

**CSVA 2010 Conference**

# VE in Western Canada

Steve Taylor Presentation




November 18 2010

# Presentation Purpose

- **To discuss the growth of Value Engineering in Western Canada**
- **Present alternative applications and Project types for use of Value Engineering**

# 2009 CSVA Networking

- 2009 presentations  
Calgary and Edmonton
- AQSA hosted events



**AQSA** ASSOCIATION OF QUANTITY SURVEYORS OF ALBERTA

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**Welcome.**  
Welcome to the web site of the Association of Quantity Surveyors of Alberta (AQSA). We are an affiliate organization of the [Canadian Institute of Quantity Surveyors \(CIQS\)](#). Our members are in private practice, construction companies and government organizations in the provinces of Alberta, Saskatchewan and Manitoba, as well as in the Northwest Territories and Nunavut.

Please feel free to browse this site to obtain information about AQSA, its members, its programs and its educational standards. This site also outlines the benefits that can be derived from using a professional quantity surveyor or certified estimator during the planning and implementation stages of a development project.

Engaging the services of a quantity surveyor at the appropriate time on a development project of any kind will provide the owner with valuable advice from an economic perspective, and pay dividends throughout the life of the planned facility.

**Upcoming Events**  
[November 18 - Web Technology, Centralized & Collaborative Estimating - Edmonton & Calgary](#)  
[September 2010 Cost Connections newsletter available now!](#)

  
  
UPCOMING EVENTS

# Sample Project No. 1 British Columbia

- **John Hart Generating Station**

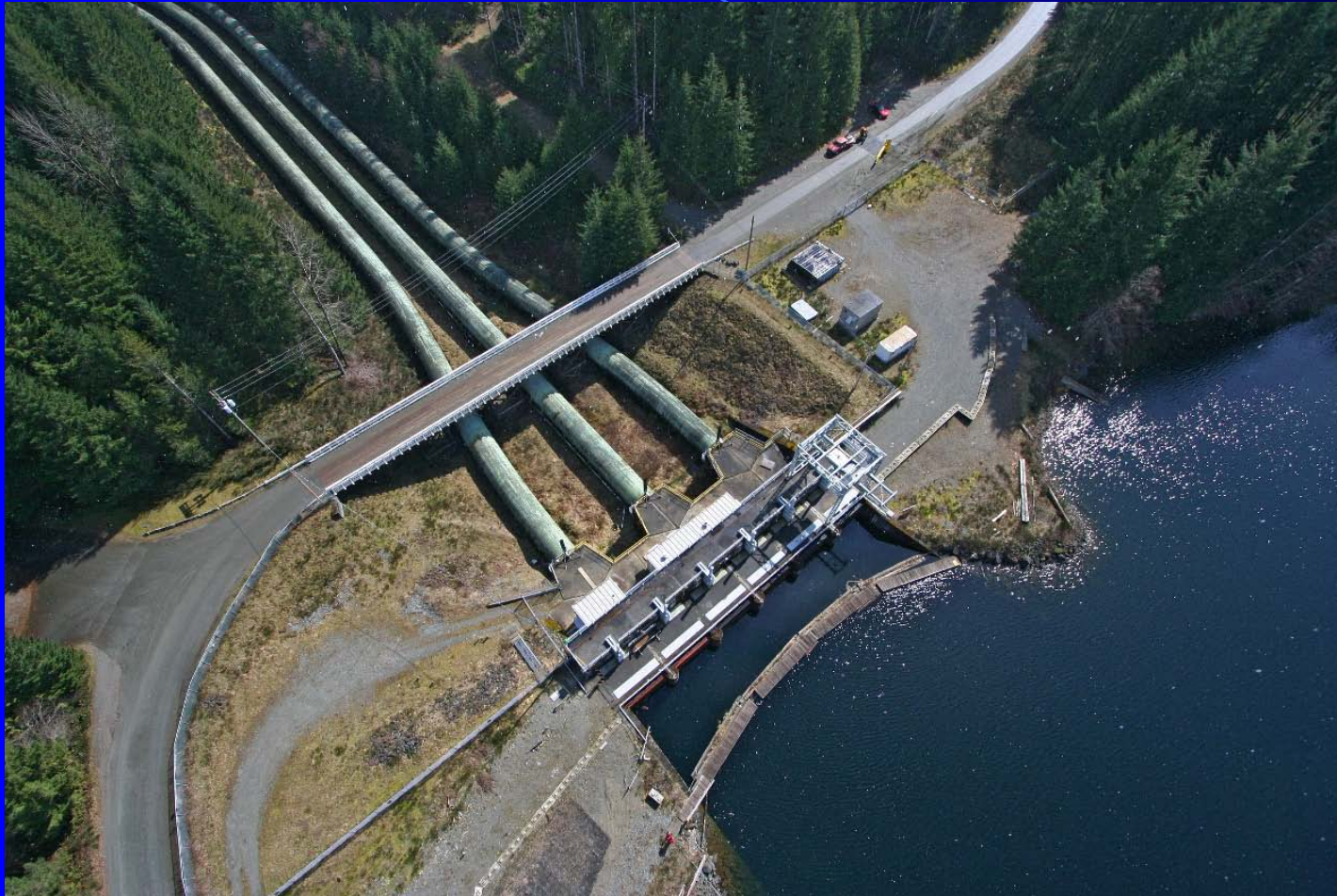


# John Hart Generating Station Replacement Project

## Preliminary Design Overview

Value Engineering Day #1  
Dec 2009

# Intake



# Low Pressure Pipelines



# Low Pressure – High Pressure







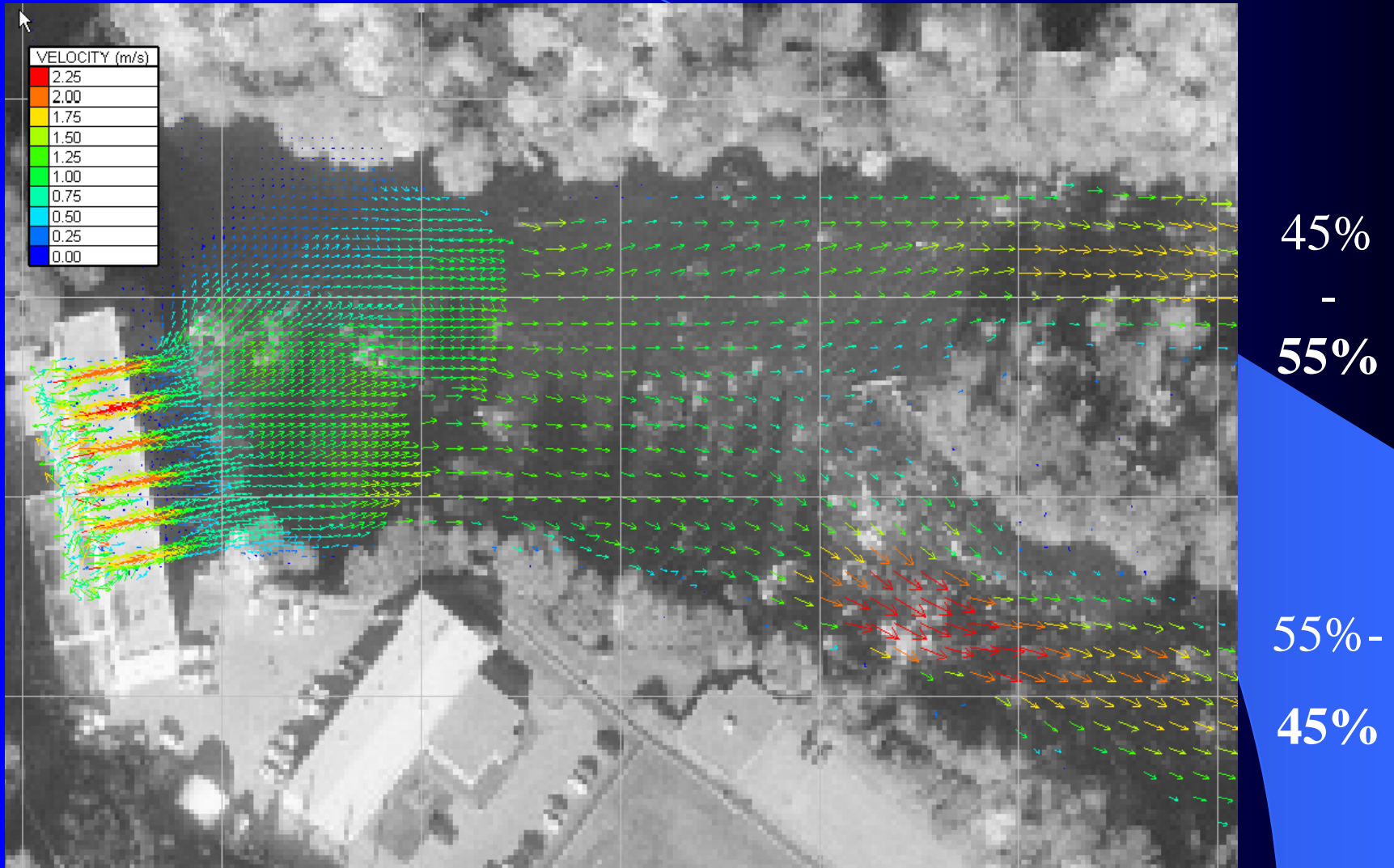
# Surge Tanks



# Existing Powerhouse & Office Building



# Existing Powerhouse – Flow Split around First Island

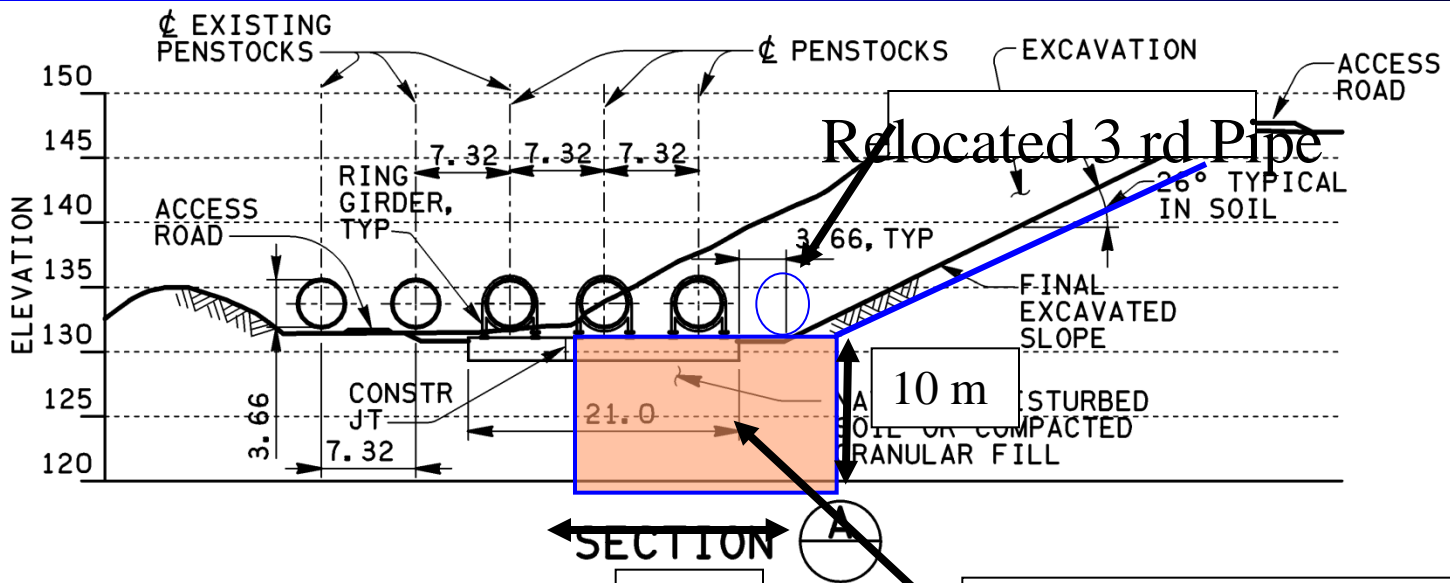


# VE Study

- **Conventional 5 day study led by Dave Wilson NCE Value Engineers**
- **Panel of independent VE Team members**
- **Site visit to the project**
- **Day 5 presentation of Ideas to BC Hydro**

# Sample Select VE Idea





25 m

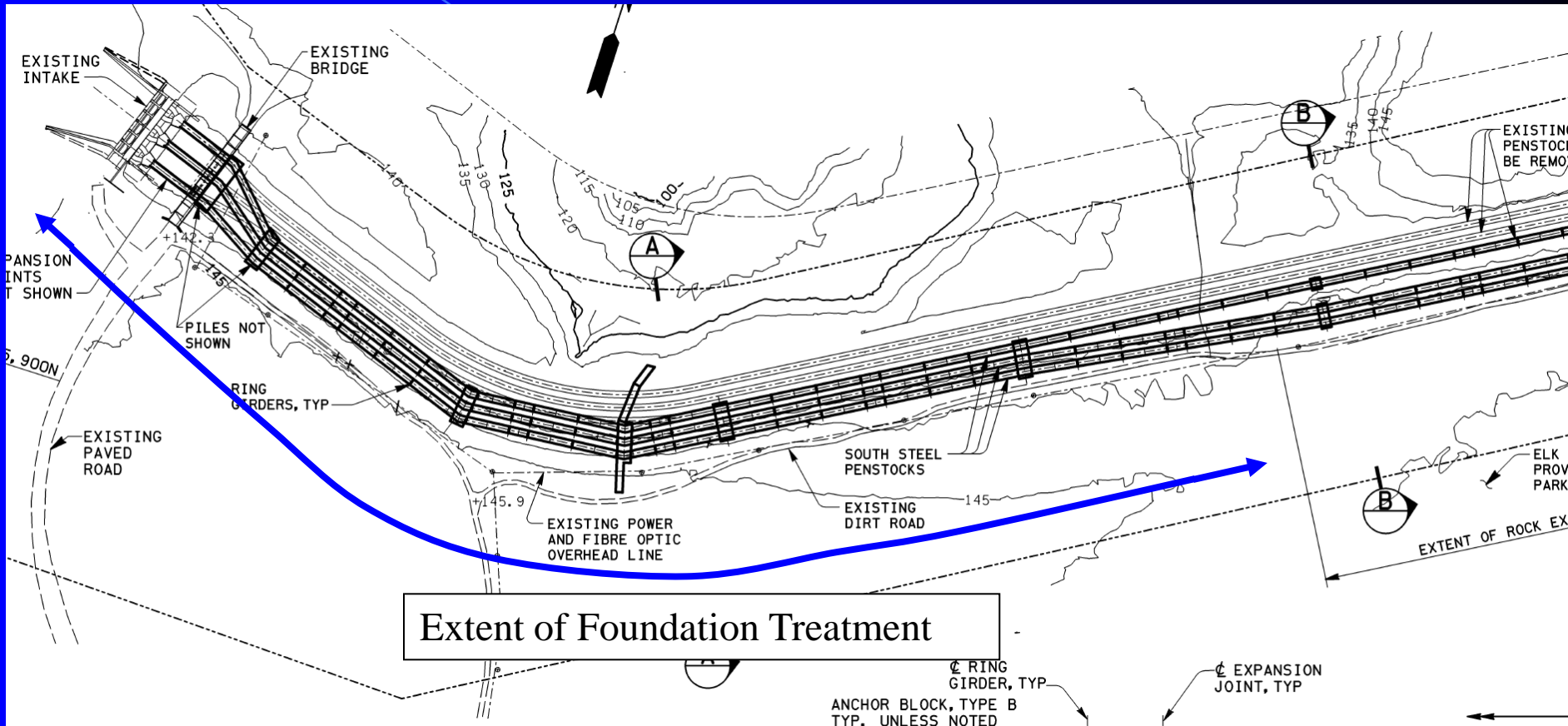
Zone of Vibrocompaction

# WS-01A Vibrocompaction

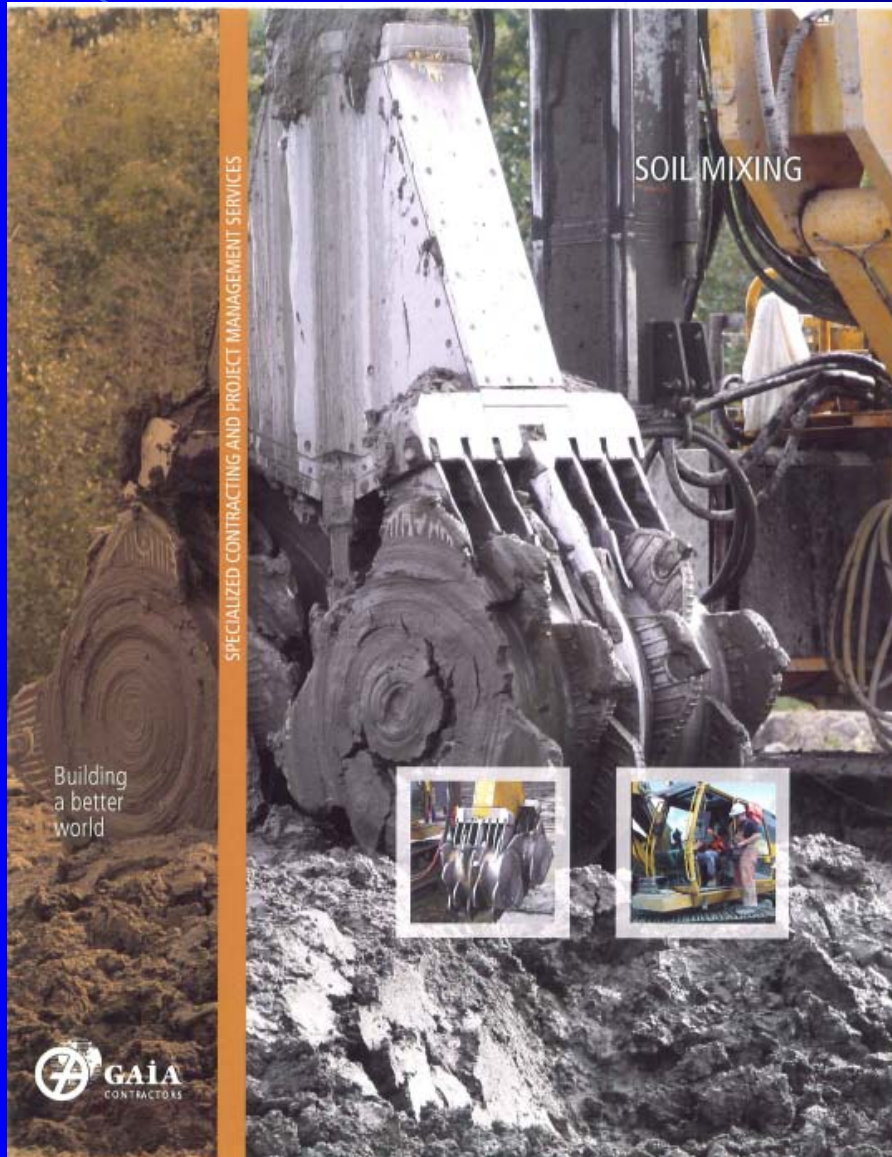


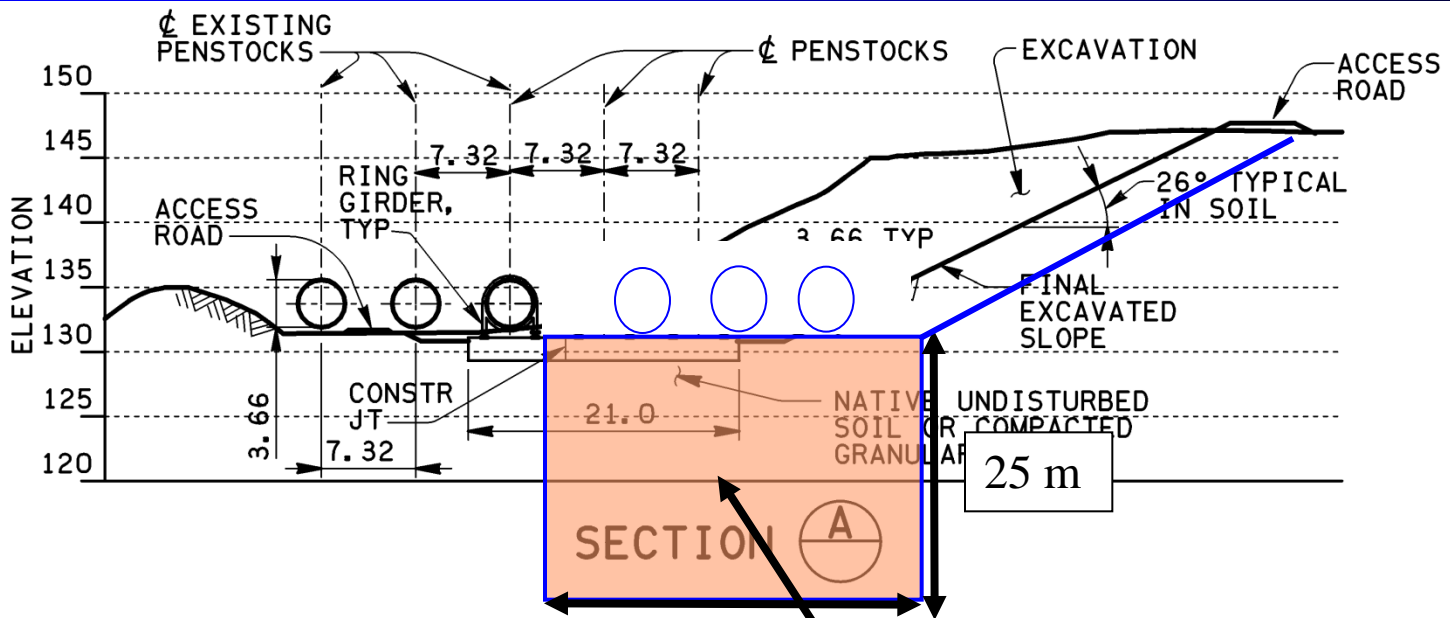
Stone  
Columns

# WS-01B Deep Soil Mixing



# WS-01B Deep Soil Mixing





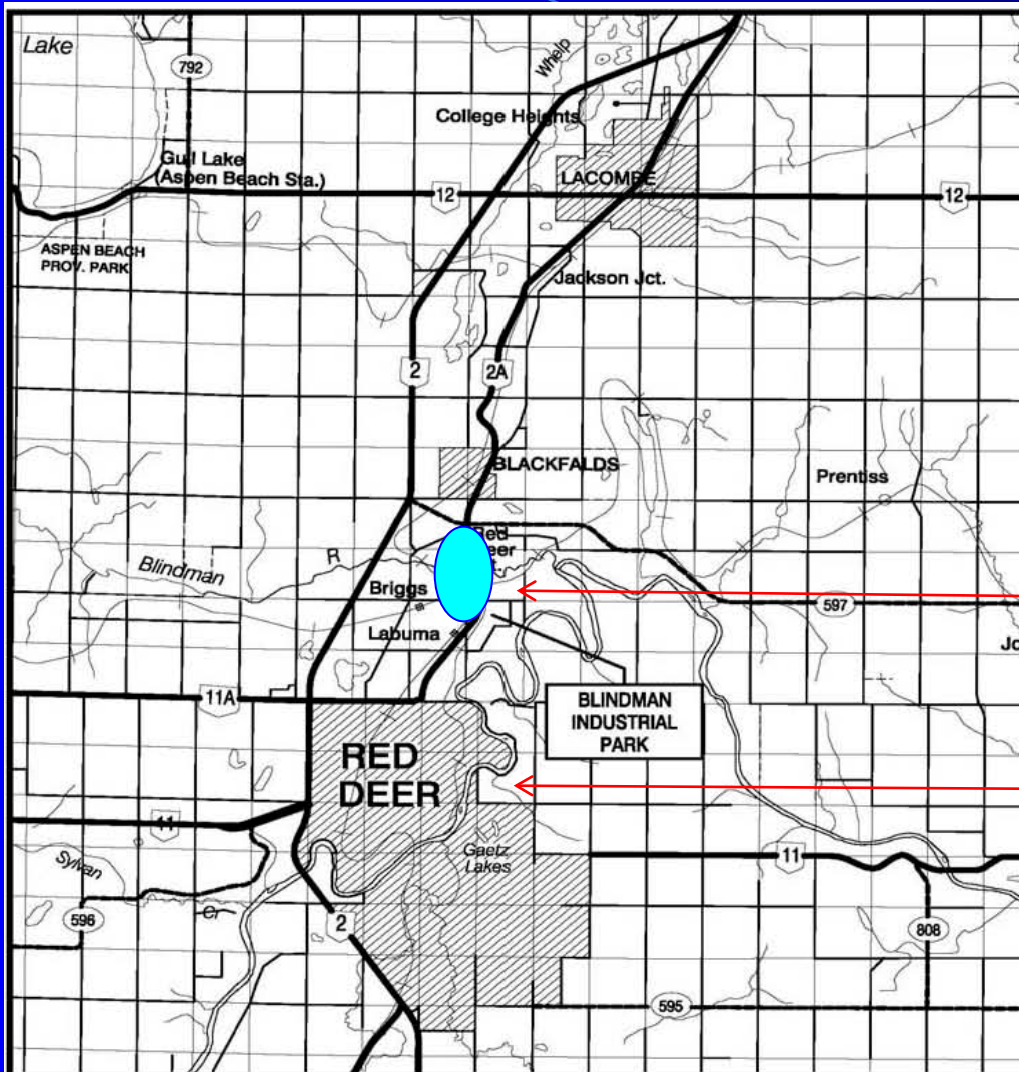
35 m

Zone of Deep Soil Mixing

# Sample Project No. 2 Alberta


- **Highway 2A Twinning and CN Overpass  
(Alberta Transportation)**

# Alberta – Highway 2A VE Study



Study Area

City of Red Deer

 GENIVAR	LOCATION PLAN				Government of Alberta Transportation
Date: April 1, 2010	Region: CENTRAL	Drawn By: TJ	Checked By: AG	Sheet: 01 of 01	Drawing No. LP - 01

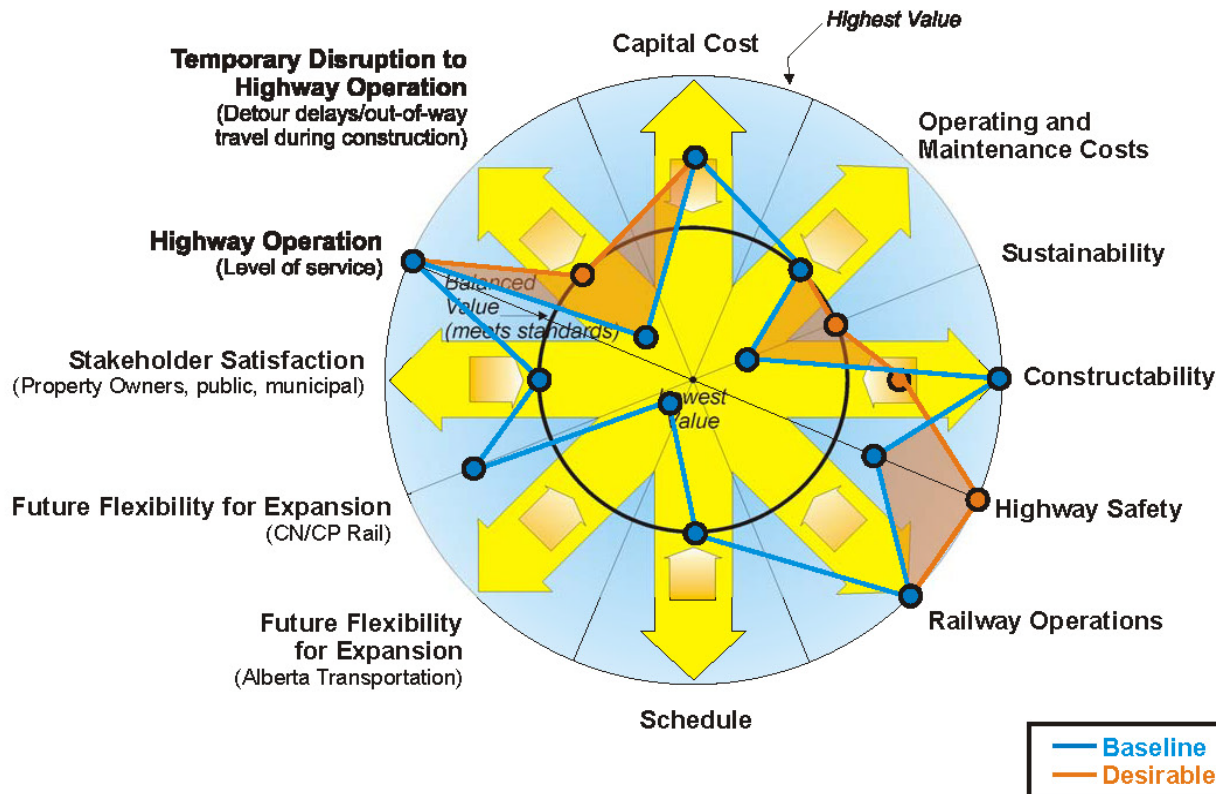
# Alberta – Highway 2A VE Study CN at-grade crossing



# Alberta – Highway 2A VE Study Quality Model

## HIGHWAY 2A TWINNING, BRIDGE FILE 73548 - CN RAILWAY OVERPASS VALUE ENGINEERING STUDY

### QUALITY MODEL



# Alberta – Highway 2A VE Study

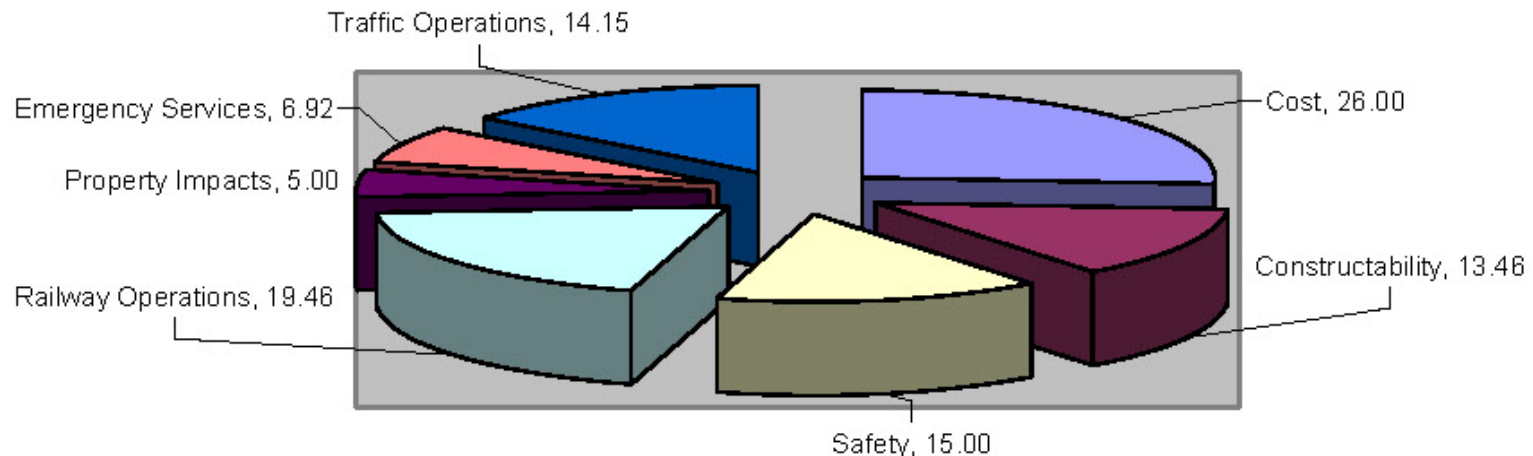
## Cost-Worth Analysis

<b>Highway 2A Cost Summary</b>		
<b>Element</b>	<b>Cost (\$ million)</b>	<b>Worth (\$ million)</b>
Superstructure	\$1.5	\$2.0
Substructure	\$1.4	\$2.0
Traffic Protections	\$0.1	\$0.1
Sharing	\$0.1	\$0
Temporary Detour	\$0	\$0
Mainline Phase 1 Roadworks	\$16	\$16
Rail detour on new alignment 8 month	\$0	\$0
Trackwork (on structure)	\$1.3	\$1.0
Permanent Rail Relocation	\$2.2	\$0
Phase 2 Mainline Roadworks	\$3	\$3
Sideroad South Blindman	\$1.8	\$1.0
Sideroad North Blindman	\$1.3	\$2.1
At-grade Intersection	\$0.3	\$2

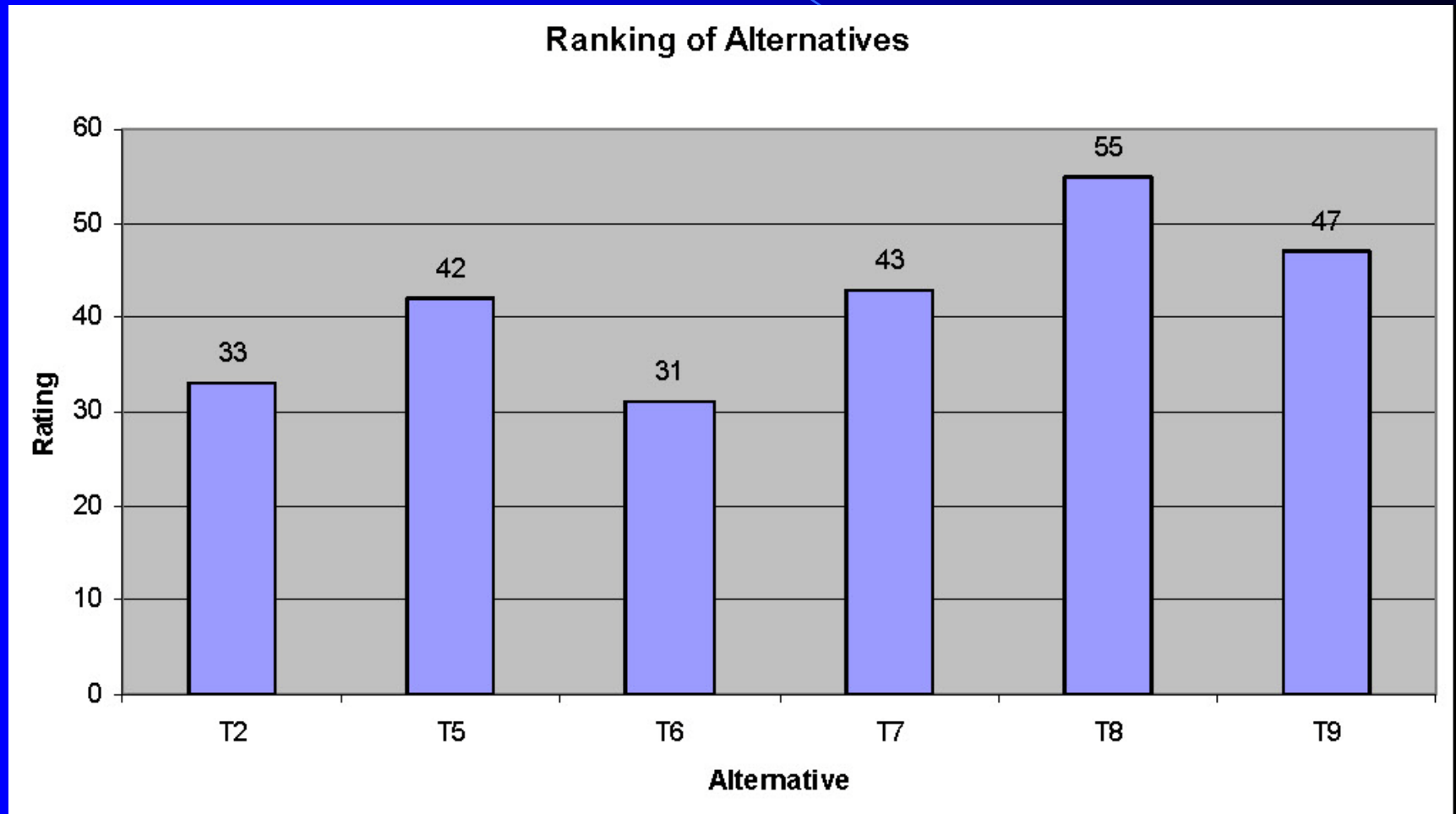
# Alberta – Highway 2A VE Study Team Weights of Criteria Selection

**VE Team Weights**

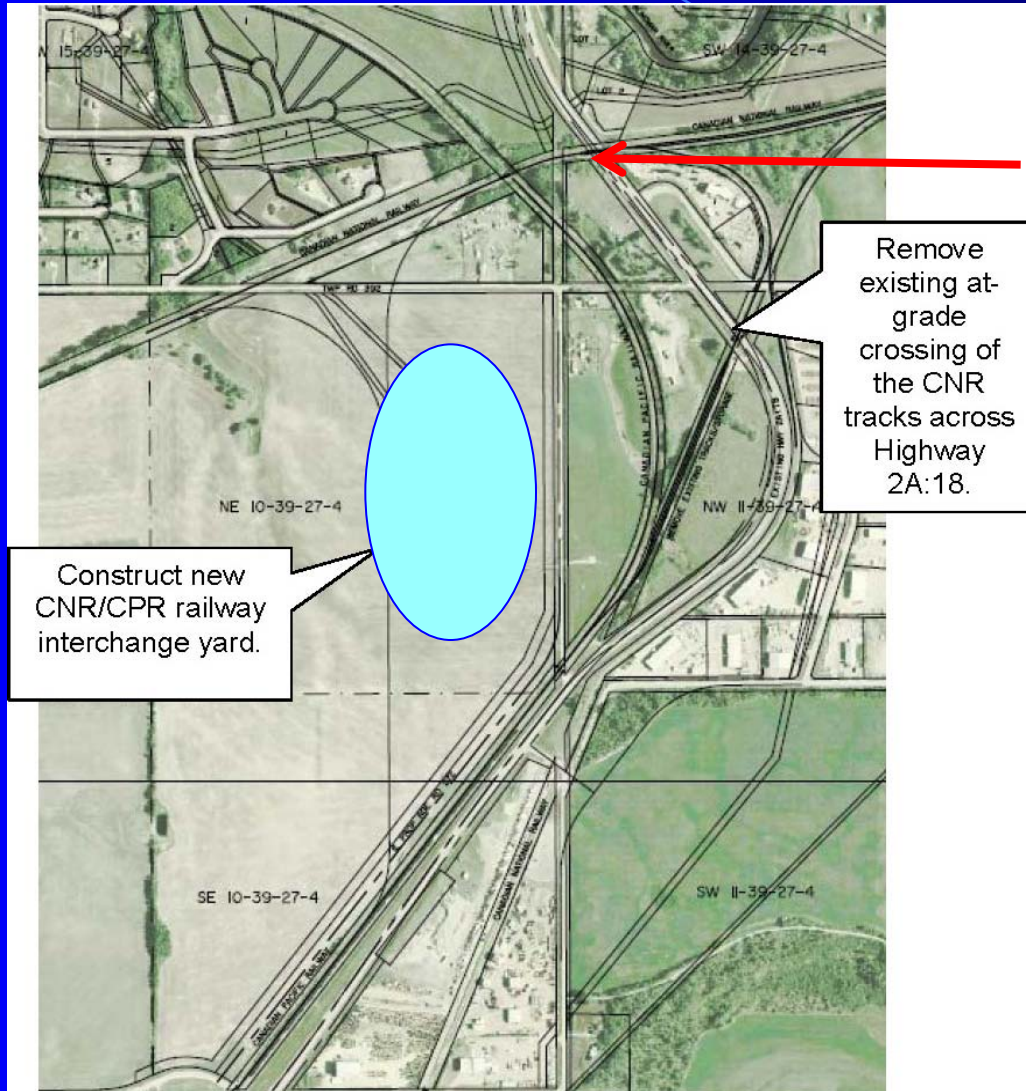
■ Cost ■ Constructability ■ Safety ■ Railway Operations ■ Property Impacts ■ Emergency Services ■ Traffic Operations



# Alberta – Highway 2A VE Study

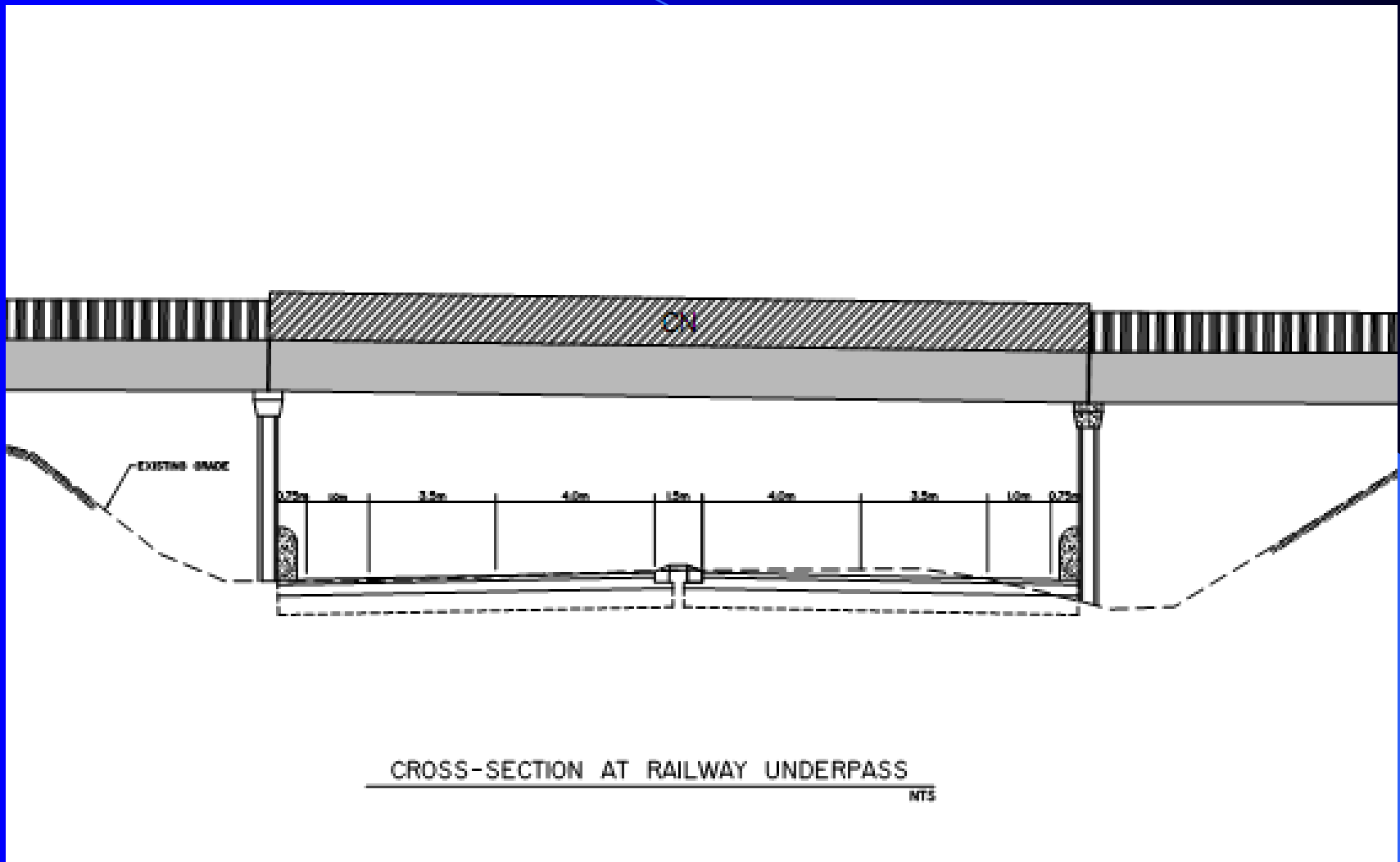


# Preferred Alternative T8



Eliminate CN Rail  
Subway  
Replacement

# IL-01



# Teaming of Stakeholders



# Existing CNR Subway



Sample Project No. 3  
Highway 39 Estevan Truck Route  
Location VE Study (Saskatchewan  
Ministry of Highways and  
Infrastructure)

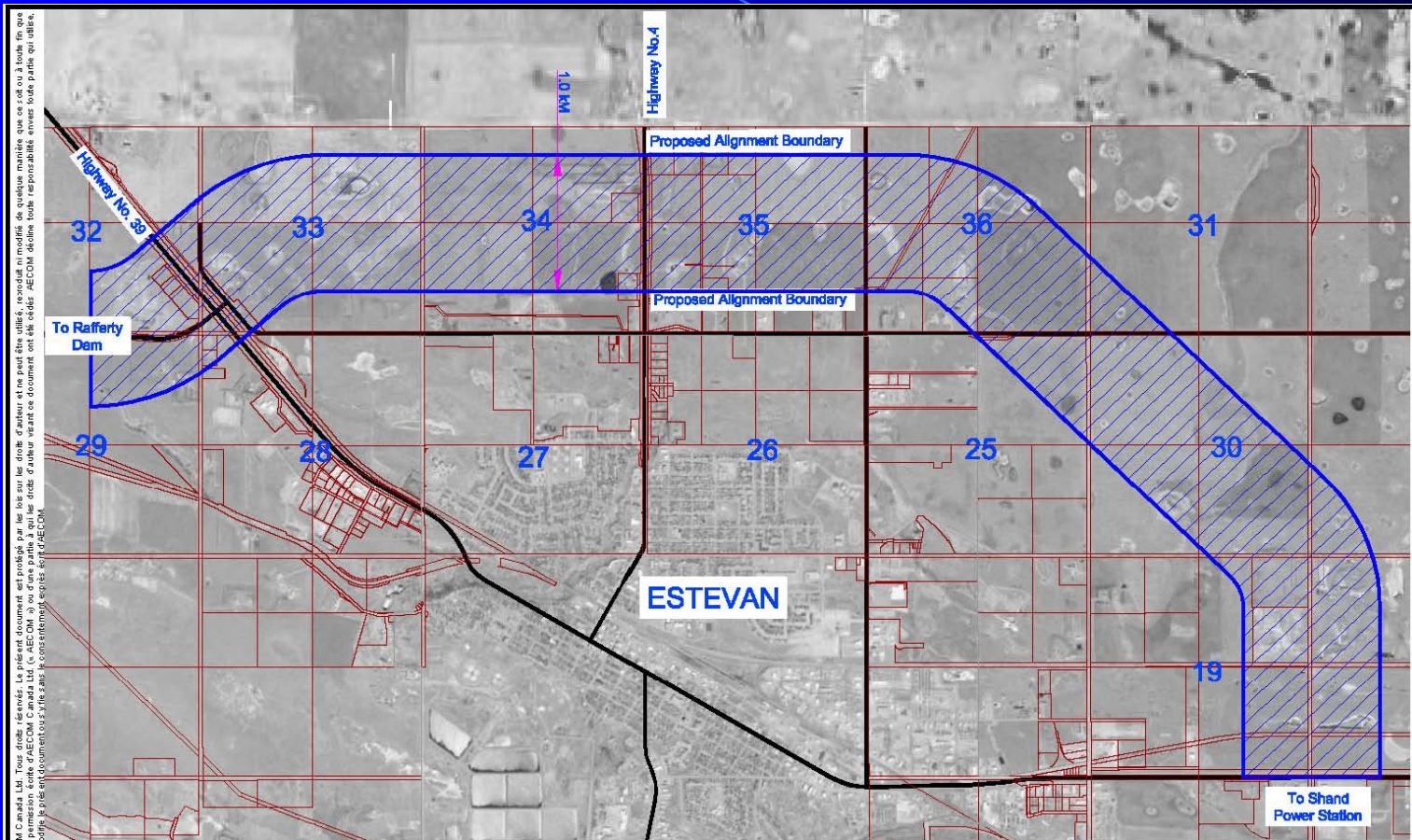
# Saskatchewan – Highway 39 at Richardson Pioneer Grain Terminal



# Study Participants

- **SMHI**
- **City of Estevan**
- **Rural Municipality of Estevan**
- **CP Railway**
- **Richardson**
- **Independent Team Specialist**

# Saskatchewan – Study Area



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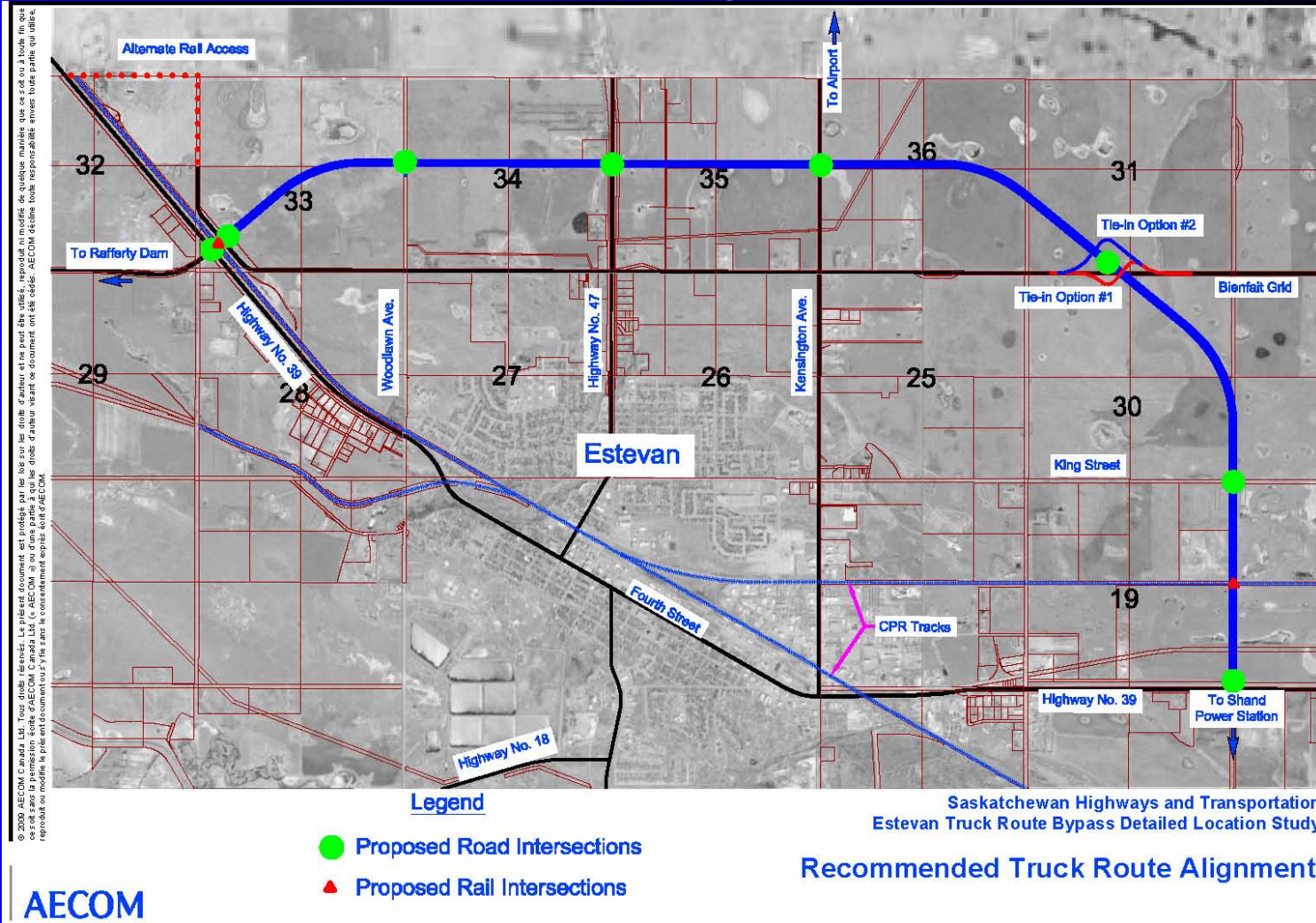
Saskatchewan Highways and Transportation  
Estevan Truck Route Bypass Detailed Location Study

Approved Study Corridor

AECOM

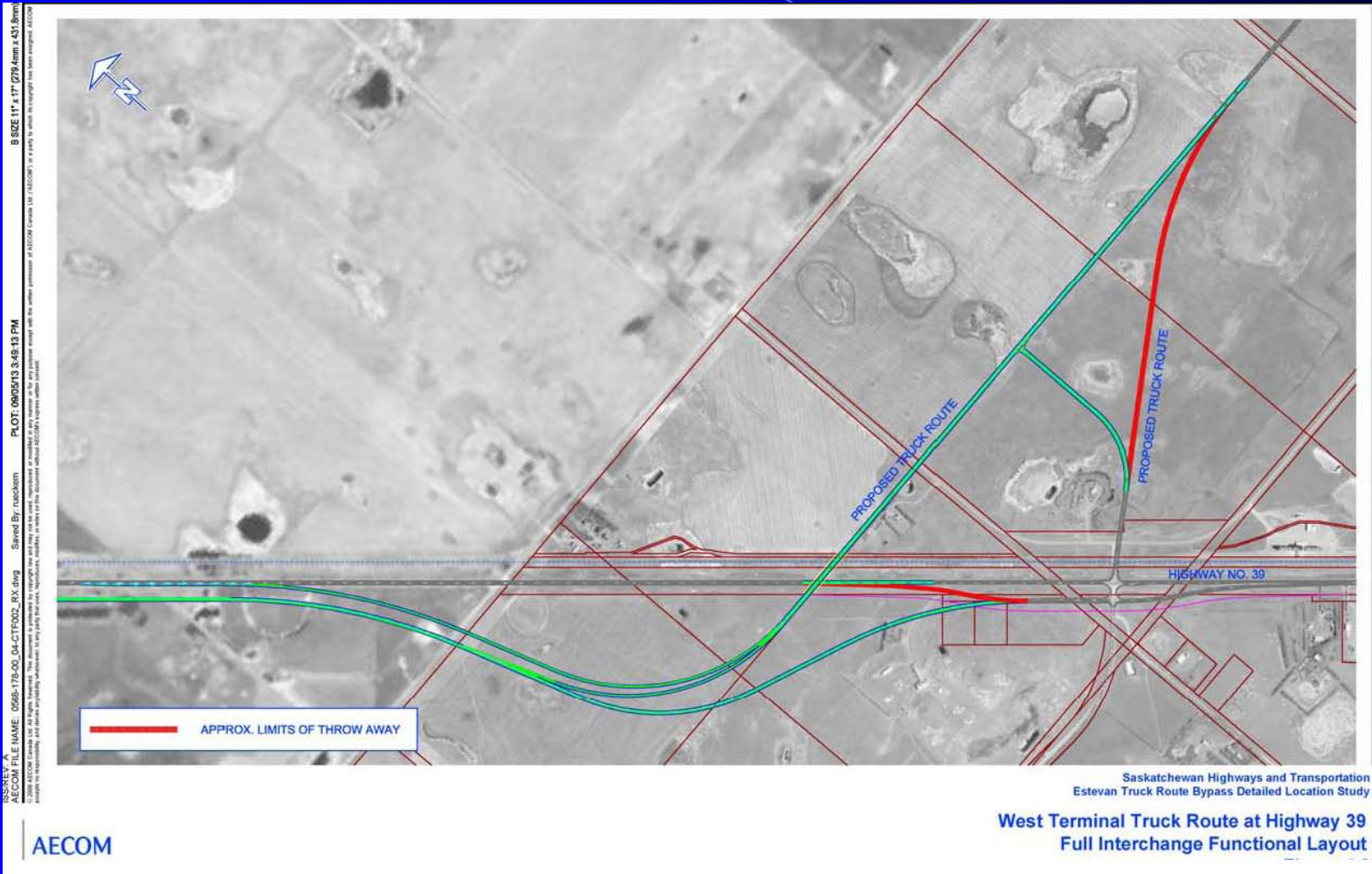
 GENIVAR

# Saskatchewan – Recommended Truck Route Alignment 2006 Study



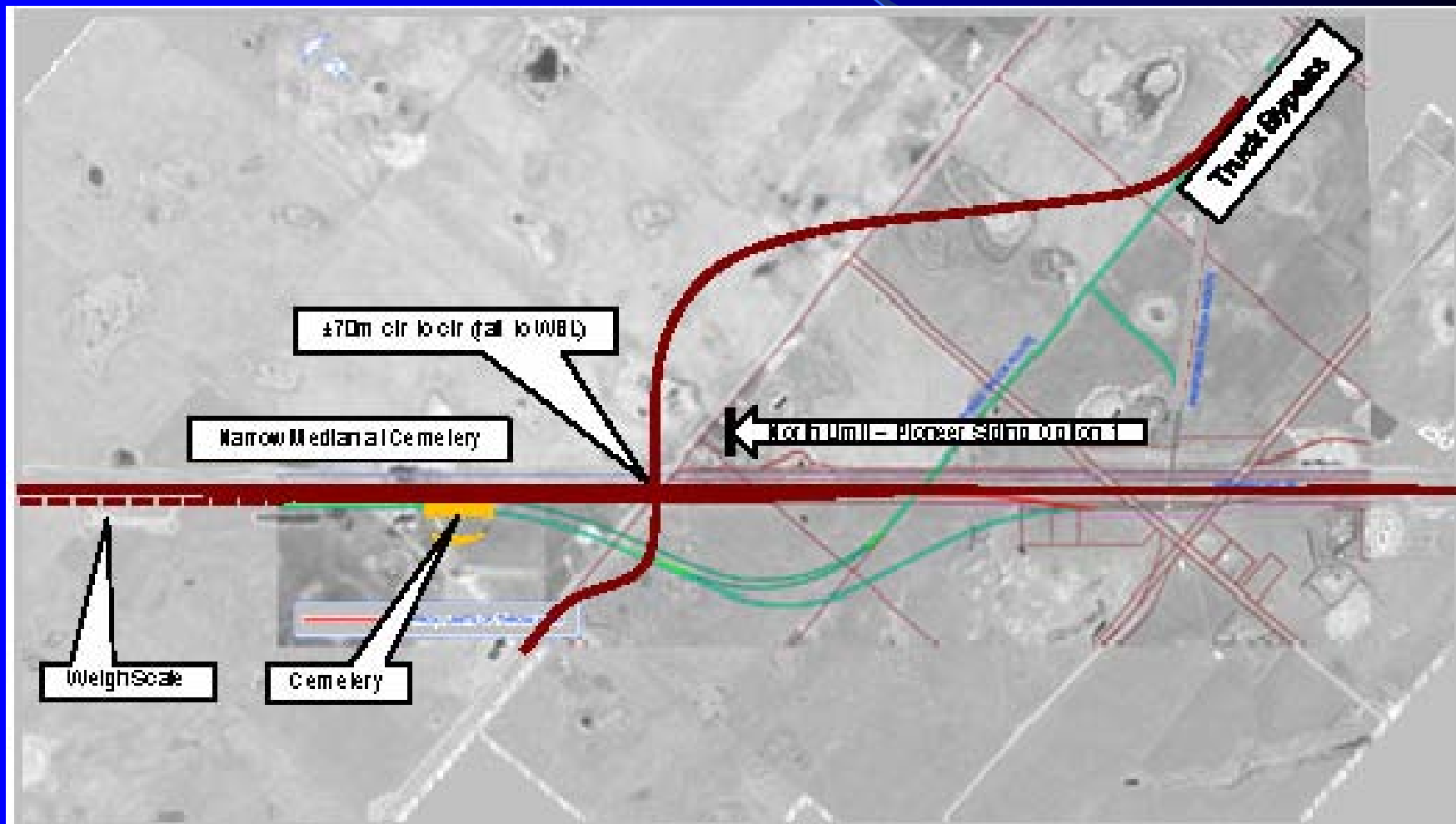
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# Saskatchewan – Interchange Functional Layout

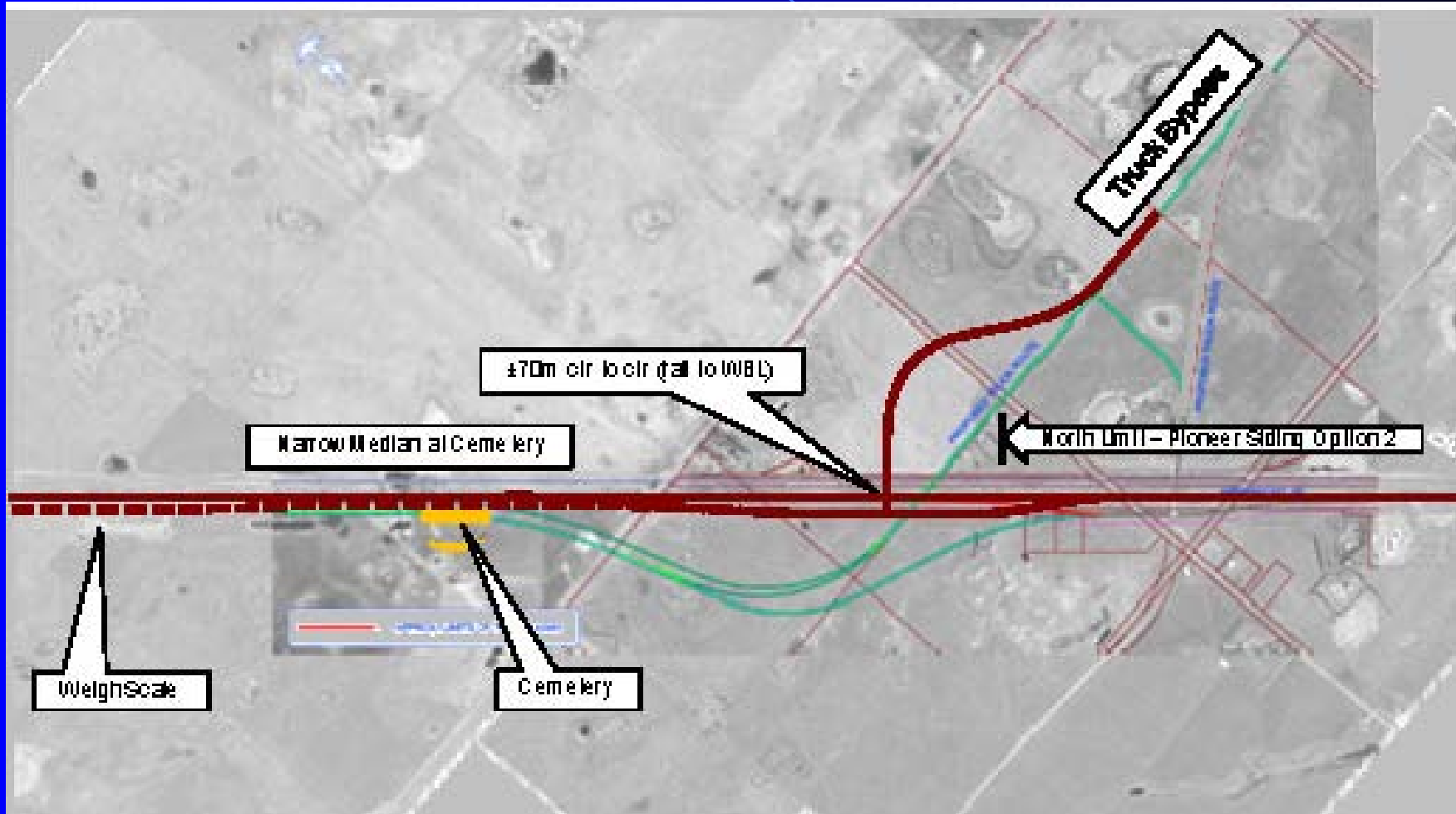


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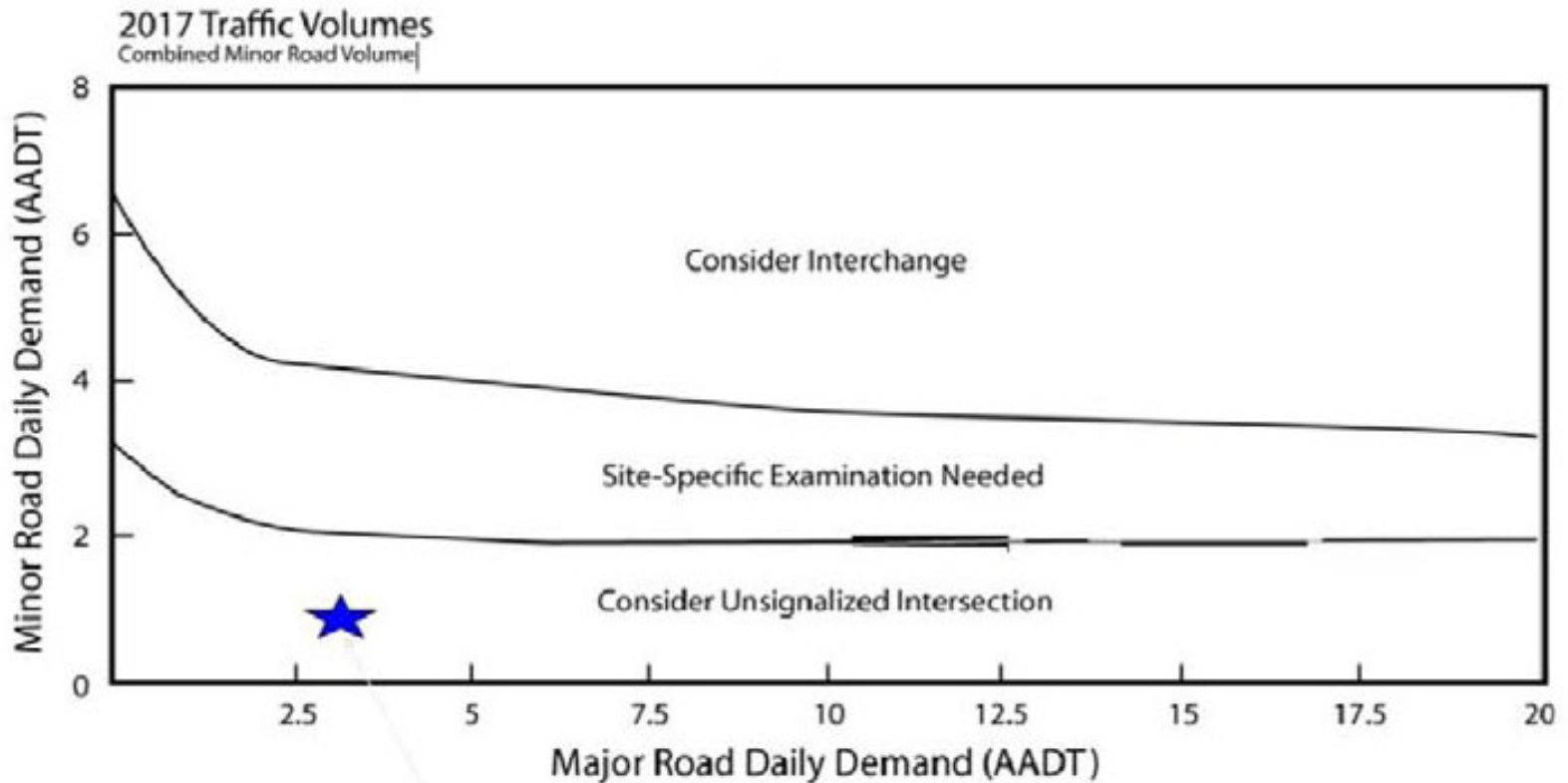
# MT-02B West Terminus Intersection Realignment (Rail Siding Option 1)



# MT-02A West Terminus Realignment (rail siding Option 2)

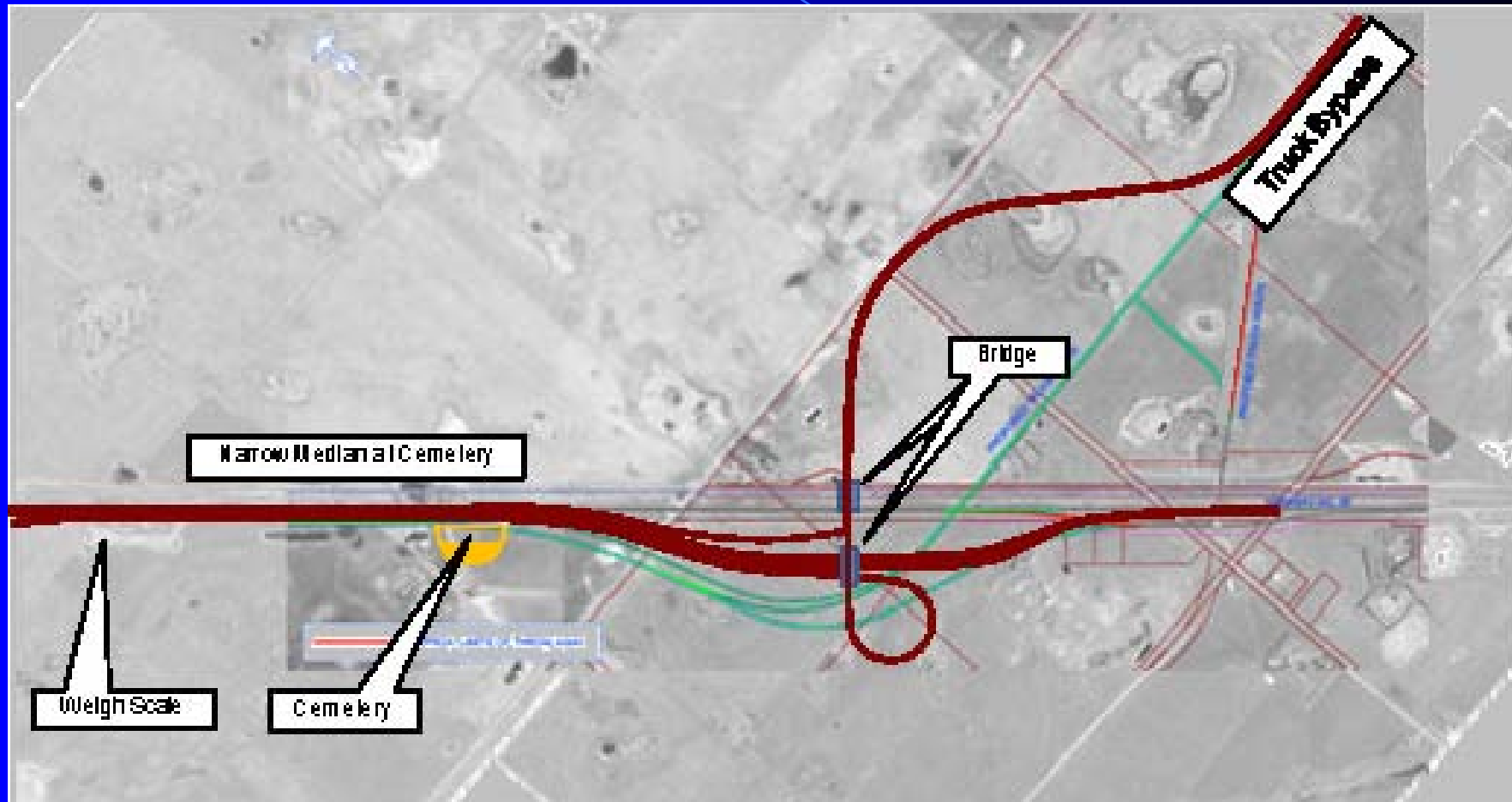


# Interchange Warrant West Intersection



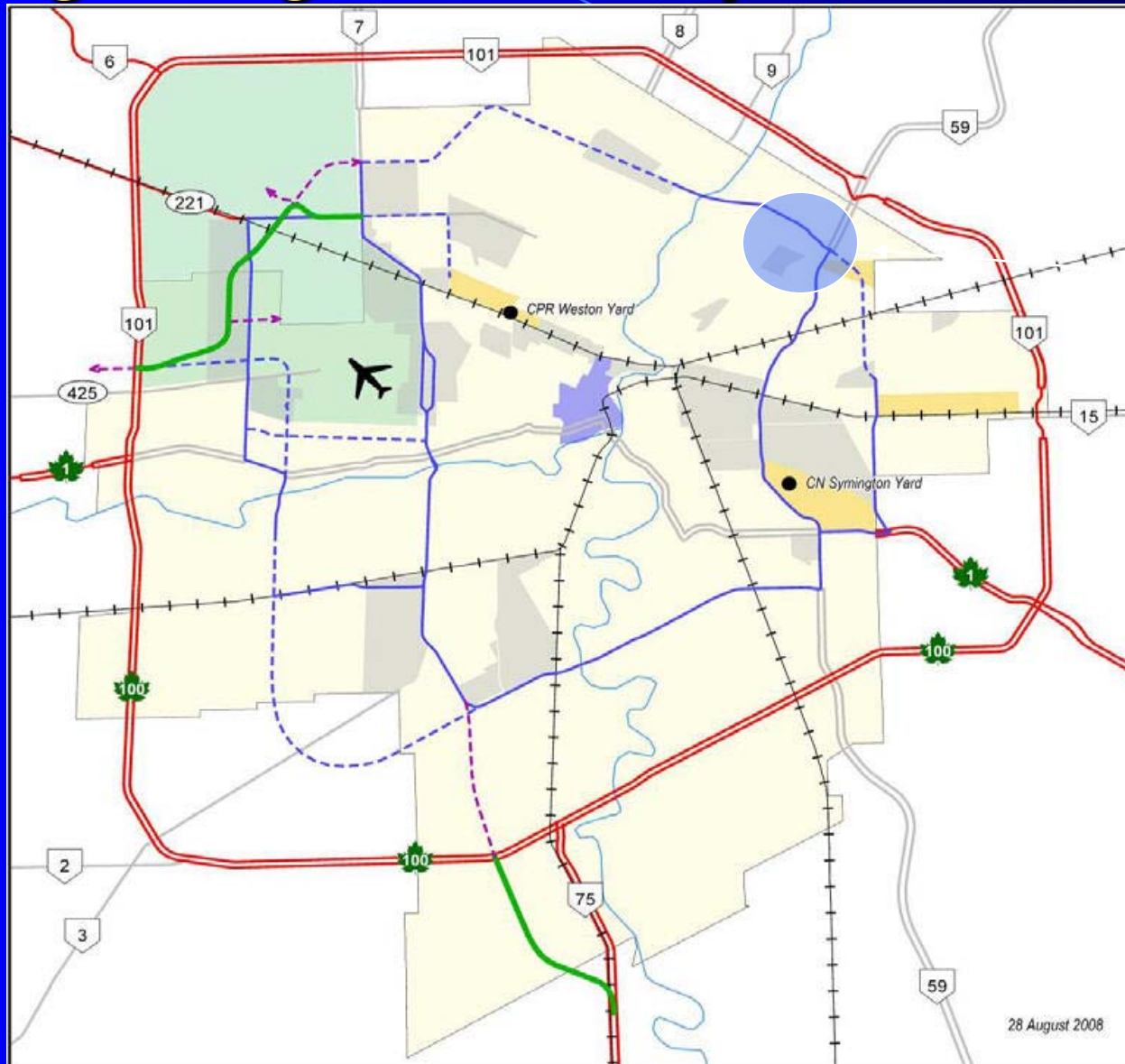
**Warrant West Intersection**

# MT-7A Future West Interchange



Sample Project No. 4  
Chief Peguis Trail Design Build (City  
of Winnipeg, Manitoba)

# Long Range Plan/Project Location



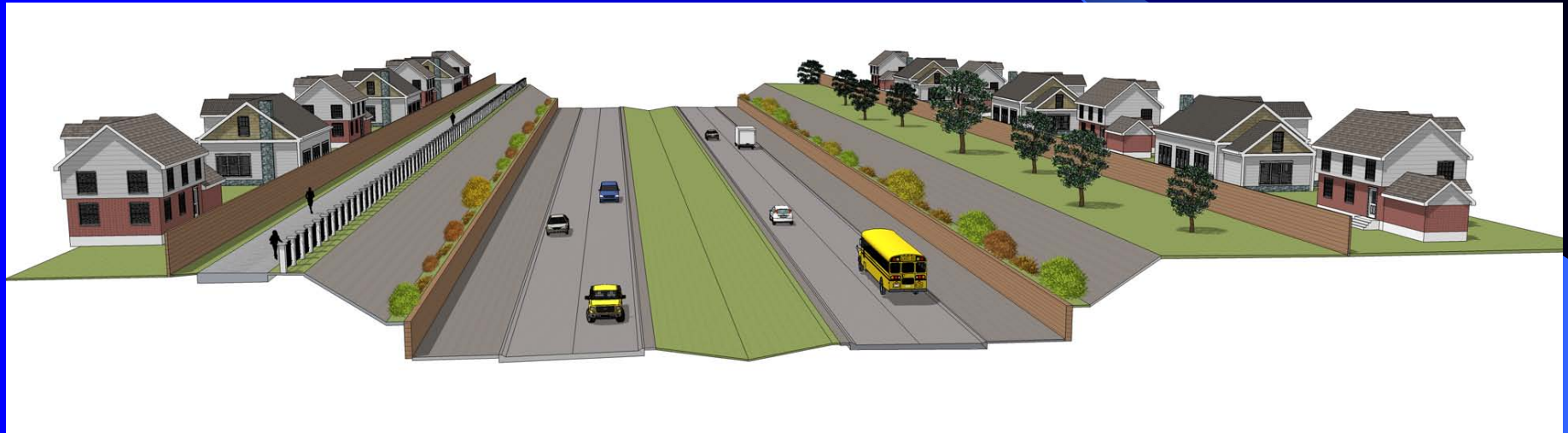
Project  
Location

28 August 2008



GENIVAR

# Stepped Planting Beds





# SOUND TRANSMISSION LOSS

ASTM E 90

## Architectural Testing

ATI No.	89608.01	Date	03/03/09
Client	SimTek™ Fence		
Specimen	Series/Model: Simtek 8-foot wall, simulated rock wall, 8' by 8' privacy fence section		
Specimen Area	64.00 Sq Ft		
Filler Area	76.00 Sq Ft		
Operator	Kurt Golden		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	71.2	70.9	71.7	71.1	71.8	71.2
RH %	44.1	44.6	45.1	44.3	42.9	44.5

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Deficiencies	Trans Coef
80	40.3	55.5	83.9	70.8	47.1	14	2.04	0	32.6
100	39.3	50.6	87.9	74.3	47.9	15	2.27	0	32.5
125	41.5	51.7	91.8	77.4	55.1	15	2.01	0	39.0
160	39.3	56.3	94.5	80.8	55.3	14	1.22	0	40.4
200	38.3	57.5	98.6	84.5	54.5	15	0.60	1	39.1
250	36.8	63.6	99.1	85.0	57.0	14	0.96	5	42.1
315	36.1	69.1	98.0	81.1	57.5	17	0.78	5	40.1
400	34.4	74.6	97.6	78.7	62.5	18	0.81	7	43.6
500	34.0	69.5	99.1	77.2	66.0	22	0.36	4	43.7
630	32.2	65.0	101.8	76.3	67.0	25	0.45	2	40.8
800	35.2	63.5	101.2	72.0	70.6	29	0.38	0	40.6
1000	32.7	65.5	100.9	69.2	74.0	32	0.26	0	41.7
1250	32.4	72.7	104.0	71.3	75.3	32	0.53	0	42.4
1600	30.1	77.1	110.0	78.3	74.1	31	0.47	0	42.5
2000	21.2	83.3	105.3	74.0	72.3	30	0.22	0	41.3
2500	10.9	98.8	103.7	72.6	74.6	29	0.22	1	44.7
3150	11.6	114.4	104.3	73.2	80.2	29	0.44	1	50.9
4000	9.5	137.9	103.2	69.8	83.2	30	0.33	0	52.4
5000	7.8	176.6	101.4	64.8	86.2	32	0.46	0	53.3

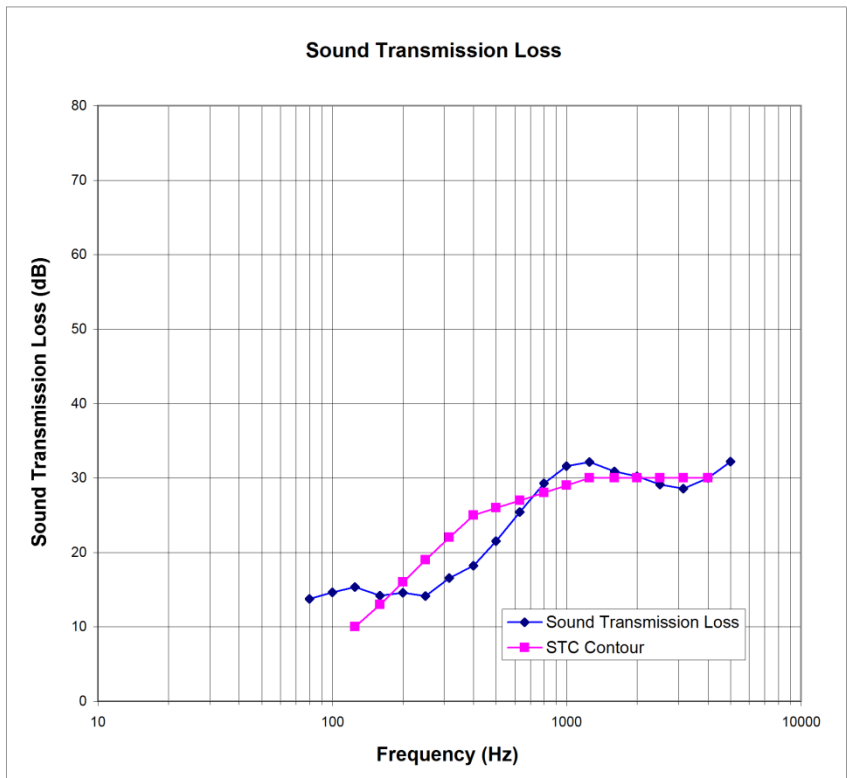
STC Rating = **26** (Sound Transmission Class)  
 Deficiencies = **26** (Number of deficiencies versus contour curve)  
 OITC Rating = **20** (Outdoor/Indoor Transmission Class)

- Notes:
- 1) The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only.
  - 2) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.
  - 3) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.
  - 4) Receive Room levels less than 5dB above the Background levels are highlighted in yellow.

 <b>ACCREDITED</b>	Architectural Testing, Inc is accredited by the International Accreditation Service, Inc. (IAS) under the specific test methods listed under lab code TL-144, in accordance with the recognized International Standard ISO/IEC 17025:2005. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by IAS. This test report applies only to the specimen that was tested.
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ATI 00254 Revised 10/27/08

# Noise





# Manitoba – Chief Peguis VE

- **Design Build submission savings 25%**
- **Successful award**
- **Construction Initiated 2010**

# Questions