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June 30, 2015

VIA RESS, COURIER AND EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
Suite 2700
Toronto, ON
M4P 1E4

Re: Enbridge Gas Distribution Inc. ("Enbridge")
EB-2014-0017 – Innes Road Pipeline Project (formerly EB-2012-0438)
Conditions of Approval – Interim Monitoring Report

In accordance with the Conditions of Approval and the Ontario Energy Board's Vary Order as issued on February 13, 2015 for the above noted project, attached please find four copies of Enbridge's interim monitoring report.

If you have any questions, please contact the undersigned.

Yours truly,

(Original Signed)

Shari Lynn Spratt
Supervisor, Regulatory Proceedings

cc: Zora Crnojacki, OPCC Chair (via email)
Pascale Duguay, Manger, Natural Gas Applications, Ontario Energy Board (via courier and email)

Enbridge Gas Distribution Inc.

INTERIM ENVIRONMENTAL MONITORING REPORT

Innes Road Pipeline Replacement Project

EB-2012-0438 EB-2014-0017

Prepared by Dillon Consulting Limited

June 2015 – 13-8395

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Tables

Appendices

1.0 Introduction

On April 11, 2013, The Ontario Energy Board ("OEB") granted Enbridge Gas Distribution Inc. ("Enbridge") Leave to Construct under file number EB-2012-0438 for approximately 2.8 kilometers of Nominal Pipe Size 12 ("NPS 12") Extra High Pressure ("XHP") steel pipeline (the "pipeline") and ancillary facilities (the "Facilities") to comply with Enbridge's Integrity Management Program ("IMP") along Innes Road in the City of Ottawa.

On January 10, 2014, Enbridge requested that the Board review and vary the Conditions of Approval on its own motion, pursuant to section 43 of the Board's Rules of Practice and Procedure to grant an extension to the *Leave to Construct* as construction would not commence before February 1, 2014. The Board decided to review the Decision and Order and vary Condition 1.2 by providing an extension of the deadline until May 31, 2014, and assigned the file number EB-2014-0017 to the revised Conditions of Approval.

The pipeline was tested on June 13, 2014 and September 17, 2014. Energization was conducted on September 29, 2014.

As part of the Innes Road Pipeline Replacement Project, the following studies were completed to select a pipeline route, identify potential impacts resulting from construction, and prepare mitigative measures to minimize environmental and socio-economic impacts.

TABLE 1: SUMMARY OF STUDIES

Report Title	Conducted by	Date
Innes Road Pipeline Replacement Project – Environmental Report	Dillon Consulting Limited	November 2012
Geotechnical Investigation Highway 417 and Innes Road Crossing Enbridge Pipeline Replacement Ottawa, ON	Stantec Consulting Limited	July 2013
Instrumentation & Monitoring Plan for Horizontal Directional Drilling – Highway 417 and Innes Road Crossing Enbridge Pipeline Replacement Ottawa, ON	Stantec Consulting Limited	July 2013

1.1 Project Description

This pipeline project was constructed to upsize and replace approximately 3.0 km of existing extra high pressure (XHP) steel pipeline from Nominal Pipe Size (NPS) 8 inch to NPS 12 along Innes Road from St. Laurent Boulevard to Blair Road (refer to **Appendix A**), in Ottawa, Ontario. The replacement is necessary to comply with the requirements of the Enbridge Gas Distribution Pipeline Integrity Management Program ("IMP"), and to eliminate the existing bottleneck resulting from the NPS 8 pipeline connecting the Ottawa East and North distribution systems.

The Innes Road Pipeline Replacement Project spanned approximately 2.8 km from St. Laurent Boulevard until Blair Road along Innes Road. The replacement length also included one horizontal directional drill ("HDD") crossing of Highway 417 and the Cyrville Collector Drain (~700 m), simple bores for railway and roadway crossings, and open trench excavation work for boulevard/sidewalk areas existing within the road allowance.

The scope of work also included the reconnection of existing lateral mains and district stations to the newly installed gas main.

The construction of the pipeline was divided into three separate phases. For consistency this report maintains the distinction between the three phases of the project (see **Appendix A**). These phases include:

- **Phase 1**: Highway 417 Crossing
- **Phase 2**: Highway 417 to Blair Road
- **Phase 3**: Windmill Lane to St. Laurent Blvd

1.2 Purpose of the Post-Construction Monitoring Report

This Post-Construction Monitoring (PCM) report has been prepared in accordance with OEB EB-2014-0017 Board Staff Proposed Conditions of Approval as described below:

3.1 *Both during and after construction, Enbridge shall monitor the impacts of construction, and shall file four copies of both an interim and a final monitoring report with the Board. The interim monitoring report shall be filed no later than June 30, 2015, and the final monitoring report shall be filed no later than May 31, 2016. Enbridge shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.*

3.2 *The interim monitoring report shall confirm Enbridge's adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction.*

3.3 *The final monitoring report shall describe the condition of any rehabilitated land and the effectiveness of any mitigation measures undertaken. The results of the monitoring programs and analysis shall be included and recommendations made as appropriate. Any deficiency in compliance with any of the Conditions of Approval shall be explained.*

This report is limited to items that have been identified prior to May 22, 2015. Items addressed after this date will be identified in the final Post-Construction Environmental Monitoring Report. This report will summarize actual construction procedures and identify any significant deviations from proposed construction activities.

2.0 Environmental Setting

2.1 Vegetation

The project area is entirely within a highly urbanized environment and vegetation is largely limited to manicured lawn, ornamental trees and shrubs, and native and non-native herbatious plants common to disturbed environments and ditches. The most significant area of natural habitat and mostly vegetation occurs in association with the Cyrville Collector Drain and within the northbound on-ramp to Highway 417. The pipeline in this area was installed using HDD and as such, vegetation at the ground surface was not directly impacted by construction.

As indicated, manicured lawn and a few small ornamental trees and shrubs comprise the majority of the vegetation directly impacted by the construction of the pipeline. A few individual trees and minor vegetation along the pipeline route (Innes Road) were removed during construction when preparing temporary work or laydown areas; however, no significant or locally rare vegetation was impacted during construction.

Many of the plant and shrub species common along the route are considered invasive species in Ottawa. For example, glossy buckthorn (Rhamnus frangula) was identified as the dominant shrub species along much of the corridor between St. Laurent Blvd. and Highway 417. So dominant that it forms an ecological thicket along much of the corridor immediately adjacent to the construction area. Other weed species like Small-seeded Falseflax (Camelina microcarpa), Toadflax (Linaria vulgaris), Tansy (Tanacetum vulgar L.), Dandelion (Taraxacum officinale), and Broad-leaved Plantain (Plantago major) are often the most common non-ornamental species within the project area. These weed species have little ecological value and many are non-native.

2.1.1 Wetlands

A review of available mapping, field study and input provided by government agencies revealed that there are no wetlands located within the Study Area.

2.2 Aquatic Habitat

The pipeline was constructed beneath the Cyrville Collector Drain by way of horizontal directional drilling (HDD) under the watercourse and the Highway 417. This approach was intended to minimize potential effects on the natural environment. The use of this trenchless technology was selected as the preferred approach based on EGDI's Construction and Maintenance Manual, 2014, professional experience, and consultation with applicable government agencies. The crossing method is also consistent with the DFO Operational Statement for High-Pressure Directional Drilling, a report titled Pipeline Associated Watercourse Crossings (3rd Edition) produced by the Canadian Association of Petroleum Producers, the Canadian Energy Pipeline Association, and the Canadian Gas Association. All

appropriate permits were obtained from the Rideau Valley Conservation Authority (RVCA) to undertake the crossing of this watercourse.

2.3 Wildlife and Wildlife Habitat

Wildlife observed within the pipeline construction corridor prior to and during construction by the onsite environmental monitors was predominantly restricted to species common to the highly urbanized environment. The following table (**Table 2**) summarizes the wildlife observations made during onsite visits.

TABLE 2: WILDLIFE OBSERVATIONS

Wildlife	Observations
Birds	Ring-billed gull, herring gull, Canada geese, mallards, red-winged blackbirds, phoebes, crows, blue jays, American robin, nuthatch, eastern kingbird, green heron.
Reptiles/Amphibians	Green frog, leopard frog.
Mammals	Grey squirrels, groundhogs.
Fish (observed from shore)	Minnow ssp.
Other	Butterflies, dragonflies, horseflies, houseflies, mosquitoes, spiders, slugs, grasshoppers, bumblebees, bees, wasps.

2.4 Species at Risk or Species of Special Concern

Two Species at Risk (SAR) were identified through consultation with the Ministry of Natural Resources and Forestry (MNRF) and through desktop reviews of Natural Heritage Information Centre (NHIC) as potentially occurring within the project area. These include Butternut trees and Chimney Swift. Field surveys conducted prior to and during construction did not identify any individual observations of SAR within the project area. In addition, the survey of the vegetation communities or surrounding lands in the project area indicated that the habitats are of poor quality and have experienced significant disturbance which defines the vegetation community. These vegetation communities were found to be comprised primarily of common upland species and contained a high percentage of invasive species. These natural heritage features do not meet the requirements for supporting the critical life phase (e.g. nesting sites) of SAR, including Chimney Swifts or Butternut.

As no Butternut trees or Chimneys Swifts, or supporting habitat were observed during those surveys, the project area provides minimal natural heritage value to SAR.

2.5 Air Quality

According to the Ministry of Environment (MOE), overall air quality in the province has improved significantly over the years, especially with respect to nitrogen dioxide, carbon monoxide and sulphur dioxide, the main pollutants emitted by vehicles and industry. Emissions of nitrogen oxides, carbon monoxide and sulphur dioxide have decreased due in part to new air quality initiatives such as the phase out of coal-fired generating station, emissions trading regulations, emission controls at Ontario smelters and Drive Clean programs (MOE, 2010).

Within the project location air quality is generally consistent with large urban centers and is immediately affected by the traffic along Innes Road.

2.6 Innes Road Improvement Project

The City of Ottawa's Innes Road Improvement Project is currently under construction between Highway 417 and Blair Road. Construction activities associated with this project made it challenging to evaluate the success of Enbridge's restoration efforts throughout much of this section (Phase 2). The project created a significant disturbance over much of the area that was restored by Enbridge in the fall of 2014. It is expected that the City will restore this area back to its preconstruction condition.

3.0 Environmental Monitoring and Awareness Training

In spring 2014, Dillon Consulting Limited (Dillon) was retained by Enbridge Gas Distribution (Enbridge) to provide Environmental Monitoring and Awareness Training in support of the pipeline construction between Blair Road and St. Laurent Boulevard.

The environmental awareness training program consisted of both a classroom session and onsite environmental awareness as required. The focus of both aspects included:

- Overview of local features (environmental and socio-economic)
- Overview of mitigation measures
- SAR Identification
- Procedures for dealing with:
    - *Failures in mitigation measures*
    - *Environmental spills (including inadvertent returns, gas leaks, etc.)*
    - *Wildlife encounters (including Species at Risk)*
    - *Emergency response*

An onsite environmental monitor was also present onsite several times a week to observe construction and provide guidance on environmental protection measures. This onsite effort was adapted so that more time was spent onsite during construction in and around more sensitive habitats, such as the HDD beneath the Cyrville Collector Drain.

The objectives of the monitoring program are to:

- Proactively identify concerns that have the potential to negatively impact the natural environment *(i.e., damaged silt control measures).*
- Ensure all onsite staff is trained in the local ecology, SAR, and mitigation measures *(overview).*
- Document site conditions and compare them to a range of background conditions or control sites, depending on the parameter.
- Provide a reporting mechanism for concerns that are identified on the site.

4.0 Post-Construction Monitoring Methods

The methodology for monitoring the status of environmental issues was based on the premise that success of the restoration efforts will be measured against pre-construction conditions and the site conditions adjacent to the construction working easement.

Given the highly urbanized nature of the Innes Road corridor and limited ecological function of the land surrounding the working easement, it is anticipated that 1-2 growing seasons will be required to achieve complete reinstatement of the pipeline route and the surrounding working area.

4.1 Preliminary Work

Preliminary work included a review of potential environmental issues identified in the Environmental Assessment (Dillon, 2012), Environmental monitoring field notes and correspondence, construction photos, and notes provided by Enbridge identifying the location of restoration activities.

4.2 Ground Reconnaissance

Ground reconnaissance was conducted to assess the success of the restoration activities along the pipeline construction area. This was done over 3 days from May 20 to 22, 2015. All visible issues were documented, mapped, and photographed. Issues that were determined to be related to the project construction were added to the table of outstanding issues (**Table 3**) following Section 5.

5.0 Results and Observations

The results and observations for the Innes Road PCM provide the current status of the environmental issues in addition to the proposed corrective actions.

5.1 Physical Environment

The following subsections provide the results from the 2015 PCM program related to the physical environment.

5.1.1 Soil Erosion and Compaction

A number of sites were identified as having erosion issues where mitigation measures were recommended. This was specifically observed along the steeper slopes along Phase 3 of the project. A summary of these locations can be found in the summary table of outstanding issues (**Table 3**) and within ***Appendix B***.

Trench Subsidence

Following construction, five instances of very minor trench subsidence were identified along the project corridor. These were likely sites where the trench may not have been effectively compacted during backfilling activities. Trench subsidence occurs when voids in the backfilled trench settle, causing depressions at the surface. In general, the mitigation measures and construction procedures effectively mitigated the potential for trench subsidence as only very minor issues were identified. Periodic visual inspections of these areas have been recommended in the future.

5.1.2 Topography

Pre-construction grading and drainage conditions were restored following construction. There were a few areas west of Highway 417 where there has been localized excavation from another party following Enbridge's construction. This has resulted in grading that does not conform to the existing slopes and creates potential sources of erosion. However, no other issues related to contours or drainage was identified from during the 2015 PCM.

5.1.3 General Water Quality

Once construction was completed, the pipeline was hydrostatically strength and leak tested in accordance with the requirements outlined in the Leave to Construct filing. After the testing was completed, the test water was contained using storage tanks and was then transported from site using a licensed carrier and taken to a licensed receiving facility for treatment. There were no issues encountered with the storage and disposal of this water.

Additionally, there were no water wells identified along the pipeline route or in the surrounding area, which resulted in a well-water monitoring survey not being required.

No groundwater issues were identified during the construction process or during the post-construction monitoring report.

5.2 Atmosphere and Air Quality

During the energizing of the newly installed pipeline and abandonment of the existing gas main, there were no odor or air quality issues observed.

No air quality issues were identified during the construction process or during the post-construction monitoring report.

5.3 Vegetation

The vast majority of the vegetation related issues observed during the 2015 PCM program were associated with the re-seeding of manicured lawns which had not regenerated as expected. Many of these areas were re-seeded in the late fall 2014 and had a short growing season to become established. Re-seeding of these areas is suggested. In addition, a few of the trees that were re-planted around the Costco parking lot had died and should be replaced.

No other significant impacts to natural vegetation were observed during the PCM program.

In general, the mitigation measures were effective at protecting vegetation against the potential impacts associated with the pipeline construction activities.

5.3.1 Weed Introduction and Spread

The prompt re-seeding of grass throughout the construction area helped establish some grass before the bare soil could be colonized by weeds. Results from the PCM program indicated that excessive weeds, relative to pre-construction conditions, were not a significant issue. In areas where the re-seeding of grass was not successful, only minimal encroachment of weed plants was observed.

5.4 Wildlife

During the construction process a colony of groundhogs was observed in the grass at the northwest corner of Innes Road and Cyrville Road, adjacent to the Lazboy store parking lot. Work proceeded in this area following all the mitigation measures identified following all mitigation measures that were developed for the situation and no incidents were reported. The onsite environmental monitor was able to confirm that all reasonable measures were in-place to protect the groundhogs from harm.

No issues related to wildlife or wildlife habitat was identified during construction or during the PCM program. Environmental awareness training and onsite environmental monitoring helped reduce the potential for impacts to wildlife and wildlife habitat. It was also noted during the ground recognizance that the groundhog burrows in the vicinity of the Lazboy parking lot were all actively used.

5.5 Species at Risk and Special Concern

No issues related to SAR or species of special concern were identified during construction or during the post construction environmental monitoring program. Environmental awareness training and onsite environmental monitoring helped reduce the potential for impact.

5.6 Surface Water, Fish and Aquatic Habitat

On July 18, 2014 an inadvertent return of Bentonite spill occurred into the Cyrville Collector Drain during the HDD of the pilot hole under the Highway 417. It is believed that the material found its way into an old corrugated steel culvert which eventually emptied into Cyrville Collector Drain at the base of the bridge. An inspection of the culvert on July 18, by the drilling operators, accessed through a manhole, suggested that the underside of the culvert was perforated by corrosion which likely provided a pathway for the bentonite to travel through the pipe and into the drain.

It is estimated the bentonite was spilled into the watercourse between 11 am and 3 pm, followed by a second minor spill at 6:40 pm on Friday July 18, between routine visual inspections of the watercourses undertaken by the drilling operators. The bentonite spill covered approximately 10 square meters to a depth of approximately one inch (on average) and both spills were estimated to be approximately 189 litres each.

Between these visual inspections, the pressure of the bentonite slurry within the system was carefully monitored by drilling operators and no loss in pressure was observed. A loss in pressure would have indicated a leak in the system. It is assumed that the bentonite slurry leaked out slowly over a period of time.

When the first spill was observed, drilling operations were immediately suspended and appropriate measures were taken to contain the spill. The spill was isolated to a shallow area of the stream away from of the main channel where straw bales could successfully be used to contain the spill and filter the sediment before it rejoins the main channel. Drilling operations

were re-commenced and another spill of the same size and volume occurred at 6:40 pm. Drilling operations were once again immediately suspended and appropriate measures were taken to ensure the spill was contained.

The mitigation measures that were implemented were consistent with the Conservation Authority permits, Spill and Inadvertent Return Response Plan, and other documentation related to this water crossing. During this suspension of drilling operations, drilling operators felt that the fissure, which permitted the bentonite to escape in the first place, sealed itself. No further spills occurred when drilling re-commenced. Enbridge and R.B. Somerville (contractor) acted quickly to implement the spill response plan and associated mitigation measures.

It was determined that extracting the bentonite from the watercourse using a hydo-vac would cause severe disturbance to the stream substrate and local aquatic and local aquatic life. The hydro-vac would remove not only the inert bentonite, but also much of the natural substrate, aquatic vegetation and invertebrates living within the substrate. It would have also caused additional sediment to become suspended in the stream and transported downstream causing further impacts. It was concluded by the onsite biologist, the contractor, and Enbridge that the impacts of the spill should be mitigated in place using straw bales for filtration and a hydro-excavation truck on standby near the terminated end of the rusted corrugated culvert.

The mitigation measures put in place following the spill effectively limited the potential adverse impacts from the spill. Several small fish (species unknown) were observed swimming above and around the bentonite immediately following the spill. Over subsequent weeks, fish continued to be active in the watercourse and we did not observe any evidence of dead fish. Within one week there was little sign of any spill in the watercourse.

Given the mitigation actions that were implemented following the spill, the limited amount of bentonite spilled, and the rate of dispersion downstream, it is believed that there were no adverse impacts on the natural environment within or adjacent to the watercourse.

Results from the 2015 PCM program did not identify any visible issues within the watercourse and there was no sign of any adverse impacts associated with the construction of the pipeline.

5.7 Noise

No issues relate to noise were identified during the construction process or during the post-construction monitoring report.

5.8 Summary of Results

Several environmental issues were documented as part of the 2015 PCM Program. However, many of these issues reflected conditions that were constant throughout the construction area and were not necessarily unique to the specific location. The issues identified in the 2015 ground reconnaissance have been individually documented with photographs in ***Appendix B*** to illustrate the issues and reclamation success observed. In addition, a series of maps have been provided to identify the location of these sites relative to the Innes Road Project corridor.

Generally the results of the 2015 PCM Program indicate that the restoration efforts undertaken by Enbridge immediately following construction were successful at returning the project construction site back to its pre-construction condition.

There was outstanding restoration work unrelated to Enbridge's project found between Windmill Lane and the CN Railway tracks on Innes Road, where Enbridge had completed reinstatement in the Fall 2014. It was determined that another company worked in the area once Enbridge had completed the project. The other company is planning to complete its restoration in summer 2015, and no additional work will be required from Enbridge in that area specifically.

Table 3, below, provides a summary of all outstanding issues identified during the site reconnaissance.

TABLE 3: SUMMARY TABLE OF OUTSTANDING ISSUES

Biophysical Element	Location	Number on Map	Outstanding Issues	Potential Adverse Environmental Effect	Proposed Action and Schedule
Phase 1 – Highway 417 Crossing					
Vegetation	Adjacent to Travelodge	A1	Bare patches in re-seeded grass	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches with fresh seed and water (Summer 2015)
Vegetation	Adjacent to Travelodge	A2	Maple tree may be in poor health	• Death of ornamental tree	• Monitor health of tree & replace as required (Summer 2015)
Vegetation	East of Windmill Lane	A3	Bare patches in re-seeded grass	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches with fresh seed and water (Summer 2015)
Phase 2 – Highway 417 to Blair Road					
Vegetation	Adjacent to ESSO Station	B4	Bare patch of grass adjacent to the sidewalk	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches with fresh seed and water (Summer 2015) • Hydro-seeding recommended
Trench Subsidence	Adjacent to ESSO Station	B5	Soil under sidewalk subsiding	• Sidewalk collapse • Minor hazard	• Repair as appropriate (Summer 2015) • Over-seed bare patches with fresh seed and water (Summer 2015) • Periodic visual inspection is recommended
Vegetation	Adjacent to Costco parking	B6	One dead ornamental tree (species unknown)	• Loss of urban tree canopy • Poor aesthetics	• Replace dead tree (Summer 2015)
Vegetation	Adjacent to Costco parking	B7	One pine tree has been cut down	• Loss of urban tree canopy • Poor aesthetics	• Replace cut tree (Summer 2015)

Biophysical Element	Location	Number on Map	Outstanding Issues	Potential Adverse Environmental Effect	Proposed Action and Schedule
Vegetation	Adjacent to Costco parking	B8	Three 'Redmond Linden' trees have died	• Loss of urban tree canopy • Poor aesthetics	• Replace dead trees (Summer 2015)
Trench Subsidence	Adjacent to Costco parking	B9	Small trench subsidence in grass	• Minor hazard	• Repair as appropriate (Summer 2015) • Re-seed grass around bare patches. (Summer 2015)
Vegetation	Adjacent to Costco parking	B10	One dead ornamental tree (species unknown)	• Loss of urban tree canopy • Poor aesthetics	• Replace dead tree (Summer 2015)
Vegetation	Adjacent to Costco parking	B11	Dead ornamental shrubs (species unknown)	• Loss of landscape vegetation • Poor aesthetics	• Replace dead shrubs with hardier species (Summer 2015)
Vegetation	Cyrville Road Intersection	B12	Bare patch of grass adjacent to the sidewalk	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches with fresh seed and water (Summer 2015)
Vegetation	Adjacent to Rona	B13 & B14	Bare patch of grass adjacent to the sidewalk	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches with fresh seed and water (Summer 2015)

Biophysical Element	Location	Number on Map	Outstanding Issues	Potential Adverse Environmental Effect	Proposed Action and Schedule
Phase 3 – Windmill Lane to St. Laurent Blvd.					
Trench Subsidence	Under CNR Tracks	C15	Minor trench subsidence adjacent to abutment slab of bridge	• Minor hazard • Potential damage to bridge structure.	• Repair as appropriate (Summer 2015) • Over-seed bare patches with fresh seed and water (Summer 2015) • Periodic visual inspection is recommended
Vegetation	East of CNR Tracks	C16	Bare patch of grass on slope	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015) • Water fresh grass seed as appropriate. (Summer 2015)
Vegetation	East of CNR Tracks	C17	Bare soils with little vegetation following construction activity	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015) • Water fresh grass seed as appropriate. (Summer 2015)
Vegetation	East of CNR Tracks	C18	Bare patch of grass on slope	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015) • Water fresh grass seed as appropriate. (Summer 2015)
Vegetation	East of Bantree St.	C19 – C21	Bare soils with little vegetation following construction activity	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015) • Water fresh grass seed as appropriate. (Summer 2015)

Biophysical Element	Location	Number on Map	Outstanding Issues	Potential Adverse Environmental Effect	Proposed Action and Schedule
Erosion	East of Bantree St.	C22	Area upslope (east) of stormwater drain has eroded	• Increased sediment load into stormwater system • Erosion of grass • Damage to stormwater infrastructure	• Re-grade soil around stormwater drain (Summer 2015) • Place geotextile and Rip-rap or other material in ditch to mitigate erosion potential (Summer 2015) • Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
Vegetation	East of Bantree St. to St Laurent	C23 – C27	Bare patch of grass adjacent to the sidewalk	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015)
Trench Subsidence	SE Corner of St. Laurent and Innes Rd.	C28	Minor trench subsidence adjacent asphalt sidewalk	• Minor hazard	• Repair as appropriate (Summer 2015) • Over-seed bare patches with fresh seed and water (Summer 2015) • Periodic visual inspection is recommended
Vegetation	Corner of St. Laurent and Innes Rd.	C29	Bare patch of grass adjacent to the parking lot	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015)
Vegetation	NE Corner of St. Laurent and Innes Rd.	C30	Bare patch of grass adjacent to the parking lot	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015)
Vegetation	Bantree St. to St Laurent	C31 – C33	Bare patch of grass adjacent road	• Increased soil erosion potential • Poor aesthetics	• Over-seed bare patches – suggest Hydro-seeding if available. (Summer 2015)

6.0 Public Complaints

Over the course of construction completion for this project, there were a total of six (6) concerns and issues from the surrounding residential and commercial public which were brought to the attention of Enbridge. All of these complaints were immediately addressed and resolved. Refer to ***Appendix C*** for more information.

7.0 Conclusion

The results of the PCM Program conducted in 2015 indicate that a high level of reclamation success was observed along the construction right-of-way. The grass that was replaced along the majority of the construction area has established relatively well in most places despite the short period for it to become established. In many places along the construction right-of-way, vegetation is visually indistinguishable from the adjacent right-of-way vegetation and will likely improve throughout the summer of 2015. Mitigation measures employed by Enbridge during construction have proven to be effective at limiting the impact of the construction on the local environment. Specifically, no evidence of the inadvertent return of drilling fluid into the Cyrville Collector Drain during construction was observed during the PCM program.

In total, several issues were identified and assessed in 2015. Most of these issues are related to the poor regeneration of grass within the disturbed footprint of the construction area. Other issues related to erosion and trench subsidence were also observed but were all very minor in nature. Outstanding issues will be addressed in the Final Post-Construction Environmental Monitoring Report.

Opportunities for Improvement

A few minor opportunities for improvement were identified during the Post-Construction Monitoring program. These include:

1. The addition of topsoil to existing highly disturbed areas to help facilitate the growth of grass seed.
2. It is suggested that hydro-seeding of grass be conducted immediately following the construction activity.
3. Prepare a Wildlife Management Plan prior to construction. This will be required in the future for all construction projects within the City of Ottawa.

Summary

Enbridge has done an excellent job proactively addressing issues they have identified onsite and ensuring issues were dealt with in a timely manner. The remaining unresolved vegetation related issues that exist are very typical of pipeline restoration within an urban environment.

The majority of these sites are on an appropriate trajectory to recovery. It is reasonable to expect the impacted area will be fully restored following the recommendations proposed in this report and after a full growing season.

8.0 References and Works Cited

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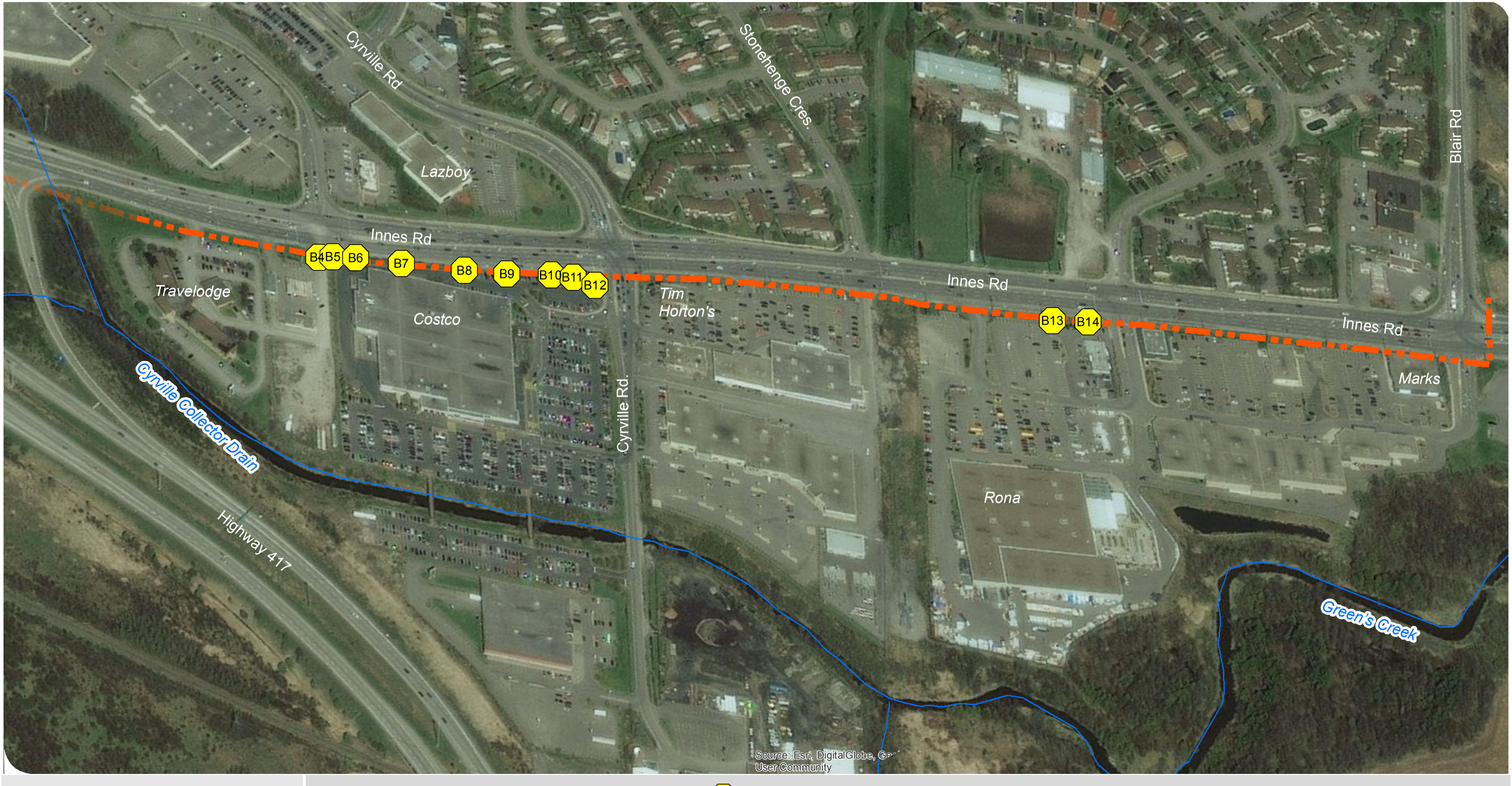
Appendix A

Project Area Map



Innes Road Pipeline Replacement Project
Post-Construction Monitoring Report

Phase 2: Environmental Issues Identified
FIGURE A2

ENBRIDGE

Innes Road Pipeline Route

Watercourse

B1 Issue Identified During Post-Construction Monitoring

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR
AND DILLON CONSULTING LIMITED.

MAP CREATED BY: AZ
MAP CHECKED BY: GM
MAP PROJECTION: NAD 1983 UTM Zone 18N

1:3,500

0 50 100 200 Meters

N W E S

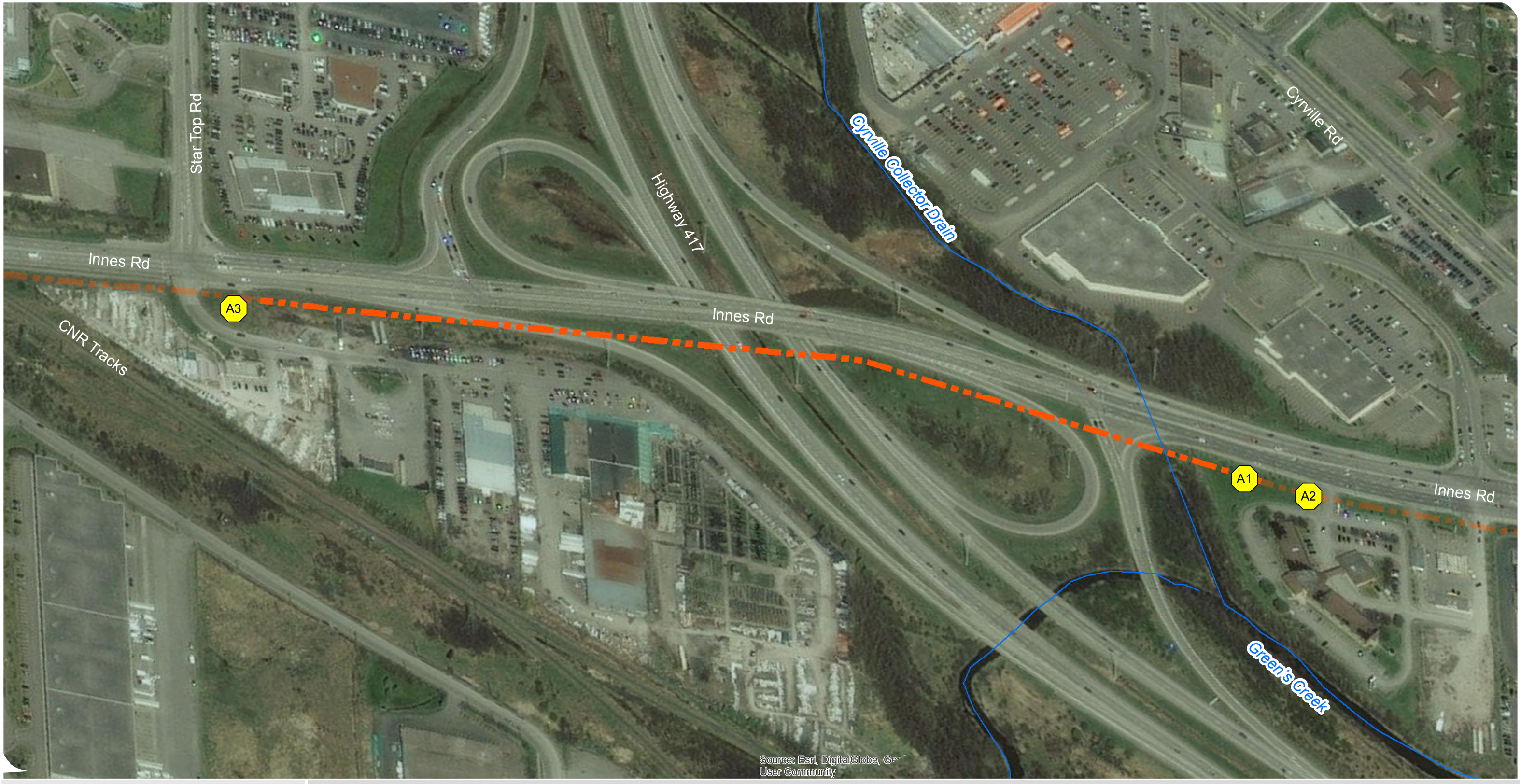
FILE LOCATION: G:\CAD\2013\138395\MXD\Figure A2 - Phase2.mxd

PROJECT: 13-8395 STATUS: FINAL DATE: 06/29/15

Appendix B

Detailed Results from Post Construction Environmental Monitoring Program

Phase 1: Highway 417 Crossing



Innes Road Pipeline Replacement Project
Post-Construction Monitoring Report

Phase 1: Environmental Issues Identified
FIGURE A1

ENBRIDGE

Innes Road Pipeline Route

Watercourse

A1 Issue Identified During Post-Construction Monitoring

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR
AND DILLON CONSULTING LIMITED.

MAP CREATED BY: AZ
MAP CHECKED BY: GM
MAP PROJECTION: NAD 1983 UTM Zone 18N

1:3,000

0 50 100 200 Meters

N W E S

FILE LOCATION: G:\CAD\2013\138395\MXD\Figure A1 - Phase1.mxd

PROJECT: 13-8395 STATUS: FINAL DATE: 06/29/15

LOCATION #A1

Proposed Action and Schedule:

- Over-seed bare patches – particularly in the ditch. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

LOCATION #A2

Proposed Action and Schedule:

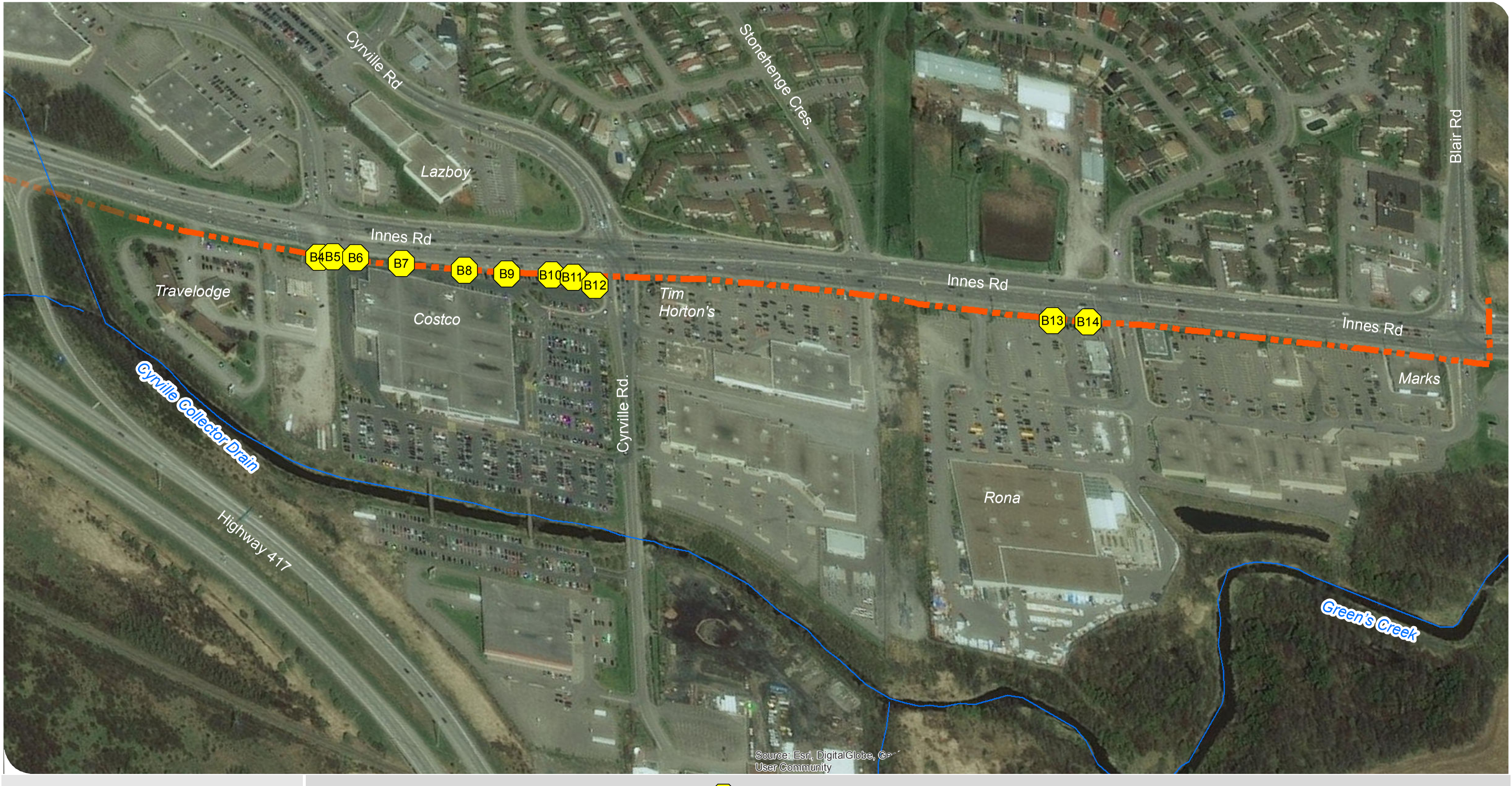
- Monitor health for growing season. (Summer 2015)

LOCATION #A3

Proposed Action and Schedule:

- Over-seed bare patches. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

Phase 2: Highway 417 to Blair Road



Innes Road Pipeline Replacement Project
Post-Construction Monitoring Report

Phase 2: Environmental Issues Identified
FIGURE A2

ENBRIDGE

Innes Road Pipeline Route

Watercourse

B1 Issue Identified During Post-Construction Monitoring

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR
AND DILLON CONSULTING LIMITED.

MAP CREATED BY: AZ
MAP CHECKED BY: GM
MAP PROJECTION: NAD 1983 UTM Zone 18N

1:3,500

0 50 100 200 Meters

N W E S

FILE LOCATION: G:\CAD\2013\138395\MXD\Figure A2 - Phase2.mxd

PROJECT: 13-8395 STATUS: FINAL DATE: 06/29/15

LOCATION #B4

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

LOCATION #B5

Proposed Action and Schedule:

- Repair as appropriate (Summer 2015)
- Re-seed grass around bare patches. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

LOCATION #B6

Proposed Action and Schedule:

- Replace dead tree (Summer 2015)

LOCATION #B7

Proposed Action and Schedule:

- Replace cut tree if desired by Costco
- If new tree is not desired, remove stump and over-seed with grass.

LOCATION #B8

Proposed Action and Schedule:

- Replace all three dead trees (Summer 2015)

LOCATION #B9

Proposed Action and Schedule:

- Fill in sinkhole
- Over-seed bare patches of grass

LOCATION #B10

<u>Proposed Action and Schedule:</u>

- Monitor health during summer
- Replace as required.

LOCATION #B11

Proposed Action and Schedule:

- Suggest replacing shrubs with hardier species (Summer 2015)
- Over-seed grass as required (Summer 2015)

Location #B12

Proposed Action and Schedule:

- Add some topsoil to very sandy and dry soil
- Over-seed with grass and water as required. (Summer 2015)

PHOTO #B13

Proposed Action and Schedule:

- If construction in this location is not expected, re-seed bare patch along edge of sidewalk. (Summer 2015)

PHOTO #B14

Proposed Action and Schedule:

- If construction in this location is not expected, re-seed bare patch along edge of sidewalk. (Summer 2015)

Phase 3: Windmill Lane to St. Laurent Blvd.

Innes Road Pipeline Replacement Project
Post-Construction Monitoring Report

Phase 3: Environmental Issues Identified
FIGURE A3

ENBRIDGE

Innes Road Pipeline Route

Temporary Asphalt Sidewalk

Watercourse

C1 Issue Identified During Post-Construction Monitoring

DILLON CONSULTING

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR
AND DILLON CONSULTING LIMITED.

MAP CREATED BY: AZ
MAP CHECKED BY: GM
MAP PROJECTION: NAD 1983 UTM Zone 18N

1:4,250

0 50 100 200 Meters

N W E S

FILE LOCATION: G:\CAD\2013\138395\MXD\Figure A3 - Phase3.mxd

PROJECT: 13-8395 STATUS: FINAL DATE: 06/29/15

PHOTO #C15

Proposed Action and Schedule:

- Trench subsidence should be filled and bare patches should be re-seeded and watered as appropriate. (Summer 2015)

PHOTO #C16

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh grass seed as appropriate. (Summer 2015)

PHOTO #C17

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh grass seed as appropriate. (Summer 2015)

PHOTO #C18

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh grass seed as appropriate. (Summer 2015)

PHOTO #C19

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C20

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C21

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C22

Proposed Action and Schedule:

- Re-grade soil around stormwater drain (Summer 2015)
- Place Rip-rap or other material in ditch to mitigate erosion potential (Summer 2015)
- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)

PHOTO #C23

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C24

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C25

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C26

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C27

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C28

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C29

Proposed Action and Schedule:

- Over-seed bare patches – suggest Hydroseeding if available. (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C30

Proposed Action and Schedule:

- Over-seed bare patches (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)
- Clean up asphalt chunks.

PHOTO #C31

Proposed Action and Schedule:

- Over-seed bare patches (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C32

Proposed Action and Schedule:

- Over-seed bare patches (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

PHOTO #C33

Proposed Action and Schedule:

- Over-seed bare patches (Summer 2015)
- Water fresh seeds as appropriate. (Summer 2015)

Appendix C

Record of Public Complaints

Date	Complaint by:	Description:	Mitigation Plan	Date Completed:
April 30th, 2014 - afternoon	Innes Centre plaza Property Manager concerned regarding working space isolation from the pedestrians / public	- Fencing was required around the working area to ensure pedestrians/vehicles to eliminate any exposure to hazards for the pedestrians in the plaza. - Barricades and caution tape were initially placed around the entire working area, however, there were deemed insufficient by the landowner	- Install modular fencing around the working area, and ensure there is no additional material left outside of the fenced area such as, reamer, fencing material, skids, etc.) - Ensure signage is clear for pedestrians/vehicles - Notified landowner and sent photo - landowner was satisfied with the modifications.	April 30th, 2014 - evening
July 11th, 2014 - afternoon	- A pedestrian who walked from Blair/Innes Road to East of Highway 417 daily	- She wrote to the area's Councillor regarding a cracked sidewalk at Blair and Innes Road being hazardous for the public - The woman tripped twice and injured her foot while walking in the area	- Place signage/fencing/or plywood on sidewalk in question to eliminate hazard in the area - Cones placed around surrounding area with signage as well	July 11th, 2014 afternoon
July 16th, 2014	Customer contacted Project Manager regarding the date/time of venting for NPS 8 main abandonment - Phase 2	- Customer received the distributed Gas Venting Communication letter as part of Innes Road project Communication plan for the NPS 8 main abandonment, and contacted Project Manager to confirm when the venting was taking place	- Project Manager provided her with the required details.	July 16th, 2014
1-Aug-14	City of Ottawa contacted Enbridge Ottawa's Planning Manager regarding Multi-use pathway restoration along Innes Road	- City of Ottawa contacted Enbridge Ottawa's Planning Manager to inquire about restoration plans for existing multi-use pathway which was being used as a working area for Phase 3	- Project Manager replied in a timely manner that the existing multi-use pathway will be reinstated with consultation of the City's Traffic Management group - No further concerns were brought to the project team's attention regarding the multi-use pathway	1-Aug-14
25-Sep-14	Received a note from the City of Ottawa regarding complaints for road cuts completed E of Highway 417 that needed to be permanently restored	- City of Ottawa contacted Enbridge Ottawa's Planning Manager about receiving complaints for road cuts completed by Blair and Innes Road, and wanted to know when permanent restoration work for the area would be completed	- Project Manager followed up with R. B. Somerville (contractor for the project) who followed up with their restoration sub-contractor. Road cut restoration had been scheduled by Tomlinson to begin for September 26, 2014. Project Manager informed the City of Ottawa of the timelines.	26-Sep-14
26-Sep-14	Email from 1743 St. Laurent Boulevard, who received a gas venting Communication Letter as part of the project's Communication Plan, wanted to confirm that the tie-in work in the area would not affect their natural gas service.	- Director of Operations for Matrix IT and UniVoip Systems contacted Project Manager about whether there would be an interruption to their gas service, as their backup system for the data centre is supported by the the natural gas service.	- Project Manager looked into their service to confirm that they were connected to the NPS 12 main installed W of the tie-in work, and confirmed that the service would not be affected. If it were to be affected she would coordinate with them in advance as best as possible.	26-Sep-14