



**TABLE 1**  
**RECOMMENDED LOCATIONS FOR FOUNDATION INVESTIGATIONS**  
**HIGH FILLS AND EMBANKMENTS OVER SWAMPS**  
**PREFERRED ROUTE**

<b>STATIONS</b>	<b>PROPOSED WORKS</b>
<b>Fill Area/Swamp Crossing Highway 11 (Mainline)</b>	
Sta. 20+040 to 20+200	About 3 m fill over McGillvray Creek (NBL)
Sta. 21+920 to 21+960	2 to 3 m fill over swamp area (tributary crossing)
<b>Service Road East of the Existing Highway 11</b>	
From about 50 m to about 130 m south of proposed crossing of Chiswick Line	New embankment over swamp
<b>Service Road West of the Existing Highway 11</b>	
From about 290 m to 350 m north of English Line	New embankment over swamp at McGillvray Creek Crossing
From about 1470 to 1530 m north of English Line	New embankment over swamp at Unnamed Tributary of McGillvray Creek

**NOTE:** 1. Chainages may vary for northbound and southbound mainlines to be confirmed / refined during detailed design.

2. A vertical profile along the Service Roads was not completed for this planning study.



**TABLE 2**  
**RECOMMENDED LOCATIONS FOR FOUNDATION INVESTIGATIONS**  
**STRUCTURES AND CULVERTS**  
**PREFERRED ROUTE**

STATIONS	PROPOSED WORKS
<b>Highway 11 (Mainline)</b>	
Sta. 20+140	McGillvray Creek Bridge Over NBL (New)
Sta. 20+800	Proposed SBL Overpass
Sta. 20+810	Proposed NBL Overpass
Sta. 21+950 <sup>(1)</sup>	Tributary Culvert Widening (SBL)
Sta. 21+960 <sup>(1)</sup>	Tributary Culvert Replacement (NBL)
<b>Service Road East of the Existing Highway 11</b>	
Between 420 m and 1,120 m north of Proudfoot Road	Four culvert crossings of small tributaries of the McGillvray Creek
About 80 m south of Chiswick Road	Culvert / bridge over Unnamed Tributary of the McGillvray Creek
<b>Service Road West of the Existing Highway 11</b>	
About 320 m north of English Line	Bridge / Culvert over McGillvray Creek
About 1,500 m north of English Line	Bridge / Culvert over Unnamed Tributary of McGillvray Creek

- NOTE:**
1. Large span box culvert or bridge to be planned.
  2. Chainages may vary for northbound and southbound mainlines to be confirmed / refined during detailed design.
  3. A vertical profile for the Service Roads was not completed for this planning study.





**TABLE F-1 – SOFT GROUND/SWAMPS**

EMBANKMENT ALTERNATIVES		SOFT GROUND/SWAMPS DEPTHS AND FAVOURABILITY						WEIGHTED FAVOURABILITY VALUE(Ai)	
		L1	F1	L2	F2	L3	F3		
		Depth Range ( 0 - 3m )		Depth Range ( 3 - 10m )		Depth Range ( >10 m )			
1	New Northbound Lanes in Existing Highway 11 Median	460	5	40	3	0	1	4.84	A <sub>1</sub>
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	645	5	140	3	0	1	4.64	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	305	5	80	3	0	1	4.58	A <sub>3</sub>

NOTE: Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-2 – GROUNDWATER CONDITIONS**

EMBANKMENT ALTERNATIVES		GROUNDWATER DEPTHS AND FAVOURABILITY						WEIGHTED FAVOURABILITY VALUE(Ai)	
		L1	F1	L2	F2	L3	F3		
		Depth Range ( >5m )		Depth Range ( 1 - 5m )		Depth Range ( 0 -1 m )			
1	New Northbound Lanes in Existing Highway 11 Median	2230	5	3425	3	500	1	3.56	A <sub>1</sub>
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	1650	5	4565	3	785	1	3.25	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	1925	5	3680	3	385	1	3.51	A <sub>3</sub>

NOTE: Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-3 – STRUCTURE FOUNDATIONS**

EMBANKMENT ALTERNATIVES		CONTEMPLATED BRIDGE OR CULVERT SITE								WEIGHTED FAVOURABILITY VALUE(Ai)	
		CULVERT McGILLVRAY CREEK CROSSING SOUTH OF ENGLISH LINE/ LOXTON LINE		BRIDGE FOR McGILLVRAY CREEK CROSSING NORTH OF ENGLISH LINE/ LOXTON LINE		McGILLVRAY CREEK TRIBUTARY CROSSING (MAIN LINE)		McGILLVRAY CREEK TRIBUTARY CROSSING (SERVICE ROAD)			
		Type	F1	Type	F2	Type	F3	Type	F4		
1	New Northbound Lanes in Existing Highway 11 Median	A	5	B	4	A	5	A	5	4.75	A <sub>1</sub>
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	A	5	B	4	A	5	-	-	4.67	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	-	-	B (*)	4	A (**)	5	A	5	4.67	A <sub>3</sub>

**NOTE:**

A: Shallow Foundation, F = 5

B: Deep Foundation -Integral abutment, F=4; Other , F = 3

(\*) Replacement of Existing Culvert

(\*\*) Culvert Extension SBL

Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-4 – EMBANKMENT SETTLEMENT**

EMBANKMENT ALTERNATIVES		SUBSOIL TYPE AND FAVOURABILITY FACTOR						WEIGHTED FAVOURABILITY VALUE(Ai)	
		Less than 3m Deep		3m to 10m Deep		Deeper than 10m			
		L1	L2	L3	L4	L5	L6		
		Silty/Sandy (F1=5)	Clayey (F2 =4)	Silty/Sandy (F3=4)	Clayey (F4 =3)	Silty/Sandy (F5=2)	Clayey (F6 =1)		
1	New Northbound Lanes in Existing Highway 11 Median	3650	580	1885	40	-	-	4.59	A <sub>1</sub>
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	3890	645	2325	140	-	-	4.54	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	1975	305	3630	80	-	-	4.32	A <sub>3</sub>

NOTE: Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-5- EMBANKMENT STABILITY**

EMBANKMENT ALTERNATIVES		CONVENTIONAL OR SPECIAL DESIGN REQUIREMENTS				WEIGHTED FAVOURABILITY VALUE(A <sub>i</sub> )	
		L1	L2	L3	L4		
		Conventional Embankment (F1 = 5)	Embankment Requiring Subexcavation (F2 = 3)	Embankment Requiring Toe- Stabilizing Berms (F3 = 2)	Embankment Requiring pre- loading/ Wick Drains(F4 = 1)		
1	New Northbound Lanes in Existing Highway 11 Median	5535	620	-	-	<b>4.80</b>	A <sub>1</sub>
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	6215	785	-	-	<b>4.78</b>	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	5605	385	-	-	<b>4.87</b>	A <sub>3</sub>

NOTE: Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-6 – CONSTRUCTION FEASIBILITY**

EMBANKMENT ALTERNATIVES		STRUCTURES/EMBANKMENTS						WEIGHTED FAVOURABILITY VALUE(Ai)	
		No of Structure Foundations		No of Major Culvert Foundations		Deep Swamps L(m)			
		S1 Convent. (F1=5)	S1 Special (F2=1)	C1 Convent. (F1=5)	C2 Special (F2=1)	L1 Convent. (F1=5)	L2 Special (F2=1)		
1	New Northbound Lanes in Existing Highway 11 Median	1	-	3	-	40	-	1.01	A <sub>1</sub>
2	New Southbound lanes West of the Existing Highway 11 Southbound Lane	1	-	2	-	140	-	1.02	A <sub>2</sub>
3	New Service Road East of the Existing Highway 11 Northbound Lane	1	-	2	-	80	-	1.01	A <sub>3</sub>

Special Designation Applied to Following (or similar) Conditions:

- Foundations with piers in water or deep foundations other than integral abutments
- Culverts in Lakes

Enter weighted favourability value A<sub>i</sub> in Table F-7.



**TABLE F-7 – SCORING OF FOUNDATION CRITERIA (EMBANKMENTS)**

EVALUATION CRITERIA		SOFT GROUND/ SWAMPS		GW CONDITIONS		STRUCTURE FOUNDATIONS		EMBANKMENT SETTLEMENT		EMBANKMENT STABILITY		CONSTRUCTION FEASIBILITY		SCORE	RANKING
TABLE NO		F1		F2		F3		F4		F5		F6			
IMPACT WEIGHT, Bi		0.15		0.15		0.20		0.20		0.20		0.10			
EMBANKMENT ALTERNATIVES		Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni		
1	New Northbound Lanes in Existing Highway 11 Median	4.84	1.00	3.56	1.00	4.75	1.00	4.59	1.00	4.80	0.99	1.01	0.99	4.98	1
2	New Southbound Lanes West of the Existing Highway 11 Southbound Lane	4.64	0.96	3.25	0.91	4.67	0.98	4.54	0.99	4.78	0.98	1.02	1.00	4.85	3
3	New Service Road East of the Existing Highway 11 Northbound Lane	4.58	0.95	3.51	0.99	4.67	0.98	4.32	0.94	4.87	1.00	1.01	0.99	4.87	2

NOTES:

Ai - Weighted Favourability Value  
Ni - Normalized Favourability Value



**TABLE S-1– SOFT GROUND/SWAMPS**

INTERCHANGE ALTERNATIVES		SOFT GROUND/SWAMPS DEPTHS AND FAVOURABILITY						WEIGHTED FAVOURABILITY VALUE(Ai)	
		L1	F1	L2	F2	L3	F3		
		Depth Range ( 0 - 3m )		Depth Range ( 3 - 10m )		Depth Range ( >10 m )			
1a	English Line /Loxton Line Parclo A (Note 1)	480	5	-	3	-	1	1.28	A <sub>1</sub>
1b	English Line /Loxton Line Parclo B (Note 1)	570	5	-	3	-	1	1.07	A <sub>2</sub>
1c	English Line/Loxton Line Diamond (Note 1)	410	5	-	3	-	1	1.49	A <sub>3</sub>
2a	Mid-Block Parclo A	220	5	-	3	-	1	2.78	A <sub>4</sub>
2b	Mid-Block Parclo B	300	5	-	3	-	1	2.04	A <sub>5</sub>
2c	Mid-Block Diamond	300	5	-	3	-	1	2.04	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	300	5	-	3	-	1	2.04	A <sub>7</sub>
3b	Purdon Line /Chiswick Line Parclo B (Note 2)	280	5	-	3	-	1	2.19	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	160	5	-	3	-	1	3.83	A <sub>9</sub>
4a	No Interchanges (Note 3)	40	5	-	3	-	1	15.30	A <sub>10</sub>

NOTES: Embankment lengths (L1, L2, L3) measured at ramps and approach fills

Note 1- Includes underpass at Purdon Line / Chiswick Line

Note 2- Includes underpass at English Line / Loxton Line

Note 3- Includes underpass at English Line / Loxton Line and Purdon Line / Chiswick Line

Enter weighted favourability value A<sub>i</sub> in Table S-7.





**TABLE S-2- GROUNDWATER CONDITIONS**

INTERCHANGE ALTERNATIVES		GROUNDWATER DEPTHS AND FAVOURABILITY						WEIGHTED FAVOURABILITY VALUE(Ai)	
		L1	F1	L2	F2	L3	F3		
		Depth Range ( >5m )		Depth Range ( 1 - 5m )		Depth Range ( 0 -1 m )			
1a	English Line/Loxton Line Parclo A (Note 1)	-	5	4170	3	480	1	2.79	A <sub>1</sub>
1b	English Line /Loxton Line Parclo B (Note 1)	-	5	5250	3	570	1	2.80	A <sub>2</sub>
1c	English Line /Loxton Line Diamond (Note 1)	-	5	3170	3	410	1	2.77	A <sub>3</sub>
2a	Mid-Block Parclo A	6030	5	-	3	220	1	4.86	A <sub>4</sub>
2b	Mid-Block Parclo B	6480	5	-	3	300	1	4.82	A <sub>5</sub>
2c	Mid-Block Diamond	6050	5	-	3	300	1	4.81	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	-	5	3965	3	300	1	2.86	A <sub>7</sub>
3b	Purdon Line /Chiswick Line Parclo B (Note 2)	-	5	3995	3	280	1	2.87	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	-	5	3465	3	160	1	2.91	A <sub>9</sub>
4a	No Interchanges (Note 3)	-	5	990	3	40	1	2.92	A <sub>10</sub>

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.

Enter weighted favourability value A<sub>i</sub> in Table S-7.



**TABLE S-3– STRUCTURE FOUNDATIONS**

INTERCHANGE ALTERNATIVES		CONTEMPLATED STRUCTURE/INTERCHANGE SITE												WEIGHTED FAVOURABILITY VALUE(A <sub>i</sub> )	
		English Line/ Loxton Line Structure	Mid-Block Structures						Purdon Line/ Chiswick Line Structure	McGillvray Creek Bridge		McGillvray Creek Bridge Widenings			
			NBL		SBL										
			Type	F1	Type	F2	Type	F3							
1a	English Line/Loxton Line Parclo A (Note 1)	B	4	-	-	-	-	B	4	-	-	B	4	4.00	A <sub>1</sub>
1b	English Line /Loxton Line Parclo B (Note 1)	B	4	-	-	-	-	B	4	B	4	B	4	4.00	A <sub>2</sub>
1c	English Line /Loxton Line Diamond (Note 1)	B	4	-	-	-	-	B	4	-	-	-	-	4.00	A <sub>3</sub>
2a	Mid-Block Parclo A	-	-	A	5	A	5	-	-	-	-	-	-	5.00	A <sub>4</sub>
2b	Mid-Block Parclo B	-	-	A	5	A	5	-	-	-	-	B	4	4.67	A <sub>5</sub>
2c	Mid-Block Diamond	-	-	A	5	A	5	-	-	-	-	-	-	5.00	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	B	4	-	-	-	-	B	4	-	-	-	-	4.00	A <sub>7</sub>
3b	Purdon Line /Chiswick Line Parclo B (Note 2)	B	4	-	-	-	-	B	4	-	-	-	-	4.00	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	B	4	-	-	-	-	B	4	-	-	-	-	4.00	A <sub>9</sub>
4a	No Interchanges (Note 3)	B	4	-	-	-	-	B	4	-	-	-	-	4.00	A <sub>10</sub>

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.

A: Shallow Foundation, F = 5

B: Deep Foundation: Integral Abutments, F = 4; Others, F=3

Enter weighted favourability value A<sub>i</sub> in Table S-7.



**TABLE S-4- EMBANKMENT SETTLEMENT**

INTERCHANGE ALTERNATIVES		SUBSOIL TYPE AND FAVOURABILITY FACTOR						WEIGHTED FAVOURABILITY VALUE(Ai)	
		Less than 3m Deep		3-10m Deep		Deeper than 10 m			
		L1	L2	L3	L4	L5	L6		
		Silty/Sandy (F1=5)	Clayey (F2 =4)	Silty/Sandy (F3=4)	Clayey (F4 =3)	Silty/Sandy (F5=2)	Clayey (F6 =1)		
1a	English Line/ Loxton Line Parclo A (Note 1)	-	480	4170	-	-	-	4.00	A <sub>1</sub>
1b	English Line/Loxton Line Parclo B (Note 1)	-	570	5250	-	-	-	4.00	A <sub>2</sub>
1c	English Line/Loxton Line Diamond (Note 1)	-	410	3170	-	-	-	4.00	A <sub>3</sub>
2a	Mid-Block Parclo A	6030	220	-	-	-	-	4.96	A <sub>4</sub>
2b	Mid-Block Parclo B	6480	300	-	-	-	-	4.96	A <sub>5</sub>
2c	Mid-Block Diamond	6050	300	-	-	-	-	4.95	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	-	300	3965	-	-	-	4.00	A <sub>7</sub>
3b	Purdon Line/Chiswick Line Parclo B (Note 2)	-	280	3995	-	-	-	4.00	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	-	160	3465	-	-	-	4.00	A <sub>9</sub>
4a	No Interchanges (Note 3)	-	40	990	-	-	-	4.00	A <sub>10</sub>

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.  
Enter weighted favourability value A<sub>i</sub> in Table S-7.



**TABLE S-5– EMBANKMENT STABILITY**

INTERCHANGE ALTERNATIVES		EMBANKMENT REQUIRING SPECIAL OR CONVENTIONAL DESIGN				WEIGHTED FAVOURABILITY VALUE(A <sub>i</sub> )	
		L1	L2	L3	L4		
		Conventional Embankment (F1 = 5)	Embankment Requiring Subexcavation (F2 = 3)	Embankment Requiring Toe- Stabilizing Berms (F3 = 2)	Embankment Requiring pre- loading/ Wick Drains (F4 = 1)		
1a	English Line/Loxton Line Parclo A (Note 1)	4170	480	-	-	<b>4.79</b>	A <sub>1</sub>
1b	English Line/Loxton Line Parclo B (Note 1)	5250	570	-	-	<b>4.80</b>	A <sub>2</sub>
1c	English Line/Loxton Line Diamond (Note 1)	3170	410	-	-	<b>4.77</b>	A <sub>3</sub>
2a	Mid-Block Parclo A	6030	220	-	-	<b>4.93</b>	A <sub>4</sub>
2b	Mid-Block Parclo B	6480	300	-	-	<b>4.91</b>	A <sub>5</sub>
2c	Mid-Block Diamond	6050	300	-	-	<b>4.91</b>	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	3965	300	-	-	<b>4.86</b>	A <sub>7</sub>
3b	Purdon Line /Chiswick Line Parclo B (Note 2)	3995	280	-	-	<b>4.87</b>	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	3465	160	-	-	<b>4.91</b>	A <sub>9</sub>
4a	No Interchanges (Note 3)	990	40	-	-	<b>4.92</b>	A <sub>10</sub>

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.  
Enter weighted favourability value A<sub>i</sub> in Table S-7.



**TABLE S-6– CONSTRUCTION FEASIBILITY**

INTERCHANGE ALTERNATIVES		REQUIRED NUMBER OF STRUCTURES							WEIGHTED FAVOURABILITY VALUE(Ai)	
		Bridges					Major Culverts			
		McGillvray Creek Bridge (F=4)	McGillvray Creek Bridge Widenings (F=4)	English Line/ Loxton Line Underpass (F=4)	Mid-Block Overpass (F=5)	Purdon Line/ Chiswick Line Underpass (F=4)	To be Constructed (F=4)	To be Extended (F=5)		
1a	English Line/Loxton Line Parclo A (Note 1)	-	1	1	-	1	4	1	4.13	A <sub>1</sub>
1b	English Line/Loxton Line Parclo B (Note 1)	1	1	1	-	1	2	-	4.00	A <sub>2</sub>
1c	English Line/Loxton Line Diamond (Note 1)	-	-	1	-	1	3	-	4.00	A <sub>3</sub>
2a	Mid-Block Parclo A	-	-	-	2	-	2	-	4.50	A <sub>4</sub>
2b	Mid-Block Parclo B	-	1	-	2	-	2	-	4.40	A <sub>5</sub>
2c	Mid-Block Diamond	-	-	-	2	-	2	-	4.50	A <sub>6</sub>
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	-	-	1	-	1	3	2	4.29	A <sub>7</sub>
3b	Purdon Line /Chiswick Line Parclo B (Note 2)	-	-	1	-	1	3	2	4.29	A <sub>8</sub>
3c	Purdon Line/Chiswick Line Diamond (Note 2)	-	-	1	-	1	3	-	4.00	A <sub>9</sub>
4a	No Interchanges (Note 3)	-	-	1	-	1	1	-	4.00	A <sub>10</sub>

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.  
Embankment construction considered not applicable for this Table on this project.  
Bridge Foundations Favourability: Shallow F=5 and Deep F=4; Culvert Favourability: New F=4; Extension F=5  
Enter weighted favourability value A<sub>i</sub> in Table S-7.



**TABLE S-7 – SCORING OF FOUNDATION CRITERIA (INTERCHANGES)**

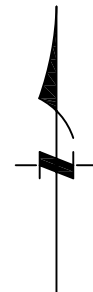
EVALUATION CRITERIA		SOFT GROUND/ SWAMPS		GROUNDWATER CONDITIONS		STRUCTURE FOUNDATIONS		EMBANKMENT SETTLEMENT		EMBANKMENT STABILITY		CONSTRUCTION FEASIBILITY		SCORE	RANKING
TABLE No.		F1		F2		F3		F4		F5		F6			
IMPACT WEIGHT, Bi		0.10		0.15		0.25		0.20		0.20		0.10			
INTERCHANGE ALTERNATIVES		Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni	Ai	Ni		
1a	English Line/Loxton Line Parclo A (Note 1)	1.28	0.08	2.79	0.57	4.00	0.80	4.00	0.81	4.79	0.97	4.13	0.92	3.71	8
1b	English Line/Loxton Line Parclo B (Note 1)	1.07	0.07	2.80	0.58	4.00	0.80	4.00	0.81	4.80	0.97	4.00	0.89	3.69	10
1c	English Line/Loxton Line Diamond (Note 1)	1.49	0.10	2.77	0.57	4.00	0.80	4.00	0.81	4.77	0.97	4.00	0.89	3.70	9
2a	Mid-Block Parclo A	2.78	0.18	4.86	1.00	5.00	1.00	4.96	1.00	4.93	1.00	4.50	1.00	4.59	1
2b	Mid-Block Parclo B	2.04	0.13	4.82	0.99	4.67	0.93	4.96	1.00	4.91	1.00	4.40	0.98	4.46	3
2c	Mid-Block Diamond	2.04	0.13	4.81	0.99	5.00	1.00	4.95	1.00	4.91	1.00	4.50	1.00	4.55	2
3a	Purdon Line/Chiswick Line Parclo A (Note 2)	2.04	0.13	2.86	0.59	4.00	0.80	4.00	0.81	4.86	0.99	4.29	0.95	3.78	7
3b	Purdon Line/Chiswick Line Parclo B (Note 2)	2.19	0.14	2.87	0.59	4.00	0.80	4.00	0.81	4.87	0.99	4.29	0.95	3.79	6
3c	Purdon Line/Chiswick Line Diamond (Note 2)	3.83	0.25	2.91	0.60	4.00	0.80	4.00	0.81	4.91	1.00	4.00	0.89	3.82	5
4a	No Interchanges (Note 3)	15.30	1.00	2.92	0.60	4.00	0.80	4.00	0.81	4.92	1.00	4.00	0.89	4.20	4

NOTES: Refer to Notes 1, 2 and 3 in Table S-1 for full description of alternatives.

Ai - Weighted Favourability Value

Ni - Normalized Favourability Value



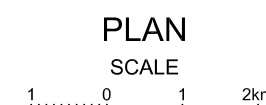


REFERENCE: THIS FIGURE WAS REPRODUCED FROM MAPARTS MAP OF NORTH BAY.

## PROJECT LOCATION MAP

ACCESS REVIEW AT THE SOUTH ENTRANCE TO POWASSAN  
HIGHWAY 11

From 5.7 km South of Highway 534, Northerly for 5.0 km



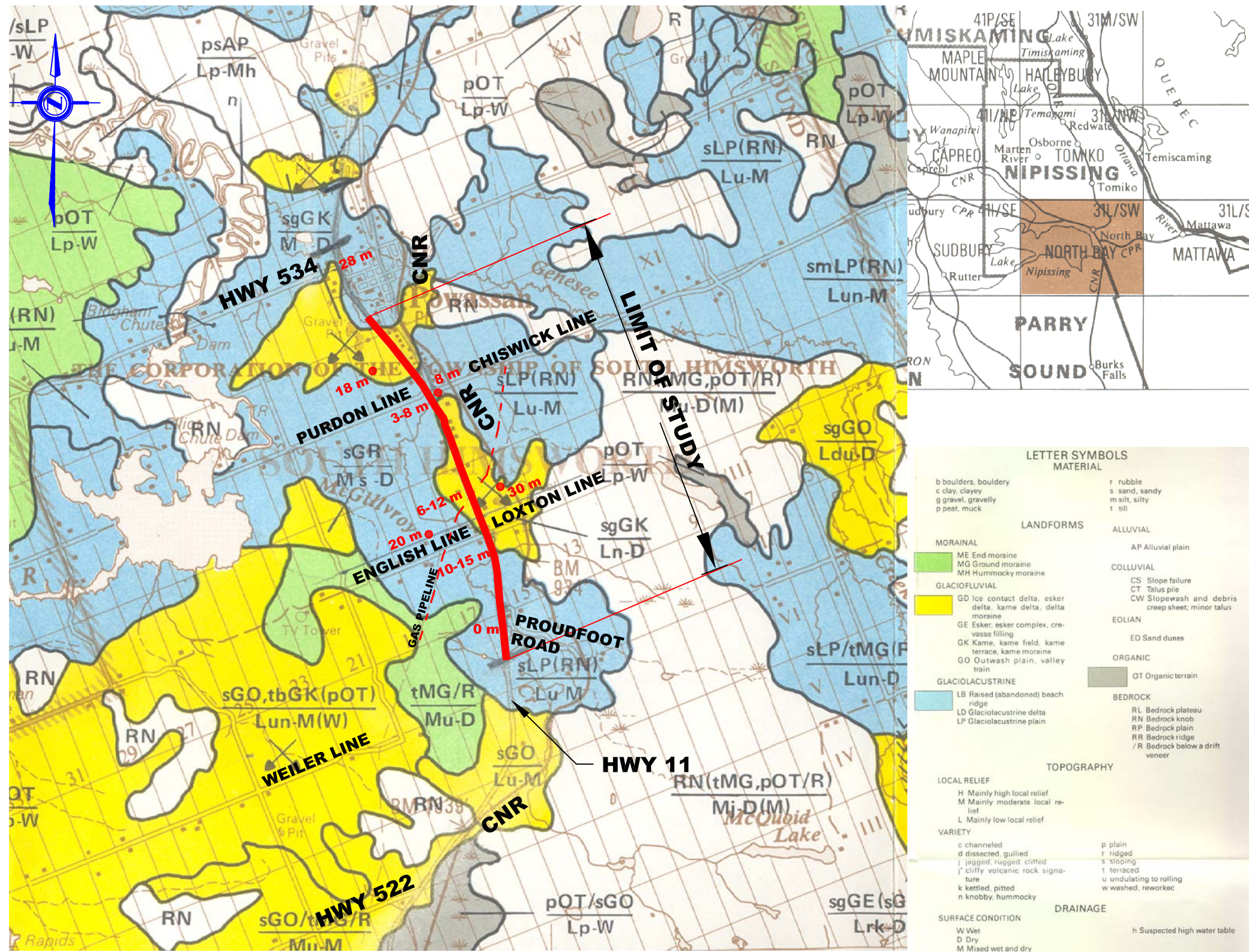
HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



FIGURE  
1

METRIC





REFERENCE: THIS DRAWING WAS REPRODUCED FROM ONTARIO GEOLOGICAL MAP 5041 FROM THE MINISTRY OF NATURAL RESOURCES, NORTHERN ONTARIO ENGINEERING GEOLOGY TERRAIN STUDY, DATA BASE MAP FOR NORTH BAY, SCALE: 1 : 100,000, PUBLISHED 1979.

## SITE GEOLOGY - SOILS AND BEDROCK DEPTHS ACCESS REVIEW AT THE SOUTH ENTRANCE TO POWASSAN HIGHWAY 11

From 5.7 km South of Highway 534, Northerly for 5.0 km

**METRIC**



Stantec Consulting Ltd.



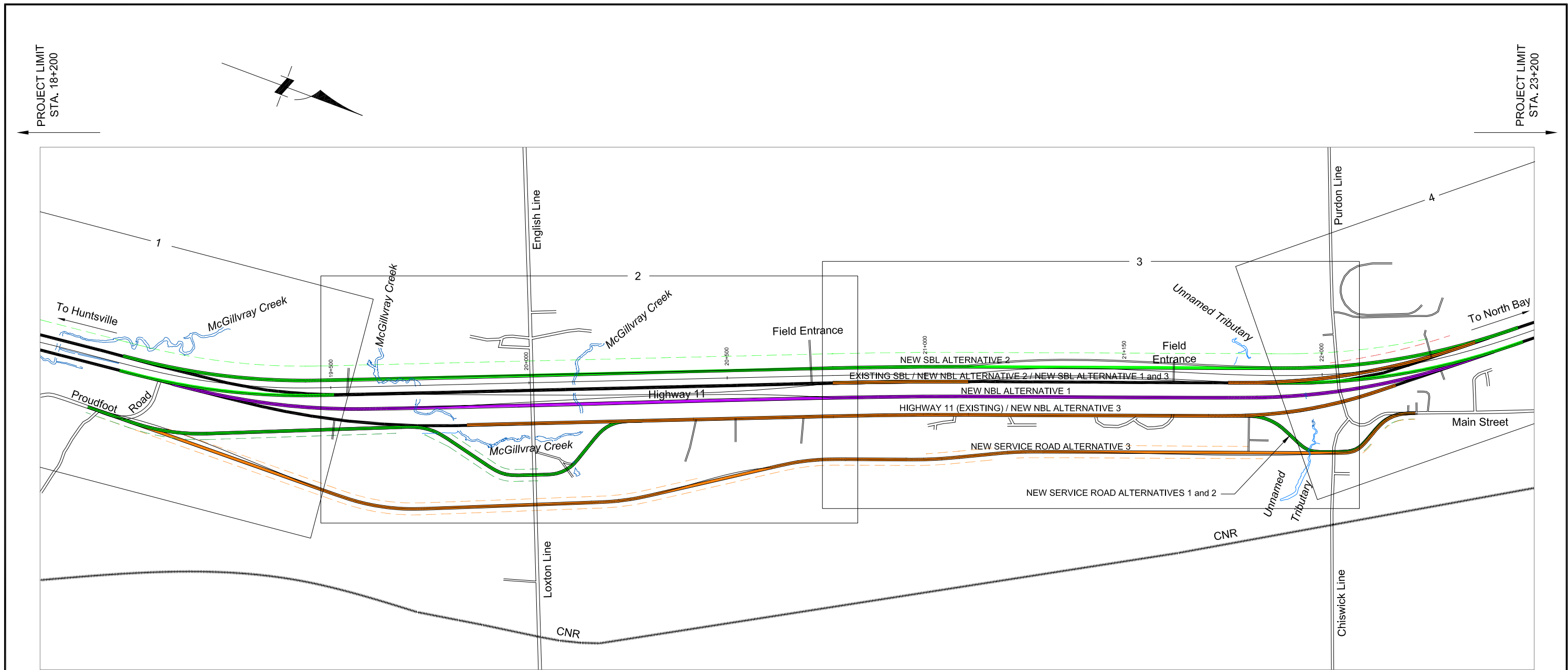
HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



FIGURE

2



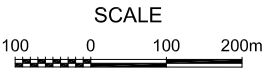


**KEY PLAN LEGEND:**

- HIGHWAY 11 (EXISTING)
- ALTERNATIVE 1
- ALTERNATIVE 2
- ALTERNATIVE 3
- SECONDARY ROAD
- 4 DRAWING NUMBER

**KEY PLAN-EMBANKMENT ALIGNMENTS**

**METRIC**



**HIGHWAY 11**  
 HIGHWAY 11 From 5.7 km  
 South of Highway 534, Northerly 5.0 km  
 G.W.P. 323 - 00 - 00



**DRAWING**  
 A

NOTES:

- 1. BEDROCK OUTCROPS SHOWN ON PLAN ARE BASED ON EXISTING CONSTRUCTION DATA, SITE RECONNAISSANCE AND AERIAL PHOTOGRAPHS. THE SYMBOLS ON THE PLANS INDICATE THE LOCAL PRESENCE OF THE BEDROCK UNIT AND DO NOT REPRESENT THE FULL EXTENT OF EACH ROCK OUTCROP.
- 2. THE EXTENT OF SWAMPS, WATER BODIES AND FILL AREAS IS AS INTERPRETED FROM SITE RECONNAISSANCE AND AERIAL PHOTOGRAPHS. THE AREAL EXTENTS SHOWN ON THE PLANS REPRESENT ESTIMATES ONLY AND ACTUAL AREAS MAY VARY FROM THOSE SHOWN.
- 3. ESTIMATED DEPTH TO COMPETENT GROUND AND OR BEDROCK IN SWAMPS IS BASED ON GEOLOGICAL EVIDENCE, DESKTOP LITERATURE SEARCH DATA AND LIMITED SITE RECONNAISSANCE INFORMATION AND MAY VARY SUBSTANTIALLY WITHIN THE LIMITS OF THE SWAMP.
- 4. THE GEOLOGIC UNIT SYMBOLS SHOWN ON THE PLANS REPRODUCE THOSE SHOWN ON GEOLOGIC MAPPING OF THE AREA AND ARE ONLY A GENERAL REPRESENTATION OF BEDROCK AND SOIL UNITS.
- 5. THE PLANS ARE AN ENCLOSURE TO THE ALTERNATE SELECTION STUDY PREPARED BY PETO MACCALLUM LTD. THE DATA ON THESE PLANS MUST BE READ IN CONJUNCTION WITH THE REPORT.
- 6. THE DETAIL SHOWN ON THE PLAN IS CONSIDERED APPROPRIATE FOR ALTERNATE SELECTION PURPOSES. WHEN THE PREFERRED ROUTE HAS BEEN SELECTED, A SUBSURFACE INVESTIGATION SHOULD BE UNDERTAKEN TO DELINEATE THE STRATIGRAPHIC CONDITIONS ON A SITE SPECIFIC BASIS FOR PRELIMINARY AND DETAILED DESIGN PURPOSES.

LEGEND:



ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3



BEDROCK OUTCROP (R O/C)



SAND AND GRAVEL PITS



SOFT GROUND / SWAMP



ANTICIPATED DEPTH TO  
COMPETENT MATERIAL/BEDROCK



WATER BODY

GL

GLACIOLACUSTRINE

GF (K)

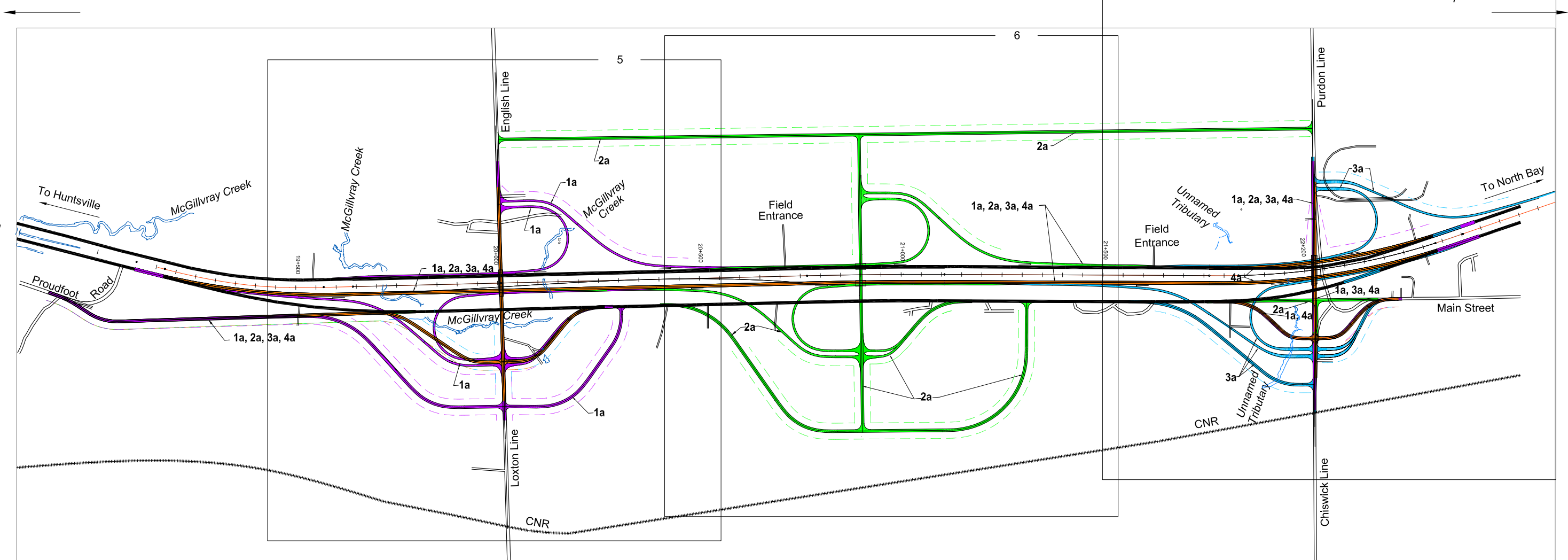
GLACIOFLUVIAL - KAME MORaine



PHOTOGRAPH NUMBER  
(ARROW SHOWS DIRECTION OF VIEW)

PROJECT LIMIT  
STA. 18+200

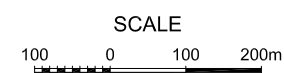
PROJECT LIMIT  
STA. 23+200



KEY PLAN LEGEND:

- HWY 11 (EXISTING)
- INTERCHANGE ALTERNATIVE 1a
- INTERCHANGE ALTERNATIVE 2a
- INTERCHANGE ALTERNATIVE 3a
- INTERCHANGE ALTERNATIVE 4a
- SECONDARY ROAD
- DRAWING NUMBER

KEY PLAN-INTERCHANGES



METRIC



HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00

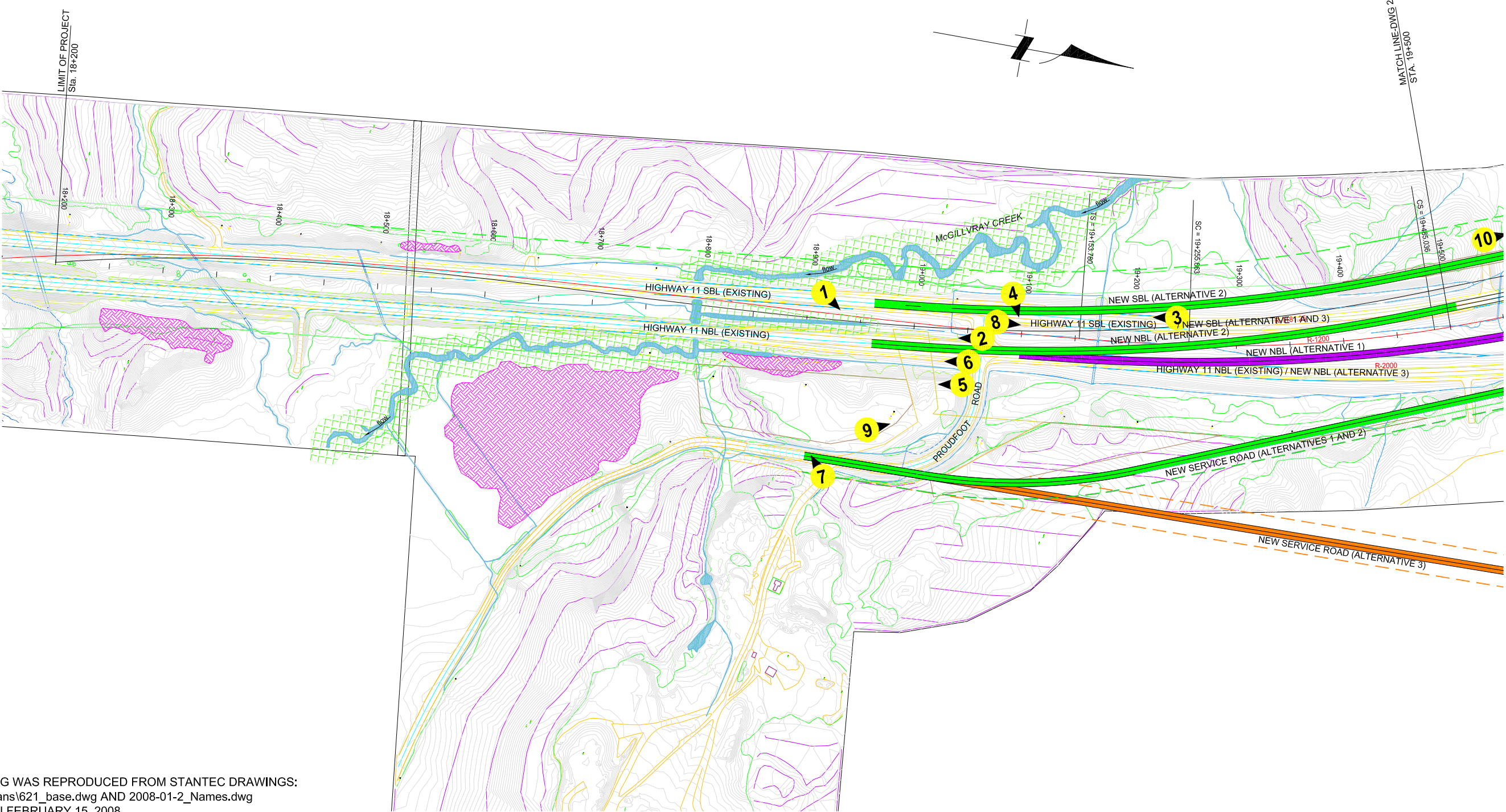


DRAWING  
C



GL+R O/C

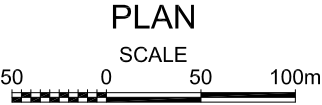
GL



REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
2008-01-2\_iTrans\621\_base.dwg AND 2008-01-2\_Names.dwg  
RECEIVED ON FEBRUARY 15, 2008

STA. 18+200 TO 19+500 (HIGHWAY 11 STUDY CORRIDOR)

METRIC

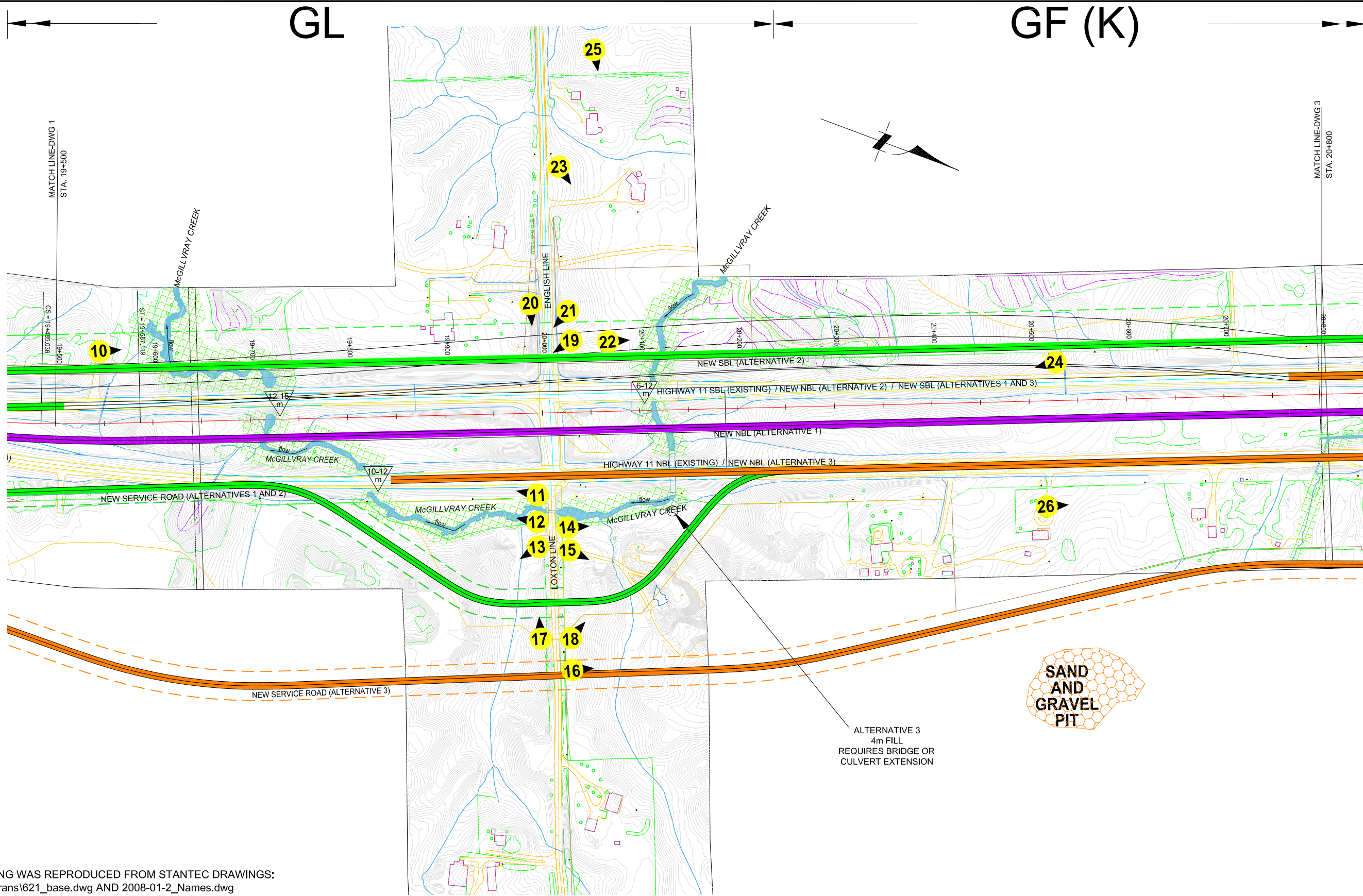


HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
1





REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
2008-01-2\_iTrans\621\_base.dwg AND 2008-01-2\_Names.dwg  
RECEIVED ON FEBRUARY 15, 2008

STA. 19+500 TO 20+800 (HIGHWAY 11 STUDY CORRIDOR)

**METRIC**

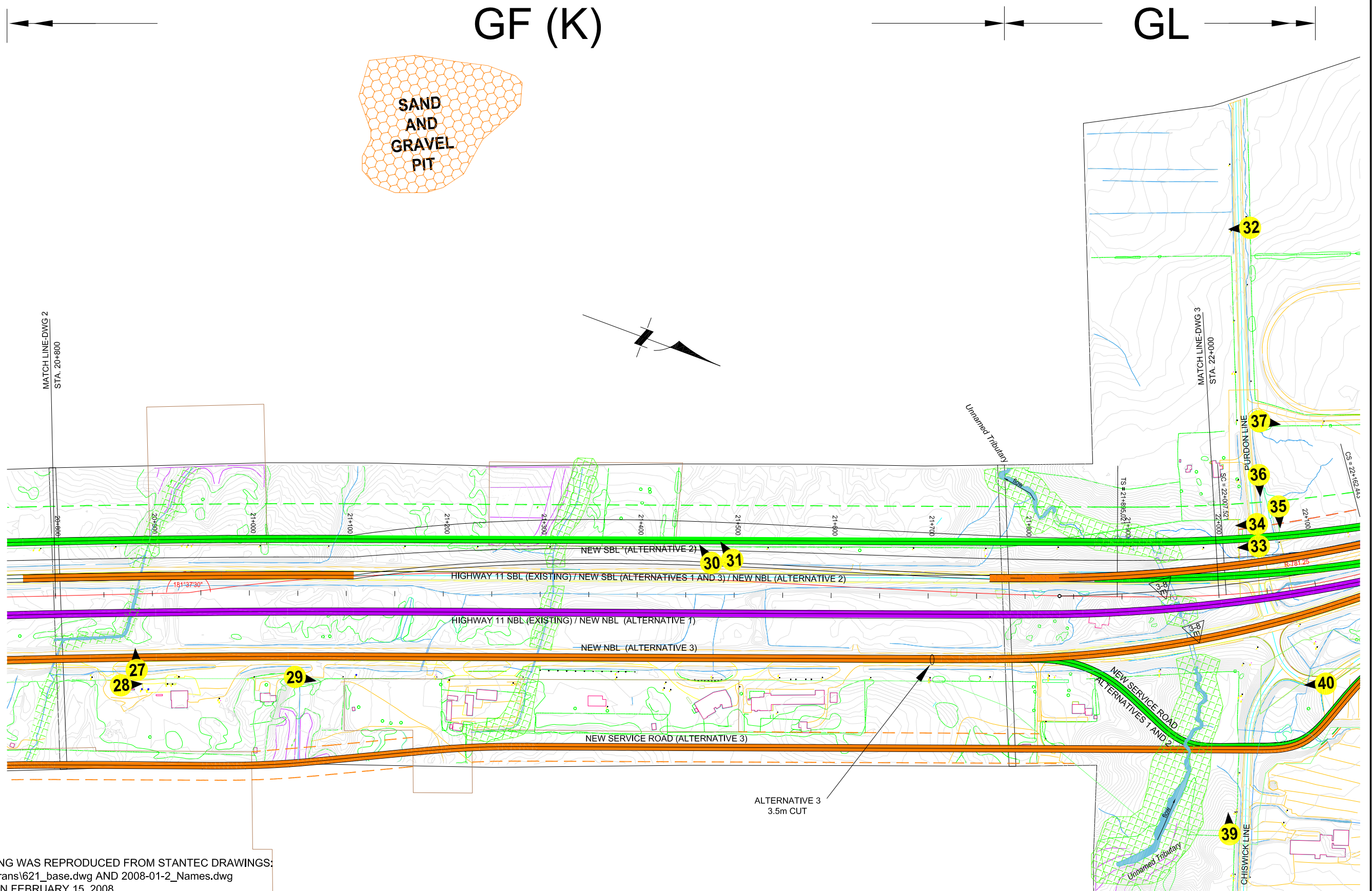


**HIGHWAY 11**  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0km  
G.W.P. 323 - 00 - 00



DRAWING  
**2**





STA. 20+800 TO 22+000 (HIGHWAY 11 STUDY CORRIDOR)

METRIC



HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



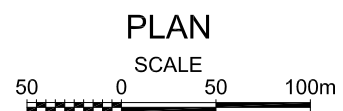
DRAWING  
3



REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
2008-01-2\_iTrans\621\_base.dwg AND 2008-01-2\_Names.dwg  
RECEIVED ON FEBRUARY 15, 2008

STA. 22+000 TO 23+200 (HIGHWAY 11 STUDY CORRIDOR)

METRIC

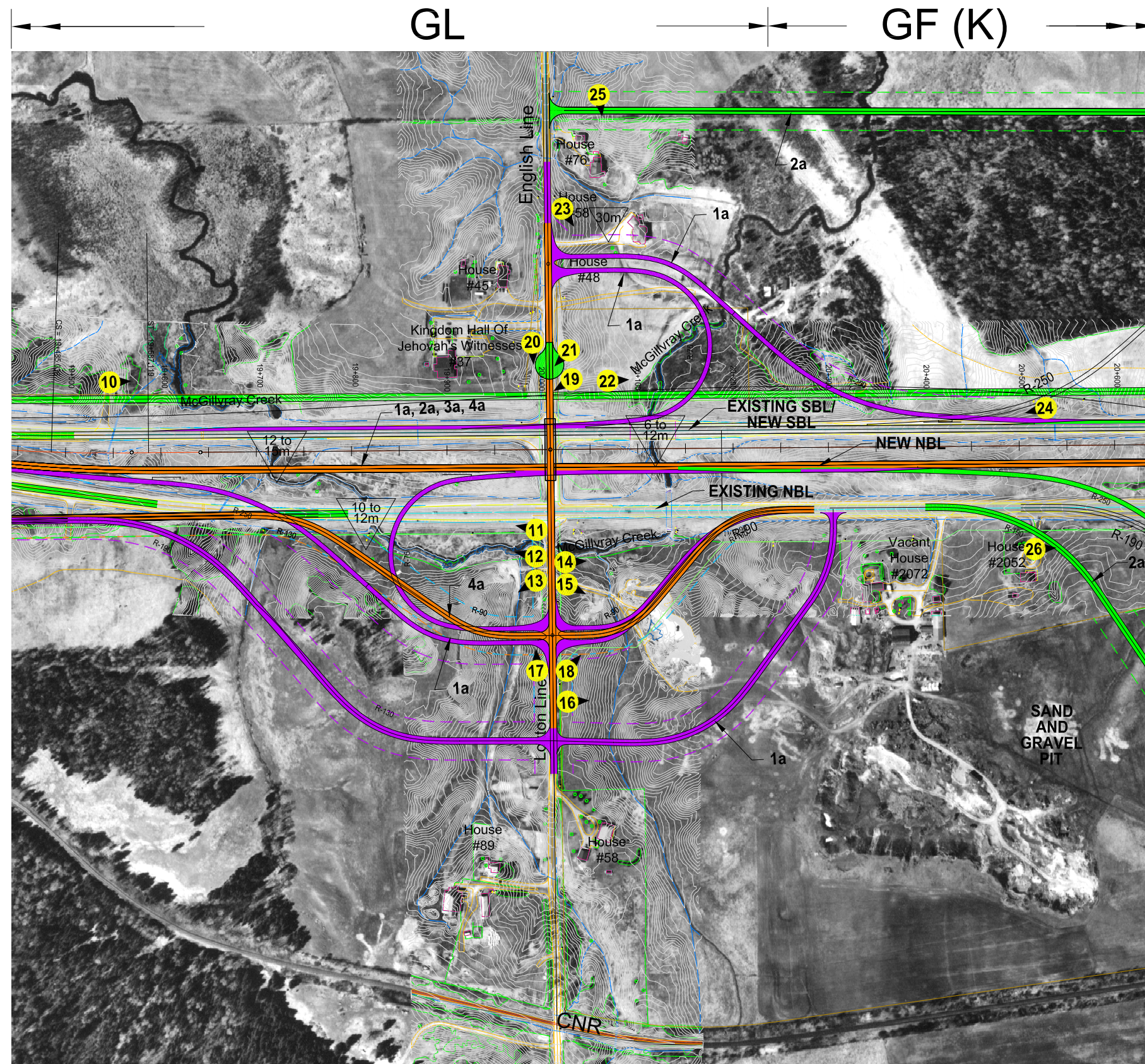
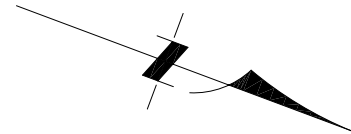


HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
4

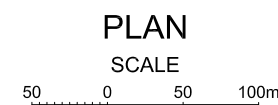




REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
2008-01-2\_ITrans\621\_base.dwg, 2008-01-2\_Names.dwg RECEIVED ON FEBRUARY 15,  
2008 AND AERIAL PHOTOGRAPH RECEIVED ON NOVEMBER 28, 2007.

**METRIC**

HIGHWAY 11  
INTERCHANGE STRUCTURES AT INTERSECTION OF  
HIGHWAY 11 AND ENGLISH LINE / LOXTON LINE



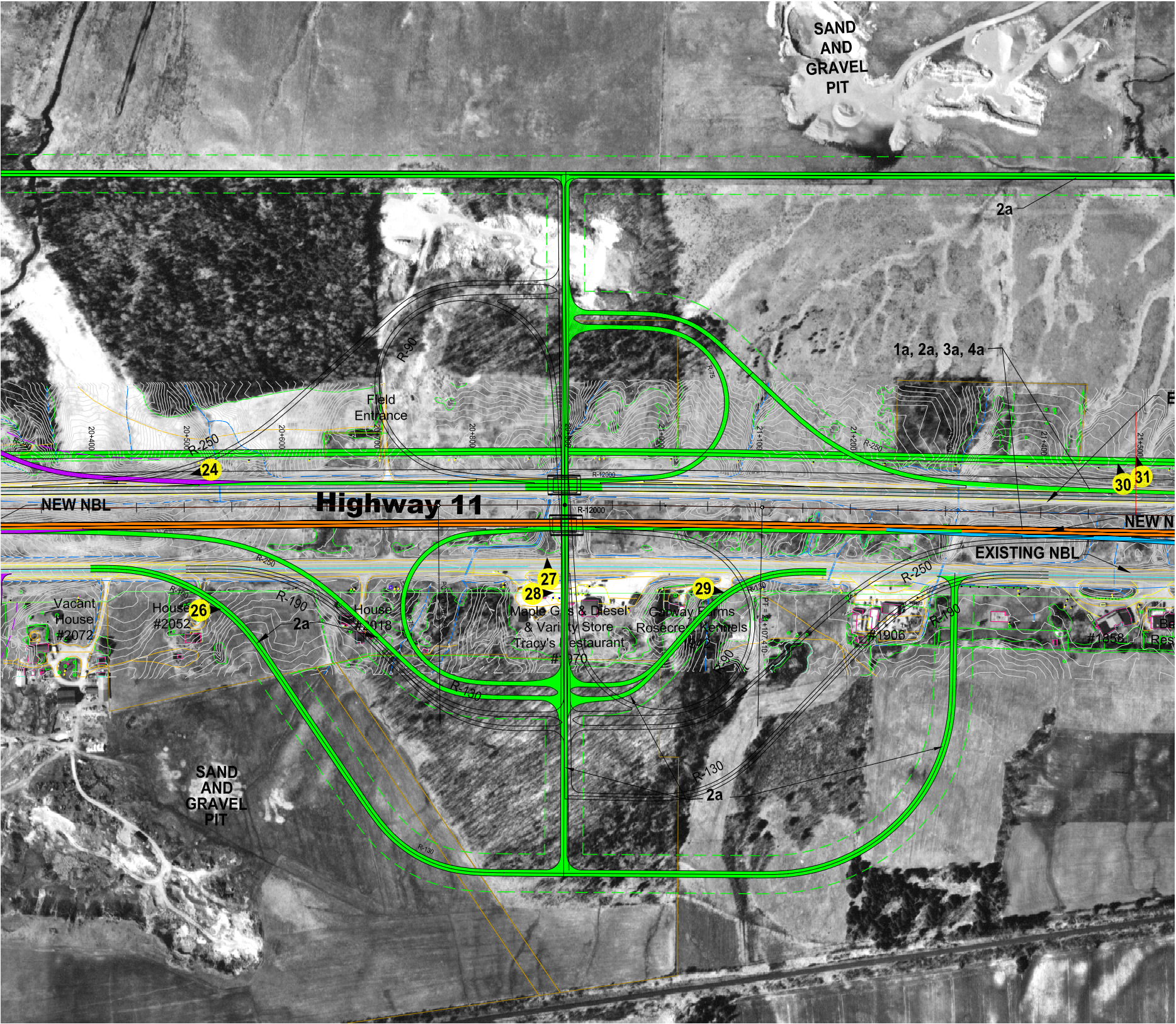
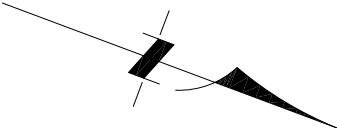
HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
5



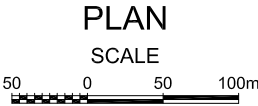
GF (K)



REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
2008-01-2\_ITrans\621\_base.dwg, 2008-01-2\_Names.dwg RECEIVED ON FEBRUARY 15,  
2008 AND AERIAL PHOTOGRAPH RECEIVED ON NOVEMBER 28, 2007.

METRIC

HIGHWAY 11  
INTERCHANGE STRUCTURES AT INTERSECTION OF  
HIGHWAY 11 AND 3 km NORTH OF ENGLISH LINE / LOXTON LINE



**PML Peto MacCallum Ltd.**  
CONSULTING ENGINEERS  
HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00

DRAWING  
6

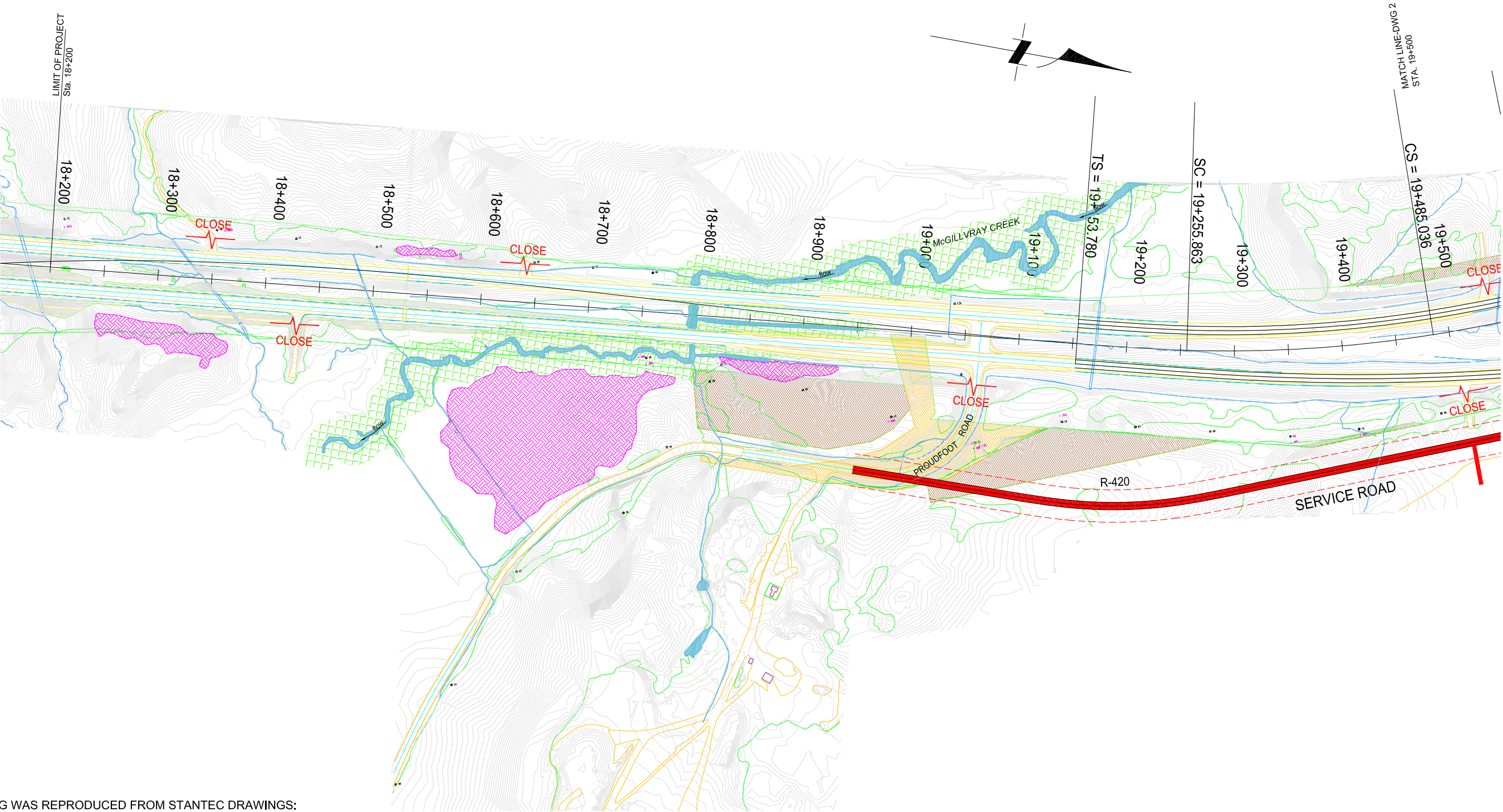






GL+R O/C

GL



REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
621\_base.dwg RECEIVED ON JUNE 02, 2008

STA. 18+200 TO 19+500 (HIGHWAY 11 PREFERRED ROUTE)

METRIC

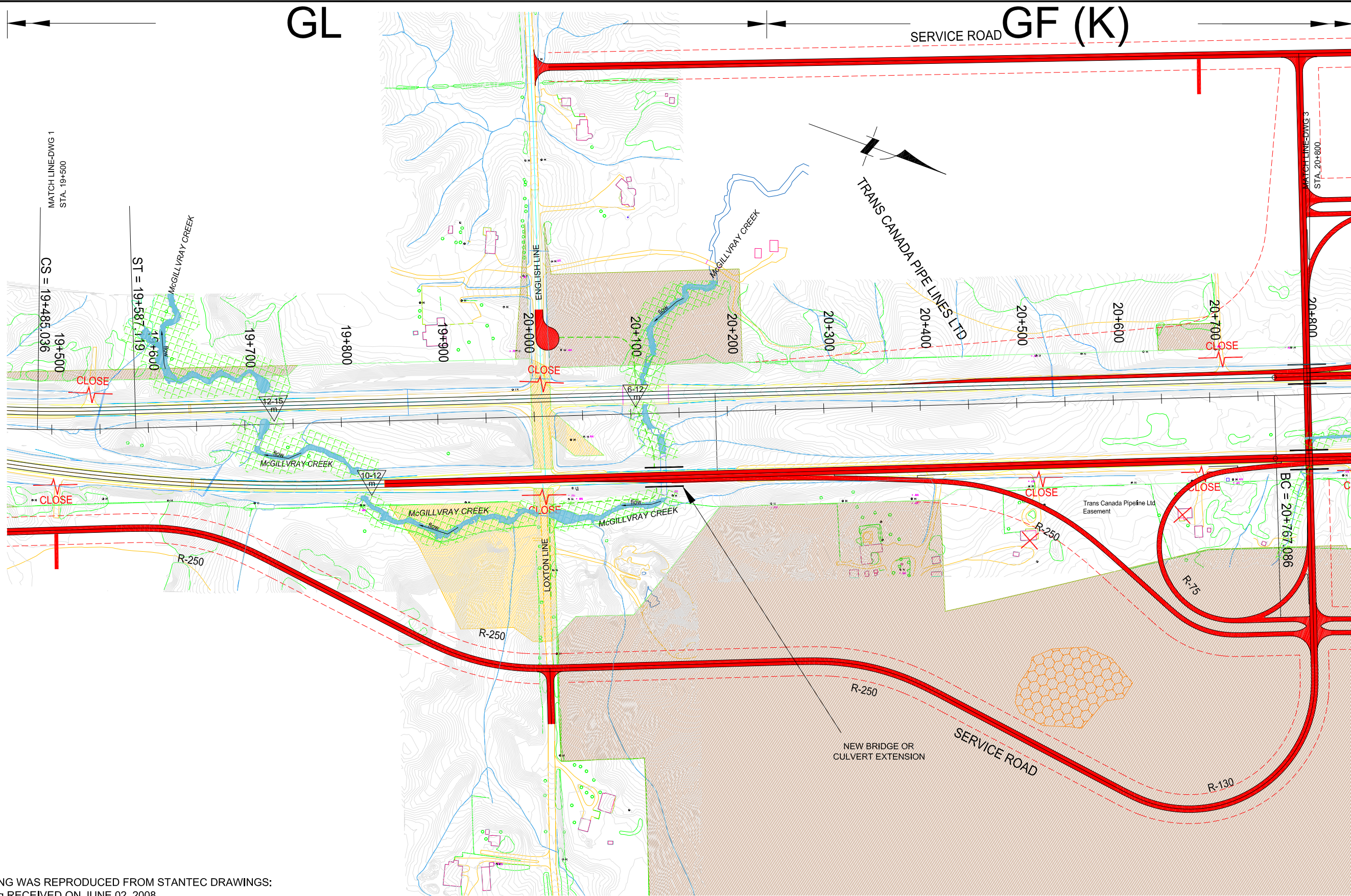


HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
P1

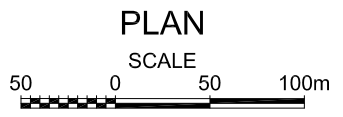




REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
621\_base.dwg RECEIVED ON JUNE 02, 2008

STA. 19+500 TO 20+800 (HIGHWAY 11 PREFERRED ROUTE)

METRIC





Ontario




Stantec Consulting Ltd.



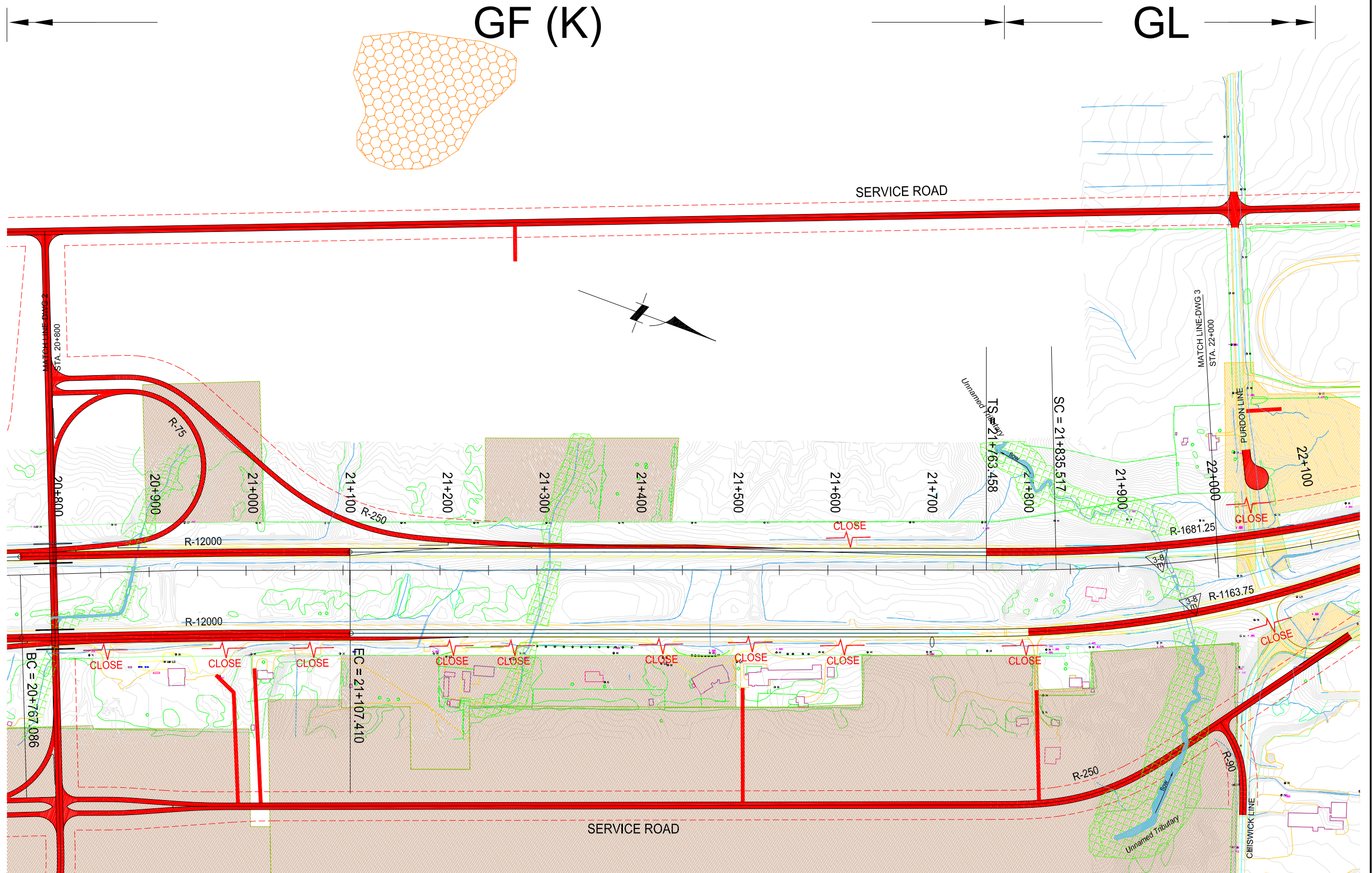
Peto MacCallum Ltd.  
CONSULTING ENGINEERS

HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0km  
G.W.P. 323 - 00 - 00



DRAWING  
P2

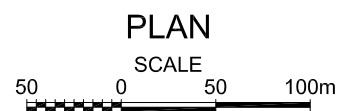




REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
621\_base.dwg RECEIVED ON JUNE 02, 2008

STA. 20+800 TO 22+000 (HIGHWAY 11 PREFERRED ROUTE)

**METRIC**

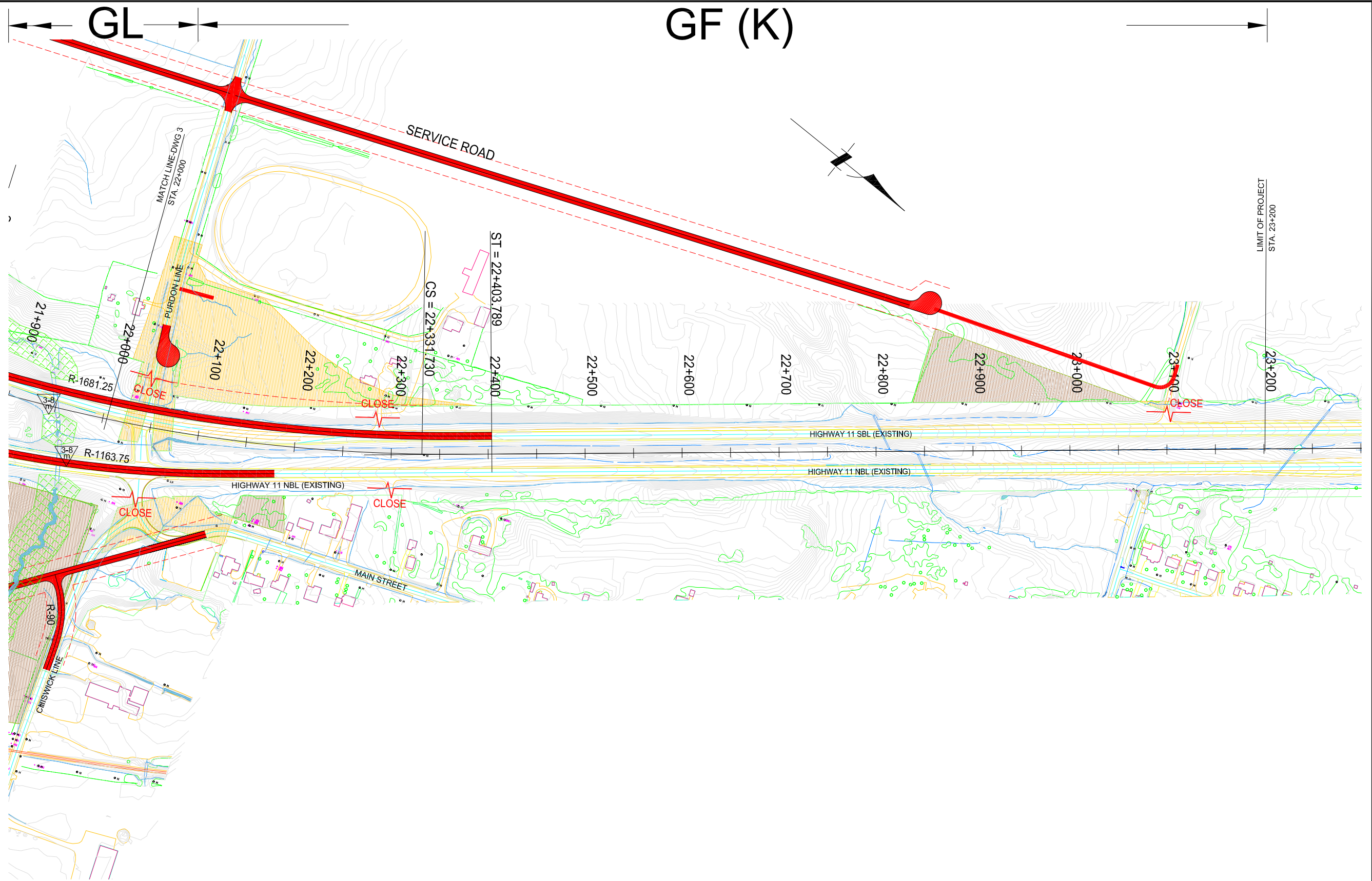


HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
P3





REFERENCE: THIS DRAWING WAS REPRODUCED FROM STANTEC DRAWINGS:  
621\_base.dwg RECEIVED ON JUNE 02, 2008

STA. 22+000 TO 23+200 (HIGHWAY 11 PREFERRED ROUTE)

**METRIC**



HIGHWAY 11  
HIGHWAY 11 From 5.7 km  
South of Highway 534, Northerly 5.0 km  
G.W.P. 323 - 00 - 00



DRAWING  
P4



## **APPENDIX A**

### List of Reference Documents



## APPENDIX A

### LIST OF REFERENCE DOCUMENTS

HIGHWAY 11 FROM 5.7 KM SOUTH OF HIGHWAY 534  
NORTHERLY FOR 5.0 KM  
TOWN OF POWASSAN  
TOWNSHIP OF SOUTH HIMSWORTH, ONTARIO  
GWP NO. 323-00-00

#### A. Geological Maps

- Quaternary Geology of the North Bay – Mattawa Region, MAP-3-1971, from Geological Survey of Canada, issued 1971, Scale: 0.5 inch to 1 mile.

#### B. Resource Documents

- Parry Sound District, Parry Sound Soil Survey Report No.31, from the Department of Agriculture, published 1962, Scale 1:126,720 or 1 inch to 2 mile.
- Aggregate Resources Inventory Paper 70 and Map 1C and 3C, District of Parry Sound from the Ontario Geological Survey, Ministry of Natural Resources, issued 1984.

#### C. MTO Reports

- Foundation Investigation Report for McGillvray Creek Bridge, Township of South Himsworth, Regional Municipality of North Bay, WP No. 590-92-01, Site 44 – 365 dated 1993.
- Preliminary Foundation Investigation report for Proposed Interchange At Highway 11 And 534, District 13 (North Bay) Township of North Himsworth, Regional Municipality of North Bay, WP 84-05-0022, Site between 85-03-18 and 85-03-26, Geocres No. 31L 52 (August 1985 noted on Margin).
- Foundation Investigation Report for Culverts Along Hwy.11 from 2.0 km North of Hwy. 534, Northerly 9.9 km, District 13, North Bay, W.P 73-74-00 dated August 1991.
- Foundation Investigation Report for McGillvray Creek Culvert, Proposed Northbound Lane, District 13 (North Bay), WP 645-92-01 dated 1993.





- Hydrogeological Conditions and Potential Municipal Well Interference of Highway 11/Highway 534 Overpass Construction, Town of Powassan, South Himsworth Township, W.P. No. 51-75-00, Geocres No. 31L-64 dated April 1993.

**D. Well Records (See Appendix B)**

- Water Well Records from Ontario Northern Area provided by the Ministry of the Environment from 1946 - 1969 (96 wells).

**E. Air Photo**

- Photo mosaic of oblique colored aerial photographs taken along the study corridor provided by Stantec Consulting Ltd.



## **APPENDIX B**

MOE Well Records

PARRY SOUND DISTRICT 48

MUNICIPALITY CONCESSION ETC	LCT	WELL NO	UTM EASTING NORTHING	ELEV FEET	DATE	DRILLER	CSG	KIND OF INS	WATER FEET	STAT LVL	PUMP LVL	TEST RATE	TEST TIME	WATER HR/MIN	USE	CNMRK/LOG	DEPTHS IN FEET TO WHICH FORMATIONS EXTEND
SCOTTS BLISSMORTON TOWNSHIP																	
CCN	1	25	772	626592	1041	06/54	3622	6	FR	15	6	6	17	00		ROTS R	CLAY MSND 0004 GREY GRANT 0025
CCN	2	25	773	626605	1025	12/55	2305	2	FR	90	2	6	5	4/00	CO	TEXACO SERVICE STATION	YLLW MSND 0005 GREY QSNQ 0050 GRVL 0051
CCN	2	25	777	626737	1027	12/60	2305	2	ERY							BUSCH J	GREY MSND 0105 GRANT 0161
CCN	2	25	776	627009	1025	06/65	2305	2	FR	106	4	4	5	12/00	CO	BP SERVICE STATION	QSNQ 0102 GRVL 0106
CCN	2	25	775	627050	1027	05/65	2512	5	FR	91	6	60	11	1/00	CO	GERARD E	MSND 0013 CLAY 0040 MSND STNS 0050 GRANT 0054
CCN	2	25	774	627100	1027	07/60	2305	2	FR	86	8	8	7	3/00	DO	SCHNELEFESKE M	RED MSND 0005 GREY QSNQ 0061 GRANT 0064
CCN	2	26	781	626265	1027	08/61	2305	2	FR	153	4	4	2	2/30	DO	STEELE G	YLLW MSND 0004 GREY MSND 0116 GRVL 0117
CCN	2	26	778	626437	1030	07/60	2305	2	FR	75	5	5	2	2/00	DO	GREY ROCK 0161	MAURIDGE N L
CCN	2	26	780	626390	1030	01/61	2305	2	ERY							GRANT BLDR MSND	0023 GRANT 0085
CCN	2	26	775	626653	1030	01/61	2305	2	ERY							PUBLIC SCHOOL	GREY QSNQ 0113 GRANT 0205
CCN	2	26	782	626742	1030	01/62	2305	2	FR	107	4	4	3	5/00	PS	GREY MSND 0114 GRANT 0361	PUBLIC SCHOOL
CCN	2	27	783	626250	1027	10/60	1443	2	FR	75	6	40	4	2/00	DO	GRANT 0113	SMALWELL D
CCN	3	24	784	627247	1033	04/64	2305	2	FR	96	34	31	3	2/00	DO	MSND CLAY 0070 RED GRANT 0081	WARKER N
CCN	3	25	786	626417	1030	05/67	1443	2	FR	90	3	40	4	2/00	DO	PRDG 0038 MSND GRVL 0056 RED GRANT 0141	QUAKOWSKI G
CCN	3	25	565	626770	1023	11/68	2305	2	FR	67	FLW		8	3/00	DO	QSNQ 0085 RED GRANT 0090	LANG L
CCN	3	25	785	626950	1040	04/62	2305	2	ERY							GREY MSND 0057 GRVL 0060 RED GRANT 0071	TOFFLENTRE C
CCN	3	26	787	626594	1030	07/60	2305	2	FR	97	1	8	3	1/00	DO	GREY FSND 0117 GRANT 0200	GRABOWSKI S
CCN	3	26	788	626665	1030	11/62	2305	2	FR	123	6	12	2	3/30	DO	GREY QSNQ 0054 GRANT 0108	SCHNELEFE G
CCN	4	3	785	624227	1070	05/65	2522	2	FR	106	57		1	24/00	DO	KAUDATZ R	GREY MSND 0103 BLDR GRVL 0107 GRANT 0130
CCN	4	25	752	626687	1110	06/65	2522	2	FR	104	22		1	24/00	DO	GRVL BLDR 0075 MSND BLDR 0100 GREY GRANT 0112	BUSCH E
CCN	4	27	753	621750	1030	05/56	2905	6	FR	32	15	15	4	1/00	DO	MSND BLDR 0018 GRANT 0085 RED GRANT 0110	GRANT 0150
CCN	7	10	754	631050	1100	05/63	2305	2	FR	154	8	46	2	3/00	ST DO	GRABOWSKI G	MSND 0015 GREY GRANT 0045
CCN	7	31	755	623160	1053	08/54	3622	6	FR	80	67		6		ST	GREY MSND 0006 RED GRANT 0177	YOUNG B V
CCN	8	2	1067	633270	930	05/69	1443	2		323	63				DO	WHIT CLAY 0010 MSND 0070 GRVL 0077 BLCK	GRANT 0097
CCN	8	23	756	625489	1250	07/51	1546	2	FR	155	15	15	3	4/00	ST DO	MSND BLDR 0107 GREY GRANT 0323	STONEY D
CCN	9	15	757	626814	550	05/55	2512	5	FR	100	13	131	48/00	DO		GREY CLAY 0025 GRANT 0177	KNLANDSON G
				5101657													CLAY 0024 GREY GRANT 0131

MUNICIPALITY CONCESSION ETC	LCT	WELL NO	EASTING NCR	ELEV FEET	DATE	DRILLER	CSG DIA	KIND OF WATER	WATER FOUND FEET	STAT LVL	PUMP LVL	TEST RATE GPM	TEST TIME HR/MIN	WATER USE	DEPTH IN FEET TO WHICH FORMATIONS EXTEND		CANNER/LOG
															170	2	
SOUTH HINSMORPH TOWNSHIP (CONTINUED.....)																	
CCN	5	15	755	626849	650 05/59	2505	6	FR	170	75	170	2	2/00	CO		SOUTER W MSND BLDR 0026 GREY GRNT 0170 RED GRNT 0174	
CCN	5	15	758	627600	550 05/55	2512	5	DRY								ROWLANDSON G CLAY 0024 GREY GRNT 0061	
CCN	5	16	801	627300	600 12/61	2512	5	FR	95	35	90	4	2/00	PS		SCHOOL CLAY BLDR 0030 BLDR HPAN 0064 RED GRNT 0101	
CCN	5	16	802	627350	501 11/61	2512	5	DRY								SCHOOL FSND 0006 BLUE CLAY 0034 FSND 0040 HPAN 0048	
CCN	5	16	800	627694	525 05/61	2512	5	DRY								SCHOOL BOARD MSND 0004 CLAY 0020 BLDR 0024 GRNT 0250	
CCN	5	16	791	627718	537 09/61	2512	5	DRY								SCHOOL MSND 0003 HPAN 0023 GRNT 0204	
CCN	5	16	803	627750	510 04/63	2305	2	FR	122	70		3	1/00	DO		BURNS C H PKDG 0063 RED GRNT 0150	
CCN	5	16	804	627150	515 05/64	2305	2	FR	144	34	34	5	14/00	ST DO		PHILLIPS E PKDG 0034 MSND GRVL BLDR 0060	
CCN	10	3	805	631745	525 05/64	2522	2	FR	70	12		3	12/00	ST		ROBERTSON G PRDG 0017 GRVL 0035 BLCK ROCK 0130	
CCN	10	15	810	624460	500 01/63	2305	2	FR	176	12		2	4/00	DC		BENNINGSON D PRDG 0040 GRNT BLDR MSND 0051 RED GRNT 0198	
CCN	10	15	808	624506	512 10/56	3902	6	FR	105	18	100	10	1/00	CO DO		MOORE E TPSL MSND BLDR 0022 RED GRNT 0120	
CCN	10	15	805	624601	915 04/58	3014	2	FR	155	10	16	2	5/00	CO		MOORE E L PRDG 0027 GREY GRNT 0163	
CCN	10	15	807	627354	866 07/55	3622	6	FR	30	15	30	2	1/00	CO		ROWLANDSON S D RED FSND 0023 GREY GRNT 0060	
CCN	10	15	806	627475	915 06/55	2512	5	FR	51	5	51	5	2/00	ST		MOORE G CLAY 0018 GREY GRNT 0049 RED GRNT 0051	
CCN	10	21	811	625748	860 02/50	2512	5	FR	94	16				PS		MAPLE HILL SCHOOL CLAY 0002 GRNT 0095	
CCN	11	15	815	627116	875 12/54	3635	6	FR	40	20	20	8	1/00	DO		MURLBURT F RED MSND 0037 GREY GRNT 0042	
CCN	11	15	812	627150	875 07/52	2512	5	FR	20	26		4	3/00	CC		BLSKEY J BLUE CLAY MUCK 0020 GREY MSND 0030 BLUE	
CCN	11	15	813	627176	878 07/52	2512	5	FR	35	46		8	1/00	CC		MUCK 0035 GRVL 0036 GREY GRNT 0050	
CCN	11	15	814	627196	860 05/52	2512	5	FR	20	24	24	8	1/00	CC		GEDDES J BLUE CLAY MUCK 0020 GREY MSND 0044 GRVL	
CCN	11	15	815	627208	865 05/52	2512	5	FR	50	15	30	7	4/00	DO		0045 GREY GRNT 0050 BOWER E BLUE CLAY SILT 0020 GREY MSND 0049 GRVL	
CCN	11	15	816	627274	865 05/54	2305	2	FR	81	36	36	2	6/00	DO		0050 GREY GRNT 0054 MUMPHREY A PRDG 0032 BLDR GRVL 0052 RED GRNT 0115	

# PARRY SOUND DISTRICT 48

MUNICIPALITY  
CONCESSION  
ETC

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WELL EASTING  
NORTHING

ELEV  
FEET

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CSG KIND  
GIA OF  
INS

WATER STAT  
FOUND LVL  
FEET

PUMP TEST  
LVL RATE  
FEET GPM

WATER  
HR/MN  
USE

OWNER/LOG  
DEPTHS IN FEET TO WHICH  
FORMATIONS EXTEND

SOUTH HIMSWORDT TOWNSHIP (CONTINUED....)

CCN	11	15	118	627307	880	10/66	3614	2	FR	102	22	60	2	10/00	D0	LAKE J E
CCN	11	16	121	626842	875	05/64	2522	2	FR	55	35		5	15/00	D0	CLAY QSN0 GRVL 0049 RED GRNT 0110
CCN	11	16	119	626980	875	01/60	3014	2	FR	102	12	24	3	2/00	D0	PRDG 0030 QSN0 0055 GRVL 0070
CCN	11	16	118	626590	880	11/68	1443	2	FR	58	21	40	2	2/00	D0	FARLEY A
CCN	11	16	120	627600	876	11/62	2305	2	FR	141	24		1	1/30	D0	GRVL MSND 0075 RED GRNT 0110
CCN	11	16	122	627100	857	04/66	2522	2	FR	160	34		1	36/00	D0	JURON H T
CCN	11	16	123	627176	500	05/66	2305	2	FR	130	62		1	3/30	D0	POLICHUK L
CCN	11	16	117	627240	850	04/65	2522	2	FR	280	40	40	1	24/00	D0	GREY MSND BLDR 0028 RED GRNT 0180
CCN	12	4	124	630530	535	05/54	3622	5	FR	6	6	6	8		D0	BOYCHUK F
CCN	12	13	128	627760	925	11/58	3014	2	FR	58	24	26	2	5/00	D0	BLDR CLAY 0005 GRVL BLDR 0012 GRNT 0138
CCN	12	14	127	626200	925	08/55	3622	6	FR	19	7	12	2	1/00	D0	WARNER G
CCN	12	14	134	627006	875	06/65	2522	2	FR	100	33		2	24/00	D0	MSND GRVL BLDR 0060 RED GRNT 0291
CCN	12	14	131	627006	850	08/64	2522	2	FR	50	30		2	55/55	D0	PIPER C
CCN	12	14	122	627065	500	04/65	2512	5	FR	43	16	38	4	5/00	D0	PRDG 0040 MSND BLDR 0058 GRNT 0131
CCN	12	14	132	627075	870	10/64	2522	2	FR	64	30		1	5/00	D0	KUNKAL V
CCN	12	14	130	627150	857	01/64	2305	2	FR	117	27	27	3	2/30	D0	KELLY V
CCN	12	14	129	627175	850	01/64	2305	2	FR	129	28	28	4	4/30	D0	MSND BLDR 0056 GRNT 0058
CCN	12	14	1005	627206	860	08/68	2305	2	FR	127	18	26	2	4/00	D0	BLDR CLAY 0018 GRVL 0021
CCN	12	15	135	626675	845	07/52	2512	6	FR	24	16	16		1/00	D0	PEEVER M
CCN	12	15	130	626850	865	01/60	3014	2	FR	102	12	18	3	2/00	D0	BLDR GRVL 0025 FSND 0033 GRNT 0105
CCN	12	15	136	627049	900	11/64	2522	2	FR	77	21		1	24/00	D0	GRNT 0057
CCN	12	15	137	627065	880	01/65	1443	2	FR	148	16	40	1		D0	MCDONALD M
CCN	12	15	125	627110	870	11/66	2305	2	FR	129	26	26	2		D0	MSND STNS 0008 GRVL HPAN STNS 0035 MSND
CCN	12	16	136	626550	810	09/52	2512	5	FR	30	15	24	1	1/00	D0	0042 GRVL 0043
CCN	12	16	141	626726	871	04/54	3635	6	FR	57	30	57	4	1/00	D0	DAVIS M
CCN	12	16	140	626760	875	10/52	2512	5	FR	46	20	27	5	2/00	D0	GRVL BLDR 0032 WHIT GRNT 0063
CCN	12	16	139	626800	875	10/52	2512	5	FR	30	18	18	6		D0	GRVULX R
CCN	12	16	137	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLDR MSND 0045 RED GRNT 0150
CCN	12	16	138	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLDR GRVL 0114 RED GRNT 0158
CCN	12	16	139	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLDR GRVL 0041 GRVL 0043
CCN	12	16	140	626762	870	11/66	2305	2	FR	149	26	26	2		D0	CLAY SILT CLAY 0019 HPAN BLDR 0024 GREY
CCN	12	16	141	626762	870	11/66	2305	2	FR	149	26	26	2		D0	FARLEY A
CCN	12	16	142	626762	870	11/66	2305	2	FR	149	26	26	2		D0	GRVL BLDR 0070 GREY GRNT 0110
CCN	12	16	143	626762	870	11/66	2305	2	FR	149	26	26	2		D0	PRDG 0021 GRVL BLDR 0032 WHIT GRNT 0063
CCN	12	16	144	626762	870	11/66	2305	2	FR	149	26	26	2		D0	GRVULX R
CCN	12	16	145	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLDR MSND 0045 RED GRNT 0150
CCN	12	16	146	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLDR GRVL 0114 RED GRNT 0158
CCN	12	16	147	626762	870	11/66	2305	2	FR	149	26	26	2		D0	PRDG 0020 BLUE CLAY 0030 GREY QSN0 0046
CCN	12	16	148	626762	870	11/66	2305	2	FR	149	26	26	2		D0	GRVL 0046
CCN	12	16	149	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BARTLAN M
CCN	12	16	150	626762	870	11/66	2305	2	FR	149	26	26	2		D0	FSND 0056 GRVL 0057
CCN	12	16	151	626762	870	11/66	2305	2	FR	149	26	26	2		D0	WHITTAKER L
CCN	12	16	152	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLUE CLAY 0020 HPAN BLDR CSND 0040 BLDR
CCN	12	16	153	626762	870	11/66	2305	2	FR	149	26	26	2		D0	GRVL 0048
CCN	12	16	154	626762	870	11/66	2305	2	FR	149	26	26	2		D0	WHITE L
CCN	12	16	155	626762	870	11/66	2305	2	FR	149	26	26	2		D0	BLUE CLAY 0030 GRVL QSN0 0036 BLDR HPAN
CCN	12	16	156	626762	870	11/66	2305	2	FR	149	26	26	2		D0	QSN0 0060 GRVL 0061

PARRY SOUND DISTRICT 48

MUNICIPALITY CONCESSION ETC	LGT	BELL NO	EASTING NORTHING	ELEV FEET	DATE	DRILLER	CSG INS	KIND OF WATER	STAT LVL FEET	PUMP LVL FEET	TEST RATE GPM	TEST TIME HR/MN	WATER USE	CMNER/LOG DEPTHS IN FEET TO WHICH FORMATIONS EXTEND		
SOUTH HIMSWORD TOWNSHIP (CONTINUED....)																
CCN	12	25	642	623150	860	05/66	2522	2	FR	68	13	2	12/00	DO	PANTLIN J R GREY CLAY 0003 FSND 0007 GREY GRANT 0045 GRANT 0074	
CCN	13	2	503	621450	935	08/55	3014	2	FR	50	6	4	10/00	ST DO	DAGENAIS G CLAY 0013 ROCK 0050	
CCN	13	6	642	630230	950	11/55	3622	6	FR	30	8	6	1/00	DO	MOORE W TPSL BLDR 0008 RED GRANT 0051	
CCN	13	6	644	629450	540	05/55	3014	2	FR	32	22	2	3/00	DO	JONES G BLDR GSND 0025 GRVL 0032	
CCN	13	9	645	629150	540	01/57	2905	6	FR	19	19	60	5	1/00	DO	MOORE G A BLDR CLAY 0015 GRVL 0019 GREY GRANT 0065
CCN	13	10	646	628652	505	04/65	2522	2	FR	156	2	2	24/00	DO	JONES G BLDR GRVL 0017 GRANT 0163	
CCN	13	15	646	628358	510	05/64	2512	5	FR	CRY					MSND STNS 0002 GREY GRANT 0150 MCCONNELL C	
CCN	13	15	647	628360	885	05/64	2512	5	FR	178	22	181	1	1/00	DO	WILSON H GRVL BLDR 0029 RED GRANT 0181
CCN	13	15	649	628401	875	03/68	2305	2	FR	159	43	59	3	2/45	DO	MCCONNELL C BLDR GRVL 0004 RED GRANT 0273
CCN	13	22	650	623600	835	01/61	2905	6	FR	60	5	100	1	2/00	DO	KUNKEL G BRWN CLAY 0005 GREY GRANT 0080 RED GRANT 0112
CCN	14	15	573	626200	870	12/68	2305	2	FR	103	18	51	2	3/00	DO	CAMPBELL R CLAY 0012 RED GRANT 0112
CCN	14	16	651	626025	880	10/58	2415	7	FR	93	51	175	2	3/00	DO	DHC CLAY FSND 0006 HPAN 0020 GRVL 0060 ROCK 0070 GREY ROCK 0085 BRWN RCLK 0053 GREY ROCK 0174 RED ROCK 0192 RCLK 0235
CCN	15	6	652	629227	885	06/65	2522	2	FR	91	30	45	1	24/00	ST DO	HUMMEL J GRVL BLDR 0014 RED GRANT 0114
CCN	15	12	653	626876	670	07/65	2522		FR	22	6	6	2	24/00	DO	PIFER R J PRDG 0008 RED GRANT 0025
CCN	15	12	1065	627030	870	05/65	2305	2		176	20	46	2	3/00	DO	ALSTON JAMES GREY MSND 0017 RED GRANT 0200
CCN	15	13	654	626500	870	06/65	2522	2	FR	60	33	25	24/00	DO	FLOYD S FSND 0055 GRANT 0063	
CCN	15	13	1062	626800	850	07/65	2305	2	FR	17	4	4	12	2/40	DO	LOXTON HARGOLD YLLW MSND 0004 RED GRANT 0028
CCN	15	14	656	626110	695	08/62	2305	2	FR	74	22	34	3	2/00	DO	WILLIS A YLLW MSND 0023 GREY MSND GRVL BLDR 0043 RED GRANT 0082
CCN	15	14	655	626200	895	11/54	3622	6	FR	29	15	15	6	1/00	DO	CLOSS J RED MSND 0015 GRVL 0024 RED GRANT 0042
CCN	15	14	1126	626310	900	10/69	2305	2		98	53	45	2	2/00	DO	BUSCH E YLLW MSND 0032 RED GRANT 0316
CCN	15	14	657	626340	893	05/64	2305	2	FR	195	21	21	2	6/00	DO	BUSCH E GREY MSND 0016 GRVL BLDR 0025 RED GRANT 0081

# PARRY SOUND DISTRICT 48

MUNICIPALITY CONVESSION ETC LGT NO WELL EASTING LTM ELEV NORTHING FEET DATE DRILLER INS WATER FEET CSA KIND WATER STAT PUMP TEST TEST TIME WATER USE

OWNER/LOG DEPTHS IN FEET TO WHICH FORMATIONS EXTEND

## SOUTH HINSMWORTH TOWNSHIP (CONTINUED.....)

CCN	15	14	1078	626400	880 07/69	2305	2	FR	80	17	30	5	3/00	DO	MCCMARLES REG
CCN	15	15	658	625765	870 05/66	2522	2	FR	74	25		2	10/00	DO	GREY MSND 0005 RED GRNT 0091
CCN	15	20	659	625637	757 09/64	2522	2	FR	35	12		2	10/00	DO	PILGRIM W GREY CLAY 0009 QSN0 0015 MSND BLDR 0031
CCN	16	2	605	626110	870 04/50	2802		FR	65						RED GRNT 0075
CCN	16	4	604	626240	875 04/50	2802	2	FR	40	40					MOORE E
CCN	17	11	661	626600	520 11/67	2305	2			14	14	8	5/30	DO	PROG 0015 GRVL BLDR 0025 GRNT 0072
CCN	17	11	660	626605	500 07/61	3014	2	FR	82	14	18	3	5/00	CO	RIVERS T
CCN	17	12	662	626244	505 08/64	2522	2	FR	59	15		2	12/00	DO	RGCK 0150
CCN	17	20	663	626225	770 12/63	2305	2	FR	84	13	13	2	2/30	DO	CHIVERS H
															OBON 0020 RGCK 0060
															TURCOTTE G
															MSND GRVL 0004 RED GRNT 0219
															GOLF CLUB
															GREY GRNT 0082
															PEEVER P
															GRVL 0002 GRNT 0067
															BRISSON R
															BLDR GRVL 0020 RED GRNT 0095

## SOUTH RIVER VILLAGE

CCN	164	625650	1160 11/45	2801	8										PUC SOUTH RIVER
CCN	165	626600	1150 12/45	2801	8										TPSL MSND 0004 RED GRVL MSND BLDR 0024
															MSND GRVL BLDR 0065 MSND SILT 0095 BLUE
															CLAY 0170 BLUE CLAY MSND 0192 BLUE CLAY
															MSND BLDR 0196
															PUC SOUTH RIVER
															TPSL MSND 0005 MSND GRVL BLDR 0060 MSND
															SILT 0114 MSND 0146 MSND CLAY 0214 CLAY
															MSND BLDR 0248 ROCK 0249

## SPENCE TOWNSHIP

CCN	5	20	667	601185	960 09/51	2512	5	FR	71	10		2		PS	SCHOOL AREA
CCN	10	27	656	626750	1085 08/68	2305	2	FR	136	FLM		3		DO	BRN MSND 0010 GREY GRNT 0071
CCN	12	30	554	626746	1198 07/68	2512	5	FR	67		63	11	8/30	PS	RUGEAS F
CCN	14	4	665	605850	645 05/60	2512	5	FR	67	3	62	1	1/00	DO	GREY MSND 0132 GRVL 0136
CCN	14	4	666	605907	550 07/62	2512	5	FR	79	6	50	6	2/00	DO	DNG
CCN	A	78	666	606150	925 10/48	2512	5	FR	83	20				DO	GRNT 0008 RED GRNT 0070
															GRNT E
															CLAY 0014 MSND STNS 0016 GRNT 0062
															LEA E
															MSND 0002 GRNT 0063
															RCSS H
															TPSL 0028 ROCK 0053

## STANAG TOWNSHIP

CCN	2	6	670	621661	1115 12/50	2512	5	FR	106	50		1		DO	TRGLCVR R
CCN	2	18	1058	625900	1100 05/69	2512	5	FR	48	35	46	5	1/00	DO	MSND 0100 CSND GRVL 0106
CCN	3	4	671	624551	1090 07/57	2512	5	FR	22	6	16	3	2/00	DO	RAAFLOUB
CCN	3	15	552	624570	1100 08/67	2305	2	FR	104	6	6	6	3/30	DO	MSND 0003 HPAN 0040 GRVL 0045
															ENESON F
															BLDR HPAN 0018 BLCK GRNT 0022
															EVERARD D E
															MSND GRVL BLDR 0036 RED GRNT 0109



## **APPENDIX C**

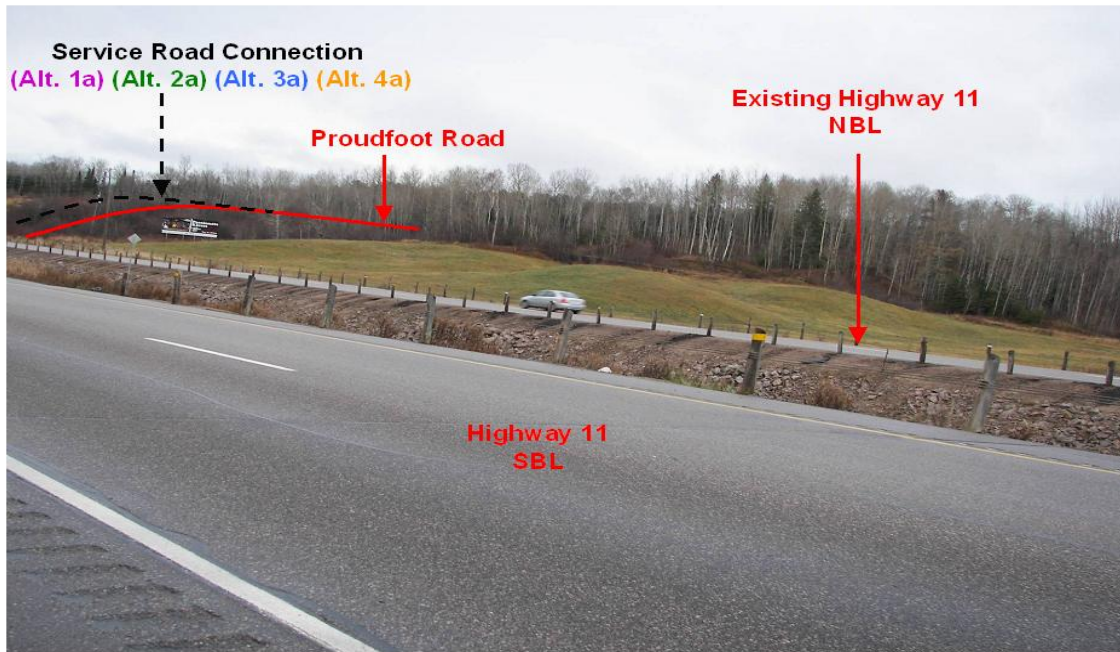
Site Photographs 1 to 43





# **Proudfoot Road**

## **Photographs 1 to 9**



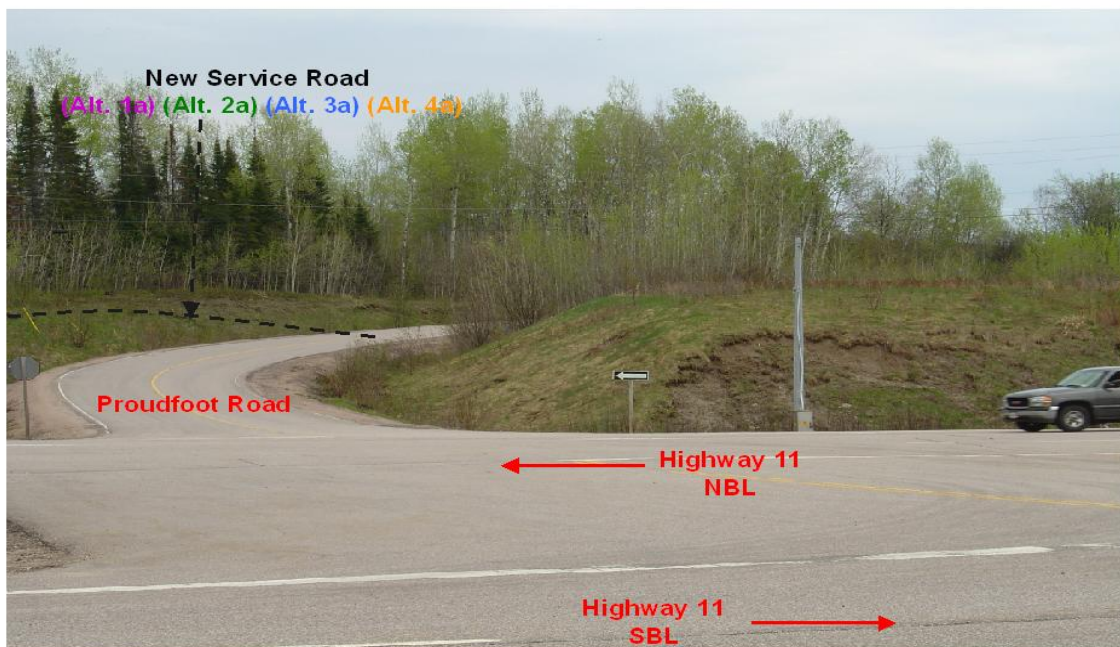
**Photograph 1:** View looking northeast from west shoulder of Highway 11 SBL (Station 18+900). Note rolling terrain beyond NBL and rockfill placed for NBL embankment. (Nov. 21, 2007)



**Photograph 2:** View looking south from between the NBL and SBL of Highway 11 at intersection with Proudfoot Road. High terrain in the distance is on a rock ridge. The existing lanes will be maintained at the south end of the study corridor. (Nov. 21, 2007)



**Photograph 3:** View looking from left (west shoulder of Highway 11 SBL at about Station 19+150), about 50 m north of Proudfoot Road. Highway 11 Creek crossing mid photo at Station 18+800. Extensive bedrock cut slopes at south project limits about 600 m south of McGillivray Creek. (May 8, 2007)



**Photograph 4:** View looking east from left (west) shoulder of Highway 11 at about Station 19+080 across Highway 11 at the Proudfoot Road at-grade intersection. Slumping of 3 m high bank readily visible. (May 8, 2007)





**Photograph 5:** Looking south from south side of Proudfoot Road along NBL ditch line. Slope slump/erosion in foreground A. Previous erosion area blanketed with stone B. (May 8, 2007)



**Photograph 6:** 200 m view from Proudfoot Road along ditch of Highway 11 NBL Note Rock outcrop / cut and McGillivray Creek. (Nov.21, 2007)

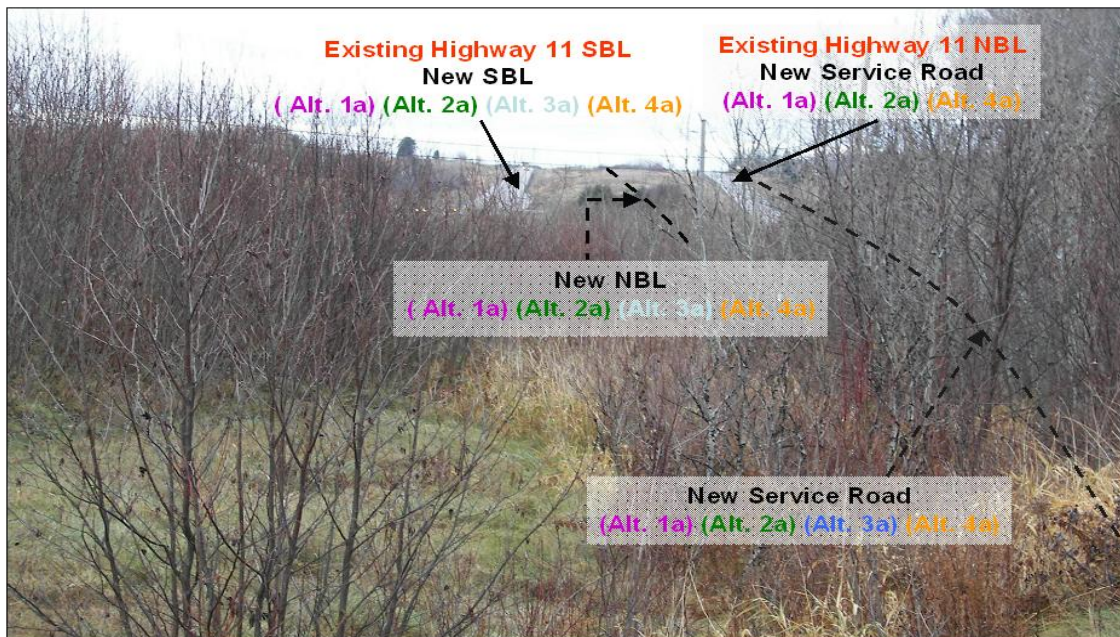




Photograph 7: Looking south westerly from entrance to Landfill Site / Hazardous Material Depot of the Municipality of Powassan at start of study section of Highway 11. Proudfoot Road in the foreground. Note hilly terrain. Rock cut at SBL top left corner of photograph. (Nov. 21, 2007)



Photograph 8: View looking north from Proudfoot Road intersection. Note terrain generally rising toward the north. (Nov. 21, 2007)



Photograph 9: View north from high ground west of Proudfoot Road at existing Highway 11 NBL and SBL near Station 19+300. Note rising terrain to the north. (Nov. 21, 2007)



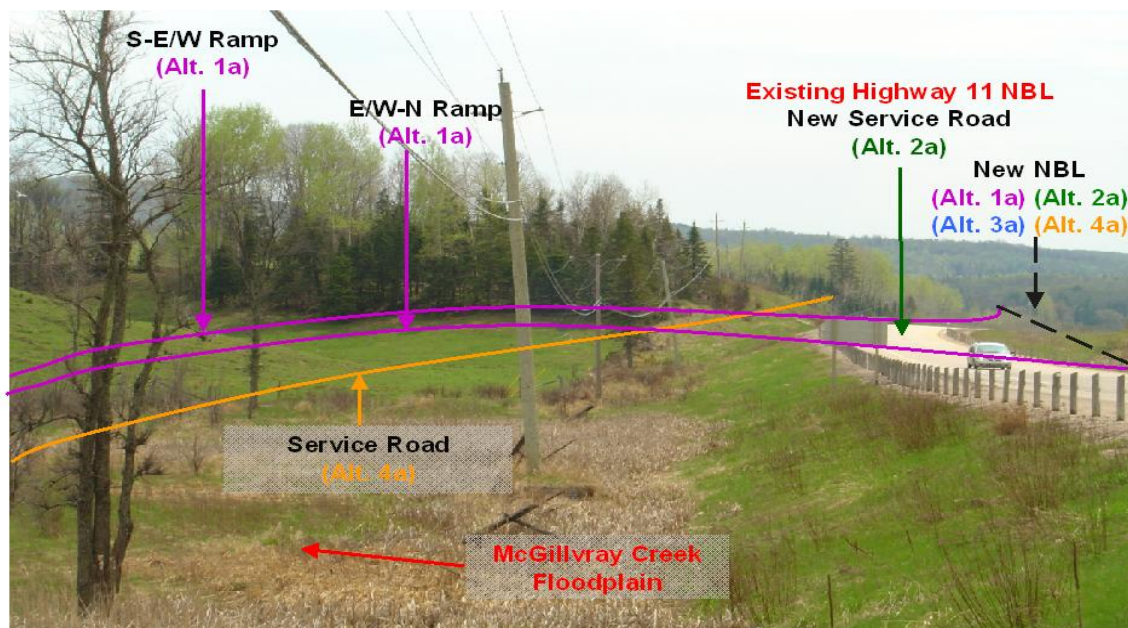
# **English Line / Loxton Line**

## **Photographs 10 to 24**



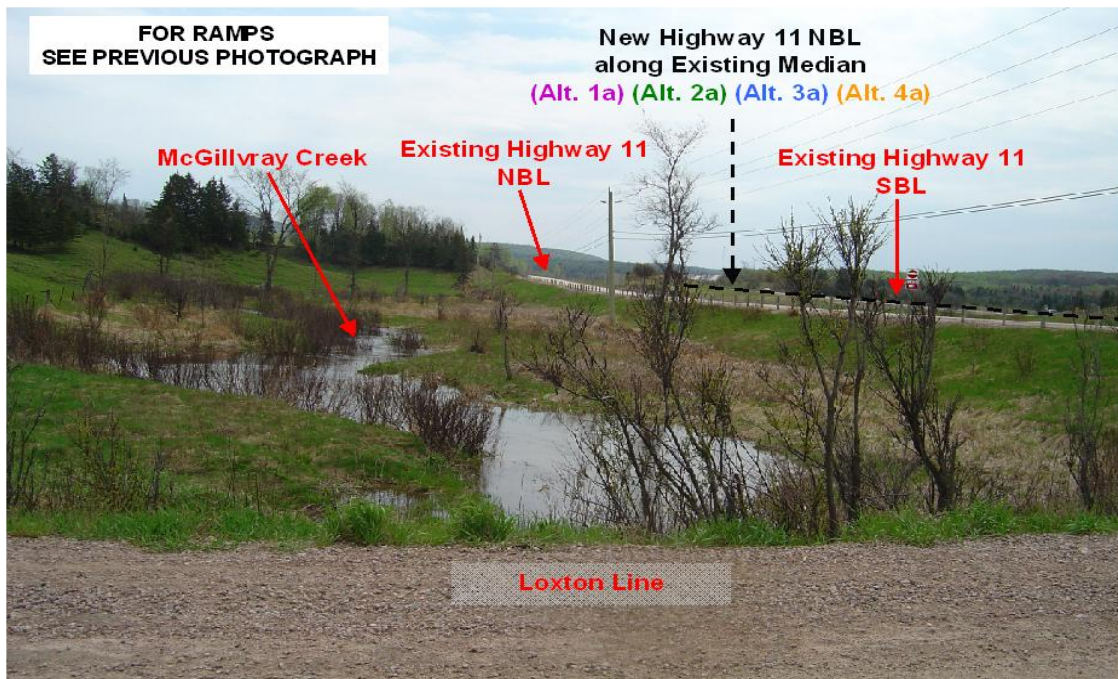


**Photograph 10:** View looking north from west side of Highway 11 at about Station 19+550 across McGillvray Creek floodplain and hilly terrain. The at-grade crossing of Concession 8/9 (Loxton / English Line) is in cut section. (May 8, 2007)



**Photograph 11:** View looking south from south side of Loxton / English Line along the ditch line of the NBL Highway 11. McGillvray floodplain at toe of embankment slope. Highway 11 NBL moved to existing wide median in Alternatives 1a and 4a (see next photograph). (May 8, 2007)



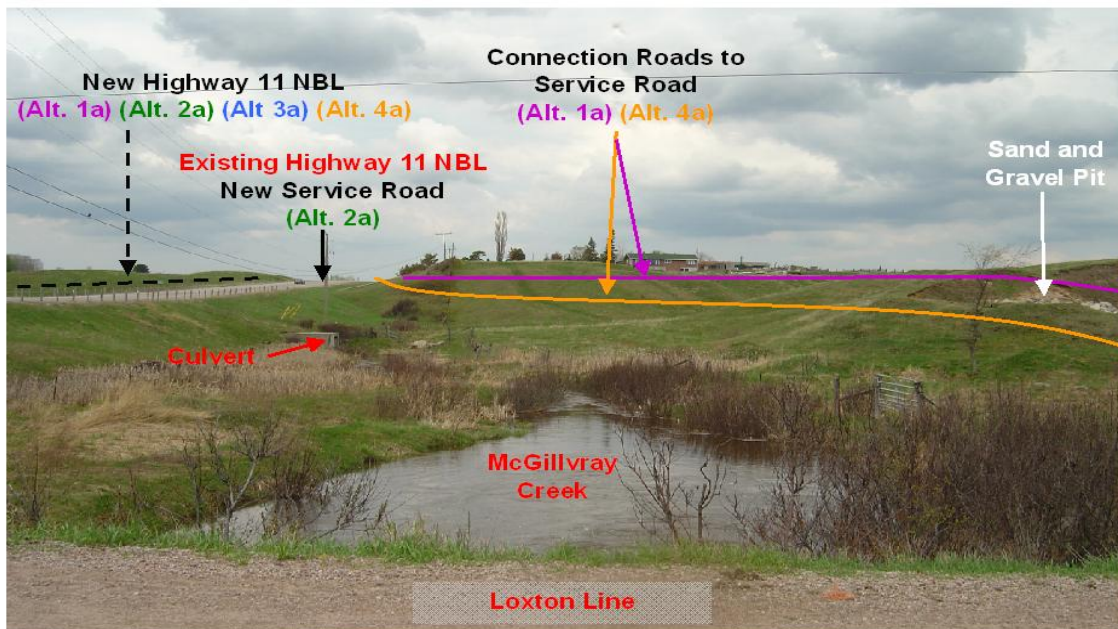


**Photograph 12:** View looking south from north side of Loxton Line about 30 m east of Highway 11 NBL. Note McGillivray Creek floodplain. (May 8, 2007)

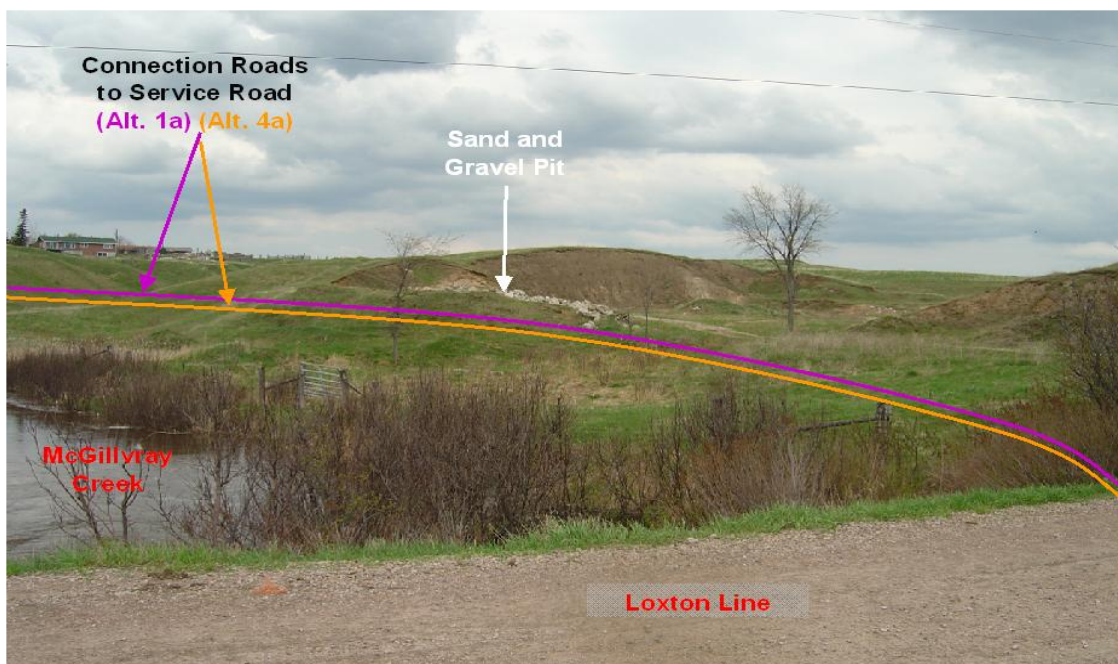


**Photograph 13:** View looking south east from south side of Loxton Line at 30 m east of Highway 11 NBL at extensive erosion of bank in hilly terrain environment. (May 8, 2007)





**Photograph 14:** View looking north from south side of Loxton Road at 30 m east of Highway 11 NBL across McGillvray floodplain. Note that section of existing Highway 11 NBL shown on photograph will become a new Service Road for Alternative 2a only. (May 8, 2007)

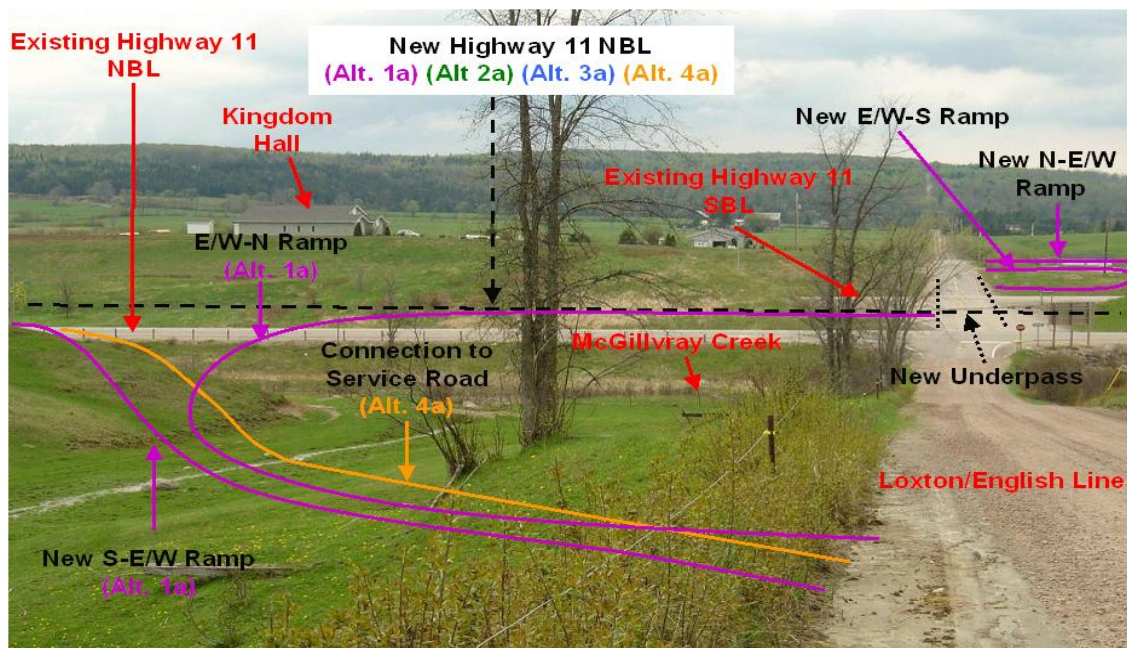


**Photograph 15:** View looking northeast from south side of Loxton Line at 30 m east of Highway 11 NBL with the McGillvray Creek and the sand and gravel pit in view. (May 8, 2007)





**Photograph 16:** View looking north from Loxton Line about 150 m east of Highway 11 NBL at north exposed face of former sand and gravel pit. (May 8, 2007)

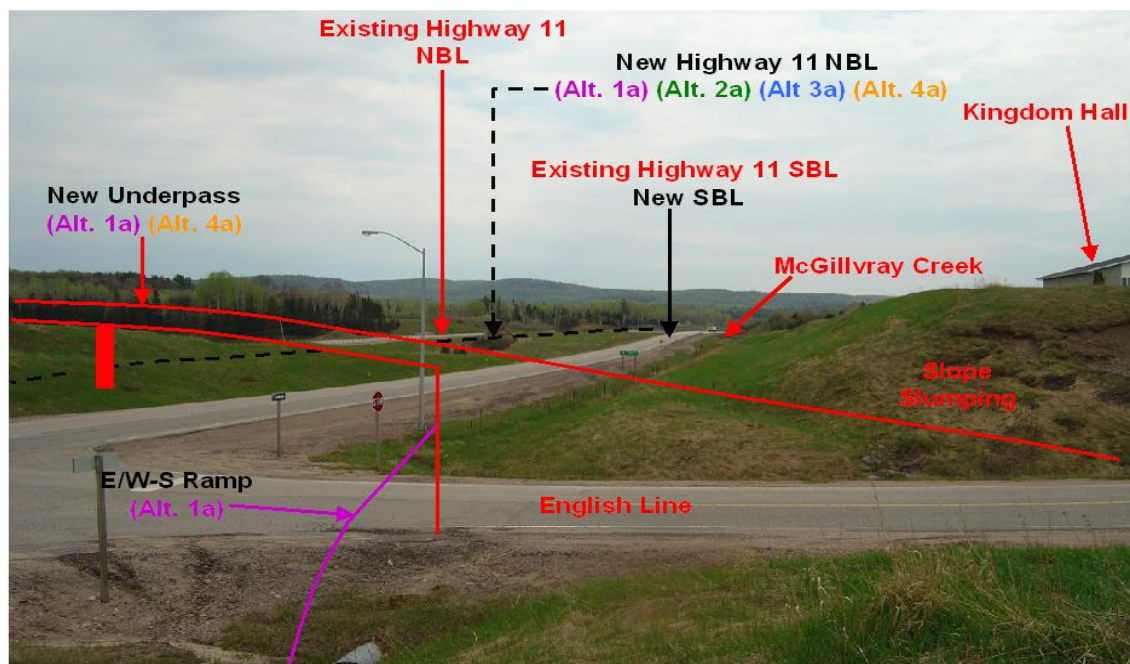


**Photograph 17:** View looking west from Loxton / English Line about 200 m east of Highway 11 NBL. McGillivray Creek in foreground. At-grade crossing in 4 to 5 m earth cut. (May 8, 2007)





**Photograph 18:** View looking northwest from Loxton / English Line at about 100 m east of Highway 11 NBL, across McGillvray Creek at Highway 11 SBL bridge. (May 8, 2007)



**Photograph 19:** View looking south from north side of English Line at grade crossing in 4 to 5 m earth cut. (May 8, 2007)

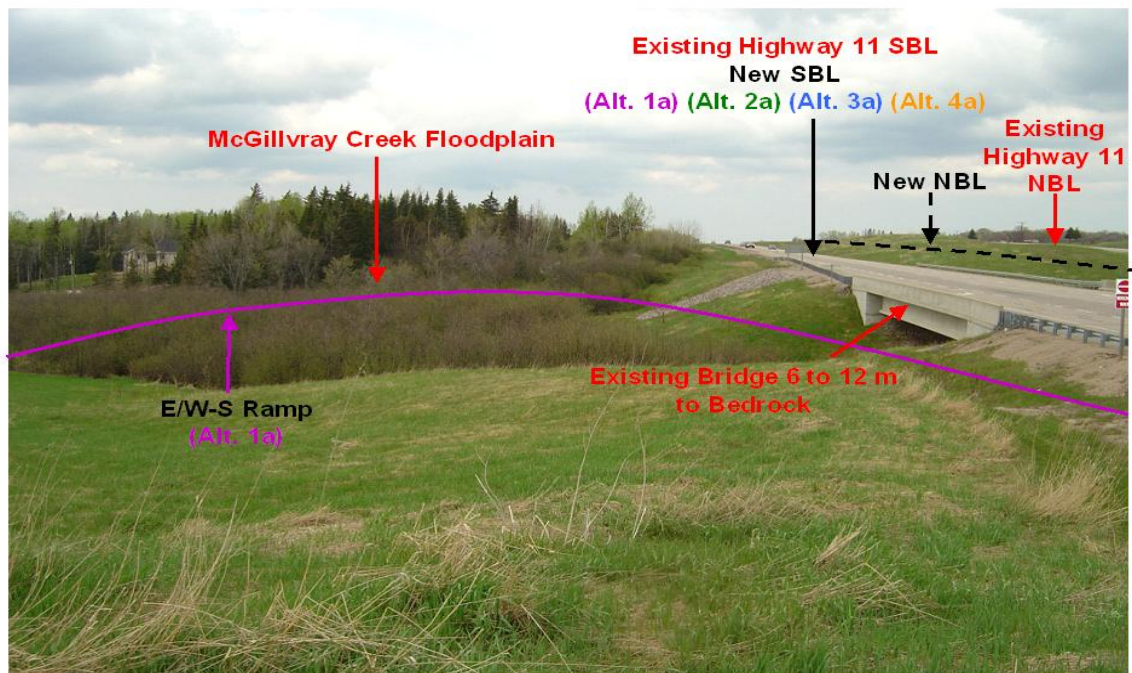


**Photograph 20:** View looking east from south shoulder of Loxton / English Line about 30 m west of Highway 11 SBL. Active slope slump in 5 m high slope at south west corner of at-grade crossing. (May 8, 2007)

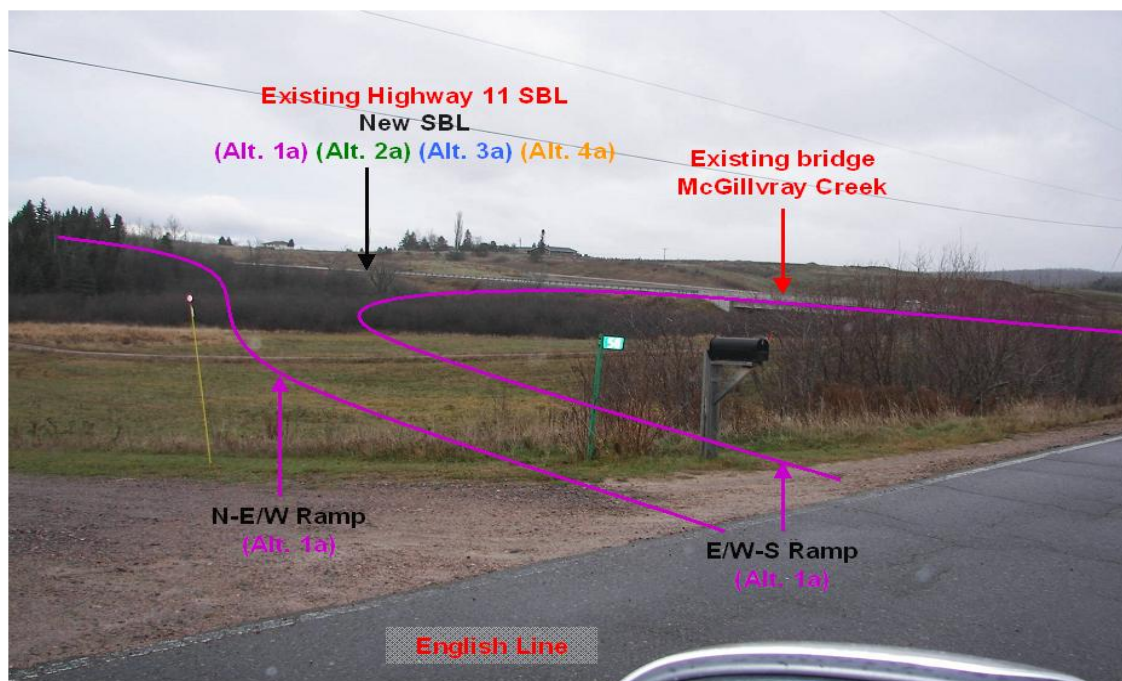


**Photograph 21:** Close up of slope slump at south west corner of Highway 11 SBL at English Line. (May 8, 2007)

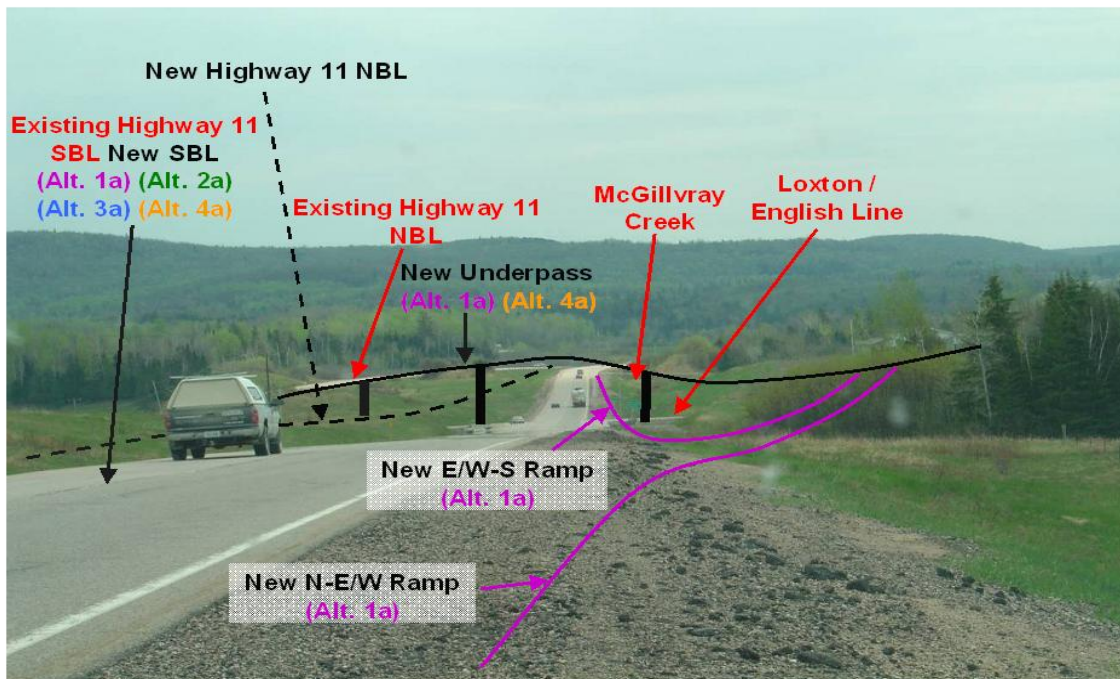




**Photograph 22:** View looking north from 20 m west of Highway 11 SBL at about Station 20+050, across McGillvray Creek floodplain and bridge structure. (May 8, 2007)



**Photograph 23:** View looking northeast about from 200 m west of Highway 11 from English Line. Note ramps crossing McGillvray Creek floodplain. (Nov. 21, 2007)



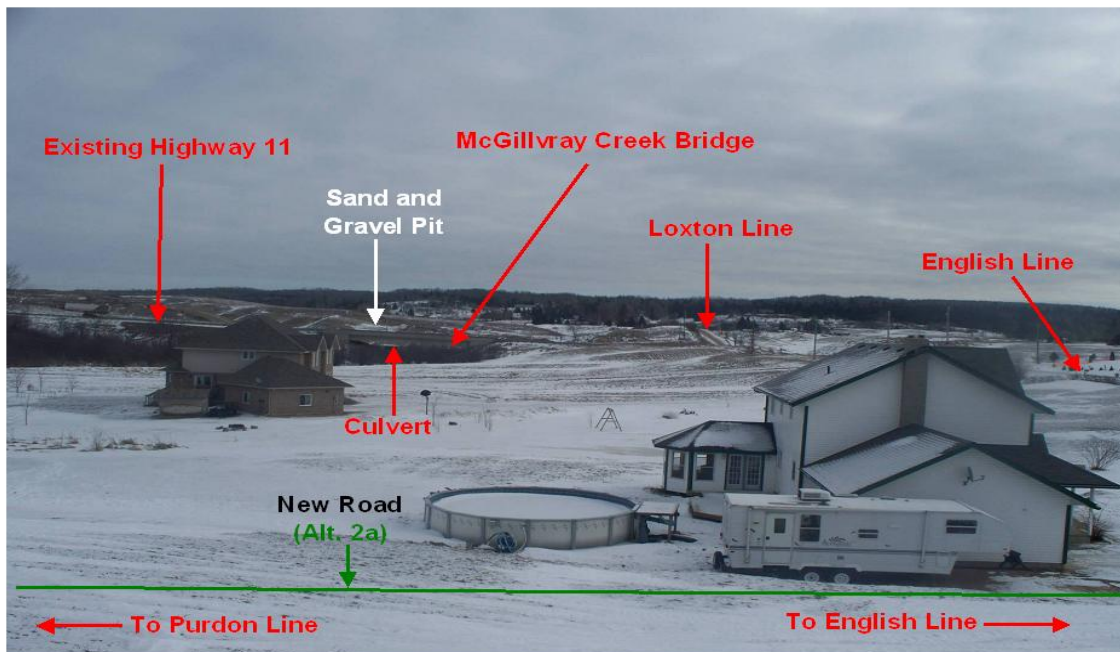
**Photograph 24:** View looking south from west shoulder of Highway 11 SBL about 500 m north of Loxton / English Line. (May 8, 2008)



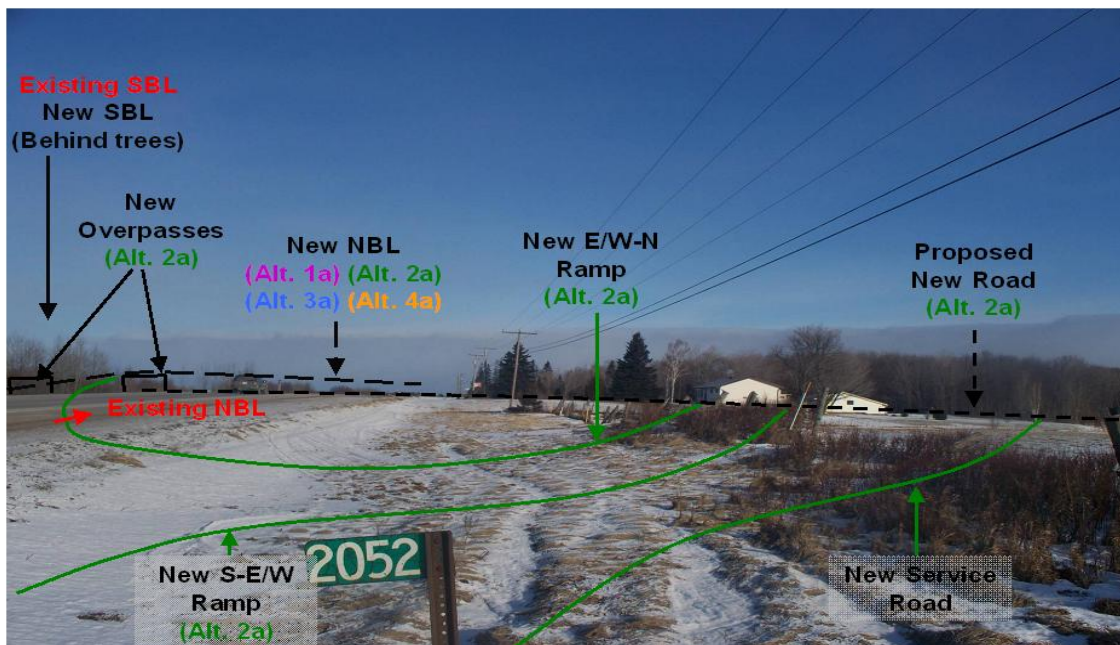


# **I/C Between English Line and Purdon Line**

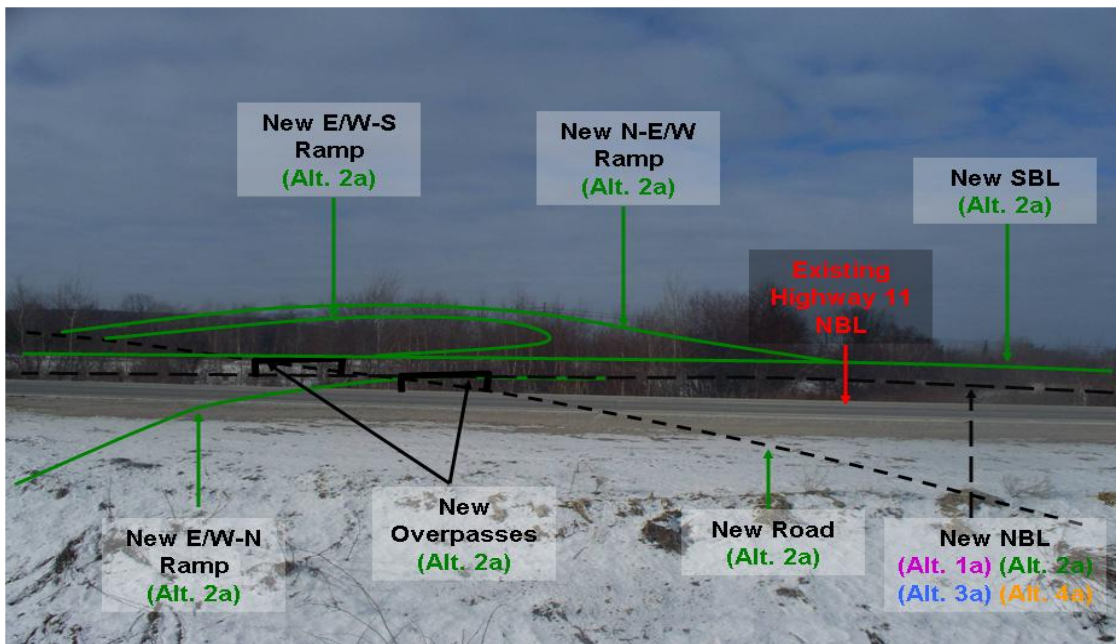
## **Photographs 25 to 32**



**Photograph 25:** Looking easterly from 50 m north of English Line west of House # 76. Alignment of new connecting road to Purdon Line is shown. Note relatively flat terrain and gravel pit in the distance. (Feb. 21, 2008)



**Photograph 26:** View looking north from east of existing Highway 11 NBL at site of Alternative 2a interchange. A new road is proposed under the new NBL and existing SBL (Nov. 21, 2007)



**Photograph 27:** View looking west from Maple Gas Station (about Station 20+900). Proposed new road will cross under Highway 11. Existing section of Highway 11 NBL to be removed in Alternative 2a. (Feb. 21, 2007)



**Photograph 28:** View look north from driveway of Gas Station near Station 20+900. Alternative 2a proposes a new road and overpass structures west of this site. (Feb. 21, 2008)





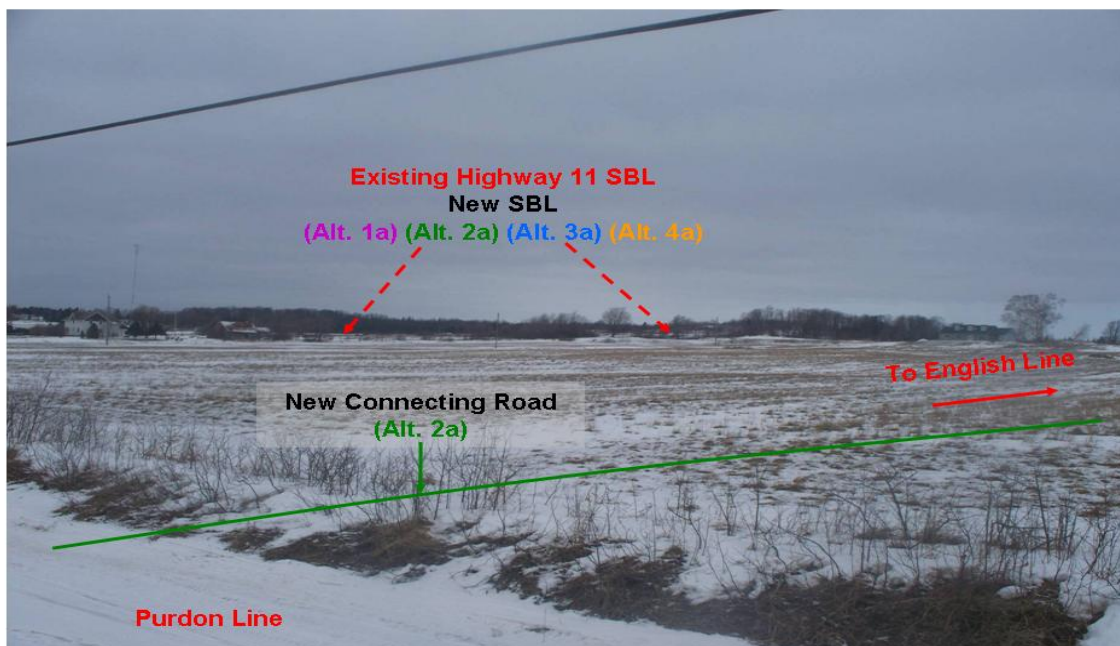
**Photograph 29:** View looking north from east side of Highway 11 NBL at about Station 21+020 (House No. 1942). (February 21, 2008)



**Photograph 30:** View looking at sand and gravel extraction operation 600 m south from south side of Purdon Line and 400 m west of Highway 11 SBL. Typical terrain along new road connecting Purdon Line and English Line west of Highway 11 (Alternative 2a). (May 8, 2007)



**Photograph 31:** Close up of Photograph 30. (May 8, 2007)



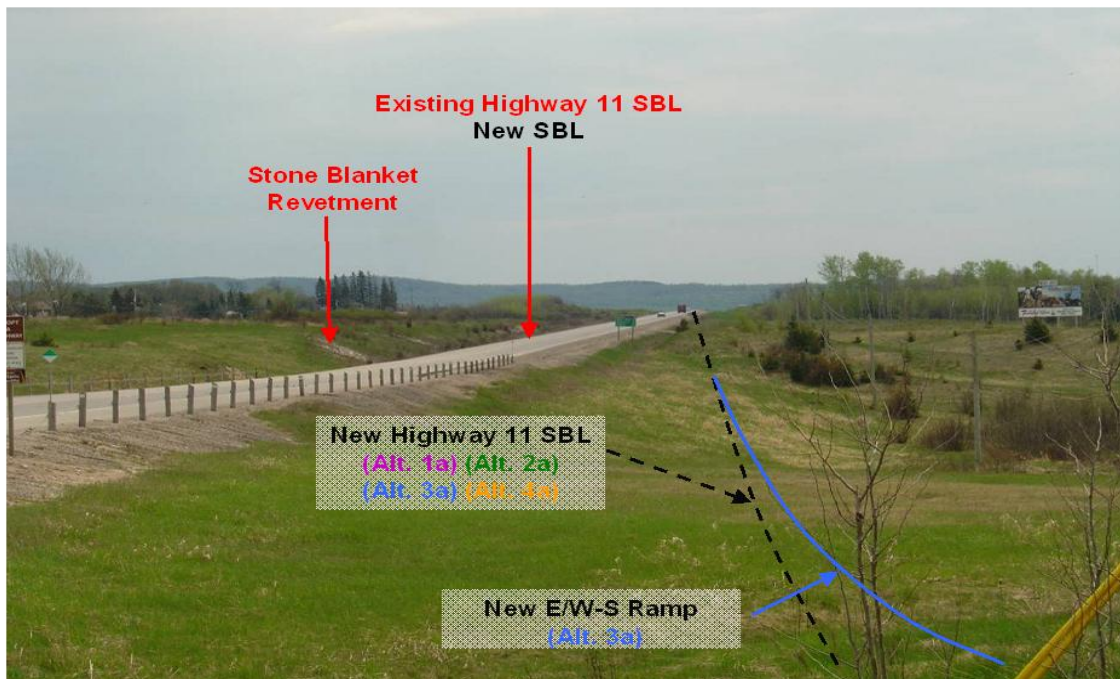
**Photograph 32:** View looking southeast from 400 m west of existing Highway 11 SBL at Purdon Line. Note new road will connect Purdon Line and English Line (Alternative 2a). (Feb. 21, 2008)



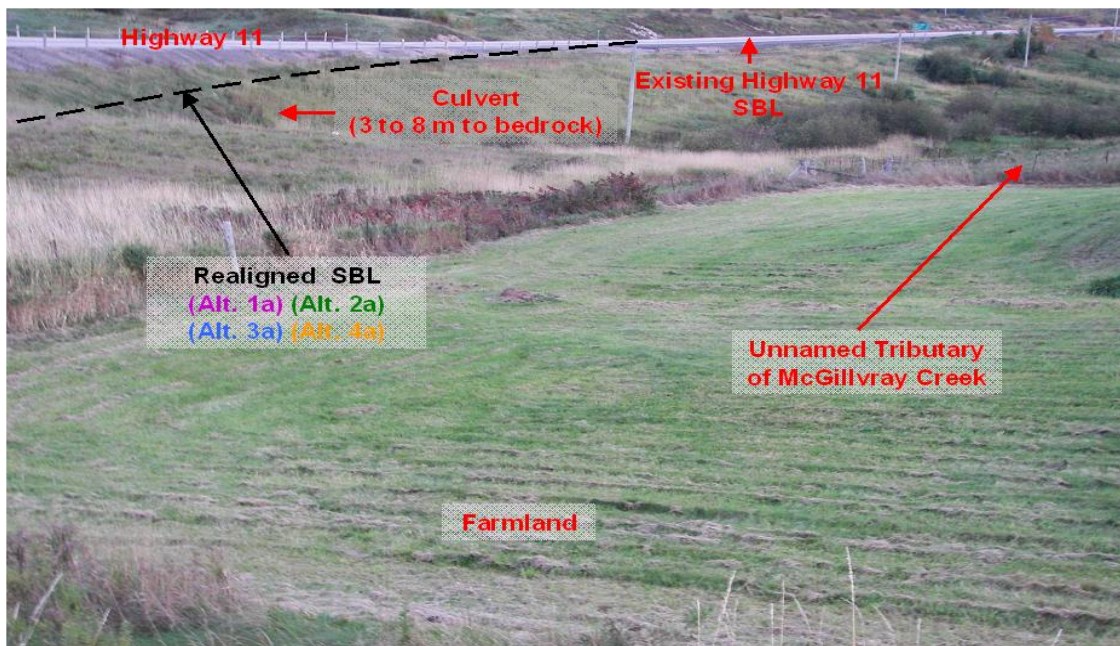


# **Purdon Line / Chiswick Line / Main Street**

## **Photographs 33 to 43**

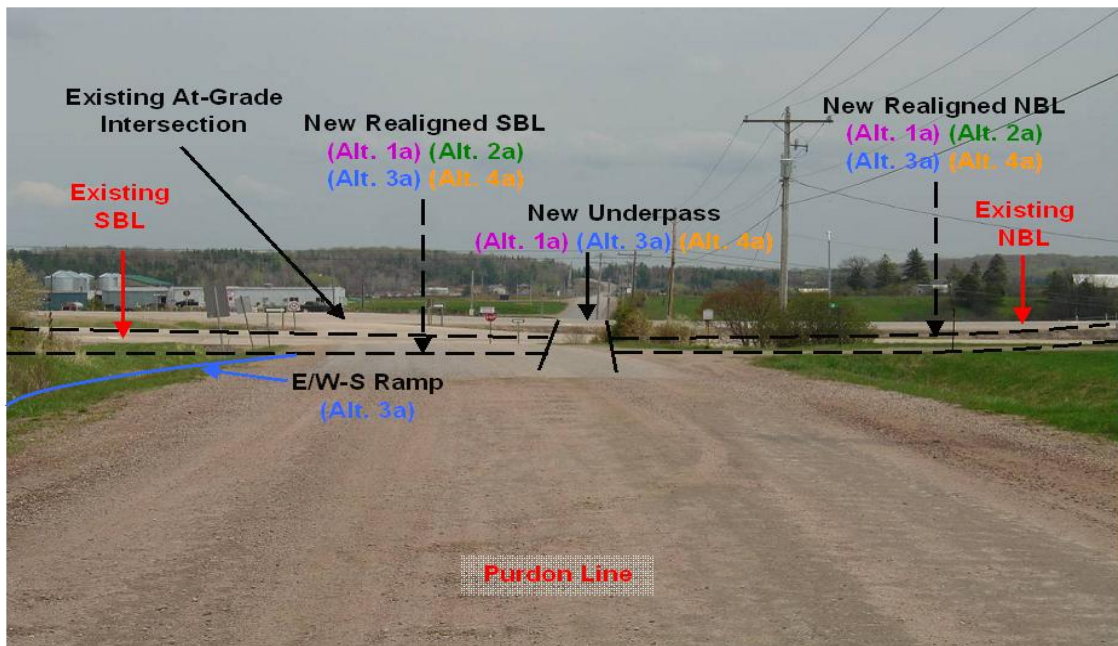


**Photograph 33:** View looking south from south side of Purdon Line about 20 m west of Highway 11 SBL. (May 8, 2007)

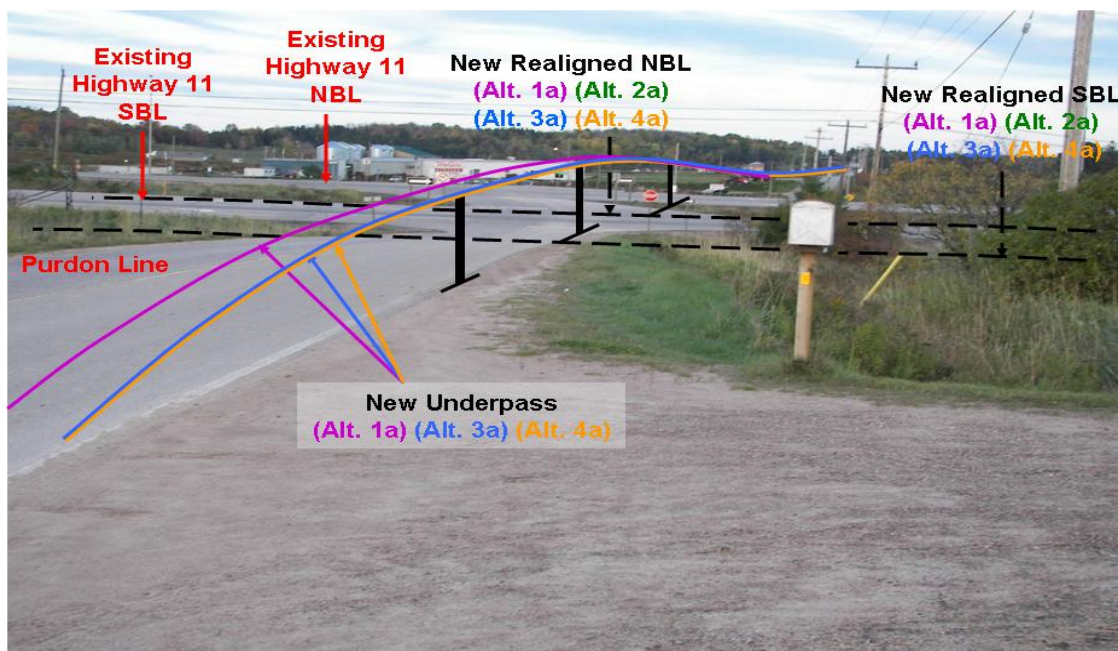


**Photograph 34:** Looking south east from 80 m west of Purdon Line intersection at low lying terrain and unnamed tributary of McGillvray Creek crossing. The existing SBL embankment is up to 6m high. (Oct. 16, 2007)



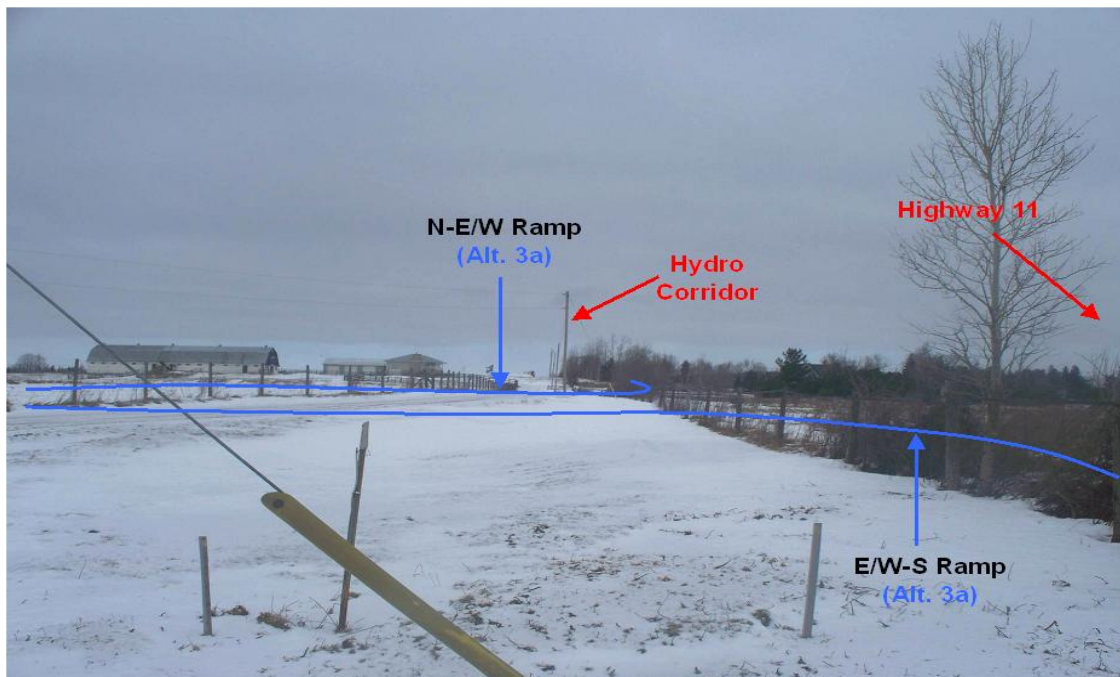


**Photograph 35:** View looking east from Purdon Line about 30 m west of Highway 11 SBL at existing at grade crossing at south end of Powassan. SBL will be realigned through the interchange (Alternatives 3a and 4a). (May 8, 2007)

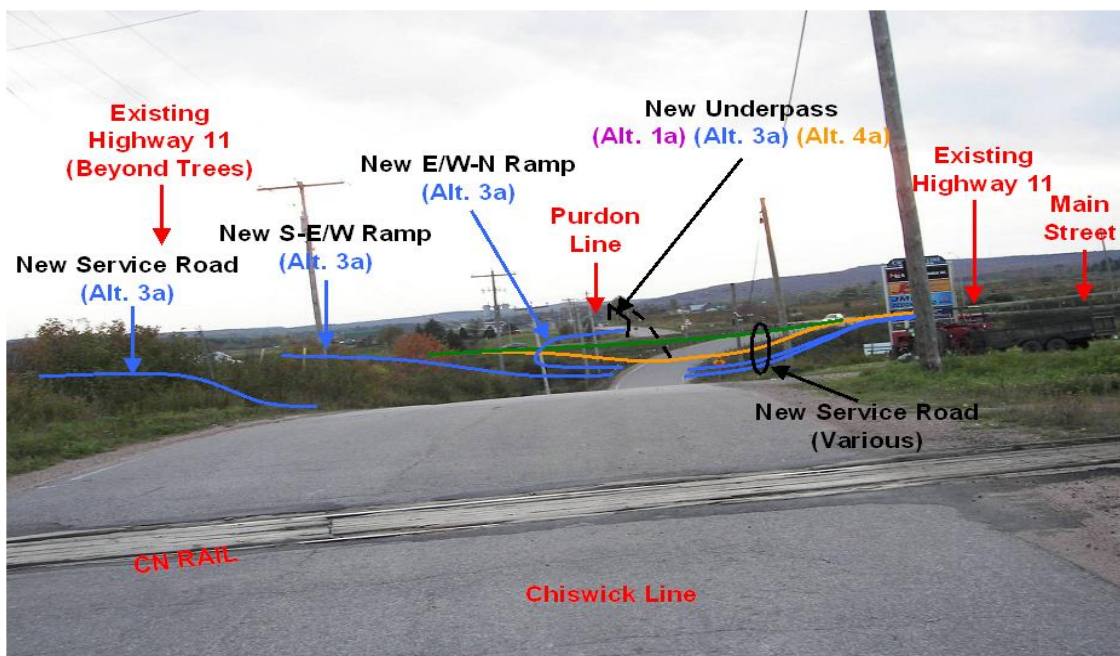


**Photograph 36:** View looking east from driveway of House # 31 Purdon Line at new underpass for alternatives 1a, 3a and 4a. Note underpass to be constructed to the south of the existing intersection. (Oct. 16, 2007)

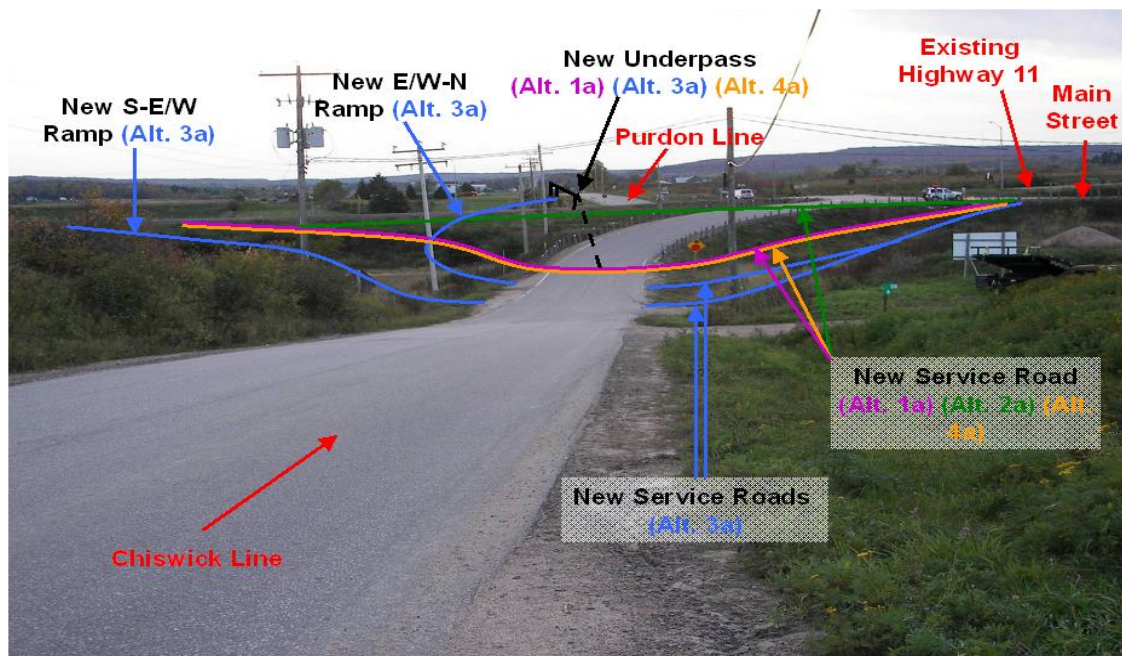




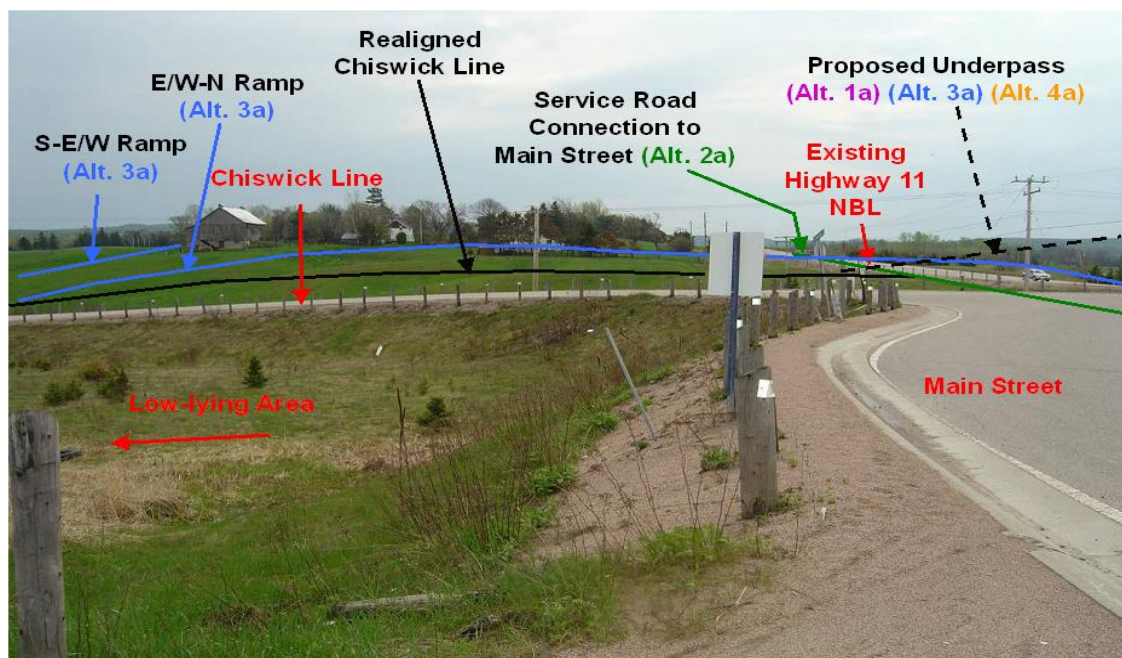
Photograph 37: View looking north from Purdon Line near House # 44. Highway 11 is located beyond tree line at right of photograph. Note typically flat terrain. ( Feb. 21, 2008 )



**Photograph 38:** View looking west across CN railroad tracks east of Highway 11 on Chiswick Line. Note hilly terrain. New Service Road (Alt. 3) from south connects to existing Highway 11 NBL. New NBL to be constructed between. (Oct. 16, 2007)

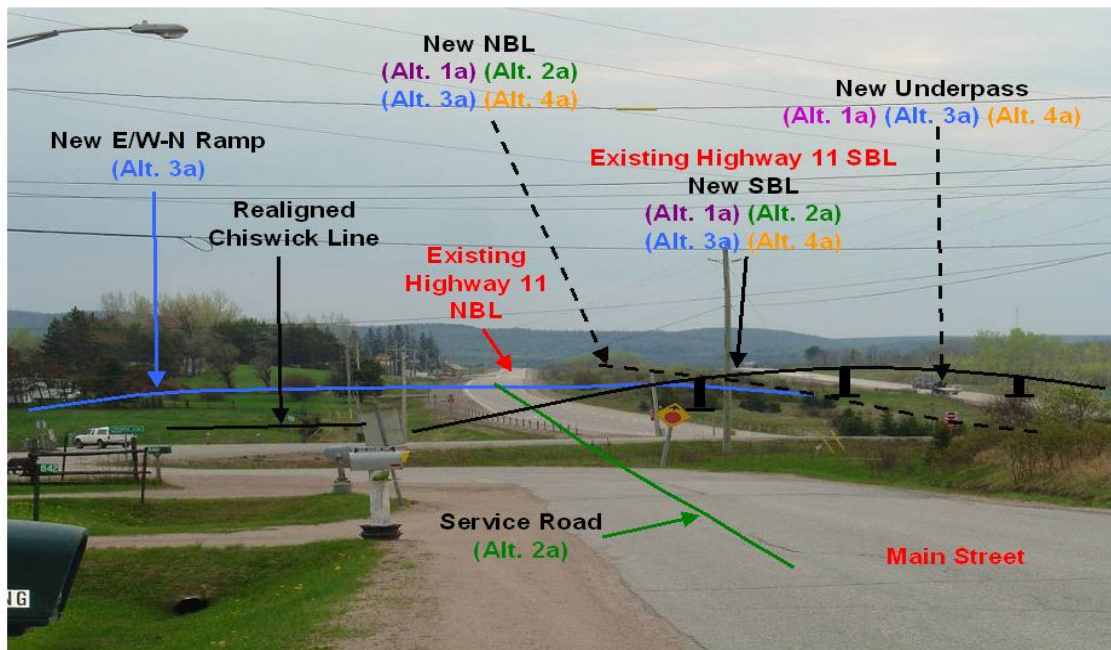


**Photograph 39:** View looking west at Highway 11 and Purdon Line / Chiswick Line crossing. Photograph is a closer view of previous photograph. Note low terrain in mid photo. (Oct. 16, 2007)

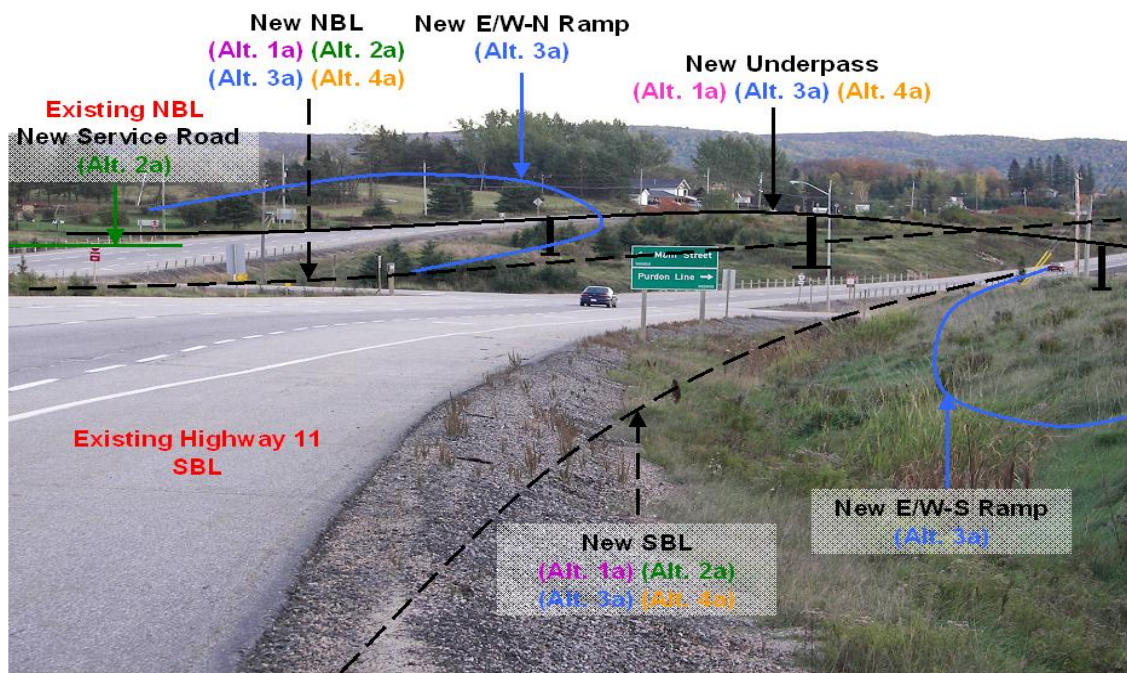


**Photograph 40:** View looking south from south end of restaurant parking lot about 20 m north of Chiswick Line. Note generally hilly terrain with embankments for existing side roads. (May 8, 2007)



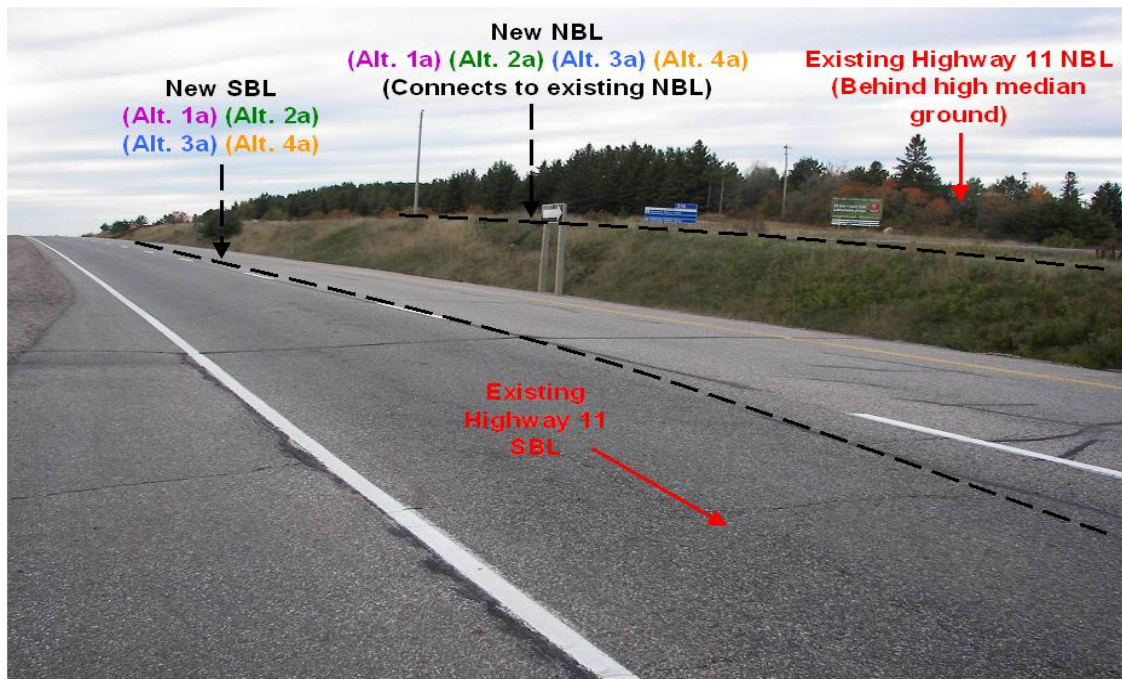


**Photograph 41:** View looking south from east shoulder of Main Street, about 50 m north of at grade crossing with Purdon Line Road/Chiswick Line. Note that all ramps and service road alternatives were not shown on picture for clarity. (May 8, 2007)



**Photograph 42:** View looking south at intersection of Purdon Line from west shoulder of Highway 11 SBL at about Station 21+180. ( Oct. 16, 2007 )





**Photograph 43:** View looking NE north of Purdon Line Station 22+290 from west shoulder of Highway 11 SBL. Note: high grade along existing median. ( Oct. 16, 2007 )