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# Board of Supervisors Memorandum

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October 14, 2014

**Tucson Audubon Society Services Related to the In-Lieu Fee Program as a Compliance Option for US Army Corps of Engineers Clean Water Act Section 404 Permitting**

Background

The Regional Flood Control District (RFCD) has been working with both the US Army Corps of Engineers (Corps) and the Tucson Audubon Society to develop an In-Lieu Fee (ILF) compliance option for applicants who require such to comply with the Clean Water Act Section 404 dredge and fill permit requirements of the Corps.

A number of options have been considered in the past for ILF projects, and several have been proposed throughout Pima County. Of the proposed projects, a number will not be pursued. The project that will be pursued is affiliated with the Santa Cruz River within and adjacent to the Canoa Ranch property acquired by Pima County.

The County previously worked with the Tucson Audubon Society on a number of proposed ILF projects, including Cienega Creek, Black Wash and others. It is clear that a number of these projects will not move forward; however, the RFCD desires to compensate the Tucson Audubon Society for their costs incurred in assisting with determining the viability of certain project areas.

In a September 14, 2014 letter to the RFCD, the Tucson Audubon Society requested reimbursement for \$116,062.09 in services for Canoa Ranch and other sites. The RFCD reviewed the request and adjusted the amount due the Audubon Society by removing the charges that would normally be considered administrative overhead and reducing the hours charged for the field visit. The adjusted amount for reimbursement to the Tucson Audubon Society is \$87,405.84.

Recommendation

It is recommended the Regional Flood Control District Board of Directors authorize the reimbursement of \$87,405.84 to the Tucson Audubon Society for professional services related to their assistance to the Regional Flood Control District in developing a number of In-Lieu Fee program options throughout Pima County.

The Honorable Chairman and Members, Pima County Board of Supervisors

Re:

Meeting Date

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Respectfully submitted,



C.H. Huckelberry  
County Administrator

CHH/anc – October 6, 2014

Attachment

c: John Bernal, Deputy County Administrator for Public Works  
Suzanne Shields, Director, Regional Flood Control District  
Tom Burke, Director, Finance and Risk Management

**DATE:** September 29, 2014

**TO:** C. H. Huckelberry  
County Administrator

**FROM:** Suzanne Shields, P.E.   
Director

**SUBJECT:** Tucson Audubon Invoice for In-Lieu Fee Program

We have received a little more detail from the Tucson Audubon Society for their completed work as part of the In-Lieu Fee Program (ILF) including a breakdown of hours by staff and tasks, two rough maps of vegetation along the Black Wash, and vegetation surveys along Cienega Creek (see attachment).

The hourly staff rate for purposes of estimating project costs was set at \$125.00 per hour to account for administrative and operating costs. For the Cienega Creek Concept Plan, the hours listed on the invoice for the restoration biologist of 37.5 hours is in line with their work effort. However, hours for the Executive Director, Paul Green, and Chris McVie, Conservation Chair, totaled 79 hours which is not only excessive but also unexpected since their positions would normally be considered administrative overhead; the administrative overhead costs would also include any costs for Brad Paxton, Finance and Operations Manager. In the total for hours by staff, the Executive Director has 57.5 hours, the Conservation Chair has 72.5 hours and the Finance and Operations Manager has 34.5 hours for a total of 164.5 hours or \$20,562.50 in charges. There is also a 15% administrative charge as allowed under the Enabling Instrument of \$15,138.53. Therefore, I recommend removal of the hourly charges of 164.5 hours for \$20,562.50.

For the work product of two handwritten draft maps for Black Wash on base maps provided by the Regional Flood Control District, the charge in excess of 20 hours for a field visit is unwarranted. The total hours of 84.75 should be reduced by 64.73 hours, or a reduction in charges of \$8,093.75.

With the above changes, a total charge of \$87,405.84 is a more appropriate number than the requested \$116,062.09.

Please let me know if you need further information.

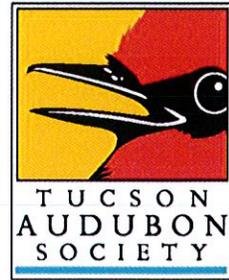
SS/tj

Attachment

c: John Bernal, Deputy County Administrator – Public Works  
Bill Zimmerman, Deputy Director – Regional Flood Control District

14 September, 2014

Suzanne Shields, P.E.  
Director and Chief Engineer  
Pima County Regional Flood Control District  
97 East Congress, Floor 3  
Tucson AZ 85701- 7971



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Dr Paul Green  
Executive Director  
520.209.1801  
pgreen@tucsonaudubon.org

**Subject: Invoice for work done as part of the Clean Water Act 404 In Lieu Fee Mitigation Program**

Dear Ms Shields,

I refer to your letter of September 4 regarding Tucson Audubon's invoice for \$116,062.09 in services for Canoa Ranch and other sites.

You requested a breakdown that includes additional supporting information including a breakdown of staff involved, their time, project documentation and work product. As you know this is at variance with what you had previously requested.

I therefore now enclose an updated invoice for work done by Tucson Audubon as part of the Clean Water Act 404 In Lieu Fee Mitigation Program including this additional information.

Work product is included with this letter in a reduced form. A CD that will accompany a hard copy of this letter will include files at their original resolution.

Do please let me know by return if you need information in addition to that attached here in order to make early payment of our invoice.

Sincerely,



Dr Paul Green | Executive Director

visit our website at: [www.tucsonaudubon.org](http://www.tucsonaudubon.org)

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Tucson Audubon Hours by Staff by Project Category

	<u>JH</u>	<u>AB</u>	<u>AM</u>	<u>LW</u>	<u>MC</u>	<u>BP</u>	<u>PG</u>	<u>CM</u>	<u>Total</u>
1 Site Evaluations	56.00								56.00
2a Canoa current conditions	13.75								13.75
2b Canoa biological assessment	22.25								22.25
2c Canoa performance standards	62.00								62.00
2d Canoa monitoring	52.00								52.00
2e Canoa Development plan	245.25	9.50	4.50	4.50	4.00	34.50	20.50	30.50	353.25
3a Cienega current conditions	17.00	8.00							25.00
3b Cienega biological assessment	20.75								20.75
3c Cienega concept plan	37.50						37.00	42.00	116.50
4 Black wash	20.00	61.75	3.00						84.75
<b>TOTAL</b>	<b>546.50</b>	<b>79.25</b>	<b>7.50</b>	<b>4.50</b>	<b>4.00</b>	<b>34.50</b>	<b>57.50</b>	<b>72.50</b>	<b>806.25</b>

Labor @ \$125/hour	\$ 100,781.25
Expenses	142.31
Subtotal	100,923.56
Admin 15%	15,138.53
<b>Total</b>	<b>\$ 116,062.09</b>

BLACK WASH DRAFT VEGETATION COMMUNITIES MAP

~April 2, 2014~



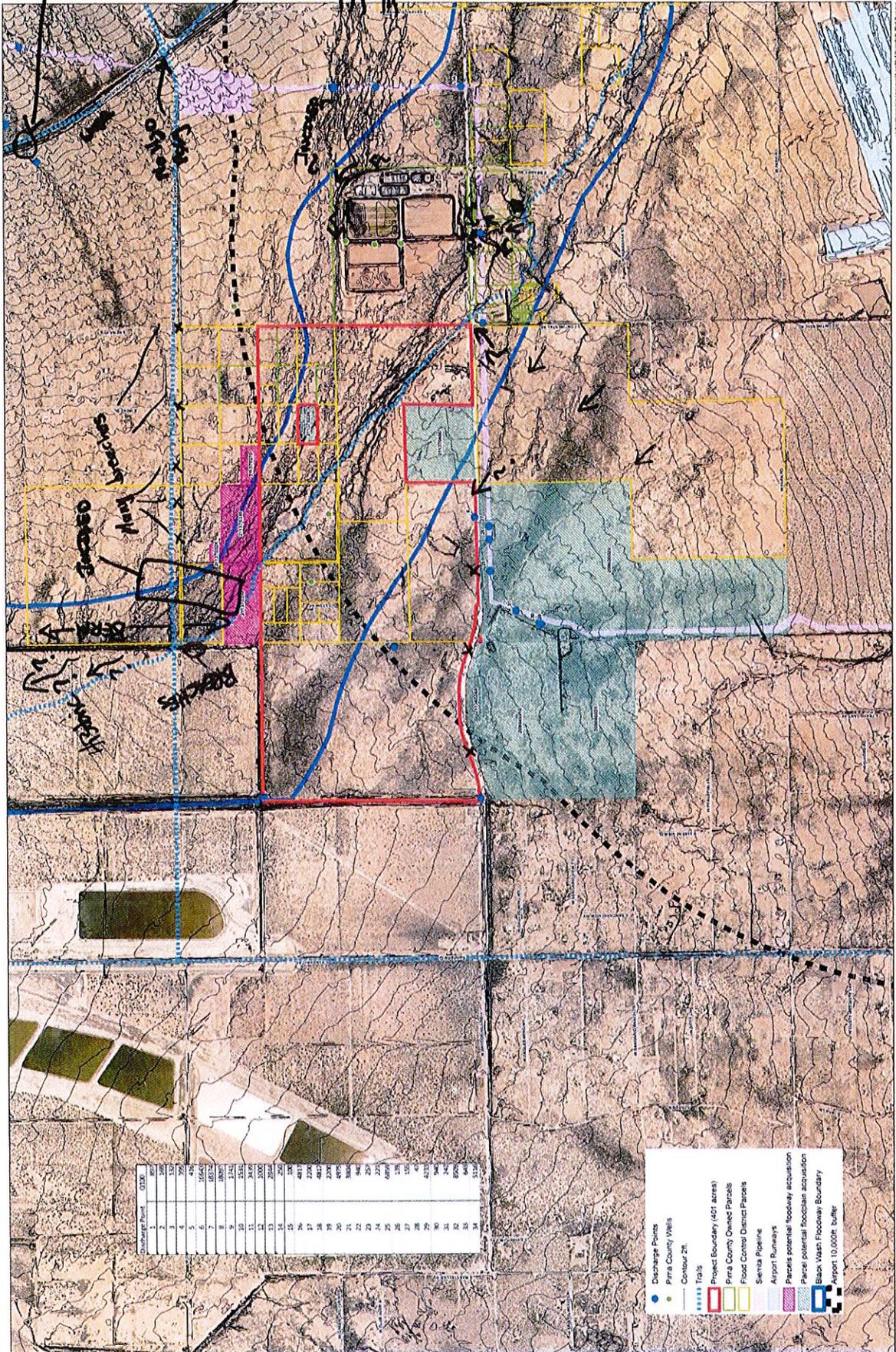
□ = OPEN AREAS  
 - little to no veg.  
 - scattered shrubs (Eaton, Curtis)  
 - hard silt cap (or other?)  
 - minimum soil under some birch.

■ = HIGHER, DRIER SITES  
 - capped soils with physical and biotic crusts  
 - stunted and/or dying mesquites  
 - burrums and veg sparse grasses (winter)

■ = SLIGHTLY DEPRESSED WETTER AREAS  
 - denser grass (Aristida, Digali)  
 - and shrub comm's (Eaton, Curtis)  
 - denser annuals

(Sporobolus sp., Aristida, Curat, Eaton)  
 ■ = INCISED CHANNEL VEG  
 - smaller-medium mesquite  
 - waterfurn  
 - grasses & shrubs assoc'd with burrums

▲ DENSE BASSIVE THICKETS  
 = dissociated w/ N higher  
 - clay content soils and small baretilled channels that access floodplains  
 - mesquite + Hognut + Johnson's & Bernardo  
 - other native stoloniferous grasses, Iriome



\* MASSIVE  
CAP CUTTERS  
ALLOW PASSAGE

THROUGH

Drainage Point	ADP
1	306
2	4317
3	1332
4	302
5	4367
6	1874
7	1874
8	1874
9	1742
10	2531
11	3000
12	3000
13	2622
14	262
15	1306
16	4317
17	4317
18	4610
19	2370
20	4900
21	1868
22	1868
23	225
24	225
25	6870
26	1306
27	1306
28	442
29	5482
30	5482
31	4210
32	4210
33	6481
34	5210

- Discharge Points
- Pima County Wells
- Contour 2ft
- Flood Control District Parcels
- Project Boundary (ADP acres)
- Pima County Owned Parcels
- Flood Control District Parcels
- Suena Pipeline
- Airport Runways
- Parcels potential floodway acquisition
- Parcel potential floodway acquisition
- Black Wash Floodway Boundary
- Airport 10,000ft buffer

The information depicted on this display is the result of digital analysis performed on a variety of datasets provided and maintained by several governmental agencies. The information is not intended to be used as a substitute for the professional judgment of a qualified professional. The user assumes all liability for any use of this information beyond the intended use. This product is subject to the GIS Division Disclaimer and Use Restrictions.



# Site 7 - Black Wash "WATERSHED" WATERFLOW













District/Audubon ILF Program: Vegetation Survey Form

Property: 1015 N 113 Plot ID/Name: 1015 N 113  
 Transect length (meters): 500m Elevation (feet/meters): 9164m  
 Start UTM: 12N 5 Easting: 05291106 Northing: 35050710 Heading: E  
 End UTM: 12N 9 Easting: 0529213 Northing: 3505415  
 \*Use NAD 83 Datum

Visit Date: 10/12/13 Observer(s): ...

Line Intercept Transect to Measure % Cover of Native Perennial and Invasive Species

Species	Start	Stop	% Cover Observed	Notes
PAEL	0.77	3.50	50%	
DAWR	1.09	1.86	50%	
ACCO	3.13	6.12	76%	
PRVE	7.72	8.94	52%	
SEWA	8.76	9.60	75%	
ACEB	8.65	12.82	80%	
ACGR	14.98	14.98	80%	
PRVE	20.68	22.14	50%	
COSE	21.74	21.88	50%	
PRVE	23.0	28.63	80%	
RAIN	23.4	23.84	100%	
CEGE	30.93	34.74	75%	
PRVE	36.9	37.22	50%	
ALWR	37.87	38.16	100%	
DAWR	43.27	43.17	100%	
PRVE	48.25	56.02	75%	







# Performance Standards and Metrics

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## Hydrology:

-Stream power and discharge above, below, and possibly between treatments

We are installing continuous-slope-area and crest-stage gages (Smith et al 2010) to derive hydrographs, with the water budget and rainfall-runoff ratio analysis (<http://geography.wr.usgs.gov/science/aridlands/Chiricahuas.html>)

## Geomorphology:

-Soil stability/erosional resistance, both on the immediate floodplain and in the vicinity of and downstream of structures & Bank competency/fine root density (on the immediate floodplain, as well)

Perhaps some type of rating could be developed for this(?)

-Soil permeability and infiltration, again both on the immediate floodplain and in the vicinity and downstream of structures

An article by Russ Scott and others (2000) at the Walnut Gulch documents soil moisture/infiltration capacities using long-term datasets in SEAZ and found that ~1.5 m. is the maximum you can 'wet' locally; this is especially relevant for plant specific species that might be reliant on deeper-root-zone-moisture.

-Soil moisture, especially after rainfall events in the "capillary fringe" near the channel, in channel bends, and near structures

Chad Reed's thesis documents best locations to monitor infiltration rates in SEAZ rock detention structure studies and finds them to increase soil moisture in SEAZ up to ~.45 m from the surface, of which, gabion-style are more effective to maintain a higher percent soil moisture than just loose rock (& he also found that gabions also catch more organic debris than loose rocks; <ftp://ftpext.usgs.gov/pub/wr/az/tucson/lnorman/2006ChadReedscan.zip>).

-various geomorph. parameters, as compared to regional models and watershed area-stream class, as described by Rosgen, Zeedyk and Clothier (e.g., sinuosity, meander length/width, w:d, bankfull parameters, point bar formation, channel evolution, etc.)...basically, setting up a performance standard around a desired "stream condition/class trajectory"

I am picturing a sheet for people to fill out quarterly with these measurements to be documented before and after restoration occurs

-Deposition and channel aggradation & Sediment loads upstream and downstream of project & Flood plain connectivity (for slightly-incised washes)

This would likely be well-monitored with the LIDAR data the county has, though I am not sure the temporal accuracy (?) We have used T-LiDAR and also high-res GPS to acquire cross-sections for baseline so far (<http://geography.wr.usgs.gov/science/aridlands/Babocomari.html>). We are putting in erosion pins and plotting best ways to monitor changes now—any ideas are welcome!

-Headcut progression

The best I have ever seen on monitoring this was from Mead's work on the Cienega ([Report: Evaluation of Riparian Habitat and Headcutting Along Lower Cienega Creek](#))

-Erosion spared (or the "what we've averted/avoided losing (or spending)")

This is something I am trying to get my brain around and would like to discuss more...currently I consider using satellite and aerial photo to document rate of progression and then extend using a linear regression into the future to ID headcut not realized due to restoration(?)

### **Vegetation:**

-Vegetation response

We have used satellite imagery to look at green up before and after installation (<http://geography.wr.usgs.gov/science/aridlands/SanBernardino.html>) in combination with field data and also used T-LiDAR to get baseline veg structure in the channels so far (<http://geography.wr.usgs.gov/science/aridlands/Patagonia.html>). We also use satellite derived estimates of evapotranspiration to document differences in channels with/without RDS (<http://geography.wr.usgs.gov/science/aridlands/Chiricahuas.html>)