



May 9, 2014

MON-00213818-A0

New Brunswick Department of Environment and Local Government
Environmental Assessment (Section)
20 McGloin Street
PO Box 6000
Fredericton, NB E3B 5H1

Attention: Pierre Doucet, Project Manager

**Re: Project Update – Acadie Avenue/Amirault Street Re-construction, Dieppe, NB
(NBDELG File No. 4561-3-1369)**

The above noted undertaking was registered with the department under the provincial Environmental Impact Assessment (EIA) regulation (NB Regulation 87-83 under the *Clean Environment Act*) on November 4, 2013. Preliminary design project drawings were included with the EIA registration document. During the evolution of the design process, there have been a few key changes to the project since the time of project registration. The purpose of this letter is to provide NBDELG with a brief update on these changes to facilitate the EIA review process.

KEY CHANGES TO THE PROJECT SINCE THE INITIAL EIA REGISTRATION

General - the key project design changes since the initial EIA registration are as follows:

- None of the three design concept options described in the project overview section of the registration document [i.e. **Section 2.(ii)**] will be employed. Therefore, lightweight fill materials including tire derived aggregate (TDA) will not be utilized in conjunction with the project;
- Construction of a temporary access road through the marsh may not be necessary under the current design approach, which does not include the relatively deep excavations along the majority of the roadway alignment to accommodate the placement of TDA. Since the access road is a construction issue and not part of the project design, the Contractor will ultimately decide whether or not an access road or roads are warranted. However, any temporary access roads will need to be constructed within the right-of-way (ROW) limits of the roadway and this requirement will be stipulated in the contract documents. As a result of this requirement, it is expected that access roads (if any) will be constructed between the ROW limits and the toe of slope of the newly constructed roadway;
- A new 300 mm fusible PVC or HDPE watermain will be installed in the marsh approximately 15 m from the western edge of the re-constructed roadway embankment from about Station 1 + 222 m to Station 1+ 915 m to avoid roadway settlement induced damage. However, there will be very limited marsh impacts and no permanent encroachment related to the re-location of the watermain since it will be constructed by the horizontal directional drilling (HDD) method during the winter months when the ground is frozen. Marsh disturbance would be limited to the excavation of approximately four or five small access pits along the 700 m alignment to relieve

drilling mud pressure and/or provide access to the HDD boring during construction. The pits would be excavated to the depth of the water main profile. A vacuum truck would be used to remove the drilling mud from the pressure relief pits for off-site disposal and each excavated pit would be re-instated with natural material following the completion of the work; and,

- The proposed stormwater outfall (900 mm) and small sediment/energy dissipation pond on the east side of the road in the vicinity of Station 1 + 300 m will be moved approximately 40 m north such that the pond will be constructed outside the limits of the marsh. However, it is noted that a ditch may be required from the new dissipation pond location to the existing ditch where the existing sewer pipe currently outfalls. The ditching may therefore result in some minor marsh encroachment.

A description of the current overall design concept is provided below. For updated information concerning the estimated total marsh encroachment and additional details pertaining to some of the other key project design changes outlined above, please refer to the Response to TRC Comments #1 as outlined in our letter to NBDELG dated May 9, 2014.

Description of current design concept - during the preliminary design process, design Option #1 (“no net increase in effective stress”) and Option #2 (“limited net loading”) which both relied on the use of TDA to eliminate or reduce the surcharge loading on the underlying settlement prone soils resulting from raising the roadway grade to the required design elevation were dismissed. Several practical considerations and/or concerns with the use of TDA was the primary reason for dismissing these design options. One of the key concerns relates to the challenges associated with the local production and procurement of the very large quantity (i.e. estimated up to 34,000 tonnes) of TDA which would be required for the project. Option #3, which involved the use of proprietary Geopier® ground improvement technology, was also dismissed due to relatively high estimated cost of this option and the requirement for extensive pre-design feasibility testing.

The results of the project geotechnical investigation confirmed the variation in the thickness and settlement susceptibility of the underlying settlement prone soils. As expected, the thickness of settlement prone soils was found to generally increase moving towards the central portion of the marsh area (i.e. near Babineau Creek) and decreases towards the margins of the marsh on both the north and south ends of the project. Therefore, the feasibility of several “zoned approaches” to design were examined, whereby the intensity of settlement mitigation measures was varied depending upon the settlement potential of different roadway lengths or zones. In support of the zoned approach, supplemental boreholes were established along the roadway alignment to better define the extent of the soft settlement prone soils in the work area and particularly in the southern portion of Amirault Street where the marshlands underlain by poor soils transition to higher ground underlain by more favorable soils. The resulting borehole data was used to interpret the sub-surface stratigraphy along the alignment as illustrated on Drawings D4-1 to D4-4 which are provided in Attachment A. As shown on the legend of these drawings, a colour coding scheme was used to graphically illustrate the relative susceptibility of the various strata to settlement. Red and orange were respectively used to depict soils prone to “major” and less extensive settlements, whereas green and brown were used to illustrate soils not prone to significant settlement.

The current design concept which is based upon extensive preliminary design work and the above noted “zoned approach” is illustrated on Figure 9 which is provided in Attachment B. This concept has been selected and approved by the City and the New Brunswick Department of Transportation and

Infrastructure (NBDTI) as the final design concept. As shown on Figure 9, there are three main construction zones.

Typical road construction techniques with no settlement mitigation measures will be employed in Zone 1, which generally incorporates the portions of the roadway outside the marsh and typically underlain by non-settlement prone soils. The two Zone 1 sections roughly extend from Station 1 + 080 to Station 1 + 240 and Station 2 +080 to Station 2 + 260.

Zone 2 extends from about Station 1 + 240 to Station 1 + 830 and is underlain by settlement prone soils of varying type and thickness. Wick drains will be installed in this zone to significantly expedite the consolidation settlements induced by raising the roadway grade to the design elevation. A settlement monitoring program will be employed to monitor the temporal and spatial variation in post-construction roadway settlement in this section. Other than the wick drains, typical road construction will be employed to the top of base asphalt in this section. More settlement prone construction elements such as the seal asphalt layer would be installed after the majority of the consolidation settlements have been realized based upon the field monitoring data. During the interim period, roadway maintenance would be required to address the effects of differential settlement. In addition, new watermain will be installed in the marsh area outside the zone of influence of the surcharge induced embankment settlements by the horizontal directional drilling (HDD) method as noted above.

Full depth road excavation and replacement of the more settlement prone soils will take place in Zone 3 which extends from approximately Station 1 + 830 to 2 + 080. Since the Contractor will be required to maintain a minimum of two lanes of traffic during construction, a temporary access road may be required for a portion of this section of roadway due to the requirement for relatively deep excavation. For areas where a temporary access road is not employed and construction is confined to the limits of the existing roadway footprint, near vertical excavations complete with trench boxes and/or shoring systems to protect workers will be required as per typical construction practice. In these areas, one half the roadway would be re-constructed at a time such that two of the existing Acadie/Amirault travel lanes would remain open to traffic. Concrete barricades would be placed between the two halves of the roadway to protect both the travelling public and construction workers. As previously noted, the Contractor will decide upon the best technical and economic approach to construction including whether or not a temporary access road is required.

UPDATED PROJECT TIMELINE

It is possible that portions of the construction work could take place as early as this fall, pending the receipt of the necessary approvals. Otherwise, it is anticipated that majority of the work would be completed during the 2015 construction season (i.e. May, 2015 to October, 2015).

CLOSING


We thank-you for your continued evaluation of this project. Subsequent to NBDELG review of the updated project information outlined herein and the response to the first round of TRC questions, the proponent and exp would be pleased to meet with NBDELG as and if required to provide any necessary clarification, or otherwise facilitate the review of this project.

exp Services Inc.

*New Brunswick Department of Environment and Local Government
Project Update – Acadie Avenue/Amirault Street Re-construction, Dieppe, NB
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May 9, 2014*

We trust that this information satisfies your current requirements. If you have any questions, please contact me at your convenience.

Yours very truly,


Robert S. Gallagher, M.Sc.Eng., P. Eng.
Project Engineer

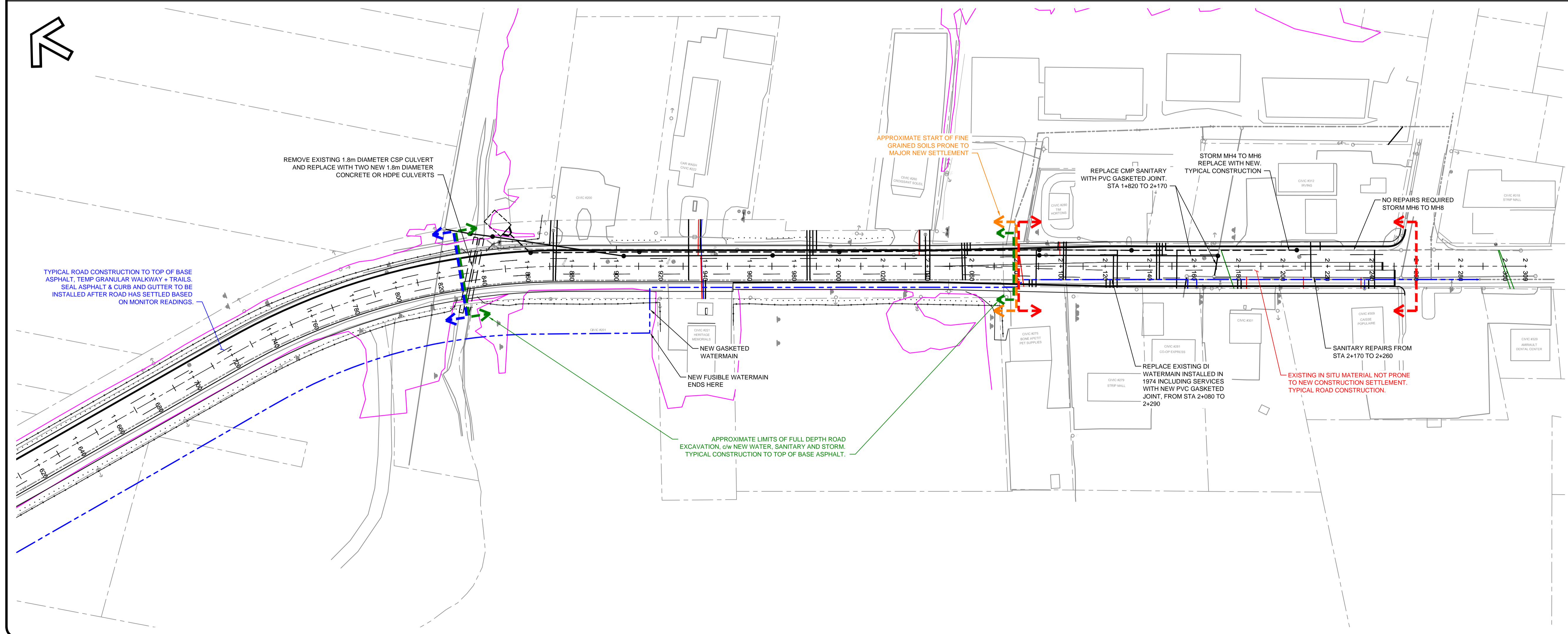
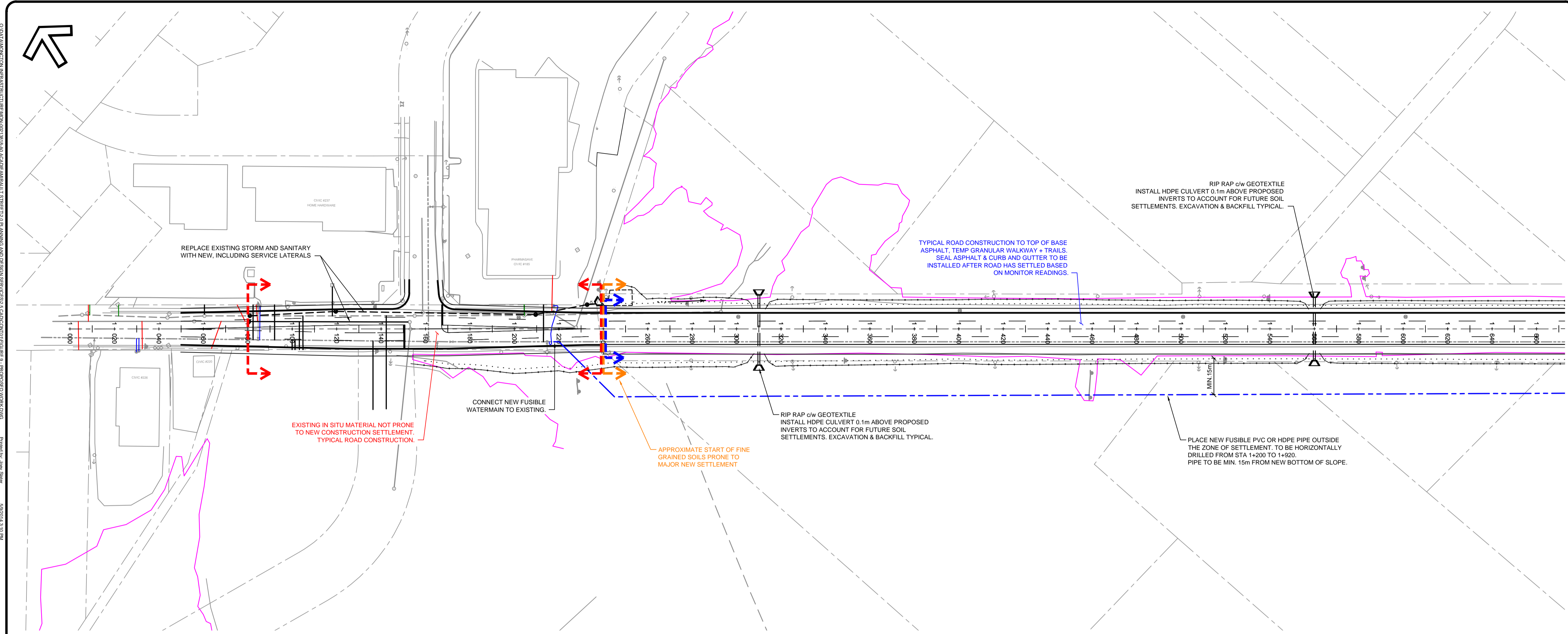
cc. Mark Tays, P. Eng. – exp Services Inc.
Angèle Spencer, P. Eng. – City of Dieppe

ATTACHMENT A

Plan and Interpreted Sub-surface Profile Drawings

ATTACHMENT B

Final Design Concept Site Plan



No.	Issue	Date

LEGEND

- SANITARY (MAIN/SERVICES)
- STORM (MAIN/SERVICES)
- WATER (MAIN/SERVICES)
- MARSH DELINEATION
- - - TOE OF SLOPE
- PROPERTY LINES
- DOUBLE SILT FENCE

NOTE: SERVICES SHOWN IN BLACK ARE PROPOSED SERVICES, OR APPROXIMATE LOCATIONS OF EXISTING SERVICES (TO BE CONFIRMED)

No.	Revision	Ckd. By	Date

FOR INFORMATION ONLY

Const. North	Drawn By: JNS
	Dwg. Standards Ckd. By: MEHT
	Designed By: MEHT
Date Printed	Dwg. Design Ckd. By:

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Project Title
ACADIE AVENUE & AMIRAUTL STREET RECONSTRUCTION
 CITY OF DIEPPE, NB

Dwg. Title
PROPOSED CONSTRUCTION

Project No.	MON-00213818-A0	
Dwg. No.	FIGURE 9	Rev. No. 0
Scale	1:1000 This drawing is not to be scaled	