



Ministry of
Environment

APPROVAL IN PRINCIPLE
(Pursuant to Section 53 of the *Environmental Management Act*)

THIS IS TO CERTIFY that the remediation plan described herein submitted by Ivanhoé Cambridge Inc. (Oakridge Centre Vancouver Holdings Inc.) for the contaminated site identified in Schedule A of this document has been approved.

When implemented, the remediation plan must be implemented in accordance with the requirements and conditions specified in Schedule B.

The substances for which remediation will be conducted and for which this Approval in Principle is valid are specified in Schedule C.

I have issued this Approval in Principle based on a review of the documents listed in Schedule D. I, however, make no representation or warranty as to the accuracy or completeness of that information.

A Director may rescind this Approval in Principle if conditions imposed in the Approval in Principle are not complied with or any fees payable under Part 4 of the Act or regulations are outstanding.

This Approval in Principle should not be construed as an assurance that there are no hazards present at the site.

The substances to which this Approval in Principle applies migrated to the site from a neighbouring source. It should not be assumed that this Approval in Principle is an approval for the remediation of all contaminants at the site.

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Peter Kickham
For Director, *Environmental Management Act*

Schedule A

The site covered by this Approval in Principle is located at 650 West 41st Ave., Vancouver, British Columbia which is more particularly known and described as:

Lot 7, Except Part in Air Space Plan 20425, Block 892 District Lot 526 Plan 20424
PID: 003-128-687 except:

All THAT PART of land situated at 650 West 41st Avenue, which may be more particularly described as follows:

Commencing at the Northwest corner of Lot 7 Except Part in Air Space Plan 20425 Block 892 District Lot 526 Plan 20424.

Thence $93^{\circ}05'45''$ for a distance of 8.00 metres, following in the northerly limit of said Lot 7,

Thence $181^{\circ}28'42''$ for a distance of 60.38 metres,

Thence $172^{\circ}03'08''$ for a distance of 38.77 metres,

Thence $164^{\circ}56'16''$ for a distance of 38.76 metres,

Thence $155^{\circ}08'13''$ for a distance of 38.74 metres,

Thence $147^{\circ}36'08''$ for a distance of 38.83 metres,

Thence $138^{\circ}56'06''$ for a distance of 38.96 metres,

Thence $138^{\circ}06'38''$ for a distance of 150.22 metres,

Thence $93^{\circ}05'48''$ for a distance of 57.74 metres,

Thence $183^{\circ}05'48''$ for a distance of 51.06 metres, more or less, to a point on the southerly limit of said Lot 7,

Thence $273^{\circ}06'21''$ for a distance of 8.00 metres, more or less, following in the said southerly limit of Lot 7,

Thence $3^{\circ}05'48''$ for a distance of 43.06 metres, more or less, following in the westerly limit of said Lot 7,

Thence $273^{\circ}05'48''$ for a distance of 25.59 metres, more or less, following in the said southerly limit of Lot 7,

Thence $228^{\circ}06'36''$ for a distance of 19.43 metres, more or less, following in the said southerly limit of Lot 7,

Thence $318^{\circ}06'38''$ for a distance of 173.00 metres, more or less, following in the said westerly limit of Lot 7,

Thence $318^{\circ}56'06''$ for a distance of 39.62 metres, more or less, following in the said westerly limit of Lot 7,

Thence $327^{\circ}36'08''$ for a distance of 39.96 metres, more or less, following in the said westerly limit of Lot 7,

Thence $335^{\circ}08'13''$ for a distance of 39.95 metres, more or less, following in the said westerly limit of Lot 7,

Thence $344^{\circ}56'16''$ for a distance of 39.95 metres, more or less, following in the said westerly limit of Lot 7,

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Thence 352°03'08" for a distance of 39.93 metres, more or less, following in the said westerly limit of Lot 7,

Thence 1°28'42" for a distance of 61.27 metres, more or less, following in the said westerly limit of Lot 7, to the point of commencement, said area within the heavy outline containing 4,284 square metres, more or less.

The site contains part of a legal parcel depicted within the heavy outline on a Sketch Plan prepared by Butler Sundvick, Drawing 4207-LD1 dated January 28th, 2015.

The approximate centre of the site using the NAD (North American Datum) 1983 convention is:

Latitude: 49° 13' 54.66"
Longitude: 123° 7' 7.34"

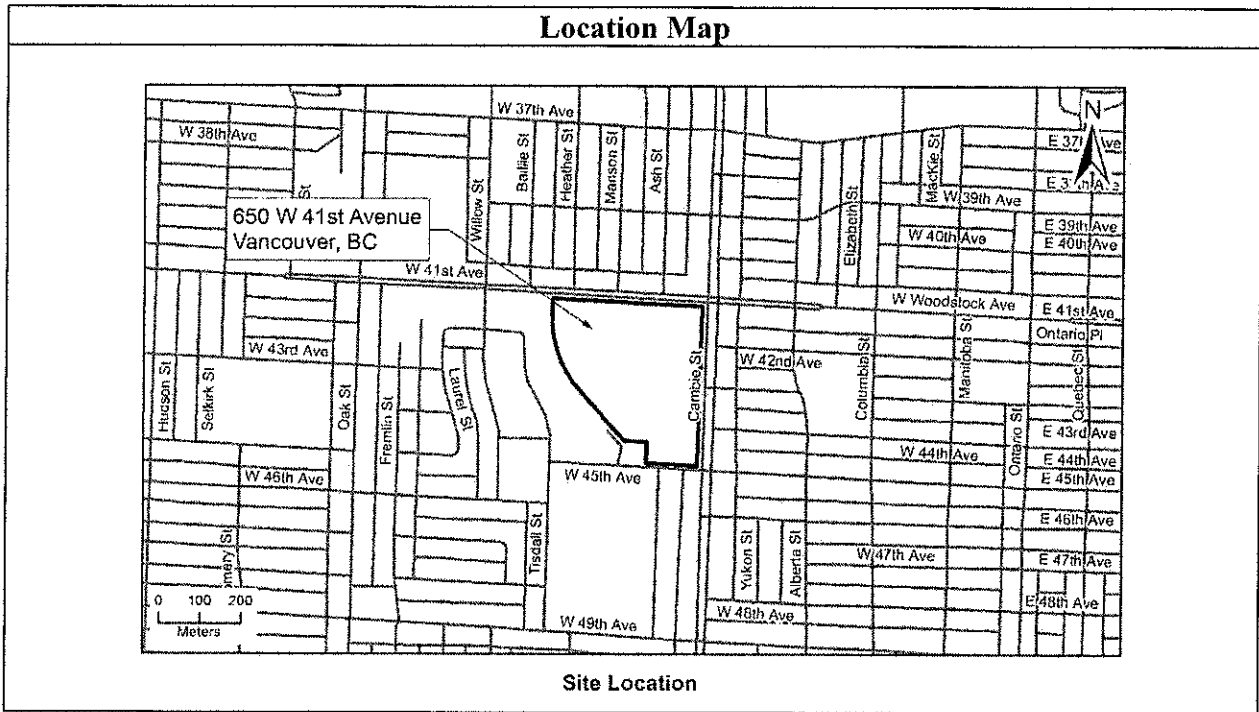
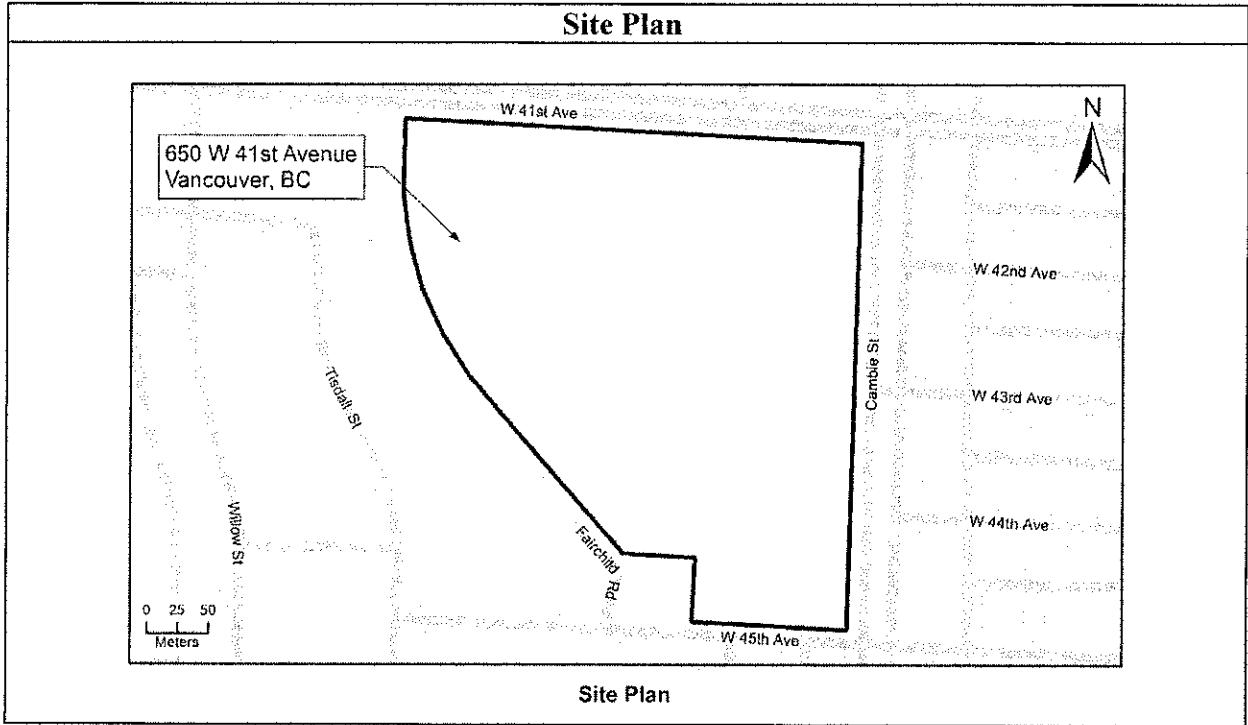
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Schedule B

Requirements and Conditions

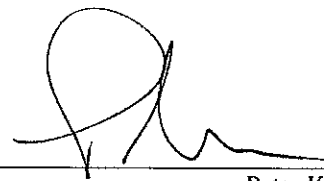
1. Remediation, including monitoring, inspections and maintenance of any works, must be undertaken by the responsible person in the manner and schedule specified in the plan listed in Schedule D or as specified in a modification of the plan approved by the Director.
2. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land, vapour, water, or sediment use, must be promptly identified by the responsible person's written submission to the Director. An application for an amendment or new Approval in Principle may be necessary.
3. Up-to-date records of monitoring, inspections and maintenance of any works must be maintained by the responsible person or their agent. The records must be available for inspection by the Director.
4. Remediation must be completed within nine years of the date of issuance of this Approval in Principle.
5. Remediation must be confirmed in accordance with applicable legislation and ministry guidance. Within 90 days of completing remediation, a report summarizing confirmation of remediation must be prepared in accordance with section 49 (2) of the Contaminated Sites Regulation and submitted to the Director.
6. A statement signed by an Approved Professional must be submitted to the Director annually within 90 days of the anniversary of the date of issuance of this Approval in Principle. The statement must include the following:
 - (a) A summary of remedial activities undertaken during the reporting period; and
 - (b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to 2 above if remedial progress differs substantially from the schedule set out in the approved plan.

If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following:

- (a) A summary of remedial activities undertaken to date;

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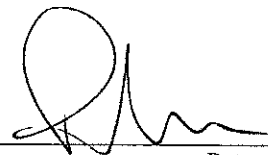
- (b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan;
 - (c) Interpretation of current and cumulative monitoring results from the groundwater, soil, and vapour monitoring program;
 - (d) Evaluation of the performance of the institutional engineering controls; and
 - (e) Supporting documentation (e.g., analytical reports, records of inspection, maintenance of treatment works, etc.).
7. The documents listed in Schedule D indicate that vapour attenuation factors were applied to meet Contaminated Sites Regulation numerical and risk-based standards at the site. These vapour attenuation factors were selected based on assumptions about the structures, locations and depths of existing or expected at the site. These assumptions include the following:
- (a) A construction worker health and safety plan must be developed and implemented during the excavation phase within Part 2 of site. The health and safety plan must address direct contact exposure to VPHs in soil and inhalation exposures to benzene, xylenes, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. See Figure 1 for Part 2 of site location, which is described by the following metes and bounds description:

COMMENCING at the assumed south east corner of Lot 7, Parcel ID 003128687 from the said UTM coordinates,
 THENCE along the bearing N86°53'37"W a distance of 96.213m;
 THENCE along the bearing N2°51'10"E a distance of 62.146m;
 THENCE along the bearing N46°41'12"E a distance of 63.664m;
 THENCE along the bearing S86°59'54"E a distance of 52.242m;
 THENCE along the bearing S2°55'2"W a distance of 108.361m to
 THE POINT OF BEGINNING

- (b) The tanked concrete foundation and side walls of the parkade in Part 2 of site (see Figure 1) must be designed to provide a complete barrier to both groundwater and vapour intrusion in order to prevent parkade inhalation exposures to benzene, xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, tetrachloroethylene (PERC), and trichloroethylene (TCE).
- (c) Site groundwater must not be used as potable water. The new geothermal exchange system must not be used as an emergency supply of potable water unless further evaluation of the potential for that system to draw possible residual contaminated groundwater from Part 2 of site was performed.

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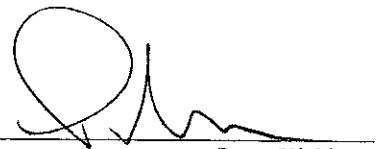
For Director, *Environmental Management Act*

(d) Commercial land use applies to Part 2 of the site (see Figure 1) as this area of property to be developed with underground parkade, commercial at grade with residential high rise above. The remaining portion of property to be a mix of residential, commercial and open plaza in which residential land use are proposed to apply.

Any inconsistencies that arise between the structures, locations and depths of proposed or constructed buildings at the site and the range of structures, locations and depths of buildings assumed in the selection of vapour attenuation factors in the documents listed in Schedule D must be promptly identified by the responsible person in a written submission to the Director. An application for an amendment or new Approval in Principle may be necessary.

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Schedule C

Substances and Uses

Part 1 of the site

Substances to be remediated in vapour for residential land vapour use:

To meet numerical remediation standards:

- Benzene; and,
- Chloroform (trichloromethane) and TCE (trichloroethylene).

Part 2 of the site

Substances to be remediated in soil for commercial land soil use:

To meet numerical remediation standards:

- Chromium, molybdenum, and zinc.

To meet risk-based remediation standards:

- Benzene, ethylbenzene, toluene and xylene;
- LEPH and VPH; and
- Naphthalene.

Substances to be remediated in vapour for commercial land vapour use:

To meet numerical remediation standards:

- 1,3-Butadiene, n-decane; and
- Styrene.

Substances to be remediated in vapour for commercial land vapour use:

To meet risk-based remediation standards:

- Benzene, ethylbenzene, toluene, xylenes mixture;
- Chloroform (trichloromethane), n-hexane, isopropylbenzene (cumene), methylcyclohexane, PERC (tetrachloroethylene) (PCE), TCE (trichloroethylene); 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene;
- Naphthalene; and
- VPHv.

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Substances to be remediated in water for drinking water use:

To meet numerical remediation standards:

- Magnesium.

To meet risk-based remediation standards:

- Arsenic, chloride and sodium;
- LEPHw and VHw6-10;
- Tetrachloroethylene (tetrachloroethene, 1, 1, 2, 2-) and trichloroethylene (trichloroethene, 1, 1, 2-); and
- Benzene, ethylbenzene, toluene, and xylenes (total).

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Schedule D

Documents

- *Preapproval Request to extend an Approval in Principle Timeframe, 650 W 41st Avenue, Vancouver, BC, PID: 003-128-687*, letter from MOE, dated July 13, 2015;
- *Summary of Site Condition*, prepared by Hemmera Envirochem Inc., dated 20 April 2015;
- *Prospective Detailed Human Health and Ecological Risk Assessment AEC1, Oakridge Centre, Vancouver, BC*, prepared by Hemmera Envirochem Inc., dated 20 April 2015;
- *Stage 1 and 2 Preliminary Site Investigation, Detailed Site Investigation and Remediation Plan Oakridge Centre – 650 W 41st Avenue, Vancouver BC*, prepared by Hemmera Envirochem Inc., dated 28 February 2015;
- Letter Report: Sampling Results on Strip of Land to become COV Road Dedication, Oakridge Centre, Vancouver, BC, prepared by Hemmera Envirochem Inc., dated 10 Feb 2015;
- *Flow Through Determination, 650 W 41st Avenue, Vancouver, BC, PID: 003-128-687*, letter from MOE, dated February 12, 2014;
- *Analysis of Soil at Furnace (sic) Oil Tank Excavation 650 – 41st Street Vancouver, BC*, prepared by LB Petroleum and Environmental Consulting, dated 07 November 2007;
- *Environmental Stage 2 Preliminary Site Investigation 650 West 41st Avenue Vancouver, BC*, prepared by PHH Environmental Limited, dated 17 April 2004;
- *Environmental Stage 1 Preliminary Site Investigation 650 West 41st Avenue Vancouver, BC*, prepared by PHH Environmental Limited, dated 26 March 2004;
- *Stage 2 Preliminary Site Investigation Oakridge Shopping Centre Vancouver, BC*, prepared by PHH Environmental Limited, dated 01 January 2000;
- *Environmental Audit Phase I and Phase II Oakridge Centre 650 West 41st Street Vancouver, British Columbia V5Z 2M9*, prepared by C.D. Sonter Management Inc., dated 22 July 1993;
- *Environmental Audit Phase I and Phase II, Woodward's Department Store, Oakridge Centre 650 West 41st Street Vancouver, British Columbia V5Z 2M9*, prepared by C.D. Sonter Management Inc., dated 15 June 1993; and
- *Preliminary Environmental Assessment Oakridge Centre Project, Vancouver, BC*, prepared by Norecol Environmental Management Ltd., dated 01 December 1990.

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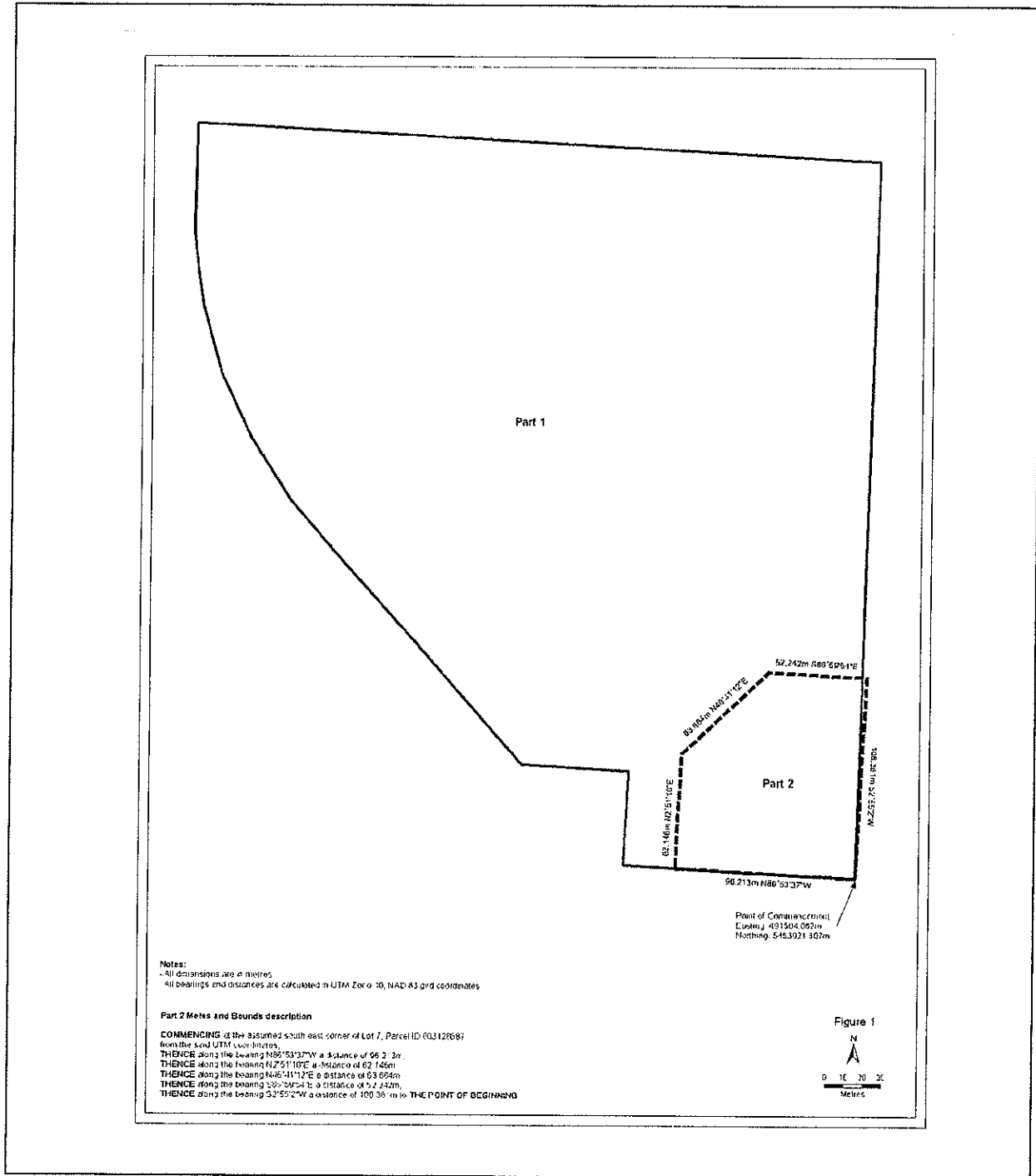
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Figure 1



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