

**Corporation of the Town of Amherstburg**

**By-Law No. 1998 - 26**

**A by-law to provide for the construction  
of bridges over the Lafferty-Bezaire Drain**

**Whereas** Thomas & Mary Bateman, owners of Part Lot 11, Concession 4, have requested the installation of a new access bridges over the Lafferty-Bezaire Drain.

**And Whereas** Thomas & Mary Bateman will be responsible for one hundred (100%) percent of the costs of the work plus engineering costs.

**And Whereas** the Council of the Corporation of the Town of Amherstburg has authorized N.J. Peralta Engineering Ltd. to prepare a report and said report dated December 19th, 1997, is attached hereto and forms part of this by-law.

**And Whereas** Council is of the opinion that the said access bridges are desirable.

**Now therefore the Council of the Corporation of the Town of Amherstburg hereby enacts as follows:-**

1. **That** the report of N.J. Peralta Engineering Ltd. dated December 19, 1997, is hereby adopted and the drainage works therein shall be completed in accordance therewith.
2. **That** this by-law comes into force on the final passing thereof.

**Read a first and second time this 23<sup>rd</sup> day of March, 1998.**

Wayne Huss  
Mayor

D. D. D. D.  
Clerk

**Read a third time and finally passed this 22<sup>nd</sup> day of June, 1998.**

Wayne Huss  
Mayor

D. D. D. D.  
Clerk

**BRIDGES OVER THE LAFFERTY-BEZAIRE DRAIN**

**(for Thomas & Mary Bateman,**

**Pt. Lot 11, Concession 4)**

**TOWNSHIP OF ANDERDON**

**N. J. PERALTA ENGINEERING LTD.**

*Consulting Engineers*

45 Division St. N., Kingsville, Ontario N9Y 1E1

Tel. (519) 733-6587

Project No. D-97-037

December 19th, 1997

Mayor and Municipal Council  
Corporation of the Township of Anderdon  
3400 Middle Sideroad  
R.R. #4  
AMHERSTBURG, Ontario  
N9V 2Y9

Mayor Tiefenbach and Council:

**SUBJECT: BRIDGES OVER THE LAFFERTY-BEZAIRE DRAIN**  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon, County of Essex  
Project No. D-97-037

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As requested by you, we have attended at the site with the Township Drainage Superintendent, Mr. Tony DiCiocco, and one of the owners, Mr. Tom Bateman, and made an examination, etc. of the Lafferty-Bezaire Drain at the locations where new access bridges are to be constructed to serve the proposed residential area being developed across the front of their agricultural lands by Thomas and Mary Bateman on their Parcel 120-055, formerly owned by Ivan Bezaire, being Part of Lot 11, Concession 4, in the Township of Anderdon, and we report thereon as follows. Our appointment and the works relative to the construction of these new access bridges, under this report, is in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17".

The Lafferty-Bezaire Drain is an existing Municipal Drain which has been constructed under the provisions of the Drainage Act, and improvements to same such as the construction of new access bridges are to be conducted under an Engineer's report in total compliance

Report - Bridges over the Lafferty-Bezair Drain  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

with the auspices of the Drainage Act. It is also understood that since the need for these new access bridges is caused due to the owner's request and are in addition to the existing bridge serving the property, all of the costs associated with same is to be totally assessed to the owner of said lands.

Prior to preparing our report for these new access bridges, we met at the site with Tom Bateman and Tony DiCiocco (Township Drainage Superintendent) to discuss the particulars of the proposed access bridges and review any special concerns that they may have had. The owner had placed stakes on the north bank of the Lafferty-Bezair Drain at the locations of the proposed access bridges and provided a sketch outlining the details of the proposed bridge installations and future house and driveway construction. From discussions with the owner, it was established that he prefers a 12.192 metre (40 ft.) culvert extending from approximately Station 0+061 to Station 0+073 along the course of the drain immediately north of the proposed house to be constructed on the south half of his property. This bridge will provide access between his proposed home and new out-building. Mr. Bateman confirmed that a corrugated steel pipe with concrete filled jute bag headwall type bridge

Report - Bridges over the Lafferty-Bezair Drain  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

construction would be acceptable at this location. The second new bridge to be constructed is to comprise a field access culvert with a minimum 6.0 metre (20 ft.) top width and having sloped quarried limestone on filter cloth end protection, extending from approximately Station 0+155.4 to Station 0+166.1 along the course of the drain. This new bridge will serve to connect the agricultural lands remaining to the east of the proposed home and new out-building. The owner also advised that he would like to see the open drain cleaned and will be submitting a Notice to the Township requesting that the drain be cleaned from its' upper end at Station 0+000 on the east side of the 4th Concession Road downstream to where the drain turns northerly along the east limit of his property. Mr. DiCiocco advised that this work would be carried out under the maintenance provisions of the Drainage Act and would be done separately from the bridge installations.

In order to establish the design parameters for the bridge installations, we reviewed the recent report prepared by Mr. Nick J. Peralta, P.Eng., dated April 12th, 1992, along with the accompanying plans. Said report provided all the necessary grades, elevations and cross-sections necessary for the design of the

**Report - Bridges over the Lafferty-Bezaire Drain**  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

bridges. We also established that a Bench Mark exists, being a nail in the east face of the hydro pole at the west side of the 4th Concession Road at the Lafferty-Bezaire Drain.

In our discussions with Mr. Bateman and Mr. DiCiocco it was made very clear that all costs associated with the new access bridge installations, including all Incidental Expenses, would be totally and completely assessed to Thomas and Mary Bateman (120-055), the current owners of the property, since these bridges will be supplemental to the existing bridge which already provides the necessary access required for the owner, and is considered the primary bridge under the Drainage Act.

Based on all of the above, we would therefore recommend that new access bridges serving the agricultural lands of Thomas and Mary Bateman (120-055) in Part of Lot 11, Concession 4, be constructed as provided for in this report, at the locations shown in the accompanying drawings, and as described in the attached specifications, and that all of same be carried out under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17".

Report - Bridges over the Lafferty-Bezair Drain  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

We have prepared and attach herein a site plan which shows the general locations of the new access bridges, and same is labelled as "Appendix A".

Our estimate of the total cost of this work, including all Incidental Expenses, is a sum of NINE THOUSAND FOUR HUNDRED AND TWENTY-SEVEN DOLLARS (\$9,427.00) made up as follows:

CONSTRUCTION

Item 1) Supply all material and labour to construct a new access bridge No. 2 consisting of 12.192 metres (40 ft.) of 750mm (30") diameter, 2.0mm thick, helical type corrugated steel pipe, including excavation, compacted granular backfill, concrete filled jute bag headwalls, and restoration, complete. Lump Sum \$ 5,000.00

Item 2) Supply all material and labour to construct a new access bridge No. 3 consisting of 10.973 metres (36 ft.) of 750mm (30")

Report - Bridges over the Lafferty-Bezair Drain  
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Township of Anderdon - D-97-037

diameter, 2.0mm thick, helical type  
corrugated steel pipe, including excavation,  
compacted granular backfill, sloped ends  
with quarried limestone rip rap on filter  
cloth protection, and restoration, complete.

Lump Sum \$ 3,100.00

**TOTAL FOR CONSTRUCTION** \$ 8,100.00

INCIDENTALS

- |   |           |
|---|-----------|
| 1) Survey, Report, Estimate and Specifications                  | \$ 725.00 |
| 2) Assistants, Expenses and Drawings, and<br>Report Duplication | 375.00    |
| 3) Goods and Services Tax (G.S.T.) on above items               | 77.00     |
| 4) O.M.B. Fee   | 150.00    |

**TOTAL FOR INCIDENTALS** \$ 1,327.00

**TOTAL FOR CONSTRUCTION (brought forward)** 8,100.00

**TOTAL ESTIMATE** \$ 9,427.00



Report - Bridges over the Lafferty-Bezaire Drain  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

The full cost for the construction of these new access bridges including all Incidental Expenses, is to be totally assessed to Thomas and Mary Bateman (120-055), owners of Part of Lot 11, Concession 4, in the Township of Anderdon.

We would further recommend that these new access bridges be kept up and maintained as part of the Lafferty-Bezaire Drain, at the expense of the owners assessed herein, under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17", and same shall be complied with until otherwise determined or amended under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17".

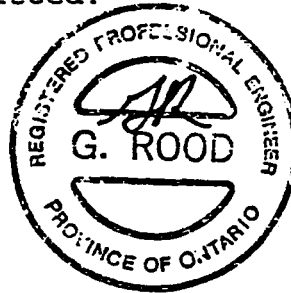
In accordance with the provisions of Sections 85, 86, and 87, of the Drainage Act, a grant in the amount of 33-1/3% is currently available towards assessments made under this report upon privately owned lands used for agricultural purposes. Since all of the costs associated with the construction of these new access bridges is to be totally assessed to lands used for agricultural purposes, we recommend that application be made to the Ministry of Agriculture and Food in accordance with Section 88 of the Drainage Act, for the purpose of obtaining said grant.

Report - Bridges over the Lafferty-Bezair Drain  
(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)  
Township of Anderdon - D-97-037

All of which is respectfully submitted.

N. J. PERALTA ENGINEERING LTD.

  
Gerard Rod, P.Eng.



GR\ab

N. J. PERALTA ENGINEERING LTD.  
Consulting Engineers  
45 Division Street N.  
KINGSVILLE, Ontario  
N9Y 1E1

att.

## SPECIFICATIONS

### BRIDGES OVER THE LAFFERTY-BEZAIRE DRAIN

(for Thomas & Mary Bateman (120-055), Pt. Lot 11, Con. 4)

### TOWNSHIP OF ANDERDON

The Contractor shall carry out the necessary excavation, and supply and install a new bridge No. 2 comprising of 750mm (30") diameter, 2.0mm thick, helical type corrugated steel pipe with standard corrugations, having a length of 12.192 metres (40 ft.), in the Lafferty-Bezaire Drain. The new access bridge shall be located approximately between Station 0+061 and Station 0+073.2 along the course of the drain at the location as staked out by the owner on the north bank, and this shall be the exact designated location of this access bridge unless otherwise directed by the property owner, and/or the Township Drainage Superintendent, prior to the construction of same. Any changes to the location of the access bridge must be approved, in writing, by the Township Drainage Superintendent. The new corrugated steel pipe shall be set in the centreline alignment of the existing open drain. Location stakes have been set along the north bank of the Lafferty-Bezaire Drain by the owner, but these stakes are not to be utilized to set the culvert grades but only for establishing the proposed location of the bridge culvert. For the purposes of setting the culvert grades, a Bench Mark has been set along the 4th Concession Road being a nail in the east face of the hydro pole on the west side of road at the Lafferty-Bezaire Drain, which is at elevation 181.080 metres. The Contractor shall utilize this Bench Mark in setting the bridge culvert grades. Should said Bench Mark be missing or appear to be incorrect, the Contractor may verify the elevations utilizing the invert of the west end of the existing 750mm diameter CSP at Station 0+001 which has an elevation of 179.250 metres.

When completed, the access bridge at the centreline of the culvert shall have a total top width including the headwalls of 11.725 metres (38.5 ft.) and a travelled driveway width of 10.825 metres (33.5 ft.). The new concrete jute bag headwalls at both ends shall be installed on a slight inward slope so that a 0.233 metre (0.75 ft.) batter is provided horizontally measured from the end of the new corrugated steel pipe culvert to the outside face of the top of the concrete jute bag headwall at the centreline of the culvert.

The Contractor shall carry out the necessary excavation, and supply and install a new bridge No. 3 comprising of 750mm (30") diameter, 2.0mm thick, helical type corrugated steel pipe with standard corrugations, having a length of 10.973 metres (36 ft.), in the Lafferty-Bezaire Drain. The new corrugated steel pipe culvert is to be located approximately between Station 0+155.4 and Station 0+166.1 along the course of the drain at the location as staked out by the owner, and this shall be the exact designated location of

**Specifications - Bridges over the Lafferty-Bezaire Drain**  
(for Thomas & Mary Bateman (120-055),  
Pt. Lot 11, Concession 4)  
Township of Anderdon - D-97-037

this access bridge unless otherwise directed by the property owner, and/or the Township Drainage Superintendent, prior to the construction of same. Any changes to the location of the access bridge must be approved, in writing, by the Township Drainage Superintendent. The new corrugated steel pipe shall be set in the centreline alignment of the existing open drain. Location stakes have been set along the north bank of the Lafferty-Bezaire Drain by the owner, and the most westerly stake shall govern the most westerly end of the proposed culvert, and same shall extend easterly for the length provided. These location stakes have been set along the north bank of the Lafferty-Bezaire Drain by the owner, and these stakes are not to be utilized to set the culvert grades but only for establishing the proposed location of the bridge culvert. For the purposes of setting the culvert grades, a Bench Mark has been set along the 4th Concession Road as outlined for Bridge No. 2 and the Contractor shall utilize this Bench Mark in setting the bridge culvert grades.

When completed, the access bridge at the centreline of the culvert shall have a total top width including the headwalls of 7.18 metres (23.6 ft.) and a travelled driveway width of 6.10 metres (20 ft.). The fill on the ends of the culvert shall be graded no steeper than 1.5 metres horizontal to 1.0 metre vertical, and shall be protected with a minimum 305mm thick quarried limestone rip rap on filter cloth protection.

The corrugated steel pipes to be provided for this project shall be supplied as one continuous length of pipe, and under no circumstance shall the pipe be provided with two sections of pipe coupled together. The corrugated steel pipe to be utilized for this installation must be approved by the Township Drainage Superintendent prior to its placement in the drain.

The Contractor shall also note that the placing of the new access bridge culverts shall be performed totally in the dry, and he shall be prepared to take whatever steps are necessary to ensure the same, all to the full satisfaction of the Township Drainage Superintendent.

Once the new corrugated steel pipes have been set in place, the Contractor shall completely backfill the same and install end protection at both ends of the culvert. The installation of the end protection as well as the backfilling of the pipe shall be provided in total compliance with the appropriate Items as set out in the "Standard Specifications for Access Bridge Construction

**Specifications** - Bridges over the Lafferty-Bezaire Drain  
(for Thomas & Mary Bateman (120-055),  
Pt. Lot 11, Concession 4)  
Township of Anderdon - D-97-037

Including Endwall Treatment, Backfilling, and Installation Procedures" attached to the back of these specifications and labelled Appendix "B".

The corrugated steel pipes shall be provided with a minimum depth of cover measured from the top of the corrugated steel pipe of 305mm (12"), and if the culvert is placed at its' proper elevation, this should be easily achieved. This cover requirement is critical and must be adhered to. In order for these new access bridge culverts to properly fit the channel parameters, all of the design grade elevations must be strictly adhered to.

Also, for use by the Contractor, we have established a Bench Mark, and this Bench Mark is the top of a nail set on the east face of the hydro pole located on the west side of the 4th Concession Road at the Lafferty-Bezaire Drain, and this Bench Mark is Elevation 181.080 metres. The new bridge culvert pipes are to be set in place on the following basis:

- a) Bridge No. 2
  - i) West invert of proposed pipe to be set at Elevation 179.189 metres.
  - ii) East invert of proposed pipe to be set at Elevation 179.177 metres.
  
- b) Bridge No. 3
  - i) West invert of proposed pipe to be set at Elevation 179.095 metres.
  - ii) East invert of proposed pipe to be set at Elevation 179.084 metres.

As a check, all of the above design grade elevations should be confirmed before commencing to the next stage of the bridge installation.

**APPENDIX "A"**

**APPENDIX "B"**

**STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION**  
**(Including Endwall Treatment, Backfilling, and Installation Procedures)**

1. **CONCRETE FILLED JUTE BAG HEADWALLS**

After the Contractor has set in place the new pipe, he shall completely backfill the same and install new concrete jute bag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jute bag headwalls, the Contractor shall place the bags so that the completed headwall will have a slope inward from the bottom of the pipe to the top of the finished headwall, the slope of the headwall shall be one unit horizontal to five units vertical. The Contractor shall completely backfill in behind the new concrete jute bag headwalls with Granular "B" and Granular "A" material as per O.P.S.S. Spec. 1010 and the granular material shall be compacted in place to a standard proctor density of 100%. The placing of the jute bag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

The concrete jute bag headwalls shall be constructed by filling jute bags with concrete. All concrete used to fill the jute bags shall have a minimum compressive strength of 20.7 MPa in 28 days and shall be provided and placed only as a wet mix; under no circumstance, shall the concrete to be used for filling the jute bags, be placed as a dry mix. The jute bags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jute bags shall be filled with concrete so that when they are laid flat, they will be approximately 100mm (4") thick, 305mm (12") to 380mm (15") wide and 460mm (18") long.

The concrete jute bag headwall to be provided at the end of the pipe shall be of a single bag wall construction. The concrete filled bags shall be laid so that the 460mm (18") dimension is parallel with the length of the new pipe. The concrete filled bags shall be laid on a footing of plain concrete being 460mm (18") wide, extending for the full length of the wall, and from 305mm (12") below the bottom of the corrugated pipe to the bottom of the culvert pipe.

All concrete used for the footing shall have a minimum compressive strength of 20.7 MPa in 28 days.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete filled bags with a layer of plain concrete, minimum 100mm (4") thick, and hand trowelled to obtain a pleasing appearance. The Contractor shall fill all voids between the concrete filled jute bags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

The completed jute bag headwalls shall be securely embedded a minimum of 610mm (24") into the side slopes of the drain.

As an alternate to constructing a concrete filled jute bag headwall, the Contractor may construct a grouted concrete rip rap headwall. The specifications for the installation of a concrete filled jute bag headwall shall be followed with the exception that broken sections of concrete may be substituted for the jute bags. The concrete rip rap shall be approximately 460mm (18") square and 100mm (4") thick and shall have two flat parallel sides. The rip rap shall be fully mortared in place using a mixture composed of three parts of clean sharp sand, to one part of Portland Cement.

The complete placement and backfilling of the headwalls shall be performed to the full satisfaction of the Township Drainage Superintendent.

2. **QUARRIED LIMESTONE ENDWALLS**

The backfill over the ends of the corrugated steel pipe shall be set on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated steel pipe to the top of each side slope and between both drain side slopes. The top 305mm (12") in thickness of the backfill over the ends of the corrugated steel pipe shall be quarried limestone. The quarried limestone shall also be placed on a slope of 1½ metres horizontal to 1 metre vertical from the bottom of the corrugated steel pipe to the top of each side slope of the drain and between both side slopes. The quarried limestone shall also have a minimum dimension of 100mm (4") and a maximum dimension of 250mm (10") and shall be placed so that the quarried limestone pieces are carefully tamped into place with the use of a shovel bucket, so that when complete, the end protection shall be consistent, uniform, and tightly laid in place.



Prior to placing the quarried limestone end protection over the granular backfill, the Contractor shall lay non-woven geotextile filter fabric "Terrafix 270R" or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated steel pipe to the top of each side slope of the drain and between both side slopes of the drain.

The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone on top of the filter fabric.

### 3. BRIDGE BACKFILL

After the corrugated steel pipe has been set in place, the Contractor shall backfill the pipe with granular "B" material, O.P.S.S. Spec. 1010 with the exception of the top 305mm (12") of the backfill. The top 305mm (12") of the backfill for the full width of the excavated area (between each side slope of the drain) and for the top width of the driveway, shall be granular "A" material, O.P.S.S. Spec. 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. All of the backfill material, equipment used, and method of compacting the backfill material shall be inspected and approved and meet with the full satisfaction of the Township Drainage Superintendent.

### 4. GENERAL

Prior to the work commencing, the Township Drainage Superintendent must be notified, and under no circumstance shall work begin without his presence at the site. Furthermore, the grade setting of the pipe must be checked, confirmed, and approved by him prior to continuing on with the bridge installation.

The alignment of the new bridge culvert pipe shall be in the centreline of the existing drain, and the placing of same must be performed totally in the dry.

Prior to the installation of the new access bridge culvert, the existing sediment built-up in the drain bottom must be excavated and completely removed, not only along the drain where the bridge culvert pipe is to be installed, but also, for a distance of 3.05 metres (10 ft.) both upstream and downstream of said new access bridge culvert. When setting the new bridge culvert pipe in place, it must be founded on a good undisturbed base. If unsound soil is encountered, it must be totally removed and replaced with clear stone, satisfactorily compacted in place.

When doing the excavation work or any other portion of the work relative to the bridge installation, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. Where damage is encountered, repairs to correct same must be performed immediately as part of the work.

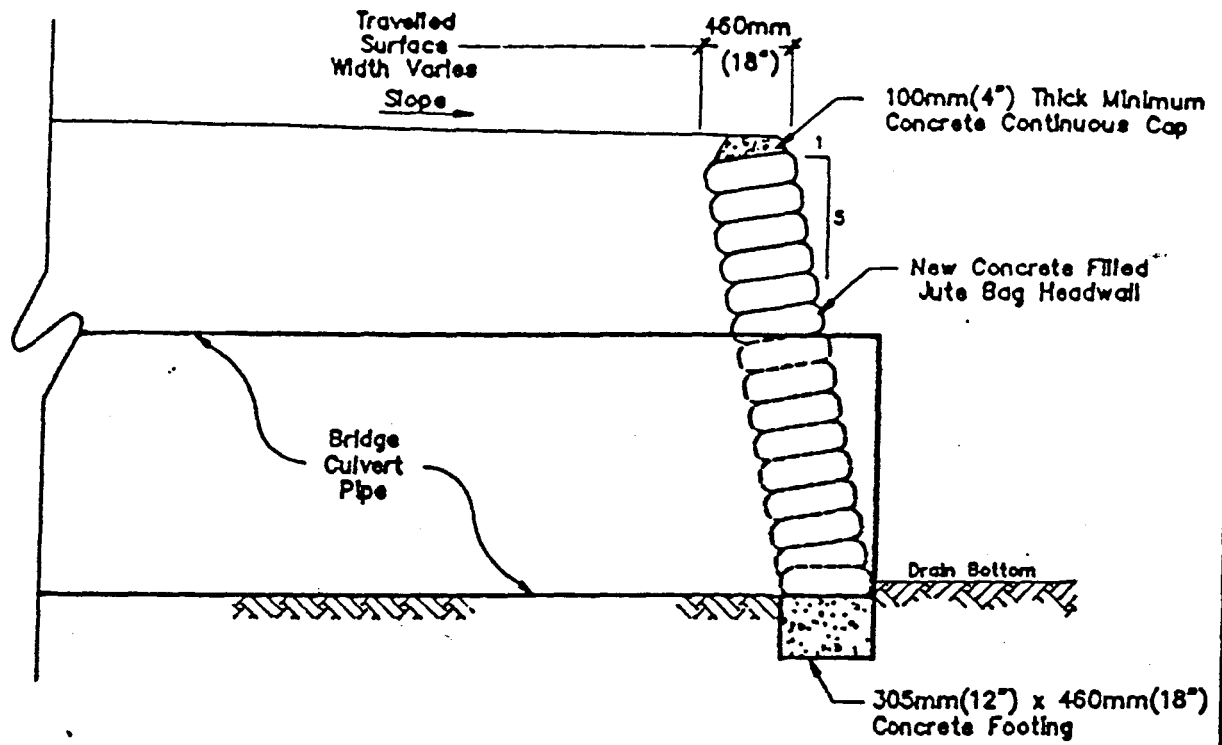
The Contractor and/or landowner performing the bridge installation, shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object which he may encounter during the course of the work. The Contractor shall indemnify and save harmless the Township, the Township Drainage Superintendent, and the Township Engineer, for any damages which he may cause or sustain during the progress of the work, and he shall not hold them liable for any legal action arising out of any claims brought about by such damage caused by him.

Where applicable, the Contractor and/or landowner constructing the new bridge, shall be responsible for any damage caused by them to any portion of the Municipal roadway right-of-way, and they shall take whatever precautions necessary to cause a minimum of damage to same and they must restore the roadway to its' original condition upon completion of the works.

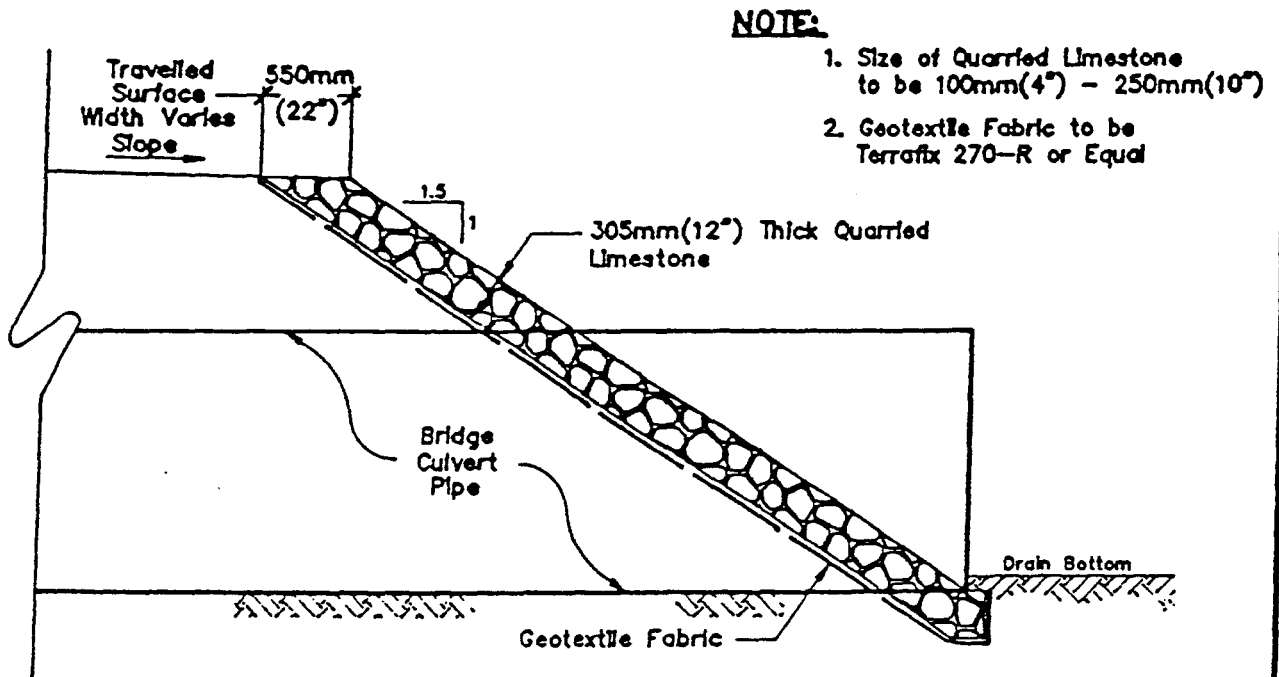
Once the bridge installation has been completed, the drain side slopes directly adjacent the new headwalls and/or endwalls are to be completely restored including revegetation, where necessary.

All of the work required towards the installation of the bridge shall be performed in a neat and workmanlike manner, the general site shall be restored to its' original condition, and the general area shall be cleaned of all debris and junk, etc. caused by the work.

All of the excavation, installation procedures, and parameters as above mentioned under this sub-heading, are to be carried out and performed to the full satisfaction of the Township Drainage Superintendent.



Typical Jute Bag Headwall



Typical Quarried Limestone End Protection

**N. J. Peralta Engineering Ltd.**

*Consulting Engineers*

Kingsville

Ontario

PLAN SHOWING THE

# BRIDGES OVER THE LAFFERTY BEZAIRE DRAIN

(FOR THOMAS & MARY BATEMAN, ROLL NO. 120-055)

IN THE

TOWNSHIP OF ANDERDON

IN THE

COUNTY OF ESSEX • ONTARIO



*Gerald Road*  
GERARD ROAD, P. ENG.

**N. J. PERALTA ENGINEERING LTD.**

45 DIVISION STREET NORTH  
KINGSVILLE, ONTARIO  
N9Y 1E1

DATE: December 19th, 1987

### BENCH MARK:

Top of Nail on East Face of Hydro  
Pole on West Side of 4th Concession Road  
at Lafferty Bezaire Drain.  
ELEVATION=181.080m.

