newg and Rainy River Project

APPENDIX K-4

2013 SPECIES AT RISK BASELINE





October 16, 2013 TC111504

Mr. Kyle Stanfield, P.Eng Director, Environment & Sustainability New Gold Inc. 1111 Victoria Avenue East Thunder Bay, ON P7C 1B7

Dear Mr. Stanfield,

AMEC Environment & Infrastructure is pleased to submit the attached 2013 Species at Risk Report for the Rainy River Gold Project.

The 2013 Species at Risk Report adds to the baseline studies conducted previously by Klohn Crippen Berger and AMEC over the period of 2009 to 2012.

We greatly appreciate the opportunity to provide support for your Rainy River Gold Project. Should you have any questions regarding the study, please do not hesitate to contact us.

Yours Sincerely,

AMEC Environment & Infrastructure,

a division of AMEC Americas Limited

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RAINY RIVER PROJECT 2013 SPECIES AT RISK REPORT

Submitted by:

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On behalf of:

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> October 2013 TC111504



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1.0 INTRODUCTION

AMEC Environment & Infrastructure, a division of AMEC Americas Limited (AMEC), was retained by Rainy River Resources Ltd. (RRR) to conduct baseline and Species at Risk (SAR) surveys at the Rainy River Project (RRP). The RRP is located in the Township of Chapple, District of Rainy River, in northwestern Ontario, approximately 65 kilometres northwest of Fort Frances, and 420 kilometres west of Thunder Bay (Figures 1-1 and 1-2).

Plant and wildlife baseline surveys were carried out for the immediate RRP site area by Klohn Crippen Berger (KCB) in 2009 and 2010 (KCB, 2011a; 2011b) to support advanced exploration activities. A 2011 gap analysis conducted by AMEC recommended that additional terrestrial baseline studies be carried out to provide greater area and temporal coverage of the RRP site to support the Project environmental assessment and permitting phases, including additional information on SAR. Accordingly, in 2011, AMEC conducted supplementary surveys on birds and amphibians and to a lesser extent on mammals, reptiles and insects (butterflies, dragonflies, damselflies) in the Natural Local Study Area (NLSA; AMEC, 2011a). Additional wildlife and vegetation surveys were conducted in 2012 to cover additional Project component areas had not been mapped when previous baseline surveys were conducted (AMEC, 2012a, 2012b). The 2011, 2012 and 2013 SAR surveys conducted by AMEC are also tied to ongoing ESA permitting discussions with the Ministry of Natural Resources (MNR) and an ongoing Collaborative Research Agreement study on Eastern Whip-poor-will (*Antrostomus vociferous*) that involves RRR, AMEC, the MNR and Trent University.

Previous baseline studies and SAR surveys identified nine avian SAR within the NLSA. Of these, four species are provincially listed as Threatened species in Ontario (MNR, 2012a) and are protected under Ontario's ESA: Eastern Whip-poor-will, Bobolink (*Dolichonyx oryzivorous*), Barn Swallow (*Hirundo rustica*) and American White Pelican (*Pelecanus erythrorhynchos*). The other five species (Least Bittern, Bald Eagle, Golden-winged Warble, Common Nighthawk, Olive-sided Flycatcher) are listed as Special Concern and are not afforded protection under the ESA and do not require ESA permitting.

Eastern Whip-poor-will, Bobolink and Barn Swallow are common in the NLSA and have been documented in the 2009 – 2012 baseline studies. A small number of American White Pelicans have been observed within the NLSA (2010 and 2011) and these are likely part of a well documented nesting colony located in Lake of the Woods, approximately 40 km to the northwest. Habitat within the NLSA is not considered significant or valuable nesting or foraging habitat for American White Pelicans (MNR SAR meeting July 30, 2010, as referenced in KCB, 2011a).

The Least Bittern is listed as Special Concern in Ontario (MNR 2012a) and this species occurs in the Rainy River District but has not been recorded in the NLSA. In February 2013, the MNR requested additional surveys for Least Bitten and Barn Swallow and these were conducted along with 2013 surveys of whip-poor-will. This report provides the results of these 2013 surveys. Surveys were also conducted in 2013 to further assess the presence / absence of bat





species in the NLSA and to locate and assess potential bat habitat. The results of the 2013 bat surveys are provided in a separate report (AMEC, 2013a).

1.1 Least Bittern

The Least Bittern is a small heron that typically breeds in marshes of at least 5 ha, but will also utilize fens, shrubby swamps, and smaller marshy areas. Preferred marsh habitat consists of dense, tall, persistent emergent vegetation interspersed with areas of open water where water levels are shallow with little fluctuation (Jobin et al., 2011). Suitable habitat is typically dominated by cattail (*Typha* sp.), but may also include bulrush, grasses, horsetail, and willow (Cadman et al., 2007). In Ontario, Least Bittern occur primarily in southern Ontario, though a small, scattered population is present in the Rainy River District. Records of breeding Least Bittern in the Rainy River District are largely associated with larger lake complexes such as Lake of the Woods and Rainy Lake.

Baseline breeding bird studies of the RRP NLSA between 2009 and 2012 did not include formal Least Bittern Surveys, though marsh bird monitoring surveys were conducted in 2010 by KCB. Small shallow cattail marshes and meadow marshes are prevalent in the northern portion of the NLSA, though generally present as narrow patches of edge habitat to ponds. No Least Bitterns have previously been recorded in the NLSA. It was determined through discussions with the MNR that further studies were required to confidently confirm the absence of Least Bittern from the NLSA.

1.2 Barn Swallow

Before European colonization, Barn Swallows nested mostly in caves, crevices and ledges on cliff faces. Following European settlement, they shifted largely to nesting in and on artificial structures such as barns, garages, houses, bridges and road culverts. Barn Swallows prefer various types of open habitat for foraging including grassy fields, pastures, various agricultural crops, lake and river shorelines, cleared right-of-ways, cottage areas, farmyards, islands, wetlands, and subarctic tundra (COSEWIC, 2011). The Barn Swallow is listed both federally and provincially as Threatened (Environment Canada, 2012; MNR, 2012a). The limiting factor for Barn Swallows is considered to be nesting habitat / structures and not foraging habitat.

Previous baseline surveys have confirmed that Barn Swallows are a common species in the NLSA and have recorded this species in proximity to farms and livestock found therein. Despite extensive breeding bird point count surveys between 2009 and 2012, no detailed studies have been conducted to identify the exact locations of Barn Swallow nests on rural properties within the NLSA. As such, further studies were required to determine whether existing barns and sheds within the Project footprint support nesting Barn Swallows as these structures will be removed during Project construction.





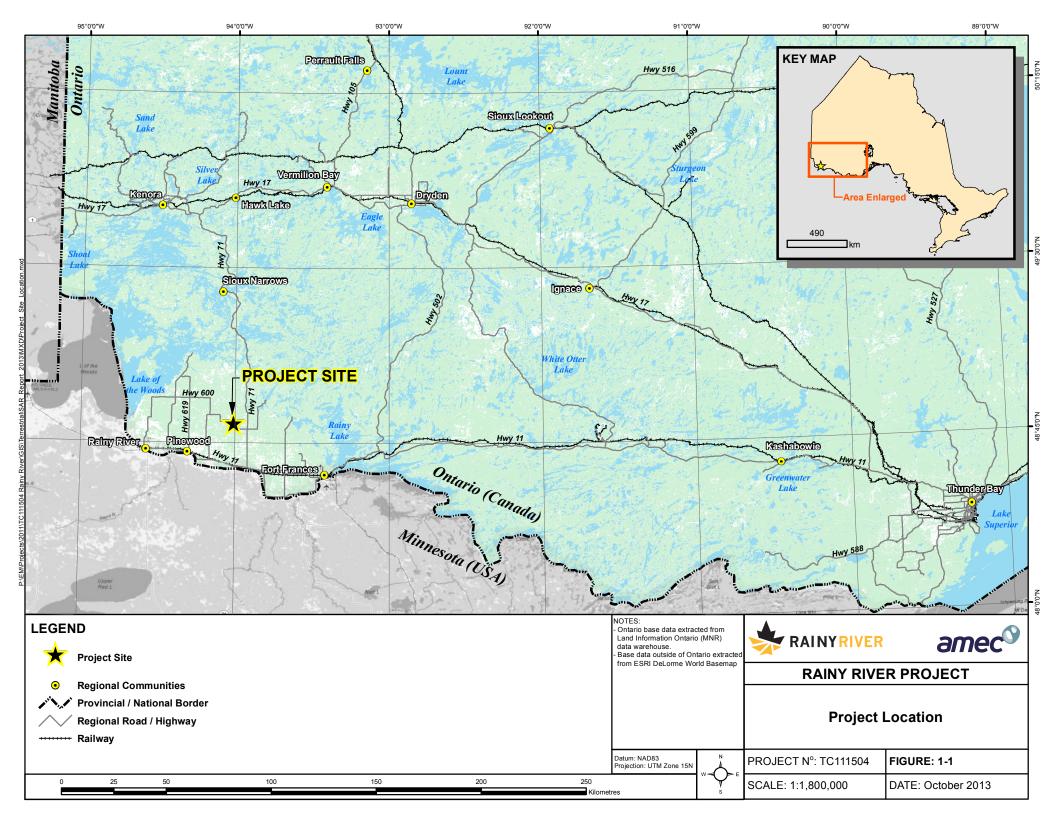


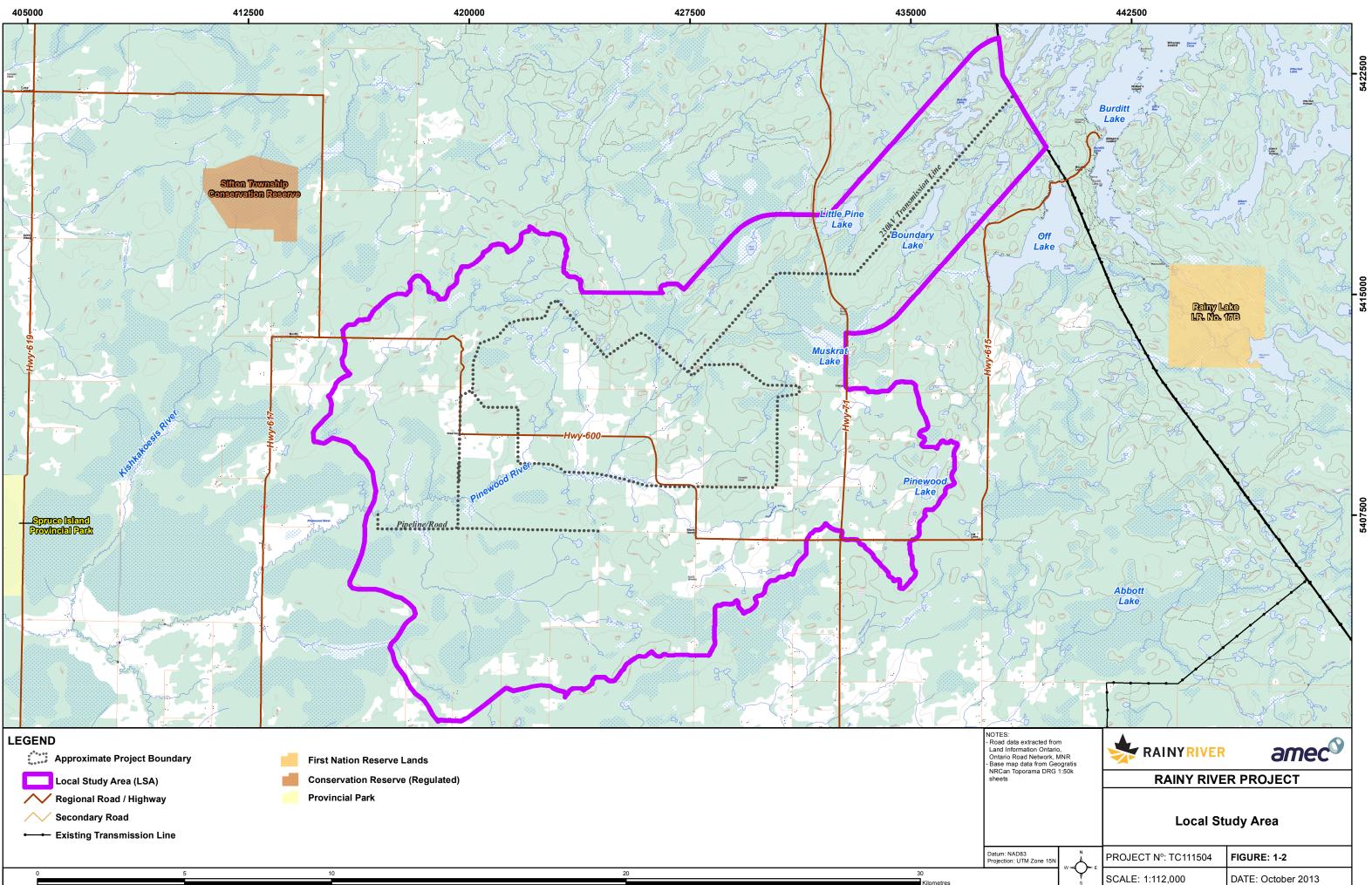
1.3 Eastern Whip-poor-will

Eastern Whip-poor-will observation data from surveys conducted between 2009 and 2012 by KCB, AMEC, MNR and Trent University were combined by the MNR to provide an overall illustration of all occurrence data (Van den Broeck, 2013). In total, MNR identified 24 occupied areas (noted by the presence of a singing male) in association with the proposed RRP mine site. The MNR further classified the 24 occupied areas based on their position relative to the RRP and concluded that 12 occupied areas occurred within the RRP footprint, one straddled the footprint, 4 were situated outside of, but immediately adjacent to the footprint, 6 were located more than 500 m from the footprint, and 1 would be intersected by the realignment of Highway 600.

Based on the results of the MNR's analysis of occupied areas relative to the RRP mine site, the birds and habitat associated with 17 occupied areas will require compensation due to direct or indirect impacts resulting from the RRP. In order to locate and assess possible compensatory habitat sites, further studies were required to identify additional whip-poor-will occupied areas outside of the Project footprint. The property replacement lands would be considered part of a compensation package component of a 17(c) ESA permit.









2.0 STUDY OBJECTIVES

The primary objectives of the 2013 SAR surveys were to:

- Establish with greater confidence whether Least Bittern is present or absent from the NLSA;
- Establish which structures scheduled for removal during RRP activities support Barn Swallow nesting;
- Identify additional Eastern Whip-poor-will occupied areas in lands outside of the RRP footprint that could be considered for protection as part of a compensation package component of a 17(c) ESA permit; and
- Collaborate with the MNR on an additional year of Eastern Whip-poor-will surveys within the RRP NLSA.

3.0 METHODOLOGY

3.1 Least Bittern Surveys

Least Bittern surveys were conducted using the National Least Bittern Survey Protocol (Jobin et al., 2011). Surveys were conducted on June 23, 24, 25 and June 27, 2013 between sunrise and 10:00 am at 18 survey stations within the NLSA (Figure 3-1). Each survey station was visited once. Survey stations were chosen based on aerial imagery interpretation of suitable breeding habitat for Least Bittern (marshes dominated by cattails, other graminoid species or willow species and associated with open water; as per Jobin et al., 2011). Species-specific call response broadcasts were used at survey stations to detect Least Bittern presence throughout the wetlands. Point counts were 13 minutes in length and consisted of 5 minutes of passive listening, 5 minutes of call broadcasts, then 3 minutes of passive listening.

3.2 Barn Swallow Surveys

Barn Swallow surveys were conducted on May 22, 25 and June 26, 2013. Surveys were conducted at 12 sites where farm buildings may be identified for removal as part of Project activities (Figure 3-2). Surveys were conducted during the day and involved checking farm buildings such as houses, barns, sheds and garages for evidence of Barn Swallow breeding activity including active and inactive nests as well as presence of adult swallows flying in the vicinity. Active nests were those where eggs or chicks were observed or where adult Barn Swallows were seen incubating.





3.3 Eastern Whip-poor-will Surveys

Eastern Whip-poor-will surveys followed a study plan approved by the MNR prior to the start of the 2013 surveys (AMEC, 2013b). AMEC and the MNR identified properties for study in 2013 with the intent of identifying additional whip-poor-will occupied areas that could be considered for protection as part of a compensation package pursuant to a 17(c) ESA permit. Therefore, the 2013 studies were conducted outside of the Project footprint. Study areas were identified by selecting properties where Eastern Whip-poor-will has previously been recorded and by using aerial imagery interpretation to locate potentially suitable whip-poor-will habitat in areas that have not been surveyed.

Two whip-poor-will survey periods were completed to coincide with periods of greatest lunar illumination. Whip-poor-wills typically sing at higher rates during periods of high lunar illumination (when at least 50% of the moon face is illuminated: Mills, 1986; Wilson and Watts, 2006) and therefore, surveys were conducted between the first and third quarter lunar phases in May and June. In the 2013 whip-poor-will breeding period, these lunar phases occurred between May 18 to 31 and June 17 to 30 and surveys were conducted from May 21 to 25 and June 22 to 30. Survey stations visited in May were repeated in June to ascertain whether birds occurring in May were still present, and if so, were assumed to have established breeding territories. Eighty-nine point count stations were identified on properties adjacent to the RRP footprint (Figure 3-3) and these stations were surveyed 2 to 4 times through May and June.

In a meeting on June 7, 2013, the MNR identified four areas as priority areas for potential compensatory habitat patches. Therefore, 47 additional point count stations were surveyed in these areas in June (Figure 3-3).

Surveys were conducted in accordance with survey protocol provided by the Whip-poor-will Roadside Survey Participant's Guide (BSC, 2012). Surveys commenced 30 minutes after sunset and continued until approximately midnight or 1:00 am. Surveys were typically conducted on calm, clear nights with little or no cloud cover, no precipitation and winds no greater than 3 on the Beaufort Scale.

At each station, a listening survey lasted six minutes during which all whip-poor-wills heard were recorded on a data sheet including distance and direction to the bird from the count station. Where possible, the position of the whip-poor-will heard was marked by walking up to the calling bird and taking a waypoint. If that was not possible, the bird's location was determined by triangulating from additional survey locations added ad-hoc during the survey. Whip-poor-will locations were also plotted on aerial photographs.

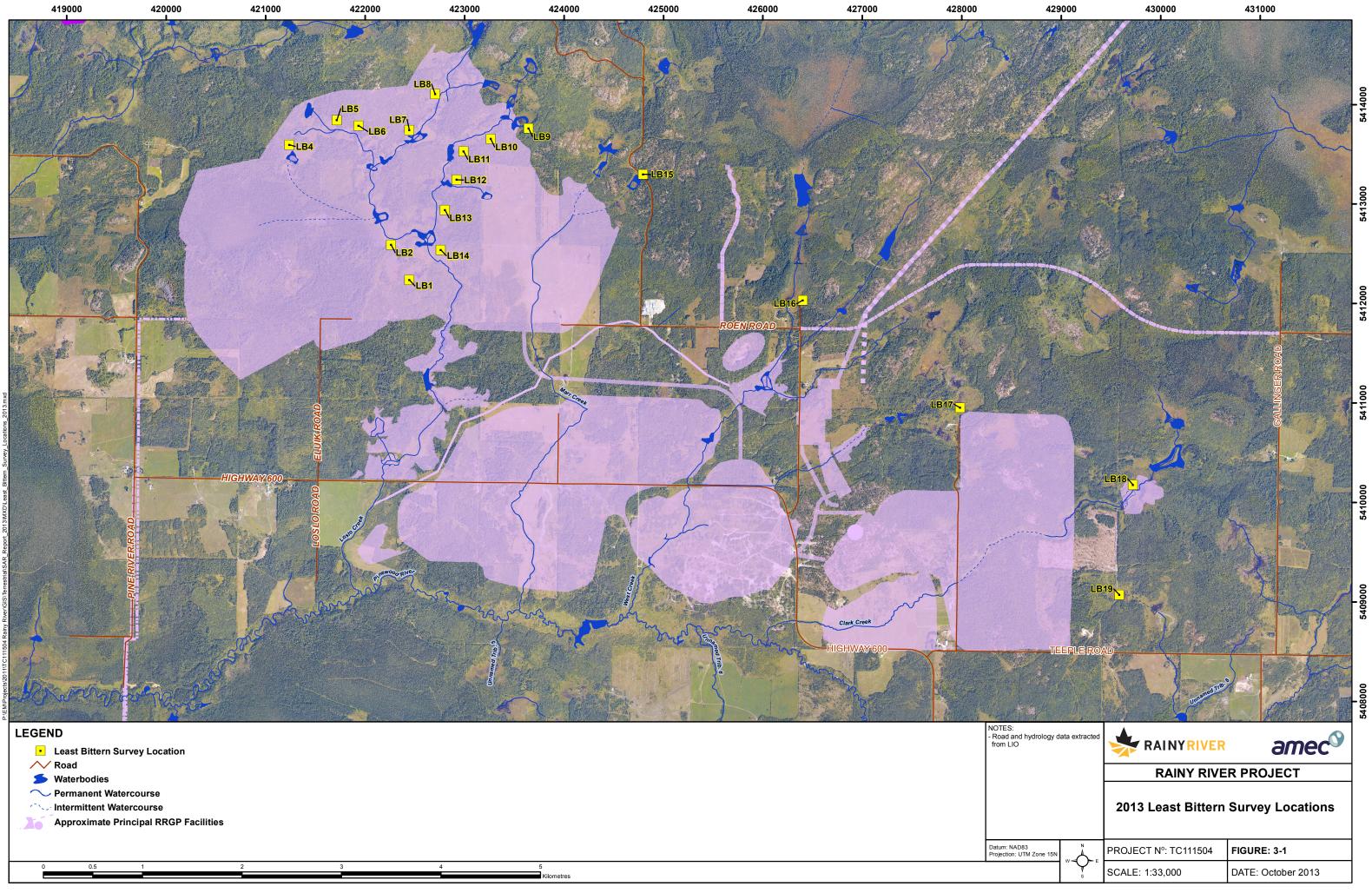
Upon the completion of field studies, whip-poor-will field data was analyzed to establish the approximate location of occupied areas and to estimate the number of birds present. Whip-poor-will locations (recorded in the field by means of mapped sightings and triangulation) were compared between repeated visits and between adjacent survey stations to most accurately

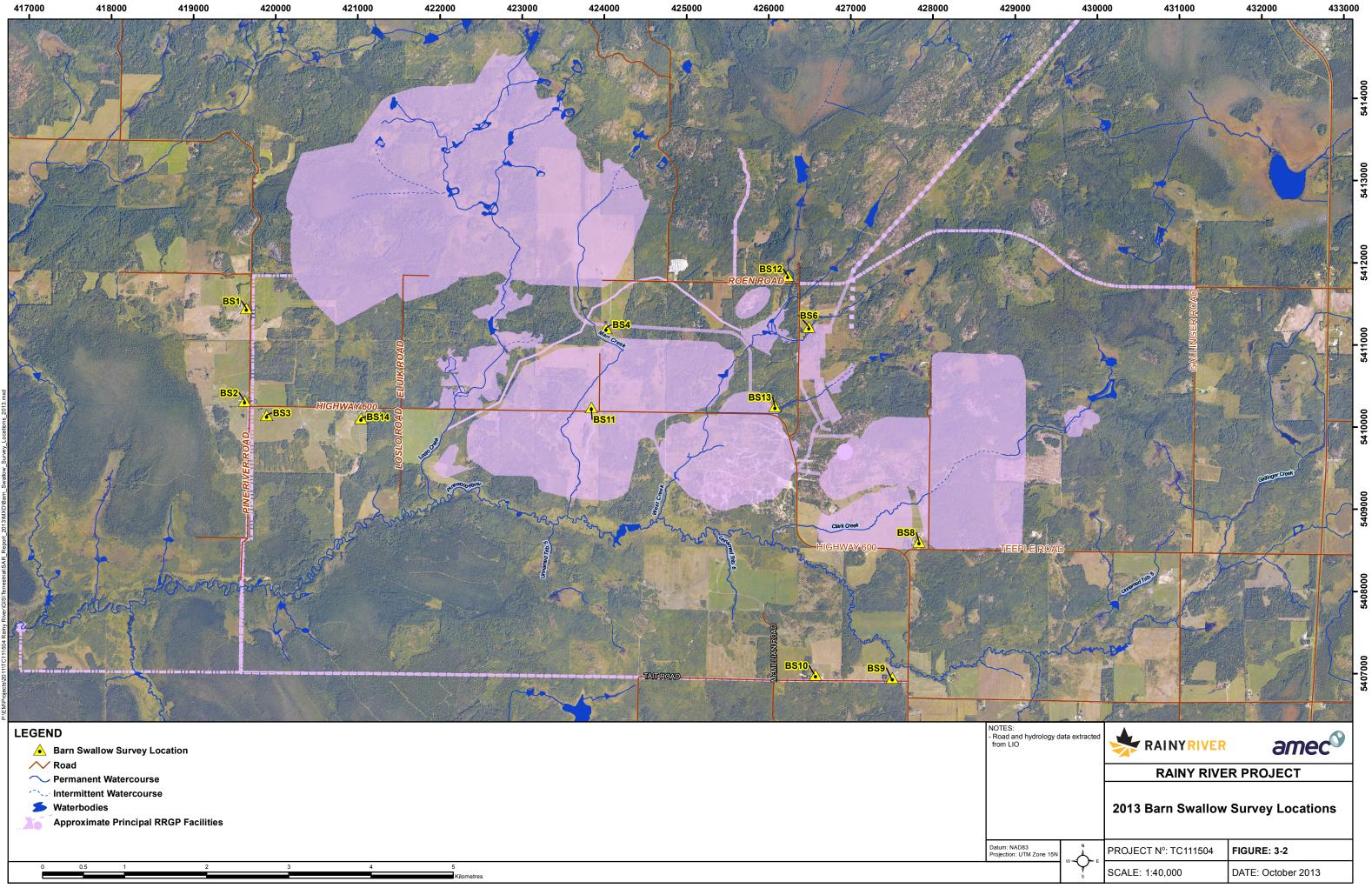


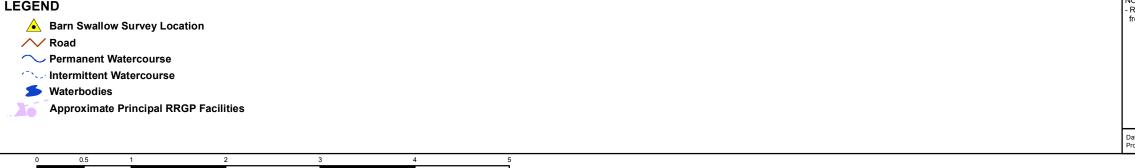


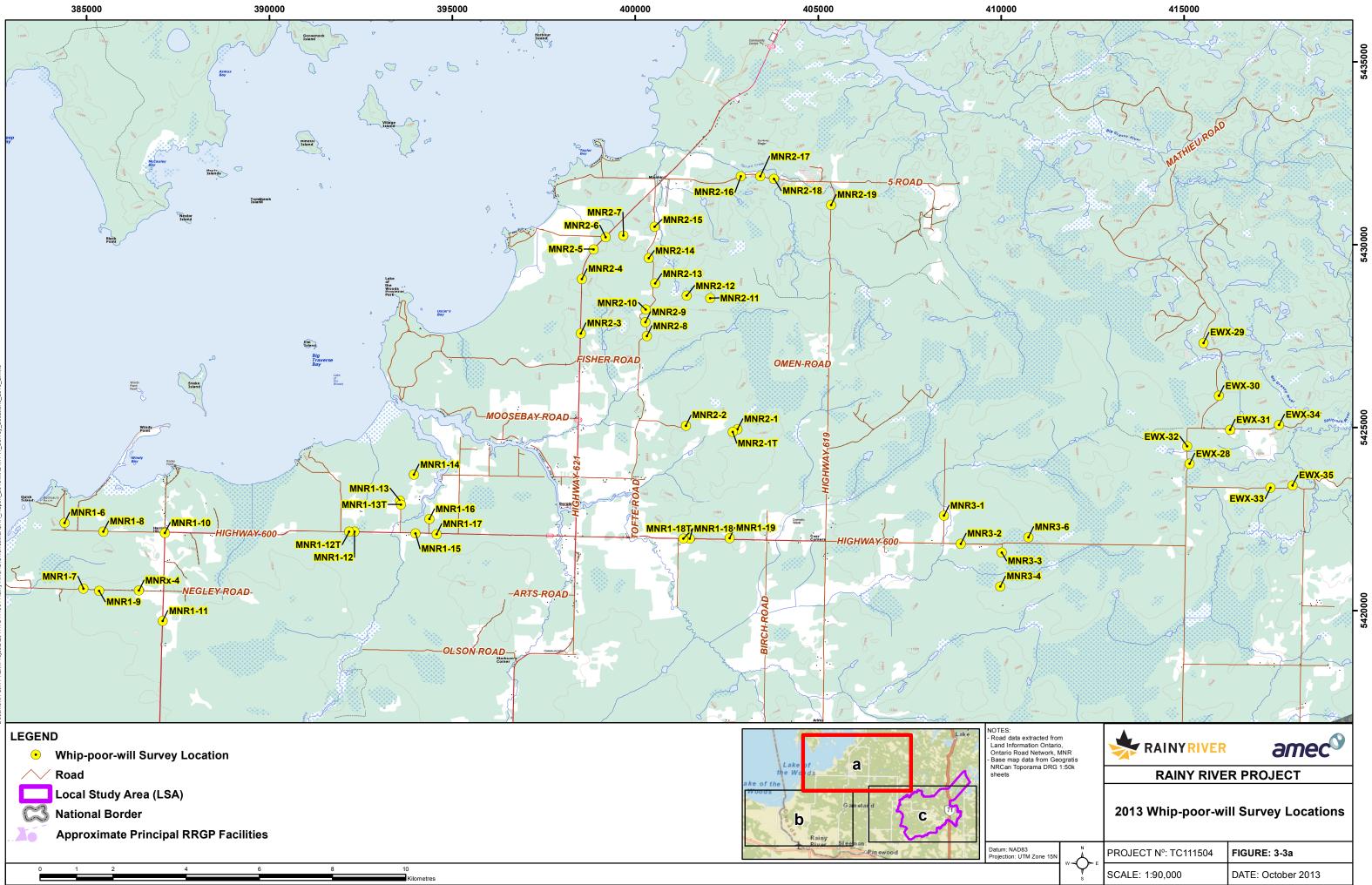
establish whether recorded observations were repeats of the same bird. The 2013 whip-poorwill data was also provided to the MNR for further analysis.

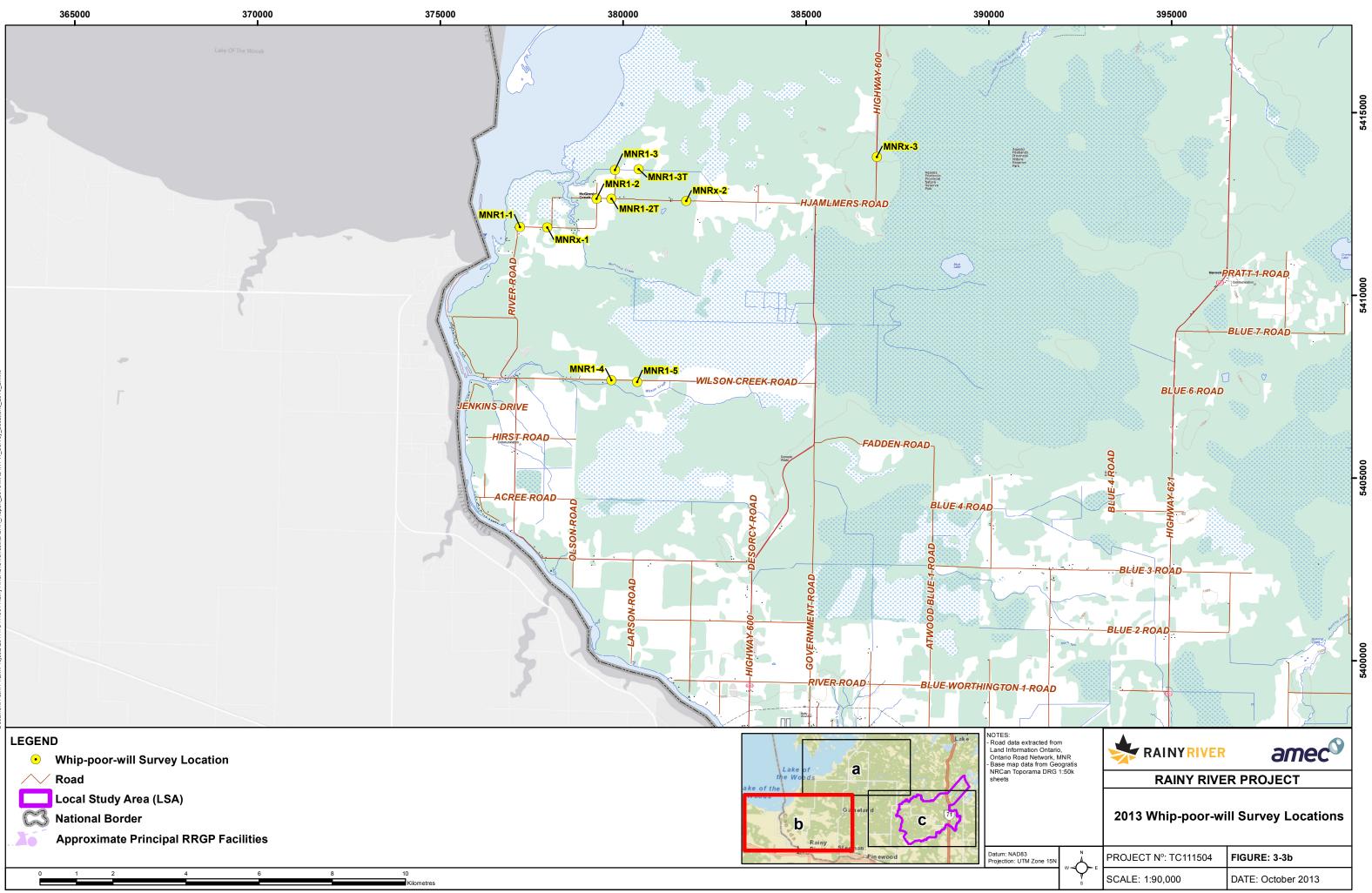




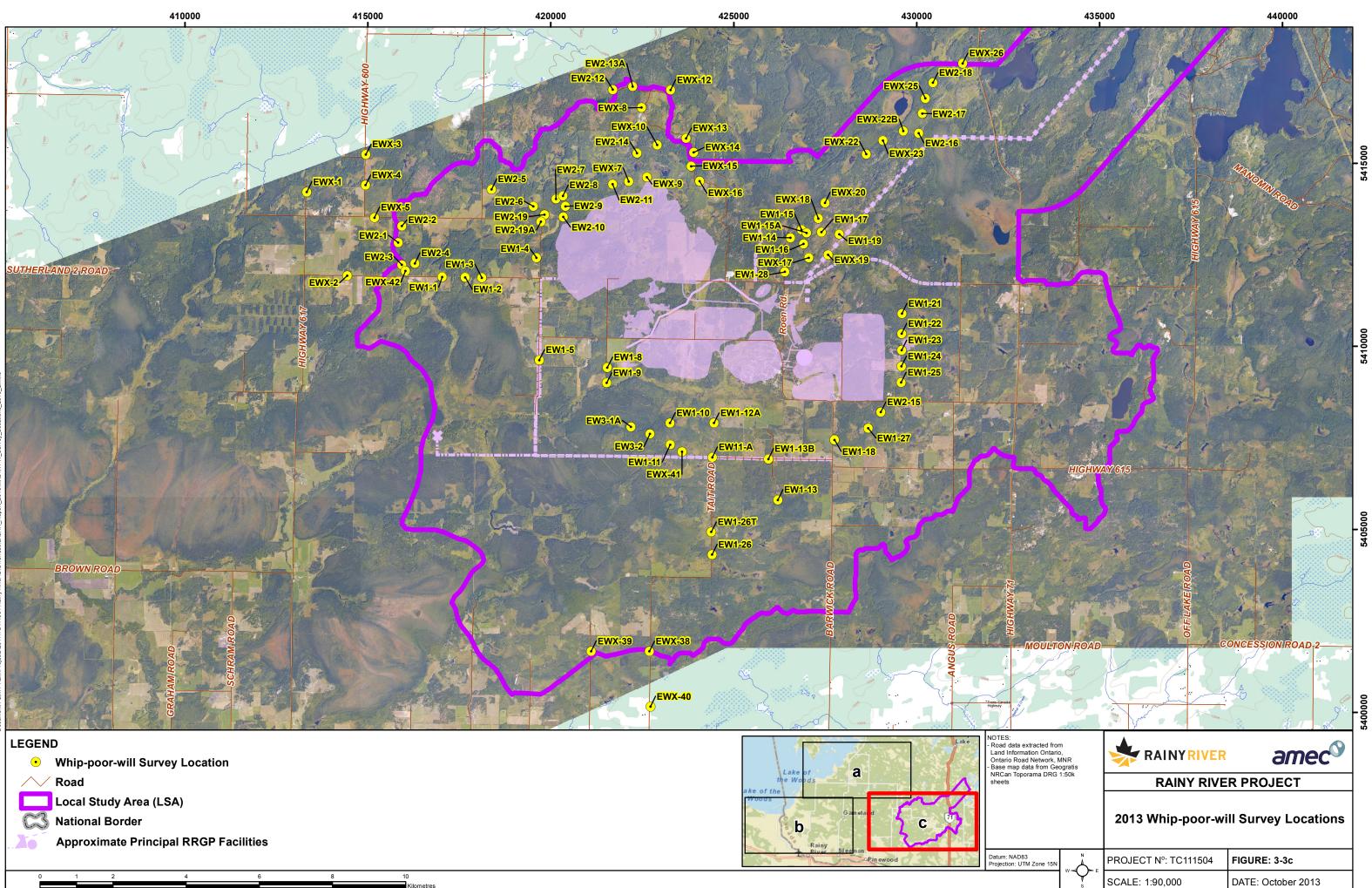








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4.0 RESULTS

4.1 Least Bittern

No Least Bittern were identified during field surveys. Habitat within the NLSA is typically of poor suitability for Least Bittern breeding habitat. Marshes had limited cattails and lacked a mosaic of open water and emergent vegetation stands. As such, breeding Least Bittern are not expected to occur in the NLSA.

4.2 Barn Swallow

A total of 35 to 40 active Barn Swallow nests were identified in 15 buildings on 9 properties (Figure 4-1 and Table 4-1). Signs of nesting over the past few years (including inactive nests) were observed within 21 buildings.

The presence of both active and inactive nests within the same sites / structures suggest that Barn Swallows show strong site fidelity to suitable breeding structures within the NLSA. These results also indicate that a building may be used for nesting one year, but not necessarily the next. Since the Barn Swallow is listed both federally and provincially as Threatened (Environment Canada, 2012; MNR, 2012a), removal of Barn Swallow nesting habitat requires a 17(c) ESA permit and compensatory nesting structures will be required. Removal of any structure as part of RRP construction activities should be completed outside of the Barn Swallow breeding season (May 1 to August 15). If a structure must be removed between May and August, the structure must be examined by a biologist experienced in Barn Swallow nesting biology to be certain that no active nests are present on the structure.

4.3 Eastern Whip-poor-will

Studies conducted in 2013 established the presence of a minimum of 110 and a maximum of 145 Eastern Whip-poor-wills on the studied lands. Within the LSA, 58 whip-poor-wills were located during the May survey period and 45 were recorded during the June survey period (Figure 4-2). An additional 64 whip-poor-wills were recorded on additional lands surveyed only in June (Figure 4-2). Depending on the method of comparison, 22 to 42 (38 to 72%) of the birds recorded during the June survey period were considered repeat observations from the May survey period.

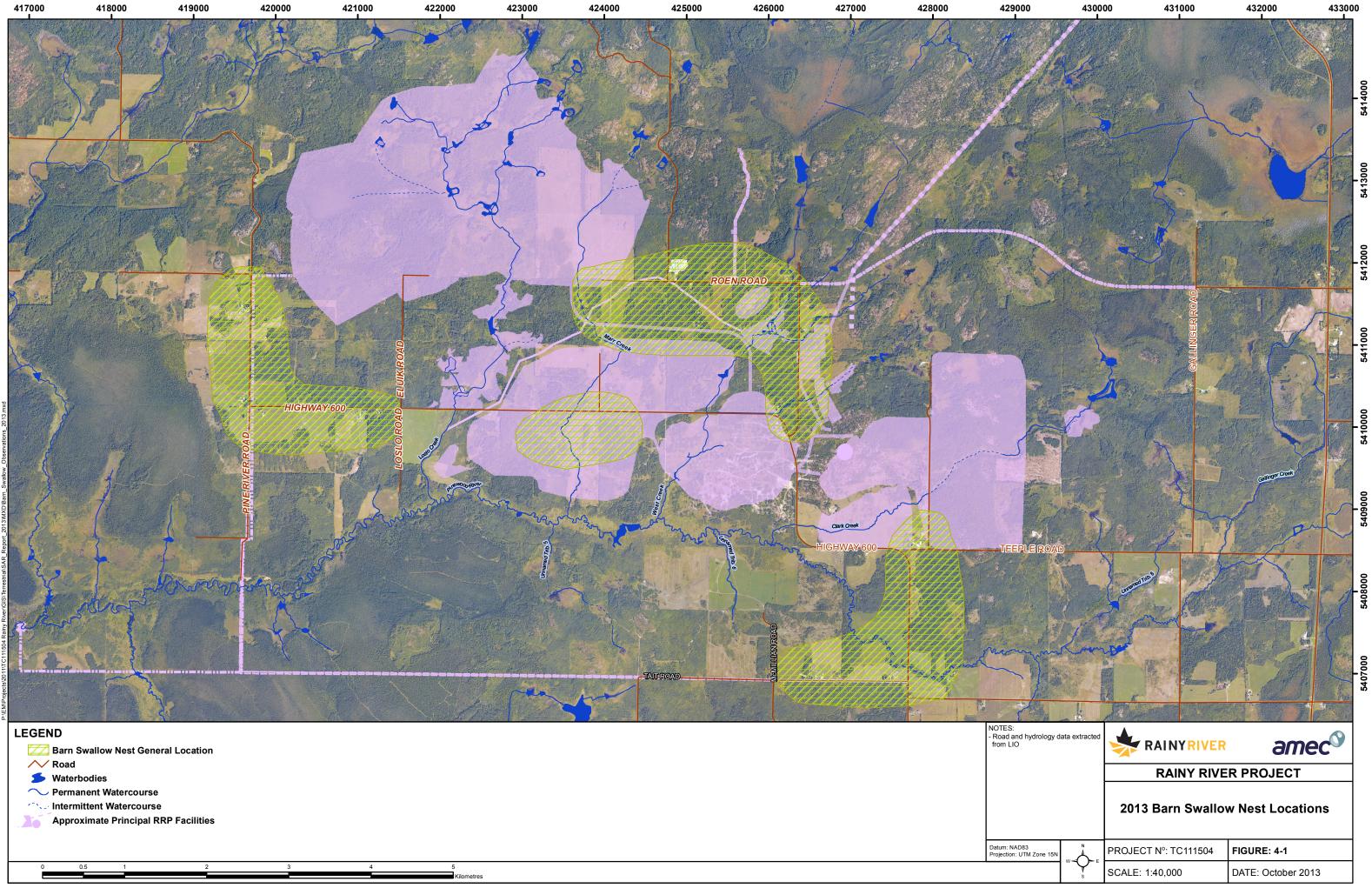
Data from previous years of study at the RRP (Figure 4-3) and from Ebird.org indicates that Eastern Whip-poor-wills can be detected in the Rainy River District during the last week of May. Given the dates of the initial May survey period, birds encountered may not have established territorial boundaries and may still have been competing for territories. As such, the higher count during the May survey period may include challenging males that did not succeed in establishing a territory and left the area prior to the June survey.

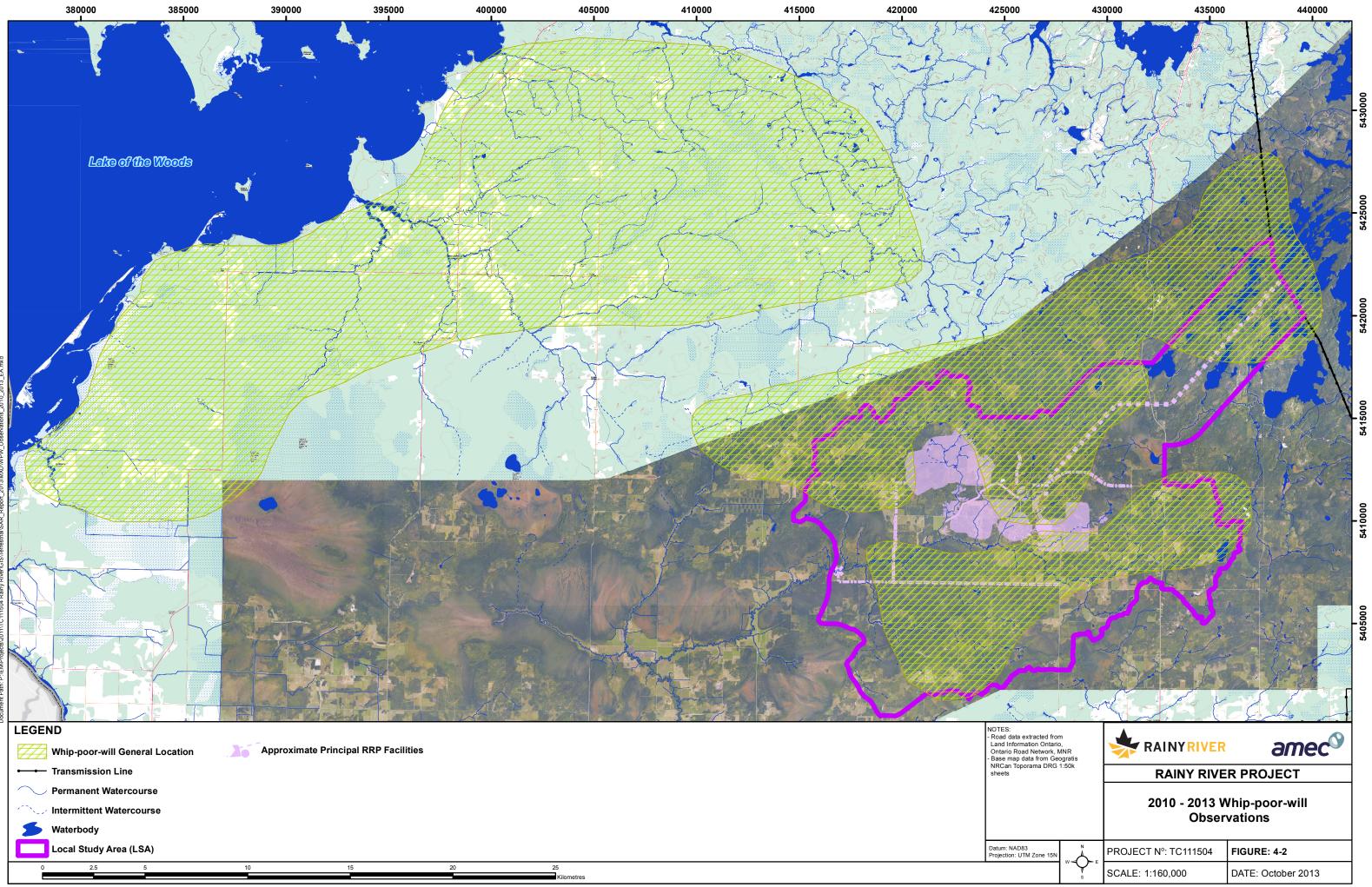




Mills (1986) reported that hatching dates are centered approximately 10 days prior to the June full moon. Under this assumption, first hatching dates in 2013 would likely have occurred around June 16. As such, birds recorded between June 21 and July 2, 2013 would certainly have been on territory. Eastern Whip-poor-wills exhibit a monogamous mating system (Cink 2002) where both parents care for the young, thus territorial behaviour could be expected to decrease during this period. Limited study indicates that 20% (n=5) of whip-poor-wills breeding in Ontario rear a second brood (Mills 1986).









5.0 CONCLUSIONS

Surveys conducted by AMEC in 2013 further confirmed the probable absence of Least Bittern within the RRP NLSA, identified the location of Barn Swallow nests in farm structures within the NLSA and the RRP footprint, and identified additional Eastern Whip-poor-will occupied areas that could be protected as compensatory habitat for ESA permitting.

6.0 **REFERENCES**

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