PLATTE RIVER RECOVERY IMPLEMENTATION PROGRAM
2016-2019 Annual LiDAR and Aerial Photography RFP

1) In so far as the Sub-Project 2 (750 sq. mi. of imagery) has been flown repeatedly during the program, will you be able to supply a DEM solely for use in the rectification of the new (2016-2019) Sub-Project 2 imagery? It is our understanding that new DEM information for the 750 sq.mi. imagery portion of the flight area will not need to be delivered for each Sub-project 2 imagery acquisition.

DEMs have not been requested as deliverables from imagery acquisitions in the past, and as such the Program does not have specific Sub-project 2 area DEMs. A DEM from a 2009 LiDAR acquisition exists and could be provided but the contractor will be required to verify its applicability for rectification of new imagery acquisitions. DEMs for the 750 sq. mi. imagery portion are not a required deliverable.

2) Will PRRIP target the ground control points for imagery acquisition flights if they are now existing ground control points? Have ground control points been set and maintained over the course of the project for LiDAR collection? Will the PRRP provide the locations and survey solutions for the existing ground control for LiDAR and imagery acquisition if available?

Ground control from previous projects will not be available for this project. Proposals should include a discussion of ground control in the project description and total budget. Post-flight reporting should include accuracy and ground control information from each flight.

3) May we confirm that the Project will require separate CIR and RGB imagery deliveries Sub-project 1 but Sub-project 2, the delivery will be a 4band stack or (R,G,B,NIR)? However Sub-Project 2 will require both a RGB mosaic and a CIR mosaic. Sub-Project 1 will be a CIR mosaic only.

Sub-project 1 (Fall, 128 sq.mi.) requires only CIR tifs and a CIR mosaic. Sub-project 2 (Summer, 750 sq.mi) requires 4-band tifs (R,G,B,NIR) and both a CIR and RGB mosaic.

4) Can you make available 6” aerial photography from 2015 for review of the relative clarity and flow of the river in preparation for a bathymetric survey estimate?

Samples of the 2015 imagery have been provided at the end of this document. If more imagery is required, please contact breij@headwaterscorp.com directly.

5) Water clarity has an impact on the bathymetric collection. Has/will any testing be done with a Secchi target to determine clarity in various parts of the Platte area of interest?

No clarity testing has been performed. The Contractor will be required to demonstrate bathymetric accuracy during the one-time Sub-Project 3 test acquisition before the Program decides whether to acquire bathymetric LiDAR in subsequent flights by incorporating the Buy-Up in Section IV of the RFP.

6) Has a budget/expectation been established either for each year, or for the entire 4-year program of collection and processing?

A total project budget has not been established. Program budgets are assigned annually and will be based on the cost proposals submitted by the selected contractor.

7) Does the "partial area LiDAR" in lines 77-92 refer to the 28 sq. mi. pilot test session and will the "partial area LiDAR" be expected to be flown with a bathymetric sensor in each of these years?

The "partial area" is indeed the 28 sq.mi. Sub-project 2A area. This area will be <u>required</u> to be flown with the bathymetric sensors in 2016 <u>only</u> and is the only bathymetric acquisition under the base RFP. However, if Alternate 1 from Section IV of the RFP is accepted and incorporated by Program, all LiDAR acquisitions (28 sq. mi. Sub-project 2A in summer, and Sub-project 1 in fall) will be collected with the bathymetric sensor for all years.

8) There is a significant cost differential between hydro-flattened, hydro-enforced, and hydro-conditioned compilation and mapping. Please clarify the level of hydro enhancement required for your study data.

This project requires hydro-flattened DEMs. Bridges and other man-made structures over water bodies should be removed, and water surfaces should be flat (ponds) or uniformly sloped (rivers and streams) such that water flows "downhill". The river channel and island features are the primary concern. Maintenance of area and elevations of above-water in-channel sandbars and islands is very important. Removing culverts or other subsurface features for hydro-enforcement is not required.

9) Can you provide any general known patterns of timing of poor water clarity/suspended sediments as well as typical and maximum depths of the river?

The Platte River is a shallow sand- and gravel-bed river with typical depths in the project reach of 0.5 to 6 feet, with an estimated average depth range of 1 to 3 feet under typical collection flows (1,000-2,000 cfs). At these flows, clarity is not expected to be an issue. If flows are higher than 4,000 cfs, suspended sediments could be an issue, but it's unlikely that the bathymetric LiDAR flights would be scheduled under these conditions. See #5 above for more information on water clarity.

10) Post spacing of 0.7m equates to 2 pulses/m2 and these are standard terms for LiDAR resolution. Can you confirm that this is what you are requesting – 2 ppms LiDAR? This would be considered low density. Will we be penalized for providing a higher resolution solution such as 4 ppms (0.50 m posting) data (assuming cost effective)?

The RFP specifies that the LiDAR should be collected at 0.7m GSD or better. This roughly equates to a minimum of USGS QL2 specification for density of greater than or equal to 2 ppms. There is no penalty for higher resolution solutions, as long as the minimum density and accuracy specifications are met. Proposal should describe the actual proposed collection parameters including expected density and accuracy.

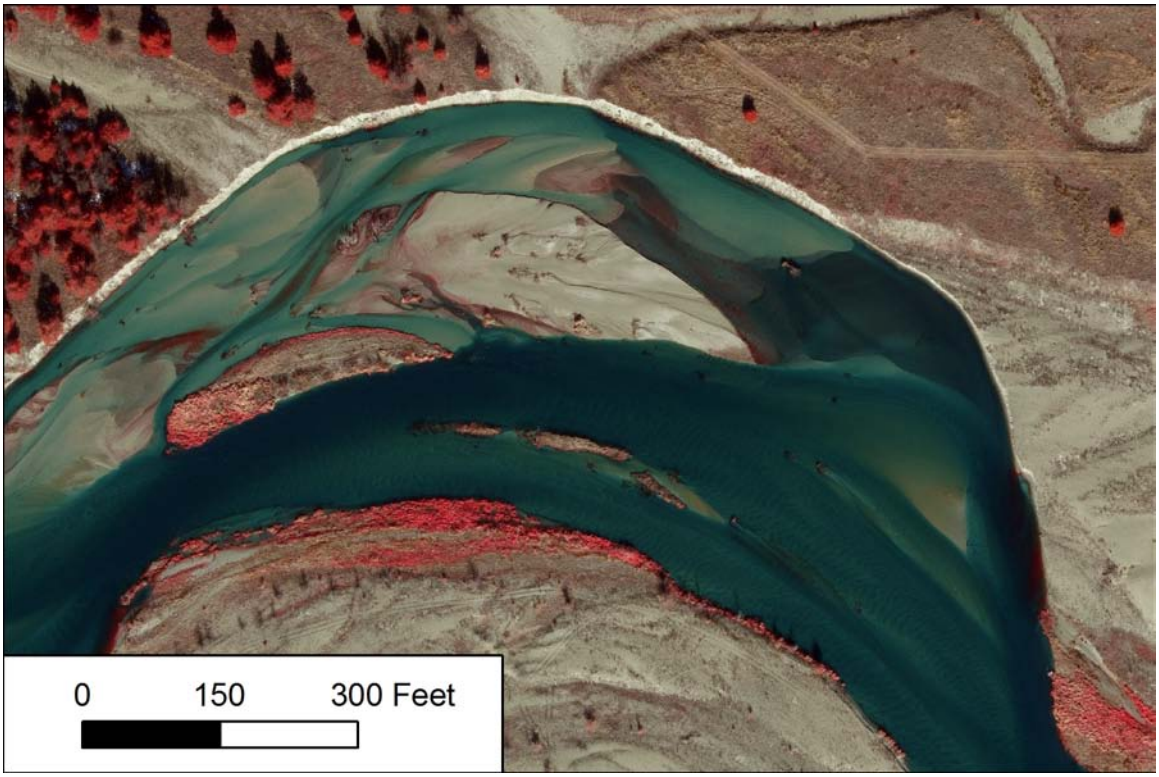
11) Are there any requirements regarding the file format to use for the LiDAR LAS files?

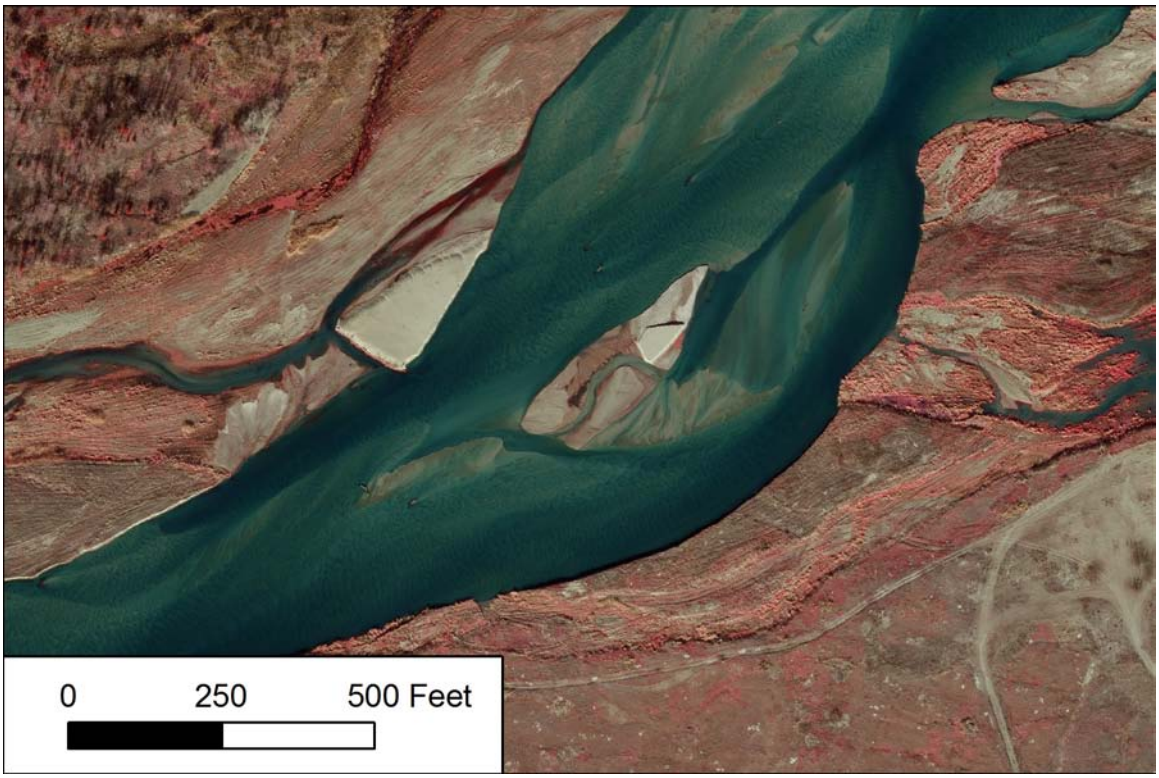
LAS files are kept more for archival reasons than day to day work. The primary work product will be the requested DEMs. We have accepted LAS and LAZ files in the past, but could be open to other file types useable by ESRI, Autodesk, and Global Mapper products. If there is a significant difference to the cost or work required for the project as proposed, assume LAS files are necessary.

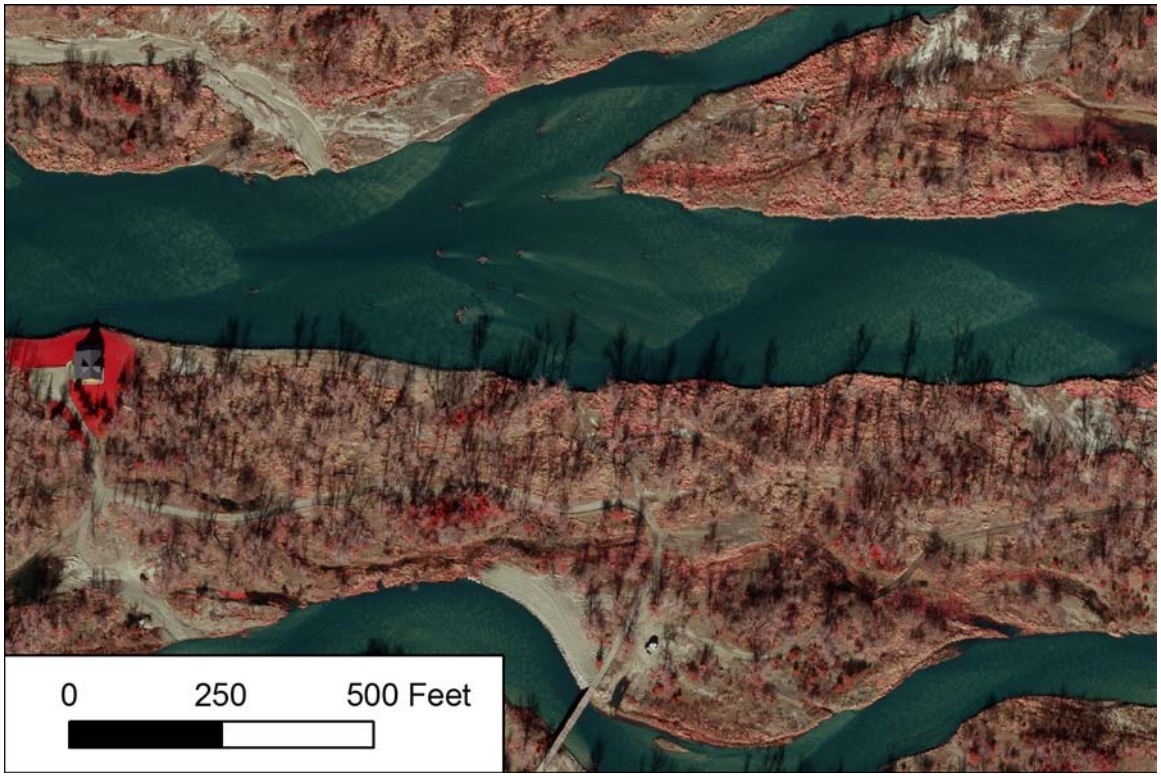
12) Section III (Scope of Work), Part 3.a.iv (Technical Specifications) lists the classes to be used for LiDAR classification (Classes 1,2,7,9, and 12). But, in Part 3.a.v, percentages regarding classification of vegetation and buildings are listed. We'd like to clarify if these percentages regarding classification are as Class 1 (Unclassfied), or whether separate classes for vegetation and buildings are desired.

Separate classes for vegetation and buildings are not required under this RFP. Those will fall within Class 1 (Unclassified).

Sub-project 1 Aerial Imagery River Samples



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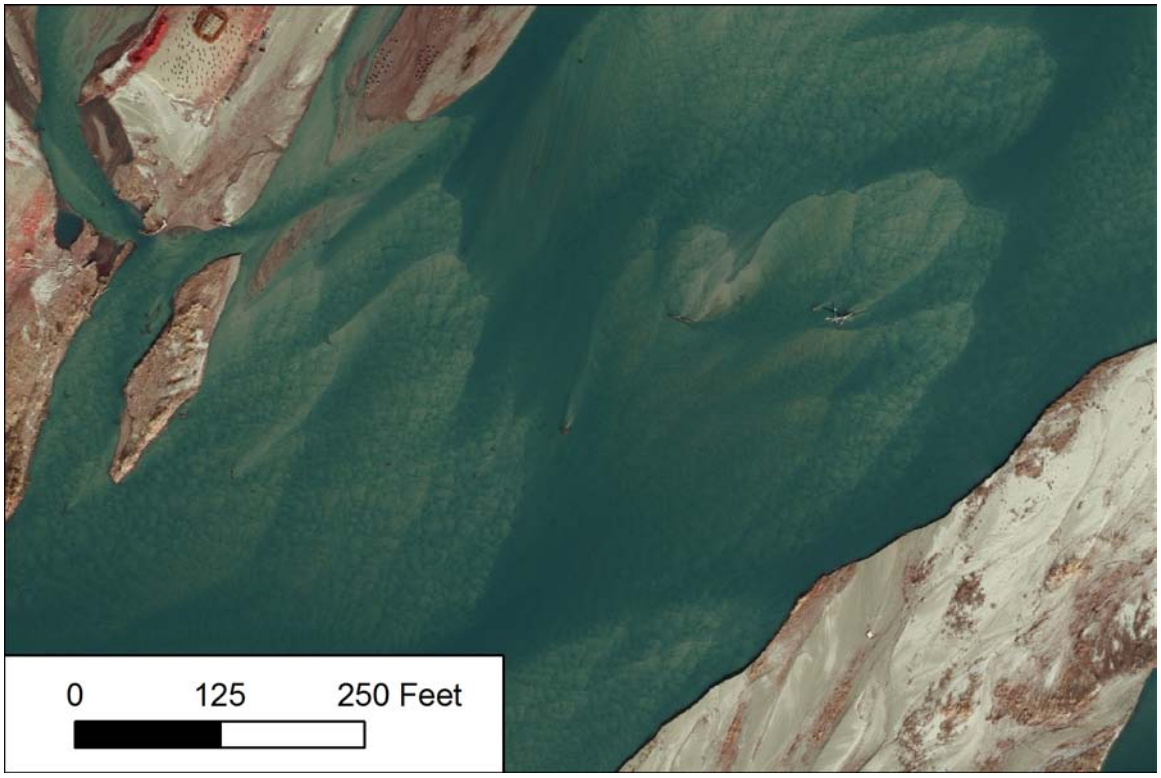
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