

Schedule A – The Tender

CAPITAL REGIONAL DISTRICT

2017 CRD REGIONAL ORTHOPHOTOGRAPHY PROJECT (IT-2017-01)

INVITATION TO TENDER

The Capital Regional District (CRD) invites Bids from qualified Bidders to supply orthophotography and other services to the CRD. Sealed Bids, plainly marked on the envelope "TENDER FOR 2017 CRD REGIONAL ORTHOPHOTOGRAPHY PROJECT (IT-2017-01)" will be received at the CRD's offices at 625 Fisgard Street, Victoria, British Columbia up to 4:00 pm local time on April 13, 2017. As consultation with CRD municipalities is required prior to the selection of a Bid, there will not be a public opening.

The services to be provided under this Contract generally include the following:

- Orthophotography
- Lidar
- Building Rooflines
- Contours
- Planimetry

All Bids must be submitted on the Bid Form provided. Tender documents may be obtained from the Information Technology offices at 625 Fisgard St, Victoria, British Columbia beginning at 3:00 pm local time on March 24, 2017. Digital copies may also be downloaded from www.crd.bc.ca/about/contracts-rfps/ and at www.bcbid.gov.bc.ca.

In addition, upon signing a data sharing agreement, all respondents to this Invitation to Tender are required to request the CRD's Vendor package which includes data for:

- CRD administrative Boundaries
- Each AOI as outlined in this Invitation to Tender
- Current CRD digital elevation model data
- CRD tile grid
- Current CRD contours
- Building rooflines
- Etc.

The lowest or any Bid will not necessarily be accepted.

For information and/or enquiries on this project please contact Ken Johansson.

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INSTRUCTIONS TO BIDDERS

1.0 Definitions and Interpretation

1.1 In this Tender and any resulting Contract, unless expressly provided otherwise, the following words have the following meanings:

- a) **“Accounts Payable”** means the accounts payable section of the finance department of the Owner.
- b) **“Basic Items”** means items 1 and 2 identified in the Specifications.
- c) **“Bid”** means a bid submitted by a Bidder in response to this Tender.
- d) **“Bid Form”** means the Bid Form attached to these Instructions to Bidders as Schedule “B”, to be completed by each Bidder.
- e) **“Bidder”** means a person submitting a bid in response to this Tender.
- f) **“Contract”** means an agreement between the Owner and the Contractor, substantially in the form attached to this Tender as Schedule “D”, for the works, services or materials required by this Tender and, unless the Contract expressly provides otherwise, the Contract includes the terms and conditions set out in this Tender.
- g) **“Contractor”** means the successful Bidder.
- h) **“Invitation to Tender”** means the document enclosing this Tender and title “Invitation to Tender”.
- i) **“Must”** refers to a requirement the fulfilment of which is mandatory.
- j) **“Optional Items”** means items 3 through 30, inclusive, identified in the Specifications.
- k) **“Owner”** means the Capital Regional District.
- l) **“Owner’s Office”** means Capital Regional District, 625 Fisgard Street, PO Box 1000, Victoria, BC, V8W 2S6.
- m) **“Owner’s Representative”** means the person identified in the Invitation to Tender or such other person as the Owner may from time to time designate in writing.
- n) **“Schedule of Prices”** means the Schedule of Prices included in the Bid Form, to be completed by each Bidder.

- o) **“Should”** refers to a requirement the fulfilment of which is not mandatory, but which the Owner would strongly prefer be fulfilled, and which the Owner may in its sole discretion elect to treat the failure to fulfil as grounds for rejection of the Bid.
- p) **“Specifications”** means the specifications attached to this Tender as Schedule “A”.
- q) **“Standard Payment Terms”** means the Owner’s standard terms for payment, being 30 days following acceptance of the items or work to which the payment relates, or receipt of an invoice by Accounts Payable, whichever is later.
- r) **“Submission Deadline”** means the time and date specified in the Invitation to Tender, at which no further bids will be accepted.
- s) **“Tender”** means Tender No. IT-2017-01, including these Instructions to Bidders, the Bid Form, the Invitation to Tender, drawings, specifications, addenda (if any) and any other documents specifically identified as forming part of this Tender.
- t) **“Total Bid Price”** means the price tendered by a Bidder for performance of the Contract, inclusive of all Basic Items and Optional Items.
- u) **“Total Contract Value”** means the price to be paid by the Owner for performance of the Contract, being the total price for the Basic Items and those Optional Items, if any, chosen by the Owner.

1.2 This Tender and any Contract resulting from this Tender will be governed by and interpreted in accordance with the laws of the Province of British Columbia including the *Builders Lien Act* and, where applicable, the New West Trade Partnership Agreement and the Agreement on Internal Trade, Annex 502.4.

2.0 **Specifications**

2.1 The scope of work for the project to which this Tender relates is set out in Schedule “A” attached to and forming a part of these Instructions to Bidders.

3.0 **Submission Requirements**

3.1 Bids should be submitted in a sealed envelope clearly marked "Tender: 2017 CRD REGIONAL ORTHOPHOTOGRAPHY PROJECT" addressed to the Owner’s Representative.

3.2 Bids must be received at the Owner’s Office no later than the Submission Deadline.

3.3 The Bid Form submitted must be signed by an authorized representative of the Bidder. Signatures must be original.

3.4 Any corrections to information provided in a Bid (a wrong figure, for example) must

be initialled by the authorized representative who signs the Bid Form. Initials must be original.

- 3.5 Bidders should not alter any documents provided, including the Bid Form, other than entering data in the spaces provided or including attachments as necessary.
- 3.6 Bids must be based on products, equipment, processes and methods specified in the Tender with no substitutions.
- 3.7 All prices in a Bid should be in Canadian funds.
- 3.8 The Owner will not accept Bids received via facsimile or e-mail.
- 3.9 Bids must be irrevocable and must not be withdrawn for a period of 90 days following the Submission Deadline.
- 3.10 All Bids received by the Submission Deadline will be and remain the property of the Owner.
- 3.11 Bidders should submit four (4) paper copies and one (1) digital copy (on CDR/DVR or memory stick) for a total of five (5) copies.

4.0 Amendments to Bids

- 4.1 Revisions to Bids may be delivered by hand to the Owner's Representative, or faxed to the Owner's Representative at the number specified in the Invitation to Tender. Revisions communicated by any other means, including telephone and email, will not be accepted.
- 4.2 Revisions to Bids must be received at the Owner's Office no later than the Submission Deadline.
- 4.3 Revisions to Bids must be signed by the authorized representative of the Bidder. Any corrections to information provided in a revision (a wrong figure, for example) must be initialled by the authorized representative who signed the revision.
- 4.4 Revisions to Bids must not state revised prices. Only the following information may be provided in a revision:
 - a) Amounts to be added to or deducted from prices;
 - b) Changes to dates;
 - c) Changes in names of subcontractors, suppliers, or key personnel.

5.0 Responsibility of Bidders

- 5.1 Each Bidder is responsible for informing themselves as to the contents and requirement of this Tender. Each Bidder is solely responsible to ensure that they have obtained and considered all information necessary to understand the requirements of the Tender and to prepare and submit their Bid. The Owner will not be responsible for any loss, damage or expense incurred by a Bidder as a

result of any inaccuracy or incompleteness in this Tender, or as a result of any misunderstanding or misinterpretation of the terms of the Tender on the part of any Bidder.

6.0 Accuracy of Information

- 6.1 The Owner makes no representation or warranty, either expressed or implied, with respect to the accuracy or completeness of any information contained in or referred to in the Tender.

7.0 Addenda

- 7.1 Any addendum issued with respect to this Tender will be posted on the Owner's web site at www.crd.bc.ca/about/contracts-rfps/ and at www.bcbid.gov.bc.ca. It is the sole responsibility of Bidders to ensure that they have obtained any and all addenda prior to the Submission Deadline.
- 7.2 Bidders must, in the space provided in the Bid Form, individually list and acknowledge receipt of each addendum issued with respect to this Tender.
- 7.3 The Owner may issue addenda with respect to this Tender up to 72 hours prior to the Submission Deadline without extending the Submission Deadline. If the Owner issues any addendum less than 72 hours prior to the Submission Deadline, the Owner will extend the Submission Deadline by such period of time as the Owner deems reasonable in the circumstances.
- 7.4 Should a Bidder find omissions from or discrepancies in the drawings, specifications or other documents in the Tender, or be in doubt as to their meaning, or should the Bidder wish the Owner to approve any alternate or equivalent product, equipment, process or method, the Bidder should notify the Owner's Representative no later than five (5) days prior to the Submission Deadline. In the case of any request for approval of alternates or equivalents, the request should be accompanied by all technical data necessary to demonstrate equivalency and/or suitability, along with examples of similar use.
- 7.5 On its own initiative, or upon receipt of a notification under section 7.4, the Owner may issue a written instruction to Bidders in the form of an addendum concerning a change in the Tender, and any addendum issued by the Owner will become part of the Tender and should be reflected in the Bid.
- 7.6 No oral statements, advice or interpretations made to a Bidder as to the meaning of the Tender, including all drawings, specifications or other documents will be considered binding on the Owner.
- 7.7 All enquiries concerning this Tender should be directed to the Owner's Representative.

8.0 Pricing

8.1 The prices quoted in a Bid should include all labour, materials, applicable taxes, duties, installation, mobilization, freight, overhead, profit, and any other relevant charges, including all costs related to the fulfilment of the requirements of the Tender, so as to be the final cost to the Owner for completion of the work.

8.2 Payment Terms

8.3 All invoices rendered as a result of this Tender and the Contract will be paid as per the Owner's Standard Payment Terms.

9.0 Basic and Optional Items

9.1 If a successful Bidder is selected by the Owner, the Contract will require, at a minimum, performance of the Basic Items.

9.2 The Owner may, in its sole discretion, require the Contractor to perform any, all, or none of the Optional Items.

9.3 The Owner shall make the award of the Contract based upon the Basic Items and those Optional Items, if any, chosen by the Owner.

9.4 To the extent that the Owner relies on price as a criterion for evaluating Bids, it will do so on the basis of the Total Bid Price if the Owner chooses to require all Optional Items, or on the basis of Total Contract Value, if the Owner chooses to require none, or only some of the Optional Items.

9.5 Bidders must prepare and submit Bids on the basis that the Owner may require all Optional Items, but no Bidder shall have any recourse or claim whatsoever if the Owner chooses to require none, or only some of the Optional Items.

10.0 Insurance

10.1 Upon the award of the Contract, and as a condition precedent to the fulfilment of the Owner's obligations under the Contract, the Contractor shall deliver to the Owner certificates of insurance satisfactory to the Owner, evidencing the insurance required by this Tender. Insurance requirements are set out in Schedule "C".

11.0 Cancellation

11.1 The Owner reserves the right to cancel this Tender at any time and for any reason, and will not be responsible for any loss, damage, cost or expense incurred or suffered by any Bidder as a result of that cancellation.

11.2 The Owner reserves the right to re-issue this Tender without changes in the event that only one (1) compliant Bid is received, or in the event that all Bids received exceed the Owner's estimated budget.

12.0 Evaluation and Award

12.1 Bids which contain qualifying conditions or which otherwise fail to conform to the

requirements of this Tender may result in a request for clarification to the Bidder or outright rejection of the Bid, at the sole discretion of the Owner. The Owner may, however, in its sole discretion, retain for consideration Bids which are nonconforming because they do not contain the content or form required by the Tender or for failure to comply with the process for submission set out herein. Without limiting the generality of the foregoing, and notwithstanding any custom or trade practice to the contrary, the Owner may waive any defect in a Bid and accept that Bid, whether such defect is merely formal or technical, or whether such defect is material or substantial in nature.

- 12.2 The lowest or any Bid will not necessarily be accepted. Evaluation of Bids will be based on the best combination of price, quality, adherence to specifications, warranty, timeframe, expertise, experience, references, proposed software and systems, proposed methods and work plan, innovative and value-added components, etc., so as to be the best value to the Owner and not necessarily the lowest price.
- 12.3 In the case of any discrepancy between the Total Bid Price and the unit prices for the Basic Items and the Optional Items in a Bid, the unit prices shall govern and the Owner shall make any necessary arithmetical corrections to the Total Bid Price. The Total Contract Value, if applicable, shall be calculated on the basis of unit prices.
- 12.4 The Owner may, in its absolute discretion reject a Bid submitted by a Bidder if the Bidder's past performance of similar work for the Owner has resulted in outstanding or ongoing legal liability or legal claims against the Owner.
- 12.5 The Bidder acknowledges that the Owner shall have the right to reject any and all Bids for any reason or to accept any Bid that the Owner in its sole unrestricted discretion deems most advantageous to itself. The Bidder acknowledges that the Owner may rely upon criteria that the Owner deems relevant even though such criteria may not have been disclosed to the Bidder. The Owner reserves the right to make inquiries regarding any or all Bidders. By submitting a Bid, the Bidder acknowledges the Owner's rights under this clause and absolutely waives any right of action against the Owner for the Owner's failure to accept the Bidder's Bid whether or not such right of action arises in contract, negligence, bad faith or any other cause of action.
- 12.6 Notwithstanding any other provision in this Tender, the award of a Contract by the Owner may be subject to the availability of funding and the approval of the Board of the Capital Regional District.
- 12.7 The Owner reserves the right, at its discretion, to negotiate with any Bidder that the Owner believes has the most advantageous Bid, or with any other Bidder or Bidders concurrently. In no event will the Owner be required to offer any modified terms to any other Bidder prior to entering into a Contract with the successful Bidder and the Owner shall incur no liability to any other Bidder as a result of such negotiations or modifications.
- 12.8 The successful Bidder will be notified in writing by the Owner of the award of the Contract and no other act shall constitute award of the Contract.

12.9 The successful Bidder will execute the Contract no later than thirty (30) days following notification of award.

13.0 Compliance with Law

- 13.1 The Contractor must comply with all applicable laws and regulations of any federal, provincial, regional or municipal government or authority having jurisdiction with respect to the supply of the works, services or materials required by this Tender and the Contract.

14.0 WorkSafeBC Requirements

- 14.1 The Contractor must at all times maintain the necessary registration and coverage in respect of its personnel as required under the *Workers Compensation Act* and regulations thereunder.
- 14.2 The Contractor must provide to the Owner a current WorkSafeBC “clearance letter” evidencing its registration and coverage prior to commencing work, and must thereafter provide to the Owner an updated “clearance letter” along with every invoice rendered as a result of this Tender and the Contract.
- 14.3 Without limiting section 15.2, upon the request of the Owner at any time, and from time to time, the Contractor must provide a current WorkSafeBC “clearance letter” and any other evidence required by the Owner with respect to the Contractor’s compliance with WorkSafeBC requirements, including the *Workers Compensation Act* and regulations thereunder.

15.0 No Compensation to Bidders

- 15.1 Bidders are solely responsible for their costs and expenses in preparing and submitting a Bid. Without limiting the foregoing, except as expressly and specifically permitted in these Instructions to Bidders, no Bidder will have any claim for any compensation of any kind whatsoever, as a result of participating in the Tender, and by submitting a Bid each Bidder will be deemed to have agreed that it has no claim.

16.0 Solicitation

- 16.1 If any director, officer, employee, agent or other representative of a Bidder makes any representation or solicitation to the Chair, or any Director, officer or employee of the Owner with respect to the Tender or a Bid, whether before or after the submission of a Bid, the Owner will be entitled to reject the Bid.

17.0 Freedom of Information

- 17.1 The Owner is subject to the provisions of the *Freedom of Information and Protection of Privacy Act*. As a result, while Section 21 of the *Act* does offer some protection for third party business interests, the Owner cannot guarantee that any information provided to the Owner can be held in confidence. To the extent that it is legally able to do so the Owner may, but will not be obligated to, hold in confidence any information specifically identified by a Bidder as being confidential.

18.0 Publicity

- 18.1 All publicity relating to the Contract and work performed thereunder is subject to the approval of the Owner and no mention of the Contract or work performed thereunder in advertising or articles in any publication is permitted unless authorized in writing by the Owner. Publicity or advertising implying endorsement of a product by the Owner will not be permitted.
- 18.2 In the event the Contractor or the Contractor's employees receive any enquiries from the public or the media in respect to any work being done on the Owner's behalf, all such enquiries are to be referred to the Owner's Representative, and the Contractor or the Contractor's employees must not provide any comment, opinion or explanation as to nature of or reasons for the work.

SCHEDULE “A”

SPECIFICATIONS

1. Project Overview

Bidders are invited to provide the Capital Regional District (CRD) and Participating Municipalities with digital colour orthophoto images, digital elevation models (DEM) and Lidar etc. for the region. This encompasses a large area and may require different levels of flying based on the variety of land uses found in the region.

The CRD and member municipalities acquired colour orthophotos in 2005, 2007, 2009, 2011, 2013 and 2015 for the region. To keep this dataset up to date, in many areas new imagery is required. Existing orthophoto and municipal boundaries can be viewed on-line via:

<https://maps.crd.bc.ca>

The purpose of this project is to update regional data that allows for the standards of the individual municipalities needs to be met while providing cost savings through collaboration on a single project.

2. Project Timing

The following dates are relevant to this project:

Item	Responsibility	Date
Tender submission	Contractor	April 13, 2017, 4:00pm
Contract award	CRD	April 28, 2017 (estimated)
Photography dates	Contractor	See “Project Requirements”
Final products delivery	Contractor	September 22, 2017

Bids must contain a proposed schedule that includes delivery dates for all project deliverables. The flight is to take place as soon as possible while meeting the requirements outlined in this document.

3. Payment

The Owner will pay the Contractor an advance not to exceed 20% of the Total Contract Value upon execution of the Contract. The remainder of the Total Contract Value will be paid upon acceptance of the final product. Acceptance shall be determined by the CRD Representative and shall be based on quality and adherence to the requirements in this document.

4. Liquidated Damages

In the event that the final product (all items) is not delivered within the time frame indicated by the Contractor in “Project Timing” section above, the Owner will deduct from the balance owing to the Contractor an amount of liquidated damages calculated as a percentage of the Total Contract Value based on the following delivery dates:

Delivery Date	Liquidated Damage Deduction %
Sept 23 – Sept 29, 2017	5%
Sep 30 – Oct 6, 2017	10%
Oct 7 – Oct 13, 2017	15%
Oct 14 – Oct 20, 2017	20%
Oct 21 – Oct 27, 2017	25%

5. Project Updates

Weekly project update meetings, at the CRD headquarters office in Victoria, BC, will be requested at the discretion of the CRD. The costs associated with travel to these meetings will be borne entirely by the Contractor. Additionally, weekly project status reports are to be provided by email to the Owner’s Representative for the duration of the project.

6. Optional Items

The Owner has identified Optional Items as line items 3-30 in the Schedule of Prices. These prices are to be carried by the Contractor in the Total Bid Price. The expenditure of all or any portion of these Optional items shall only be as a result of written direction by the Owner. The Contractor shall allow an appropriate sum in the Total Bid Price to cover administration and handling of the Optional Items. The Contractor shall have no claim for loss if any or all of the Optional Items are not included in the Contract.

While the choice to require or not require the Contractor to perform any or all of the Optional Items is in the sole discretion of the Owner, Bidders may find it helpful to understand that the Owner has divided the project into Basic Items and Optional Items because there are a number of member municipalities which may or may not choose to participate in, and provide funding to the Owner for the project. After the Submission Deadline, and during the evaluation process, the Owner will consult with interested member municipalities in order to ascertain which of them wish to participate, based on the Bids received. The number of municipalities which choose to participate, and the particular needs of each, will influence the Optional Items chosen.

7. Project Requirements

There are 22 distinct areas of interest (AOI’s) and 30 items for this project. This differentiation is important as different data, data accuracies and products are required within each of these areas. The CRD reserves the right to change the scope of flying for this project, AOI’s required, the final resolution, area, and/or photo scale. It is likely that some items may be removed from the requirements depending on cost. All vector based data is to be delivered in Esri shapefile, Esri geodatabase and AutoDesk AutoCAD dwg formats.

Item Number	Area of Interest (AOI)	Item Description
1	AOI 1	Ortho 10cm
2	AOI 2	Ortho 20cm
3	AOI 3	LiDAR - DND
4	AOI 4	LiDAR - IWS
5	AOI 5	LiDAR - North Cowichan
6	AOI 6	LiDAR - View Royal
7	AOI 3	0.5m Contours - DND
8	AOI 5	0.5m Contours - North Cowichan
9	AOI 7	0.5m Contours - Saanich
10	AOI 9	1m Contours - Sidney
11	AOI 8	1m Contours - SSI/SGL
12	AOI 10	1m Contours - View Royal
13	AOI 11	DEM Update - Highlands
14	AOI 12	DEM Update - JDF
15	AOI 13	DEM Update - Langford
16	AOI 7	DEM Update - Saanich
17	AOI 14	DEM Update - Sooke
18	AOI 15	Planimetry - North Cowichan
19	AOI 10	Planimetry - View Royal
20	AOI 11	Rooflines New - Highlands
21	AOI 16	Rooflines New - North Cowichan
22	AOI 17	Rooflines New - North Saanich
23	AOI 10	Rooflines New - View Royal
24	AOI 18	Rooflines Updates - Central Saanich
25	AOI 19	Rooflines Updates - North Cowichan
26	AOI 7	Rooflines Updates - Saanich
27	AOI 20	Rooflines Updates - Sidney
28	AOI 21	Rooflines Updates - Victoria
29	AOI 22	Stereo Pairs in Purview
30	AOI 22	Hard Copies

Items 1-2, Orthophotography and DEM

In the Tender, the contractor must include the flight lines for the entire area. Additionally, the contractor must state the distance between each flight line.

The CRD map tile grid (1km x1km) must be used for final orthophoto delivery and the CRD tile ID's must be used to name each tile.

Each map tile grid must contain full imagery where the AOI either fully or partially covers the map tile; clipping within tiles will not be accepted.

Photo overlap is to be no less than: 60% forward, 30% lateral for all products including stereo pairs (item 28) and hard copies (item 29)

10 sets (in quadruplets) of proof prints are required as part of the deliverable. The CRD will check these to ensure overlap criteria is met. Random areas (selected by the CRD) will be requested.

Minimum 35 degree sun angle

Thin, high cloud preferred

Images to be delivered in uncompressed tif as well as compressed ecw formats with appropriate metadata present such as acquisition date and time.

Delivery of data to be provided on portable hard drive provided by the contractor. Orthophoto images to be delivered in uncompressed TIF format, by municipality.

Aerial images are to be in natural colour

The contractor will be required to produce digital colour orthophoto images for the entire AOI in exactly 10 and 20 cm native pixel resolutions. Orthophoto files must have no overlap and must be precisely edge matched and contrast and tone balanced so as to appear to be a continuous photographic image over the entire CRD.

Upon completion of the aerial photography, and as soon as possible afterwards, the contractor will provide to the CRD with one or more sample digital image(s) in raw tif format for overall image quality verification for each AOI and/or resolution requested.

Due to the fact that much of this project area is within a coastal tidal environment and that rivers and lakes are found extensively throughout the CRD, submissions must clearly indicate in the Tender how potential glare or reflection from water will be minimized in the resultant orthophotography. Additionally, photo acquisition must take place at mean low tide within the photo window and shall be as close to geodetic mean sea level as possible.

Please state specifically in the Tender how hybrid (areas of overlapping or adjacent resolutions of imagery) orthophoto tiles will be dealt with to ensure the imagery will appear to be a continuous photographic image over the entire CRD.

Minimum standards for the acquisition, triangulation, and rectification of the photographs and creation of orthophotography are those specified in:

http://geobc.gov.bc.ca/base-mapping/imagery/files/AIR_PHOTO_SPECS_05022008.pdf

http://geobc.gov.bc.ca/base-mapping/imagery/files/AIR_PHOTO_PRODUCTS_SPECS_05022008.pdf

http://geobc.gov.bc.ca/base-mapping/imagery/files/DATABASE_SPECS_05022008.pdf

http://geobc.gov.bc.ca/base-mapping/imagery/files/DIGITAL_AERIAL_PHOTOGRAPHIC_IMAGES_SPECS_05022008.pdf

http://geobc.gov.bc.ca/base-mapping/imagery/files/INDEXING_SPECS_05022008.pdf

The Province of British Columbia publishes these documents. In all cases where these specifications refer to a Provincial agency, ministry, or branch, substitute the 'CRD'. Provisions and specifications of this document supersede the above-cited documents where conflicting information is given.

The contractor must provide, in the final delivery, the actual flight lines (digitally, ie shape file as well as PDF map) including photo centres and photo numbers.

A schedule of significant events including both CRD and contractor tasks, and details of the process to be used in each step of the production of each product, should be outlined in the project submission.

See Appendix A for imagery that is acceptable. A product of this or better quality will be acceptable.

See Appendix B for imagery that is not acceptable. A product of this or poorer quality will not be acceptable.

The CRD's current DEM must be updated in certain areas, it is the responsibility of the contractor to conduct an inspection of the DEM to determine where updating is required.

All Bidders are required to request the CRD's current digital elevation model, along with the signing of a data sharing agreement. It is the responsibility of the Bidder to outline the areas where the current DEM will not support the orthophoto resolution requested (ie smearing, warping etc. in the orthophoto).

The DEM updates must include mass points and breaklines (hypographic and major hydrographic breaklines)

The DEM updates must be integrated with the original DEM (which will be provided at the beginning of the project by the CRD) and provided in both Autodesk DWG format and ESRI shapefile format as well as organized according to the CRD tile grid. The updated DEM must have full metadata (to delineate it from existing DEM).

Control Points, Targeting and Triangulation

All mapping products will be delivered in NAD 83, UTM Zone 10N projection. It is the responsibility of the contractor to locate and choose the control points to be targeted and identify possible additional points as required. Integrated (CRD HPN) control monuments are preferred. It is the responsibility of the contractor to provide all necessary targeting for this project.

Portable panels must either be removed by the contractor or constructed of biodegradable materials that will completely disintegrate in a short time after the photographs have been taken.

The contractor must provide as a project deliverable the aerial triangulation statistics at the end of the project such as, but not necessarily limited to:

1. Aerial triangulation (A/T) report stating accuracies expected & achieved.

2. Exterior orientation parameters of each image adjusted in the A/T process.
3. Image or plate measurement file of each image adjusted in the A/T process.
4. Sorted A/T point output.
5. Camera calibration as used in A/T process.
6. Inner orientations of each image adjusted in the A/T process.
7. If aerial triangulation is automated (for example, Match-AT or ISAT), all project files are required.

Camera and Sensor Requirements

A digital camera must be used for this project:

The acquisition of photos must be achieved using a frame-by-frame large format digital camera such as Intergraph DMC or Vexcel Ultra Cam at a 30 cm resolution.

The proposed sensor must be approved. Tested, precision digital sensors designed for acquiring digital aerial imagery are required and must meet contract data specifications. Sensor system output data must be compatible with precision stereoscopic mapping instruments, softcopy photogrammetric software, with mensuration procedures used in photogrammetric surveys and in preparing accurate orthoimagery. Only approved digital sensor systems which meet the five requirements of these specifications, and as determined by appropriate sensor system documentation shall be used.

The camera used must have a current (less than three years old) calibration report. The report must be included in the Bid.

Valid calibration reports include ones produced by the original equipment manufacturers, USGS, or NRC. Inertial Measurement Unit (IMU) shall be capable of determining the absolute orientation (roll, pitch, yaw) and meet or exceed the following performance specification: Post Processed accuracy in roll, pitch, yaw: 20" (0.005 degrees) Post processed accuracy in heading"30"

Carrier-phase airborne multi-channel kinematic GPS (minimum L1 and L2 channels) shall be acquired and used along with IMU measurements in processing trajectories. Antenna should be positioned in a location near the camera to minimize lever arm length.

Accuracy

Please state the positional accuracy and confidence level for each resolution of imagery and each AOI. The CRD will be performing random sampling to ensure the accuracy quoted is present in the final deliverable.

Tree and building lean must be minimized throughout the entire project area. Please state how this will be achieved.

File Format and Media

All digital information must be delivered to the CRD in a format and on media compatible with the CRD's computer equipment.

Items 3-6, LiDAR

Deliverables:

1. LiDAR acquisition at 8 points per metre (minimum sidelap between flightlines to be 50%)
2. LAS files for raw unclassified data to be provided
3. LiDAR points classified into bare earth, vegetation and buildings
4. The ability to post process tree species identification
5. Points provided in, LAS, 3D shape file and AutoCad DWG format
6. Bare earth DEM grid from keypoints provided in GeoTIFF or ESRI GRID format
7. Create 3D breaklines and provide in 3D shape file and AutoCad DWG format
8. 0.5 Metre contours provided in 3D shape file and AutoCad DWG format
9. (Vertical accuracy to be (typically) better than 0.12 metres RMSE on hard open surfaces)
10. TIN surface provided in LANDXML surface format
11. Final Project Report to be provided including system calibration information, flight parameters, weather, scan angle, scan rate, PDOP, ground control QA, data processing, accuracies achieved, gap coverage map, and operational challenges

Other Considerations:

1. Maximum GPS baseline not to exceed 30 km
2. QA procedure – GPS RTK or equivalent
3. Map sheet tiling layout
4. Horizontal datum is NAD'83 CSRS Zone 10
5. Vertical datum is CGVD28 with orthometric heights derived from HT2.0 Geoid

Please state the accuracy of the LiDAR data.

Items 7-9: 0.5 Metre Contours

0.5 metre contours with equivalent specifications and of equal or greater quality and accuracy of existing contours found in the vendor package. Must be delivered both by AOI as well as integrated topologically with existing CRD contours found in vendor package.

Items 10-12: 1 Metre Contours

1 metre contours with equivalent specifications and of equal or greater quality and accuracy of existing contours found in the vendor package. Must be delivered both by AOI as well as integrated topologically with existing CRD contours found in vendor package.

Items 13-17: DEM Update

An update to the existing digital elevation models.

Items 18-19: Planimetry

Capture new 'Planimetric' data as specified below.

The contractor shall provide their best solution and recommendations for capturing the planimetric data including, standards, accuracies, specifications and methodology for data capture and compilation.

Data to be Captured:

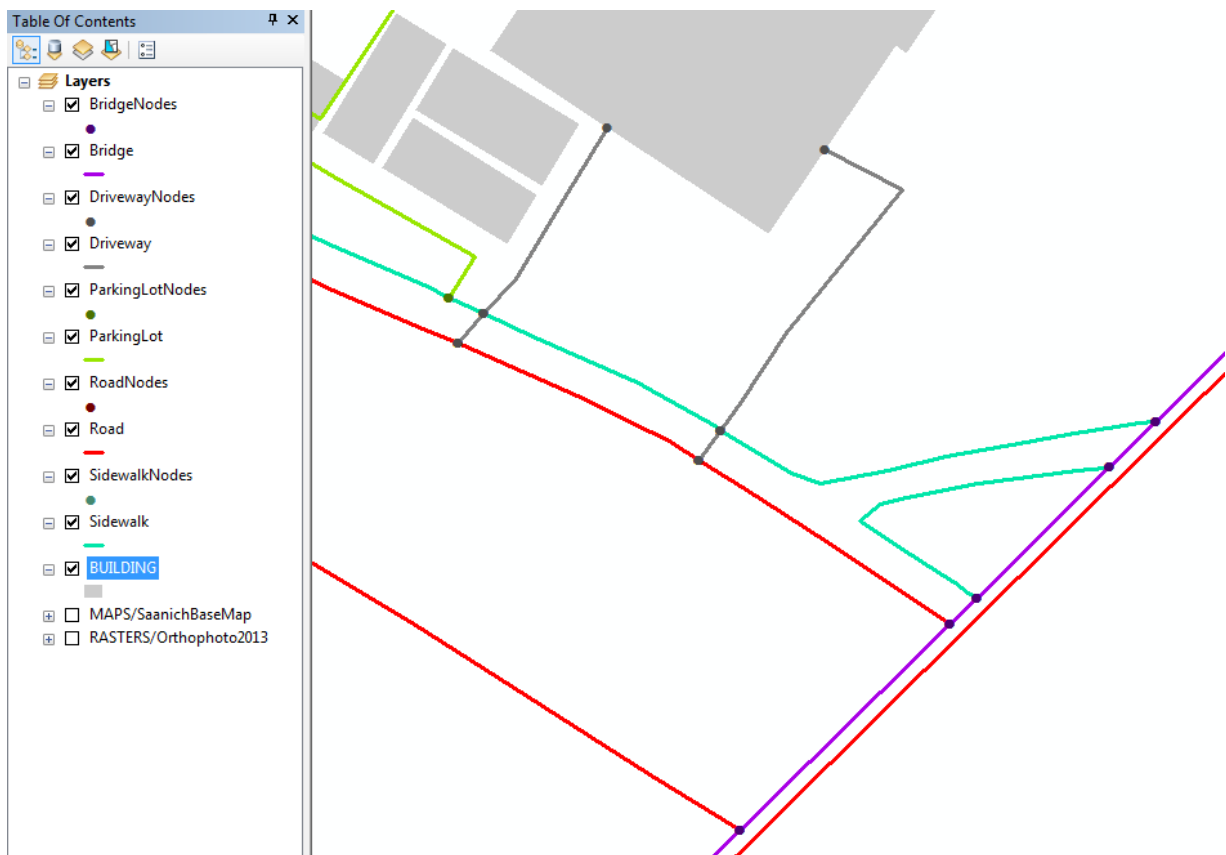
1. Curbs
2. Road Edge
3. Driveways
4. Parking Lots
5. Sidewalks

Layer Name	Geometry Type	Description	Attribution
Curb	polyline	Capture curb where present on or near other features (road, sidewalk, parkinglot)	Year of capture
Driveway	polyline	Capture edge of driveway. Where driveway meets other features such as building, road edge, or sidewalk, it will snap to those features.	Year of capture Material type
ParkingLot	polyline	Capture edge of parking lot. Where parking lot meets other features such as building, road edge, or sidewalk, it will snap to those features.	Year of capture
RoadEdge	polyline	Capture continuous road edge. For example, road edges will continue across driveways.	Year of capture Material type Lane number Laneway (eg: 2 way, divided)
Sidewalk	polyline	Capture edge of sidewalks Road edges, driveways etc. may form one edge of sidewalks.	Year of capture Material type

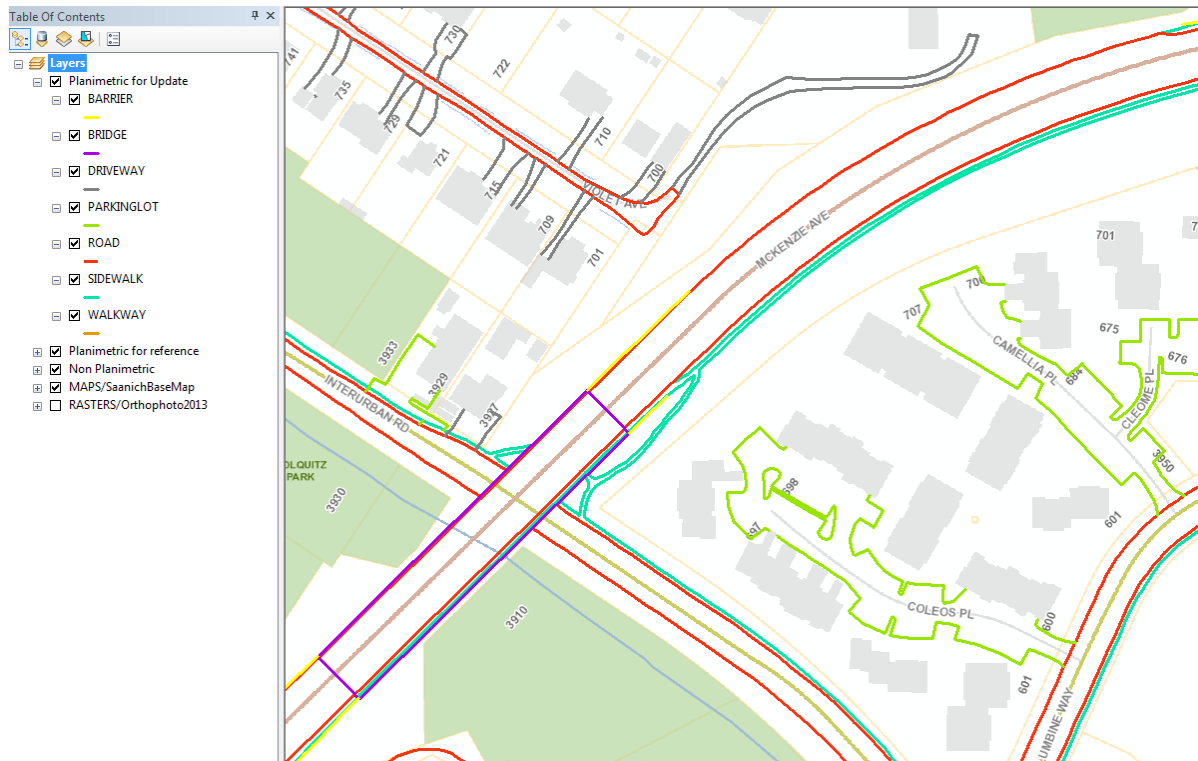
Minimum criteria for compiling planimetric features include:

- Where planimetric data occurs at a municipal boundary, the planimetric data will be compiled on both sides of the road for each AOI. (e.g.: where a road centreline follows a boundary edge)
- Data compilation to meet topology rules including no zero length segments, no overshoots, no undershoots, no overlaps between adjacent planimetric features.
- Where like or unlike planimetric lines intersect or close on themselves, nodes will be placed. Nodes will divide continuous features into discrete elements which begin and end at nodes.
- All features that intersect planimetrically will do so at numerically exact X,Y coordinate positions. (e.g.: where a driveway meets a building, it will snap to the edge of the building outline).

Example showing planimetric feature start and end nodes:



Example showing planimetric features:



Minimum identified specifications for planimetric data delivery by the contractor includes:

- Planimetric data to be captured with X, Y coordinates and vertical Z elevations.
- State the positional accuracy and confidence level.
- Each data layer identified (sidewalk, driveway etc.) is to be delivered in Esri shapefile format and stored separately according to each AOI.
- Existing data schema is to be utilized where provided.
- Planimetric data to be delivered in UTM Zone 10N NAD 83 coordinate system.

Items 20-28: Building Rooflines

The following specifications must be met for both new rooflines and updated rooflines:

- Building outlines to be 3D polygons.
- If the provided dataset does not contain a building which is identified in the new orthophotography, the contractor shall compile it.
- If a feature in the current dataset is no longer representative of the same feature identified in the new orthophotography, it will be updated or re-compiled.
- If a building in the current dataset is no longer there, it will be deleted.
- Updated buildings are to be attributed with building type where identifiable (e.g: Barn, Church, Hospital, School) and year of update (e.g.: 2017)

- Include all residential, commercial, industrial, and institutional buildings.
- Include buildings greater than or equal to 80 square feet (7.43 square metres).
- Mitigate building lean.
- Rooflines partially obscured by tree overhangs should be interpolated.
- Dormers and roof jogs under one metre do not need to be compiled.
- Eliminate temporary non-building features like portable trailers.
- Ensure consistency and completeness of compilation.

Provide recommendations, standards and methodologies proposed to meet these requirements.

New Building Rooflines

1. Highlands, estimated 1200 buildings
2. North Cowichin, estimated 8400 buildings
3. North Saanich, estimated 7100 buildings
4. View Royal, estimated 3400 buildings

Updated Building Rooflines

1. Central Saanich, estimated updates 300 buildings
2. North Cowichin, estimated updates 550 buildings
3. Saanich, estimated updates 1000 buildings
4. Sidney, estimated updates 136 buildings
5. Victoria, estimated updates 4800 buildings

Building roofline cost is to be provided based on all building outlines to be captured, updated or deleted. The estimates provided above are for general reference only.

Item 29: Stereo Pairs

Soft copy images of the stereo pairs meeting the following specifications. The Specifications for the Production of Stereo Viewer Image and Metadata files Ver. 1.2 GeoBC Ministry of Forest and Natural Resources Operations May 2012 (http://geobc.gov.bc.ca/base-mapping/atlas/trim/specs/StereoModel-May-2012_V1.2.pdf) including the following requirements for PurView files:

PurView compatible Image files and metadata files

- SJS Image format
- mod file format
- sdt file format o Readme files

In addition to overlap is to be no less than: 60% forward, 30% lateral.

Items 30: Hard Copies

One set of hard copy prints. Overlap is to be no less than: 60% forward, 30% lateral. Included on each hard copy will be:

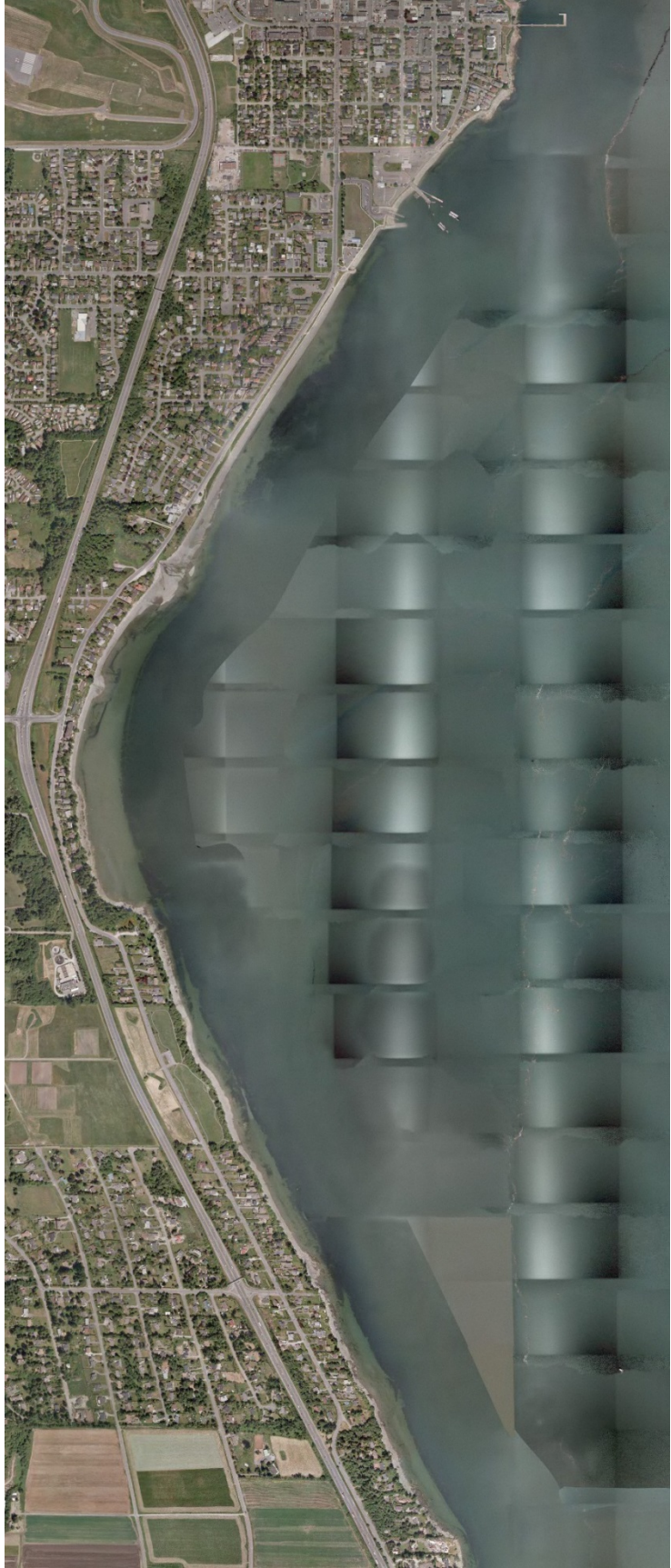
- date
- time
- air photo line
- photo number
- altitude

Appendix A: Acceptable Imagery



Appendix B: Unacceptable Imagery







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SCHEDULE "B"

BID FORM

The undersigned Bidder offers to provide, unless specified otherwise, all labour, material, equipment necessary to complete all the work as set out in the Tender for the

TOTAL BID PRICE OF \$ _____ (lawful money of Canada)
(Carried forward from the Schedule of Prices)

The undersigned Bidder agrees to complete the whole of the work specified in this Contract within a time, measured in _____ calendar days, after the "Notice to Proceed".
(to be filled in by the Bidder)

The undersigned Bidder hereby agrees that for each week or portion thereof that the Contractor exceeds the stipulated work schedule set out in the "Specifications", the Owner will deduct as liquidated damages, 5% of the Total Contract Value.

Receipt of the following addenda is acknowledged:

(to be filled in by the Bidder – note the number and date of each)

The undersigned Bidder hereby agrees that the said Schedule of Prices and Total Bid Price include and cover all applicable duties, taxes and handling charges incidental to and forming part of this Contract.

SIGNED _____ DATED _____

NAME OF BIDDER _____

CONTACT NAME _____

ADDRESS _____

_____ Postal Code _____

TELEPHONE NUMBER _____

FAX NUMBER _____

E-MAIL ADDRESS _____

SCHEDULE OF PRICES

For the purpose of comparison of Bids and for subsequent payment, the Bidder shall break down its Total Price into the following items of work. The cost of work not specifically mentioned in this Schedule but included in the Specifications, either directly or by implication, is to be included in the item to which it is most applicable. The Bidder shall refer to the Specifications for a description of the work to be involved in each item.

Item Number	Area of Interest (AOI)	Item Description	Cost Per Hectare	Total Cost
1	AOI 1	Ortho 10cm		
2	AOI 2	Ortho 20cm		
3	AOI 3	LiDAR - DND		
4	AOI 4	LiDAR - IWS		
5	AOI 5	LiDAR - North Cowichan		
6	AOI 6	LiDAR - View Royal		
7	AOI 3	0.5m Contours - DND		
8	AOI 5	0.5m Contours - North Cowichan		
9	AOI 7	0.5m Contours - Saanich		
10	AOI 9	1m Contours - Sidney		
11	AOI 8	1m Contours - SSI/SGI		
12	AOI 10	1m Contours - View Royal		
13	AOI 11	DEM Update - Highlands		
14	AOI 12	DEM Update - JDF		
15	AOI 13	DEM Update - Langford		
16	AOI 7	DEM Update - Saanich		
17	AOI 14	DEM Update - Sooke		
18	AOI 15	Planimetry - North Cowichan		
19	AOI 10	Planimetry - View Royal		
20	AOI 11	Rooflines New - Highlands		
21	AOI 16	Rooflines New - North Cowichan		
22	AOI 17	Rooflines New - North Saanich		
23	AOI 10	Rooflines New - View Royal		
24	AOI 18	Rooflines Updates - Central Saanich		
25	AOI 19	Rooflines Updates - North Cowichan		
26	AOI 7	Rooflines Updates - Saanich		
27	AOI 20	Rooflines Updates - Sidney		
28	AOI 21	Rooflines Updates - Victoria		
29	AOI 22	Stereo Pairs in Purview		
30	AOI 22	Hard Copies		

Sub Total \$ _____

Tax % _____

Total Tendered Amount \$ _____

SCHEDULE "C"

INSURANCE REQUIREMENTS

The Contractor shall, at its own expense, provide and maintain during the term of the Contract the following insurance in a form acceptable to the Owner with a company duly registered and authorized to conduct insurance business in the Province of British Columbia:

i) Commercial General Liability Insurance

- The Contractor shall purchase Commercial General Liability Insurance covering losses to a third party for bodily injury or death, property damage, and unlicensed vehicle and attached equipment operations; and
- this insurance shall be an occurrence based policy with a THREE MILLION DOLLAR (\$3,000,000.00) minimum limit on an occurrence basis; and
- the Owner shall be named as an additional insured; and
- this policy shall contain the separation of insureds, cross liability clause in the conditions of the policy; and
- all such policies shall provide that no cancellation or material alteration in the policy shall become effective until FIFTEEN (15) CALENDAR DAYS after written notice of such cancellation, or alteration has been given to the Owner; and
- the Contractor shall provide the Owner with a certificate or certificates of insurance as evidence that such insurance is in force including evidence of any insurance renewal or policy or policies. Every certificate, or certificates of insurance shall include, certification by the insurance agent or the insurer that the certificate of insurance specifically conforms to all of the provisions required herein.

ii) Automobile Insurance

- The Contractor shall maintain Third Party Legal Liability Insurance in an amount not less than TWO MILLION DOLLARS (\$2,000,000.00) per occurrence in respect of all vehicles owned and / or operated by the Contractor in connection with this agreement.

iii) Aviation Insurance

- The contractor shall if chartering third party aircraft purchase Non-Owned Aviation Liability covering third party bodily injury and property damage
- The insurance shall be in an amount of not less than \$5,000,000
- The Owner shall be named as an additional insured and shall provide no cancellation or material change in the policy until 15 days after written notice

Any deductible amounts in the foregoing insurance which are payable by the policy holder shall be in an amount acceptable to the Owner.

Maintenance of such insurance and the performance by the Contractor of its obligations under this schedule shall not relieve the Contractor of liability under the indemnity provisions set forth in this Agreement.

The Owner may take out and maintain the insurance required by this Contract at the cost of the Contractor if the Contractor fails at any time to maintain the insurance or any part of it.