



**ENBRIDGE PIPELINES (VIRDEN) INC.
Proposed Pipeline Project
04-20-09-25 W1M to 16-36-09-26 W1M
Near Virden, Manitoba**

**Manitoba Innovation, Energy and Mines
Project Application**

Date: August 12, 2011

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Enbridge Pipelines (Virden) Inc.
Proposed Pipeline Project

1. Background

Enbridge Pipeline (Virden) Inc. (“EPVI”) is proposing to build the following facility:

- A NPS 4 diameter pipeline that is approximately 5340 m in length originating from an existing pipeline tie-in point at 04-20-09-25 W1M and tying into another existing pipeline at 16-36-09-26 W1M, in order to create a continuous flow from the Enerplus battery at 16-17-09-25 W1M to the EPI Cromer Terminal (the “Project”).

This document will serve as an application to the Manitoba Innovation, Energy and Mines – Petroleum Branch to seek approval for the above noted facility. The application was prepared in accordance with the following acts and regulations:

- Section 149 (2) of the Oil and Gas Act (applicable to the proposed pipeline).

This document provides detailed information regarding the applicant, EPVI; detailed plans and information regarding the proposed Pipeline; a summary of consultation with landowners and occupants and a summary of other approvals and permits being applied for concurrently.

2. Applicant Information

EPVI is a subsidiary of Enbridge Pipeline (Saskatchewan) Inc. (“EPSI”). EPSI owns and operates crude oil and liquids pipeline systems in Southeastern Saskatchewan and Southwestern Manitoba, comprised of approximately 356 km of trunk line and approximately 1,900 km of crude oil and liquids gathering system pipeline and related terminals and storage facilities. The crude oil and natural gas liquids are transported to Cromer, Manitoba and from there to Eastern Canada and the United States via connecting pipeline systems.

2.1 Technical Qualifications

The EPSI Gathering System was built in 1955 to transport Crude Oil and Natural Gas Liquids to Eastern markets. EPSI has many years of experience designing and operating pipeline facilities in a safe and efficient manner.

2.2 Financial Qualifications

EPSI is part of Enbridge Income Fund Holding Inc. (“EIFH”). EIFH is underpinned by a 50% interest in the Alliance Canada Pipeline, a 100% interest in EPSI and Green Power assets which include a 50% interest in NRGreen Power Limited Partnership and interests in three wind power projects in Western Canada.



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3. Project Need

The proposed Project allows EPVI to continuously transport crude oil from the Enerplus battery at 16-17-09-25 W1M to the delivery point at EPI Cromer Terminal, and ultimately to markets in Canada and the US.

4. Pipeline Description

4.1 Physical Description

EPVI is proposing to construct an NPS 4 inch pipeline from 04-20-09-25 W1M to 16-36-09-26 W1M, in order to continuously transport crude oil from the Enerplus battery at 16-17-09-25 W1M to the Enbridge Pipelines Inc. (EPI) Cromer Terminal. This new pipeline will be approximately 5340 m in total length.

Additional details regarding the pipeline construction and operation are provided below.

4.1.1 Survey and Legal Description

The proposed pipeline will originate at a tie-in point to an existing pipeline at 04-20-09-25 W1M and will tie-in to another existing pipeline at 16-36-09-26 W1M. The survey of the proposed pipeline route is provided in Appendix A and includes the location of all road and plan crossings and in proximities to the pipeline right of way.

4.1.2 Substance Description

The proposed pipeline will transport crude oil, crude type Light Sour Blend (LSB). It is a light blend of crude with a sulphur content of 0.92 % by weight and a density of 835.1 kg/m³.

4.1.3 Proposed Pipeline Construction

The total length of the pipeline will be approximately 5340 m and will include two (2) third-party pipeline crossings, four (4) road allowance crossings, and five (5) buried cable crossings. There will be no installation of or to above ground facilities. The pipeline tie-ins will be below grade. A schematic of the pipe configuration as well as a typical profile and cross-section of the pipeline installation for pipeline, road allowance, and buried cable crossings is provided in Appendix B. The pipeline will be plowed using generally accepted installation practices with the pipeline having a minimum depth of cover of 1.5 m, while at road crossings, the pipeline will be bored. EPVI will acquire the necessary crossing agreements and ensure that there is a minimum of 0.3 m cover between the crossing utilities.



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The pipeline is proposed to be constructed of NPS 4 steel pipe. Specifically, the pipe will be 114.3 mm (outside diameter) x 4.0 mm Wall Thickness (W.T.) and 6.0 mm W.T. for all road crossings and will be constructed of Grade 359 Category II, YJ-1 coated steel pipe per CSA Regulation Z245.1 – Steel Line Pipe. The pipeline will be designed for 4,960 kPag maximum operating pressure. The pipeline will be hydro-tested at 6,200 kPag (1.25 x MOP) for a duration of 4 hours of strength test and 4 hours of leak test as outlined in CSA Guideline Z662-11 – Oil & Gas Pipeline Systems.

4.1.4 Pipeline Operation

The proposed pipeline is expected to operate at a rate between 9 m³/hr and 10 m³/hr. The pipeline will be continuously flooded with the product, and is expected to be flowing for a period of 10 to 12 hours every day.

4.2 Pipeline Safety Systems

4.2.1 Corrosion Control

The pipeline will be externally coated with Shaw Yellow Jacket (YJ-1) and all girth welds will be coated using Densyl Tape (All Purpose Petrolatum Tape). In addition, cathodic protection will be provided by the rectifier system currently installed at the Enerplus battery located at 16-17-09-25 W1M. The proposed corrosion control system will comply with Clause 9.0 of CSA Guideline Z662-11 – Oil & Gas Pipeline Systems.

4.2.2 Leak Detection and Emergency Shutdowns

EPVI intends to have a robust leak prevention and detection system in place along with an Emergency Shutdown plan for the pipeline. The proposed plan will include the following:

- Pigging of the pipeline at regular intervals to remove any build up of potentially corrosive material on the pipeline
- Smart pigging of the pipeline at regular intervals to identify any potential weaknesses in the pipeline
- Mass flow meters at either end of the pipeline along with leak detection software (ATMOS license) to monitor for any loss of product in the pipeline, as per the requirements of CSA Z662
- Pressure Indicating Transmitters (PITs) to track any unexpected pressure loss in the pipeline

This information will be used to plan maintenance, automatically shutdown the pipeline and/or alert the Control Room operators of abnormal situations.



5. Landowner and Occupant Consultations

The consultation program for this Project was designed and implemented to ensure all potentially affected parties were engaged and provided with detailed and timely information respecting the Project.

DESIGN & IMPLEMENTATION OF THE CONSULTATION PROGRAM

Through experience gained from other projects in the Southwestern Manitoba area, the anticipated impacts on stakeholders were identified and assessed to determine expected levels and areas of public interest in the Project. Enbridge Virden also took into account the nature and type of work to be undertaken as part of the construction and operation of the Project. An appropriate consultation program was then designed. The following is a list of the drivers that influenced the design of the consultation program:

- As the Project work and new pipeline construction proposed are modest in scope, the nature, magnitude and potential impacts associated with the Project are not expected to be extensive or long-lasting.
- The Project's impacts with respect to construction noise, dust, traffic, and disruptions due to equipment movement are expected to be low. There will be an increase in noise arising from construction activities but it will cease immediately upon construction completion.
- At any given time, the work force on site will not exceed fifteen people. The Project will have a negligible impact on local infrastructure (such as roads, power utilities, water, and solid waste facilities) and on local services (such as accommodation, recreation, emergency and health care).
- The construction crews would be working no more than six days a week, during daylight hours; the construction window will be between two and three weeks.
- Enbridge has typically had positive relationships with local landowners and regional stakeholders.
- There is a significant amount of oil and gas development taking place in this area, which means the landowners are sensitized to development of this nature.

STAKEHOLDER GROUPS CONSULTED & METHOD OF CONSULTATION

The following stakeholders have been identified by Enbridge Virden as being potentially affected by the Project:



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DIRECTLY IMPACTED LANDOWNER

There are seven landowners on whose property the Project is to be constructed.

- Enbridge Virden has and will continue to consult personally with these landowners. Easement Agreements and Tenant Consents have already been discussed, negotiated, and acquired.

PRIMARY STAKEHOLDER GROUPS

Landowners and Tenants within a 1.5 km radius of the tie-in points and 0.5 km distance along the centerline of the pipeline.

- Project information packages were mailed to the respective landowners and tenants, within the radii mentioned above.

OTHER STAKEHOLDERS GROUPS – potentially affected

RM of Pipestone

- Project information packages were mailed (same packages that were sent to landowners and tenants).
- The RM has approved and signed a pipeline route drawing for the Project dated on May 24, 2011.

RM of Sifton

- Project information packages were mailed (same packages that were sent to landowners and tenants).
- The RM has approved and signed a pipeline route drawing for the Project dated on July 19, 2011.



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SUMMARY OF COMPLETED ACTIVITIES & RESULTS

ACTIVITY	TIMING 2011	DETAILS	ISSUES AND/OR CONCERNS RAISED
Face-To-Face Visit with all directly impacted landowners and tenant	Completed between March and April, 2011	<p>Enbridge Virden Land Agents met with directly impacted landowners and tenant to discuss the Project details, answer questions, and address any potential concerns.</p> <p>During this time period land agents also secured easement agreements.</p>	The landowners and tenant had no issues with Project
Mailed project information packages to landowners and tenants within a 1.5 km radius of the tie-in points and 0.5 km from the centerline of the pipeline	Completed on July 20	A description of the Project scope and a map of the proposed project area was sent by regular mail to the adjacent landowners located within the radii established by the Manitoba Innovation, Energy and Mines – Petroleum Branch.	To date no issues have been identified
Received Written Project approval from the RM of	Completed May 24, 2011	A Project description was provided to the RM of Pipestone for their approval. The RM signed-off on the	No issues were identified



Enbridge Pipelines (Virden) Inc.
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ACTIVITY	TIMING 2011	DETAILS	ISSUES AND/OR CONCERNS RAISED
Pipestone		Project on July 19, 2011.	
	Completed July 21, 2011	The same Project information package that was mailed to the adjacent landowners and tenants was also mailed to the RM.	No issues were identified
Received Written Project approval from the RM of Sifton	Completed July 19, 2011	A Project description was provided to the RM of Sifton for their approval. The RM signed-off on the Project on July 19, 2011.	No issues were identified
	Completed July 21, 2011	The same Project information package that was mailed to the adjacent landowners and tenants was also mailed to the RM.	No issues were identified



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6. Environment, Health and Safety

6.1 Environmental Plan

EPVI will utilize company manuals (Environmental Guidelines for Construction, Waste Management Plan, and Vegetation Management Plan) and procedures (Operating and Maintenance Procedures) to develop this project in an environmentally responsible manner. Relevant topics included in our documents include, but not are limited to:

- Site and right of way access
- Erosion and silt control
- Topsoil salvage
- Pipeline installation techniques
- Trench (Bell hole) water management
- Vegetation, habitat, and wildlife protection measures
- Environmental inspection
- Reclamation
- Spill reporting
- Emergency mitigation procedures

6.2 Emergency Response Plan

A site-specific Emergency Response Plan will be developed for the construction of the pipeline and will include the nearest hospital, emergency service numbers, and a map for specific emergency routes to and from the construction location.

7. Other Approvals

In addition to the Petroleum Branch approval, EPVI is either concurrently seeking or intends to seek the additional approvals and permits outlined below.

Manitoba Conservation

Manitoba Conservation has not yet reviewed the Project; however Enbridge will be submitting the Environmental Assessment Report to them for review. Once Manitoba Conservation reviews the Project, Enbridge will forward the review results to the Petroleum Branch.



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Enbridge is not anticipating that an Environmental License is required as the Project does not go through or impact any environmentally sensitive areas and is less than 10 kilometers.

Manitoba Infrastructure and Transportation

EPVI intends to notify Manitoba Rural Municipalities and obtain required approvals.

Other Utilities and Right of Ways

EPVI intends to notify and obtain required crossing and proximity agreements for all utilities and existing rights of way.

Affected Municipalities

Although the proposed pipeline is not located within 1.5 kilometers of any urban municipality, EPVI has received approvals from the RM of Pipestone and the RM of Sifton for the proposed Project.

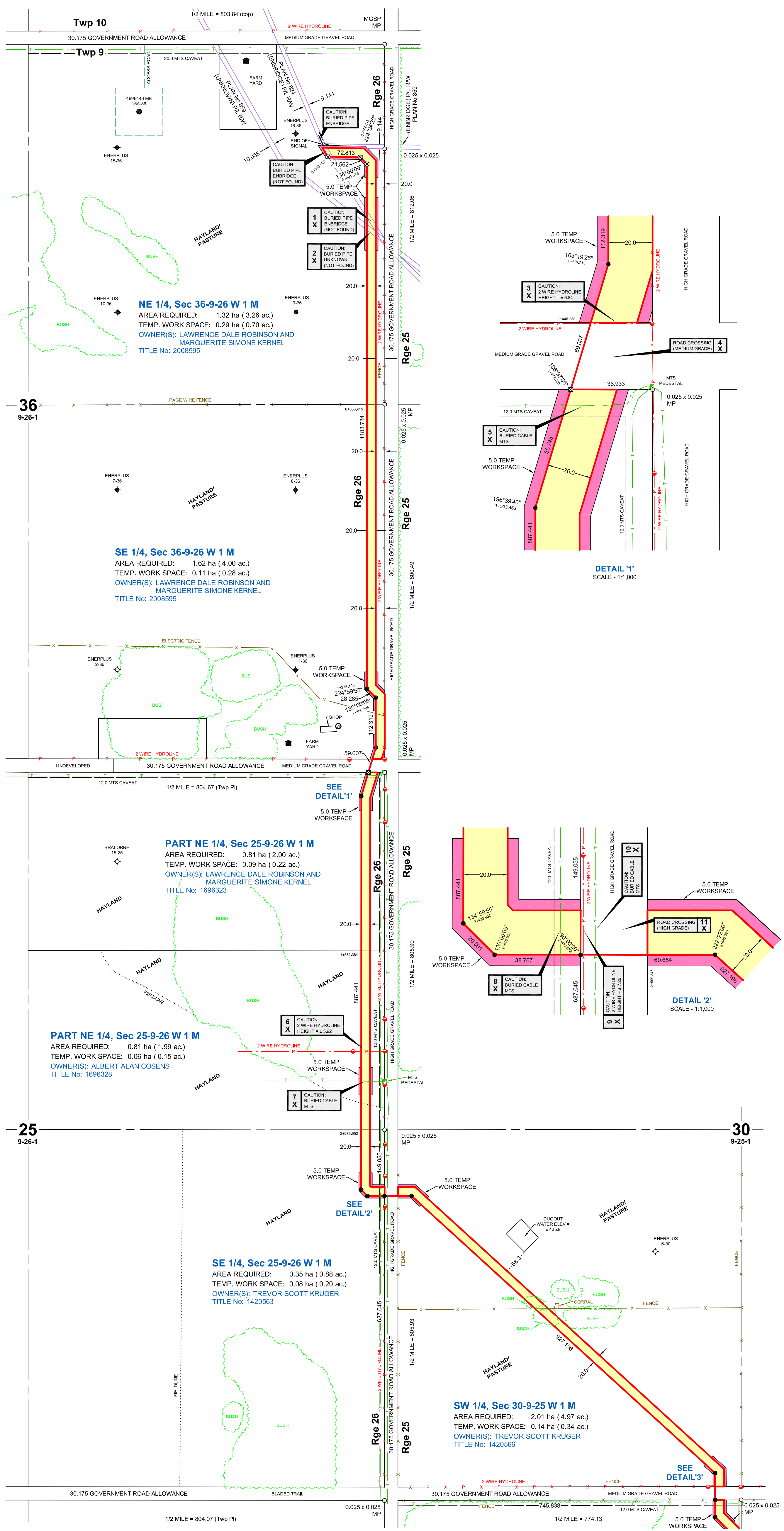
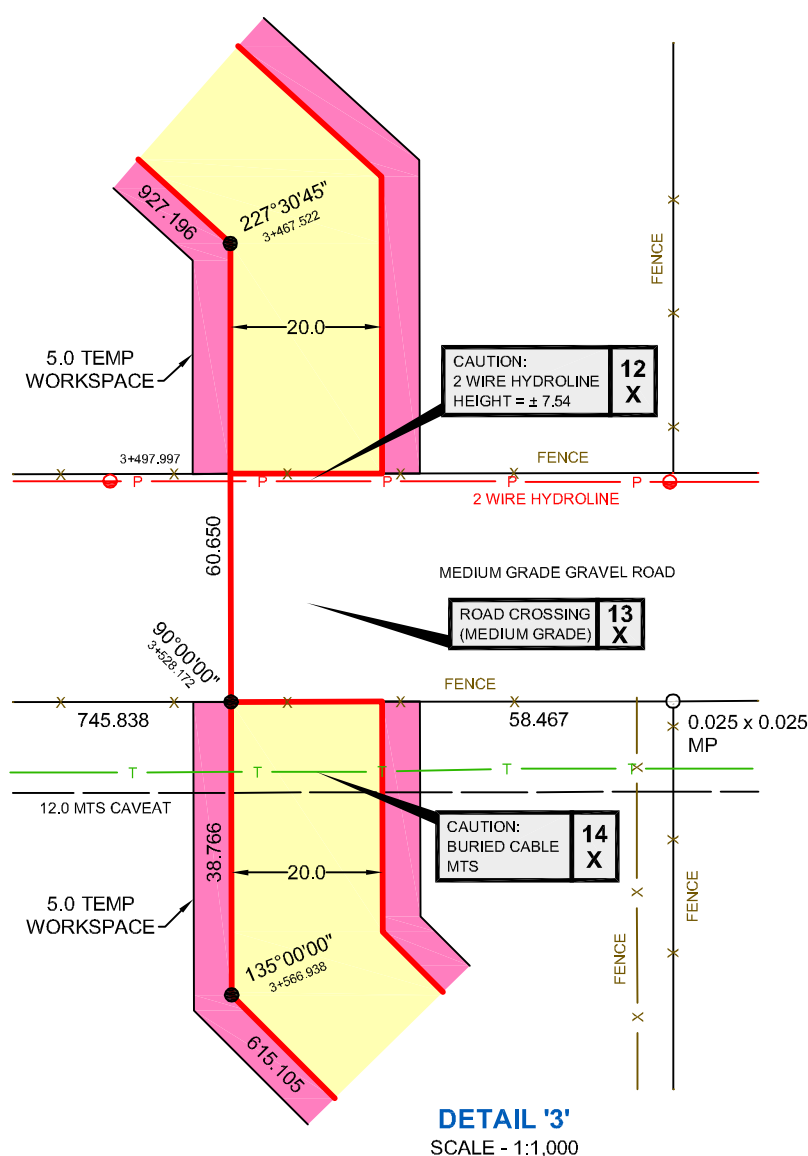
Department of Municipal Affairs, Culture and Housing (Heritage Branch)

Should any archeological sites along the pipeline right of way be identified through desktop reviews of available information, EPVI will seek the necessary approvals to install the proposed pipeline.



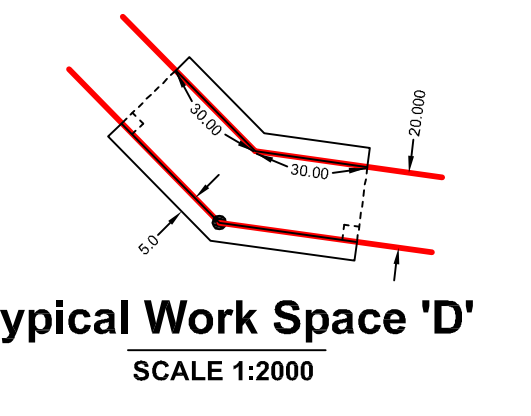
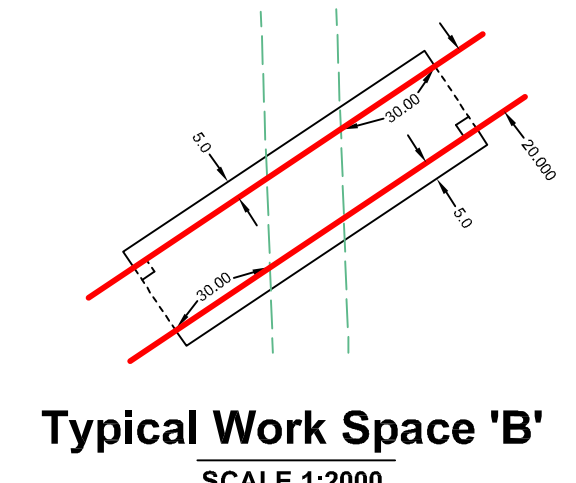
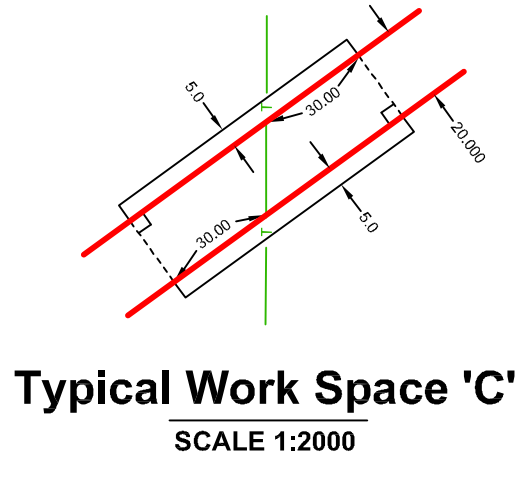
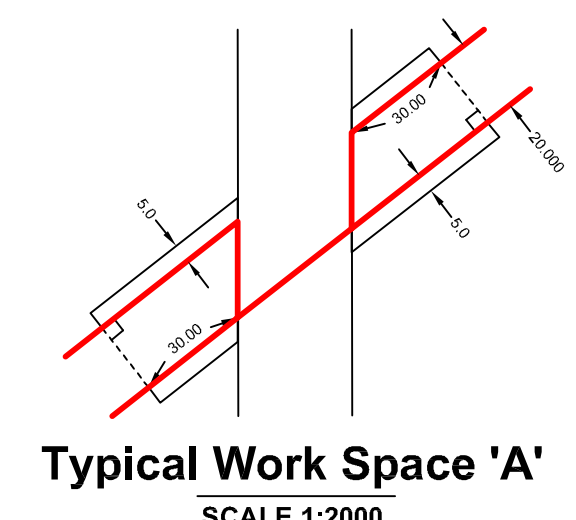
Enbridge Pipelines (Virden) Inc.
Proposed Pipeline Project

Appendix A
Preliminary Pipeline
Right of Way Survey Plan



BOOK OF REFERENCE					
STATION TO STATION	DISTANCE (Meters)	R.O.W. Width	AREA Hectares	LEGAL DESCRIPTION	OWNER
0+000.000 - 0+636.415	636.415	20.0	1.32	NE 1/4, Sec 36-9-26 W 1 M	LAWRENCE DALE ROBINSON AND MARGUERITE SIMONE KERNEL
0+636.415 - 1+446.230	809.815	20.0	1.62	SE 1/4, Sec 36-9-26 W 1 M	LAWRENCE DALE ROBINSON AND MARGUERITE SIMONE KERNEL
1+477.720 - 1+882.384	404.664	20.0	0.81	PART NE 1/4, Sec 25-9-26 W 1 M	LAWRENCE DALE ROBINSON AND MARGUERITE SIMONE KERNEL
1+882.384 - 2+285.952	403.568	20.0	0.81	PART NE 1/4, Sec 25-9-26 W 1 M	ALBERT ALAN COSENS
2+285.952 - 2+479.672	193.720	20.0	0.35	SE 1/4, Sec 25-9-26 W 1 M	TREVOR SCOTT KRUGER
2+509.847 - 3+487.997	988.150	20.0	2.01	SW 1/4, Sec 30-9-25 W 1 M	TREVOR SCOTT KRUGER

CROSSING / REFERENCE DRAWINGS			
No.	DESCRIPTION	LOCATION	DRAWING No:
1X	(ENBRIDGE) PL RAW - PLAN No 824 (BURIED PIPE - NOT FOUND)	NE 1/4, Sec 36	NOT ISSUED
2X	(UNKNOWN) PL RAW - PLAN No 869 (WATER DISPOSAL LINE - NOT FOUND)	NE 1/4, Sec 36	SM-0014-11-XNG-2
3X	2 WIRE HYDROLINE (HEIGHT = ± 6.84)	SE 1/4, Sec 36	SM-0014-11-XNG-3
4X	30.175 GOVERNMENT ROAD ALLOWANCE (MEDIUM GRADE GRAVEL)	SE 1/4, Sec 36	SM-0014-11-XNG-4
5X	BURIED MTS CABLE	NE 1/4, Sec 25	SM-0014-11-XNG-5
6X	2 WIRE HYDROLINE (HEIGHT = ± 5.92)	NE 1/4, Sec 25	SM-0014-11-XNG-6
7X	BURIED MTS CABLE	NE 1/4, Sec 25	SM-0014-11-XNG-7
8X	BURIED MTS CABLE	SE 1/4, Sec 25	SM-0014-11-XNG-8
9X	2 WIRE HYDROLINE (HEIGHT = ± 7.26)	SE 1/4, Sec 25	SM-0014-11-XNG-9
10X	BURIED MTS CABLE	SE 1/4, Sec 25	SM-0014-11-XNG-10
11X	30.175 GOVERNMENT ROAD ALLOWANCE (HIGH GRADE GRAVEL)	SW 1/4, Sec 30	SM-0014-11-XNG-11
12X	2 WIRE HYDROLINE (HEIGHT = ± 7.54)	SW 1/4, Sec 30	SM-0014-11-XNG-12
13X	30.175 GOVERNMENT ROAD ALLOWANCE (MEDIUM GRADE GRAVEL)	SW 1/4, Sec 30	SM-0014-11-XNG-13



REVISION / ISSUED		
DATE:	DESCRIPTION	JOB NO.
February 17, 2011	- PLAN ISSUED	SM-0014-11-CON
April 20, 2011	- REVISED FLOWLINE ROUTE IN E 1/2, Sec 36	SM-0014-11-CON-R1

LEGEND:

SURVEY MONUMENTS FOUND SHOWN THIS: ○

SURVEY MONUMENTS PLANTED SHOWN THIS: ●

0.025 x 0.025 IRON PEGS PLANTED SHOWN THIS: ○

DISTANCES ARE IN METRES AND DECIMALS THEREOF

BURIED PIPE SHOWN THIS: —

BURIED CABLE SHOWN THIS: —

BURIED ELECTRICAL CABLE SHOWN THIS: —

BURIED MTS CABLE SHOWN THIS: —

HYDRO POLE SHOWN THIS: —

HYDROLINE SHOWN THIS: —

UTILITY GAS LINE SHOWN THIS: —

FENCE LINE SHOWN THIS: —

TREE / BUSH LINE SHOWN THIS: —

PORTIONS REFERRED TO SHOWN THIS: —

WELL LEGEND:

○ LOCATION

⊗ GAS WELL

● OIL WELL

⊗ INJECTION WELL

⊗ GAS INJECTION WELL

⊗ SERVICE WELL

⊗ SUSPENDED WELL

⊗ ABANDONED WELL

⊗ ABANDONED GAS WELL

⊗ SUSPENDED OIL WELL

⊗ ABANDONED OIL WELL

⊗ SUSPENDED OIL WELL

⊗ WATER WELL

FACILITIES SOURCE DATA

	Yes	No	N/A
Legal Plans	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land Titles	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manitoba Telephone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manitoba Hydro	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wellsite Listing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER Triple Sweep	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: Positions of buried facilities shown are derived from interpretations of signals from electronic devices. Reception of electronic signals is subject to interference and has limitations, therefore it should not be assumed that all buried facilities are shown, and facilities which are shown should not be construed as "located" until physically exposed. All underground installations should be marked by the respective authorities prior to excavation or construction.

I certify that the survey represented by this plan is correct to the best of my knowledge and was completed on the 5th day of February, 2011.

David J. Quirk
David J. Quirk
Manitoba Land Surveyor
MIDWEST SURVEYS INC.

SURVEYED BY: LP CALC'D. BY: CO DRAWN BY: JB

TOTAL LENGTH OF RIGHT-OF-WAY ALONG POSTED BOUNDARY = 5341.440 (3528.172 ON SHEET No. 1)

ENBRIDGE PIPELINES (VRDEN) INC.

ENBRIDGE

P. ENG.

PROJECT NAME: 16-36-9-26 to 4-20-9-25 W 1 M tie in AFE:

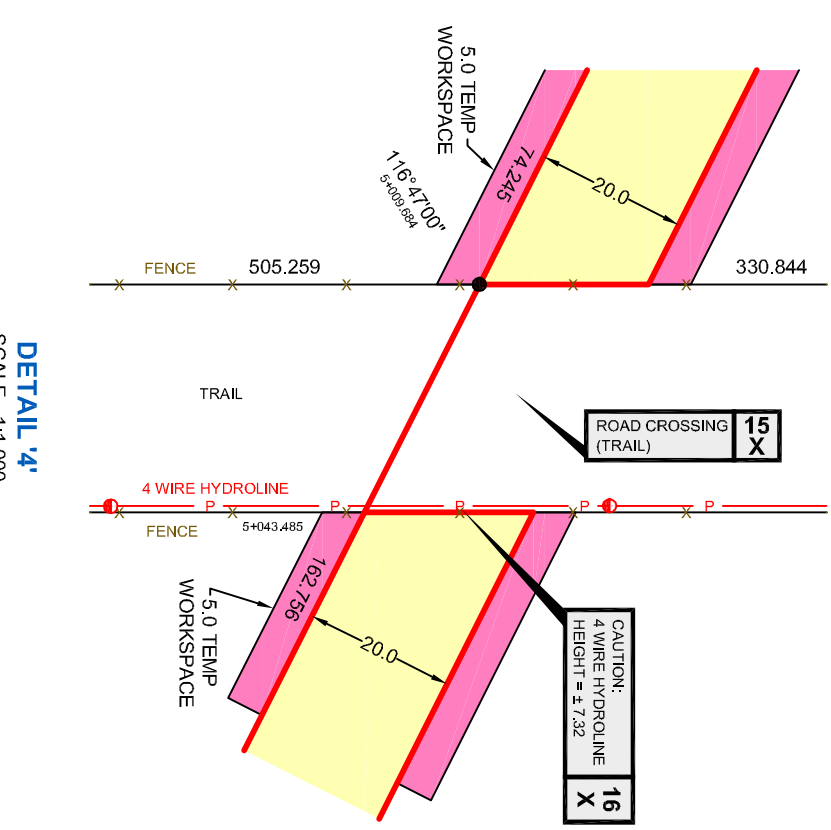
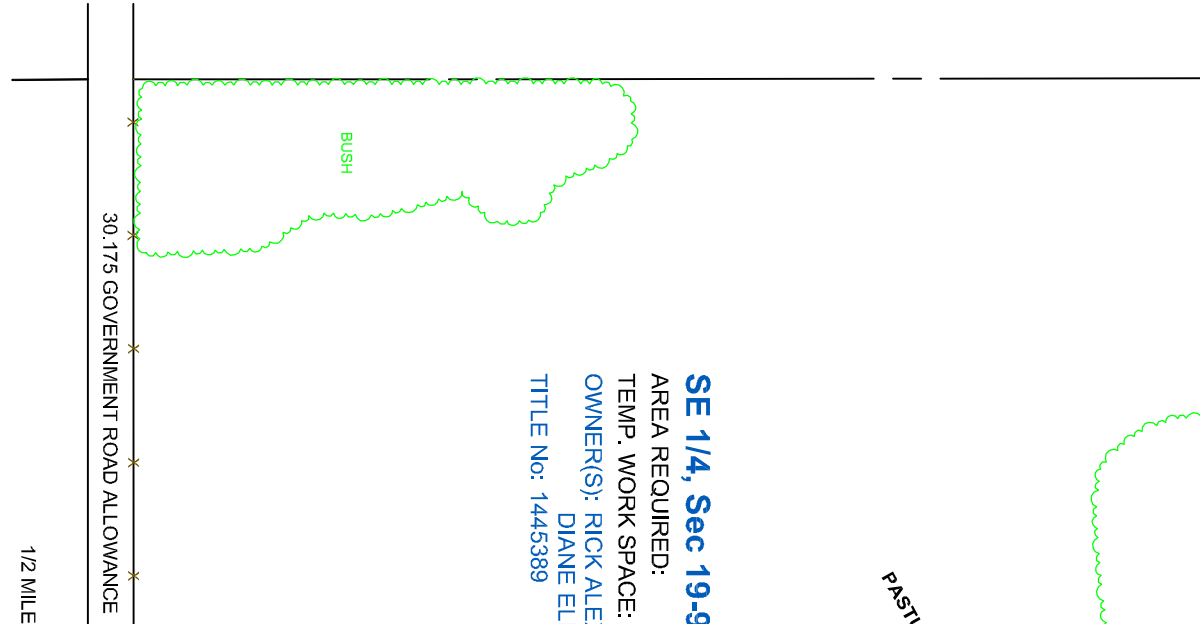
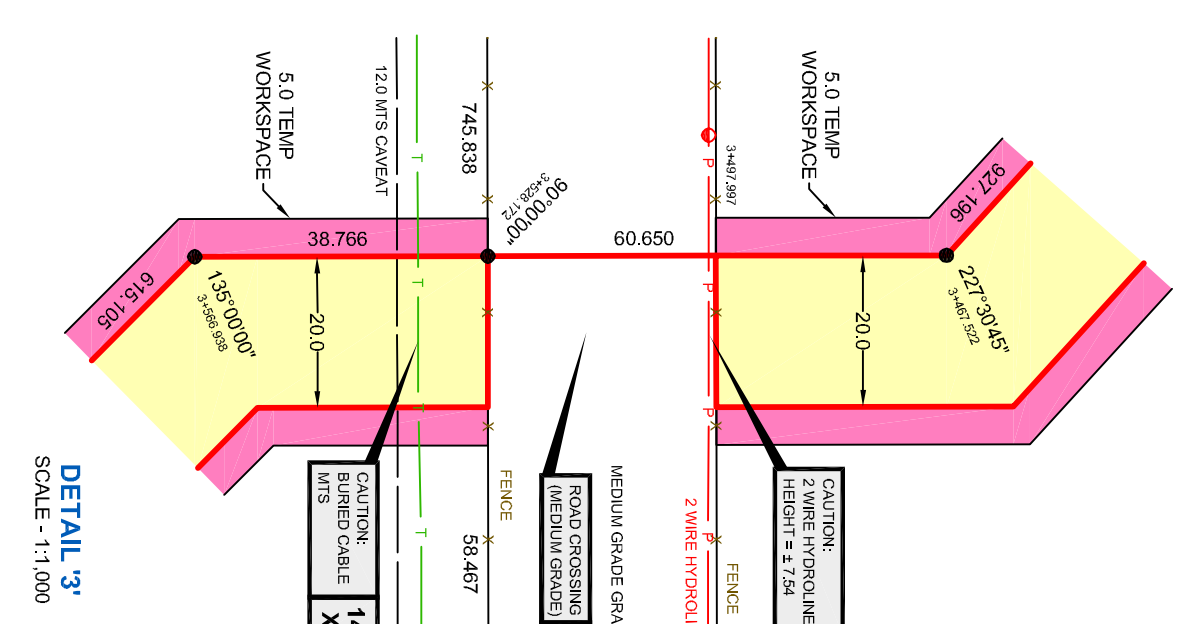
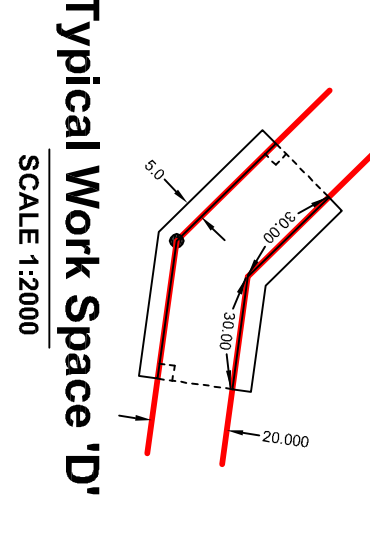
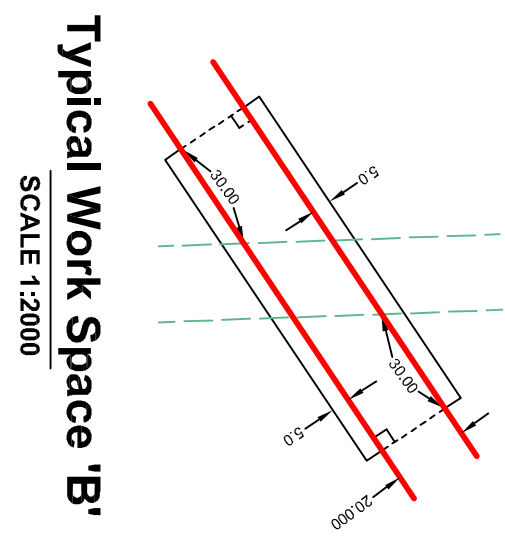
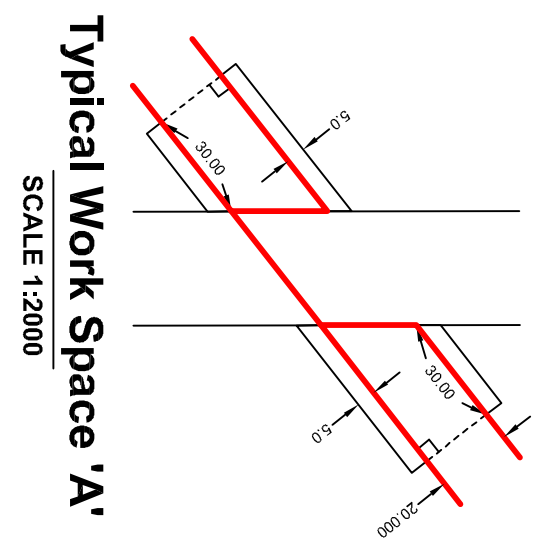
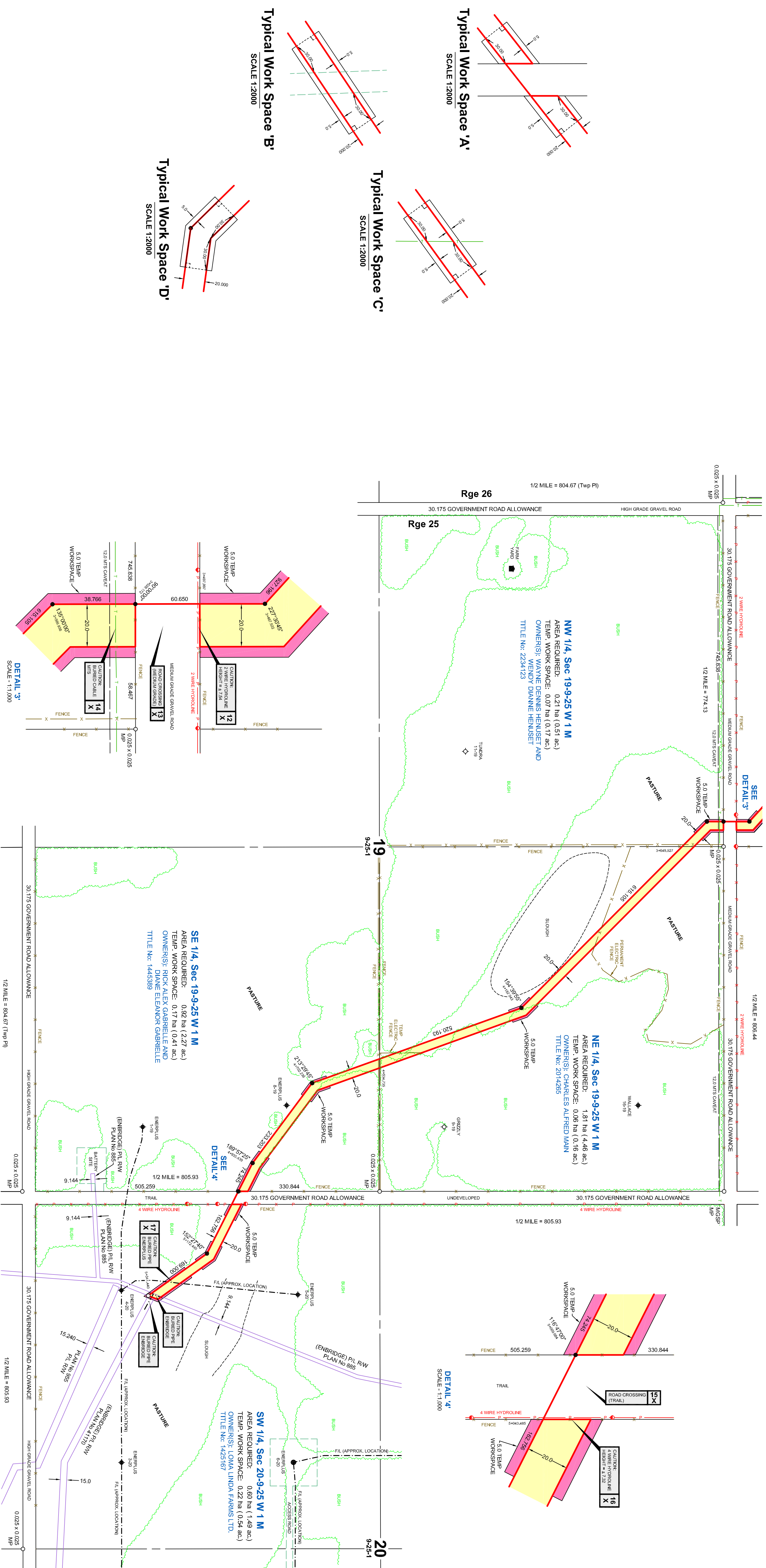
PLAN SHOWING
PIPELINE CONSTRUCTION ALIGNMENT
IN
**N 1/2 & SE 1/4, Sec 19, SW 1/4, Sec 20, and SW 1/4, Sec 30,
Twp 9, Rge 25, W 1 M
E 1/2, Sec 25, and E 1/2, Sec 36,
Twp 9, Rge 26, W 1 M
R.M. OF PIPESTONE**

SCALE = 1:5000
SHEET No. 1 of 2

MIDWEST SURVEYS INC.
David J. Quirk M.L.S.
ESTEVAN: (306) 634-2636 FAX: (306) 634-3164

REVISION
1

SM-0014-11-CON-R1



STATION TO STATION	DISTANCE (Meters)	R.O.W. Width	AREA Hectares	LEGAL DESCRIPTION	OWNER
3+563.172-3+649.627	121.555	20.0	0.21	NW 1/4, Sec 19-25 W 1 M	WYNNE DENNIS HENJEST AND WENDY DANNIE HENJEST
3+649.627-4+524.735	865.208	20.0	1.81	NE 1/4, Sec 19-25 W 1 M	CHARLES ALFRED WAIN
4+524.735-5+009.894	474.249	20.0	0.92	SE 1/4, Sec 19-25 W 1 M	RICK ALEX GABRIELLE AND DANE ELENOR GABRIELLE
5+043.485-5+341.440	297.955	20.0	0.69	SW 1/4, Sec 20-25 W 1 M	LOMA LINDA FARMS LTD.

BOOK OF REFERENCE		CROSSING / REFERENCE DRAWINGS	
No.	DESCRIPTION	LOCATION	DRAWING NO.
14X	BURNED MTS CABLE	NW 1/4, Sec 19	SM-0014-11-XNG-14
15X	30.175 GOVERNMENT ROAD ALLOWANCE (TRAIL)	SW 1/4, Sec 20	SM-0014-11-XNG-15
16X	4 WIRE HYDROLINE (HEIGHT = 4.72)	SW 1/4, Sec 20	SM-0014-11-XNG-16
17X	BURNED EMERGENCY PIPE	SW 1/4, Sec 20	SM-0014-11-XNG-17

DATE:	REVISION / ISSUED	DESCRIPTION	JOB NO.
February 17, 2011	- PLANNED		SM-0014-11-CORR
April 20, 2011	- REVISED FOLLOWING ROUTE IN E 1/2, Sec 25		SM-0014-11-CORR-1

RIGHT OF WAY INFORMATION	
RIGHT-OF-WAY BOUNDARIES	FLAGGED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
BURNED FACILITIES	FLAGGED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

ENBRIDGE

PROJECT NAME: 16-36-9-28 to 4-20-9-25 W 1 M in

PLANNING AND ENGINEERING

PIPELINE CONSTRUCTION ALIGNMENT

IN

N 1/2 & SE 1/4, Sec 19, SW 1/4, Sec 20, and SW 1/4, Sec 30, Twp 9, Rge 25, W 1 M

E 1/2, Sec 25, and E 1/2, Sec 36, Twp 9, Rge 26, W 1 M

R.M. OF PIPESTONE

SCALE = 1:5000

SHEET No. 2 of 2

MIDWEST SURVEYS INC.

DAVID J. QUIRK M.L.S.

ENBRIDGE PIPELINES (WYDEN) INC.

LEGEND:

SURVEY MONUMENTS FOUND SHOWN THUS:

SURVEY MONUMENTS PLANTED SHOWN THUS:

0.025 x 0.025 IRON POSTS PLANTED SHOWN THUS:

WELL LEGEND:

○ LOCATION

● GAS WELL

● OIL WELL

○ REFLECTION WELL

○ GAS INJECTION WELL

○ MANDATORIA TELEPHONE

○ MANDATORIA HYDRO

○ SUSPENDED WELL

○ ABANDONED WELL

○ ABANDONED GAS WELL

○ SUSPENDED GAS WELL

○ ABANDONED OIL WELL

○ SUSPENDED OIL WELL

○ WATER WELL

FACILITIES SOURCE DATA

Facility Name	Yes	No	N/A
Legal Plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manitoba Telephone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manitoba Hydro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waterline Listing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER: Third Swamp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Distances shown in this plan are not to be included in total. There are no urban or rural centres within 1.5 kms of the proposed pipeline right of way.

NOTE: Positions of buried facilities shown are derived from interpretations of signals from electronic devices. Reception of electronic signals is subject to interference and the installation of electronic devices should not be considered as "received" until physical evidence. All underground installations should be marked by the respective authorities prior to excavation or construction.

I certify that the survey represented by this plan is correct to the best of my knowledge and was completed on the 20th day of February, 2011.

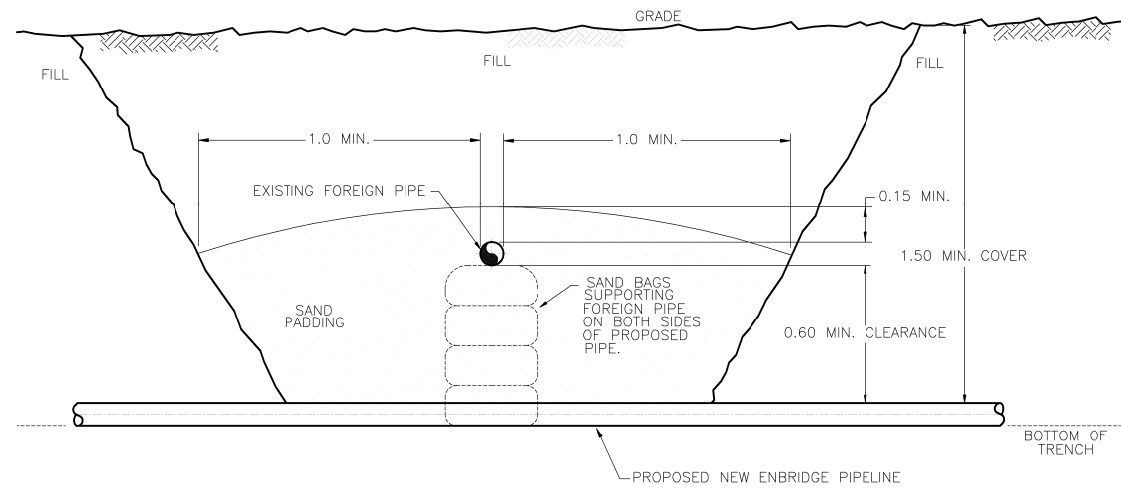
David J. Quirk
David J. Quirk, Surveyor
MIDWEST SURVEYS INC.



Enbridge Pipelines (Virden) Inc.
Proposed Pipeline Project

Appendix B
Pipeline Schematic and Typical Profile and
Cross-Sections of Pipeline Crossings

Appendix B - Pipeline Schematic and Typical Profile and Cross-Sections of Pipeline Crossings



NOTES:

1. ALL DIMENSIONS IN METERS.
2. TRENCH AT EXISTING FOREIGN PIPELINE TO BE EXPOSED BY WATER WASHING OR BY HAND PRIOR TO ANY MECHANICAL EXCAVATION.
3. WHERE FOREIGN PIPELINE IS ALUMINUM, CLEARANCE SHALL BE INCREASED TO 0.8 m MINIMUM.
4. IN CASES WHERE EXISTING FOREIGN PIPELINE IS AT ABNORMAL DEPTH, THE NEW PIPELINE MAY BE ABOVE IF APPROVED BY OWNER OF FOREIGN PIPELINE. 0.6 m MINIMUM CLEARANCE SHALL BE MAINTAINED.
5. SAND PADDING NOT REQUIRED FOR STEEL PIPELINES. SELECTED FILL MATERIAL MAY BE SUBSTITUTED.
6. ADEQUATE NOTICE SHALL BE GIVEN TO THE FOREIGN PIPELINE OWNER SO THAT THEIR REPRESENTATIVE MAY BE PRESENT WHEN CROSSING INSTALLATION IS MADE.
7. IF CATHODIC PROTECTION IS REQUIRED SEE DRAWING No. A-PPD-590 Sht.156
8. THE TEST LEADS, WHERE TEST LEADS TO FOREIGN LINES ARE REQUIRED, SHALL BE ATTACHED TO THE FOREIGN LINE BY EMPLOYEES OF FOREIGN COMPANY OR UNDER THEIR DIRECT SUPERVISION.

REV	REVISION DESCRIPTION	BY	DATE	CHKD	APP	ENGINEERING RECORD		TITLE ENBRIDGE PIPELINES (SASKATCHEWAN) INC. TYPICAL FOREIGN PIPELINE CROSSING CROSS SECTION
						PROJECT		
						AFE/FILE	DATE 1999-07-21	
						DRAWN BY J.D. MICHEL	DESIGNED BY	
						CHKD BY D.A. COOK	ACAD DWG No. TYP590155.DWG	
						ENGINEER	LAST UPDATE: PLOTDATE	
						J:\DWG\TYF\	SCALE N.T.S.	DRAWING No. A-TYP-590
								SHT. 155 REV A