APPENDIX 25

LANDSCAPE UNIT RATING FORMS

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1 VISUAL AESTHETICS LANDSCAPE UNIT RATING FORMS

1.1 INTRODUCTION

The Landscape Unit rating forms in Attachment A are consistent with those presented in Cumulative Environmental Management Association's (CEMA) Visual Landscape System for planning and managing aesthetic resources (RDI 2003). Two kinds of forms have been used: Landscape Unit rating forms that rate baseline conditions; and predicted landscape integrity reports that use models of future views to rate predicted landscape integrity levels during development of the Voyageur South Project.

1.1.1 Baseline Landscape Unit Rating Forms

Baseline Landscape Unit rating forms for the Wood Buffalo Region were prepared in 2002 by Ken Fairhurst of Resource Design Inc. (RDI) as part of the Visual Landscape System (RDI 2003). Additional forms were prepared in 2007 by Kevin Graham of Golder Associates Ltd. to cover project areas not addressed by the original set of forms. The forms prepared in 2007 were completed to ensure that the rating systems used were consistent with the RDI systems.

Baseline Landscape Unit rating forms evaluate five key categories of landscape characteristics: attraction, observability, significance, risk and integrity. Attraction is rated based on vegetation cover, water features, colour, adjacent scenery, scarcity in the region and level of modification. Observability is based on distance, orientation and frequency of viewers who will have the potential to see the site, and the likely duration of viewing opportunities. Significance is based on a comparison of the landscape attraction and observability. Risk is based on the site slope class, land cover, topographic diversity, colour contrast and illumination. Landscape integrity is based on the level of alteration evident in the landscape.

A numerical system for each of the landscape characteristics was used to produce ratings between 1 (high) and 3 (low) for landscape attraction, observability, significance and risk. A rating between 1 (very high) and 5 (very low) was determined for landscape integrity. Specific details on score development are provided in RDI (2003).

Along with each Landscape Unit rating form, a set of photographs is provided to show the appearance of the Landscape Unit under baseline conditions.

1.1.2 Predicted Landscape Integrity Reports

Predicted landscape integrity reports were modified slightly for the purposes of the Voyageur South Project from the version proposed by RDI (2003). However, the concept behind the forms remains the same as the CEMA Visual Landscape System: to evaluate changes in landscape integrity as compared to the baseline condition; and to define the reasons for the change.

The most important modification to the predicted landscape integrity reports for this assessment is the removal of the comparison of Existing Landscape Integrity (ELI) and Predicted Landscape Integrity (PLI) with Objective Landscape Integrity (OLI), as no specific OLI levels have been adopted and formalized by CEMA or Suncor. In addition, the concepts of "planimetric areal disturbance" and "linear disturbance" are not used in this assessment, as perspective view disturbance is considered the most appropriate way to assess visual effects. Planimetric areal disturbance is assessed by other components of the EIA, within the Terrestrial Resources Section (Volume 4, Section 7).

Each predicted landscape integrity report presents a PLI classification based on a numerical definition that defines the percentage alteration in the landscape under specific integrity classes. It also allows for a modified PLI classification if specific design characteristics help to reduce the impact on a view (e.g., plumes or special mitigation). The classification also allows for the presentation of mitigation measures, although in the case of this report, mitigation measures are presented in the text, with the forms referring to that text.

The predicted landscape integrity report allows for a short description of the kind of disturbance that has occurred, and the kind and dimensions of the infrastructure developed on the Landscape Unit. It accommodates differentiation between the level of impact depending on the direction of view from potential viewpoints including highways, secondary roads and rivers used by recreationists. In the case of this assessment, the "worst-case" view from each of the potential view bases is used to calculate the residual visual impacts in the EIA (Volume 4, Section 8.4).

ATTACHMENT A

LANDSCAPE UNIT RATING FORMS

CEMA Wood Buffalo Region Landscape Unit Rating Form

Rating Viewpoint(s): H21.1-21.2 **Map #(s):** 74D13 **Photos:** VLU ratings and photo links

A: Attraction
O: Observability
S: Significance
R: Risk
I: Integrity

Landscape Unit Label (overall ratings from below)					
LU#	A	O	S	R	I
HW3.1	3	1	2	3	2

Conducted by: Ken Fairhurst, R D I Resource Design Inc. **Date:** March, 2002

Circle the most appropriate rating for each Factor of each Element below. Place overall rating for each Element in the Landscape Unit Label above. Add additional comments on side or on reverse. Note: overall ratings in each category may be influenced more strongly by one or a few factors. If so, make note of your selection rationale in the comments.

A - Landscape Attraction (LA)			
Landform	>30% slope; high attraction 10	15-30% slope; mod. attraction 3	<15% slope; low attraction (-5)
Vegetation	High attraction, interest 5	Moderate attraction (3)	Minor influence: 1; neutral: 0
Water	High attraction, interest 5	Moderate attraction 3	Minor influence: 1; neutral: (0)
Colour	High attraction, interest 5	Moderate attraction 3	Minor influence: (1); neutral: 0
Adjacent scenery	Enhances LU attraction 5	Moderate influence 3	Minor influence: 1; neutral: (0)
Scarcity (in region)	Rare, unique 5	Distinctive, common 3	Minor influence: (1); neutral: 0
Land-Use Modification	Harmonious 5	Neutral; not present (0)	Unharmonious -5
Overall A Points: 0 Circle A Rating:	**1 (High) 26 or more**	**2 (Moderate) 11-25**	**(3) (Low) 10 or less**
Vertical Relief (m):	**10 or less**	**Percent Slope (%):**	**5 and less**

For Landscape Attraction Factors above that are neutral or not present, assign a zero (0) rating.

0 - Landscape Observability (L0)			
Viewing Distance	Foreground/Middle ground < 5km (Front) (10)	Background 5km – 15 km (Back) 3	Seldom Seen FG/MG/BG or >15km (Far Back) -5
Viewing Orientation towards LU	Focal; direct in Line of sight (LOS) 5	Oblique; Tangential to LOS (3)	Peripheral; angled away from LOS 1
Viewing Frequency	Many opportunities 5	Some (3)	Few 1
Viewing Duration	Long 5	Moderate (3)	Glimpse 1
Overall O Points: 19 Circle O Rating:	**(1) (High) 17 or more position over-ride 1**	**2 (Moderate) 8-16 position over-ride 2**	**3 (Low) 7 or less**

Superior (elevated) observer position may raise Observability

S - Landscape Significance (LS)			
Matrix LA : LO Circle S Rating:	**Landscape Observability LO (across)**		
Landscape Attraction LA (down)	1 High LO	2 Moderate LO	3 Low LO
1 High LA	**1 High LS**	**1 High LS**	**2 Mod. LS**
2 Moderate LA	**1 High LS**	**2 Mod. LS**	**3 Low LS**
3 Low LA	**(2) Mod. LS**	**3 Low LS**	**3 Low LS**

R - Landscape Risk (LR)			
Slope Class (Slope: 30-50%)	Steep 31%+ 10	Moderate 16-30% 5	Gentle 0-15% (-10)
Land-Cover Diversity	Low/uniform 5	Moderate (3)	High 1 n/a 0
Topographic Diversity	Low/uniform (5)	Moderate 3	High 1 n/a 0
Colour Contrast	Low/uniform (5)	Moderate 3	High 1 n/a 0
Illumination	Front/side 5	Side only 3	Back-light 1 n/a (0)
Overall R Points: 3 Circle R Rating:	**1 (High) 19 or more**	**2 (Moderate) 7 – 18**	**(3) (Low) 6 or less**
Distance Over-ride		**Distance factor over-ride 2**	**Distance factor over-ride 3**
Observer Position Over-ride	**Position over-ride 1**	**Position over-ride 2**	

For Landscape Risk Factors above that are neutral, assign a zero (0) rating.
Distance factor > 5km may lower Risk. Elevated observer position may increase Risk

I - Landscape Integrity (LI) - Circle I Rating:	
1 Very High	No alteration evident, very subordinate, very high landscape conformity, (0%-1.5% alt. in LU)
(2) High	Minimal alteration evident, subordinate, well-designed, high landscape conformity (1.6%-7%)
3 Moderate	Moderate alteration evident, dominant, moderate landscape conformity (7.1%-18% alt.)
4 Low	Intensive alteration evident, very dominant, low landscape conformity (18.1%- 30% alt.)
5 Very Low	Very intensive alteration evident, extremely dominant, very low landscape conformity (>30%)

Integrity modifying factors:
Cumulative effect of current alteration in locality/corridor: ☐ ✓**High** ☐ **Moderate** ☐ **Low** ☐ **n/a**
Perceived ecological integrity in locality/corridor: ☐ **High** ☐ **Moderate** ☐ ✓ **Low** ☐ **n/a**
Locality influence: ☐ **Urban** ☐ **Urban Fringe** ☐ **Rural, Developed** ☐ ✓ **Rural, Natural** ☐ ✓ **Industrial**
☐ **Recreational, Developed** ☐ **Recreational, Natural** ☐ **Backcountry** ☐ **Wilderness**

HW3.1 Comments

HW3.1 is a small unit at the top of Supertest Hill seen while travelling along the highway at VP H21.1

2-18 View from highway facing south at top of Supertest Hill.

2-24 View from highway facing north at top of Supertest Hill. Suncor project in background.

Predicted Landscape Integrity Report

Rating Viewpoint(s): 2 **Map #(s):** 74D13 **Photos:** -

Landscape Integrity Rating
ELI: Existing Landscape Integrity
PLI: Predicted Landscape Integrity

Landscape Unit Integrity Rating – add values from Inventory/Planning/Implementation		
LU#	**ELI**	**PLI**
HW3.1	2	5

Conducted by: Kevin Graham, Golder Associates Ltd. **Date:** May, 2007

Landscape Integrity Classes

1 Very High	No alteration; or no alteration evident, very subordinate, very high landscape conformity. (0 to 1.5% alteration in Landscape Unit in perspective view)
2 High	Minimal alteration evident, subordinate, well-designed, high landscape conformity. (1.6 to 7% alteration in Landscape Unit in perspective view)
3 Moderate	Moderate alteration evident, dominant, moderate landscape conformity. (7.1 to 18% alteration in Landscape Unit in perspective view)
4 Low	Intensive alteration evident, very dominant, low landscape conformity. (18.1 to 30% alteration in Landscape Unit in perspective view)
5 Very Low	Very intensive alteration evident, extremely dominant, very low landscape conformity. (>30% alteration in Landscape Unit in perspective view)

Three variables are applied to assess each design option and the PLI that will be achieved. Quantification is determined more precisely in this phase. Exclude areas of previous disturbance with visually-effective green-up (VEG). Include current nonVEG disturbance in calculations.

Definition	Landscape Integrity provides the reference definitions (above)
Design Quality	Landscape Design procedures are implemented to meet Integrity Objectives
Quantification	Extent of individual and/or cumulative Landscape Unit(s) in an altered Integrity Class measured in perspective (camera) view, usually as percent of the visible landscape unit. May also be further expressed as planimetric and/or linear percent.

PLI - by Definition
5 (Very Low)
PLI - by Design Quality
5 (Very Low)
PLI - by Quantification (% alteration of LU in perspective view)
5 (Very Low)
Overall PLI
5 (Very Low)
Timing and Actions to Mitigate Visual Impacts
Refer to impact assessment document

Integrity modifying factors:
Cumulative effect of current alteration in locality/corridor: ☐ High ☐ Moderate ☑ Low ☐ n/a
Perceived ecological integrity in locality/corridor: ☐ High ☐ Moderate ☐ Low ☑ n/a
Locality influence: ☐ Urban ☑ Urban Fringe ☐ Rural, Developed ☐ Rural, Natural ☐ Industrial
☐ Recreational, Developed ☐ Recreational, Natural ☐ Backcountry ☐ Wilderness

Predicted Landscape Integrity Report - Page 2

Use the checklist to further define and assess the project:

Perspective View Disturbance (Percent of LU perspective area disturbed/nonVEG)			
Type	Land Clearing, Mine Landforms,		
Extent : existing/new	Maximum of 100% of Landscape Unit altered (new)		
Frequency			
Duration/recovery time			
PLI	Very Low		
Infrastructure Facility			
Type	n/a		
Size	n/a		
Height	n/a		
Emission	n/a		
Duration	n/a		
Restoration/ recovery time	n/a		
Risk	n/a		
Cumulative Impact	n/a		
Observability	low		
PLI	n/a		
View Base	**Highway**	**River**	**Secondary Roads**
PLI:	**Very Low**	**n/a**	**n/a**
Mitigation Plan			
Mitigation Need	**Refer to Impact Assessment Document**		
Mitigation Potential	**Refer to Impact Assessment Document**		
Mitigation Term	**Refer to Impact Assessment Document**		
Ecosystem Response/desirability	n/a		
Social Response/desirability	n/a		
Cost to implement	n/a		
Cost(s) if foregone (Social-Economic-Environmental) Adjacency delays	n/a		

CEMA Wood Buffalo Region Landscape Unit Rating Form

Rating Viewpoint(s): NVS Margin Unit | **Map #(s):** 74D13-14 | **Photos:** VLU ratings and photo links

A: Attraction
O: Observability
S: Significance
R: Risk
I: Integrity

Landscape Unit Label (overall ratings from below)					
LU#	A	O	S	R	I
HMW2	3	3	3	3	2

Conducted by: Ken Fairhurst, R D I Resource Design Inc. | **Date:** March, 2002

Circle the most appropriate rating for each Factor of each Element below. Place overall rating for each Element in the Landscape Unit Label above. Add additional comments on side or on reverse. Note: overall ratings in each category may be influenced more strongly by one or a few factors. If so, make note of your selection rationale in the comments.

A - Landscape Attraction (LA)			
Landform	>30% slope; high attraction 10	15-30% slope; mod. attraction 3	<15% slope; low attraction (-5)
Vegetation	High attraction, interest 5	Moderate attraction 3	Minor influence: (1); neutral: 0
Water	High attraction, interest 5	Moderate attraction 3	Minor influence: (1); neutral: 0
Colour	High attraction, interest 5	Moderate attraction 3	Minor influence: (1); neutral: 0
Adjacent scenery	Enhances LU attraction 5	Moderate influence 3	Minor influence: 1; neutral: (0)
Scarcity (in region)	Rare, unique 5	Distinctive, common 3	Minor influence: (1); neutral: 0
Land-Use Modification	Harmonious 5	Neutral; not present (0)	Unharmonious -5
Overall A Points: 1 Circle A Rating:	**1 (High) 26 or more**	**2 (Moderate) 11-25**	**(3) (Low) 10 or less**
Vertical Relief (m):	**30-50**	**Percent Slope (%):**	**5 and less**

For Landscape Attraction Factors above that are neutral or not present, assign a zero (0) rating.

0 - Landscape Observability (L0)			
Viewing Distance	Foreground/Middle ground < 5km (Front) 10	Background 5km – 15 km (Back) 3	Seldom Seen FG/MG/BG or >15km (Far Back) (-5)
Viewing Orientation towards LU	Focal; direct in Line of sight (LOS) 5	Oblique; Tangential to LOS 3	Peripheral; angled away from LOS (1)
Viewing Frequency	Many opportunities 5	Some 3	Few (1)
Viewing Duration	Long 5	Moderate 3	Glimpse (1)
Overall O Points: 2 Circle O Rating:	**1 (High) 17 or more position over-ride 1**	**2 (Moderate) 8-16 position over-ride 2**	**(3) (Low) 7 or less**

Superior (elevated) observer position may raise Observability

S - Landscape Significance (LS)			
Matrix LA : LO Circle S Rating:	**Landscape Observability LO (across)**		
Landscape Attraction LA (down)	1 High LO	2 Moderate LO	3 Low LO
1 High LA	**1 High LS**	**1 High LS**	**2 Mod. LS**
2 Moderate LA	**1 High LS**	**2 Mod. LS**	**3 Low LS**
3 Low LA	**2 Mod. LS**	**3 Low LS**	**(3) Low LS**

R - Landscape Risk (LR)			
Slope Class (Slope: 30-50%)	Steep 31%+ 10	Moderate 16-30% 5	Gentle 0-15% (-10)
Land-Cover Diversity	Low/uniform 5	Moderate (3)	High 1 n/a 0
Topographic Diversity	Low/uniform (5)	Moderate 3	High 1 n/a 0
Colour Contrast	Low/uniform 5	Moderate 3	High 1 n/a (0)
Illumination	Front/side 5	Side only (3)	Back-light 1 n/a 0
Overall R Points: 1 Circle R Rating:	**1 (High) 19 or more**	**2 (Moderate) 7 – 18**	**(3) (Low) 6 or less**
Distance Over-ride		**Distance factor over-ride 2**	**Distance factor over-ride 3**
Observer Position Over-ride	**Position over-ride 1**	**Position over-ride 2**	

For Landscape Risk Factors above that are neutral, assign a zero (0) rating.
Distance factor > 5km may lower Risk. Elevated observer position may increase Risk

I - Landscape Integrity (LI) - Circle I Rating:	
1 Very High	No alteration evident, very subordinate, very high landscape conformity, (0%-1.5% alt. in LU)
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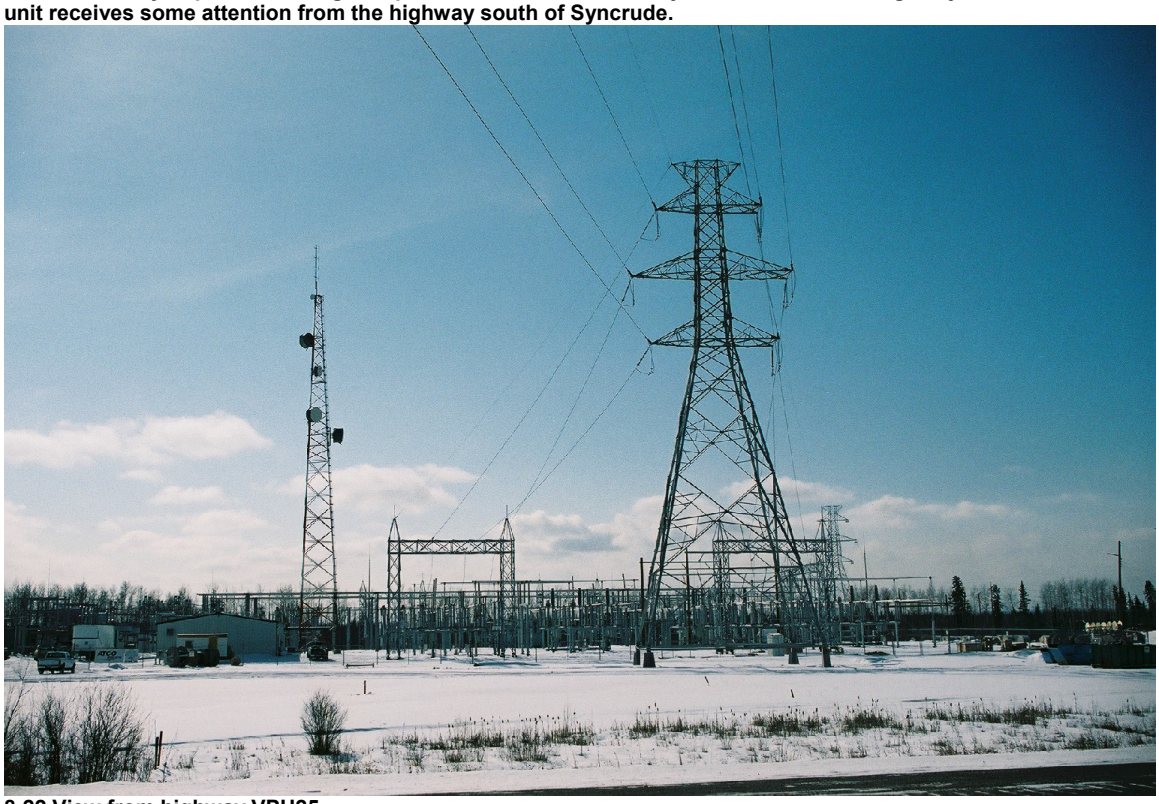
5 Very Low	Very intensive alteration evident, extremely dominant, very low landscape conformity (>30%)

Integrity modifying factors:
Cumulative effect of current alteration in locality/corridor: ☐ High ☐ Moderate ☑ Low ☐ n/a
Perceived ecological integrity in locality/corridor: ☑ High ☐ Moderate ☐ Low ☐ n/a
Locality influence: ☐ Urban ☐ Urban Fringe ☐ Rural, Developed ☑ Rural, Natural ☐ Industrial ☐ Recreational, Developed ☑ Recreational, Natural ☐ Backcountry ☐ Wilderness

HMW2 Comments

HMW2 is the very large west-side "5 km highway margin" unit extending north from the Athabasca River west of Fort McMurray to Syncrude operations. The unit is not visually sensitive over the greatest extent, but is included in the inventory to provide a "flag" for potential visual vulnerability within 5 km of the highway. Portions of the unit receives some attention from the highway south of Syncrude.



8-22 View from highway VPH25.

2-32 View from Bison Lookout across LU HW5 to HMW2.

Predicted Landscape Integrity Report

Rating Viewpoint(s): 3 **Map #(s):** 74D13 **Photos:** -

Landscape Integrity Rating
ELI: Existing Landscape Integrity
PLI: Predicted Landscape Integrity

Landscape Unit Integrity Rating – add values from Inventory/Planning/Implementation		
LU#	**ELI**	**PLI**
HMW2	2	3

Conducted by: Kevin Graham, Golder Associates Ltd. **Date:** May, 2007

Landscape Integrity Classes

1 Very High	No alteration; or no alteration evident, very subordinate, very high landscape conformity. (0 to 1.5% alteration in Landscape Unit in perspective view)
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5 Very Low	Very intensive alteration evident, extremely dominant, very low landscape conformity. (>30% alteration in Landscape Unit in perspective view)

Three variables are applied to assess each design option and the PLI that will be achieved. Quantification is determined more precisely in this phase. Exclude areas of previous disturbance with visually-effective green-up (VEG). Include current nonVEG disturbance in calculations.

Definition	Landscape Integrity provides the reference definitions (above)
Design Quality	Landscape Design procedures are implemented to meet Integrity Objectives
Quantification	Extent of individual and/or cumulative Landscape Unit(s) in an altered Integrity Class measured in perspective (camera) view, usually as percent of the visible landscape unit. May also be further expressed as planimetric and/or linear percent.

PLI - by Definition
3 (Very Low)
PLI - by Design Quality
4 (Low)
PLI - by Quantification (% alteration of LU in perspective view)
3 (Moderate)
Overall PLI
3 (Moderate)
Timing and Actions to Mitigate Visual Impacts
Refer to impact assessment document

Integrity modifying factors:
Cumulative effect of current alteration in locality/corridor: ☐ High ☐ Moderate ☑ Low ☐ n/a
Perceived ecological integrity in locality/corridor: ☐ High ☐ Moderate ☐ Low ☑ n/a
Locality influence: ☐ Urban ☐ Urban Fringe ☐ Rural, Developed ☐ Rural, Natural ☑ Industrial
☐ Recreational, Developed ☑ Recreational, Natura ☐ Backcountry ☐ Wilderness

Predicted Landscape Integrity Report - Page 2

Use the checklist to further define and assess the project:

Perspective View Disturbance (Percent of LU perspective area disturbed/nonVEG)			
Type	Mine landforms, clearing of land		
Extent : existing/new	Maximum of 8.24% of Landscape Unit altered (new)		
Frequency			
Duration/recovery time			
PLI	Very Low		
Infrastructure Facility			
Type	n/a		
Size	n/a		
Height	n/a		
Emission	n/a		
Duration	n/a		
Restoration/ recovery time	n/a		
Risk	n/a		
Cumulative Impact	n/a		
Observability	n/a		
PLI	n/a		
View Base	**Highway**	**River**	**Secondary Roads**
PLI:	**Moderate**	**n/a**	**n/a**
Mitigation Plan			
Mitigation Need	**Refer to Impact Assessment Document**		
Mitigation Potential	**Refer to Impact Assessment Document**		
Mitigation Term	**Refer to Impact Assessment Document**		
Ecosystem Response/desirability	n/a		
Social Response/desirability	n/a		
Cost to implement	n/a		
Cost(s) if foregone (Social-Economic-Environmental) Adjacency delays	n/a		