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**PERFORMANCE VERIFICATION PLAN FOR  
726 AND 816 CLEMENT AVENUE, KELOWNA, BC  
and FORMER CHEVRON BULK PLANT AND CARDLOCK (VCN0349)  
862 CLEMENT AVENUE, KELOWNA, BC**

**November 2013  
SLR Project No.: 204.02227.00010**



**PERFORMANCE VERIFICATION PLAN  
FOR 726 AND 816 CLEMENT AVENUE, KELOWNA, BC**

**RESIDUAL CONTAMINATION ASSOCIATED WITH FORMER CHEVRON BULK PLANT &  
CARDLOCK (VCN0349), 862 CLEMENT AVENUE, KELOWNA, BC**

**BC MOE Site Identification No.: 3385**

**SLR Project No.: 204.02227.00010**

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1 copy – BC Tree Fruits Cooperative (formerly Okanagan Tree Fruit Cooperative)  
1 copy – SLR Consulting (Canada) Ltd.

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## 1.0 INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), on behalf of Chevron Canada Limited (Chevron), has prepared this Performance Verification Plan (PVP) for the former Chevron bulk plant/cardlock property located at 862 Clement Avenue, and adjacent properties located at 726 and 816 Clement Avenue, Kelowna, BC ("the Properties", see Drawing 1) which are all currently owned by the Okanagan Tree Fruit Cooperative, Inc. No. CP2055. This PVP was prepared to address residual contamination on the Properties in excess of Contaminated Sites Regulation (CSR) numerical standards and associated with the former Chevron bulk plant and cardlock in support of an application for a risk-based Certificate of Compliance (CofC). It presents risk management measures to be implemented for the Properties to ensure that the CofC remains valid. This report was prepared in accordance with BC Ministry of Environment (MOE) Procedure 12: *Procedures for Preparing and Issuing Contaminated Sites Legal Instruments* (MOE, 2013).

## 2.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR for Chevron Canada Limited (Chevron). It is intended for the sole and exclusive use of Chevron and its authorized agents for the purpose(s) set out in this report. Any use of, reliance on or decision made based on this report by any person other than Chevron for any purpose, or by Chevron for a purpose other than the purpose(s) set out in this report, is the sole responsibility of such other person or Chevron. Chevron and SLR make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

The investigation undertaken by SLR on which this report was based and any conclusions or recommendations made in this report reflect SLR's judgment based on the site conditions observed at the time of the site inspection on the date(s) set out in this report, on information available at the time of preparation of this report, on the interpretation of data collected from the field investigation, and on the results of laboratory analyses, which were limited to the quantification in select samples of those substances specifically identified in this report.

This report has been prepared for specific application to this site and it is based, in part upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report.

Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the site; substances addressed by the investigation may exist in areas of the site not investigated; and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken. SLR expresses no warranty with respect to the accuracy of the laboratory analyses, methodologies used, or presentation of analytical results by the laboratory. Actual concentrations of the substances identified in the samples submitted may vary according to the extraction and testing procedures used.

As the evaluation and conclusions reported herein do not preclude the existence of other chemical compounds or that variations of conditions within the site may be possible, this report should be used for informational purposes only and should absolutely not be construed as a comprehensive hydrogeological or chemical characterization of the site. If site conditions change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of or compliance with environmental laws, rules, regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by Chevron and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of SLR. Copying of this report is not permitted without the written permission of Chevron and SLR.

Chevron may submit this report to the British Columbia Ministry of Environment and/or related British Columbia environmental regulatory authorities or persons for review and comment purposes. The BC MOE may rely on the information contained in this report in the decision making process regarding the Properties, as described in this report.

### 3.0 BACKGROUND

SLR Consulting (Canada) Ltd. completed a Human Health and Ecological Risk Assessment (HHERA) for the Properties in June 2013 to estimate potential risks to human and ecological health from the residual contamination associated with the former bulk plant and cardlock. Receptors of concern and exposure scenarios quantified at the Properties included:

- Future commercial worker (assumed potable water source) – inhalation of indoor air (quantified to address potential additive effects), ingestion of groundwater, dermal contact with groundwater, inhalation of volatiles in groundwater during washing;
- Future utility worker – inhalation of trench air, incidental ingestion of soil, dermal contact with soil, inhalation of soil particulates; and
- Future construction worker – inhalation of excavation air, incidental ingestion of soil, dermal contact with soil, inhalation of soil particulates.

The results of the HHERA indicated that no unacceptable risks were identified for human receptors of concern with the potential to be exposed to contaminants of potential concern (COPCs), with the exception of:

- Future utility worker potentially exposed to naphthalene in trench air (HQ = 1.1E+01).

Results of the Ecological Risk Assessment indicated no need for quantification of exposure of terrestrial or aquatic receptors on the basis that no complete/operable soil or groundwater-to-surface water exposure pathways were identified via which ecological receptors might come into contact with COPCs.

## 4.0 RISK MANAGEMENT CONTROLS AND PVP ELEMENTS

### 4.1 Required Risk Management Controls

The principal risk management controls upon which the risk assessment was based included the following:

1. In the event of subsurface work, a health and safety plan must be developed and implemented to protect workers from:
  - i. inhalation in the event of an excavation/trench where the depth is greater than the width, OR
2. The existing floor within the warehouse must remain intact.

### 4.2 Required PVP Elements for Risk Management Controls

1. Mandatory communication with the site owner/operator to ensure that a worker health and safety plan is developed and implemented when:
  - a) conducting excavations where the excavation depth is greater than its width.
2. Mandatory communication with the site owner/operator to ensure that the floor within the warehouse will remain intact.

### 4.3 Rationale for Performance Verification Plan

The Properties are classified as a Risk-Based Remediation Type 2 Site (per MOE Procedure 12) on the basis that risk management measures are required, but failure of risk management measures will not result in the imminent exposure of site contaminants to humans, or discharge of contaminant to the aquatic receiving environment at concentrations above BC water quality guidelines, or imminent exposure of contaminants to terrestrial ecological receptors at levels above site-specific risk-based concentrations, or contaminant spreading at concentrations above upper cap concentrations.

The current land use designation for the Properties is commercial (CL). The Properties is currently occupied by a commercial operation for the storage and sale of fruit. Current commercial workers do not have access to groundwater for drinking water, as the Properties are on the municipal water system. Commercial structures to be built at the Properties in the future will retain commercial land (CL) use designation.

The Properties are currently occupied by a commercial operation and future commercial land uses were considered in the risk assessment. Rationale is provided for each risk management measure as follows:

1. Trench workers must wear inhalation PPE while conducting work in a trench (width < depth), OR the trench width must be greater than its depth. Contamination remains in soil greater than 1.0 mbg at the Properties. The risk assessment resulted in a hazard quotient above the non-cancer risk-based standard of one for exposure of the trench/utility worker due to exposure to naphthalene in trench air. To ensure that such

an occupational exposure does not occur, an appropriate worker health and safety plan incorporating protective measures for inhalation (e.g. respirator) to substantively reduce or eliminate worker exposure to contaminated soil vapours must be developed and implemented in the event that an excavation or trench, deeper than it is wide, is advanced at the site. If the excavation depth is less than its width, the health and safety plan specific to inhalation protection for this worker would not be required.

2. The floor within the warehouse must remain intact. Naphthalene was detected in subslab soil vapour samples at attenuated concentrations exceeding the CSR CLv standard; however, the measured indoor air concentrations were less than the CSR CLv standard. The potential human exposure to naphthalene through inhalation of indoor air is acceptable as long as the existing floor remains intact.

## 5.0 REQUIRED PERFORMANCE VERIFICATION ACTIONS FOR PVP ELEMENTS

In consideration of current and future land use at the Properties and the results of the HHERA (SLR, 2013) performed for the Properties, the following performance verification actions are required.

1. Inclusion of an advisory (as item (a) in clause 2 of Schedule B of any Certificate of Compliance issued for the site) that *“Health and Safety Plans for subsurface work must ensure workers wear inhalation protective equipment while conducting work in a trench, OR that the width of the trench is greater than its depth.”*

Chevron is to notify the purchaser (and each subsequent owner is to notify each subsequent purchaser) of this required PVP element. No associated inspection, monitoring/maintenance or other performance verification actions, other than notification of the Director is required in the case that the subject of this advisory is breached. The listing of this risk management measure in Schedule B of the CofC meets the requirement.

2. Inclusion of an advisory (as item (b) in clause 2 of Schedule B of any Certificate of Compliance issued for the site) that *“The existing floor of the warehouse must remain intact”*

Chevron is to notify the purchaser (and each subsequent owner is to notify each subsequent purchaser) of this required PVP element. It is the responsibility of the owner to ensure that the existing floor remains intact. An associated inspection/confirmation by the owner may be requested by the BC MOE to verify this statement. This is a requirement as long as the building remains at the Property and is occupied, unless otherwise agreed upon by the MOE.

Notification of the Director is required in the case that the subject of this advisory is breached. The listing of this risk management measure in Schedule B of the CofC meets this requirement.

## 6.0 RECORD KEEPING

Up-to-date records of the above performance verification monitoring actions and results should be maintained by the Site owner and must be provided to the BC MoE if requested by a Director designated under the Environmental Management Act.

The examples of records to be kept on file include:

- Record/report documenting an event subject to PVP requirement such as conducting intrusive activity at the Site that involves excavation of soil or compromising the integrity of the floor in the warehouse. At the minimum, the start and the end date of the event should be recorded, the type of activities performed and health and safety procedures, if any, implemented during subsurface work should be specified.
- Notification on file when a condition subject of PVP has been breached.
- Notification on file when breached condition has been rectified.

## 7.0 REFERENCES

MOE. 2013 British Columbia Ministry of the Environment. Procedure 12: Procedures for Preparing and Issuing Contaminated Sites Legal Instruments. April, 2013. Version 1.0

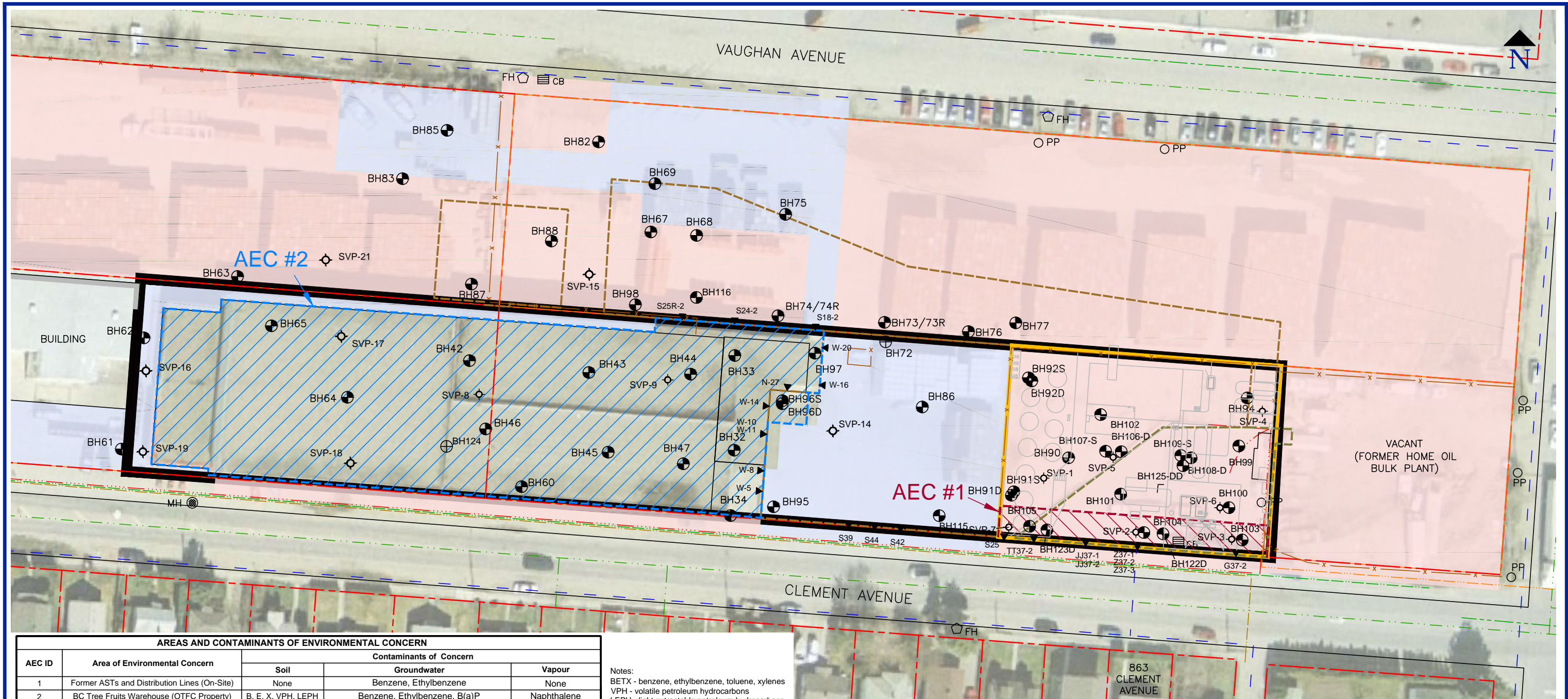
SLR, 2013. Former Chevron Bulk Plant and Cardlock, 862 Clement Avenue, Kelowna, BC, Human Health and Ecological Risk Assessment – OTFC Properties. SLR Consulting (Canada) Ltd. (SLR), November 28, 2013.

KW/ijk

N:\Kelowna\PROJECTS\CHEVRON\204.02227.Clement Cardlock\Cofc Application\Revised Pvp\The Properties\VCN0349 Kelowna CL (Clement).Revised PVP For 726, 816 & 862 Clement Ave.November 29, 2013.Final.Docx

## **DRAWING**

Performance Verification Plan  
Former Chevron Bulk Plant and Cardlock  
726, 816 & 862 Clement Avenue, Kelowna, BC  
Chevron Site No. VCN 0349  
SLR Project No.: 204.02227.00010



AREAS AND CONTAMINANTS OF ENVIRONMENTAL CONCERN				
AEC ID	Area of Environmental Concern	Contaminants of Concern		
		Soil	Groundwater	Vapour
1	Former ASTs and Distribution Lines (On-Site)	None	Benzene, Ethylbenzene	None
2	BC Tree Fruits Warehouse (OTFC Property)	B, E, X, VPH, LEPH	Benzene, Ethylbenzene, B(a)P	Naphthalene

Notes:  
 BETX - benzene, ethylbenzene, toluene, xylenes  
 VPH - volatile petroleum hydrocarbons  
 LEPH - light extractable petroleum hydrocarbons

- LEGEND**
- LEGAL LOT BOUNDARY
  - SITE BOUNDARY
  - x-x FENCE
  - LIMITS OF EXCAVATION
  - LIMITS OF 2011 REMEDIAL EXCAVATION
  - OTFC BOUNDARY
  - ⊕ BOREHOLE LOCATION
  - ⊕ BOREHOLE LOCATION COMPLETED AS A MONITORING WELL
  - ⊕ BOREHOLE LOCATION COMPLETED AS A MONITORING WELL (DESTROYED)
  - ⊕ SOIL VAPOUR PROBE
  - ▲ SOIL SAMPLE, WALL

- ▨ AREA OF ENVIRONMENTAL CONCERN
  - PAVED
  - UNPAVED
- UTILITIES AND SYMBOLS**
- ▭ CATCH BASIN
  - ⊙ MANHOLE
  - UTILITY POLE
  - ⊕ FIRE HYDRANT
  - U/G ELECTRICAL
  - U/G INTERMEDIATE PRESSURE GAS
  - U/G NATURAL GAS
  - U/G TELEPHONE
  - U/G SANITARY SEWER
  - U/G STORM LINE
  - U/G WATER LINE

- NOTES**
- DRAWING COMPILED FROM: RUNNALS-DENBY\_SITE\_PLAN.NOV04.DWG FILE AND SLR DRAWING 204-02227-B18.DWG.
- BH'S 1-8 ADVANCED APRIL 16-17, 1996
  - BH'S 9-18 ADVANCED OCTOBER 2&3, 2000
  - BH'S 19-29 ADVANCED APRIL 2, 2001
  - BH'S 30-36 ADVANCED MAY 17, 2001
  - BH'S 37-47 ADVANCED DECEMBER 11&12, 2001
  - BH'S 48-53 ADVANCED DECEMBER 20, 2001
  - BH'S 54-60 ADVANCED FEBRUARY 19&20, 2002
  - BH'S 61-65 ADVANCED MAY 24, 2002
  - BH'S 66-80 ADVANCED SEPTEMBER 22&23, 2003
  - BH'S 15D, 28D, 81-85 ADVANCED JANUARY 28&29, 2004
  - BH'S 15DD, 28DD & 81D ADVANCED APRIL 24, 2004
  - BH'S 86-97 ADVANCED AUGUST 16-18, 2004
  - BH 98 ADVANCED NOVEMBER 16, 2004

SCALE 1:750  
 WHEN PLOTTED AT 11 x 17 PAGE SIZE

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

**CHEVRON CANADA LIMITED**  
 FORMER CARDLOCK AND BULK PLANT VCN 0349  
 862 CLEMENT AVENUE  
 KELOWNA, BC

Report  
**PERFORMANCE VERIFICATION PLAN - OTFC PROPERTIES**

Drawing  
**OTFC PROPERTIES SITE PLAN**

Date	June 10, 2013	Scale	AS SHOWN	Drawing No.	1
File Name	S_204-02227-10-E1	Project No.	204.02227.00010		





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