



LAND SURVEYORS and ENGINEERS

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LAND SURVEYORS and ENGINEERS

August 30, 2020  
21203-13

Dunnink Homes  
4988 Jones Base Line  
Guelph, Ontario  
N0B 2J0

Attention: John Dunnink

Dear Sir:

**Re: Functional Servicing  
Hyland Road and Glenburnie Drive Extensions  
City of Guelph, Ontario**

## **1.0 Introduction**

Van Harten Surveying Inc. is pleased to submit this report regarding the proposed residential development located in the northeast section of Guelph. This work was authorized by Mr. John Dunnink of Dunnink Homes.

The project involves the proposed construction of six (6) fully serviced single family homes as an extension of Hyland Road and an additional three (3) fully serviced single family homes in order to protect the existing woodlot on the property. These three (3) lots will be serviced from the cul-de-sac on Glenburnie Drive. The purpose of this functional servicing report is to evaluate the supply and distribution of municipal water; evaluate the sanitary servicing; and evaluate the general surface drainage characteristics of the development. The wetlands, east of the proposed development, are presently owned by the applicant.

## **2.0 Site Location and Existing Conditions**

The subject lands are located near Eramosa Road and Victoria Road in the northeast section of Guelph. The northern part of this development will be an eastern extension of Hyland Road and the southern part will be serviced from the existing cul-de-sac on Glenburnie Drive. The proposed Hyland Road extension is abutting existing residential developments and surface drainage is generally directed to an existing 450 mm diameter culvert in the southeast corner that conveys water to a protected wetland to the south. The proposed Glenburnie Drive extension is abutting existing residential developments to the

north, west, and south with overland surface flow towards protected wetlands to the east. The existing building on the Hyland Road development will be demolished including the asphalt driveway. There are no private wells on either property.

### **3.0 Proposed Development**

The subject lands are located at the eastern limit of a fully serviced and established residential subdivision in the northeast section of Guelph. The Hyland Road extension covers 1.065 ha and includes the development of six (6) lots under a Draft Plan of Subdivision Development. The City of Guelph opposes individual sewage pumps where the owner would become responsible for their own pump. The applicant has agreed, as proposed, by the City to install a central pumping station where sewage will flow by gravity to this single pumping station. If the City is not interested in maintaining this pumping station, the applicant is proposing a communal annual fee for each home owner in this development to go into a trust account for maintenance purposes and the City reduce their property taxes accordingly. The applicant is also proposing to deposit into this trust account sufficient funds to cover the cost of replacement and/or repair of the system for a period of five (5) years from the time the last property owner has purchased their home. The trust account is to be managed by the developer for this five (5) year period after which it is to be managed by three of the property owners as selected by all the property owners. In the alternative, the developer proposes the City of Guelph enters into an agreement, registered on title, to maintain the pumping station at the cost of the beneficial home owners. These costs will be added to the City Invoice.

The proposed houses on the Hyland Road development will be constructed without basements and footings will be no more than 1.2 m below grade to assist in depth of sanitary sewer and weepers, if needed, will be pumped to the surface. The Glenburnie lots cover 0.674 ha and includes the development of three (3) lots.

The proposed development is located in a WHPA B with a vulnerability score of 6 and is subject to DNAPL policies. The applicant is not aware of any DNAPL products stored or handled on the property.

### **3.1 Hyland Road**

The existing Hyland Road will be reconstructed with the continuation of the existing road cross-section and surface features (sidewalk, curb & gutter, and boulevard) to approximate the limit of the existing wetlands. The road side abutting the wetlands is proposed to be a modified road cross-section with an urban cross-section on the north half of the road and a rural cross-section on the south side of the road with no sidewalk and curb & gutter. Instead

of curb & gutter a 0.6m paved shoulder will be constructed and the slope will be covered with 150mm rip-rap for erosion protection and promote spread drainage entering the wetlands (see fig. 1).

The road elevations of the proposed Hyland Road reconstruction will be elevated (approximately 0.4m) to eliminate the existing steep grade and to provide for a more favourable profile to service the proposed development.

Hyland Road will be provided with a cul-de-sac to provide for turning movements for vehicles as illustrated on the Grading Plan.

The proposed zoning for this development is to be R-1B.

### **3.2 Glenburnie Drive**

The existing cul-de-sac at the east limit of Glenburnie Drive is to remain to accommodate three (3) new single family residences on 0.67 ha of land in accordance with the City of standards.

A section of the existing curb and gutter on Glenburnie Drive will be removed and new depressed curb will be constructed to accommodate the newly created driveways. Alternatively, the existing curb may be saw-cut for the proposed driveways.

The proposed lot grading on the Glenburnie Drive development is from the front to the rear as illustrated on the Grading Plan.

The proposed zoning for this residential development is to be R-1B.

### **4.0 Water Supply**

The City of Guelph has modelled the proposed development in the City's water model and it appears that sufficient and adequate capacity is available from the City's water supply and distribution system pressures. Water pressure in the water mains in the vicinity of the

proposed development under certain conditions such as peak hour demand scenario at locations with elevation at 365m height AMSL could range from 38.0 to 42 psi (40 psi +/- 2.5 psi) and average day demand scenario at locations with elevation at 357 m height AMSL could range from 47.5 to 52.5 psi (50psi +/- 2.5 psi) in the existing water system. The second level of the proposed single family house is approximately 357 m height AMSL.

#### **4.1 Hyland Road Watermain**

The Hyland Road development will be serviced by an extension of the existing 150 mm diameter water main to suit the development. The domestic water service connection services will 25mm diameter copper as per City of Guelph standards. The proposed water main will be designed and constructed in accordance to City's standards including burial depth of a minimum of 2 metres below finished grades and pipe material comprising PVC DR-18. Fire hydrants will be added, if required, to satisfy spacing requirements of the municipality and Ontario Building Code. The Watermain Laterals will be installed in accordance with City of Guelph Standard SD-55

#### **4.2 Glenburnie Drive**

The domestic water service connections will be connected to the existing 200mm watermain on Glenburnie Drive. Minor extension/adjustment of the 200mm diameter watermain may be required to suit the domestic water services connections. The domestic water service connection services will 25mm copper in diameter as per City Of Guelph standards. Fire hydrants will be added, if required, to satisfy spacing requirements of the municipality and Ontario Building Code.

#### **5.0 Sanitary Servicing**

The City of Guelph has modelled the City's sanitary sewer and concluded that sufficient and adequate capacity is available in the existing sanitary sewer along Hyland Road and Glenburnie Drive and the downstream sanitary sewer system to accommodate discharge of sanitary flows from the proposed development. The sanitary laterals will be installed as per City of Guelph Standard Drawing SD-55.

#### **5.1 Hyland Road Sanitary Sewer**

The existing sanitary sewer on Hyland Road is too shallow to accommodate gravity sewage flow from the proposed Hyland Road Development. Therefore, it is proposed to construct a gravity sanitary sewer flowing into a communal pumping station on an easement adjacent Hyland Road. From here, the sewage will be pumped to the existing sanitary sewer maintenance hole via a force-main. The pumping station and force-main will be designed by an outside consultant/manufacturer. The detailed design of the proposal will be submitted to the City Guelph Engineering Department during the Engineering review in the next stage of approvals. The gravity sanitary sewer service connection will a 100mm PVC pipe as per City of Guelph standards.

## **5.2 Glenburnie Drive Sanitary Sewer**

It is proposed to extend, if required, the existing 200mm diameter sanitary sewer from the terminus manhole to a new manhole to service the sanitary service connections. The proposed homes will be serviced with individual 100mm diameter gravity service connections will not be located below proposed paved driveways on these of lots.

## **6.0 Storm/Lot Drainage**

The pre and post surface drainage is discussed in surface drainage only. Additional information is available in the Storm Water Management Report and it should read in conjunction with this report.

## **6.1 Hyland Road Development**

The pre-development drainage is generally towards the south with an outlet (450mm culvert) crossing Hyland Road into the existing wetland. The post-development drainage remains similar to the pre-development. Lots 4 to 9 drainage are from the rear wall of the houses to the front via vegetated swales. The balance of the drainage in the rear yards is to roughly midpoint of the lots. The drainage is collected in a grassed swale and conveyed to the wet lands. Additional information is contained in the Water Management Report in reference to Water Quality. Roof drainage from the Hyland Road Development will be discharged on the vegetative surface towards the wetlands. Alternatively, the roof drainage may be collected in a soak-away pit complete with down spout overflow provision and filter.

The drainage of the westbound lane of Hyland Road reconstruction is dispersed in sheet flow over 150mm rip-rap on the ditch slopes into the wetlands. The drainage through the 450mm cross-culvert under Hyland Road extension will be dispersed by a flared configuration structure of 150mm rip-rap at the outlet of the culvert. Alternatively, a culvert end section may be installed at the outlet (OPSD 801.02). The storm sewer/culvert will be designed as per City of Guelph requirements. The eastbound lanes of Hyland Road is captured in a storm sewer system and then directed to the wetlands.

The major system will be conveyed overland to the wetlands via Hyland Road including 150mm rip-rap for erosion protection.

## **6.2 Glenburnie Drive**

The pre-development drainage is generally towards the east crossing the future walkway into the adjacent wetland. The post-development drainage pattern remains identical to the pre-development. Please refer to the Stormwater Management Report for additional





LAND SURVEYORS and ENGINEERS

information to pre- and post-development stormwater runoff conditions. Roof drainage from the Hyland Road Development will be discharged on the vegetative surface towards the wetlands. Alternatively, the roof drainage may be collected in a soak-away pit complete with down spout overflow provision.

There will be no additional run-off directed to the existing storm sewer on Glenburnie Drive to avoid additional analysis of the downstream existing ponds for available capacity. The drainage of the proposed lots will be contained and treated within the property with additional information available in the Storm Water Management Report.

The major storm system will be conveyed to the wetlands via the lawn areas of the development including 150mm rip-rap buffer for erosion protection.

## **7.0 Parking**

The development functions in a regular single family residential subdivision with visitors' parking in the individual driveways.

## **8.0 Snow Removal**

Hyland Road and Glenburnie Drive are existing roads and under the jurisdiction of the City of Guelph. The City of Guelph has its own snow removal management and salt application policies. Any direct run-off will be directed and captured in catchbasin(s).

## **9.0 Walkway**

The applicant proposes to convey to the City of Guelph a block of land behind Glenburnie Drive development consisting of 10.0 meters in width for the future Nature Trail and walkway. With associated grading and any other trail requirements between the rear of Glenburnie Drive development and east of the existing wetlands will be separated by a chain link fence as illustrated on fig. 2. The drainage from the Glenburnie Drive development may be conveyed over the Nature Trail in sheet flow or via pipe under the Nature Trail in concentrated flow at one or more locations. This detail may be finalized in the design phase. Rip-rap may be placed on the west side of the Nature Trail for erosion control similar to the proposal on Glenburnie Drive.

## 10.0 Conclusions

Dunnink Homes is applying for the infill development located north of Hyland Road and east of Glenburnie Drive. This report has been prepared to support the application as follows:

- 1) Road access may be provided from Hyland Road and Glenburnie Drive.
- 2) Municipal water supply for domestic purposes and fire protection will be provided from the existing watermains on Hyland Road and Glenburnie Drive. Analysis by the City of Guelph has shown water supply is adequate to service the development.
- 3) Sanitary sewer services will be provided to the existing sanitary sewers on Hyland Road and Glenburnie Drive. Analysis by the City of Guelph has shown that the existing sanitary sewers are adequate to service the development.
- 4) Storm drainage will be provided via back yard swales directed to the wetlands and storm sewer. Additional detailed information is provided in the Stormwater Management Report.

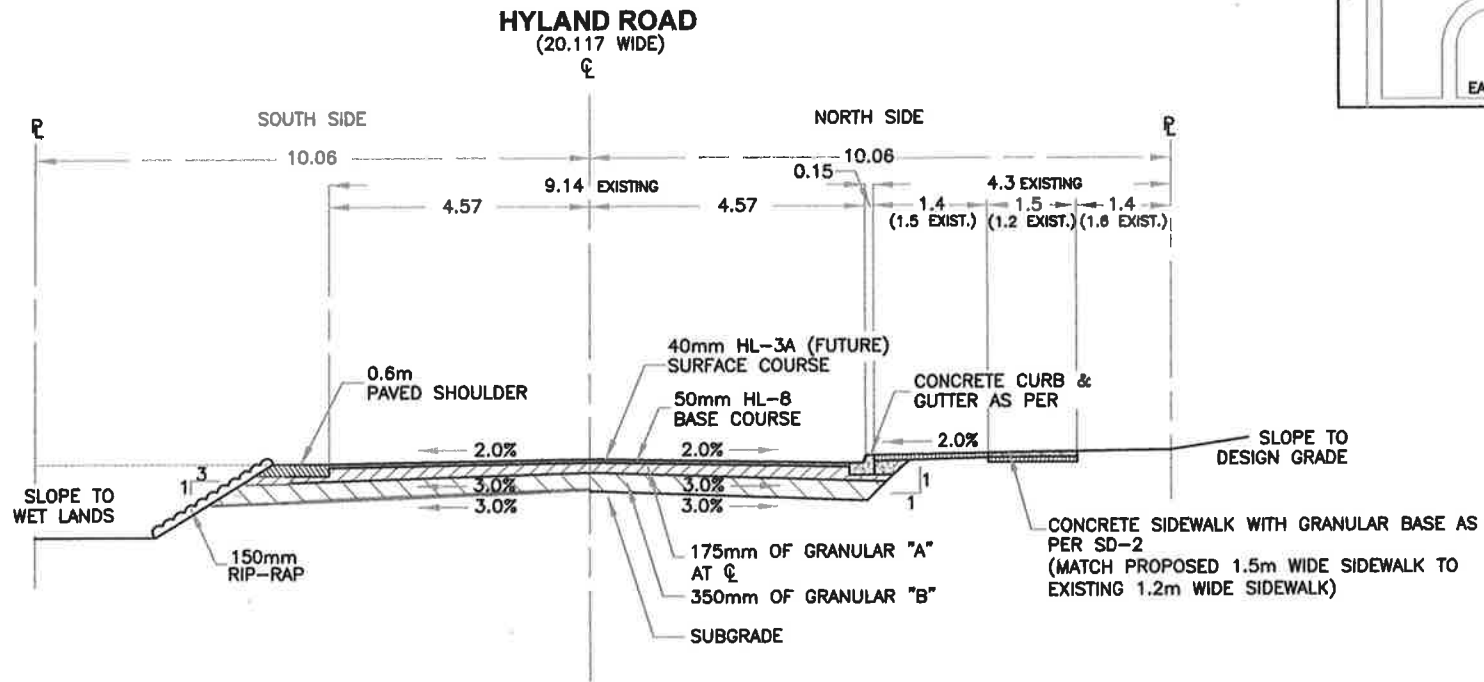
Finally, this report is intended to illustrate the feasibility of the proposed development and to obtain draft plan approvals. The authors are aware that the grading plan lacks certain design information; such as, inverts, grades, material specifications, size, etc. Any outstanding issues, information, and/or additional clarifications will be provided in the engineering submission phase of the approval process.

Respectfully submitted,

J. Duffy, P.Eng







CROSS-SECTION PLAN FOR:  
HYLAND ROAD AND  
WETLAND  
CITY OF GUELPH

NOT TO SCALE

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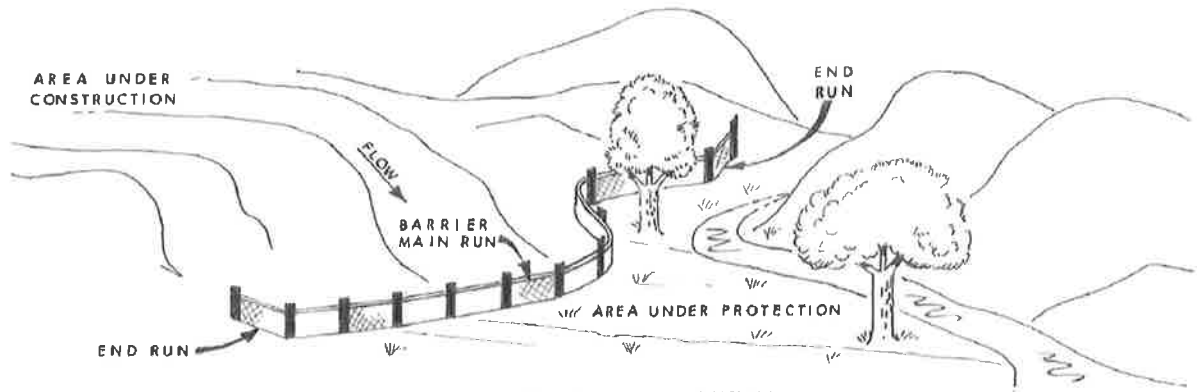
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DRAWN BY: S.J.      DESIGN BY: C.O.      CHECKED BY: 21203-13

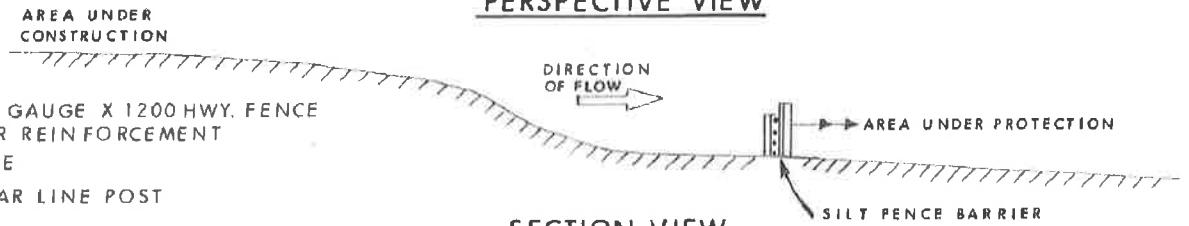
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FIGURE No. 01

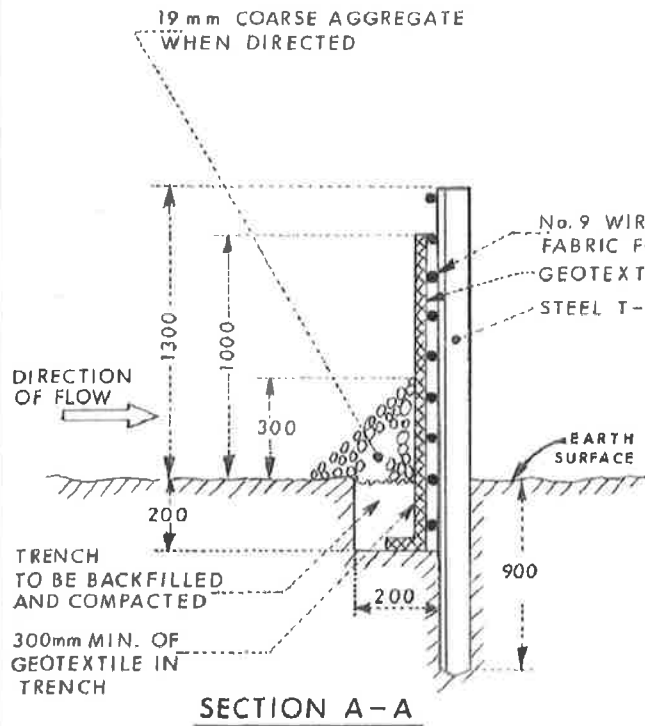
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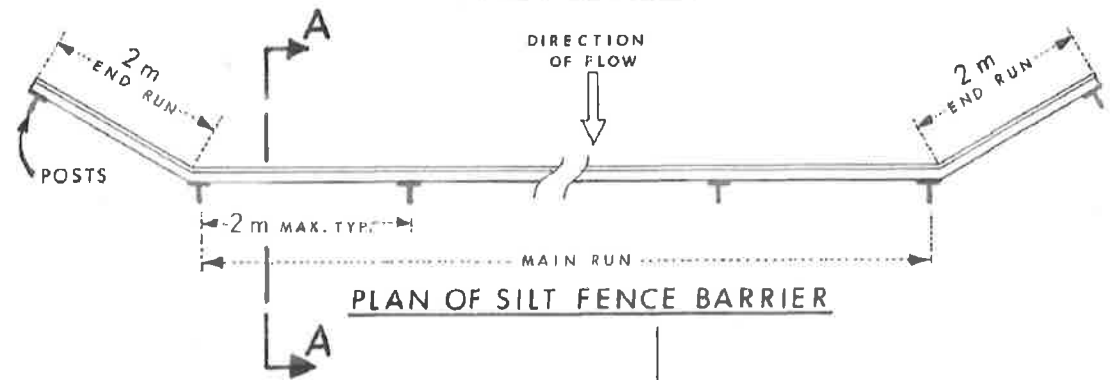
**PERSPECTIVE VIEW**



**SECTION VIEW**



**SECTION A-A**



**PLAN OF SILT FENCE BARRIER**

**CITY OF GUELPH STANDARD DRAWING**

**HEAVY DUTY  
SILT FENCE BARRIER**

DATE DRAWN: - REV. No.: R-2

DESCRIPTION: REVIEWED FEB/2005

REV. DATE: FEB/05 REV. BY.: G.F./M.E.C.

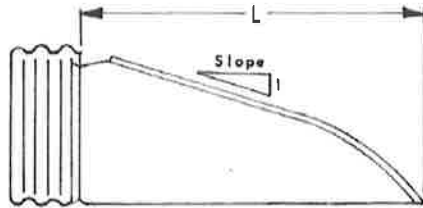
APPROVED BY:

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CITY ENGINEER

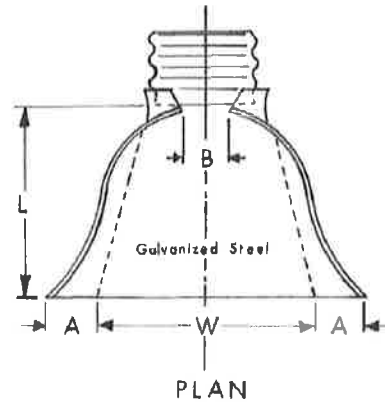


ENGINEERING

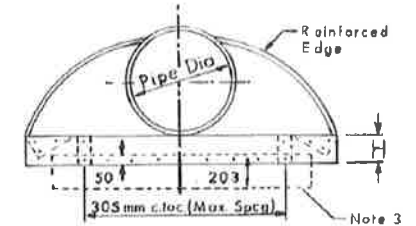
**SD - 74b**



TYPICAL CROSS SECTION



PLAN



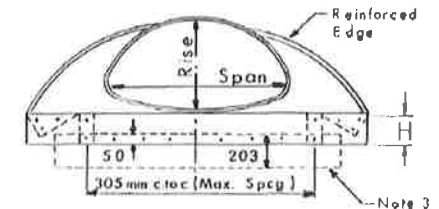
ELEVATION

END SECTIONS FOR CSP PIPE-ARCH

SPAN / RISE	GALV. METAL THK. (mm)	DIMENSIONS					APPROX SLOPE	BODY
		A ± 25	B (Max)	H ± 25	L ± 38	W ± 50		
560 x 420	1.6	180		150	585	915	2.5	1 Pc.
680 x 500	1.6	230		150	810	1220	2.5	1 Pc.
800 x 580	—	—		—	—	—	—	—
910 x 660	2.0	250		150	990	1525	2.5	1 Pc.
1030 x 740	2.0	305		200	1170	1905	2.5	1 Pc.
1150 x 820	2.8	330		230	1345	2160	2.5	2 Pc.
1390 x 970	2.8	455		305	1600	2285	2.5	2 Pc.
1630 x 1120	2.8	455		305	1780	2590	2.25	2 Pc.
1880 x 1260	2.8	455		305	1955	3200	2.0	3 Pc.

END SECTIONS FOR CSP CIRCULAR PIPE

PIPE DIA.	GALV. METAL THK. (mm)	DIMENSIONS					APPROX SLOPE	BODY
		A ± 25	B (Max)	H ± 25	L ± 38	W ± 50		
300	1.6	150	140	150	535	610	2.5	1 Pc.
400	1.6	180	260	150	660	760	2.5	1 Pc.
500	1.6	200	390	150	790	915	2.5	1 Pc.
600	1.6	250	300	150	1040	1220	2.5	1 Pc.
800	2.0	305	525	200	1295	1525	2.5	1 Pc.
900	2.0	355	440	230	1525	1830	2.5	2 Pc.
1000	2.8	405	350	280	1750	2135	2.5	2 Pc.
1200	2.8	460	625	305	1980	2285	2.25	2 Pc.
1400	2.8	460	850	305	2135	2590	2.0	2 Pc.
1600	2.8	460	1075	305	2210	2895	1.75	3 Pc.
1800	2.8	460	975	305	2210	3200	1.33	3 Pc.
2400	2.8	460	1980	305	2210	3505	1.16	3 Pc.



ELEVATION

NOTES:

1. All 3pc. bodies to have 2.8mm sides and 3.5mm centre panels. Multiple panel bodies to have lap seams tightly joined by galvanized rivets or bolts.
2. For 1500mm thru 2100mm sizes, reinforced edges to be supplemented with galvanized stiffener angles. The angles to be attached by galvanized nuts and bolts.
3. Galvanized toe plate to be provided when specified, and to be the same thickness as the end section.
4. For CSP Bedding Details see SD - 31.

CITY OF GUELPH STANDARD DRAWING

**CORRUGATED STEEL PIPE  
END SECTION DETAILS**

DATE DRAWN :  
REV. No. : R-2

DESCRIPTION :  
REVIEWED FEB/2005

REV. DATE : FEB/05  
REV. BY. : G.F./M.E.C.

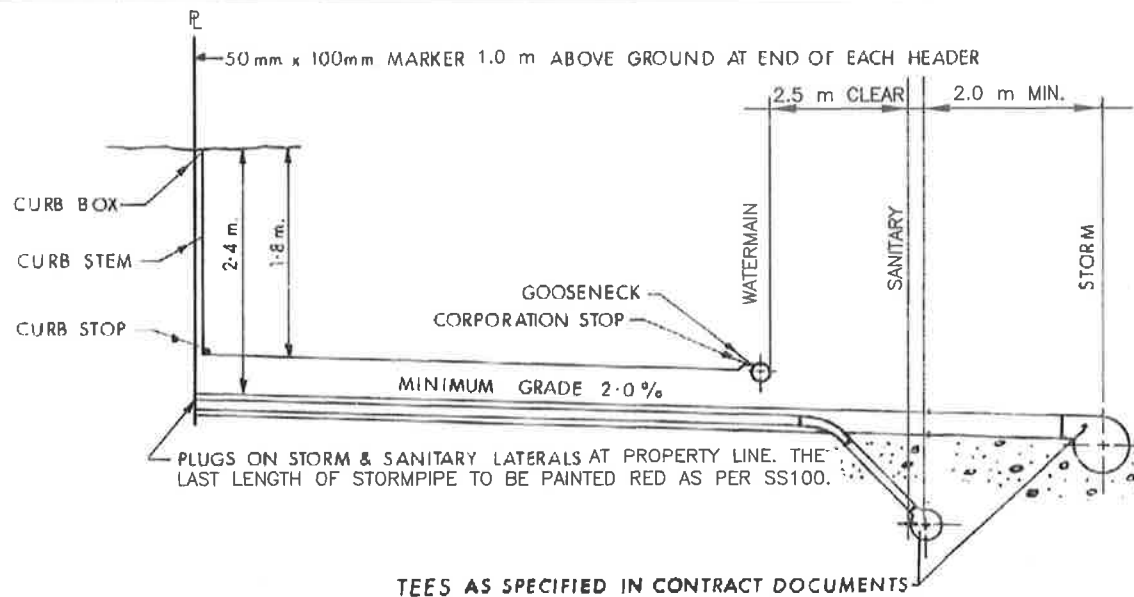
APPROVED BY:

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CITY ENGINEER



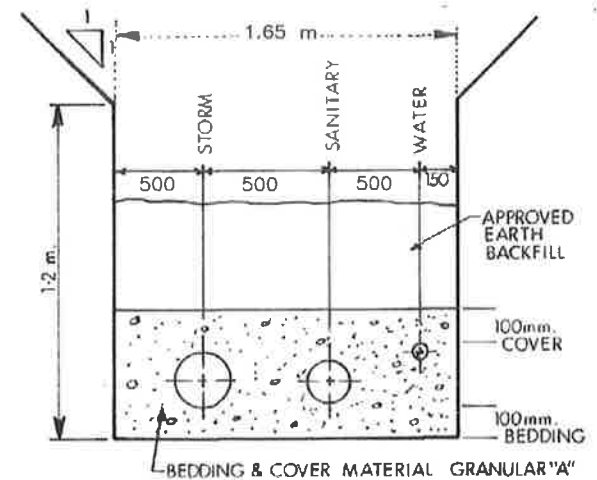
ENGINEERING

**SD - 40**



TEES AS SPECIFIED IN CONTRACT DOCUMENTS

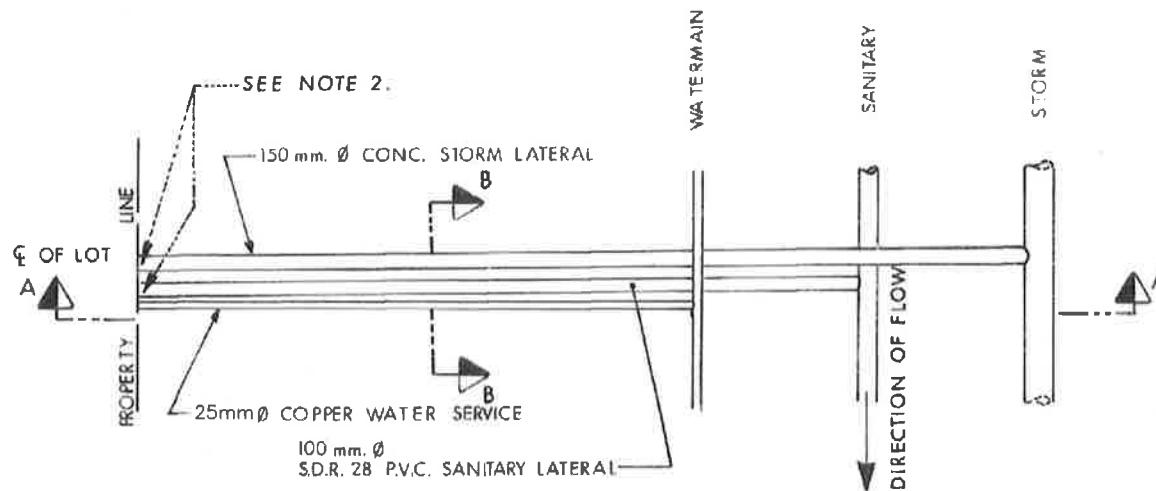
**SECTION A-A**




**SECTION B-B**

NOTE :

1. STONE SIZE WITHIN 300 mm. OF PIPE SURFACE SHALL NOT EXCEED 75 mm.
2. THE LAST SEWER SERVICE PIPE EXTENDING UP TO OR JUST PAST THE PROPERTY LINE SHALL BE AT LEAST 1.0 metre IN LENGTH.



<b>CITY OF GUELPH STANDARD DRAWING</b>		DATE DRAWN : -	REV. No. : R-7	 <b>Guelph</b> <small>Making a Difference</small>
<b>SEWER &amp; WATERMAIN LATERALS</b>		DESCRIPTION : REVIEWED JAN/2014		
		REV. DATE : FEB/14	REV. BY. : G.F./C.M.C.	
		APPROVED BY:		CITY ENGINEER

**Figure 5 – Community Trail Schematic**

