

ENGINEER'S REPORT  
ALLIN DRAIN AND BRANCH

TOWNSHIP FRONT OF ESCOTT  
TOWNSHIP FRONT OF YONGE

May, 1979.

Reeve & Members of Council,  
Township Front of Escott,  
c/o Mrs. J.R. Williams,  
Clerk-Treasurer,  
R.R.# 1,  
Lansdowne, Ontario.  
K0E 1L0

Reeve & Members of Council,  
Township Front of Yonge,  
c/o Mrs. W. Ormiston,  
Clerk-Treasurer,  
R. R. # 3,  
Mallorytown, Ontario.  
K0E 1R0

Reeve and Members of Council:

The following report is respectfully submitted for Council's consideration and deals with the construction of the Allin Drain and Branch, petitioned under Section 4 (1) (a), The Drainage Act, 1975. The Allin Drain as reported on herein was in part originally constructed as an award drain, known as the D.W. Hutchison Award Ditch. The branch drain included herein may also have been constructed as an award drain, however, no records of either the Allin Drain or Branch was available for reference.

An on-site meeting with individual property owners was held the 12th day of May, 1978, in compliance with Section 9 (2) of the Act. The property owners or their representatives presented their views regarding the area requiring drainage and other concerns which were subsequently investigated by the Engineer prior to the preparation of this report. The main result of this meeting was to determine the validity of the petition and the extent of the drainage improvement required.

An Engineer's Report dated February 12th, 1979 was considered by the Councils of the Township of Front of Escott and Front of Yonge on Monday, March 26th, 1979. At that meeting eligible owners were given an opportunity of either adding or withdrawing their names from the petition for the drainage works. At the conclusion of the meeting, the petition contained a sufficient number of names

to comply with Section 4 of The Drainage Act. However, it was pointed out during the meeting that there were a number of errors and omissions, mostly pertaining to property ownership, and that the one-third grant under the Agricultural Rehabilitation and Development Act was no longer available. By resolution of Council dated April 2nd, 1979, the Township of Front of Escott, in accordance with Section 57, The Drainage Act, instructed the Engineer to revise the Report. This Report, dated May 3rd, 1979, therefore replaces the original report dated February 12th, 1979 and shall be dealt with in the same manner as if it was the first report issued.

The Allin Drain and Branch lie entirely within the Township of Front of Escott and a brief description of both drains is as follows:

#### Allin Drain

The Allin Drain begins on the north side of the Township Road between Concessions 1 and 2 in the eastern part of Lot 19, Concession 2, Sta. 0+00, and runs in a south-easterly direction crossing under the said Concession Road at Sta. 0+17; then continues in Lot 20 of Concession 1 in a generally south-easterly and north-easterly direction to the line between Lots 20 and 21, Sta. 15+67; then continues in a north-westerly direction in Lot 21 along the said Lot line to the aforesaid Concession Road at Sta. 18+30; then continues as a diversion in a generally north-easterly direction across Lots 21 and 22 adjacent to and outside the southern right-of-way limit for the road between Concessions 1 and 2, to Sta. 42+40; then continues in an easterly direction across Lots 22 and 23 to approximately Sta. 65+00; then continues in a generally southerly direction across Lots 23 to 20 outleting into the Larue Creek in the eastern part of Lot 20 of Concession 1 at Sta. 145+00. The improvement was terminated at this point since reasonable outlet is available.

#### Guild-Allin Branch

The Guild-Allin Branch begins on the concession line between Concessions 1 and 2 in the eastern part of Lot 23, Sta. 0+00 and runs in a generally south-westerly direction along the said Concession line some 330 feet; then continues across Lot 23 of Concession 1 crossing under the Township Road (LaRue Mills Road) in mid-Lot 23 at Sta. 4+13; then continues across Lots 23 and 22 outleting into the Allin-Drain at Sta. 13+50. (Sta. 13+50, Guild-Allin Branch = Sta. 46+50 Allin Drain).

## SUMMARY OF THE ALLIN DRAIN AND BRANCH

A table is included in which each drain is listed, showing the length of drain, the quantity of excavation and area drained as follows:

<u>Name of Drain</u>	<u>Length L.F.</u>	<u>Rock Excavation C.Y.</u>	<u>Hardpan Excavation C.Y.</u>	<u>Earth Excavation C.Y.</u>	<u>Area Drained Acres</u>
Allin Drain	14,300	400	950	32,770	4,057.5
Guild-Allin Branch	<u>1,350</u>	<u>-</u>	<u>-</u>	<u>3,690</u>	<u>N/A</u>
Totals	15,650	400	950	36,460	4,057.5

The total drainage area for the entire scheme is approximately 4,057.5 acres of 6.34 square miles. The total length of drainage improvement is 15,650 lineal feet, or approximately 2.96 miles.

### QUANTITIES

During the survey of the Allin Drain soundings were taken, by hand, in areas where rock or hardpan was anticipated to depths of 2½ to 3 feet. These soundings did not reveal the presence of hardpan or bedrock in significant quantities. The design grade of the drain indicates that cuts up to five (5) feet in depth below the existing drain bottom are required, therefore we anticipate that some additional rock and hardpan will be encountered. The actual quantities may increase or decrease from the estimate shown in the "Summary of the Allin Drain and Branch".

### PURPOSE OF DRAINAGE IMPROVEMENT

The recommended improvement has been designed to accommodate surface runoff and provide sufficient outlet in most cases for proposed private tile drainage systems for Mr. M.E. Allin.

This drainage improvement was also requested to eliminate the severe annual flooding of the Township Road between Concessions 1 and 2 and lands adjacent to the said road in Lots 21 and 22 of Concessions 1 and 2.

During the peak spring runoff flooding has occurred across the LaRue Mills in Lot 23 of Concession 1 at the culvert, Sta. 4+13 on the Guild-Allin Branch and at the twin 36" ø C.S.P. Culvert installation on the diversion drain constructed by the Township.

It should be noted that the proposed drainage improvement, herein reported, will not immediately improve all wet areas unless lateral drains are constructed by the individuals concerned.

## DRAWINGS FORMING PART OF ENGINEER'S REPORT

The drawings have been photographically reduced and included herein to illustrate pictorially the locations, lengths and scope of improvement of the drains.

### Plan

A plan was prepared from aerial photographs supplemented by field investigations and on it are shown the names of the present owners within their respective properties except for part of the Village of Mallorytown which have been assessed as "blocks".

The location of the drains being improved is indicated by a heavy solid line. Drains not being improved under this scheme are shown by a broken line. The area assessed for outlet liability is indicated by a heavy solid line.

A Legend is shown on the enclosed plan to explain the various symbols used.

### Profile

To survey the drains, a traverse line was run adjacent to the course of the drain and major deviations in the course of the drain were located by establishing hubs known as points of intersection or P.I.'s adjacent to these deviations. Then at 100-foot intervals along the traverse line marked by 1" X 1" stakes, levels were taken along the course of the drain (or proposed course of the drain in the case of diversions) and on the top of the 100-foot hubs to obtain a profile of the existing drain and the traverse line.

The profiles, the traverse chainage and the P.I.'s are all shown on the profile sheets. The proposed grade of the improved drain is also shown, together with the various percentage grades, the vertical P.I.'s and reference bench marks.

## RECOMMENDED IMPROVEMENT

### Clearing and Grubbing and Close-Cut Clearing

Because the Allin Drain and Branch is being constructed through some bush and forest lands, a significant amount of clearing will be necessary to permit disposal of excavated material on adjacent land.

There is approximately 4.0 acres of clearing and grubbing and close-cut clearing.

Accordingly, this work will be considered as a separate item under the drainage contract rather than being considered incidental to and as part of the earth excavation work.

The clearing and grubbing and close-cut clearing shall be done in accordance with Form 10 attached hereto, except that the payment provisions shall be amended providing for payment by the lump sum.

#### Drain Excavation

A visual inspection of the drain together with probing and discussion with owners indicated that rock and hard pan excavation would be encountered at the depths of excavation proposed. The "Classification of Excavated Material" in Form 10 would consequently place the work to be done under the three categories of "Earth Excavation, Rock Excavation and Hardpan Excavation".

The recommended improvement includes the excavation of 36,460 cubic yards of earth, an estimated 400 cubic yards of rock, and an estimated 950 cubic yards of Hardpan, as shown in the "Summary of the Allin Drain and Branch".

A typical cross-section of the drains will have a bottom width of 3 feet to 6 feet, with side slopes of  $1\frac{1}{2}$  feet horizontal, to 1 vertical in earth and hard pan and vertical in rock. Should the material in some areas be unstable, then the Contractor shall be instructed to construct that portion of the drain to a flatter side slope as directed by the Engineer, with an appropriate adjustment in the earth quantity. Typical cross-sections are shown on the drawings for earth, hardpan and rock excavation.

The Contractor, prior to construction, shall receive a list of "cut" figures, being the depth from the original ground grade at each station on the traverse line to the bottom or profile grade of the improved drains. These figures will be used by the Contractor to construct the drain subject to checking by the Engineer. The Contractor, prior to any construction, shall give the Engineer 48 hours notice so that line and grades can be established for the construction of this drain.

The construction of the Allin Drain and Branch shall be done in accordance with the provisions of Form 10 dated February, 1978, a copy of which is attached hereto.

#### Fencing

In accordance with normal practice whenever the drain crosses farm fences, the Contractor shall remove the existing fence and upon completion of the drain re-erect the fence in a condition equal or better than the condition of the fence prior to the commencement of the work.

### Disposal of Excavated Material - Working Space

The provisions of Section 10.7.0 of Form 10 as they apply to working space and land for the disposal of excavated material shall apply to this drainage improvement.

On the diversion between Sta. 27+00 to 34+00, Allin Drain, only a portion of the excavated material can be disposed within the allocated working space. Some material shall be used to backfill or reshape road ditches as herein specified. The balance of surplus excavated material shall be loaded, hauled and disposed of at sites provided at the Contractor's expense as part of the work of "earth excavation".

### Filling in Abandoned Sections of Drains

Where relocations and/or diversions occur the Contractor shall fill in the abandoned section of ditch throughout its entire length from brow of cut to brow of cut. These locations are summarized as follows:

- (1) Between Sta. 18+30 and Sta. 42+00 the Allin Drain shall be relocated outside the southern Right-of-Way limit for the Township Road between Concessions 1 & 2 and the existing drain along the south side of the said road between Sta. 18+30 to Sta. 28+68± shall be filled in and graded to drain into the relocated drain. The existing drain along the northern side of said road between Sta. 28+68± to Sta. 34+00 shall also be filled in leaving a 1½ foot deep ditch as directed by the Engineer.
- (2) Between Sta. 57+50 to Sta. 58+50 the Allin Drain shall be diverted southerly from its present location and the existing drain between Sta. 57+50 to the intersecting northerly drain shall be filled in.
- (3) Between Sta. 65+20 to Sta. 66+50± the Allin Drain is diverted southerly away from the LaRue Mills Road. The northerly portion of the abandoned drain no longer required for drainage purposes shall be filled in.
- (4) Between Sta. 74+20 to 81+00, 85+00 to 95+00 and 98+30 to 106+80, numerous diversions are required and in all cases the existing drain shall be filled in, except where the downstream portion of the existing drain is required as an extension of a branch drain. In such cases the existing drain shall not be disturbed.
- (5) Between Sta. 12+50± to Sta. 13+50± the Guild-Allin Branch is relocated on a 70'± foot radius to improve the intersection of the said Branch and the Allin Drain. The existing drain shall be filled in.

- (6) An overflow or by-pass ditch was constructed by the Township left of Sta. 3+70± of the Guild-Allin Branch. Upon completion of the installation of the 12'-3" x 7'-6" S.P.P.A. at Sta. 4+13. Guild-Allin Branch this overflow ditch will no longer be required, therefore, the contractor shall fill in this ditch commencing at the said branch drain southerly for a minimum distance of 100 feet to original ground grade. The remaining section of drain southerly to the next road culvert shall be partially filled in and reshaped such that the reshaped ditch has a bottom width of approximately 2 feet and a depth of approximately 2 feet with side slopes of 1½ to 2 feet horizontal to 1 vertical. The reshaping shall be done to lines and grades set by the Engineer during construction.

#### Rip-Rap Protection

Approximately 220 cubic yards of random rip-rap protection shall be placed in several locations on the Allin Drain and Branch to prevent erosion of the embankments. These locations are summarized as follows:

#### Allin Drain

- (1) Between Sta. 15+60 and Sta. 15+90 Rt. side only
- (2) Between Sta. 18+10 and Sta. 18+60 Lt. side only
- (3) Between Sta. 42+20 and Sta. 42+80± Lt. side only
- (4) Between Sta. 46+20 and Sta. 47+20± Rt. side only
- (5) Between Sta. 46+10 and Sta. 46+30± Lt. side only

#### Guild-Allin Branch

- (1) Between Sta. 12+40 and Sta. 13+10 Rt. side
- (2) Between Sta. 12+80 and Sta. 13+60 Lt. side

The rip-rap protection shall be placed with a minimum depth of 1½ feet and in accordance with the special design standard No. 870-1 included herein.

Also included is a plan showing the intersection of the Allin Drain and Guild-Allin Branch and the application of rip-rap, Special Design Standard No. 870-2.

Payment shall be made on a Lump Sum basis for material in place in accordance with Special Design Standards Nos. 870-1 and 870-2, and with the dimensions and cross-sections shown on the drawings, or as otherwise approved by the Engineer. Payment for Random Rip-Rap shall be made at the Contract unit price "Lump Sum" and shall be compensation, in full, for all excavation, loading, hauling and disposing of the excavated material.

Farm Crossings

Provision has been made for farm bridges under this scheme. All reconstructed or new farm bridges shall be corrugated steel pipe culverts, the location, sizes and lengths being listed in Schedule "E", together with the names of the owners.

A total of 174 lineal feet of Corrugated Steel Pipe and Pipe Arch Culverts is required for farm crossings as follows:

<u>Length of Culverts Required</u> (lineal feet)	<u>Description of Culverts</u>
24	60" $\phi$ C.S.P. 12 Ga.
24	72" $\phi$ C.S.P. 10 Ga.
60	84" $\phi$ C.S.P. 10 Ga.
66	12'-3" x 7'-6" M.P.P.A. 12 Ga.
<hr/>	
Total 174 Lineal Feet	

The Contractor shall be responsible for the supplying, excavating for and placing of corrugated steel pipe and pipe arch culverts for new farm crossings in accordance with Form 14, Specification for the Supplying, Excavating for and Placing Corrugated Steel Pipe and Pipe Arch Culverts. A copy of Form 14 is attached hereto.

Farm crossings shall be installed to the satisfaction of the owner except that, in cases of dispute, the Engineer's decision respecting the adequacy of the installation shall be final.

Where the drain is being improved to a specific grade, the gradient of the farm crossing culvert should parallel the gradient of the drain. In general, the culvert invert shall be approximately 4 inches to 6 inches below the bottom of the improved drain. It is very important for farm crossing culverts to be installed as specified herein and culverts installed too high shall be reinstalled solely at the Contractor's own expense.

UTILITIES

Underground Utilities

Based on the Engineer's investigations there are no buried utilities under the drains being improved. However, should such utilities be encountered the Contractor shall be solely responsible to contact Utility Companies for information in regard to the exact



location and depths and to exercise the necessary care in construction operations and take such other precautions as are necessary to safeguard the utilities from damage. If relocation of underground utilities is required the cost of such work shall be borne by the Utility Company.

#### Surface Utilities

Both Bell and Hydro overhead cables run parallel to and or cross the drainage improvement in various locations. Again, the Contractor shall be solely responsible to exercise the necessary care in construction operations and take such other precautions as are necessary to safeguard the utilities from damage.

#### ROAD BRIDGES

All elevations given in the report and shown on the contract drawings are based on Geodetic datum.

Following are recommendations regarding road bridges:

#### Township of Escott

- (1) Culvert crossing under the Township Road between Concessions 1 and 2 in Lot 19 and 20 at Sta. 0+17, Allin Drain - The existing 36" dia. concrete pipe culvert shall be removed and replaced with a 48"  $\phi$  C.S.P. Culvert 14 Ga. with an invert elevation of 277.80.
- (2) Culvert crossing under the Township Road between Concessions 1&2 in Lot 21, Left of Sta. 23+10, Allin Drain - The existing 15" Culvert shall be removed and replaced with a 24"  $\phi$  C.S.P. Culvert with an invert elevation of 273.00.
- (3) Culvert crossing under the Township Road between Concessions 1&2 in Lot 21, Left of Sta. 28+68, Allin Drain - The existing 36"  $\phi$  C.S.P. Culvert shall be removed and replaced with a new 36"  $\phi$  C.S.P. Culvert 16 Ga. with an invert elevation of 272.50.
- (4) Culvert crossing under the Township Road (LaRue Mills Road) in Lot 23 of Concession 1, approximately 130 feet left of Sta. 62+55 $\pm$ , Allin Drain - The existing 3' x 5' concrete culvert is in very poor condition and shall be removed and replaced with a 60"  $\phi$  C.S.P. culvert with an invert elevation of 271.00. At the time of construction additional surveys will be taken to ensure that the recommended invert elevation is correct.
- (5) Culvert crossing under the Township Road (LaRue Mills Road) in Lot 23 of Concession 1, at Sta. 4+13, Guild-Allin Drain - The existing 7.5' x 4' $\pm$  concrete culvert shall be removed and replaced with 54 L.F. of 12'-3" x 7'-6" S.P.P.A. with an invert elevation of 272.30.

For budgeting purposes, we estimate the total cost of road culverts will be approximately \$24,000.00 which is summarized as follows:

<u>Culvert</u>	<u>Description of New Culvert</u>	<u>Approximate Cost Supply and Complete Installation</u>
(1) Road Between Conc. 1&2 at Sta. 0+17 Allin Drain.	46 L.F. of 48" $\phi$ C.S.P. Culvert 14 Ga.	\$2,000.00
(2) Road Between Conc. 1&2 Lt. Sta. 23+10 Allin Drain	40 L.F. of 24" $\phi$ C.S.P. Culvert 16 Ga.	\$ 700.00
(3) Road Between Conc. 1&2 Lt. Sta. 28+68 Allin Drain	44 L.F. of 36" $\phi$ C.S.P. Culvert P.G. 16 Ga.	\$1,100.00
(4) Road in Lot 23 of Conc. 1 (LaRue Mills Road) 130' $\pm$ Lt. of Sta. 62+55 Allin Drain	Removal of Existing 3'x5' Concrete Culvert and place 46 L.F. of 60" $\phi$ C.S.P. Culvert	\$4,000.00
(5) Road in Lot 23 of Conc. 1 (LaRue Mills Road) Sta. 4+13 Guild-Allin Branch.	56 L.F. of 12'-3" x 7'-6" S.P.P.A. 12 Ga. Including Excavation & Bedding	\$13,000.00
	Estimated Construction Cost	\$20,800.00
	Final Design, General Administration and Engineering Supervision during Construction (15% $\pm$ )	<u>3,200.00</u>
	Total Estimated Cost	\$24,000.00

Although budgeting costs have been provided, the Special Construction Assessment against the Township Road department will be the actual cost incurred for the work.

Section 26 of the Drainage Act, 1975 makes reference to "increased costs" being assessed to the Road Authority. Using this concept, a credit in the amount of costs related to normal drain excavation through culvert locations should be allowed. In this case we have assumed that such credits would be offset by extra engineering costs related to these road culverts for the preparation of the engineer's report so no Special adjustment has been shown.

All salvageable materials removed from road crossings shall remain the property of the appropriate road authority.

#### Encroachment Permits

Before performing any work within the road allowance, and in particular, before the installation of any road culverts, the Contractor shall obtain the necessary encroachment permits from the road authorities.

#### ALLOWANCES UNDER SECTION 29(A), THE DRAINAGE ACT, 1975

Where the drains run adjacent to existing right-of-way allowances for roads, provision has been made to locate the drains outside the road right-of-ways. Where this is done, allowances have been provided to compensate the owners for land. These allowances are summarized in Schedule "B".

A description of the relocation of the drain off road allowances is as follows:

#### Allin Drain

Between Station 18+30 and Station 42+00 in Lot 21 and 22 of Concession 1, Township of Escott - The existing drain shall be re-located from its present location to the southern side of the road outside a 66-foot road right-of-way for the road between Concessions 1 and 2.

#### ALLOWANCES UNDER SECTION 30, THE DRAINAGE ACT, 1975

Damage to crops and/or land will result from the construction of the drains reported on herein. Therefore, allowances have been provided to compensate the owners affected and these allowances are summarized in Schedule "C".

#### ALLOWANCES UNDER SECTION 33, THE DRAINAGE ACT, 1975

Allowances for severance have been provided for owners where lands will be severed upon completion of the construction of the drain and are summarized in Schedule "D". The allowances are based on the estimated loss in current market value of the severed land, however, consideration was also given to the severed land condition that existed at the time of the survey.

ESTIMATE OF COST

The total estimated cost for the improvement reported herein for the Allin Drain and Branch is \$153,500.00 and is summarized as follows:

Construction

Earth Excavation 36,460 c.y. @ \$1.30/c.y.	\$ 47,398.00
Hardpan Excavation 950 c.y. @ \$4.00/c.y.	3,800.00
Rock Excavation 400 c.y. @ \$30.00/c.y.	12,000.00
Rip-Rap Protection (Random) 220 c.y. @ \$20.00/c.y.	4,400.00
Clearing, Grubbing and Close-Cut Clearing Lump Sum (Based on 4.0 Acres @ \$800.00/Acre)	3,200.00
Farm Bridges	9,500.00
Road Bridges, Township of Front of Escott	<u>24,000.00</u>
Sub-Total, Construction	\$104,298.00

Other Costs

Allowances Under Section 30, The Drainage Act, 1975	\$ 6,000.00
Allowances Under Section 29(A), The Drainage Act, 1975	2,100.00
Allowances Under Section 33, The Drainage Act, 1975	1,470.00
Preparing By-law, Township of Front of Escott	300.00
Preparing By-law, Township of Front of Yonge	300.00
Engineer's Fees - Report & Tender Documents	12,000.00
Contract Administration & Supervision	8,000.00
Contingencies (Advertising, Carrying Charges, Unanticipated Works, Etc.)	<u>19,032.00</u>
Sub-Total, Other Costs	\$ 49,202.00

Total Estimated Cost \$153,500.00

The total estimated cost has been apportioned as follows:

Township of Front of Escott

Outlet Liability	- Agricultural Property, Privately-Owned	\$ 31,825.00
Injuring Liability	- Agricultural Property, Privately-Owned	18,420.00
Benefit Liability	- Agricultural Property, Privately-Owned	44,400.00
Outlet Liability	- Non-Agricultural Property, Privately-Owned	257.00
Injuring Liability	- Non-Agricultural Property, Privately-Owned	146.00
Outlet Liability	- Ontario Hydro	10.00
Injuring Liability	- Ontario Hydro	4.00
Outlet Liability	- Bell Canada	3.00
Injuring Liability	- Bell Canada	1.00
Outlet Liability	- Canadian National Railway	200.00
Injuring Liability	- Canadian National Railway	140.00
Outlet Liability	- St. Lawrence Parks Commission	75.00
Injuring Liability	- St. Lawrence Parks Commission	39.00
Outlet Liability	- Roads, United Counties of Leeds & Grenville	75.00
Injuring Liability	- Roads, United Counties of Leeds & Grenville	60.00
Outlet Liability	- Property, Township of Front of Escott	25.00
Injuring Liability	- Property, Township of Front of Escott	15.00
Outlet Liability	- Roads, Township of Front of Escott	445.00
Injuring Liability	- Roads, Township of Front of Escott	360.00
Benefit Liability	- Roads, Township of Front of Escott	8,600.00
Special Construction- Assessment	- Roads, Township of Front of Escott	24,000.00
Outlet Liability	- Property, Ministry of Natural Resources	570.00
Injuring Liability	- Property, Ministry of Natural Resources	340.00

Benefit Liability	- Property, Ministry of Natural Resources	3,800.00
Outlet Liability	- Roads, Ministry of Transportation and Communications	815.00
Injuring Liability	- Roads, Ministry of Transportation and Communications	620.00
Benefit Liability	- Roads, Ministry of Transportation and Communications	480.00
Sub-Total, Township of Escott		\$135,725.00

Township of Front of Yonge

Outlet Liability	- Agricultural Property, Privately-Owned	\$ 7,670.00
Injuring Liability	- Agricultural Property, Privately-Owned	4,251.00
Outlet Liability	- Non-Agricultural Property, Privately-Owned	1,015.00
Injuring Liability	- Non-Agricultural Property, Privately-Owned	559.00
Outlet Liability	- Property, Canadian National Railway	565.00
Injuring Liability	- Property, Canadian National Railway	315.00
Outlet Liability	- Canadian National Railway	185.00
Injuring Liability	- Canadian National Railway	150.00
Outlet Liability	- Roads, United Counties of Leeds & Grenville	105.00
Injuring Liability	- Roads, United Counties of Leeds & Grenville	85.00
Outlet Liability	- Property, Township of Front of Yonge	75.00
Injuring Liability	- Property, Township of Front of Yonge	45.00
Outlet Liability	- Roads, Township of Front of Yonge	135.00

Injuring Liability - Roads, Township of Front of Yonge	110.00
Outlet Liability - Property, Ministry of Transportation and Communications	710.00
Injuring Liability - Property, Ministry of Transportation and Communications	390.00
Outlet Liability - Roads, Ministry of Transportation and Communications	780.00
Injuring Liability - Roads, Ministry of Transportation and Communications	630.00
Sub-Total, Township of Front of Yonge	17,775.00
Total Estimated Cost	\$153,500.00

#### Assessments in Village by Lump Sum

The plan shows Blocks "A", "B", "C", "D", "E", "F" and "G" in the Village of Mallorytown against which outlet and injuring liability assessments in lump sums have been assessed. This procedure was followed because of the relatively large number of properties in each of these blocks which would make assessments on an individual owner basis too expensive relative to the amounts being assessed. In other cases, it was difficult to ascertain ownership and it was concluded that the cost of so doing would not be commensurate with the assessments that would be levied. In all cases any individual assessment within these blocks would be less than \$50.00. The Township of Front of Yonge pay these amounts as provided under Sections 61(3) of The Drainage Act, 1975 or collect such monies as provided under Section 25(1) of The Drainage Act, 1975, as follows:

- 61.- (3) Where the assessment against any parcel of land is \$50.00 or less, the council of the local municipality may provide that the assessment shall be paid out of the general funds of the municipality or that the assessment shall be paid in the first year in which the assessment is imposed upon the land assessed.

- 25.--(1) The council of the local municipality may direct the engineer to assess as a block, a built-up area designated by the council, and the sum assessed therefor may be levied against all the rateable properties in the designated area pro rata on the basis of the assessed value of the land and buildings.

#### DISTRIBUTION OF COST OF IMPROVEMENT

##### Grants

In past years under, The Drainage Act, and the Agricultural Rehabilitation and Development Act, grants totalling two-thirds of the cost of such drainage improvements that drain agricultural lands were available. However, the A.R.D.A. grants were terminated as of December 5th, 1978, and at present only the Provincial grants totalling one-third of the cost of drainage improvements for agricultural lands are available. These grants, when received, will reduce the cost of this improvement assessed against agricultural property by \$35,522.00 leaving an estimated cost of \$71,044.00 to be shared by the owners of real property in accordance with the attached schedule.

Currently, the Provincial and Federal Government are on the verge of signing a new agreement which will contain a grant provision for agricultural outlet drains. This new agreement may necessitate certain application procedures before the drainage works is approved for the extra grant. At this time neither the criteria for approval or application procedures are known. Information has been provided that for approved works, the additional grant would be equivalent to one-third of the assessment levied against agricultural lands. If an additional grant is provided under the new programme, the estimated net cost chargeable to agricultural lands would be reduced accordingly.

No drainage grants are available to reduce the assessment for roads and/or properties owned by the Township of Escott, Township of Front of Yonge, Ontario Hydro, Bell Canada, Canadian National Railway, United Counties of Leeds and Grenville, Ministry of Transportation and Communications, St. Lawrence Parks Commission, or the Ministry of Natural Resources.

Also grants are not available to reduce the assessments for privately-owned non-agricultural lands. The total assesment levied against such land is \$1,977.00.

##### Owner's Estimated Net Cost

Schedule "A" shows each owner's net cost based on the estimated cost of this improvement.

It should be understood that if the actual costs exceed the estimated costs the provincial drainage grants also apply to the increased costs in the case of privately-owned agricultural lands.



FUTURE MAINTENANCE

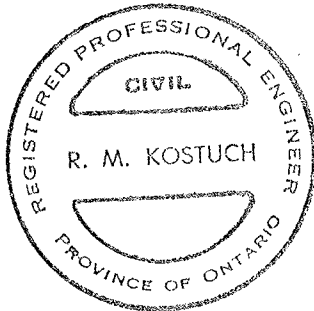
The Allin Drain and Branch shall be maintained by the Township of Escott although owners shall be responsible for periodically inspecting the drain and reporting maintenance problems, if any, to the Township. The Township may, if it so wishes, appoint a superintendent under Section 93, The Drainage Act, 1975, to report annually on the state of repair of the drainage works.

The cost of future maintenance shall be assessed against the owners of lands and roads assessed for its construction in the same proportion as shown in Schedule "A", except that where lands are subsequently subdivided, appropriate prorated assessments shall be determined.

Special construction assessments shall not be included to determine the apportionment of future maintenance costs.

Yours very truly,

KOSTUCH ENGINEERING LIMITED



Handwritten signature of C.G. Hanes in cursive script.

C.G. Hanes,  
Drainage Supervisor.

Handwritten signature of R.M. Kostuch in cursive script.

R.M. Kostuch, P.Eng.,  
Drainage Engineer.

May 3rd, 1979.  
Brockville, Ontario.

SCHEDULE "A"  
 SCHEDULE OF ASSESSMENT  
 INCLUDING OWNER'S ESTIMATED NET COST

\* Non-Agricultural Properties

ALLIN DRAIN AND BRANCH

OWNER	PROPERTY		AREA DRAINED (Acres)	BENEFIT	OUTLET LIABILITY	INJURING LIABILITY	SPECIAL CONSTRUCTION ASSESSMENT	TOTAL ASSESSMENT	OWNER'S PORTION AFTER GRANTS	LESS ALLOWANCES	OWNER'S ESTIMATED NET COST
	LOT	CON									
Township of Front of Escott											
	16	1	51.5		190.00	115.00		305.00	203.33		203.33
	17	1	129.8		1,100.00	610.00		1,710.00	1,140.00		1,140.00
	18	1	127.1		1,300.00	730.00		2,030.00	1,353.33		1,353.33
	18	1	1.0		15.00	10.00		25.00	25.00		25.00
	19	1	113.5		1,890.00	1,070.00		2,960.00	1,973.33		1,973.33
	20	1	64.8	7,100.00	1,590.00	950.00		9,640.00	6,426.67	600.00	5,826.67
	20	1	50.0	5,000.00	1,240.00	745.00		6,985.00	4,656.67	320.00	4,336.67
	21,22 823	1	291.0	26,500.00	7,170.00	4,230.00		37,900.00	25,266.67	5,950.00	19,316.67
	23&24	1&2	105.0	1,900.00	1,920.00	1,100.00		4,920.00	3,280.00	500.00	2,780.00
	23	1	0.1		10.00	4.00		14.00	14.00		14.00
	23	1	0.2		5.00	3.00		8.00	8.00		8.00
	23	1	2.5		35.00	20.00		55.00	55.00		55.00
	21	1	2.2		10.00	4.00		14.00	14.00		14.00
	23&24	1	10.8		65.00	35.00		100.00	100.00		100.00
	22&23	1	32.8	3,800.00	535.00	320.00		4,655.00	4,655.00	1,550.00	3,105.00
	22	1	32.0		260.00	140.00		400.00	266.67		266.67
	23&24	1	47.7	600.00	535.00	320.00		1,455.00	970.00	560.00	410.00
	23	1	1.8		12.00	5.00		17.00	17.00		17.00
	23	1	1.0		10.00	5.00		15.00	15.00		15.00
	24	1	32.2		175.00	95.00		270.00	180.00		180.00
	17&18	2	34.4		540.00	320.00		860.00	573.33		573.33
	18	2	21.0		340.00	205.00		545.00	363.33		363.33
	17	2	0.4		8.00	4.00		12.00	12.00		12.00
	18	2	0.4		8.00	4.00		12.00	12.00		12.00
	18	2	0.3		8.00	4.00		12.00	12.00		12.00
	18	2	0.3		8.00	4.00		12.00	12.00		12.00
	18	2	47.0		515.00	285.00		800.00	533.33		533.33
	18	2	17.0		240.00	130.00		370.00	246.67		246.67
	18	2	12.1		90.00	50.00		140.00	93.33		93.33
	19,20 &21	2	226.00	900.00	3,770.00	2,270.00		6,940.00	4,625.67		4,625.67

SCHEDULE "A"  
 SCHEDULE OF ASSESSMENT  
 INCLUDING OWNER'S ESTIMATED NET COST

\* Non-Agricultural Properties

ALLIN DRAIN AND BRANCH

Page 2

OWNER	PROPERTY		AREA DRAINED	BENEFIT	OUTLET LIABILITY	INJURING LIABILITY	SPECIAL CONSTRUCTION ASSESSMENT	TOTAL ASSESSMENT	OWNER'S PORTION AFTER GRANTS	LESS ALLOWANCES	OWNER'S ESTIMATED NET COST
	LOT	CON	(Acres)								
	19	2	0.1		3.00	1.00		4.00	4.00		4.00
	19	2	4.8		70.00	40.00		110.00	110.00		110.00
	19	2	1.0		15.00	9.00		24.00	24.00		24.00
	19&20		2.0		25.00	15.00		40.00	40.00		40.00
	20	2	4.0		55.00	30.00		85.00	56.67		56.67
	20,21 &22	2	105.0		990.00	595.00		1,585.00	1,056.67		1,056.67
	21	2	11.2		155.00	85.00		240.00	160.00		160.00
	22&23	2	160.0	1,800.00	2,410.00	1,270.00		5,480.00	3,653.33		3,653.33
	22	2	2.0		20.00	12.00		32.00	32.00		32.00
	23	2	1.0		10.00	6.00		16.00	16.00		16.00
	23	2	24.0		320.00	190.00		510.00	340.00		340.00
	23	2	1.0		25.00	15.00		40.00	40.00		40.00
	23	2	24.0	600.00	605.00	360.00		1,565.00	1,043.33	90.00	953.33
	23	2	18.4		195.00	110.00		305.00	203.33		203.33
	23	2	13.0		125.00	75.00		200.00	133.33		133.33
	24	2	12.0		115.00	70.00		185.00	123.33		123.33
	24	2	12.0		115.00	70.00		185.00	123.33		123.33
	24	2	25.5		240.00	145.00		385.00	256.67		256.67
	24	2	2.0		15.00	10.00		25.00	25.00		25.00
	23	2	1.0		10.00	6.00		16.00	16.00		16.00
	23&24	2	79.0		575.00	320.00		895.00	596.67		596.67
	22,23 &24	2	88.5		685.00	410.00		1,095.00	730.00		730.00
	19,20 &21	2	40.9		285.00	160.00		445.00	296.67		296.67
	24	2	1.5		10.00	5.00		15.00	15.00		15.00
	20&21	2&3	68.1		485.00	270.00		755.00	503.33		503.33
	21&22	2&3	56.0		380.00	210.00		590.00	393.33		393.33
	22,23 &24	2&3	93.0		670.00	375.00		1,045.00	696.67		696.67
	21	3	2.6		10.00	5.00		15.00	10.00		10.00
	22	3	6.7		45.00	25.00		70.00	46.67		46.67
	23	3	17.7		125.00	70.00		195.00	130.00		130.00
	23&24	3	39.4		275.00	155.00		430.00	286.67		286.67
	24	3	6.0		45.00	25.00		70.00	46.67		46.67

SCHEDULE "A"  
 SCHEDULE OF ASSESSMENT  
 INCLUDING OWNER'S ESTIMATED NET COST  
 ALLIN DRAIN AND BRANCH

← Non-Agricultural Properties

OWNER	PROPERTY		AREA DRAINED (Acres)	BENEFIT	OUTLET LIABILITY	INJURING LIABILITY	SPECIAL CONSTRUCTION ASSESSMENT	TOTAL ASSESSMENT	OWNER'S PORTION AFTER GRANTS	LESS ALLOWANCES	OWNER'S ESTIMATED NET COST
	LOT	CON									
[REDACTED]	24	3	1.0		6.00	3.00		9.00	9.00		9.00
	24	3	6.0		45.00	25.00		70.00	46.67		46.67
	24	3	1.0		6.00	3.00		9.00	9.00		9.00
	24	3	1.0		6.00	3.00		9.00	9.00		9.00
			17.9		200.00	140.00		340.00	340.00		340.00
			35.5	8,600.00	445.00	360.00	24,000.00	33,405.00	33,405.00		33,405.00
			7.1		75.00	60.00		135.00	135.00		135.00
		58.5	480.00	815.00	620.00		1,915.00	1,915.00		1,915.00	
Sub-Total			2,507.3	57,280.00	34,300.00	20,145.00	24,000.00	135,725.00	104,181.67	9,570.00	94,611.67
Township of Front of Yonge											
[REDACTED]	24	B.F.	40.0		195.00	110.00		305.00	203.33		203.33
	24&25	B.F.	37.5		265.00	145.00		410.00	273.33		273.33
	25	B.F.	1.4		15.00	10.00		25.00	25.00		25.00
	26	B.F.	3.0		30.00	16.00		46.00	30.67		30.67
	26	B.F.	25.0		280.00	155.00		435.00	290.00		290.00
	26	B.F.	70.0		565.00	315.00		880.00	586.67		586.67
	25&26	B.F.	107.0		915.00	510.00		1,425.00	950.00		950.00
	26	B.F.	2.0		15.00	8.00		23.00	23.00		23.00
	26	B.F.	3.0		20.00	10.00		30.00	30.00		30.00
	25	B.F.	1.5		15.00	8.00		23.00	23.00		23.00
	25	B.F.	1.5		15.00	8.00		23.00	23.00		23.00
	25	B.F.	2.0		15.00	8.00		23.00	23.00		23.00
	25	B.F.	2.0		15.00	8.00		23.00	23.00		23.00
	25	B.F.	16.8		130.00	70.00		200.00	200.00		200.00
	25	B.F.	5.0		40.00	22.00		62.00	62.00		62.00
25	B.F.	5.0		40.00	22.00		62.00	62.00		62.00	
24	B.F.	85.5		620.00	350.00		970.00	646.67		646.67	

SCHEDULE "A"  
SCHEDULE OF ASSESSMENT  
INCLUDING OWNER'S ESTIMATED NET COST

\* Non-Agricultural Properties

ALLIN BRANCH AND BRANCH

<u>OWNER</u>	<u>PROPERTY</u>		<u>AREA DRAINED</u>	<u>BENEFIT</u>	<u>OUTLET LIABILITY</u>	<u>IMPAIRING LIABILITY</u>	<u>SPECIAL CONSTRUCTION ASSESSMENT</u>	<u>TOTAL ASSESSMENT</u>	<u>OWNER'S PORTION AFTER GRANTS</u>	<u>LESS ALLOWANCES</u>	<u>OWNER'S ESTIMATED NET COST</u>
	<u>LOT</u>	<u>CON</u>	(Acres)								
	23	B.F.	60.0		425.00	240.00		665.00	443.33		443.33
	22&23	B.F.	95.0		680.00	380.00		1,060.00	706.67		706.67
	21	B.F.	43.7		280.00	155.00		435.00	290.00		290.00
	20	B.F.	36.0		255.00	125.00		380.00	253.33		253.33
	19	B.F.	4.7		25.00	15.00		40.00	26.67		26.67
	26	B.F.	0.5		8.00	5.00		13.00	13.00		13.00
	26	B.F.	2.5		20.00	12.00		32.00	32.00		32.00
	25	B.F.	65.0		475.00	250.00		725.00	483.33		483.33
	25	1&B.F.	1.5		15.00	8.00		23.00	23.00		23.00
	23&24	B.F.	59.7		425.00	240.00		665.00	443.33		443.33
	24	B.F.	12.0		65.00	35.00		100.00	66.67		66.67
	24	B.F.	1.0		12.00	7.00		19.00	19.00		19.00
	24	B.F.	0.6		10.00	5.00		15.00	15.00		15.00
	23	B.F.	0.9		12.00	7.00		19.00	19.00		19.00
	26	1&B.F.	65.0		460.00	260.00		720.00	480.00		480.00
	23	B.F.	0.6		8.00	5.00		13.00	13.00		13.00
	26	1	0.5		6.00	4.00		10.00	10.00		10.00
	25&26	1&B.F.	53.2		350.00	195.00		545.00	363.33		363.33
	25	1	1.0		12.00	7.00		19.00	19.00		19.00
	25&26	1	64.6		440.00	245.00		685.00	456.67		456.67
	25	1	0.6		6.00	4.00		10.00	10.00		10.00
	23	1	16.0		105.00	60.00		165.00	110.00		110.00
	24	1	63.9		395.00	220.00		615.00	410.00		410.00
	22&23	1	25.8		160.00	90.00		250.00	166.67		166.67
	22	1	20.5		125.00	70.00		195.00	130.00		130.00
	24	1	0.9		6.00	4.00		10.00	10.00		10.00
			1.4		8.00	5.00		13.00	13.00		13.00
	24	1	1.0		6.00	4.00		10.00	10.00		10.00
	24	1	1.0		6.00	4.00		10.00	10.00		10.00
	23	1&B.F.	12.2		75.00	45.00		120.00	120.00		120.00
	23	1	4.1		20.00	10.00		30.00	30.00		30.00
	22	1	9.5		60.00	30.00		90.00	60.00		60.00
	21	1	6.5		40.00	22.00		62.00	62.00		62.00
	22&23	1	10.3		60.00	30.00		90.00	90.00		90.00

SCHEDULE "A"  
 SCHEDULE OF ASSESSMENT  
 INCLUDING OWNER'S ESTIMATED NET COST  
 ALLIY DRAIN AND BRANCH

\* Non-Agricultural Properties


OWNER	PROPERTY		AREA DRAINED (Acres)	BENEFIT	OUTLET LIABILITY	INJURING LIABILITY	SPECIAL CONSTRUCTION ASSESSMENT	TOTAL ASSESSMENT	OWNER'S PORTION AFTER GRANTS	LESS ALLOWANCES	OWNER'S ESTIMATED NET COST
	LOT	CON									
*Block "B"	21, 22 & 23	1&B.F.	17.5		110.00	60.00		170.00	170.00		170.00
	22&23	1&B.F.	27.1		170.00	95.00		265.00	265.00		265.00
	20&21	1	5.4		30.00	17.00		47.00	47.00		47.00
	22	B.F.	3.0		15.00	8.00		23.00	23.00		23.00
	21	1&B.F.	9.7		60.00	32.00		92.00	92.00		92.00
	20	1&B.F.	2.0		15.00	8.00		23.00	23.00		23.00
	21	B.F.	3.4		20.00	11.00		31.00	31.00		31.00
			3.4		20.00	11.00		31.00	31.00		31.00
	21	1	11.6		75.00	40.00		115.00	76.67		76.67
	21, 22 23, 24 & 25		121.0		710.00	390.00		1,100.00	1,100.00		1,100.00
	23&24	1	82.0		565.00	315.00		880.00	880.00		880.00
			16.5		185.00	150.00		335.00	335.00		335.00
			15.8		135.00	110.00		245.00	245.00		245.00
			10.1		105.00	85.00		190.00	190.00		190.00
		70.8		780.00	630.00		1,410.00	1,410.00		1,410.00	
Sub-Total		1,550.2	-	11,240.00	6,535.00	-	17,775.00	13,801.34	-	13,801.34	
Total		4,057.5	57,280.00	45,640.00	26,680.00	24,000.00	153,500.00	117,983.01	9,570.00	108,413.01	

SCHEDULE "B"

SCHEDULE OF ALLOWANCES UNDER SECTION 29(A)

THE DRAINAGE ACT 1975

ALLIN DRAIN AND BRANCH

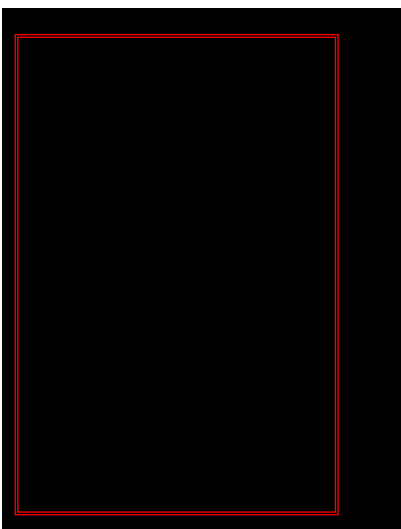
<u>OWNER</u>	<u>PROPERTY</u>		<u>AMOUNT</u>	<u>REMARKS</u>
	<u>LOT</u>	<u>CON.</u>		
Township of Front of Escott				
	21&22	1	2,100.00	Allin Drain

SCHEDULE "C"

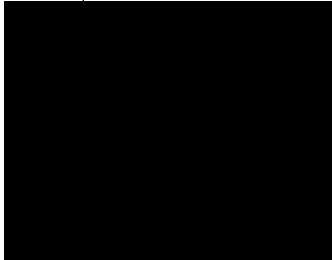
SCHEDULE OF ALLOWANCES UNDER SECTION 30

THE DRAINAGE ACT - 1975

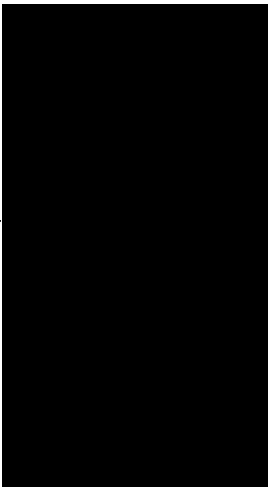
ALLIN DRAIN AND BRANCH

<u>OWNER</u>	<u>PROPERTY</u>		<u>AMOUNT</u>	<u>REMARKS</u>
	<u>LOT</u>	<u>CON.</u>		
Township of Front of Escott				
	20	1	610.00	Allin Drain
	20	1	310.00	Allin Drain
	21,22&23	1	3,500.00	Allin Drain
	22&23	1	350.00	Guild-Allin Branch
	23	1	210.00	Allin Drain
	23	1	40.00	Guild-Allin Branch
	23	1	250.00	Allin Drain
	22	1	640.00	Allin Drain
	23	2	90.00	Guild-Allin Branch
		<u>\$6,000.00</u>		

SCHEDULE "D"  
SCHEDULE OF ALLOWANCES UNDER SECTION 33  
THE DRAINAGE ACT - 1975  
ALLIN DRAIN AND BRANCH

<u>OWNER</u>	<u>PROPERTY</u>		<u>AMOUNT</u>	<u>REMARKS</u>
	<u>LOT</u>	<u>CON.</u>		
Township of Front of Escott				
	23	1	250.00	Allin Drain
	23	1	310.00	Allin Drain
	22	1	910.00	Allin Drain
	TOTAL			

SCHEDULE "E"  
SCHEDULE OF FARM BRIDGES  
ALLIN DRAIN AND BRANCH

<u>OWNER</u>	<u>PROPERTY</u>		<u>AMOUNT</u>	<u>REMARKS</u>
	<u>LOT</u>	<u>CON.</u>		
Township of Front of Escott				
	20	1	6+00	1 @ 24' of 60" $\phi$ C.S.P. 12 Ga.
	20	1	135+00!	1 @ 22' of 12'-3" x 7'-6" M.P.P.A. 12 Ga.
	20	1	8+75	1 @ 24' of 72" $\phi$ C.S.P. 10 Ga.
	21	1	29+93	1 @ 60' of 84" $\phi$ C.S.P. 10 Ga.
	23	1	80+00±	1 @ 22' of 12'-3" x 7'-6" M.P.P.A. 12 Ga.
	21	1	120+27	1 @ 22' of 12'-3" x 7'-6" M.P.P.A. 12 Ga.



SPECIFICATION  
FOR  
DRAIN EXCAVATION

10.0.0 DESCRIPTION

This work shall consist of constructing the drain to the grades, dimensions and cross-sections shown on the plans and as directed by the Engineer and shall include all clearing and grubbing within the limits of the excavation, disposal of all brush, vegetation and litter from the clearing and grubbing operation, the preservation and removal of existing farm crossings, as required, the dismantling and re-erection of existing farm fence, including the erection and removal of temporary fencing to contain livestock, the improvement of all lateral drain connections, all necessary earth excavation, hardpan excavation and rock excavation, the disposal of excavated material, including the removal and disposal of all boulders as hereinafter specified.

10.1.0 CLASSIFICATION OF EXCAVATED MATERIAL

10.1.1 DESCRIPTION

All excavated material shall be classified for purposes of payment as "Rock Excavation", "Hardpan Excavation" or "Earth Excavation" in conformity with the following:

(i) Rock Excavation

"Rock Excavation" means -

- (a) material excavated from solid masses of igneous, sedimentary or metamorphic rock, which prior to removal was integral with the parent mass and
- (b) boulders and rock fragments measuring in volume 27 cubic feet or more, but
- (c) notwithstanding Clause (a) and (b), the removal of dense tills, hardpan, and any other similar materials shall not be Rock Excavation for purposes of payment.

Payment as "Rock Excavation" for boulders or fragments of rock shall be based on actual measurement only and the Contractor shall give the Engineer the opportunity to make the required measurement.

(ii) Hardpan Excavation

"Hardpan Excavation" shall comprise of the excavation of very dense cemented or compacted material generally a clayey type material not easily penetrated. In cases of dispute, the Engineer's decision regarding classification of hardpan shall be final.

Payment as "Hardpan Excavation" shall be based on actual measurement only and the Contractor shall give the Engineer the opportunity to make the required measurement.

(iii) Earth Excavation

"Earth Excavation" shall comprise the excavation of all other materials of whatsoever nature that do not come under the classification of "Rock Excavation" or "Hardpan Excavation" and shall include frozen earth material and loose and shattered rock fragments.

10.2.0 GENERAL

10.2.1 CLEARING

Clearing shall be performed by the Contractor on all areas within the limits of excavation plus three feet beyond the brow of the drain on each side, except as otherwise directed by the Engineer.

The clearing shall consist of the cutting off at a height of not less than 18" above ground, all trees, brush, and other vegetation; the removal of all windfalls and other fallen timber, fallen branches and other surface litter and shall include the disposal of all debris herein specified. Clearing shall also include the close-cutting of all dead or dying trees, including disposal of debris, within 15 feet of the brow of the drain.

All trees, shrubs and other vegetation, designated by the Engineer to be saved, shall be carefully protected from injury. The Contractor may be required to cut only certain selected trees in certain areas, leaving the rest of the trees unharmed.

All timber having a diameter of 4" or greater shall be cleared of limbs, cut in reasonable lengths and neatly piled clear of the drain so that they may be salvaged by the property owner.

All brush and other debris, resulting from the clearing operation shall be piled and burned (where permitted by local and provincial legislation) at such times and in such a manner as not to injure live trees. Where debris cannot be burned, the Contractor shall dispose of such debris at sites provided by the Contractor at his own expense.

The Contractor may be permitted to clear and grub an area in one operation with the prior written approval of the Engineer.

#### 10.2.2 GRUBBING

Grubbing shall consist of the removal and disposal of all stumps, roots, embedded logs and all debris within the limits of excavation and the close-cutting of trees cleared to three feet beyond the brow of the drain on each side.

Surface boulders and boulder fence rows within areas to be grubbed shall be considered as debris, and grubbing shall include the removal and disposal of such surface boulders and boulder fence rows.

The Engineer may direct that, in lieu of grubbing, trees within the limits of excavation, shall be close-cut to not more than 4 inches above ground.

Disposal of the debris resulting from grubbing operations shall be carried out in the manner provided for under "Clearing".

#### 10.2.3 CLOSE-CUT CLEARING

Where drains pass through bush and forest lands, a significant amount of clearing will be necessary to permit disposal of excavated material on adjacent land. Accordingly, where extensive close-cut clearing is required, this work may be considered as a separate item under the drainage contract rather than being considered incidental to and as part of the earth excavation work.

The close-cut clearing shall consist of the cutting off at ground level, or as close to ground level as practical, all trees, brush, and other vegetation; the removal of all windfalls and other fallen timber, fallen branches and other surface litter and shall include the disposal of all resultant debris.

All timber having a diameter of 4" or greater shall be cleared of limbs, cut in reasonable lengths and neatly piled clear of the drain so that they may be salvaged by the property owner.

Disposal of the debris resulting from the close-cutting operations shall be carried out in the manner provided for under "Clearing".

Where a significant amount of close-cut clearing will be necessary to permit disposal of excavated material on adjacent land, this work will be considered as a separate item under the drainage contract rather than being considered incidental to and as part of the earth excavation work. Close-cut clearing shall be paid as a Lump Sum item. The Contractor shall be solely responsible for determining the extent of the work under this item although the Contractor may be given approximate areas of close-cut clearing required, which are not guaranteed.

#### 10.2.4 EXISTING FARM CROSSINGS

Farm crossings which are indicated on the plans as "not to be removed" shall not be disturbed in any way. If the ditch requires lowering under the farm crossing, the necessary excavation shall be carried out so as not to disturb the crossing, by the use of hand shovel and picks, if necessary.

All other farm crossings shall be removed and all materials which are salvageable shall be neatly piled by the Contractor clear of the drain and shall remain the property of the farmer. All other material and debris which has no salvageable value shall be removed from the site and disposed of by the Contractor at sites provided by the Contractor at his own expense.

#### 10.2.5 FARM FENCES

Where farm fences have to be relocated or temporarily removed to permit the drain excavation, the Contractor shall carefully dismantle the existing fence and, where required, erect temporary fencing to contain livestock and, upon the completion of excavation of the drain, shall re-erect the fence in a condition equal or better than the condition of the fence prior to the commencement of the work. Where fence posts are destroyed during the dismantling operation, the Contractor shall supply comparable posts at his own expense. All fence re-erect shall be done to the satisfaction of the Engineer.

#### 10.2.6 IMPROVEMENT OF LATERAL DRAIN CONNECTIONS

All existing lateral drains, including private drains, not being improved under this contract shall be improved for a minimum distance of 30 feet from the center of the drain being constructed or improved.

The bottom width of the improved lateral drains shall be either 2'-0" or equal to the bottom width of the existing lateral drain, whichever is the greater width, with side slopes of 1-1/4 horizontal to 1 vertical or equal to the design slopes for the drain being constructed or improved in the area, whichever is the flatter slope.

Lateral drains shall be excavated to a grade from the design grade of the drain being constructed or improved to the existing grade of the lateral drain 30 feet from the center of the drain being constructed or improved.

All excavated material shall be disposed of in the same manner as specified in Sections 10.7.0 and 10.7.2.

No rock excavation shall be required for the improvement of lateral drain connections.

No measurement of quantities shall be made in respect of earth excavation to improve lateral drain connections, such work being deemed to be incidental to and included in the unit price bid for earth excavation for the drain or branches being constructed under this contract.

#### 10.2.7 LIAISON WITH FARMERS

The Contractor shall keep the farmers of lands through which the drain passes fully informed as to his proposed schedule of operations so that they may make appropriate arrangements for seeding and/or harvesting of crops adjacent to the drain. The intent of this provision is to avoid financial loss to the farmers as may arise should they seed land adjacent to the drain only to have the drain excavated before a crop matures or to provide ample notice of proposed excavation operations so that the farmers may remove crops prior to the start of work.

#### 10.3.0 EARTH EXCAVATION

Excavation of the drain shall be to the grade, dimensions and cross-section shown on the drawings, or as otherwise approved by the Engineer.

The bottom of the ditch shall be brought to an even grade between the stations so that water shall not lie stagnant therein.

The excavated material may be disposed of by spreading it on the adjacent fields as hereinafter specified and such that the fields may be readily worked by the farmer.

Where the drain is to be straightened as shown on the drawings or where such straightening is a reasonable improvement, the Contractor shall fill in the abandoned section of ditch throughout its entire length from the brow of cut to brow of cut, to the satisfaction of the Engineer, and the price bid per cubic yard of Earth Excavation shall be deemed to include the cost of loading, handling, hauling and placing the fill material placed in the abandoned section(s) of the ditch.

The Contractor shall not excavate outside of the slopes or below the established grade unless directed by the Engineer.

Boulders and rock fragments under 27 cubic feet in volume shall be paid for as Earth Excavation and shall be disposed of as hereinafter specified. Boulders and rock fragments over 27 cubic feet in volume excavated from within the ditch section shall be measured and paid for in accordance with the terms set out for "Rock Excavation".

#### 10.3.1 MEASUREMENT FOR PAYMENT

Measurement for payment shall be made in cubic yards of material excavated from the drain or branches being constructed or improved under the contract above the established grade and in accordance with the dimensions and cross-sections shown on the drawings or as otherwise approved by the Engineer.

#### 10.3.2 BASIS OF PAYMENT

Payment for Earth Excavation shall be made at the Contract unit price per cubic yard for "Earth Excavation" and shall be compensation in full for all clearing, grubbing, close-cut clearing, disposal of debris from clearing and grubbing operations, the preservation and removal of existing farm crossings, the dismantling and re-erection of farm fences, including temporary fencing, the improvement of lateral drain connections, all necessary earth excavation (placing of fill material in the abandoned section(s) of the ditch) and the disposal of excavated material as herein specified.

#### 10.4.0 HARDPAN EXCAVATION

Where hardpan excavation occurs, the excavation of the drain shall be to the grade, dimensions and cross-sections shown on the drawings or as otherwise approved by the Engineer. The typical cross-section used for earth excavation shall also apply to hardpan excavation.

The excavated materials shall be disposed of in the manner specified in Section 10.7.3.

The Contractor shall ensure that all hardpan excavation is carried out to the grade indicated on the drawings and should the finished excavation be above the design grade, the Contractor shall be required to carry out secondary excavation to bring the excavation to the grade indicated on the drawings.

#### 10.4.1 MEASUREMENT FOR PAYMENT

Measurement for payment shall be made in cubic yards of material excavated above the established grade and in accordance with the dimensions and cross-sections shown on the drawings, or as otherwise approved by the Engineer. The Contractor shall notify the Engineer at least 48 hours prior to any hardpan excavation so that the Engineer may have top of hardpan profiles taken for payment purposes.

#### 10.4.2 BASIS OF PAYMENT

Payment for hardpan excavation shall be made at the Contract unit price per cubic yard for "Hardpan Excavation" and shall be compensation, in full, for all excavation, loading, hauling and disposing of hardpan excavation, at site provided at the Contractor's expense and for any secondary hardpan excavation required to bring the excavation to the grade indicated on the drawings.

If earth excavation does not precede hardpan excavation, the Contract unit price will also include all necessary clearing, grubbing, close-cut clearing, including disposal of resultant debris and the improvement of lateral drain connections.

#### 10.5.0 ROCK EXCAVATION

Where rock excavation occurs in solid masses, the excavation of the drain shall be to the grade, dimensions and cross-sections shown on the drawings or as otherwise approved by the Engineer. The excavation shall have vertical sides.

The excavated materials shall be disposed of in the manner specified in Section 10.7.4.

The Contractor shall ensure that all rock excavation is carried out to the grade indicated on the drawings and should the finished excavation be above the design grade, the Contractor shall be required to carry out secondary rock blasting to bring the excavation to the grade indicated on the drawings.

Boulders and rock fragments in excess of 27 cubic feet in volume shall be paid for as Rock Excavation.

#### 10.5.1 MEASUREMENT FOR PAYMENT

Measurement for payment shall be made in cubic yards of material excavated above the established grade and in accordance with the dimensions and cross-sections shown on the drawings, or as otherwise approved by the Engineer. The Contractor shall notify the Engineer at least 48 hours prior to any rock excavation so that the Engineer may have top of rock profiles taken for payment purposes.

#### 10.5.2 BASIS OF PAYMENT

Payment for rock excavation shall be made at the Contract unit price per cubic yard for "Rock Excavation" and shall be compensation, in full, for all excavation, loading, hauling and disposing of rock excavation, including boulders and rock fragments in excess of 27 cubic feet in volume, at site provided at the Contractor's expense and for any secondary rock excavation required to bring the excavation to the grade indicated on the drawings.

#### 10.6.0 CONTRACT PAYMENTS - EARTH, HARDPAN AND ROCK

Payment for earth, hardpan and rock excavation shall be made on the following basis:

- (1) after the drain is excavated and material is piled adjacent to the drain, but not yet spread or disposed of in accordance with the provisions of this Contract, seventy-five percent (75%) of the work shall be deemed to have been performed.
- (2) after all spreading, levelling and disposal operations are completed, the remaining twenty-five percent (25%) of the work shall be deemed to have been performed.



Upon written request from the Contractor, the Engineer may, in writing, approve the release of a portion of the twenty-five percent (25%) of the payment stipulated in (2) above before all spreading, levelling and disposal operations are completed.

#### 10.7.0 DISPOSAL OF EXCAVATED MATERIAL - WORKING SPACE

##### 10.7.1 WORKING SPACE

The Contractor may use the lands hereinafter designated for disposal as working space for his operations in the performance of the Contract.

##### 10.7.2 EARTH EXCAVATION

All of the excavated materials, except as otherwise noted, shall be disposed of adjacent to the drain such that no material is spread or placed closer than 5 feet from the brow of the drain, within allowances designated for this purpose as follows:

Case A - Where material is disposed of on lands that are presently tillable, the material shall be so placed as not to impede the natural drainage of the adjacent lands and, in any case, no deeper than 8 inches. Any boulders or other debris that would render unsightly the appearance of the finished work or that would be injurious to farm implements or machinery shall be disposed of in locations provided for the purpose by the Contractor at the Contractor's expense. The allowance for spreading these materials shall be 100 feet where material is spread on one side only or 50 feet where material is spread on both sides of the drain.

Case B - Where the drain crosses lands that are not tillable, the Contractor shall dispose of all excavated materials adjacent to the drain in a modified berm. The material in the berm shall have a depth of approximately 1½ feet and shall be constructed in a manner whereby the berm material could serve as an access lane for future drain maintenance. To ensure that the drainage from adjacent lands is not impeded, drainage openings shall be constructed wherever required. These drainage openings shall have flat side slopes such that maintenance equipment can operate along the berm. Generally, the allowance for the disposal of this material shall be 40 feet along one side of the drain and close-cut clearing shall be necessary before disposing of the material in the berm.

Tillable lands shall be defined as all land that is in a ploughed condition or land that has been cultivated within the preceding ten years but is now used for pasturing cattle or for the production of feed.

The Contractor shall be responsible for contacting the owner to decide whether excavated material shall be spread on only one or both sides of the drain. In cases of dispute, the Engineer's decision respecting allowances for disposal of excavated material shall be final.

#### 10.7.3 HARDPAN EXCAVATION

Where hardpan is excavated through tillable lands all of the excavated hardpan shall be loaded, hauled and disposed of at sites provided by the Contractor at the Contractor's own expense.

Where hardpan is excavated through lands that are not tillable, hardpan shall be disposed of as outlined under Case B for earth excavation.

#### 10.7.4 ROCK EXCAVATION

Where rock is excavated through tillable lands, all rock excavation, boulders and other debris that would render unsightly the appearance of the finished work, or that would be injurious to farm implements or machinery shall be loaded, hauled and disposed of in locations provided for this purpose by the Contractor at the Contractor's expense.

Where rock is excavated through lands that are not tillable, rock excavation shall be disposed of as outlined under Case B for earth excavation.

#### 10.7.5 PROPERTY OWNERS RELEASE FOR DISPOSAL AREAS USED BY THE CONTRACTOR AND OTHER WORKS ON PROPERTY OWNERS LANDS

Upon completion of the Contract, the Contractor shall provide the Engineer with a copy of a form of release signed by all owners whose property was used as a disposal area and/or upon whose property the work under this Contract is performed, as follows:



SPECIFICATION FOR THE SUPPLYING, EXCAVATING FOR  
AND PLACING CORRUGATED STEEL PIPE CULVERTS

14.0 DESCRIPTION OF WORK

The work to be performed under this specification shall include the supplying of the pipe, all necessary excavation and preparation of the foundation for the pipe, all handling and placing including assembling the pipe, if necessary, all backfilling of the excavation, all trimming and shaping of the backfilled materials and the disposal of all surplus excavated materials.

14.1 MATERIALS

All culvert material supplied under this specification shall be new and of the gauge and treatment specified in the tender. Pipe culverts shall be handled with care. The Engineer may reject any pipe culvert which has been damaged or which does not meet the normally accepted standards of good quality pipe culverts.

14.2 EXCAVATION FOR CULVERTS

The excavation shall be a trench with vertical sides which shall vary in width and depth and shall have a minimum width of 2 feet wider than the inside diameter of the pipe or pipe arch to be installed. Where multiple pipes or pipe arches are used they shall be spaced a minimum of 12" or one-third the diameter or span of the pipe, whichever is the greater apart.

14.2.1 PREPARATION OF BED IN EARTH EXCAVATION

The final stages of excavation shall be done by hand or in such a manner that no material is disturbed below the line for the bottom of the pipe or pipe arch. The bottom of the trench shall be carefully shaped to receive the lowest segment of the pipe or pipe arch to a depth of 10 per cent of its diameter.

No extra payment will be made for such final preparation of the bed for the pipe.

14.2.2 PREPARATION OF BED IN ROCK OR BOULDER FORMATIONS

When excavation in rock or boulder formation is made the depth of the trench shall be increased for cushioning not less than 8 inches below the bottom of the pipe and the trench shall be backfilled with suitable material approved by the Engineer, shaped and compacted.

14.2.2 PREPARATION OF BED IN ROCK OR BOULDER FORMATIONS - Cont'd.-

No extra payment will be made for such additional excavation, backfilling with suitable materials, and final preparation of the bed for the pipe in rock or boulder formation.

14.2.3 PREPARATION OF BED IN UNSTABLE MATERIAL

Where a firm foundation is not encountered at the grade established for the pipe due to soft, spongy or other unsuitable material such unsuitable material shall be removed, the width of the excavation shall be from firm ground to firm ground or equal in width to 3 times the diameter or span of the pipe or in the case of multiple pipe installation equal to the distance between the outside edges of the pipes or pipe arches plus 1 foot on each side, whichever is the lesser, and to a minimum depth of 12 inches below the bottom of the pipe.

The excavation shall be backfilled to grade with pit-run gravel or other suitable foundation material approved by the Engineer. The material so placed shall be thoroughly compacted to provide adequate support to the pipe.

No extra payment will be made for such additional excavation, backfilling with suitable materials and final preparation of the bed for the pipe.

14.3 PLACING PIPE AND PIPE ARCH CULVERTS

All culvert pipes shall be carefully laid in their prepared beds in the required lengths and diameters and true to line and grade.

Corrugated steel pipe sections where required, shall be joined by means of couplers supplied by the Manufacturer.

14.3.1 BACKFILLING

Backfilling shall be made with selected material free from large lumps, stones or fragmentary rock. The backfill material shall be compacted by tamping to the full width and depth of the excavation with particular care being given to thoroughly consolidate the material under the haunches of the pipe or pipe arch.

All pipe and pipe arch culverts having a diameter or span of 7'-0" or less shall have a minimum cover of fifteen inches (15"). Pipe and pipe arch culverts having a diameter or span greater than 7'-0" shall have a minimum cover of two feet.

#### 14.3.1 BACKFILLING - Cont'd.-

Where the top of the pipe or pipe arch is higher than 1 foot below original ground for culverts having a span or diameter of 7'-0" or less or 2 feet below original ground for culverts having a span or diameter greater than 7'-0", or above the original ground level, the top of the crossing shall be horizontal from brow of drain to brow of drain or minimum of two feet beyond the edge of the pipe or pipe arch culvert whichever is the greater length and sloped to original ground using a maximum slope of 10:1.

In all other cases the top of the crossing shall extend from brow of drain to brow of drain.

The backfill of all pipe and pipe arch culverts shall be protected on the upstream and downstream ends by hand-laid rip-rap placed nearly vertically or at a 1/4:1 slope, using field stones or fragmentary rock placed to a minimum of one foot below the finished crossing grade over the pipe but in no case less than one foot above the top of the pipe. Rip-rap placed for farm entrance culverts shall be grouted to the satisfaction of the Engineer.

Culverts designated as field crossings shall have a finished minimum width of 14 feet. Culverts designated as farm entrances shall have finished minimum width of 20 feet.

No extra payment will be made for the backfilling or rip-rap protection either hand-laid or grouted, of the pipe culvert.

#### 14.4 BASIS OF PAYMENT

Payment will be made at the contract price per lineal foot of culvert installed for the supplying, excavating for and placing of the corrugated steel pipe or pipe arch culverts. Such payment will include the supply of new pipe or pipe arch culverts, with couplers if required, the necessary excavation regardless of the nature of the excavated materials, the preparation of the bed for the pipe or pipe arch as specified herein, the supply of any suitable materials for backfilling, the placing of the pipe or pipe arch, the backfilling of the pipe including rip-rap protection, and all necessary demurrage, unloading hauling, handling and storage of the pipe or pipe arch culverts.

GENERAL CONDITIONS  
OF  
THE CONTRACT

1.0 DEFINITIONS

1.1 In this contract the following definitions shall apply:

"Corporation" - means the Municipal Corporation entering into the Contract with the Contractor.

1.2 "Contractor" - means the person, partnership or Corporation undertaking the execution of the work under the terms of the Contract.

1.3 "Engineer" - means the person, partnership or persons authorized by the Corporation to act on their behalf in any particular capacity.

1.4 "Specifications" - means all written or printed descriptions or instructions pertaining to the method and manner of performing the work, or to the quantities and qualities of the materials to be furnished under the Contract, and includes the Tender, General Conditions, Standard Specifications, and Special Provisions, together with all written agreements, made or to be made pertaining to the method or manner of performing the work, or to the quantities or qualities of materials to be furnished under the Contract.

2.0 CONTRACTOR'S INVESTIGATIONS, SURETY AND CONFORMITY OF WORK WITH PLANS & SPECIFICATIONS

2.1 CONFORMITY OF WORK WITH PLANS AND SPECIFICATIONS

The Contractor shall perform all work and shall furnish all materials, equipment and labour and complete the whole of work in strict conformance with the plans and specifications.

## 2.2 CONTRACTOR'S INVESTIGATION

The Contractor declares that in tendering for the work and in entering into this Contract, he has either investigated for himself the character of the work to be done and all local conditions or that, not having so investigated, he is willing to assume and does hereby assume, all risk of conditions now existing or arising in the course of the work which might or could make the work or any items thereof more expensive in character or more onerous to fulfill, than was contemplated or known when the Tender was made or the Contract signed.

## 3.0 SCOPE OF WORK

### 3.1 ESTIMATED QUANTITIES

The estimated quantities set forth in the Tender are approximate only, and the basis of payment under this Contract shall be the actual amount of work done and material furnished.

### 3.2 CHANGES AND ALTERATIONS

The Corporation may at any time before or after the commencement of the work or execution of the Contract delete, extend, increase, decrease, vary or otherwise alter the lines, grades, forms, dimensions, methods, plans or materials of the work or any part thereof. If the character of the work is actually changed from that on which the contractor based his bid, other than estimated quantities, and if the change materially increases or decreases the cost of the work, the Contractor shall proceed with the work and either party to the Contract upon written request to the other shall, as soon as reasonably possible, negotiate upwards or downwards the compensation for that portion of the work so affected.

### 3.3 CLEANING UP BEFORE ACCEPTANCE

Before any work shall be finally accepted by the Corporation, the Contractor shall make such corrections of faulty workmanship as have been directed by the Engineer, and he shall do such trimming and disposal of rubbish and surplus materials as to leave the work neat and presentable throughout.



### 3.4 ACCEPTANCE OF THE WORK

The Contractor shall notify the Engineer in writing when, in the opinion of the Contractor, the work has been satisfactorily completed, and the Engineer shall then cause the work to be inspected. When it is found by the Engineer to be completed in accordance with the plans and specifications, he shall give notice in writing to the Contractor of the acceptance of the work.

### 4.0 CONTROL OF THE WORK

#### 4.1 ENGINEER'S AUTHORITY

The Engineer may supervise and direct all work included herein and he shall determine the quantities of the several kinds of work which are to be paid for under this Contract, and determine all questions relating to the said work and the construction thereof. The Engineer shall in all cases decide every question which may arise relative to the performance of this Contract and his estimate and findings shall be final. He shall within a reasonable time render a decision on all claims by the Contractor and all questions which may arise relative to the performance of the work, or the interpretation of the Contract.

#### 4.2 LINES AND GRADES

The Engineer shall set such stakes as are necessary to mark properly the general location, alignment, elevation, and grade of the work. The Contractor shall give the Engineer reasonable notice of the time and place where the lines and grades will be needed. The Contractor shall assume full responsibility for detail dimensions and elevations measured from the lines, grades and elevations so established.

All stakes, marks and reference points shall be carefully preserved by the Contractor and in case of their destruction or removal by him, his agents or his employees, such stakes, marks and reference points shall be replaced by the Engineer at the Contractor's expense.

### 5.0 RESPONSIBILITIES

#### 5.1 CONTRACTOR'S RESPONSIBILITY FOR DAMAGES

The Contractor, his agents and all workmen and persons employed by him or under his control, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work, and the Contractor shall be solely responsible for all damages by whomsoever claimable in respect of any such injury.

When the contractor has to carry out excavation operations in the vicinity of Highways, Railways and Utilities (i.e. Buried Telephone Cable, Gas Lines and Hydro Lines, etc.) the Contractor shall notify the proper authorities so that such authorities may assign inspectors to be present during excavation operations.

## 5.2 LIABILITY INSURANCE

The Contractor shall take out and keep in force until the date of acceptance of the entire work by the Engineer, a comprehensive policy of public liability and property damage insurance acceptable to the Engineer providing insurance coverage in respect of any one accident to the limit of at least \$50,000.00 exclusive of interest and cost, against loss or damage resulting from bodily injury to or death of one or more persons and loss of or damage to property and such policy shall name the Corporation as an additional insured thereunder and shall protect the Corporation against all claims for all damage or injury including death to any person or persons and for damage to any property of the Corporation or any other public or private property resulting from or arising out of any act or omission on the part of the Contractor or any of his servants or agents during the execution of the Contract and the Contractor shall forward a certified copy of the policy or certificate thereof to the Corporation.

## 5.3 PROTECTION OF WORKERS

The Contractor shall comply with all statutes, regulations and orders relating to the protection and welfare of persons working or employed on this Contract.

## 5.4 EXPLOSIVES

The Contractor shall comply with all laws respecting the handling, storage and use of explosives.

In addition to any other precaution that may be necessary, the Contractor shall, immediately prior to a blast, clear the blasting area of all residents, vehicular and pedestrian traffic, and shall post flagmen on each road entering the blasting area, who shall stop all traffic and shall prevent such traffic from entering the area until the blast has taken place.

The Contractor shall be responsible for all claims whatsoever arising from the hauling, handling, use of or storing of explosives and all effects direct or indirect of the blasting operation.

No payment shall be made for protective measures or for damages to persons or for damages or repairs to property, structures or public utilities, or for any claim whatsoever arising from blasting operations. All such costs shall be included in the unit price bid for the item requiring the blasting.

## 6.0 PROSECUTION AND PROGRESS

### 6.1 TIME AND ORDER OF COMPLETION

The Engineer may direct the Contractor in writing as to the time, precedence or order in which any work to be done under this Contract shall be performed.

### 6.2 ASSIGNMENT AND SUBLETTING

The Contractor shall not assign, transfer or sublet the whole or any portion of this Contract, or the whole or any portion of the work to be performed under this Contract, without the consent in writing of the Engineer, and the Contractor shall not transfer or assign any monies which may be due or which may become payable under this Contract without the consent of the Engineer in writing, provided that any consent so given shall not under any circumstances relieve the Contractor of liabilities and obligations assumed by him under this Contract.

### 6.3 NON-FULFILMENT

If the Contractor fails or neglects to commence or to prosecute the work diligently and at a rate of progress that in the opinion of the Engineer will ensure the entire completion of it within the time limited therefore under this Contract, or should the Contractor become bankrupt or insolvent, commit any act of insolvency, abandon the work or fail to observe and perform any of the provisions of this Contract, of which the Engineer shall be the sole judge, or should the Contractor default in the completion of the work within the time or extended time limited therefore under this Contract, then in any such cases, the Engineer may notify him to discontinue all work under the Contract, and the Corporation may

then employ such means as it may deem necessary to complete the work, and in such a case the Contractor shall have no claim for further payment in respect of work performed but shall be chargeable with and shall remain liable for all loss, damage, expense or cost which may be suffered by the Corporation by reason of such default by the Contractor.

## 7.0 PAYMENTS

### 7.1 PRICE FOR WORK

The Contractor shall accept the compensation as herein provided in full payment for furnishing all necessary materials, labour, tools, equipment, supplies and other incidentals and for performing all work under the Contract.

### 7.2 PRICES AND PAYMENTS

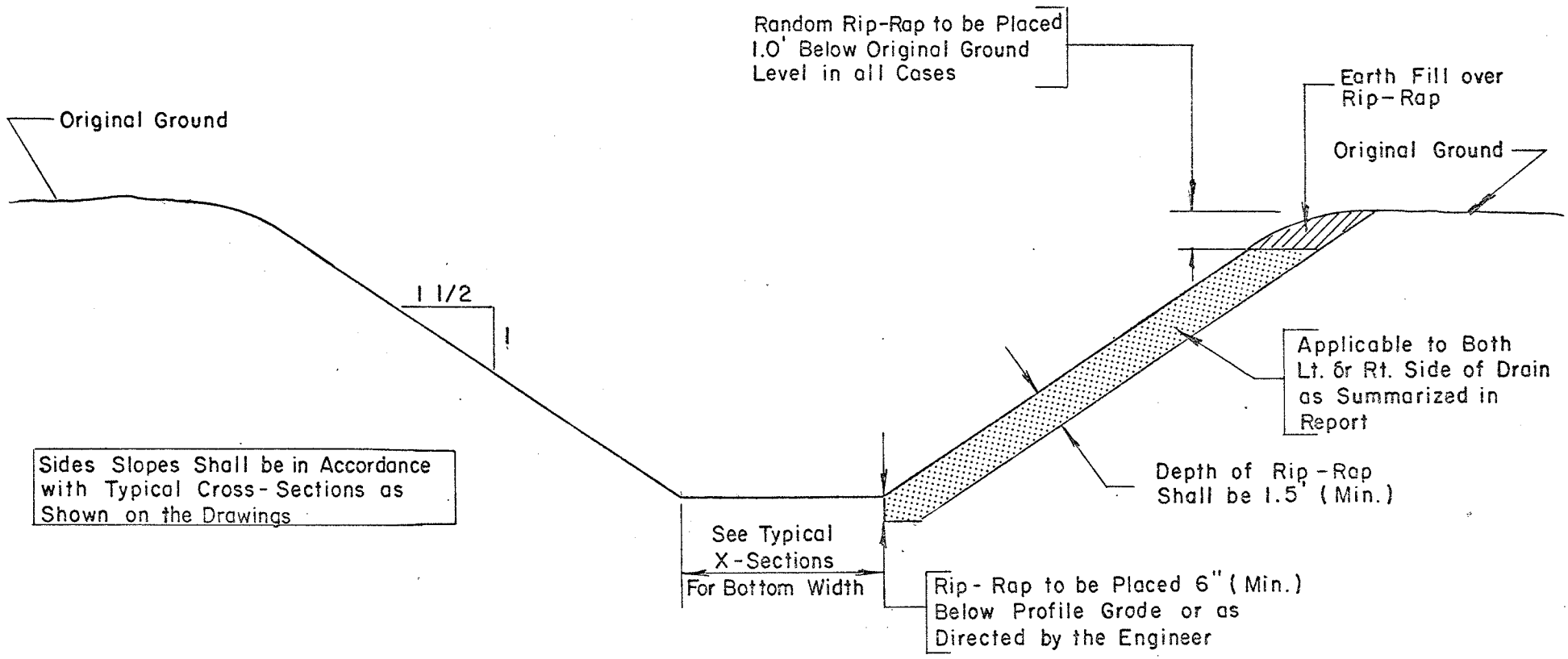
Payments shall be made monthly on certificate of the Engineer for eighty-five percent (85%) of the value of the work performed and materials installed, and the remaining fifteen percent (15%) thirty-seven days (37) after acceptance of the entire work and date of the Engineer's final certificate.

### 7.3 PAYMENT OF WORKMEN

The Contractor shall pay to all persons engaged on the work the prevailing rate of wages for the district and as recognized by the codes of the trade union involved.

The Contractor shall pay all assessments for Unemployment Insurance as required by the Government of Canada and for Workmen's Compensation as required by the Workmen's Compensation Board.

The Contractor shall make all deductions and remittances with respect to Income Tax, Unemployment Insurance and Vacation with Pay as required by law.



Sides Slopes Shall be in Accordance with Typical Cross-Sections as Shown on the Drawings

See Typical X-Sections For Bottom Width

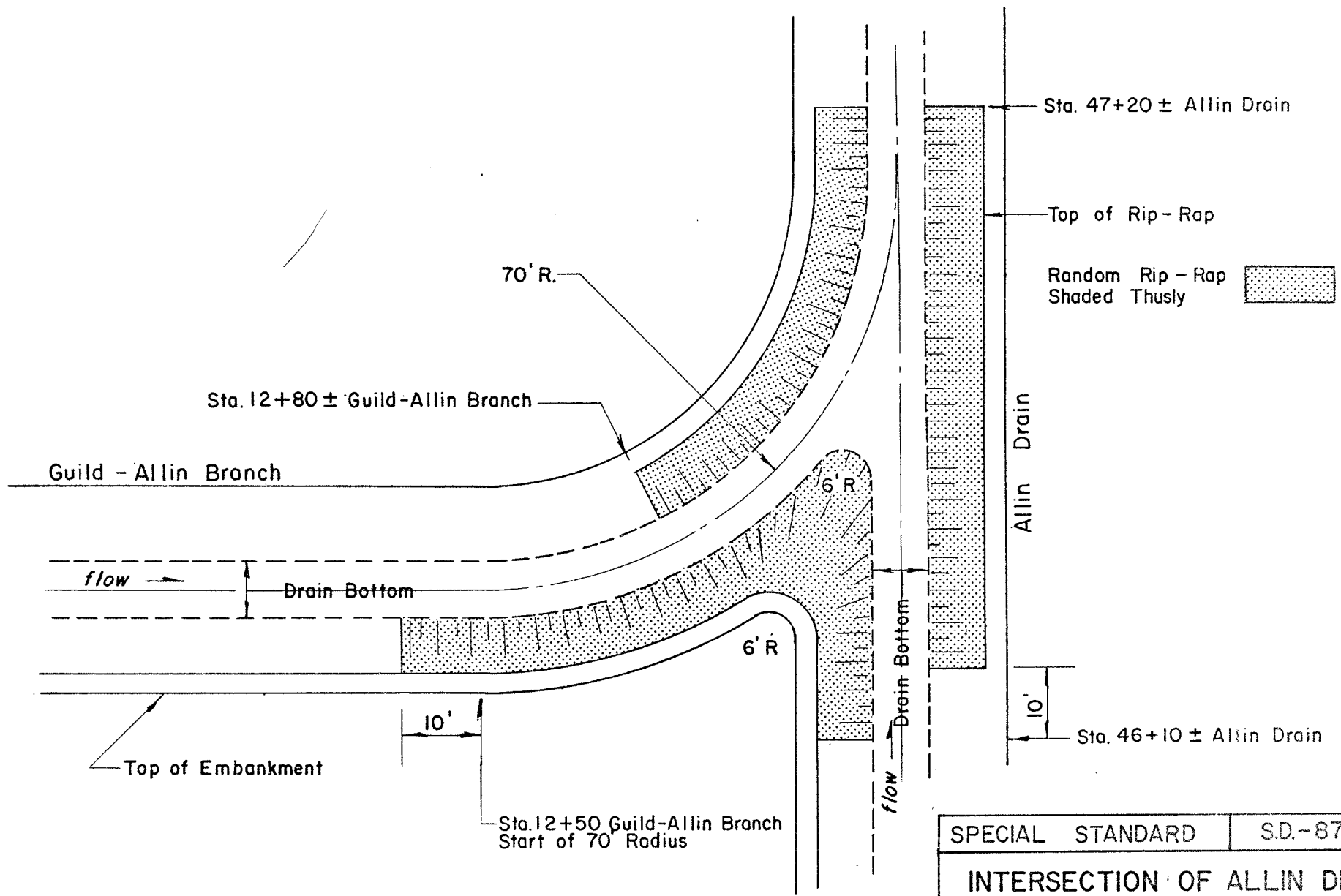
Rip-Rap to be Placed 6" (Min.) Below Profile Grade or as Directed by the Engineer

Depth of Rip-Rap Shall be 1.5' (Min.)

Applicable to Both Lt. & Rt. Side of Drain as Summarized in Report

See Engineer's Report For Locations of Rip-Rap

SPECIAL STANDARD	SD.-870-1
RANDOM RIP-RAP PROTECTION ALONG DRAIN EMBANKMENT (N.T.S.)	



SPECIAL STANDARD | S.D.-870-2

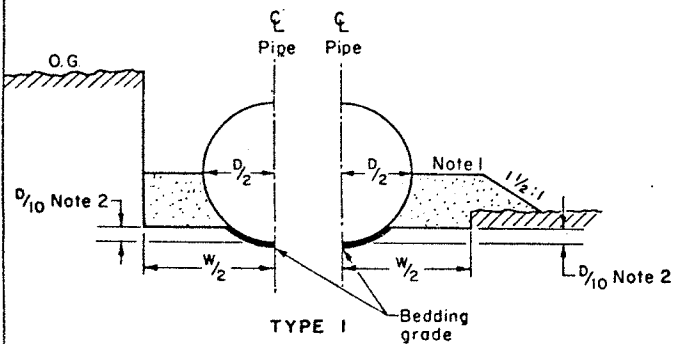
INTERSECTION OF ALLIN DRAIN  
 & GUILD-ALLIN BRANCH  
 ALIGNMENT & RIP-RAP  
 DETAILS

**KE** KOSTUCH ENGINEERING LIMITED  
 CONSULTING ENGINEERS  
 BROCKVILLE - OTTAWA - BELLEVILLE - CORNWALL

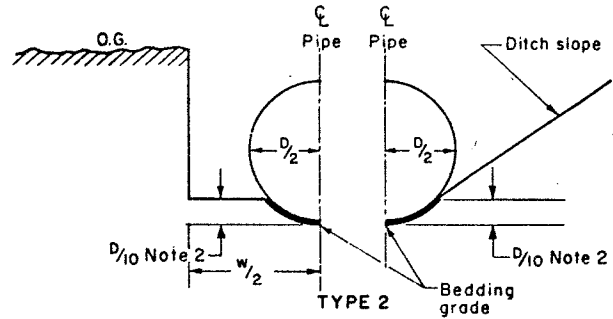
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Date	July 10/78	Rev 6

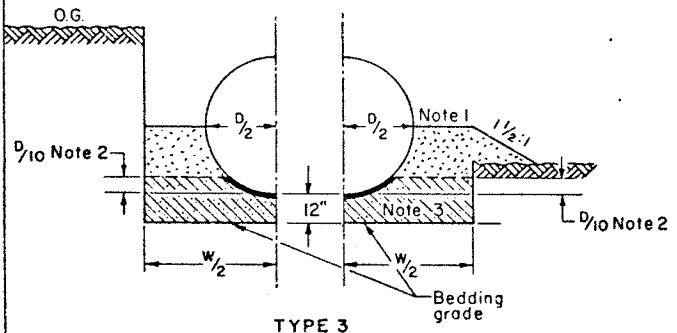


TYPE 1

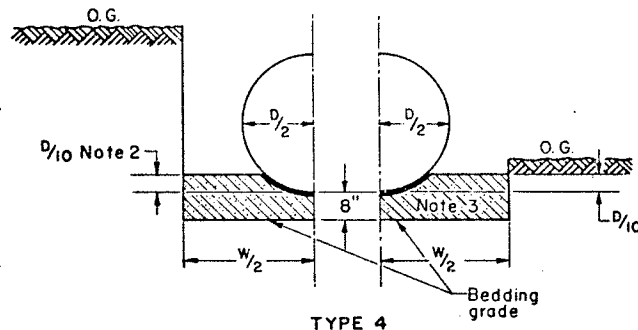


TYPE 2

EARTH EXCAVATION

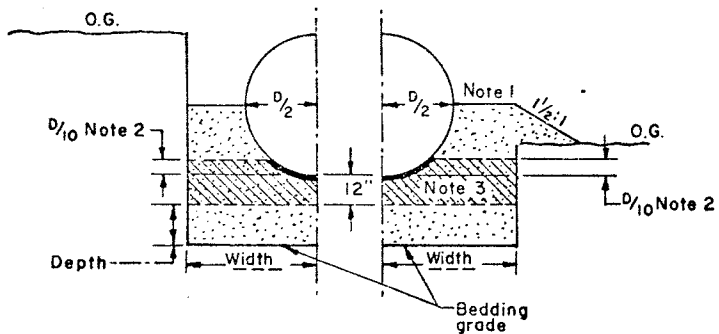


TYPE 3



TYPE 4

ROCK EXCAVATION AND / OR BOULDERY MATERIAL



TYPE 5

SPECIAL CONDITIONS

SPECIAL CONDITIONS

STA	DEPTH	WIDTH
-----	-----	-----
-----	-----	-----
-----	-----	-----

LEGEND:

- D - Diameter of pipe
- W - Minimum width of Bedding
  - D + 30" for D ≥ 42"
  - 1.67 x D for D > 42" and < 72"
  - D + 48" for D ≥ 72"

NOTES:

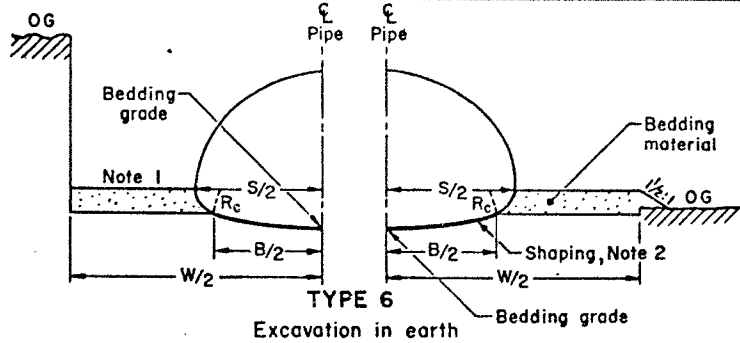
- 1 Bedding to be placed to spring line of pipe.
- 2 Pipe bed to be carefully shaped to receive the lowest segment of pipe to a depth equal to 10% of the pipe diameter.
- 3 Granular material from D/10 above invert to 12in(8" for type 4) below invert to be left uncompacted.
- A Stone size within 1ft of the surface of the pipe shall not exceed 3 in.
- B Compaction of bedding material - 95%, except for area referred to in note 3.
- C Backfill as per DD-813-A.

Type 2 bedding shall apply to the following culvert installation  
 TOWNSHIP OF ESCOTT  
 Sta. 0+17 Allin Drain  
 Lt. of Sta. 23+10 Allin Drain  
 Lt. of Sta. 28+68 ± Allin Drain  
 130 ± of Sta. 62+55 Allin Drain

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS - ONTARIO	
CORRUGATED STEEL PIPE BEDDING FOR CIRCULAR PIPE SEWERS & CULVERTS	
Drawn by <i>J.H.</i>	APPROVED
Traced by <i>S.S.</i>	<i>P.C. Colledge</i> Director Design and Construction Branch
Checked by <i>E.S.</i>	
Passed by <i>M.D.</i>	

(MODIFIED)

No DD-808-B		
Date	July 10/78	Rev 6



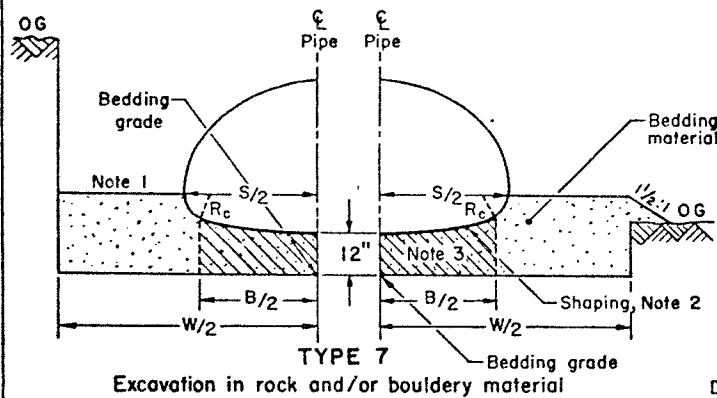
**TYPE 6**  
Excavation in earth

**LEGEND:**

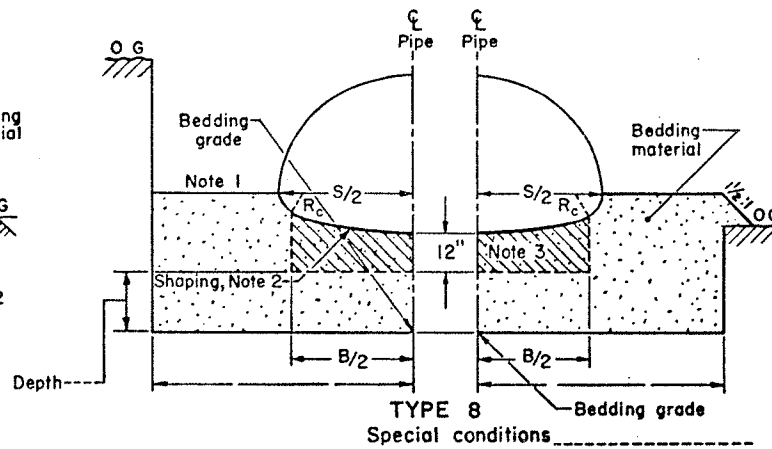
- S - span of pipe arch
- W - minimum width of bedding
  - S + 30" for S ≤ 45"
  - 1.67 x S for S > 45" and < 180"
  - S + 10' for S ≥ 180"
- B - width of area under bottom radius of pipe - arch
- R<sub>c</sub> - Corner radius

**NOTES:**

- 1 Bedding to be placed to top of corner radius of pipe - arch.
  - 2 Pipe - arch bed to be carefully shaped to receive the lowest segment of pipe formed by the bottom radius.
  - 3 Granular material beneath the bottom radius of pipe-arch to a depth of 12 in below the invert of the pipe to be left uncompacted.
  - 4 For pipe-arches with bottom radius greater than 150 in pipe-arch bed to be levelled and left uncompacted for the width of area under bottom radius of pipe-arch.
- A Stone size within 1 ft of the surface of the pipe shall not exceed 3 in.
- B Compaction of bedding material 95% except for area referred to in notes 3 and 4.
- C Backfill as per DD-813-A.

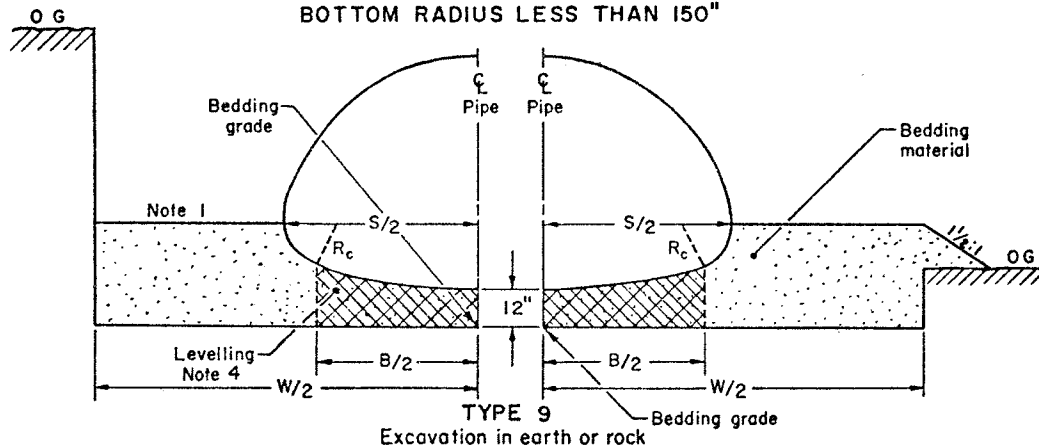


**TYPE 7**  
Excavation in rock and/or bouldery material



**TYPE 8**  
Special conditions

**RIVETED, HELICAL OR STRUCT PLATE PIPE-ARCH  
BOTTOM RADIUS LESS THAN 150"**



**TYPE 9**  
Excavation in earth or rock  
**STRUCT PLATE PIPE-ARCH, - BOTTOM RAD GREATER THAN 150"**

Type 6 bedding shall apply to road  
culvert installation  
Sta. 4+13 Guild-Allin branch

MINISTRY OF TRANSPORTATION  
AND COMMUNICATIONS - ONTARIO

**CORRUGATED STEEL PIPE  
BEDDING FOR PIPE  
ARCH SEWERS & CULVERTS**

Drawn by S.S.  
Traced by S.S.  
Checked by E.G.A.  
Passed by [Signature]

APPROVED  
[Signature]  
Director Design and Construction Branch



(MODIFIED)

No DD-813-A		
Date	Sept. 11/78	Rev 8

NOTES:

1 CASE X

Cover material shall be earth or native backfill in earth fills, and granular in rock fills. Cover material shall be free from stones exceeding 3" in size

$$C_1 = 1.5' \text{ for } h < 10'$$

$$C_1 = 2.0' \text{ for } h \geq 10'$$

CASE X APPLIES:

- a) In all rock fills
- b) Where frost tapers are not indicated in the contract

2 CASE Y AND Z

Cover material shall be granular (free from stones exceeding 3" in size)

$$C_2 = 1.5'$$

Frost tapers are not required in rock fills.

3 Pipe bedding as per standard DD-808-A, DD-808-B or DD-823.

A Compaction of granular backfill material 100%. Earth backfill 95%.

Case Y shall apply to the following culvert installation:  
Sta. 4+13 Guild - Allin Branch.

LEGEND:

- "d" Denotes depth of granular (roadbed).
- "f" Denotes depth of frost treatment = 5'-0"
- "OD" Denotes outside diameter.

Case X shall apply to the following culvert installations:  
Sta. 0+17 Allin Drain  
Lt. of Sta. 23+10 Allin Drain  
Lt. of Sta. 28+68 Allin Drain  
130 Lt. of Sta. 62+55 Allin Drain

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS - ONTARIO

# BACKFILL FOR PIPE CULVERTS

Drawn by S.S.	APPROVED
Traced by S.S.	<i>[Signature]</i>
Checked by E.G.	Director Design and Construction Branch
Passed by <i>[Signature]</i>	

