



Penfield & Smith

111 East Victoria Street
Santa Barbara, CA 93101

tel 805-963-9532
fax 805-966-9801

www.penfieldsmith.com

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W.O. 18767.02

July 28, 2010

Ms. Lisa Arroyo
City of Santa Barbara
630 Garden Street
Santa Barbara, CA 93101

Subject: Lower Sycamore Creek Drainage Improvements Project
Driveway Alternatives

Dear Ms. Arroyo:

As part of the Lower Sycamore Creek Drainage Improvements Project scope, we have been tasked with briefly evaluating possible methods of maintaining access, to the adjacent trailer park within the Soledad Street right of way.

Under the pre-project condition, a 20 feet wide driveway provides alternate access to the trailer park south of Punta Gorda Street and east of the Sycamore Creek channel. The driveway has been constructed within the City right of way that has been proposed as part of the project channel improvements.

Methods of addressing this situation include:

- Relocating the driveway to somewhere within the trailer park property
- Altering the proposed project to maintain the driveway entrance

This alternatives evaluation only addresses possible methods of maintaining access within the City right of way and briefly discusses potential impacts.

Alternative A

Approach: Construct a bridge within the channel that would carry the driveway. See Exhibit 1 of 3.

Concerns:

- Piers will collect debris during high flows and block the flow through the bridge, causing flooding. This could cause a loss of between one third to one half of the bridge capacity.
- Would add \$1,100,000 to \$1,500,000 to the cost of the project
- Access to and repair of the bridge would be difficult.
- There would be a loss of approximately 2,800 square feet of riparian vegetation due to shading.

Alternative B

Approach: Shift the bridge to the west and construct a retaining wall in the channel to support the driveway.

Concerns:

- Due to constraining the channel by the retaining wall, there could be a loss of between one third to one half of the channel capacity.
- Would add \$280,000 to the cost of the project.
- There would be a loss of approximately 3,900 square feet of riparian vegetation due to fill and necessary concrete walls and transition structures.

Alternative C

Approach: Extend a box culvert past the incursion by the driveway.

Concerns:

- Would add \$550,000 to the cost of the project.
- There would be a loss of approximately 6,600 square feet of riparian vegetation due to shading and filling.
- Fish passage would be detrimentally impacted due to the longer extent of the bridge.

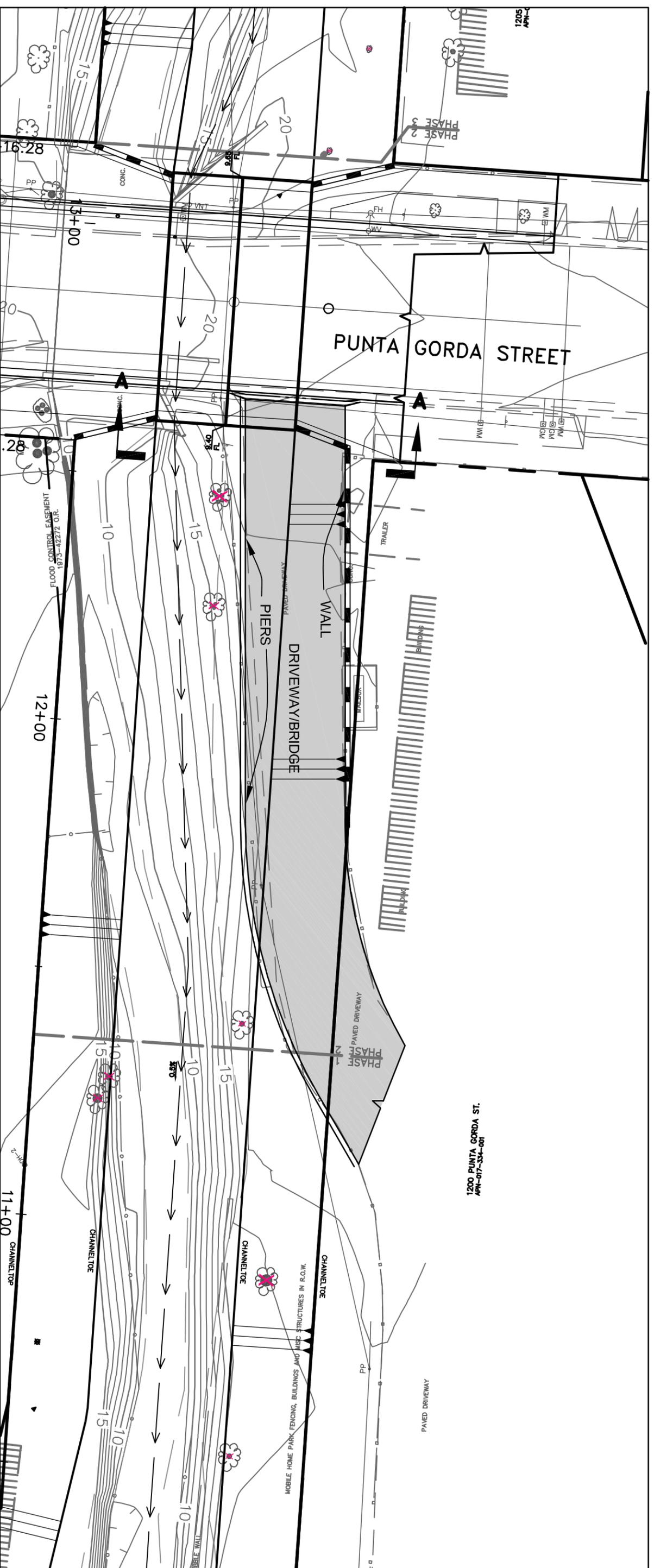
If you have any questions, please feel free to contact me at (805) 963-9538 extension 124.

Very truly yours,
PENFIELD & SMITH

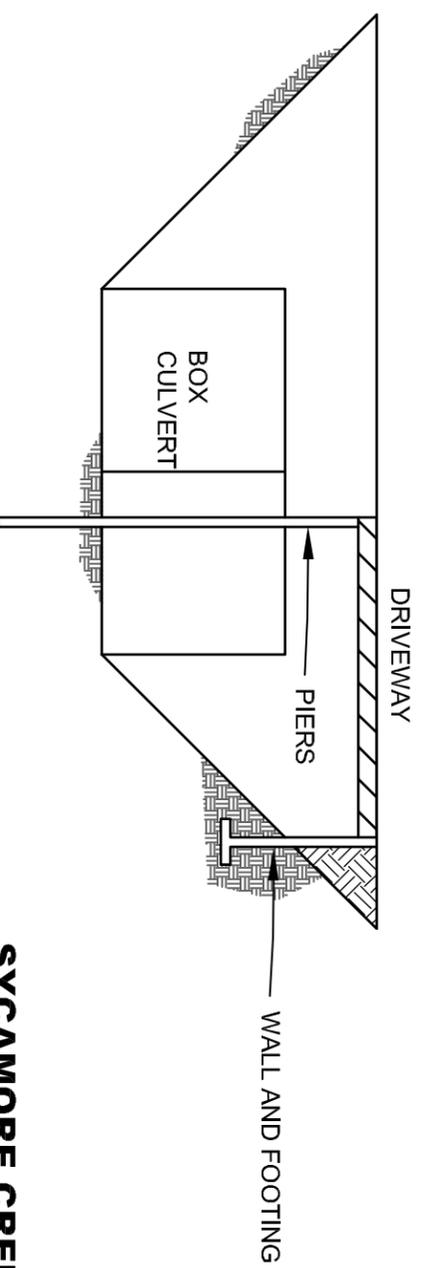


Craig A. Steward, P.E., CFM
Principal Engineer
RCE 37,253





- CONCERNS**
1. PIERS WILL COLLECT DEBRIS AND BLOCK FLOW THROUGH BRIDGE
 2. LOSS OF 1/3 - 1/2 OF FLOW CAPACITY
 3. EXPENSE: 2900 S.F. X \$350/S.F. = ±1.1M\$ - 1.5M\$
 4. ACCESS AND REPAIR OF BRIDGE DIFFICULT
 5. LOSS OF RIPARIAN VEGETATION, ~2800 S.F.



SCALE: 1" = 20'

TYPICAL SECTION A-A
SCALE: N.T.S.

**ALTERNATIVE A - BRIDGE
SYCAMORE CREEK CHANNEL IMPROVEMENTS**

JULY 30, 2010

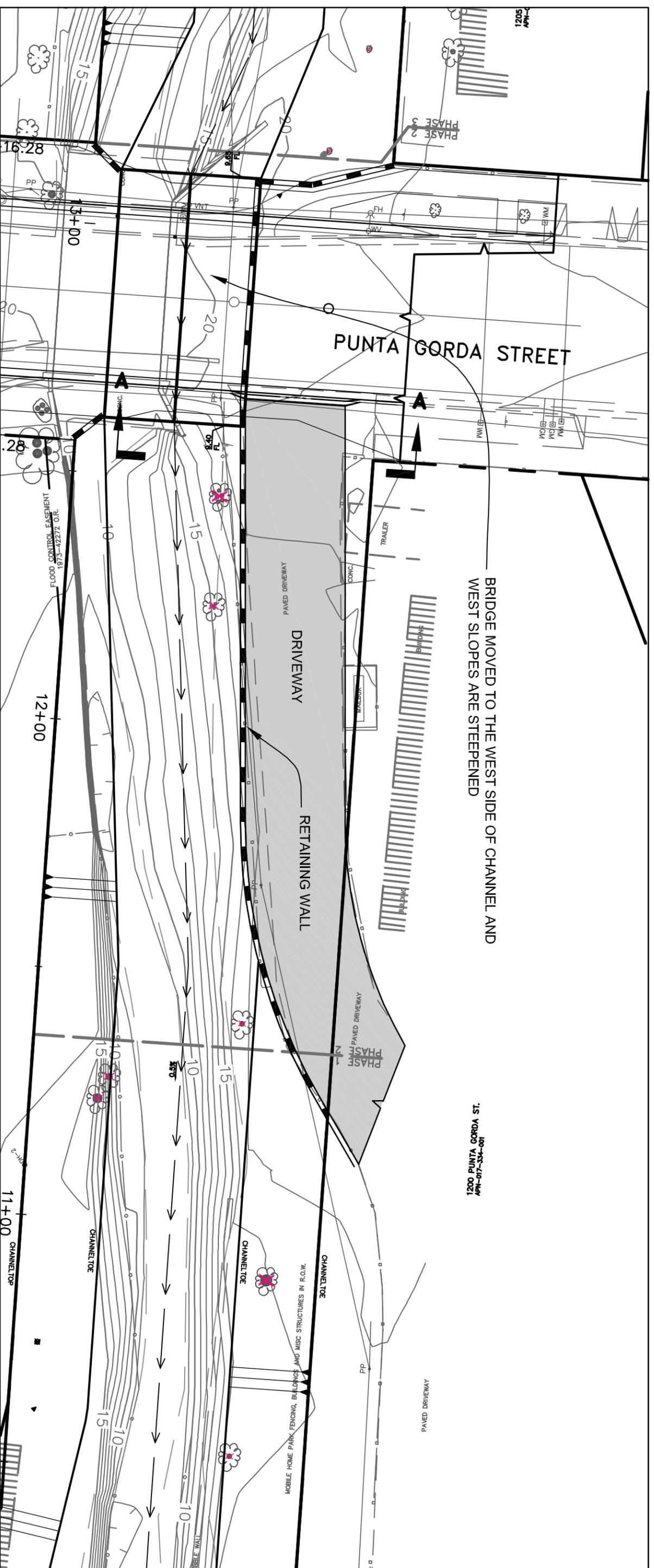
18767.02

CAS - DRIVEWAY ALTERNATIVES.DWG

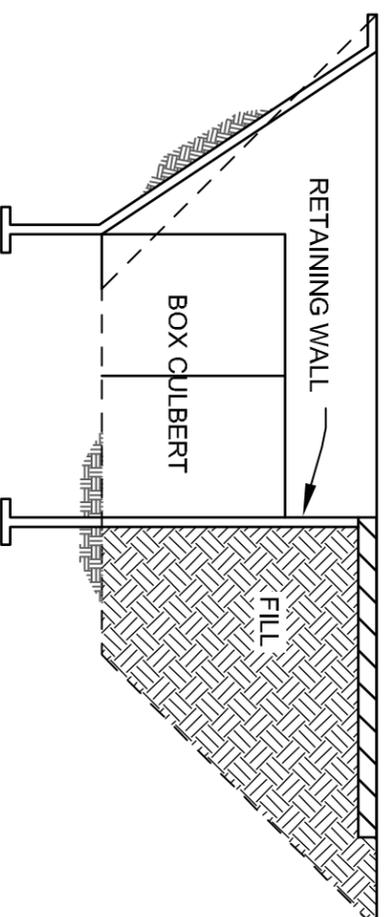


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- CONCERNS**
1. LOSS OF 1/3 - 1/2 OF FLOW CAPACITY
 2. LOSS OF RIPARIAN VEGETATION, ~3900 S.F.
 3. EXPENSE: \$240,000 (WALL) + \$40,000 (SLOPE) = \$280,000



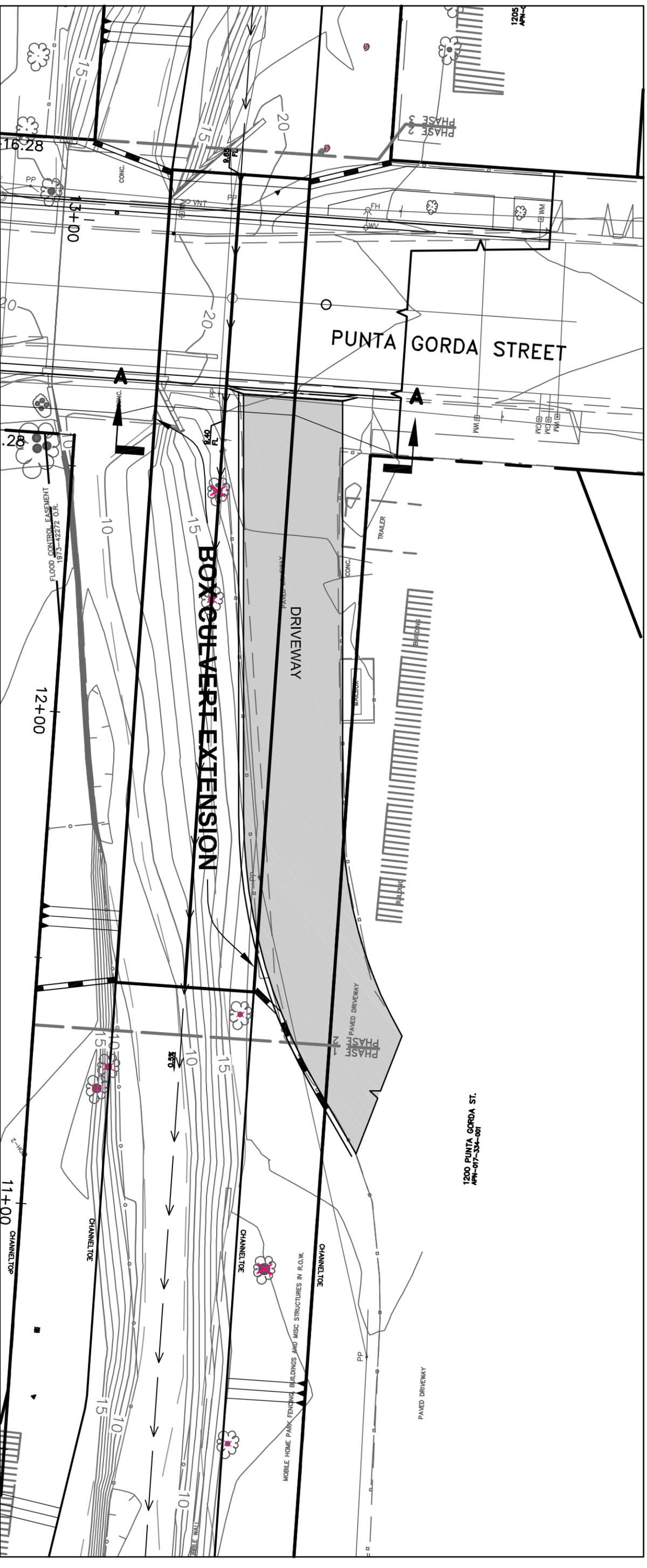
TYPICAL SECTION A-A
SCALE: N.T.S.



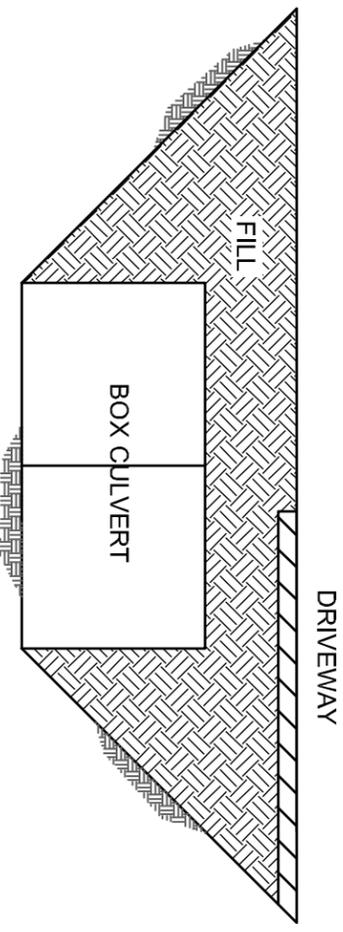
SCALE: 1" = 20'

**ALTERNATIVE B - WALL & FILL
SYCAMORE CREEK CHANNEL IMPROVEMENTS**

JULY 30, 2010



- CONCERNS**
1. EXPENSE: (L=110 L.F.) 84.2 C.F./L.F. @ \$1600/CY = ±\$550,000
 2. LOSS OF RIPARIAN VEGETATION, ~6600 S.F.
 3. LOSS OF FISH PASSAGE DUE TO LONGER BRIDGE (156' VS 46' CULVERT)



SCALE: 1" = 20'



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**ALTERNATIVE C - CULVERT EXTENSION
 SYCAMORE CREEK CHANNEL IMPROVEMENTS**

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