



Stantec Consulting Services Inc.
1165 East Jennings Way, Suite 101
Elko, NV 89801-7977
Tel: (775) 738-8766
Fax: (775) 738-2264

6995 Sierra Center Parkway
Reno, NV 89511-2213
Tel: (775) 850-0777
Fax: (775) 850-0787

MEMORANDUM

To: Tim Coward – Bureau of Land Management

cc: Sandra Brewer – Bureau of Land Management
Wendy Seley – Bureau of Land Management
Tracy Kipke – Nevada Department of Wildlife
Nancy Lightfoot – Stantec Consulting Services Inc.
Adam Green – Tonopah Solar Energy, LLC
Rob Howe – Tonopah Solar Energy, LLC
Vaughan Johnson – Tonopah Solar Energy, LLC
Karla Alarcon – Tonopah Solar Energy, LLC
Chris Nicolai – U.S. Fish and Wildlife Service
Michael Clark – U.S. Fish and Wildlife Service

From: Josh Vittori

Date: July 18, 2016

Project: Crescent Dunes Project – 2016 Avian Mortality Surveys and Reporting
Stantec Project Number 203703172

Subject: July 2016 – Avian Mortality Survey Results

Stantec Consulting Services Inc. (Stantec) is contracted by Tonopah Solar Energy, LLC (TSE) to perform monthly avian mortality surveys for the Crescent Dunes Solar Power Plant as per TSE's Avian and Bat Protection Plan (ABPP). This memorandum reports a summary of the results from the July 2016 avian mortality surveys. As outlined in the ABPP, Stantec wildlife biologists conducted surveys along established transects within the power plant's heliostat field, around the evaporation ponds, and along the overhead transmission line (Figure 1). Surveys were conducted for seven consecutive days from July 9 through 15, 2016. In addition to the summary below, specific mortality details can be found in the attached field survey forms, avian incident form, and figure.

Three mortalities were observed or located by Stantec biologists during the July 2016 surveys. One cliff swallow (*Petrochelidon pyrrhonota*), one tree swallow (*Tachycineta bicolor*), and one unknown avian species mortality were reported by Stantec biologists on July 9, 2016. The cliff swallow was found near the cooling fans in the power block. The tree swallow was found near the salt storage tank in the power block. Both of these mortalities were recorded with burned/singed feathers on the carcasses. The unknown species may have been a swallow and was observed flying in to the zone of heated solar flux near the tower (note the location on the attached figure is the location of the observing biologist, not the location of the mortality). The location where the bird appeared to have fallen was searched, but no carcass was found.

It should be noted that the results transmitted within this memorandum are specific to the seven day survey event in July 2016 and do not include other observations that may have been made outside of these surveys, including those documented by other contractors. As outlined in the

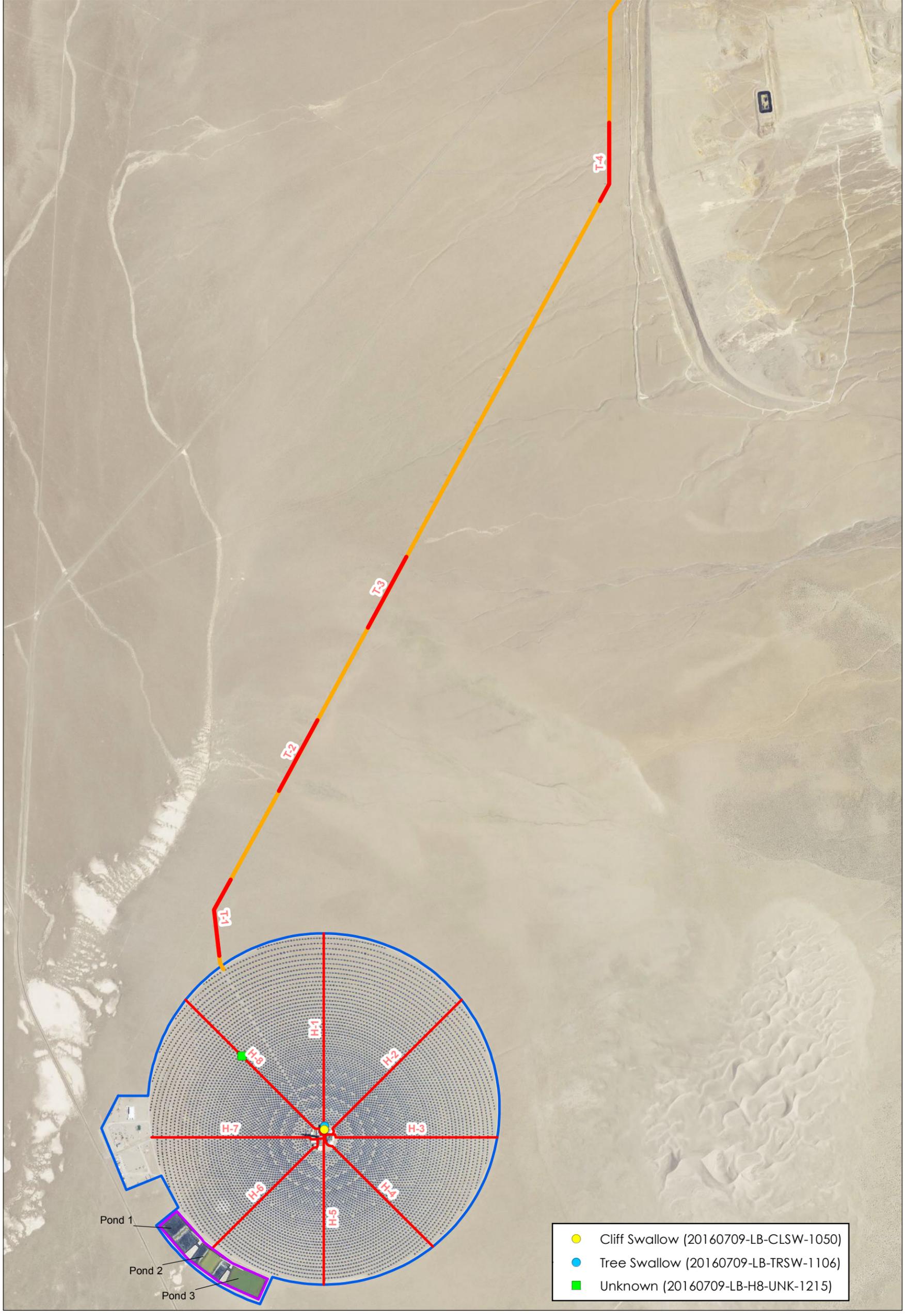


ABPP for this project, Stantec will compile an annual report of avian and mortality survey results and data analysis. This report will include the results of each month's surveys as well as detection analysis and annual estimates of mortality for the entire project area as required by the ABPP.

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FIGURE

U:\20370318\03_data\gis_cad\gis\mxd\Brd_Mortality_Survey_Results_July_2016.mxd Revised: 2016-07-18 By: chrjohnson



- Cliff Swallow (20160709-LB-CLSW-1050)
- Tree Swallow (20160709-LB-TRSW-1106)
- Unknown (20160709-LB-H8-UNK-1215)

- Project Boundary
- ∩ Transmission Line Transects
- ∩ Transmission Line
- ∩ Heliostat Transects
- ∩ Pond Transects

0 1,250 2,500 Feet
1 in = 2,500 feet

T4N and T5N, R41E Nye County, NV
NAD 1983 UTM Zone 11N

DRAWN BY: CJ	1ST REVIEW: JT	2ND REVIEW: JV
DATE: 7/18/2016	Project No: 203703172	

TONOPAH SOLAR ENERGY, LLC
CRESCENT DUNES
SOLAR ENERGY PROJECT

FIGURE 1
AVIAN MORTALITY MONITORING
JULY 2016 SURVEY RESULTS

Service Layer Credits: NADP 2015 Image

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

FIELD FORMS

No Photo/Bird observed flying into flux

Avian/Bat Incident and Nest Assessment Form

Operations Area (circle one):

Heliostat Field Transmission Line Evaporation Pond Buffer Zone Power Block

Carcass ID: 20160709-LB-H8-UNK-1215

Dead Species (circle one and list species):

Crow/magpie/raven Eagle
Hawk/falcon/osprey Owl
 Small bird/Song bird Waterfowl
Species: possible swallow sp. Unknown

or

Nest (circle one)

Active
Species (if known): _____
Inactive

Other _____

Bat (list species if possible) NA

Bird/Bat Count 2

Date Found 07/09/16

Time Found 12:15

UTM of Carcass NA

UTM of Observer 0467527 4233039
(if different from carcass)

Cause/Indicators of death (circle one)

Collision Electrocutation Burn Unknown Other _____

Finders Name Luke Barrett

Finders Phone/Contact 775-544-4041

Pole Identification Number (if applicable) NA

Nearest Pole to Transmission Line (if applicable) NA

Carcass Description & Other Notes/Comments:

Walking transect H8 towards the tower L. Barrett observed a single bird, possibly a swallow species, fly into the heated flux around the tower. L. Barrett observed the bird become bright, smoke, and fall. Given the smoke and falling bird, the event is assumed to be a mortality. L. Barrett searched under the tower where the bird is presumed to fall but no carcass was found.

Avian/Bat Incident and Nest Assessment Form

Operations Area (circle one):

Heliostat Field

Transmission Line

Evaporation Pond

Buffer Zone

Power Block

Carcass ID: 20160709-LB-H1-CLSW-1050

Dead Species (circle one and list species):

Crow/magpie/raven

Eagle

Hawk/falcon/osprey

Owl

Small bird/Song bird

Waterfowl

Species: Cliff Swallow

Unknown

or

Nest (circle one)

Active

Species (if known): _____

Inactive

Other _____

Bat (list species if possible) NA

Bird/Bat Count 1

Date Found 2016 07 09

Time Found 10:50

UTM of Carcass 0468189 4232444

UTM of Observer NA
(if different from carcass)

Cause/Indicators of death (circle one)

Collision

Electrocution

Burn

Unknown

Other _____

Finders Name Luke Barrett

Finders Phone/Contact 775-544-4041

Pole Identification Number (if applicable) NA

Nearest Pole to Transmission Line (if applicable) NA

Carcass Description & Other Notes/Comments:

Carcass found near cooling fans. Burn/Singed feathers observed over entire carcass. Carcass is a female cliff swallow. Carcass was cold with ants present.

Avian/Bat Incident and Nest Assessment Form

Operations Area (circle one):

Heliostat Field

Transmission Line

Evaporation Pond

Buffer Zone

Power Block

Carcass ID: 20160709-LB-H1-TRSW-1106

Dead Species (circle one and list species):

Crow/magpie/raven

Eagle

Hawk/falcon/osprey

Owl

Small bird/Song bird

Waterfowl

Species: Tree Swallow

Unknown

or

Nest (circle one)

Active

Species (if known): _____

Inactive

Other _____

Bat (list species if possible) NA

Bird/Bat Count 1

Date Found 2016 07 09

Time Found 10:50

UTM of Carcass 0468194 4232473

UTM of Observer NA
(if different from carcass)

Cause/Indicators of death (circle one)

Collision

Electrocution

Burn

Unknown

Other _____

Finders Name Luke Barrett

Finders Phone/Contact 775-544-4041

Pole Identification Number (if applicable) NA

Nearest Pole to Transmission Line (if applicable) NA

Carcass Description & Other Notes/Comments:

Carcass found near salt storage tank. Burned/Singed feathers observed over entire carcass. Carcass was cold with dust and organic litter over carcass.

