property listing**

Historic Bridges of Puerto Rico

**Number of contributing resources previously listed in the National Register**

0

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**6. Function or Use**

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**Historic Functions**

Transportation/ road-related  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Current Functions**

Transportation/ road-related  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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**7. Description**

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**Architectural Classification**

Other/ lattice girder with transverse joist  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Materials**

foundation  N/A   
walls  N/A   
roof  N/A   
other  Superstructure Iron   
 Substructure – concrete, steel, stone

**Narrative Description**

(See Continuation Sheets)

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## 8. Statement of Significance

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### Applicable National Register Criteria

(Mark "X" in one or more boxes for the criteria qualifying the property for National Register listing)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

### Criteria Considerations

(Mark "X" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or a grave.
- D** a cemetery.
- E** a reconstructed building, object, or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

### Areas of Significance

(See Continuation Sheets)

Engineering  
Transportation  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Period of Significance**

1882  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Dates**

1882  
\_\_\_\_\_  
\_\_\_\_\_

**Significant Person**

N/A  
\_\_\_\_\_  
\_\_\_\_\_

**Cultural Affiliation**

N/A  
\_\_\_\_\_  
\_\_\_\_\_

**Architect/Builder**

Eugene Rollin & Co.  
Camprubí, Raimundo  
\_\_\_\_\_  
\_\_\_\_\_

**Narrative Statement of Significance**  
(See Continuation Sheets)

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## 9. Major Bibliographical References

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### Bibliography

(See continuation sheets)

### Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested.
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # \_\_\_\_\_
- recorded by Historic American Engineering Record # \_\_\_\_\_

### Primary Location of Additional Data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository: Puerto Rico Highway Authority: General Archives of Puerto Rico: University of Puerto Rico, Mayagüez Campus

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## 10. Geographical Data

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**Acreage of Property** Less than one acre

### UTM References

(Place additional UTM references on a continuation sheet)

Zone Easting Northing  
1 19 784359 2002001  
2 \_\_\_\_\_

Zone Easting Northing  
3 \_\_\_\_\_  
4 \_\_\_\_\_

\_\_\_\_ See continuation sheet.

### Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

### Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

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**11. Form Prepared By**

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name/title José E. Marull del Río/ State Historian  
organization Puerto Rico State Historic Preservation Office date October 29, 2008  
street & number PO Box 9066581 telephone 787-721-3737  
city or town San Juan state PR zip code 00906-6581

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**Additional Documentation**

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Submit the following items with the completed form:

**Continuation Sheets****Maps**

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **sketch map** for historic districts and properties having large acreage or numerous resources.

**Photographs**

Representative **black and white photographs** of the property.

**Additional items**

(Check with the SHPO or FPO for any additional items)

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**Property Owner**

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name Transportation and Public Works Department  
street & number PO Box 41269 telephone (787) 722-2929  
city or town San Juan state PR zip code 00940-4262

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**United States Department of the Interior  
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**NATIONAL REGISTER OF HISTORIC PLACES  
CONTINUATION SHEET**

Section 7 Page 1

Puente de las Calabazas  
Coamo, Puerto Rico

**NARRATIVE DESCRIPTION**

Puente de las Calabazas (also known as Bridge #175) is two lanes vehicular traffic, single span iron lattice girder with transverse joist bridge that is located at kilometer 39.3 of State Road 14, Municipality of Coamo, between the towns of Coamo and Aibonito. This bridge has 5.02 meters in height over the Cuyón River and rests on two ashlar abutments. The bridge measures 21.4 meters long by 6.32 meters in width. The road width is 4.48 meters and is bounded by two small concrete sidewalks. The deck area has 134.82 square meters. The bridge flooring, which is covered by asphalted pavement, has a steel deck which is supported by transverse joists.

Built by the Spanish Government in the latter part of the 19<sup>th</sup> century, the bridge serves two-way vehicular traffic. The structure has suffered no significant alteration since the period of significance. The bridge retains its essential character, including a high degree of integrity of design, workmanship, feeling, association, materials and setting.

A description of the structure follows:

Span number:	1	Construction date:	1882
Span length:	21.44 meters	Superstructure:	iron
Total length:	21.44 meters	Substructure:	stone, steel, concrete
Bridge's width:	6.32 meters		
Roadway width:	4.48 meters		

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Puente de las Calabazas  
Coamo, Puerto Rico

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**NARRATIVE STATEMENT OF SIGNIFICANCE**

Puente de las Calabazas is a property of statewide significance under the National Register Criterion C for engineering, and Criterion A for transportation associated with the *Carretera Central*. Built in 1882, the structure was designed by Spanish Engineer Raimundo Camprubí and its iron components were fabricated by the Belgian factory Eugene Rollin & Co.

Background

In 1874 the Spanish Government started work on the Aibonito-Coamo section of the *Carretera Central* (also known as the old Military Road). This road, which crossed the Island of Puerto Rico from north to south, linked the northeastern city of San Juan to the southern coastal town of Ponce.

On June 1, 1875, engineer Raimundo Camprubí of the Corps of Engineers of Roads, Channels and Ports submitted the first project for a bridge over the Cuyón River to the Spanish Government in Madrid. The proposal was divided in two distinct projects – the construction of the work on the bridge's foundations; and another project for the metallic bridge. This proposal suggested limiting the intervention in the foundation and using stone from the site for the bridge's abutments. However, the Advisory Board of Roads, Channels and Ports of the Ministry of Overseas Possessions (Junta Consultativa de Caminos, Canales y Puertos del Ministerio de Ultramar) did not consider the designed foundations secure enough and required a new project with taller abutments. However, the Advisory Board did approve the specifications for the iron bridge. In April 1876 the project for the metallic bridge was relayed to José de Echevarría, Commissioner Engineer of Spanish Public Works in Paris to request bids from French and Belgian metal works firms. Later that year, Engineer Raimundo Camprubí completed a new study on the proposed bridge's foundations and prepared a second project, which was subsequently approved by royal decree of July 18, 1876<sup>1</sup>.

In June 30, 1877, the Belgian firm Eugene Rollin & Cía in Ouburg received the commission for preparing the bridge's metallic components. The firm agreed to cast the bridges components for 8,880 francs. The total of the project was 59,608.23 pesetas. The bridge's

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<sup>1</sup> Juan E. Castillo, "La Carretera Central – Su Historia", Revista de Obras Públicas, Abril 1930, 99; "Proyecto de puente de hierro sobre el río Cuyon, en la carretera de 1<sup>er</sup> orden n<sup>o</sup> 1 de la Capital a Ponce, sección de Aibonito a Juana Díaz" Archivo Histórico Nacional, Ultramar, Legajo 368, Expedientes 3 y 4.

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Puente de las Calabazas  
Coamo, Puerto Rico

elements were shipped from the Belgian port of Amberes on the Danish sailing ship "Galeón" in mid December 1877.

In 1878, Engineer Camprubí redesigned parts of this section of the road to deal with a stretch of 7.5 kilometers of the steep Asomantes Slopes in Aibonito<sup>2</sup> As result of the project's redesign, the location of the bridge was changed. He supervised the construction of the bridge's abutments, accompanying walls, embankment and assembling the iron superstructure<sup>3</sup>. The stone from the Descalabrado quarry, near the site, was used in making the bridge's abutments. Work on the bridge was completed by 1882<sup>4</sup>.

Importance of Raimundo Camprubí

In 1873, Raimundo Camprubí, of the Spanish Corps of Engineers of Roads, Channels and Ports, arrived to work on the Aibonito-Ponce road that formed part of the Carretera Central. There were only three engineers of the Corps of Engineers of Roads, Channels and Ports in Puerto Rico assigned primarily to the Carretera Central project. From 1873-1879 he was responsible for the important redesign of the Aibonito-Coamo road and in the design of four bridges. He designed the bridges crossing the rivers in Coamo (Descalabrado, Coamo, and Cuyón) and Vega Baja (Cibuco)<sup>5</sup>.

Engineering significance

In the 19<sup>th</sup> century Spain did not the industrial capacity to make its own iron bridges. For this reason they need to acquire the bridges from France, Belgium and England. In the 1870's, when construction of the primary roads in Puerto Rico started the Spanish Government decided to replace the wooden bridges with metallic structures. For this reason, the Spanish engineers prepared detailed specifications for the iron bridges that would be carefully studied and evaluated in Spain. These specifications, once approved, would in turn present to the European iron manufacturers through the Spanish Commissioner Engineer in Paris<sup>6</sup>. The construction of the iron lattice girder with transverse joist bridges in Puerto Rico are

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<sup>2</sup> Ibid., 97.

<sup>3</sup> Luis Pumarada O'Neill, "Fichero de puentes elegibles consideradas para designación como puentes históricos", 5 de enero de 1995; Luis F. Pumarada O'Neill, Los puentes históricos de Puerto Rico, diciembre 1991, 76.

<sup>4</sup> Castillo, "La Carretera Central", 99.

<sup>5</sup> María de los Angeles Castro, "Apuntes sobre Raimundo Camprubí"; In February 6, 1878, Engineer Camprubí requested authorization to return to Spain due to his failing health. He was finally authorized to return to Spain on November 3, 1880.

<sup>6</sup> "Carretera de 1<sup>er</sup> orden núm. 1 de la Capital a Ponce, Sección de Aybonito a Coamo, Proyecto de un puente de hierro sobre el río Cuyon, tramo de hierro", Archivo Histórico Nacional, Legajo 404, Expediente 7.

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Puente de las Calabazas  
Coamo, Puerto Rico

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representative of European technology that was rarely used within the jurisdiction in the United States.

According to Eric Delony, Director of the Historic American Building Survey/ Historic Engineering Record,

By 1800, most European engineers were opened to using cast iron. Architects, however, preferred traditional materials such as granite and marble for the visible parts of the buildings and wood for the hidden structural like roof trusses, and did not accept cast iron as having aesthetic merit or structural value. In the USA, still blessed with abundant virgin forests, early 19<sup>th</sup> century was the era of "carpenter engineers". Men like Timothy Palmer, Lewis Wernwag, Theodore Burr, and Ithiel Town followed British custom by conceiving and building truss forms predicated on intuition and pragmatic rules of thumb. Their craft tradition of knowledge, passed down from master to apprentice, contrasted with the scientific analysis and mathematical formulas practiced by French government engineers. Models were built and loaded to failure and broken members replaced with stronger ones until the model supported the loading equivalent to a real live load plus a safety factor<sup>7</sup>.

Patents were granted in the USA for composite wood and iron bridges, transitional structures that capitalized on the availability of cheap timber. When the American iron industry caught up with Europe's by the mid-19<sup>th</sup> century, bridge building took the direction of composite pin-connected trusses, with sophisticated castings for joint blocks and compression members, and forged eyebars and wrought-iron rods for tension members, all fabricated to high tolerances. This allowed them to be assembled easily and inexpensively in the field by unskilled labor using simple tools and erection techniques. The system prevailed in the USA because that country lacked a skill labour force, and the remoteness of many bridge sites hampered the use of sophisticated machinery or the shipping of large bridge parts over long distances. A spirited debate ensued between England and the former colony during the last quarter of the 19<sup>th</sup> century over which system was best: easily erected pin-connected trusses on the "American Plan," or European-style riveted trusses. Even though the rigid riveted truss was of superior design, American bridges remained competitive in world bridge markets until the early 20<sup>th</sup> century because they were cheaper and swiftly erected.

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<sup>7</sup> Taken from article "Context for World Heritage Bridges" A joint publication with TICCIH, 1996 by Erick DeLony. Can be accessed at <http://www.icomos.org/studies/bridges.htm>.

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For further contextual information regarding bridge building in Puerto Rico, registration requirements, renowned engineers and firms, and property types, see related multiple property listing "Historic Bridges of Puerto Rico".

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Puente de las Calabazas  
Coamo, Puerto Rico

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**MAJOR BIBLIOGRAPHICAL REFERENCES**

Castillo, Juan E. "Carretera Central. -Su Historia." Revista de Obras Públicas 7:4 (Abril 1930): 98-99.

DeLony, Eric. "Context for World Heritage Bridges". Joint publication with TICCIH, 1996. (<http://www.icomos.org/studies/bridges.htm>).

Pumarada O'Neill, Luis. "Fichero de Puentes elegibles considerados para designación como puentes históricos". Informe final para Oficina de Estudios Ambientales, Autoridad de Carreteras y Transportación de Puerto Rico. 5 de enero de 1995.

-----. Los Puentes Históricos de Puerto Rico. Centro de Investigación y Desarrollo, RUM, Mayagüez, 1991.

-----. "Historic Bridges of Puerto Rico, c. 1840-1950". Multiple Property Submission (MPS) prepared for PRSHPO on July 31, 1994. MPS approved by National Park Service on July 19, 1995.

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Calabazas Bridge  
Coamo, Puerto Rico

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**GEOGRAPHICAL DATA**

Verbal Boundary Description

The nominated property is a rectangular shaped parcel measuring 21.44 X 6.32 meters, which is centered on the coordinates in section 10 (Zone 19, Easting 784359, Northing 2002001). Included within this rectangular parcel are the bridge's superstructure, substructure and floor systems.

Boundary Justification

The nominated structure includes the bridge's superstructure, substructure, floor system, any approach spans and the property on which they rest. These boundaries encompass, but not exceed, all of the property that has been historically associated with this bridge.

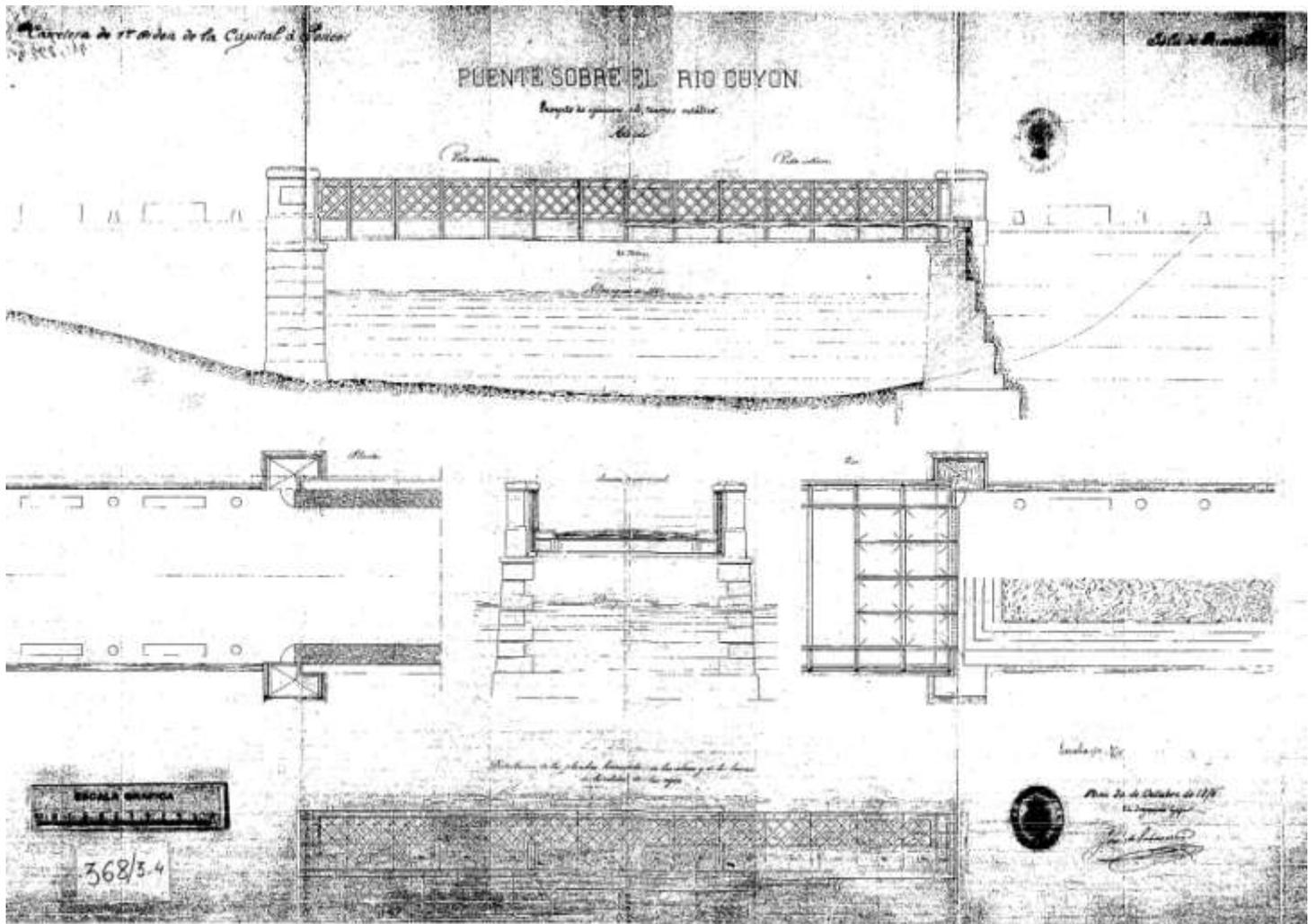
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



Drawings of the revised project for a metallic bridge over the Cuyón River, Coamo. Prepared on October 30, 1876 in Paris, France, by Engineer in chief José de Echevarría. Archivo Histórico Nacional, Ultramar, Legajo 368, Expediente 4.

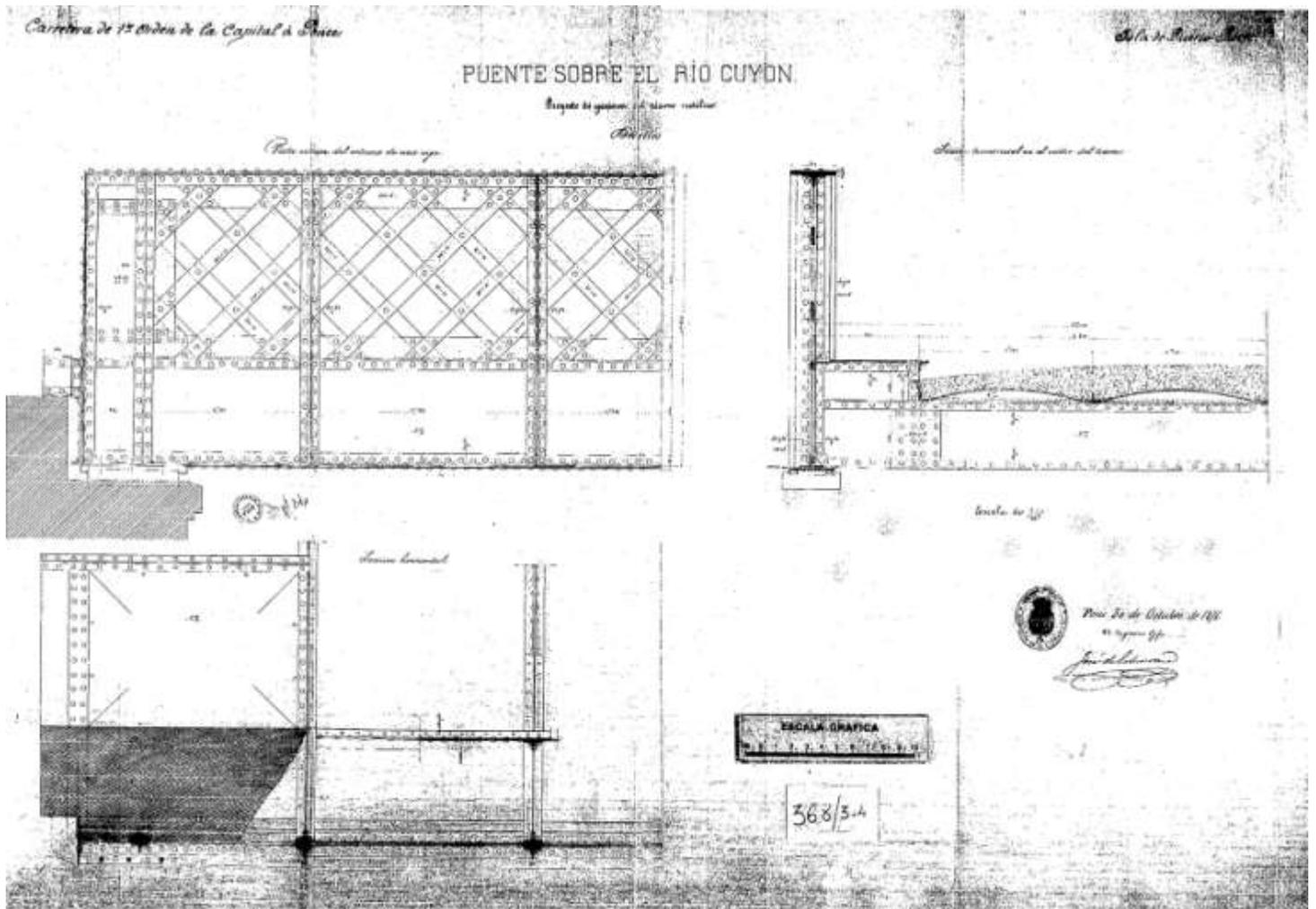
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



Drawings of details for the revised project for a metallic bridge over the Cuyón River, Coamo. Prepared on October 30, 1876 in Paris, France, by Engineer in chief José de Echevarría. Archivo Histórico Nacional, Ultramar, Legajo 368, Expediente 4.

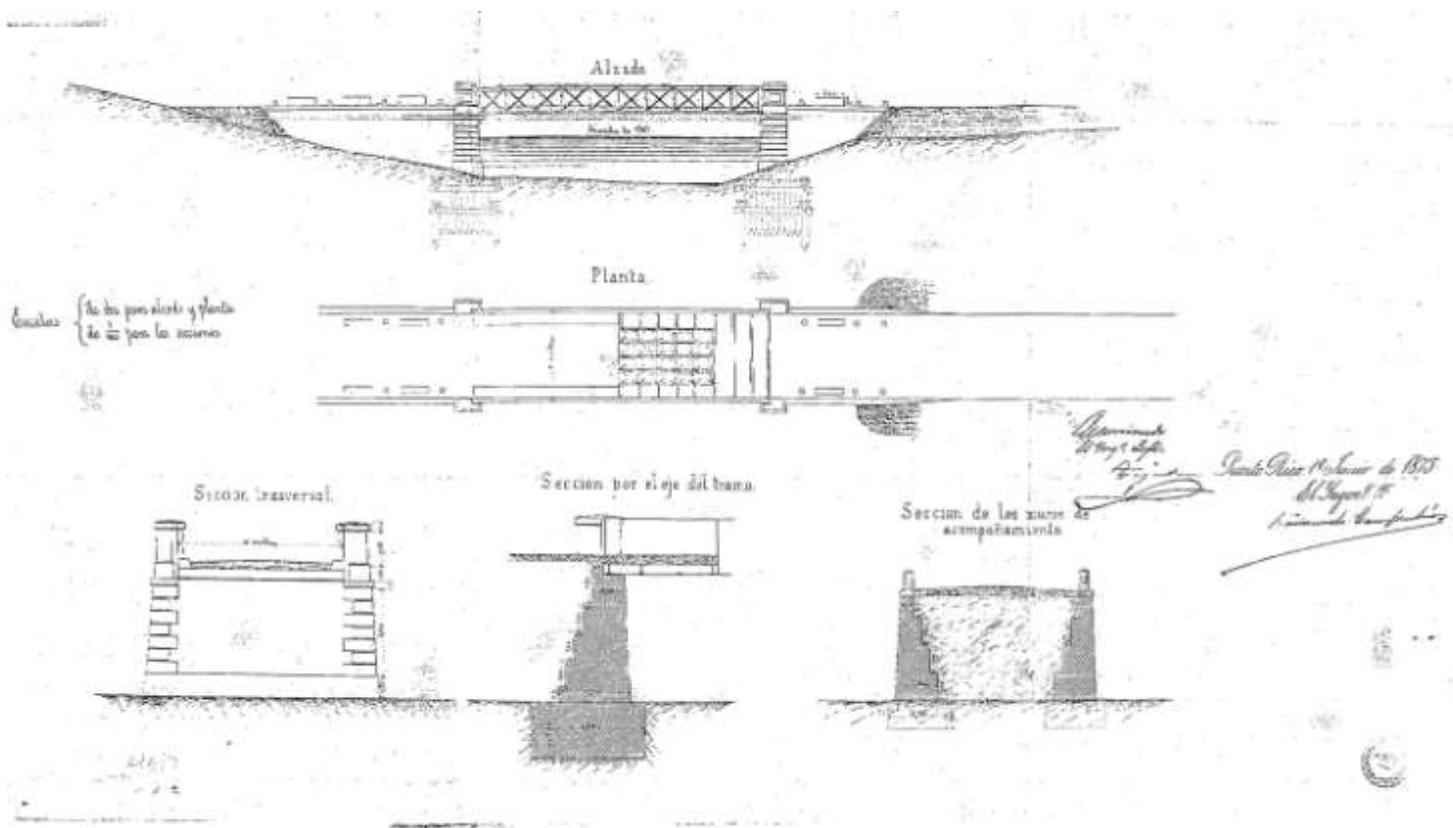
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



Drawing of the original project by Raimundo for the construction of a metallic bridge over the Cuyón River, Coamo, Puerto Rico, June 1, 1875. Archivo Histórico Nacional, Ultramar, Legajo 404, Expediente 7.

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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



Close up of the deck of the bridge. Photo taken on September 18, 2008 by José E. Marull, PRSHPO.

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Additional Graphic Documentation

Puente de las Calabazas  
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Photo of the deck and abutment of the bridge over the Cuyón River. Taken by José E. Marull, PRSHPO, September 18, 2008.

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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



Close up photo of the bridge's abutment taken by José E. Marull, PRSHPO, September 18, 2008.

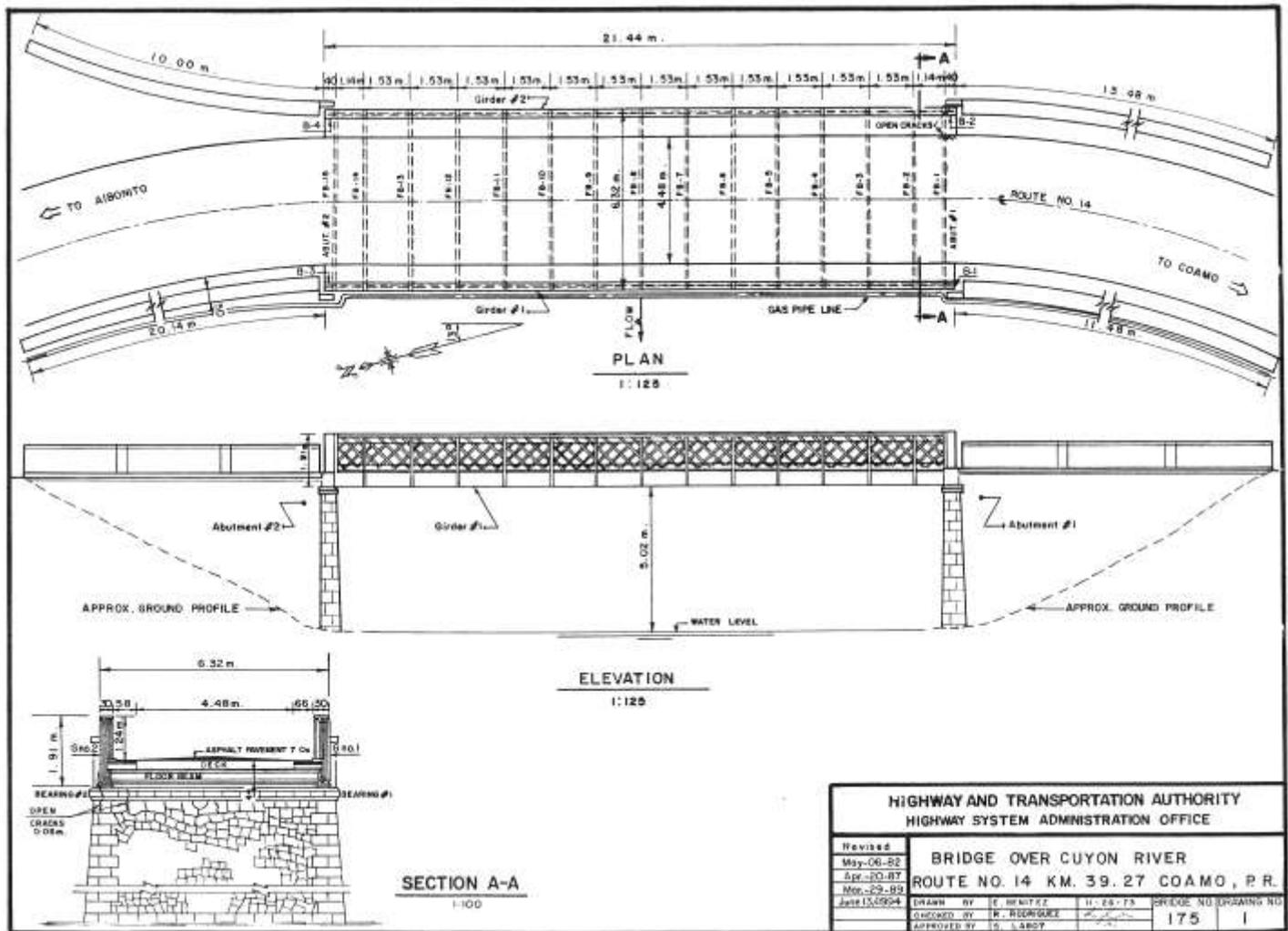
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



<b>HIGHWAY AND TRANSPORTATION AUTHORITY HIGHWAY SYSTEM ADMINISTRATION OFFICE</b>			
<b>BRIDGE OVER CUYON RIVER</b>			
<b>ROUTE NO. 14 KM. 39.27 COAMO, P.R.</b>			
Revised	May-06-R2	11-28-75	DRWG. NO. DESIGN NO.
	Apr-00-R7		175
	Mar-02-R9		1
Drawn by	E. RUIZ		
Checked by	R. RODRIGUEZ		
Approved by	S. LARBY		

Plan, Elevations and Section A-A of the Bridge over Cuyon River prepared by the Puerto Rico Highway and Transportation Authority.

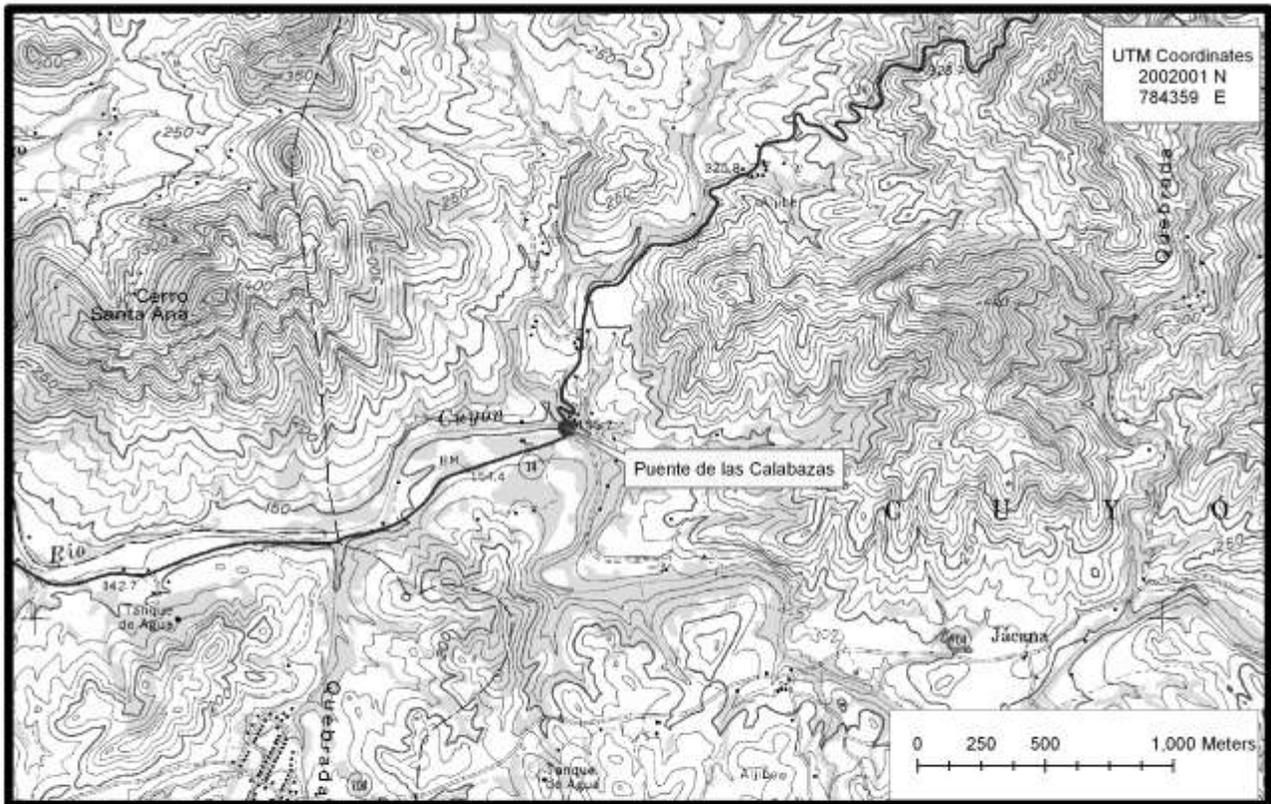
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



<p>Source: USGS (1970) Topographic Map of the Coamo Quadrangle, Puerto Rico</p>	<p><b>Site Map</b> <b>Puente de las Calabazas</b> Coamo, Puerto Rico</p>	<p>1:20,000</p>
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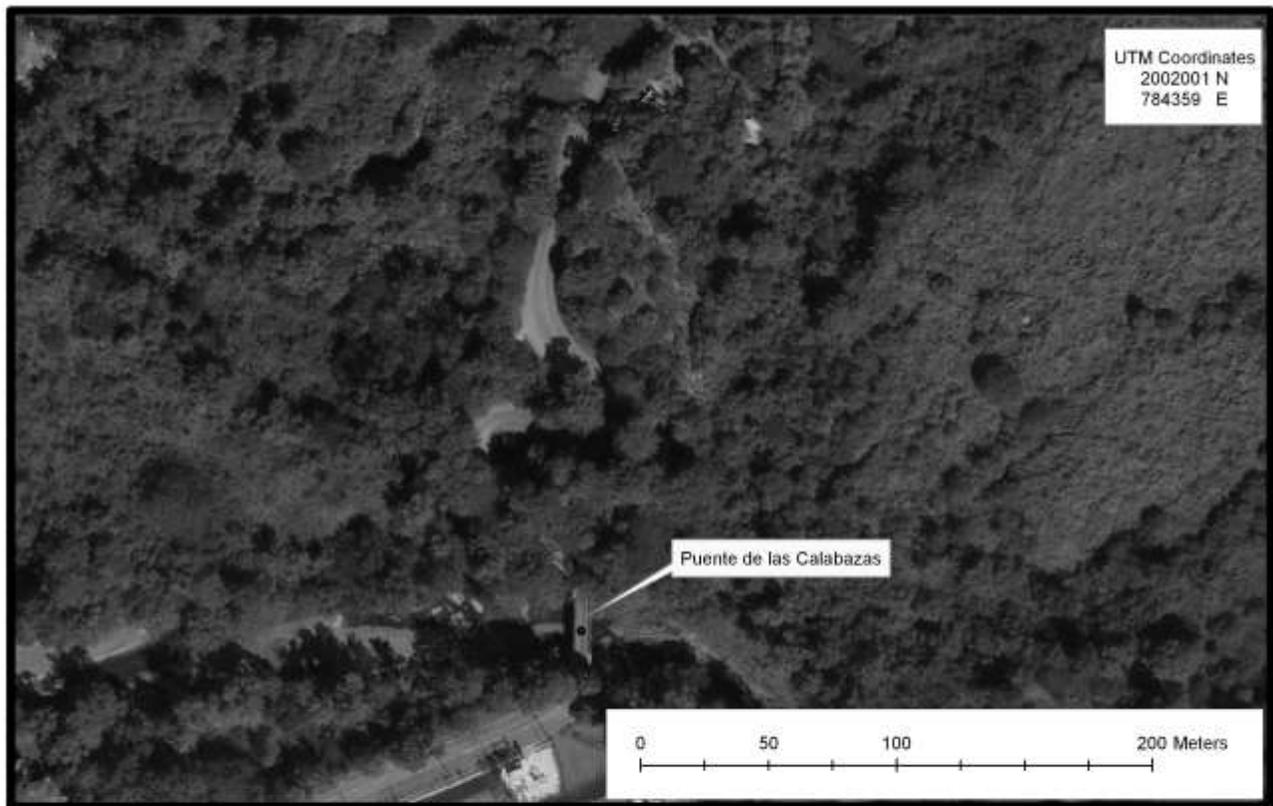
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Additional Graphic Documentation

Puente de las Calabazas  
Coamo, Puerto Rico



<p>Source: Government of Puerto Rico (2007), Aerial Photographs</p>	<p><b>Site Map</b> <b>Puente de las Calabazas</b> Coamo, Puerto Rico</p>	<p>1:2,000</p>
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