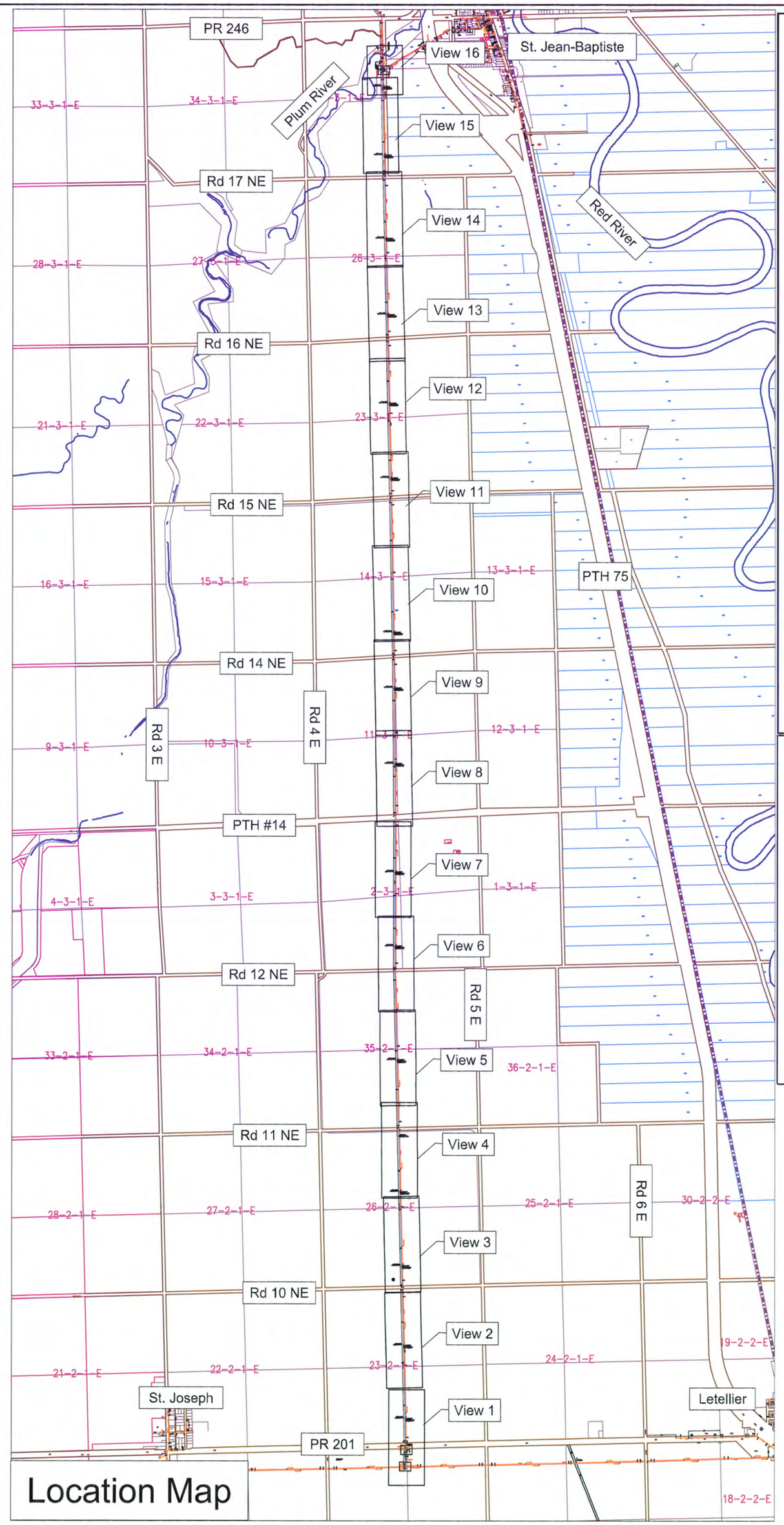

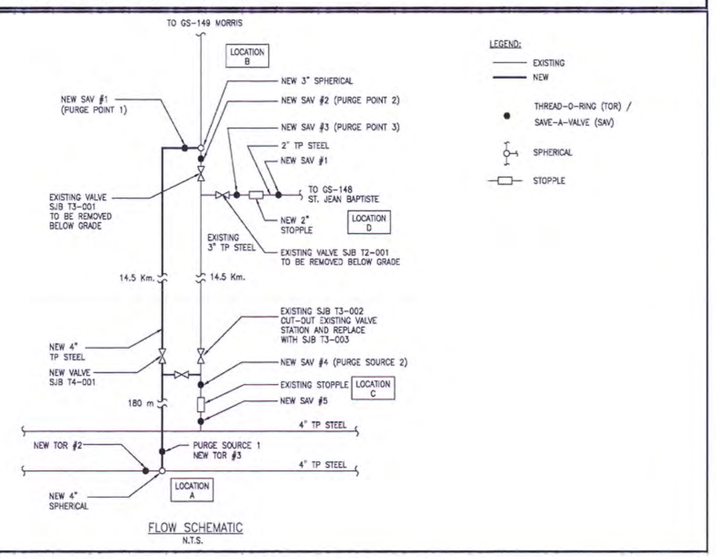

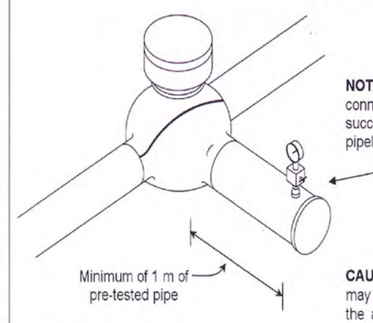

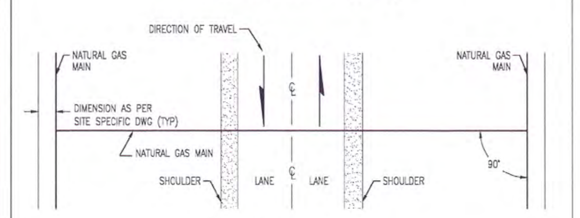

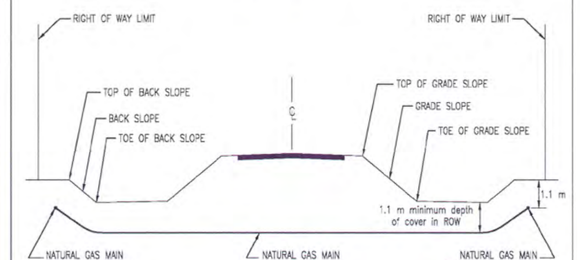

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
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GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
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Inspector:
Remarks:

Comments/Notes

Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
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Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:

Location Map

MER 2013-01041
MORRIS PIPELINE LOOPING
4" STEEL INSTALLATION, NEW ABOVE GRADE VALVE ASSEMBLY,
AND EXISTING VALVE ASSEMBLY ABANDONMENT
March 27, 2013

Construction Contact:	Bruce Leaf	360-7494 794-6138 (Cell)
Engineering Contact:	Greg Blazek	360-7707 612-2213 (Cell)
CSO Contact:	Shane Heiner	360-5568 795-6429 (Cell)
GAM&C Contact:	Axel Thiem	360-5917 782-0341 (Cell)
CDCC Contact:	Laird Ouellette	478-2498 981-9810 (Cell)
Reference Drawings:	CD-16961 CR-133139 DWG SET 1-C2101-DB-92100-0001 C001	

NOTES:

- Deviations from this procedure shall have prior written approval of the Sealing Engineer.
- The Construction Supervisor will be the Person in Charge. The Construction Supervisor will be the key holder for all keys used in the lock out/tag out procedures with the on-site Construction Inspector as the key holder when the Construction Supervisor is not on site. Lock out/tag out shall be performed in accordance with the requirements of the Worker Protection Code- Lock out Publication 0147/08.
- Valves that are to be operated shall be checked for their orientation - i.e. open or closed. Simply turning the valve in the direction that it will turn is not sufficient.
- CDCC shall be informed of the status of the system at the end of each work day and any time that the system status is changed during the project. (204) 478-2499
- The following tasks shall be done in accordance with approved Manitoba Hydro Natural Gas Standards and Procedures.
- The pressure in the South Loop line shall be reduced to 350 psig to permit welding. A switching order will be required to perform the pressure reduction.

Installation of New 4" TP Steel Main

1. Location A to B - Install all NPS 4 mains and fittings as per CD-16961. **(Contractor)**
2. All welds shall be non-destructively inspected. **(NDT)**
3. Upon successful completion of NDT, perform strength and leak test of main according to MH Standard 620.05. **(Contractor)**
4. Perform leak tests of spherical fitting assemblies (spherical and outlet pipe) according to MH Standard 620.09. Utilize stubs of pre-tested pipe on outlet of the sphericals. **(Contractor)**
5. Upon successful completion of strength and leak tests, dewater and dry main. Tie in main to spherical assemblies. **(Contractor)**
6. All welds shall be non-destructively inspected. **(NDT)**
7. Upon successful completion of NDT, proceed to next step.

Energizing of New 4" TP Steel Main
Note: All purging to be done according to Manitoba Hydro Standard 611.01.

8. Location B - Purge Point 1 - Tap 2" TOR # 1 and install purge stack. **(CSO)**
9. Location A - Purge Source 1 – Inject 4 bottles of nitrogen into 2" TOR # 3. **(CSO)**
10. Location A – Install 2" by-pass from TOR #2 and to TOR #3 to introduce gas into the main. **(CSO)**
11. Location A – Tap 4" Wm Spherical once pressure is equalized on both sides of 4" Wm Spherical and remove 2" bypass. **(CSO)**
12. Location B - Purge Point 1 – When required gas concentration is reached at purge stack close valve at TOR #1. **(CSO)**
13. Location B -Tap 3" Wm spherical. **(CSO)**
14. Soap test all fittings. **(CSO)**

****NEW 4" TP MAIN IS NOW ENERGIZED****

Isolation of Existing NPS 3 Main to Permit Removal of Existing Valve Stations (Valves SJB T2-001, SJB T3-001) and Replacement of Valve Station SJB T3-002
Note: All purging to be done according to Manitoba Hydro Standard 611.01.

15. Location B & D - Install 2" bypass between TOR #1 at Location B and SAV #1 at location D to provide continuous gas supply to St. Jean-Baptiste. **(CSO)**
16. Location B - Stop gas flowing South in 3" TP main using 3" Wm Spherical. **(CSO)**
17. Location C - Stop gas flowing North into 3" TP main using existing 3" Wm Stopple. **(CSO)**
18. Location D – Stop gas flowing West to East in 2" TP main using new 2" Wm Stopple. **(CSO)**
19. Location B - Purge Point 2 – Tap SAV #2 and install purge stack. **(CSO)**
20. Location D - Purge Point 3 -Tap SAV #3 and install purge stack. **(CSO)**
21. Location B & D - Flare main of gas at SAV #2 (Purge Point 2) and SAV #3 (Purge Point 3). Notify the appropriate authorities prior to flaring. **(CSO)**
22. Location C - Purge Source 2 - Inject 4 bottles of nitrogen followed by dry air into SAV #4 and purge main of all residual natural gas. **(CSO)**

Note: Prior to cutting main to install new pre-tested pipe and to remove valve assemblies, test and confirm that gas concentrations in air are less then 1% at cutting locations. Contractor shall use the cold cutter on the first cut.

23. Location B, C, and D - Cut out valve assemblies SJB T2-001, SJB T3-001 and SJB T3-002. **(Contractor)**
24. Location B and C - Install pig launching and receiving equipment on the 3" TP line. Pig the line in accordance with Manitoba Hydro Natural Gas Standard 620.06.Use of bare foam pigs for dehydrating of the line is not required unless the line is contaminated by water through construction. **(Contractor).**
25. Location B and D - Following completion of the pigging install pre-tested pipe sections at original locations of SJB T2-001 and SJB T3-001. Pipe is to be pre-tested on site in accordance with the requirements of Manitoba Hydro Natural Gas Standard 650.01 Pressure Testing – Facilities. **(Contractor).**
26. Location B and D - All welds shall be non-destructively inspected. **(NDT)**
27. Upon successful completion of NDT, proceed to next step.
28. Location C - At the original location of valve assembly SJB T3-002, install new pre-tested valve assembly according to DWG SET 1-C2101-DB-92100-0001 C001. **(Contractor).**
29. Location C - All welds shall be non-destructively inspected of the new valve assembly. **(NDT)**
30. Upon successful completion of NDT, proceed to next step.

Energizing of 3" TP Steel Main
Note: All purging to be done according to Manitoba Hydro Standard 611.01.

31. Location C – Purge Source 2 - Inject 4 bottles of nitrogen into SAV #4. **(CSO)**
32. Location C - Install bypass from SAV #4 and SAV #5 to introduce gas into main. **(CSO)**
33. Location C - Release stop on 3" Wm Stopple once pressure is equalized on both sides of the 3" Wm Stopple and remove bypass. **(CSO)**
34. Location B - Purge Point 2 - When required gas concentration is reached at purge stack close valve at SAV #2. **(CSO)**
35. Location D - Purge Point 3 - When required gas concentration is reached at purge stack close valve at SAV #3. **(CSO)**
36. Location D – Remove stop on 2" Wm Stopple. **(CSO)**
37. Location B – Remove stop on 3" Wm Spherical. **(CSO)**
38. Location B to D - Remove 2" bypass between TOR #1 at Location B and SAV #1 at location D. **(CSO)**
39. Soap test all fittings on energized mains. **(Contractor)**

**** 3" TP MAIN IS NOW ENERGIZED****

40. Clean and re-wrap all exposed piping. **(Contractor)**
41. Backfill and return site to original condition. **(Contractor)**

FLOW SCHEMATIC
N.T.S.

Hot Tap Branch Fitting

NOTE: The end cap and test connection shall be removed after a successful test in preparation for pipeline tie-in.

CAUTION: Damage to the pipeline may occur if the test pressure exceeds the actual line pressure by more than 10%.

ROAD CROSSING (MIT)

NOTES:
1. PIPE TO BE INSTALLED BY DIRECTIONAL DRILLING.
2. DEPTH OF COVER WOULD BE TYPICAL FOR UNDIVIDED OR DIVIDED 4 LANE HIGHWAYS.
3. WARNING SIGNS TO BE PLACED ON EITHER SIDE OF ROAD AND AT ANY CHANGES IN ALIGNMENT.

REVISION 0 JANUARY 2012

NOTE: Please contact Erick Mathiesen (St. Joseph Wind Farm Facility Manager) at 204-737-253 or 204-229-3148 for any cable locates.

1-T2117-DF-91420-0001 SHT 01 REV 00

BILL OF MATERIAL

No.	Qty	Description
1	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
2	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
3	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
4	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
5	2	Stl BW 4 Cap
6	1	Stl BW 4 x 3 Red
7	4	Stl BW 3 Cap
8	1	Stl 3 600# Wm Sph
9	1	Stl BW 4 90 Elb
10	7	Stl 1 Mu SAV
11	2	Stl BW 2 Cap
12	3	Stl 2 Wm TOR Sc
13	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
14	1	Stl 2 600# Wm Stpl
15	1	Stl 4 600# Wm Sph
16	2	Stl 4 Monolithic Insulator (600 ANSI)
17	3	CPI Checkpoint
18	9	CPN Checkpoint

WELD PROCEDURES:

- 4" Line Pipe - MHG #3
- 4" Williamson Spherical - MHG #20
- 3" Williamson Spherical - MHG #20
- 2" Williamson Stopple - MHG #20
- 4" Above Grade Valve Assembly - MHG #11
- 2" TOR - MHG #9
- 2" TOR (Hot Tap) - MHG #16

Notes:	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
3. Locate all existing above grade and below grade structures prior to commencing constuction.
4. Call 204-360-7751 when Gas main is installed and/or energized.
5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.
6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans
Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety.

Greg Blazek
G.E. BLAZEK
Member 24710
APR 10/2013

Centra Gas Mb. Inc.
Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Construction Supervisor: Bruce Leaf (204) 360-7494
Designer: Nick Bruce (204) 360-7830
Sealing Engineer: Greg Blazek (204) 360-7707
Engineering:
Issued For Approval:
Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
△			
△			
△			
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Reference(s):
WLTO 9312 WLTO 6076 CR-133139
WLTO 9313 WLTO 23844 CR-133140
WLTO 9314 WLTO 35117
WLTO 9315 WLTO 6953

Mun. Unit: Montcalm - RM
WBS #: P:20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961
1-T2117-DF-91420-0001 SHT 01 REV 00

GAS MAIN TEST
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End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
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Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

Comments/Notes

Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
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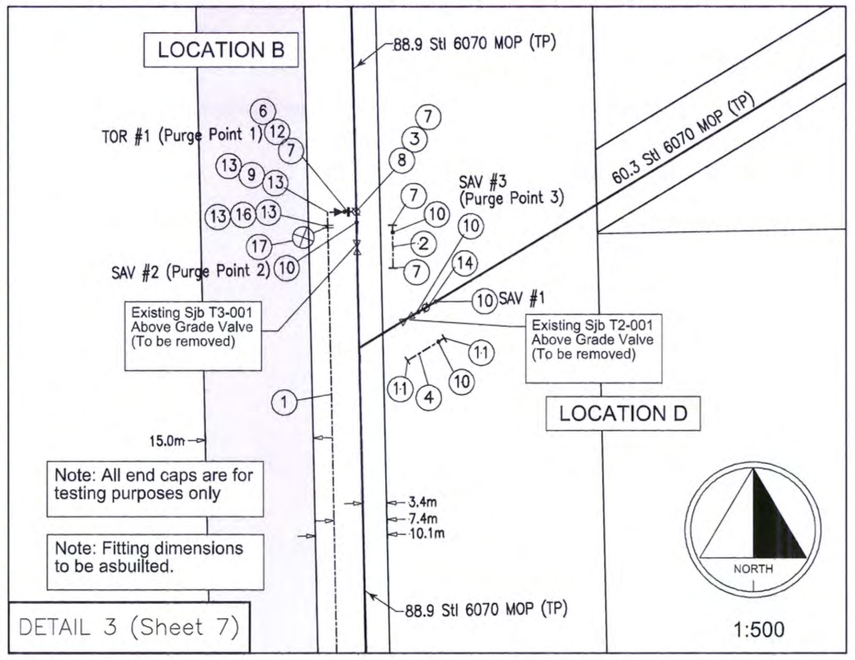

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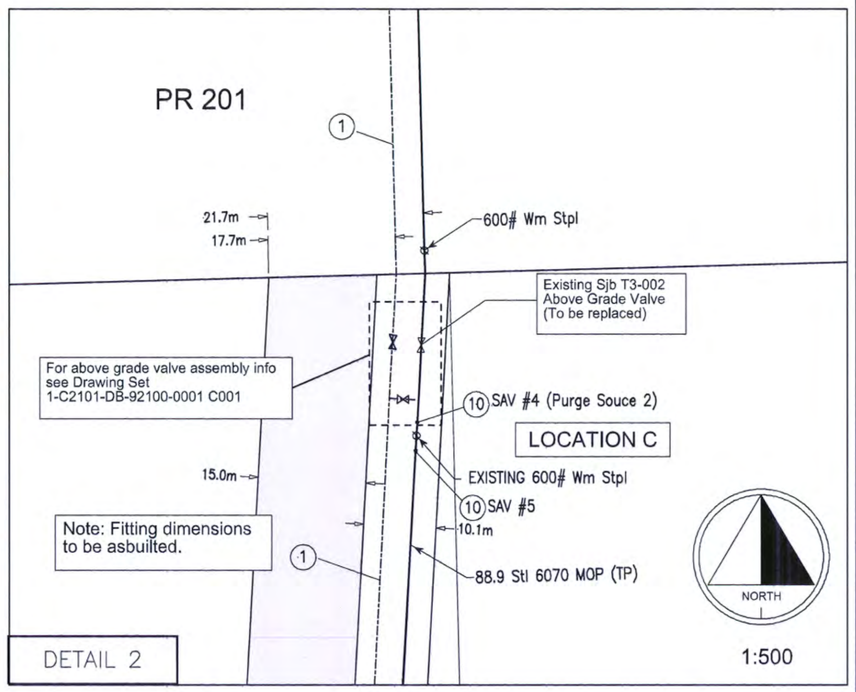

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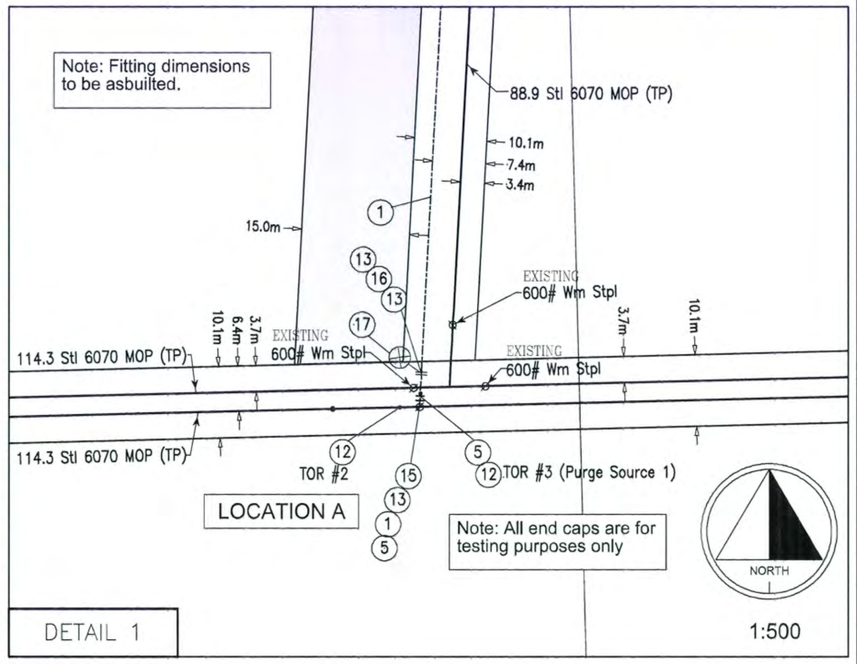

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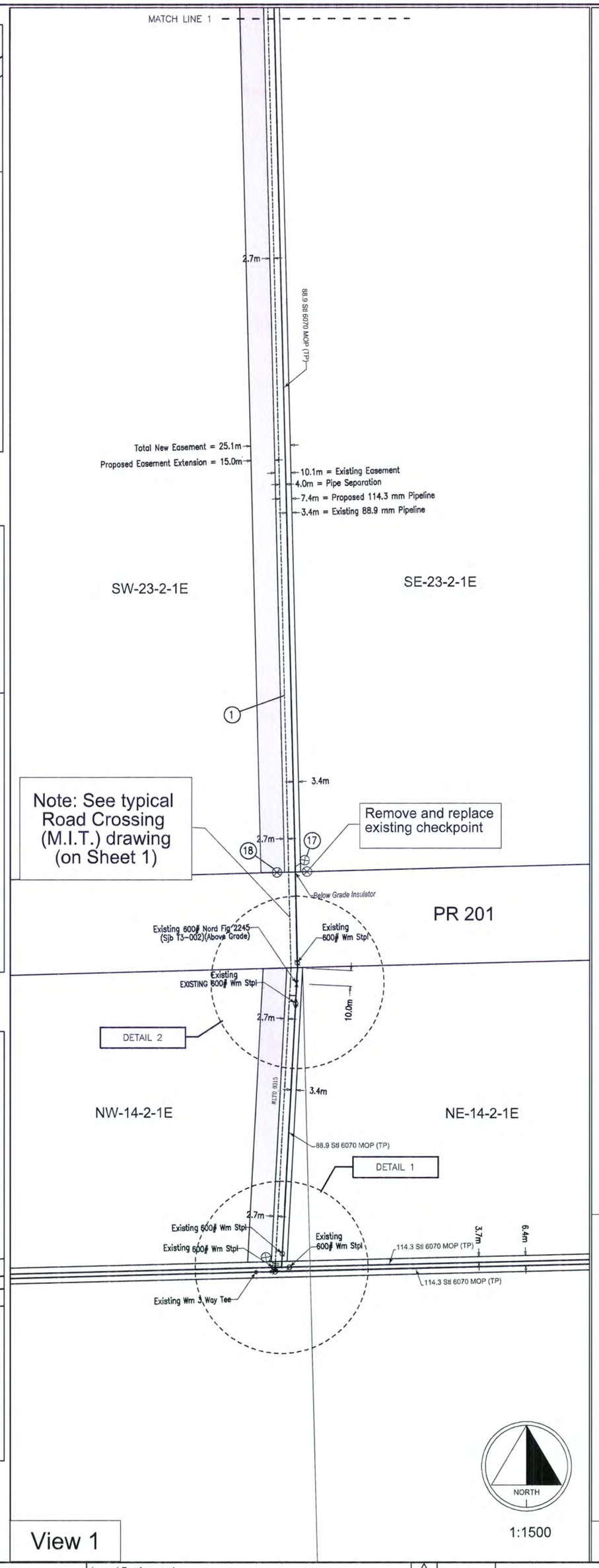
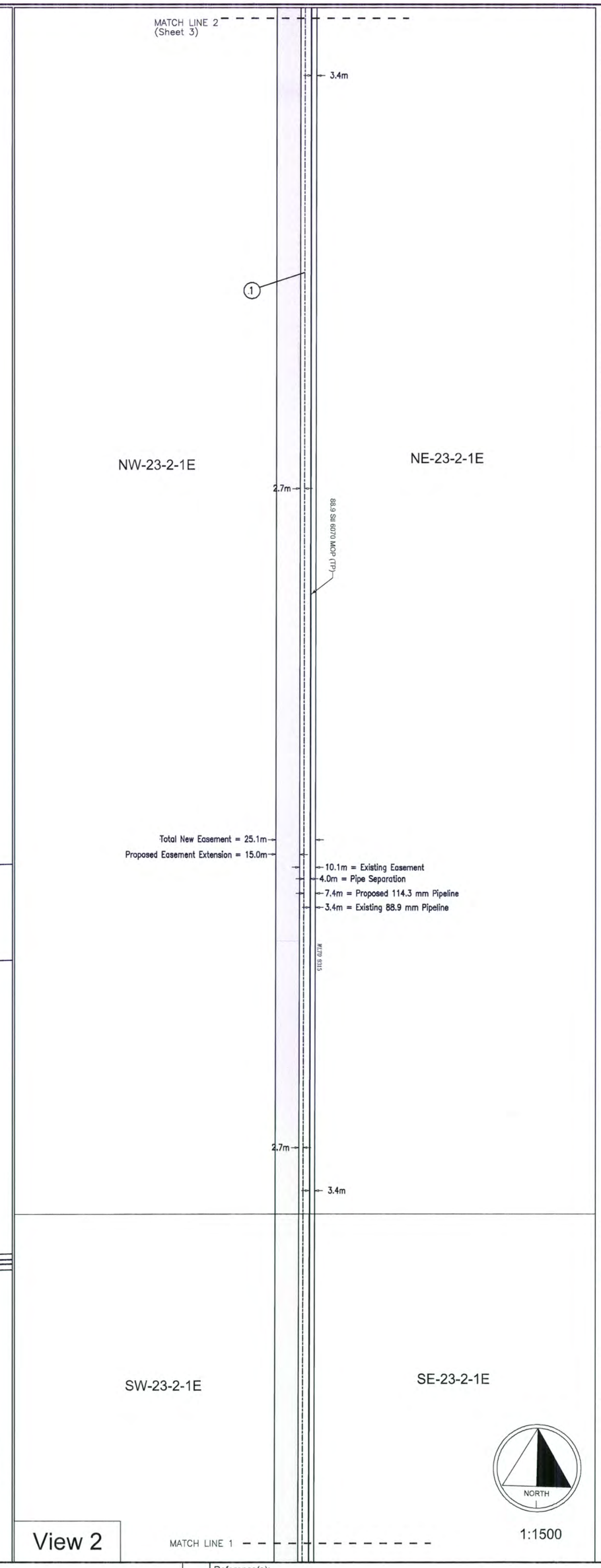


View 1



View 2

1-T2117-DF-91420-0001 SHT 02 REV 00

BILL OF MATERIAL

No.	Qty	Description
1	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
2	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
3	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
4	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
5	2	Stl BW 4 Cap
6	1	Stl BW 4 x 3 Red
7	4	Stl BW 3 Cap
8	1	Stl 3 600# Wm Sph
9	1	Stl BW 4 90 Elb
10	7	Stl 1 Mu SAV
11	2	Stl BW 2 Cap
12	3	Stl 2 Wm TOR Sc
13	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
14	1	Stl 2 600# Wm Stpl
15	1	Stl 4 600# Wm Sph
16	2	Stl 4 Monolithic Insulator (600 ANSI)
17	3	CPI Checkpoint
18	9	CPN Checkpoint

WELD PROCEDURES:
- 4" Line Pipe - MHG #3
- 4" Williamson Spherical - MHG #20
- 3" Williamson Spherical - MHG #20
- 2" Williamson Stopple - MHG #20
- 4" Above Grade Valve Assembly - MHG #11
- 2" TOR - MHG #9
- 2" TOR (Hot Tap) - MHG #16

Notes:	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.

3. Locate all existing above grade and below grade structures prior to commencing constuction.

4. Call 204-360-7751 when Gas main is installed and/or energized.

5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.

6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans
Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public Safety.

G. E. BLAZEK
Member 24710
Apr. 15/2013

Centra Gas Mb. Inc.
Winnipeg Mb.

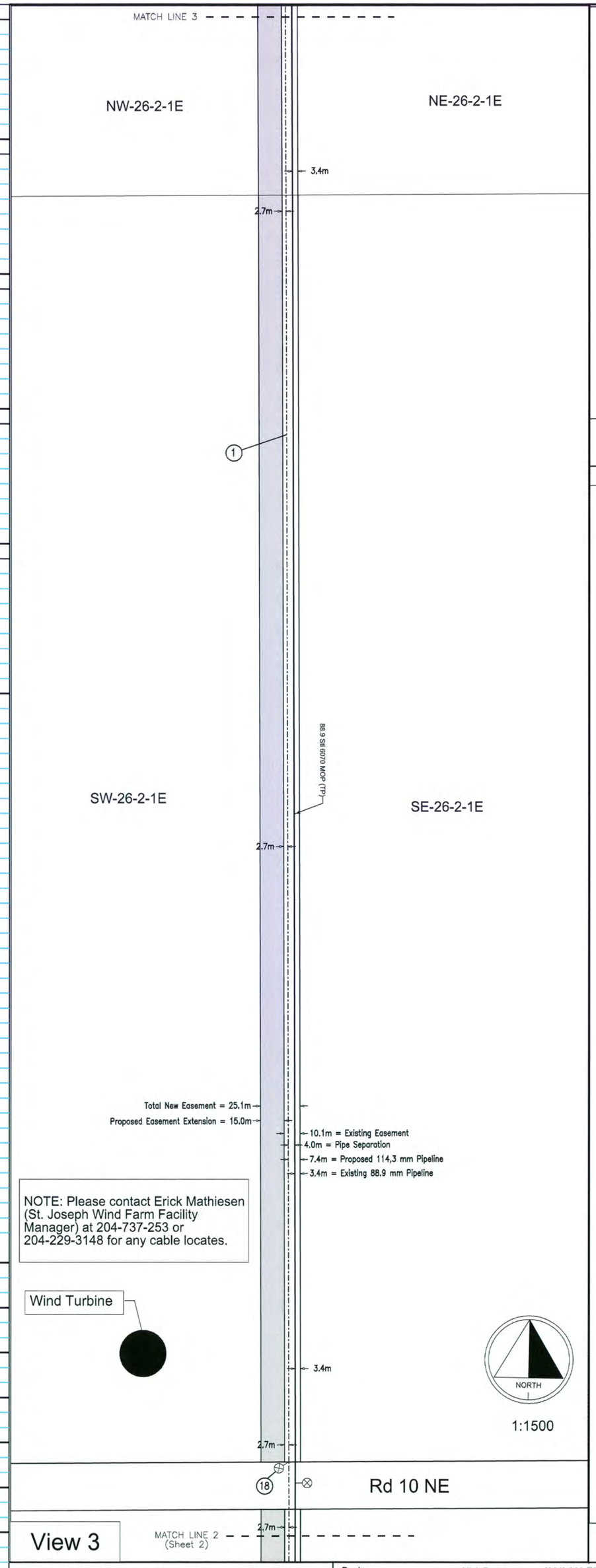
Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

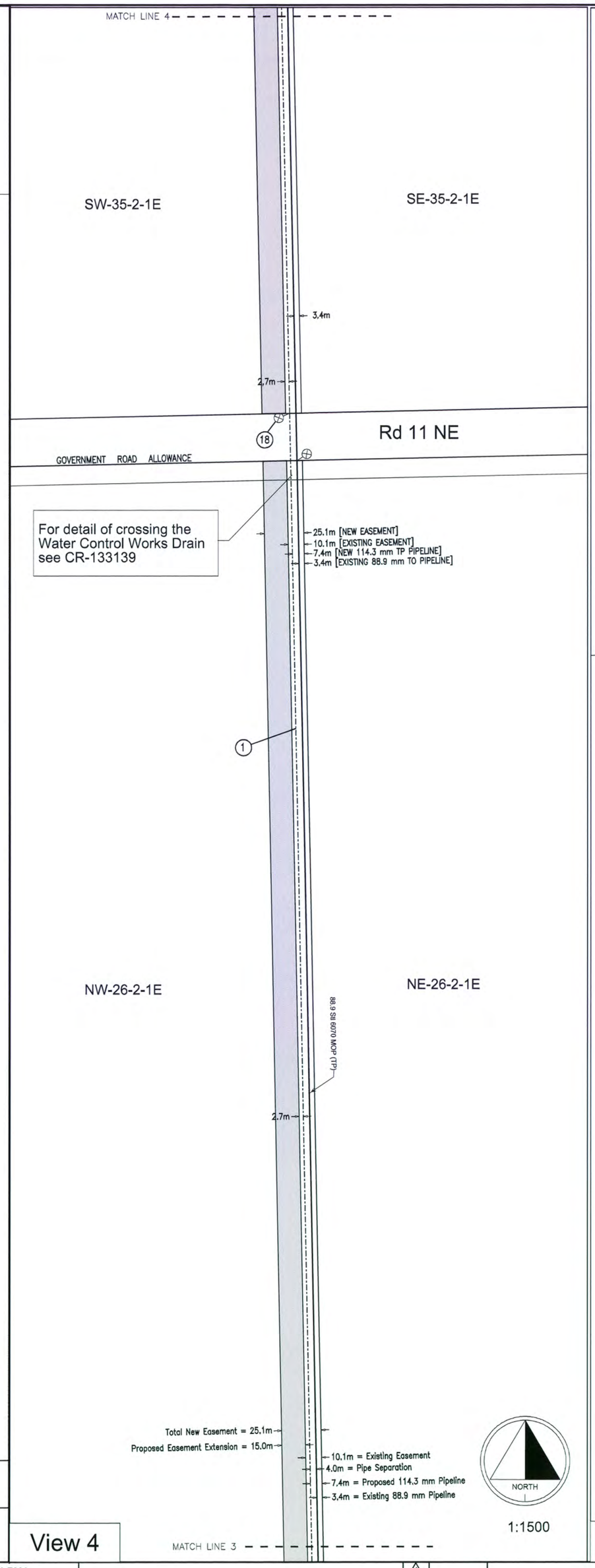
Mun. Unit: Montcalm - RM
WBS #: P:20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961
1-T2117-DF-91420-0001 SHT 02 REV 00

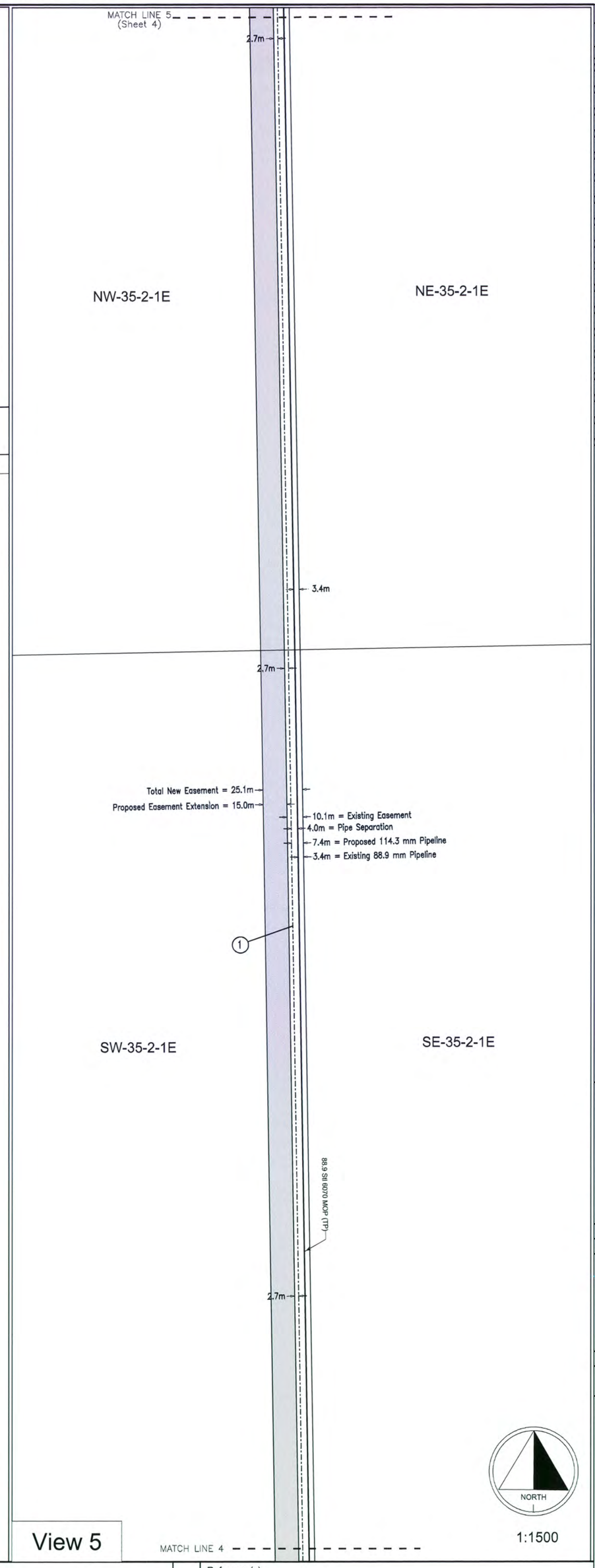
Construction Supervisor: Bruce Leaf (204) 360-7494
Designer: Nick Bruce (204) 360-7830
Sealing Engineer: Greg Blazek (204) 360-7707
Engineering:
Issued For Approval:
Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
△			
△			
△			

Reference(s):
WLTO 9312 WLTO 6076 CR-133139
WLTO 9313 WLTO 23844 CR-133140
WLTO 9314 WLTO 35117
WLTO 9315 WLTO 6953







GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

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GAS MAIN TEST

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GAS MAIN TEST

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GAS MAIN TEST

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SDR/Coil/Date Made:
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Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
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Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:

NOTE: Please contact Erick Mathiesen (St. Joseph Wind Farm Facility Manager) at 204-737-253 or 204-229-3148 for any cable locates.

For detail of crossing the Water Control Works Drain see CR-133139

Construction Supervisor:	Bruce Leaf	(204) 360-7494	Designer:	Nick Bruce	(204) 360-7830
			Sealing Engineer:	Greg Blazek	(204) 360-7707
			Engineering:		

Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
4			
3			
2			
1			

Reference(s):
WLTO 9312 WLTO 6076 CR-133139
WLTO 9313 WLTO 23844 CR-133140
WLTO 9314 WLTO 35117
WLTO 9315 WLTO 6953

1-T2117-DF-91420-0001 SHT 03 REV 00

BILL OF MATERIAL

		Description
①	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
②	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
③	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
④	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
⑤	2	Stl BW 4 Cap
⑥	1	Stl BW 4 x 3 Red
⑦	4	Stl BW 3 Cap
⑧	1	Stl 3 600# Wm Sph
⑨	1	Stl BW 4 90 Elb
⑩	7	Stl 1 Mu SAV
⑪	2	Stl BW 2 Cap
⑫	3	Stl 2 Wm TOR Sc
⑬	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
⑭	1	Stl 2 600# Wm Stpl
⑮	1	Stl 4 600# Wm Sph
⑯	2	Stl 4 Monolithic Insulator (600 ANSI)
⑰	3	CPI Checkpoint
⑱	9	CPN Checkpoint

WELD PROCEDURES:

· 4" Line Pipe - MHG #3
· 4" Williamson Spherical - MHG #20
· 3" Williamson Spherical - MHG #20
· 2" Williamson Stopple - MHG #20
· 4" Above Grade Valve Assembly - MHG #11
· 2" TOR - MHG #9
· 2" TOR (Hot Tap) - MHG #16

Notes:

	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
3. Locate all existing above grade and below grade structures prior to commencing constuction.
4. Call 204-360-7751 when Gas main is installed and/or energized.
5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.
6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans
Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger public safety.

G. E. BLAZEK Member 24710
APR 10/2013

Centra Gas Mb. Inc.
Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Mun. Unit: Montcalm - RM
WBS #: P:20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961
1-T2117-DF-91420-0001 SHT 03 REV 00

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

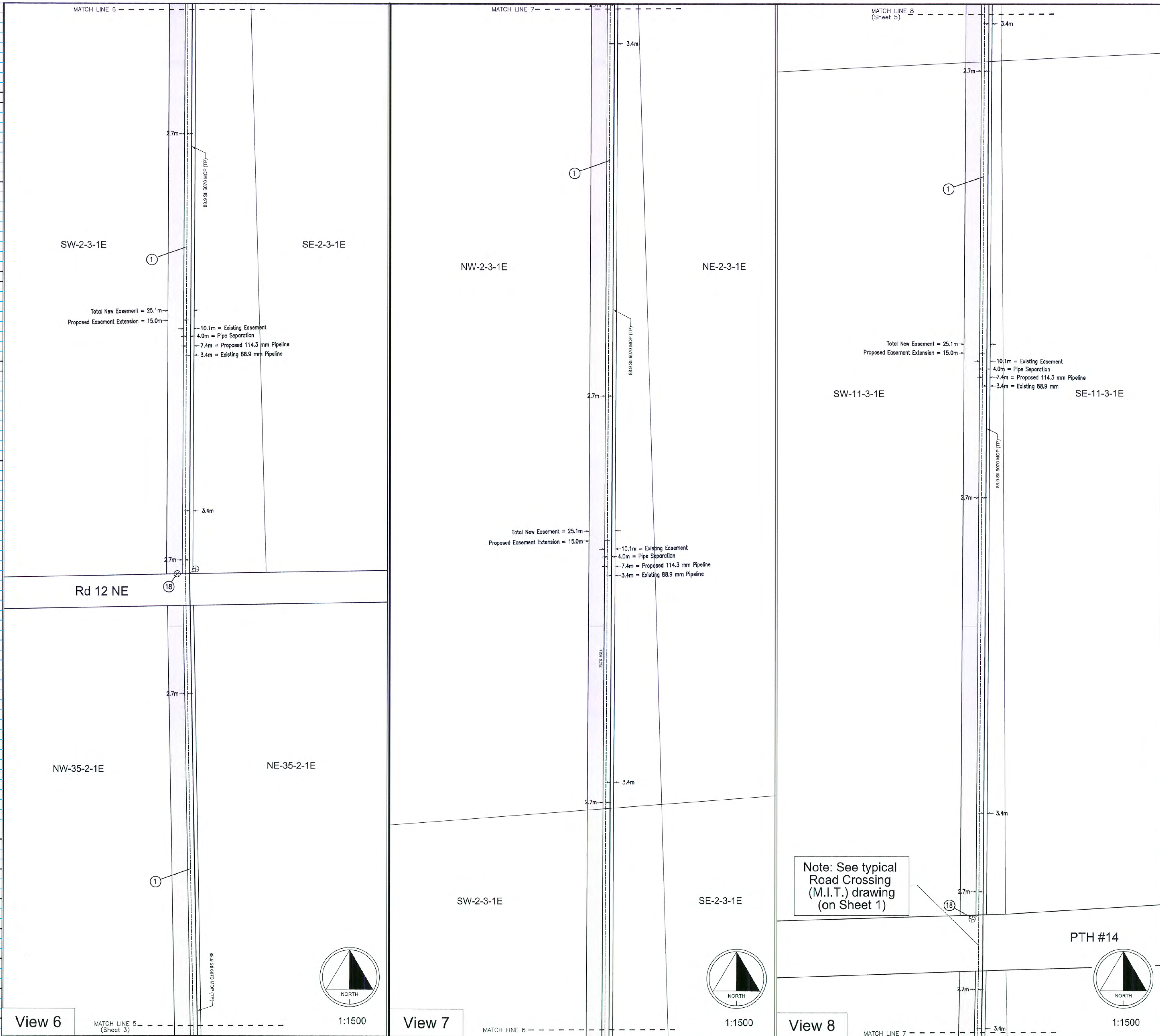
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

Comments/Notes

Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:



1-T2117-DF-91420-0001 | 04 | 00

BILL OF MATERIAL

No.	Qty	Description
1	4481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
2	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
3	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
4	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
5	2	Stl BW 4 Cap
6	1	Stl BW 4 x 3 Red
7	4	Stl BW 3 Cap
8	1	Stl 3 600# Wm Sph
9	1	Stl BW 4 90 Elb
10	7	Stl 1 Mu SAV
11	2	Stl BW 2 Cap
12	3	Stl 2 Wm TOR Sc
13	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
14	1	Stl 2 600# Wm Stpl
15	1	Stl 4 600# Wm Sph
16	2	Stl 4 Monolithic Insulator (600 ANSI)
17	3	CPI Checkpoint
18	9	CPN Checkpoint

WELD PROCEDURES:

- 4" Line Pipe - MHG #3
- 4" Williamson Spherical - MHG #20
- 3" Williamson Spherical - MHG #20
- 2" Williamson Stopple - MHG #20
- 4" Above Grade Valve Assembly - MHG #11
- 2" TOR - MHG #9
- 2" TOR (Hot Tap) - MHG #16

Notes:

	GAS MAIN		FARM TAP	
1. MOP:	6070	kPa		kPa
Test Pressure:	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
3. Locate all existing above grade and below grade structures prior to commencing constuction.
4. Call 204-360-7751 when Gas main is installed and/or energized.
5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.
6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities ... will not endanger ...

Drawn: nbruce

Centra Gas Mb. Inc.
Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Construction Supervisor: Bruce Leaf (204) 360-7494
Designer: Nick Bruce (204) 360-7830
Sealing Engineer: Greg Blazek (204) 360-7707
Engineering:
Issued For Approval:
Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.

Reference(s):
WLTO 9312 WLTO 6076 CR-133139
WLTO 9313 WLTO 23844 CR-133140
WLTO 9314 WLTO 35117
WLTO 9315 WLTO 6953

Mun. Unit: Montcalm - RM
WBS #: P.20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961
1-T2117-DF-91420-0001 | 04 | 00

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

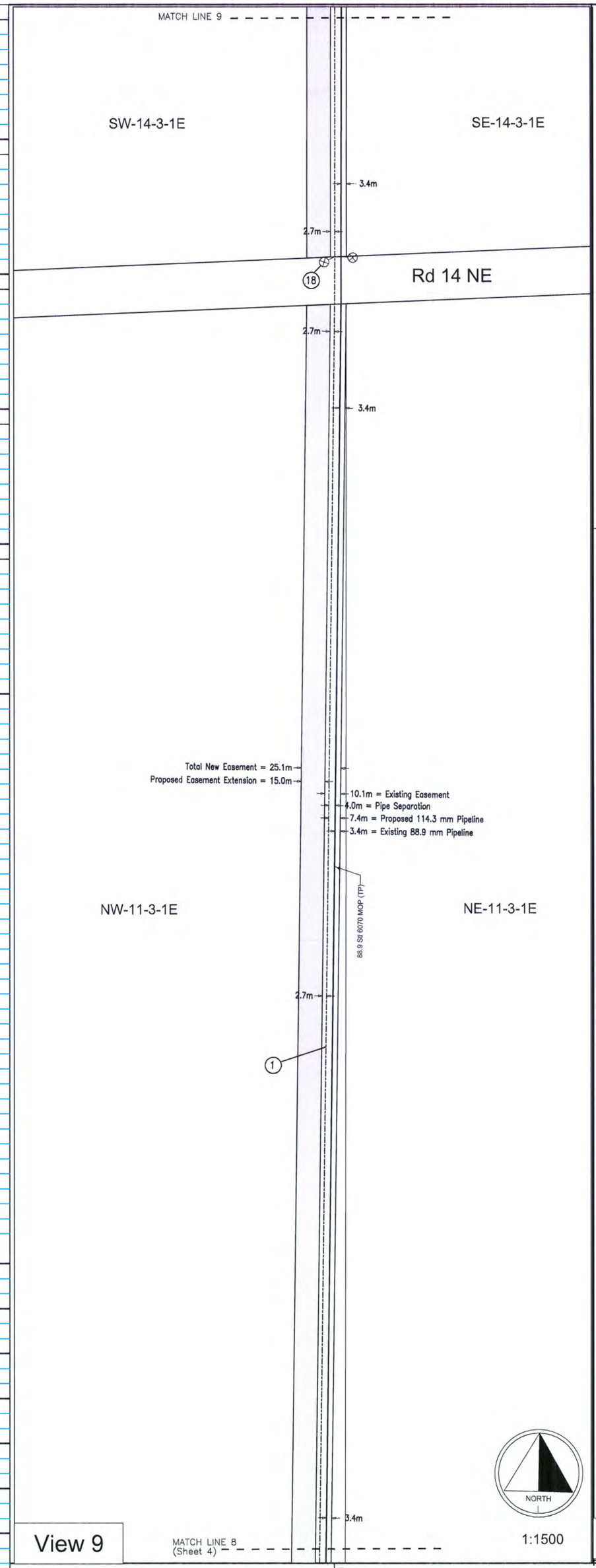
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST

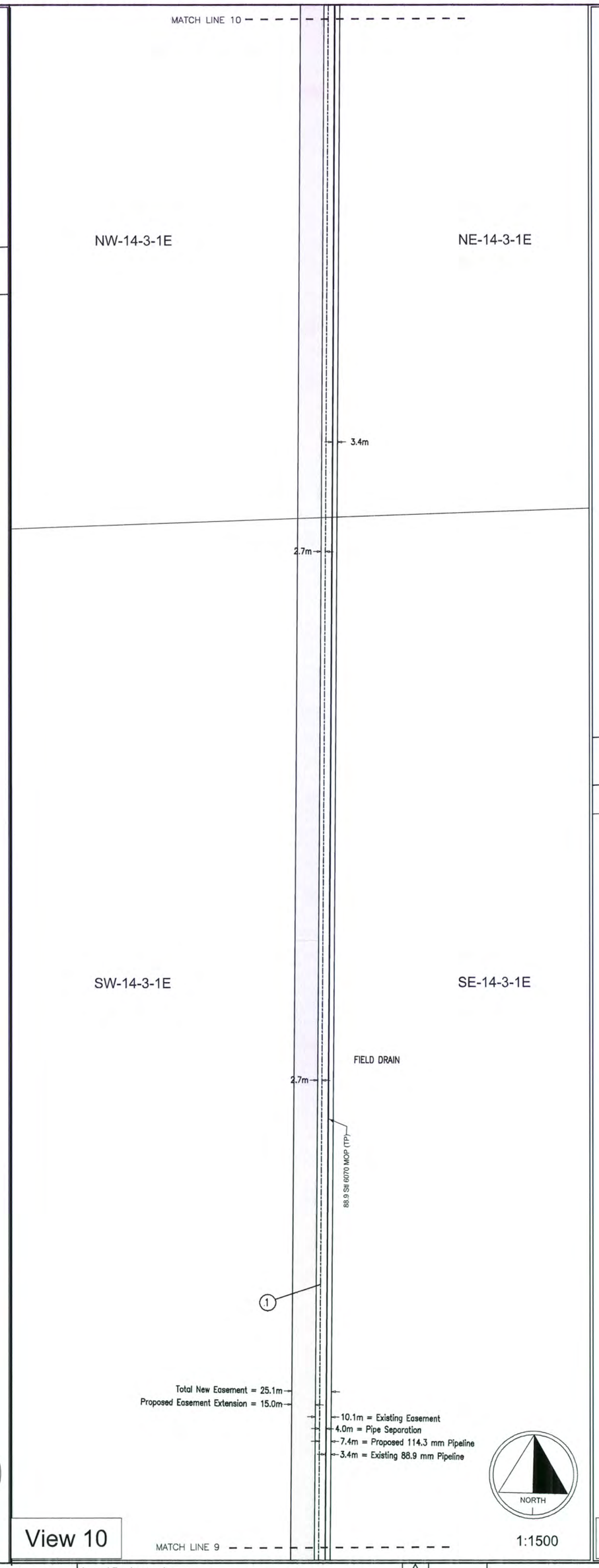
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

Comments/Notes

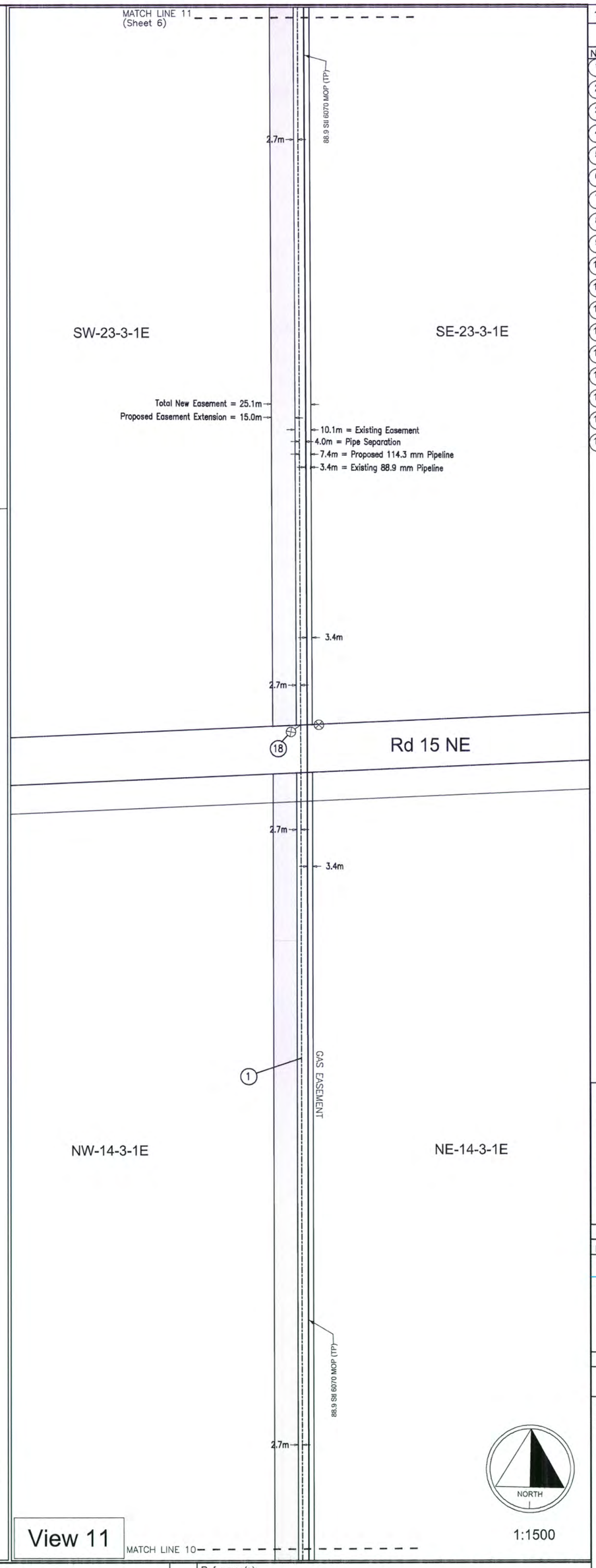
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:



View 9



View 10



View 11

	SHT	REV
1-T2117-DF-91420-0001	05	00

BILL OF MATERIAL

No.	Qty	Description
①	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
②	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
③	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
④	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
⑤	2	Stl BW 4 Cap
⑥	1	Stl BW 4 x 3 Red
⑦	4	Stl BW 3 Cap
⑧	1	Stl 3 600# Wm Sph
⑨	1	Stl BW 4 90 Elb
⑩	7	Stl 1 Mu SAV
⑪	2	Stl BW 2 Cap
⑫	3	Stl 2 Wm TOR Sc
⑬	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
⑭	1	Stl 2 600# Wm Stpl
⑮	1	Stl 4 600# Wm Sph
⑯	2	Stl 4 Monolithic Insulator (600 ANSI)
⑰	3	CPI Checkpoint
⑱	9	CPN Checkpoint

WELD PROCEDURES:

· 4" Line Pipe - MHG #3
· 4" Williamson Spherical - MHG #20
· 3" Williamson Spherical - MHG #20
· 2" Williamson Stopple - MHG #20
· 4" Above Grade Valve Assembly - MHG #11
· 2" TOR - MHG #9
· 2" TOR (Hot Tap) - MHG #16

Notes:	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.

3. Locate all existing above grade and below grade structures prior to commencing constuction.

4. Call 204-360-7751 when Gas main is installed and/or energized.

5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.

6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans
Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety.

G. E. BLAZEK Member 24710
Greg Blazek
APR. 10/2013

Centra Gas Mb. ~~Inc.~~
Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Construction Supervisor: Bruce Leaf (204) 360-7494
Designer: Nick Bruce (204) 360-7830
Sealing Engineer: Greg Blazek (204) 360-7707
Engineering:

Issued For Approval:
Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
△			
△			
△			
△			

Reference(s):

WLTO 9312	WLTO 6076	CR-133139
WLTO 9313	WLTO 23844	CR-133140
WLTO 9314	WLTO 35117	
WLTO 9315	WLTO 6953	

Mun. Unit: Montcalm - RM
WBS #: P:20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961

	SHT	REV
1-T2117-DF-91420-0001	05	00

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

GAS MAIN TEST
Start Pressure: Date: Time: Temperature:
End Pressure: Date: Time: Temperature:
Pressure Guage Calibration Date:
Test Medium:
Contractor:
Inspector:
Remarks:

Comments/Notes

Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
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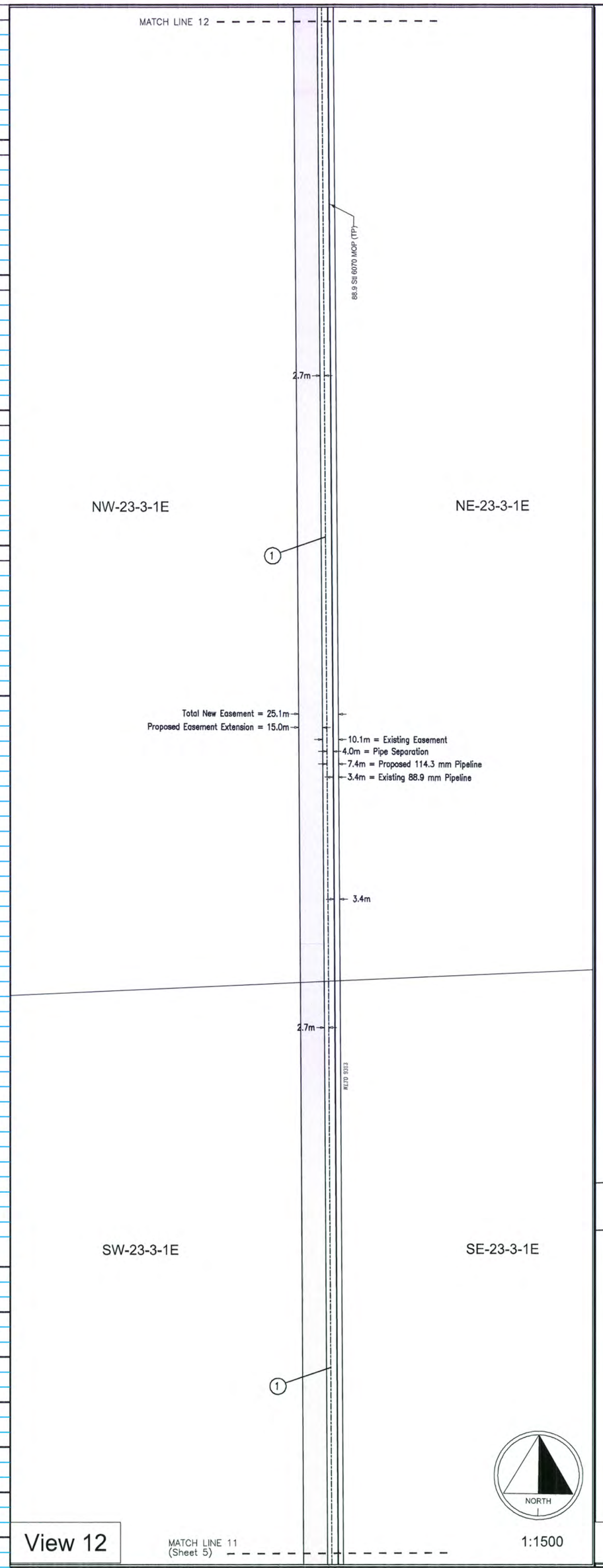
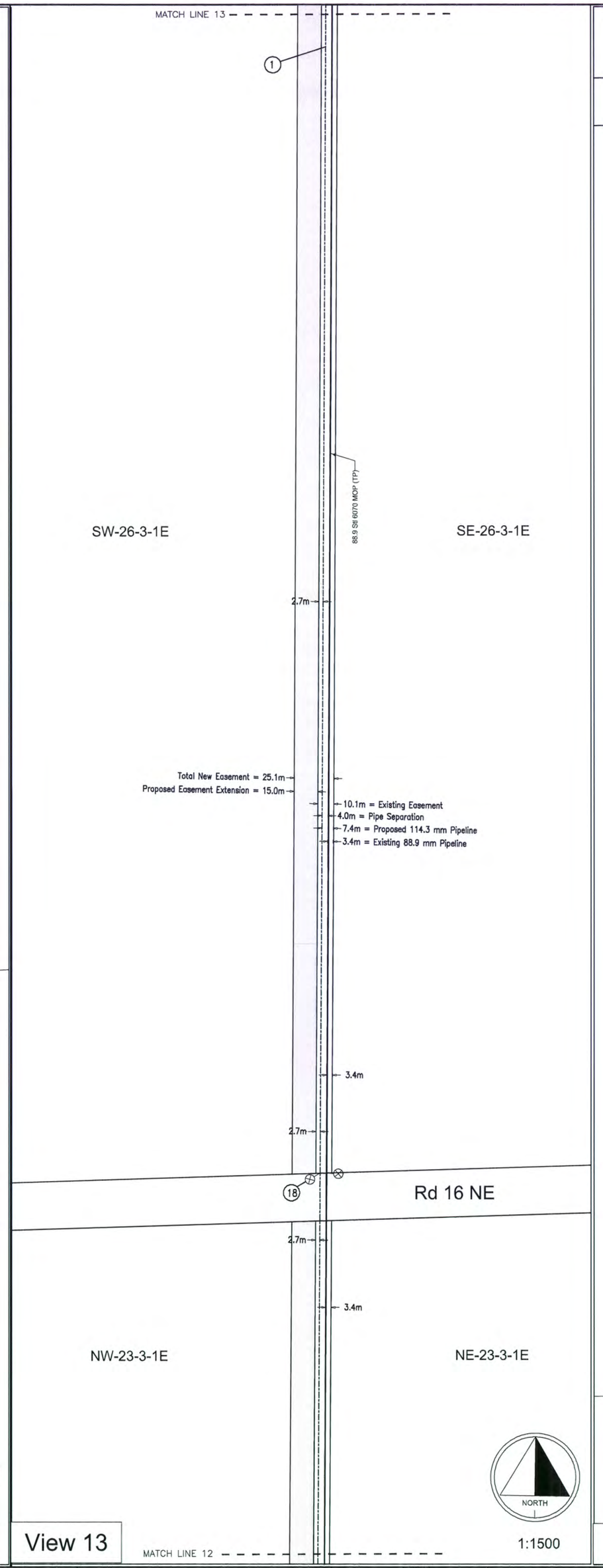
SDR/Coil/Date Made:
Line/Resin:



View 12



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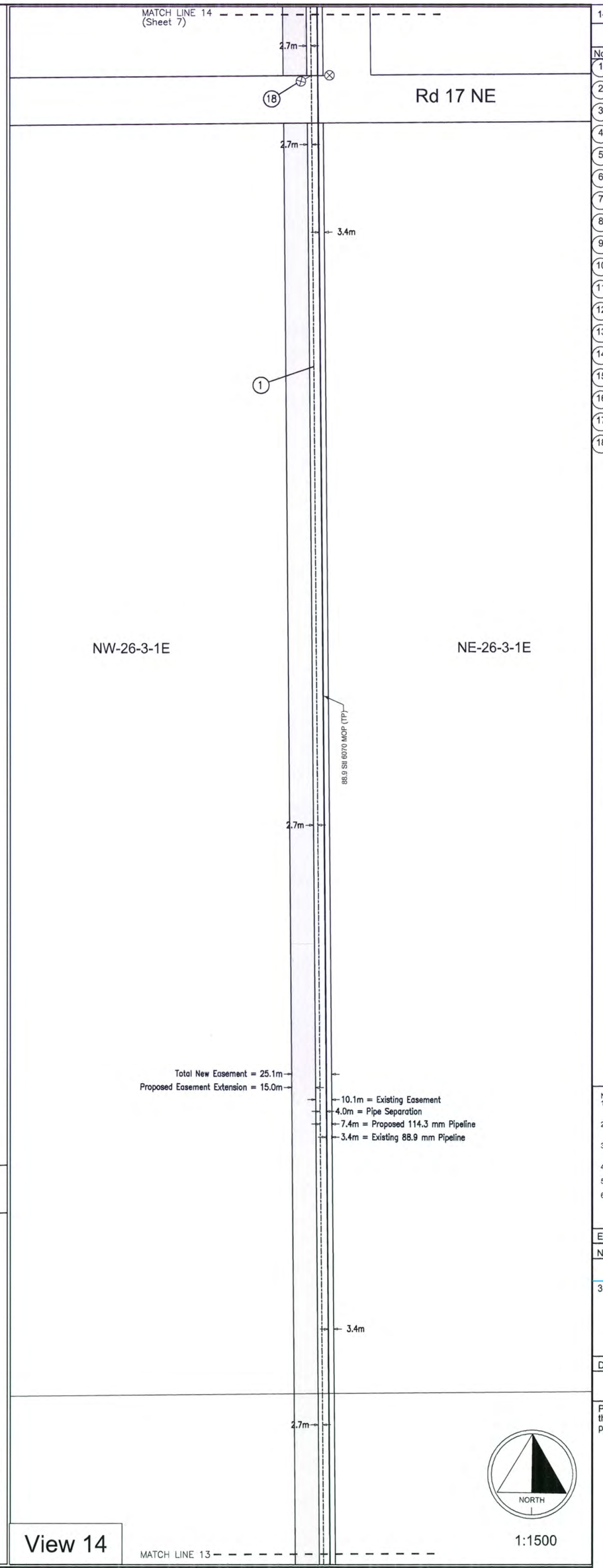

View 14

1-T2117-DF-91420-0001

SHT	REV
06	00

BILL OF MATERIAL

No.	Qty	Description
①	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
②	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
③	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
④	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
⑤	2	Stl BW 4 Cap
⑥	1	Stl BW 4 x 3 Red
⑦	4	Stl BW 3 Cap
⑧	1	Stl 3 600# Wm Sph
⑨	1	Stl BW 4 90 Elb
⑩	7	Stl 1 Mu SAV
⑪	2	Stl BW 2 Cap
⑫	3	Stl 2 Wm TOR Sc
⑬	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
⑭	1	Stl 2 600# Wm Stpl
⑮	1	Stl 4 600# Wm Sph
⑯	2	Stl 4 Monolithic Insulator (600 ANSI)
⑰	3	CPI Checkpoint
⑱	9	CPN Checkpoint

WELD PROCEDURES:

- 4" Line Pipe - MHG #3
- 4" Williamson Spherical - MHG #20
- 3" Williamson Spherical - MHG #20
- 2" Williamson Stopple - MHG #20
- 4" Above Grade Valve Assembly - MHG #11
- 2" TOR - MHG #9
- 2" TOR (Hot Tap) - MHG #16

Notes:

	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.
3. Locate all existing above grade and below grade structures prior to commencing constuction.
4. Call 204-360-7751 when Gas main is installed and/or energized.
5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.
6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via EmailL
Network: 4313506
Activity #
3104 114.3 STL Mains - Trans
Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger Public safety.

Greg Blazek
G. E. BLAZEK
Member
APR 10/2013

Centra Gas Mb. Inc.
Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Construction Supervisor:	Bruce Leaf	(204) 360-7494	Designer:	Nick Bruce	(204) 360-7830
			Sealing Engineer:	Greg Blazek	(204) 360-7707
			Engineering:		

Issued For Approval:
Issued For Construction:
Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
△			
△			
△			
△			

Reference(s):

WLTO 9312	WLTO 6076	CR-133139
WLTO 9313	WLTO 23844	CR-133140
WLTO 9314	WLTO 35117	
WLTO 9315	WLTO 6953	

Mun. Unit: Montcalm - RM
WBS #: P:20341
MER #: 2013-01041
DRAWING NUMBER: CD-16961
1-T2117-DF-91420-0001

SHT	REV
06	00

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:

End Pressure: Date: Time: Temperature:

Pressure Guage Calibration Date:

Test Medium:

Contractor:

Inspector:

Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:

End Pressure: Date: Time: Temperature:

Pressure Guage Calibration Date:

Test Medium:

Contractor:

Inspector:

Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:

End Pressure: Date: Time: Temperature:

Pressure Guage Calibration Date:

Test Medium:

Contractor:

Inspector:

Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:

End Pressure: Date: Time: Temperature:

Pressure Guage Calibration Date:

Test Medium:

Contractor:

Inspector:

Remarks:

GAS MAIN TEST

Start Pressure: Date: Time: Temperature:

End Pressure: Date: Time: Temperature:

Pressure Guage Calibration Date:

Test Medium:

Contractor:

Inspector:

Remarks:

Comments/Notes

Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
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Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:
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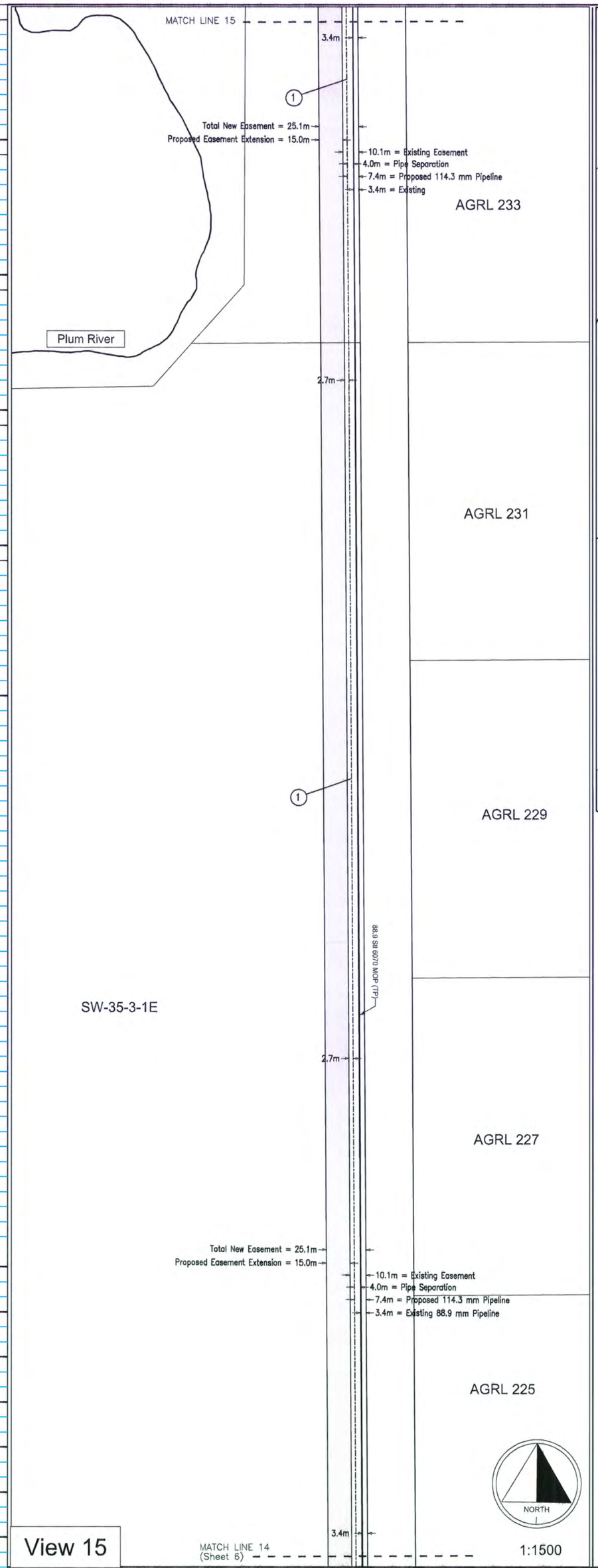
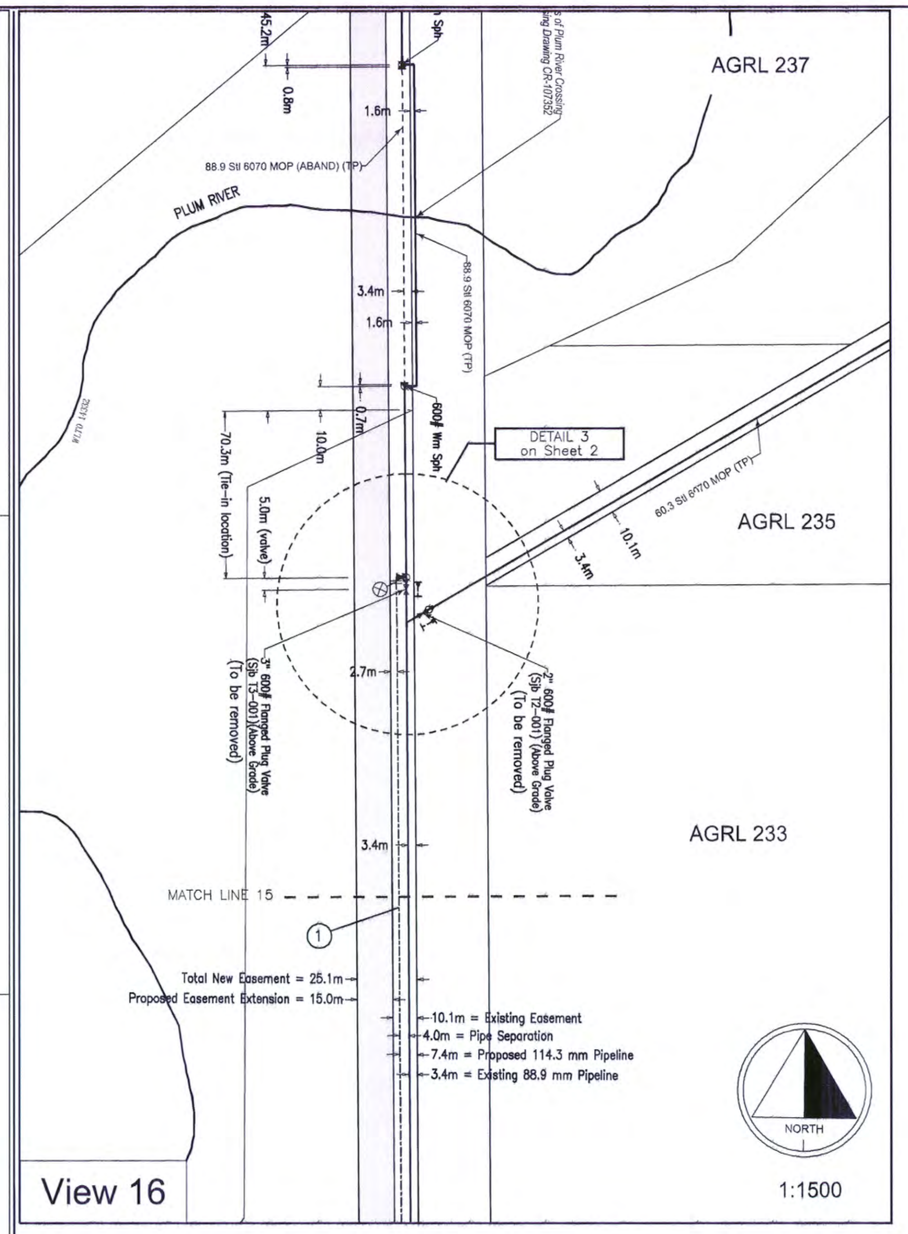
Manufacturer/Properties/Size:
SDR/Coil/Date Made:
Line/Resin:



View 15



View 16

Construction Supervisor:	Bruce Leaf	(204) 360-7494
Designer:	Nick Bruce	(204) 360-7830
Sealing Engineer:	Greg Blazek	(204) 360-7707
Engineering:		

Issued For Approval:

Issued For Construction:

Easement: Yes ☒ No ☐

No.	Date	Revision	Appr.
4			
3			
2			
1			

Reference(s):

WLTO 9312 WLTO 6076 CR-133139
WLTO 9313 WLTO 23844 CR-133140
WLTO 9314 WLTO 35117
WLTO 9315 WLTO 6953

1-T2117-DF-91420-0001 SHT 07 REV 00

BILL OF MATERIAL

No.	Qty	Description
①	14481m	114.3 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
②	6m	Pre-tested 88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
③	2m	88.9 mm x 3.18 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
④	6m	Pre-tested 60.3 mm x 3.91 mm WT Beveled End, Category 1, GR 317, ERW, PE coated Steel Pipe
⑤	2	Stl BW 4 Cap
⑥	1	Stl BW 4 x 3 Red
⑦	4	Stl BW 3 Cap
⑧	1	Stl 3 600# Wm Sph
⑨	1	Stl BW 4 90 Elb
⑩	7	Stl 1 Mu SAV
⑪	2	Stl BW 2 Cap
⑫	3	Stl 2 Wm TOR Sc
⑬	7m	Stl 4 Trns Pipe (6.02 mm to 3.17 mm) Gr 317
⑭	1	Stl 2 600# Wm Stpl
⑮	1	Stl 4 600# Wm Sph
⑯	2	Stl 4 Monolithic Insulator (600 ANSI)
⑰	3	CPI Checkpoint
⑱	9	CPN Checkpoint

WELD PROCEDURES:

- 4" Line Pipe - MHG #3
- 4" Williamson Spherical - MHG #20
- 3" Williamson Spherical - MHG #20
- 2" Williamson Stopple - MHG #20
- 4" Above Grade Valve Assembly - MHG #11
- 2" TOR - MHG #9
- 2" TOR (Hot Tap) - MHG #16

Notes:	GAS MAIN		FARM TAP	
1. MOP :	6070	kPa		kPa
Test Pressure :	8498	kPa		kPa

2. Perform all work on this drawing in accordance with the applicable standards, specifications, and procedures.

3. Locate all existing above grade and below grade structures prior to commencing constuction.

4. Call 204-360-7751 when Gas main is installed and/or energized.

5. Maximum Operating Pressure (MOP) is 420 kpa unless otherwise noted.

6. Outside Diameter (O.D.) of pipe in millimeters unless otherwise noted.

Eng. Check: WM Cath: Via Email

Network: 4313506

Activity #

3104 114.3 STL Mains - Trans

Drawn: nbruce

In my opinion, the plans and specifications submitted are in accordance with CSA Z662-11 Oil and Gas Pipeline Systems and the facilities proposed herein will not endanger public safety.

Greg Blazek
G.E. BLAZEK
Member 24710
APR.19/2013

Centra Gas Mb. Inc.

Winnipeg Mb.

Proposed 114.3 mm Stl TP natural gas pipeline from section 14-2-1E then heading north to 35-3-1E to tie into the existing 88.9 mm Stl pipeline in the RM of Montcalm, as indicated.

Mun. Unit: Montcalm - RM

WBS #: P:20341
MER #: 2013-01041

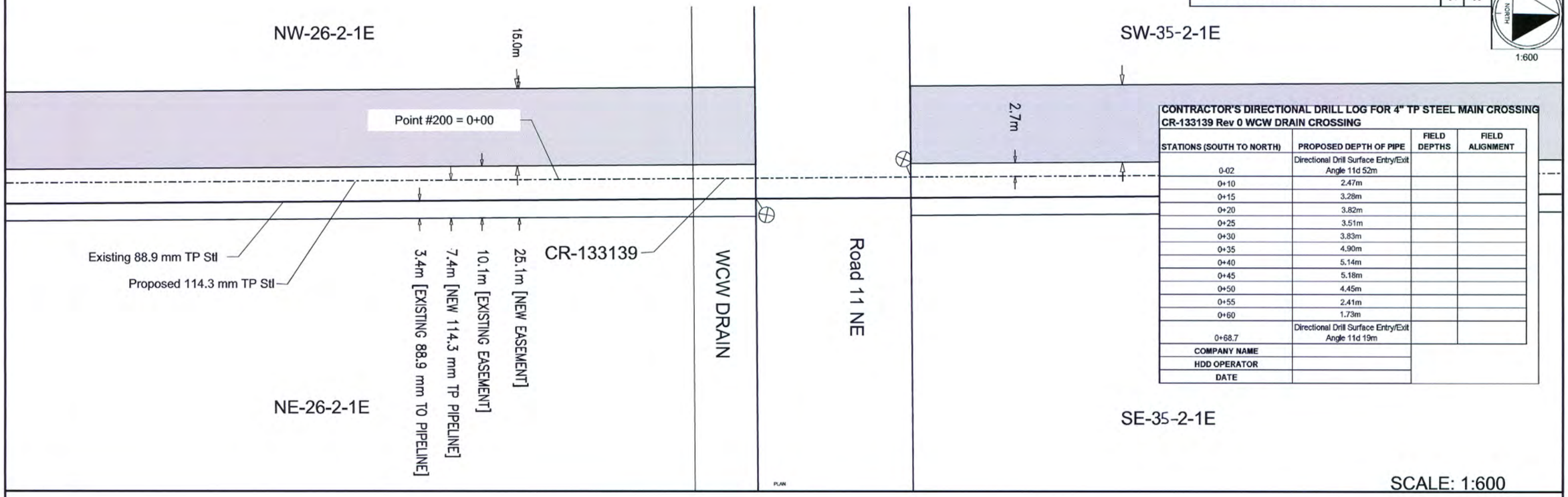
DRAWING NUMBER: CD-16961

1-T2117-DF-91420-0001 SHT 07 REV 00

1-T2117-DC-10630-0001 | SHT 01 | REV 00

NORTH

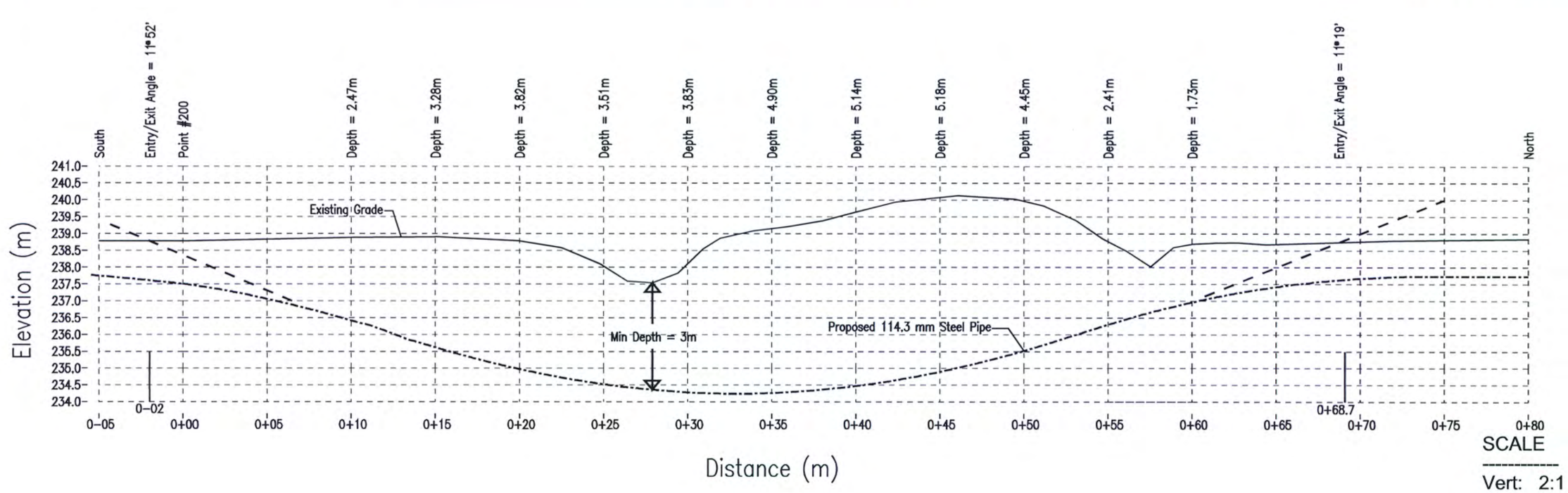
1:600



CONTRACTOR'S DIRECTIONAL DRILL LOG FOR 4" TP STEEL MAIN CROSSING
CR-133139 Rev 0 WCW DRAIN CROSSING

STATIONS (SOUTH TO NORTH)	PROPOSED DEPTH OF PIPE	FIELD DEPTHS	FIELD ALIGNMENT
0-02	Directional Drill Surface Entry/Exit Angle 11d 52m		
0+10	2.47m		
0+15	3.28m		
0+20	3.82m		
0+25	3.51m		
0+30	3.83m		
0+35	4.90m		
0+40	5.14m		
0+45	5.18m		
0+50	4.45m		
0+55	2.41m		
0+60	1.73m		
0+68.7	Directional Drill Surface Entry/Exit Angle 11d 19m		
COMPANY NAME			
HDD OPERATOR			
DATE			

SCALE: 1:600



SCALE
Vert: 2:1
Horiz: 1:1

PROFILE
LOOKING West

PROVINCE OF MANITOBA
G.E. BLAZEK
Member
24710
REGISTERED PROFESSIONAL ENGINEER
APR 10 2013

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 OIL AND GAS PIPELINE SYSTEMS AND THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER PUBLIC SAFETY.

DATE	NO.	REVISION	APP.

NOTES:
1. WARNING SIGNS WILL BE INSTALLED AT EACH SIDE OF THE MAEK (OHWM).
2. INSTALLATION AND MAINTENANCE TO BE IN ACCORDANCE WITH CSA Z662-11.
3. SHUT-OFF VALVE LOCATED AT:
(1) -
(2) -
4. CATHODIC PROTECTION: By Rectifier

SPECIFICATIONS LINE PIPE		
MAX. OPER. PRES.	6070	kPa
FIELD TEST PRES.	8498	kPa
PIPE O.D.	114.3	mm
WALL THICKNESS	3.18	mm
MATERIAL GRADE	317	MPa

DATE	INSTALLED

Eng: WM
Cath: via email

Centra Gas Manitoba Inc.
WINNIPEG, MANITOBA

Proposed 114.3 mm TP natural gas main crossing
Water Control Works Drain, as indicated.

Drawn by: nbruce | Date: 2013/04/10
Dwg.: CR-133139 | Ref. Dwg.: CD-16961 | MER: 2013-01041
1-T2117-DC-10630-0001 | SHT 0001 | REV 00

DRAWING NO.	DESCRIPTION
1-C2101-DB-92100-0001 C001 00	COVER SHEET
1-C2101-DB-91135-0001 0001 00	3" CONTROL POINT VALVE ABANDONMENT DETAILS
1-C2101-DB-92100-0001 0001 00	3" & 4" CONTROL POINT VALVE LOCATION DETAILS
1-C2101-DB-92110-0001 0001 00	3" & 4" CONTROL POINT FABRICATION DETAILS
1-C2101-DB-91121-0001 0001 00	EXCAVATION AND COMPACTION DETAILS
1-C2101-DB-91121-0001 0002 00	EXCAVATION AND COMPACTION DETAILS

STATION INSPECTOR:
NAME: _____
CELL PH.: _____
START DATE: _____
COMPLETION DATE: _____
ENERGIZED DATE: _____

PROVIDE A COMPLETE DESCRIPTION, MODEL OR FIGURE NUMBER OF MAJOR COMPONENTS USED IN THE PROJECT WORK SHOWN IN THIS SET OF DESIGN DRAWINGS;

* REGULATORS-

* RELIEF VALVES-

* ISOLATION VALVES-

FOR MICROFILM USE ONLY

NO.	DATE	REVISIONS	APP.
0	2013-FEB-28	ISSUED FOR TENDER	T.S

REFERENCE DOCUMENTS:

SCALE: N.T.S.
DRAWN: J.DUVAL
DATE: 2013-FEB-27
NETWORK:
CHECK: -
CATH.: -
GIS GRID: 0088-0320

Manitoba Hydro

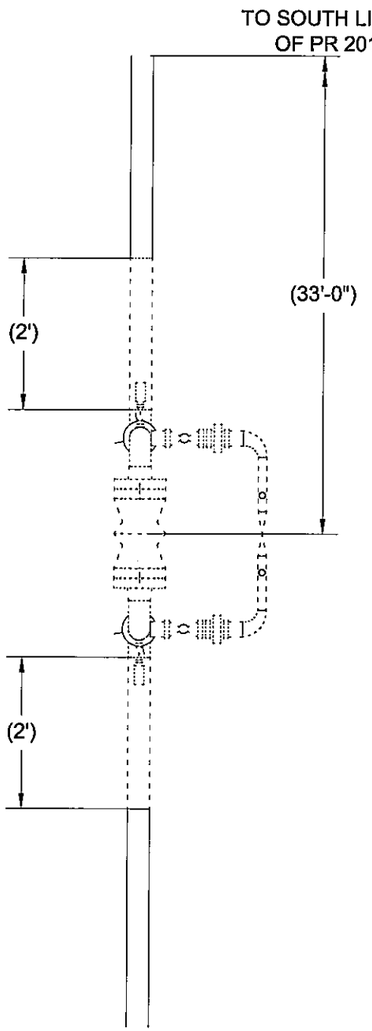
GAS DISTRIBUTION

-DESIGN-

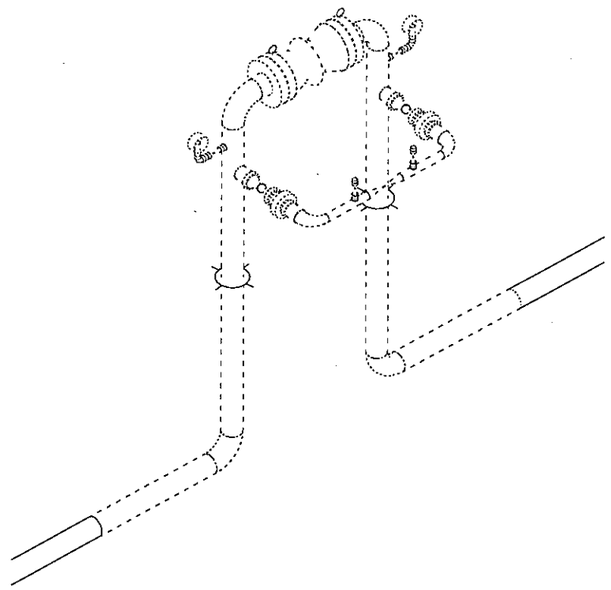
COVER SHEET FOR
3" & 4" CONTROL POINT VALVE FOR
MORRIS 3" & 4" TP PIPELINES

DRAWING NO.	SHT.	REV.
1-C2101-DB-92100-0001	C001	00

AUTOCAD ORIGINAL



PLAN VIEW
3" CONTROL POINT VALVE
ABANDONMENT DETAILS
SCALE: 0'-1/2" - 1'-0"



ISOMETRIC VIEW
3" CONTROL POINT VALVE
ABANDONMENT DETAILS
SCALE: 0'-1/2" - 1'-0"

LEGEND:

——— EXISTING
- - - - - - - - - - ABANDON & REMOVE

NOTES:

1. CONTRACTOR SHALL LOCATE ALL UTILITIES AND PIPELINES PRIOR TO EXCAVATION.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD PRIOR TO EXCAVATION.
3. DIMENSIONS IN ( ) ARE NOMINAL AND TO SUIT WORK REQUIRED.

FOR MICROFILM USE ONLY

REFERENCE DOCUMENTS:	NO.	DATE	REVISIONS	APP.
	0	2013-FEB-28	ISSUED FOR TENDER	T.S.

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

PROVINCE OF MANITOBA
Feb 26/2013
T.D.M. STARODUB
REGISTERED PROFESSIONAL ENGINEER

SCALE:	AS NOTED
DRAWN:	J.DUVAL
DATE:	2013-FEB-27
NETWORK:	
CHECK:	-
CATH.:	-
GIS GRID:	0088-0320

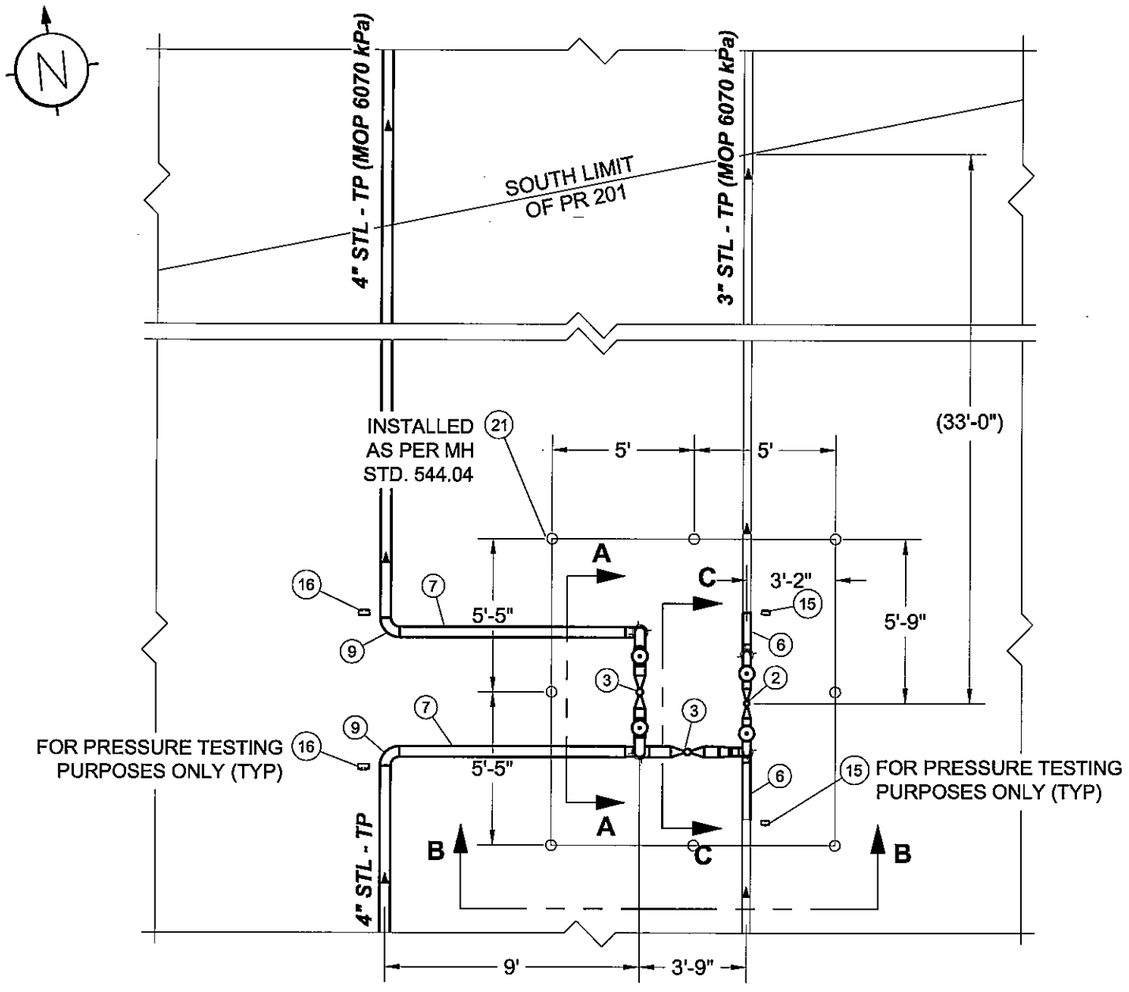
Manitoba Hydro GAS DISTRIBUTION

-DESIGN-

ABANDONMENT DETAILS FOR
3" & 4" CONTROL POINT VALVE FOR
MORRIS 3" & 4" TP PIPELINES

DRAWING NO.	SHT.	REV.
1-C2101-DB-91135-0001	0001	00

AUTOCAD ORIGINAL



PLAN VIEW
3" & 4" CONTROL POINT VALVE
LOCATION DETAILS
SCALE: 0'-1/4" - 1'-0"

LEGEND:
EXISTING
PROPOSED

BILL OF MATERIALS

NO.	QTY	SIZE	DESCRIPTION	CIIC
1	4	2	600 ANSI FLG x BW FULL PORT BALL VALVE	
2	1	3	600 ANSI BW FULL PORT BALL VALVE	
3	2	4	600 ANSI BW FULL PORT BALL VALVE	
4	13'-0"	3	SCH 40 SMLS. STL. ASTM A-106 GR. B PIPE	009228
5	16'-0"	4	SCH 40 SMLS. STL. ASTM A-106 GR. B PIPE	009229
6	4'-0"	3	SCH 40 SMLS. STL. ASTM A-106 GR. B YJ PIPE	
7	22'-0"	4	SCH 40 SMLS. STL. ASTM A-106 GR. B YJ PIPE	
8	4	3	SCH 40 BW SMLS. STL. ASTM A234-WPB 90 DEG LR ELBOW	433303
9	6	4	SCH 40 BW SMLS. STL. ASTM A234-WPB 90 DEG LR ELBOW	009259
10	1	3	SCH 40 BW SMLS. STL. ASTM A234-WPB TEE	620723
11	1	4	SCH 40 BW SMLS. STL. ASTM A234-WPB TEE	989034
12	2	3 X 2	SCH 40 BW SMLS. STL. ASTM A234-WPB REDUCING TEE	013002
13	2	4 X 2	SCH 40 BW SMLS. STL. ASTM A234-WPB REDUCING TEE	013005
14	1	4 X 3	SCH 40 BW SMLS. STL. ASTM A234-WPB CONC REDUCER	012445
15	3	3	SCH 40 BW SMLS. STL. ASTM A234-WPB CAP	009241
16	3	4	SCH 40 BW SMLS. STL. ASTM A234-WPB CAP	009243
17	4	1/2	3000# THD FORGED STEEL ASTM A-105 [hex head] PLUG	239811
18	4	2	600 ANSI FORGED STEEL ASTM A-105 RF BLIND FLANGE c/w 1/2" NPT tap on center	
19	4	2	600 ANSI FLEXITALLIC GASKET	010843
20	32	5/8 X 4+1/4	STL. ASTM A-193 GR. B7 STUDS c/w 2H HEX NUTS	601508
21	8	4	BOLLARD, SCH 40 STL. ASTM A-53 GR. B PIPE	011766

NOTES:

1. CONTRACTOR SHALL LOCATE ALL UTILITIES AND PIPELINES PRIOR TO EXCAVATION.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD PRIOR TO EXCAVATION.
3. FOLLOW MH GAS PIPELINE WELDING PROCEDURE **MHG-11** FOR ALL SHOP FABRICATED WELDS.
4. FOLLOW MH GAS PIPELINE WELDING PROCEDURE **MHG-2** FOR ALL FIELD TIE-IN WELDS.
5. TEST PRESSURE: 8498 kPa (1214 psig)

REFERENCE DOCUMENTS:	NO.	DATE	REVISIONS	APP.
	0	2013-FEB-28	ISSUED FOR TENDER	T.S.

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

PROVINCE OF MANITOBA Feb 28/2013 T.D.M. STARODUB REGISTERED PROFESSIONAL ENGINEER

SCALE:	AS NOTED
DRAWN:	J.DUVAL
DATE:	2013-FEB-27
NETWORK:	
CHECK:	-
CATH.:	-
GIS GRID:	0088-0320

Manitoba Hydro GAS DISTRIBUTION

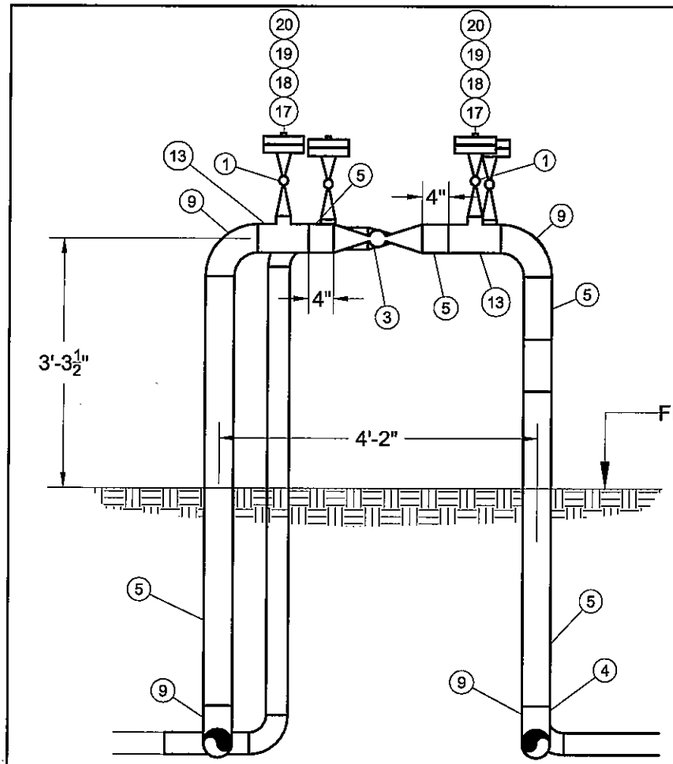
-DESIGN-

LOCATION DETAILS FOR
3" & 4" CONTROL POINT VALVE FOR
MORRIS 3" & 4" TP PIPELINES

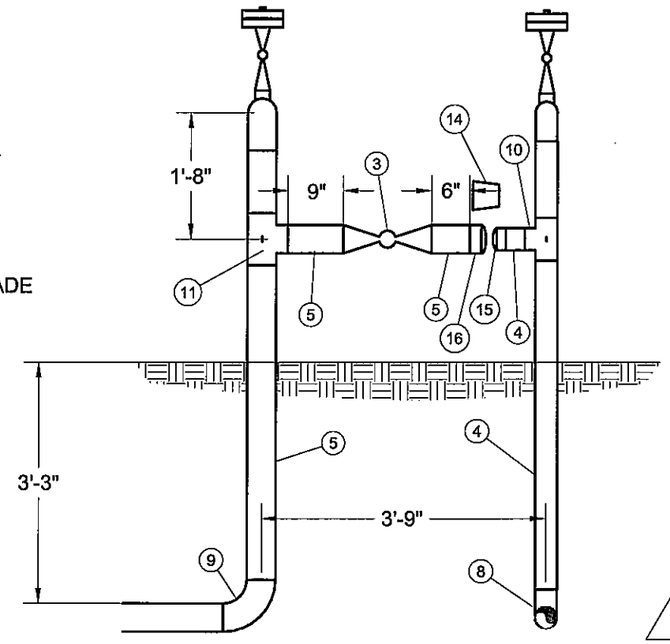
DRAWING NO.	SHT.	REV.
1-C2101-DB-92100-0001	0001	00

FOR MICROFILM USE ONLY

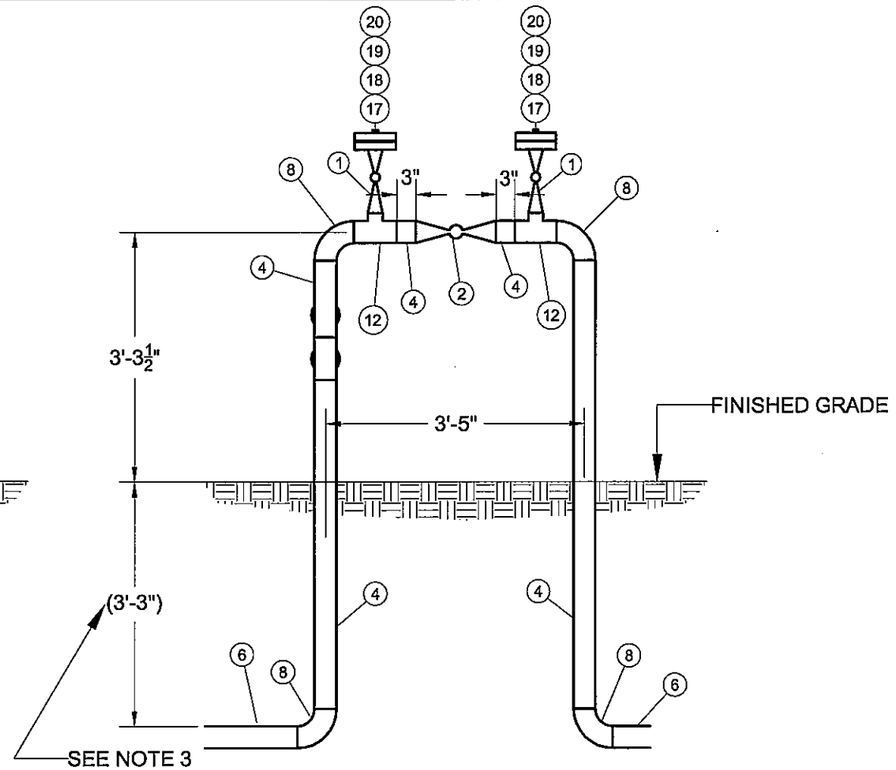
AUTOCAD ORIGINAL



SECTION A-A
4" CONTROL POINT VALVE DETAILS
SCALE: 0'-1/2" - 1'-0"



SECTION B-B
4" INTERCONNECTION VALVE DETAILS
SCALE: 0'-1/2" - 1'-0"



SECTION C-C
3" CONTROL POINT VALVE DETAILS
SCALE: 0'-1/2" - 1'-0"

LEGEND:

EXISTING
PROPOSED

NOTES:

1. CONTRACTOR SHALL LOCATE ALL UTILITIES AND PIPELINES PRIOR TO EXCAVATION.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD PRIOR TO EXCAVATION.
3. APPROXIMATE DEPTH. CONTRACTOR TO VERIFY DEPTH PRIOR TO FABRICATION.

FOR MICROFILM USE ONLY

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

PROVINCE OF MANITOBA
Feb 28/2013
T.D.M. STARODUB
REGISTERED PROFESSIONAL ENGINEER

REFERENCE DOCUMENTS:	NO.	DATE	REVISIONS	APP.
	0	2013-FEB-28	ISSUED FOR TENDER	T.S.

SCALE:	AS NOTED
DRAWN:	J.DUVAL
DATE:	2013-FEB-27
NETWORK:	
CHECK:	-
CATH.:	-
GIS GRID:	0088-0320

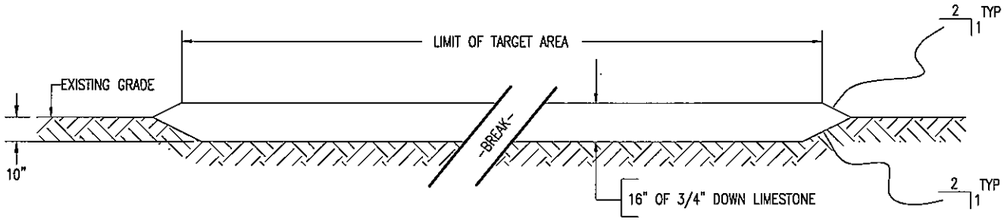
Manitoba Hydro GAS DISTRIBUTION

-DESIGN-

FABRICATION DETAILS FOR
3" & 4" CONTROL POINT VALVE FOR
MORRIS 3" & 4" TP PIPELINES

DRAWING NO.	SHT.	REV.
1-C2101-DB-92110-0001	0001	00

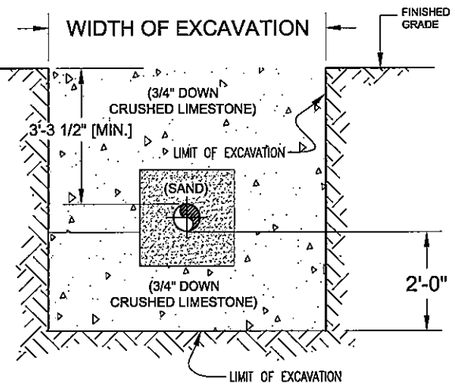
AUTOCAD ORIGINAL



NOTES– SITE FOUNDATION

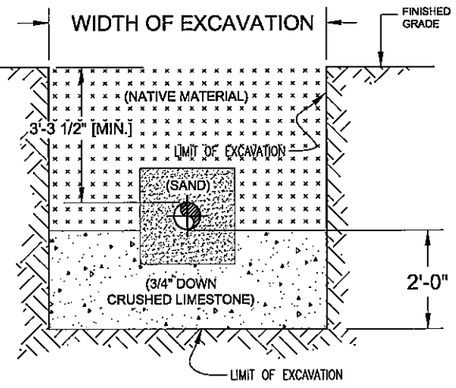
1. REMOVE THE TOP 10" OF TOP SOIL & ORGANIC MATERIAL AT THE STATION SITE.
2. COMPACT NEWLY EXPOSED MATERIAL TO CONFORM TO 98% STANDARD PROCTOR TESTS
3. PROVIDE GRAVEL THROUGHOUT AS INDICATED. COMPACT AREAS AS NOTED.
4. COMPACTION OF THIS NEW MATERIAL TO CONFORM TO 98% STANDARD PROCTOR TESTS
5. ALL COMPACTION TO BE DONE IN LIFTS NOT GREATER THAN 6" AT A TIME.

DETAIL 'A'
SCALE: NTS



NOTES:
1. REMOVE ALL TOP SOIL AND ORGANIC IN EXCAVATION (ABOVE & BELOW PIPE)
2. COMPACT 3/4" DOWN CRUSHED LIMESTONE TO 98% STANDARD PROCTOR IN LIFTS NOT EXCEEDING 6" EACH.
3. ALL NEW PIPE TO BE SURROUNDED WITH 6" OF SAND PRIOR TO BACKFILLING.
4. ALL NATIVE EXCESS MATERIAL TO BE HAULED AWAY AND DISPOSED OF.

DETAIL 'B'
SCALE: NTS



NOTES:
1. REMOVE ALL TOP SOIL AND ORGANIC IN EXCAVATION (ABOVE & BELOW PIPE)
2. COMPACT 3/4" DOWN CRUSHED LIMESTONE TO 98% STANDARD PROCTOR IN LIFTS NOT EXCEEDING 6" EACH.
3. ALL NEW PIPE TO BE SURROUNDED WITH 6" OF SAND PRIOR TO BACKFILLING.
4. ALL NATIVE EXCESS MATERIAL TO BE HAULED AWAY AND DISPOSED OF.

DETAIL 'C'
SCALE: NTS

NO.	DATE	REVISIONS	APP.
0	2013-FEB-28	ISSUED FOR TENDER	T.S.

REFERENCE DOCUMENTS:

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

PROVINCE OF MANITOBA
Feb 28/2013
T.D.M. STARODUB
REGISTERED PROFESSIONAL ENGINEER

SCALE:	N.T.S.
DRAWN:	J.DUVAL
DATE:	2013-FEB-27
NETWORK:	
CHECK:	-
CATH.:	-
GIS GRID:	0088-0320

Manitoba Hydro

GAS DISTRIBUTION

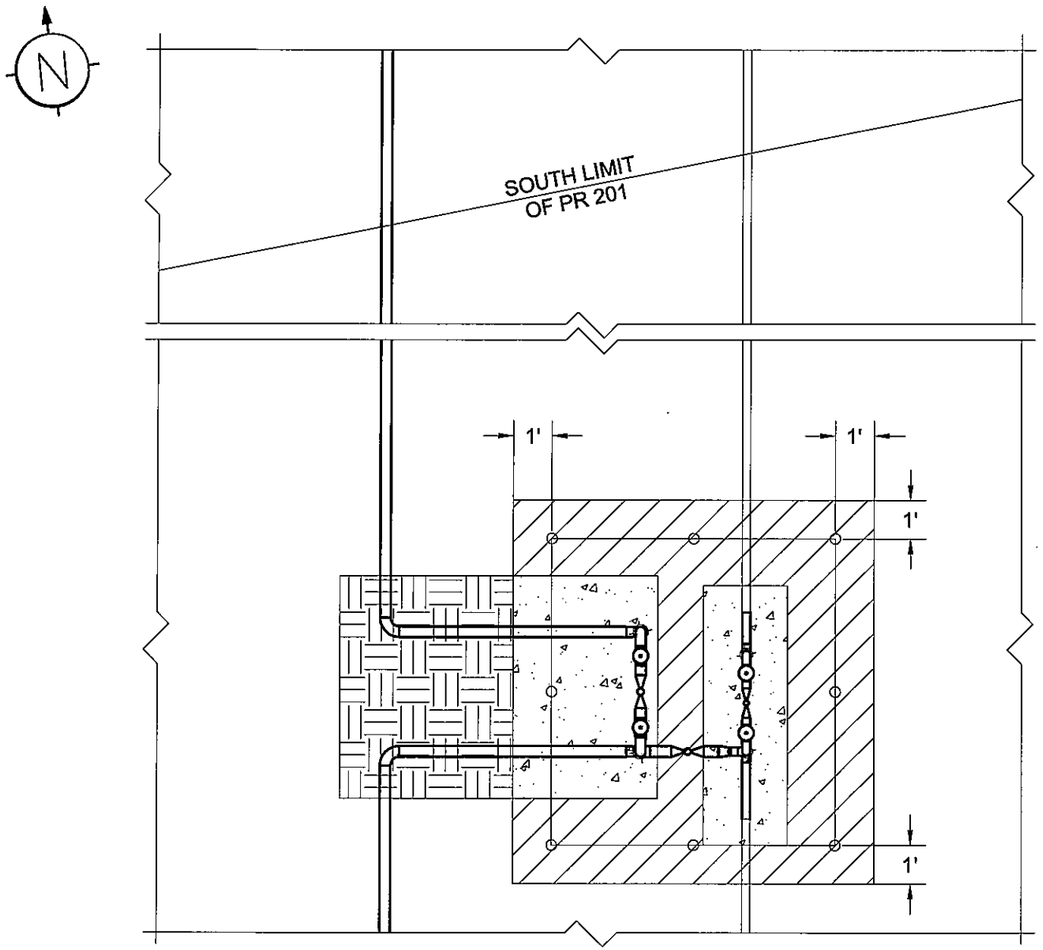
-DESIGN-

EXCAVATION AND COMPACTION DETAILS FOR 3" & 4" CONTROL POINT VALVE FOR MORRIS 3" & 4" TP PIPELINES

DRAWING NO.	SHT.	REV.
1-C2101-DB-91121-0001	0002	00

FOR MICROFILM USE ONLY

AUTOCAD ORIGINAL



PLAN VIEW
3" & 4" CONTROL POINT VALVE
LOCATION DETAILS
SCALE: 0'-1/4" - 1'-0"

LEGEND:
EXISTING
PROPOSED

ZONE 1 - LIMIT OF AREA REQUIRING MATERIALS FOR SITE FOUNDATION CONSTRUCTION, SEE DETAIL 'A' ON SHEET 0002 FOR SPECIFICATION.

ZONE 2 - LIMIT OF AREA REQUIRING MATERIALS FOR BELOW GRADE PIPING COMPACTION W/ GRANULAR BACKFILL W/O INSULATION.
SEE DETAIL 'B' ON SHEET 0002 FOR SPECIFICATION.

ZONE 3 - LIMIT OF AREA REQUIRING MATERIALS FOR BELOW GRADE PIPING COMPACTION W/ NATIVE BACKFILL W/O INSULATION.
SEE DETAIL 'C' ON SHEET 0002 FOR SPECIFICATION.

EXCAVATION AND SITE FOUNDATION NOTES:

1. REMOVE 10" OF TOP SOIL AND ORGANIC MATERIAL WITHIN AREAS COMPRISED OF ZONES 1, 2, & 3.

2. ZONE 1- FOLLOW SITE FOUNDATION CONSTRUCTION AND DRIVEWAY INSTRUCTIONS FOUND IN DETAIL 'A'.

3. ZONE 2 - FOLLOW COMPACTION BELOW PIPE W/ GRANULAR BACKFILL INSTRUCTIONS FOUND IN DETAIL 'B'.

4. ZONE 3 - FOLLOW COMPACTION BELOW PIPE W/ NATIVE BACKFILL INSTRUCTIONS FOUND IN DETAIL 'C'.

5. ALL FINISHED COMPACTED AREAS TO CONFORM TO 98% STANDARD PROCTOR TESTS.

6. ALL NEW VERTICAL PIPE RISERS TO BE ROCK WRAPPED ALONG BELOW GRADE PORTIONS PRIOR TO BACKFILLING.

7. ALL EXPOSED AND NEW PIPE TO BE SURROUNDED WITH 6" OF SAND PRIOR TO BACKFILLING.

8. BACKFILL MATERIAL TO BE FREE OF ORGANIC MATERIAL, LARGE ROCKS AND STONES.

IN MY OPINION, THE PLANS AND SPECIFICATIONS SUBMITTED ARE IN ACCORDANCE WITH CSA Z662-11 GAS PIPELINE SYSTEMS AND THE CONSTRUCTION OF THE FACILITIES PROPOSED HEREIN WILL NOT ENDANGER THE PUBLIC.

PROVINCE OF MANITOBA
Feb 28/2013
T.D.M. STARODUB
REGISTERED PROFESSIONAL ENGINEER

REFERENCE DOCUMENTS:	NO.	DATE	REVISIONS	APP.
	0	2013-FEB-28	ISSUED FOR TENDER	T.S.

SCALE:	N.T.S.
DRAWN:	J.DUVAL
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NETWORK:	
CHECK:	-
CATH.:	-
GIS GRID:	0088-0320

Manitoba Hydro GAS DISTRIBUTION

-DESIGN-

EXCAVATION AND COMPACTION DETAILS FOR 3" & 4" CONTROL POINT VALVE FOR MORRIS 3" & 4" TP PIPELINES

DRAWING NO.	SHT.	REV.
1-C2101-DB-91121-0001	0001	00

AUTOCAD ORIGINAL

FOR MICROFILM USE ONLY