

MEETING OF THE UPPER THAMES RIVER CONSERVATION AUTHORITY HEARING COMMITTEE
THURSDAY, MARCH 18, 2021 – 1:00pm
Virtual Meeting Due to COVID-19 Pandemic

Memo to Hearing Committee Members: M. Blosch, T.Jackson, B.Petrie, A. Dale, S.Levin

Please be advised that a meeting of the Hearings Committee will be as follows:

1. **Approval of Agenda**
2. **Declaration of Conflicts of Interest**
3. **Continuation of the January 21, 2021 Hearing for Application #27-20**
Proposed Development in a Floodplain, Development in a River or Stream Valley,
Development Affecting the Conservation of Land and Alteration to a Watercourse
associated with Mills Creek (aka the Mills Award Drain)
North and South of Perth Line 29, Township of Perth South
4. **Adjournment**



I.Wilcox, General Manager

March 8th, 2021



Attention: Chair and Member of the UTRCA Hearings Committee
Upper Thames River Conservation Authority

Chair and Members:

Re: Permit Application #27/20
Mills Award Drain
Township of Perth South
Our Job No. 218288

**SPRIET
ASSOCIATES**
ENGINEERS & ARCHITECTS
155 York Street
London, Ontario N6A 1A8
Tel. (519) 672-4100
Fax (519) 433-9351
E-mail: mail@spriet.ca
www.spriet.ca

We hereby confirm receipt of the resolution from the hearing that was held January 21st, 2021 regarding the Mills Award Drain:

We have reviewed the project with the owners and have modified the proposal submitted and offer the following comments:

- The enclosure has now been reduced in length by approx. 575 meters, the new proposal being presented has no enclosure within 1000m of the Avon River.
- There will be no construction downstream of Sta. 0+520, leaving that area untouched with its natural meanders.
- The upstream watershed of the enclosure has been reduced to 133.2 ha. With approx. 21.4 ha. of that area being tiled out of the watershed to other watersheds, and no longer contributing subsurface flows to the drain. We typically treat those areas as a 50 percent reduction which makes the contributing area to the drain at 122.5 ha.
- There is no large tress being removed as part of this work.
- 2 stilling basins / pool and riffles will be created as part of the works these are shown on the drawings each located downstream of proposed tile outlets. One of the head of the ditch works (Sta. 1+000) and another at (Sta 0+615). These features were suggested by the Stuart Campbell of the DFO, as features which are beneficial to channel, but are above the requirements that were laid out in the in the Letter of Advice we received January 30, 2020
- A two-stage channel (high flow / low flow) will be created in the area where a ditch reconstruction is proposed (Approx 150m), which were suggested by the UTRCA for their positive benefits with phosphorus reduction.
- The remaining ditch work will be completed from one side leaving the existing vegetation on one bank.

- Ten new berms / WasCoB's will be created as part of the project and become permanent parts of the drainage works, which help attenuate peak flows, provided surface storage reduce surface erosion, let sediments settle out, reduces phosphorus loading ext.
- The creation of the above berms will re-create any flood storage lost from the backfilling of the existing channel and with them added this should extend the detention time of the water then the existing channel which ranges from 0.5% - 2%

The above features have been added to the project, in conjunction with others that were previously presented, many of which are considered Best Management Practices, for controlling soil erosion. These above features will be permanent features of the drain and will be maintained by the Township and will be constructed under a by-law.

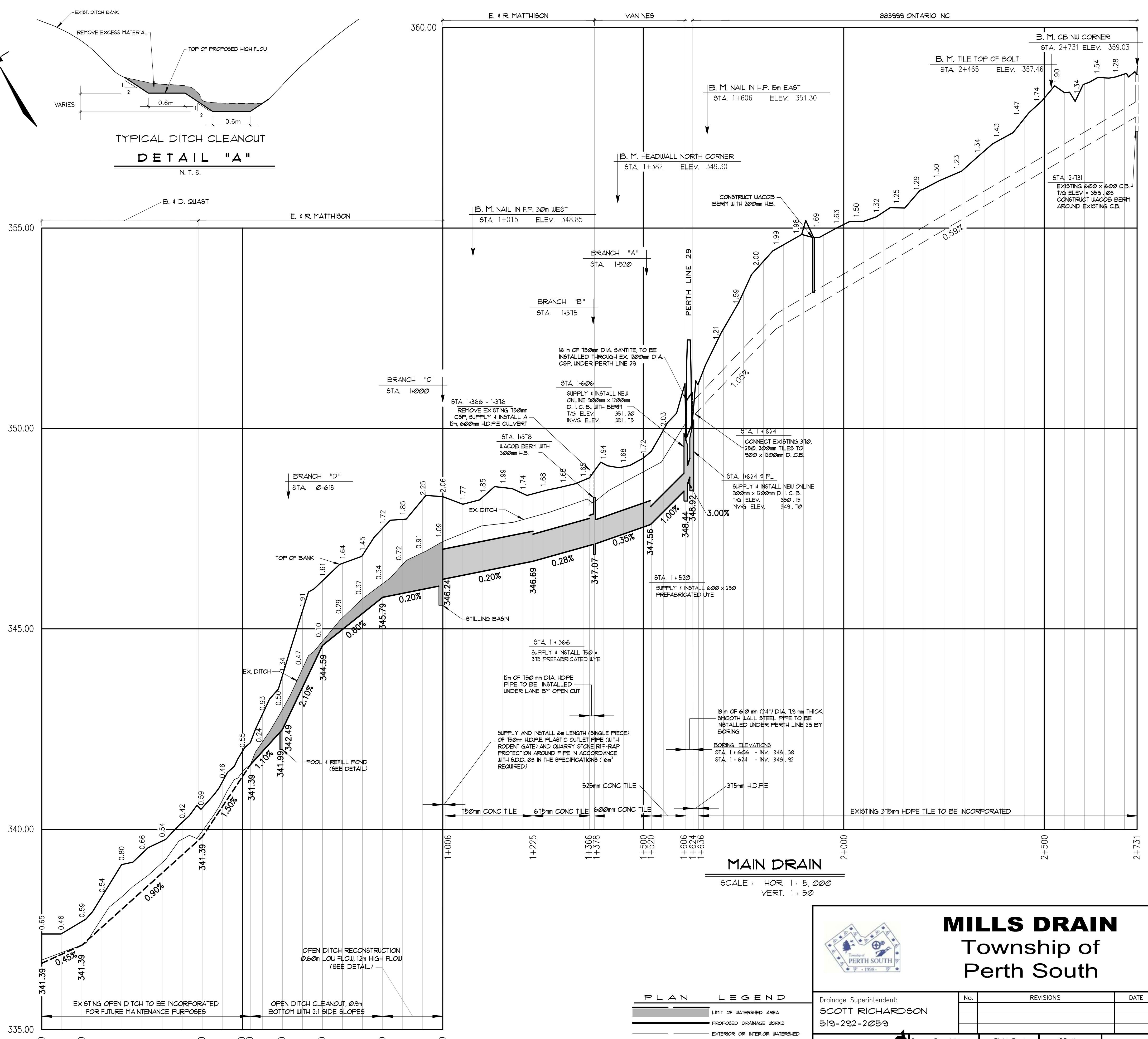
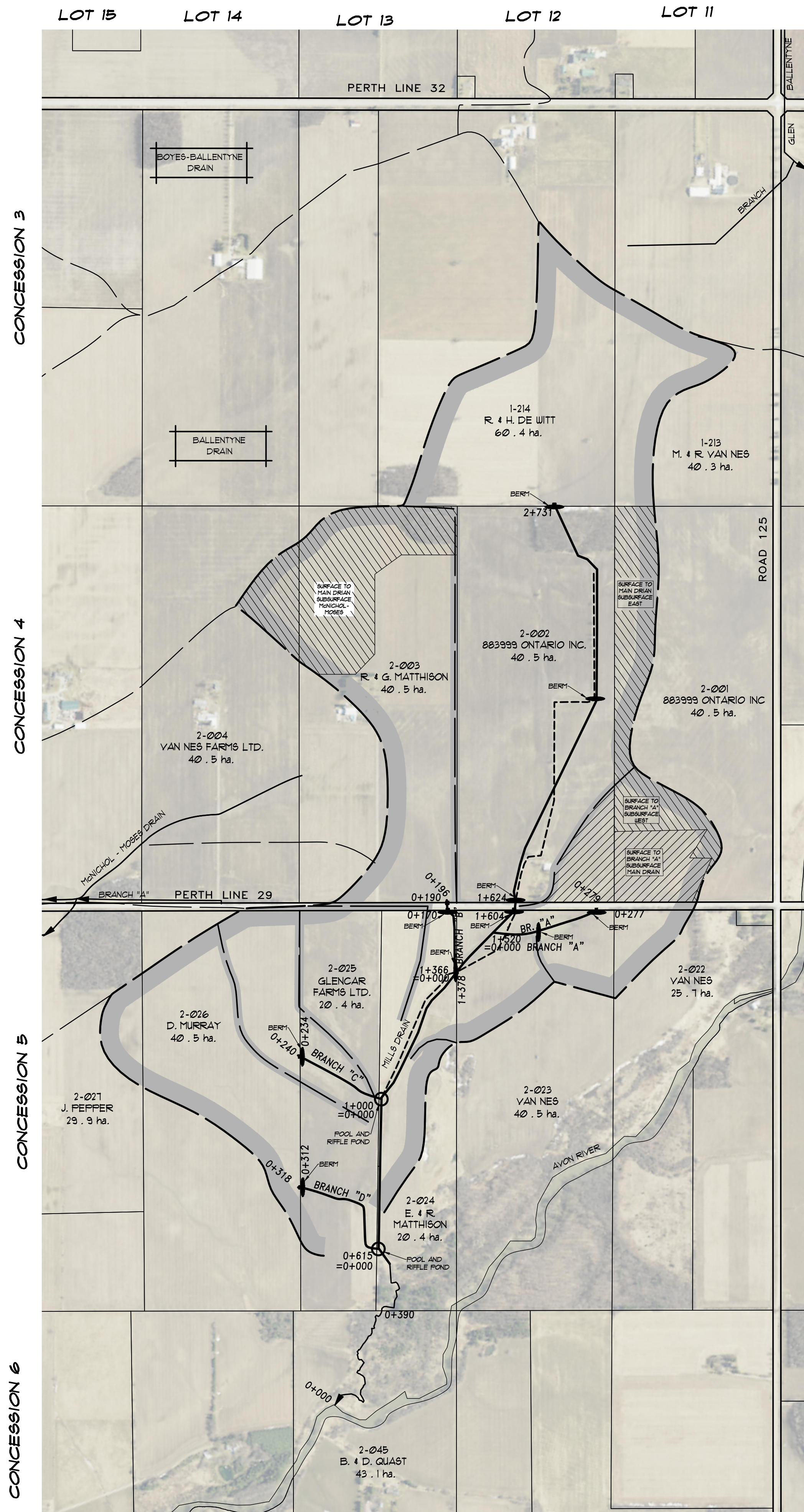
Are proposal being submitted is also like many other recent projects that have been previously approved by the UTRCA, and like many other projects that our firm has completed in many neighbouring conservation authorities ie. (LTVCA, MVCA, LPRCA).

This project was initiated by the landowners due to erosion concerns and are making a substantial investment to complete these works to reduce the erosion on their properties the cost of this project currently is estimated at approximately \$360,000.00 with most of the cost being assessed to the benefitting owners. We trust that these modifications to this project are acceptable to the UTRCA, and alleviate the concerns that they have raise.

Yours truly,
SPRIET ASSOCIATES LONDON LIMITED



B. Widner, P. Eng.



MILLS DRAIN
Township of Perth South

Drainage Superintendent:
SCOTT RICHARDSON
519-292-2059

Drawn By: MM
Date: MAR 2021

Field Book: GFS
JOB No.: 218288

Drawing No.: 1 of 2

PLAN, PROFILE, & DETAIL

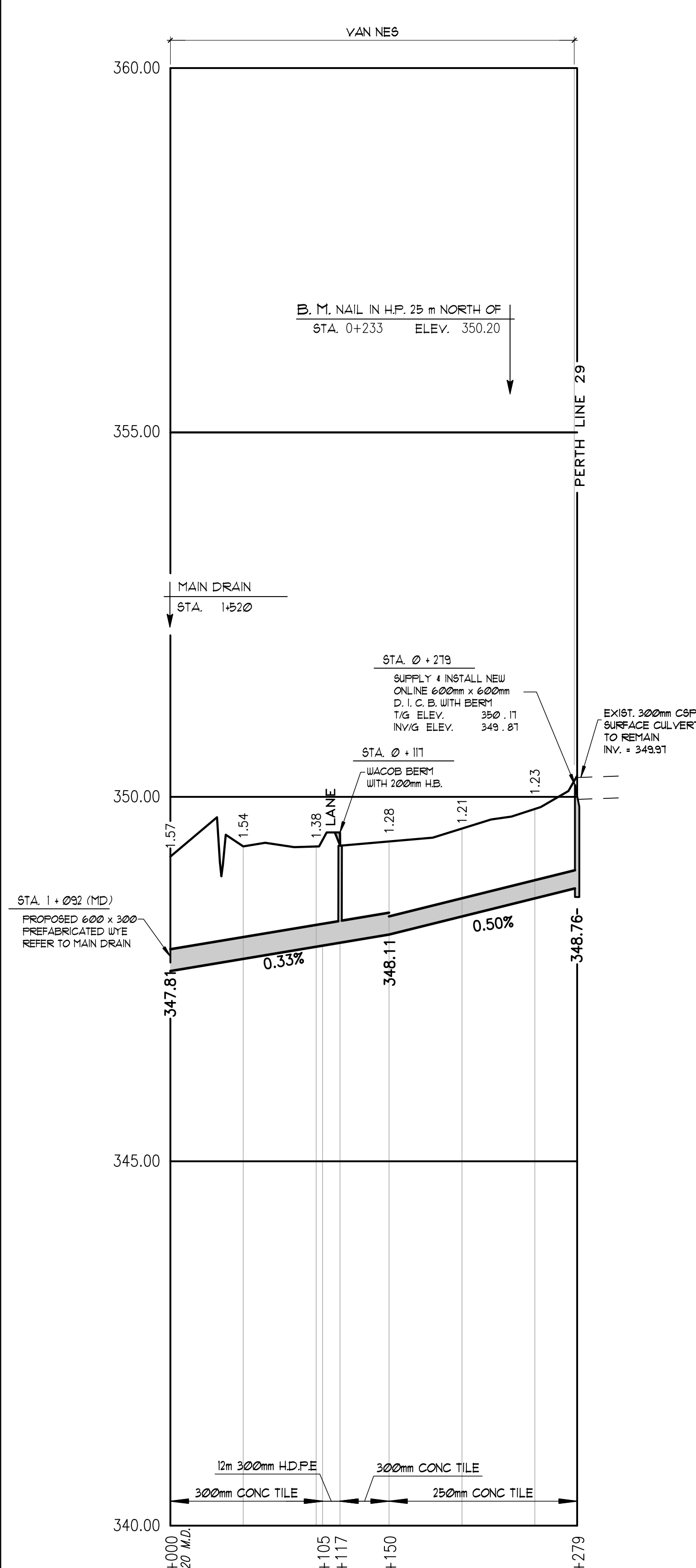
SPRIET ASSOCIATES
LONDON CONSULTING ENGINEERS
155 YORK STREET - LONDON (519) 672-4100 - NEA 1A8

No.	REVISIONS	DATE

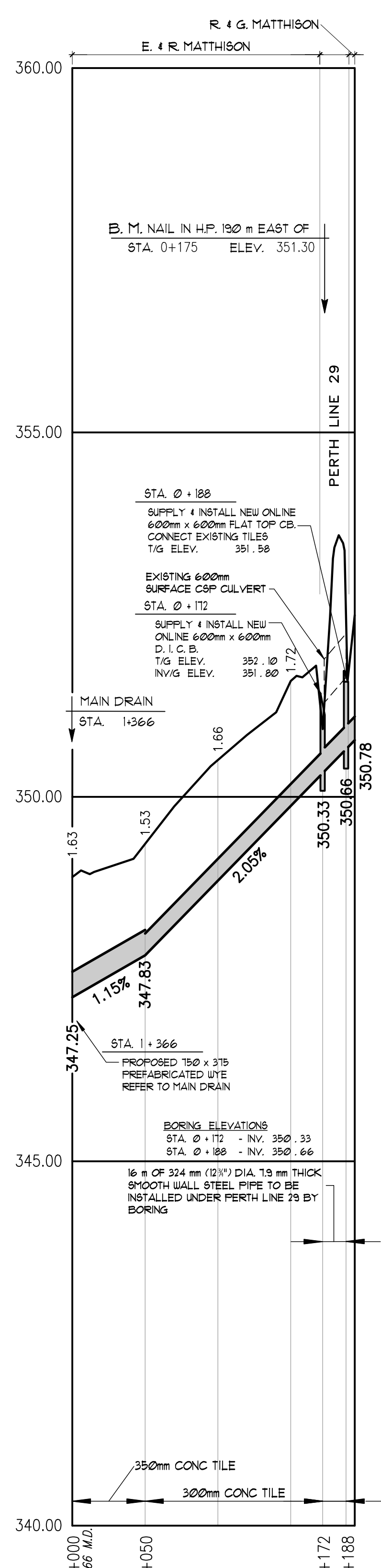
PLAN LEGEND

- LIMIT OF WATERSHED AREA
- PROPOSED DRAINAGE WORKS
- EXTERIOR OR INTERIOR WATERSHED
- TO BE BACKFILLED
- EXIST. MUNICIPAL DRAIN
- EXIST. WATERCOURSE OR PRIVATE DITCH
- ASSESSMENT ROLL NUMBER (B.M. OWNERS NAME) HECTARES OWNED
- PROPOSED BERM

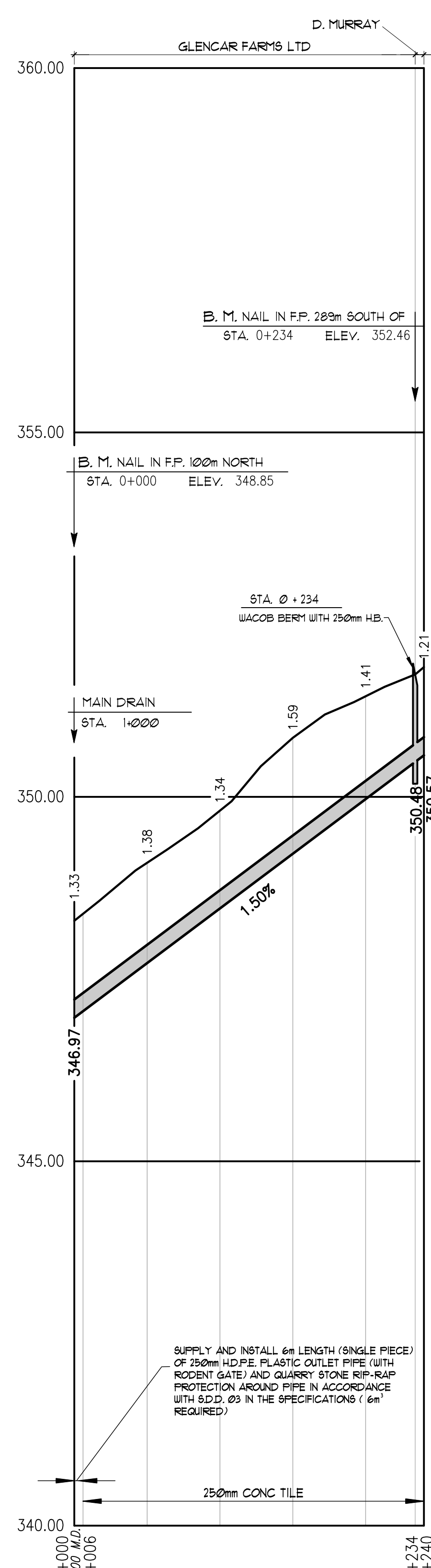
PRELIMINARY



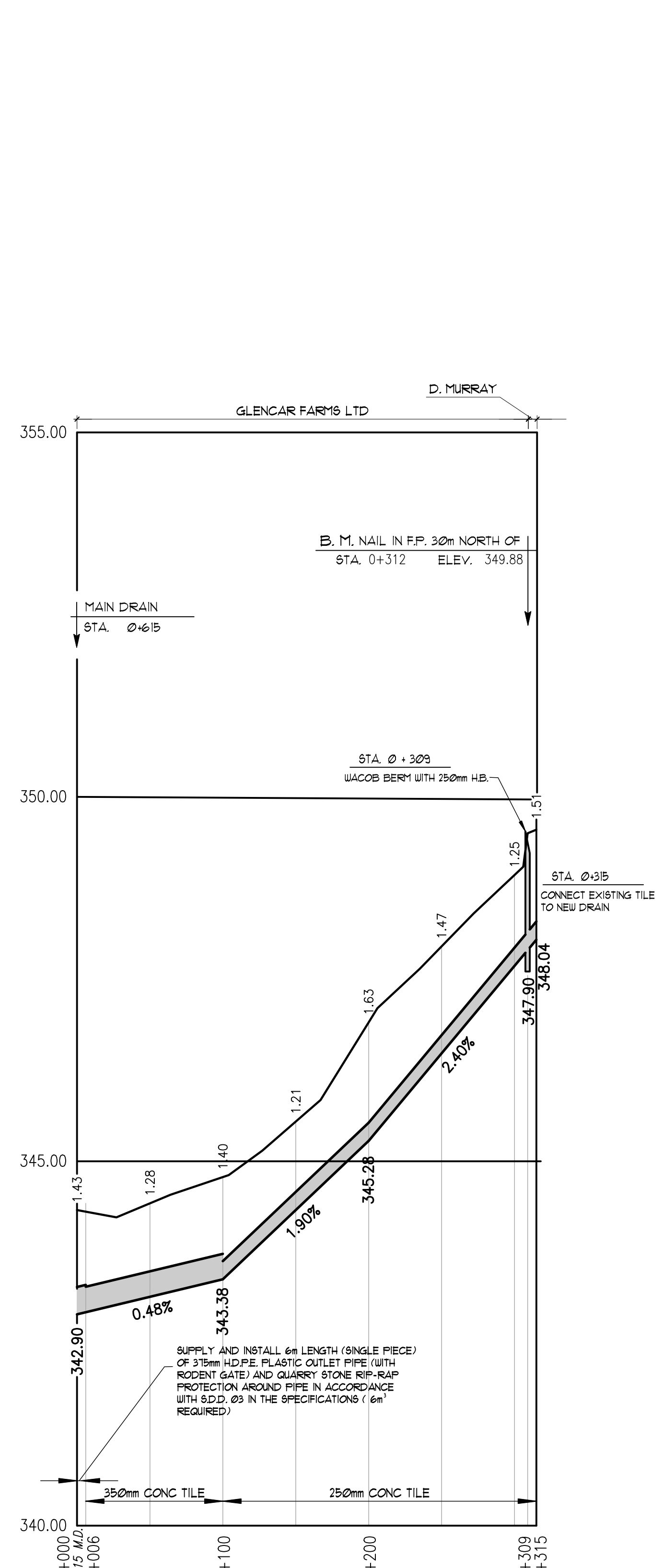
BRANCH "A"
SCALE: HOR. 1:2,500
VERT. 1:50



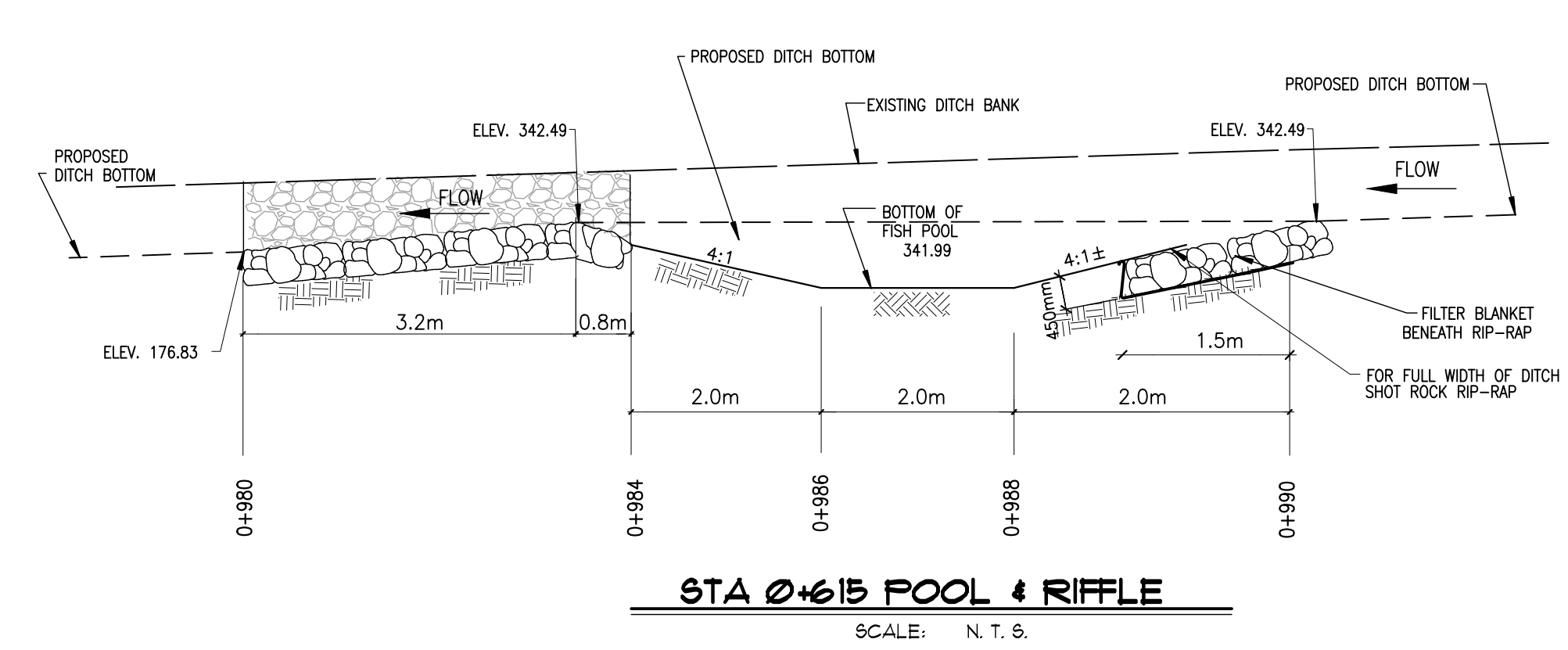
BRANCH "B"
SCALE: HOR. 1:2,500
VERT. 1:50



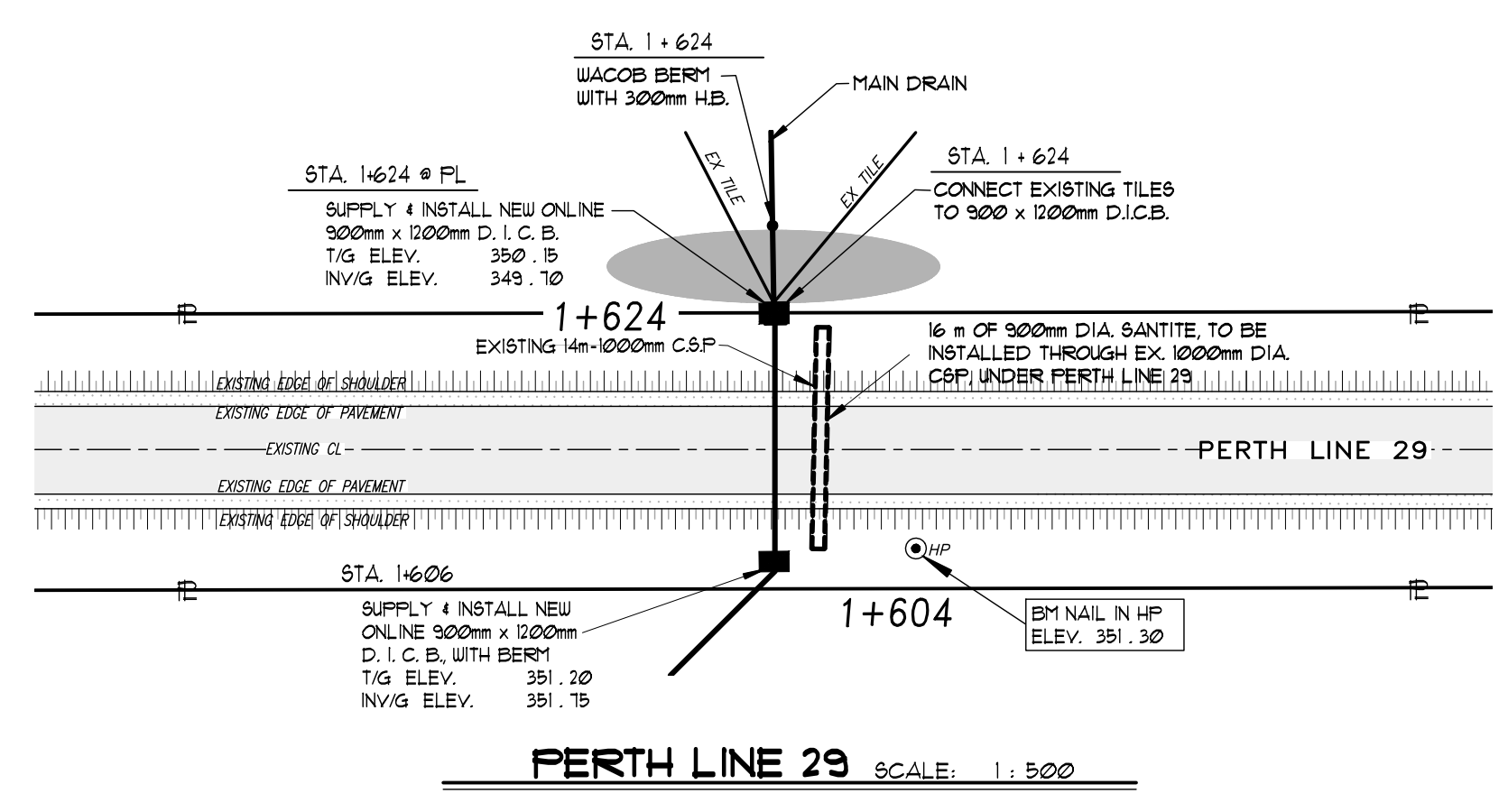
BRANCH "C"
SCALE: HOR. 1:2,500
VERT. 1:50



BRANCH "D"
SCALE: HOR. 1:2,500
VERT. 1:50



STA 0+615 POOL & RIFFLE
SCALE: N.T.S.



PERTH LINE 29 SCALE: 1:500

PLAN LEGEND

- LIMIT OF WATERSHED AREA
- PROPOSED DRAINAGE WORKS
- EXISTING OR INTERIOR WATERSHED
- TO BE BACKFILLED
- EXIST. MUNICIPAL DRAIN
- EXIST. WATERCOURSE OR PRIVATE DITCH

10' = 303 ASSESSMENT ROLL NUMBER
1. 6TH OWNERS NAME
40. 8 HA. HECTARES OWNED

GENERAL NOTES

- OUR SPECIFICATIONS DATED JANUARY 2009 APPLY TO THIS PROJECT.
 - THE WORKING WIDTH AVAILABLE TO THE CONTRACTOR TO CONSTRUCT THE NEW DRAINS SHALL CONSIST OF THOSE LANDS IMMEDIATELY ADJACENT TO THE DRAIN AND CONNECTIONS AND SHALL NOT EXCEED THE FOLLOWING AVERAGE WIDTHS:
OPEN PORTIONS-BUSH AREAS: 15 METERS TOTAL (REMOVE ONLY TREES ALONG BANK AND THOSE ABSOLUTELY NECESSARY TO COMPLETE CONSTRUCTION)
CLOSED PORTIONS: 15 METERS
THE WORKING WIDTH FOR PURPOSES OF FUTURE MAINTENANCE SHALL BE THE SAME AS ABOVE EXCEPT FOR CLOSED PORTIONS (NOT THROUGH BUSH) SHALL BE 10M.
 - ALL OWNERS ALONG THE COURSE OF THE DRAIN SHALL MAKE AN ACCESS ROUTE FROM THE NEAREST ROAD TO THE DRAIN LOCATION AVAILABLE TO THE CONTRACTOR THE AVERAGE WIDTH OF THIS ROUTE SHALL NOT EXCEED 8 METERS. THE ACCESS ROUTE SHALL ALSO APPLY FOR FUTURE MAINTENANCE PURPOSES.
 - a) ALL UTILITIES TO BE LOCATED AND EXPOSED PRIOR TO CONSTRUCTION SO THAT THE NEW TILE GRADES CAN BE CONFIRMED. IF THERE IS A CONFLICT IN ELEVATION BETWEEN THE PROPOSED DRAIN AND THE UTILITY, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY.
b) CONTRACTOR TO NOTIFY ALL UTILITIES 72 HOURS PRIOR TO HIS SCHEDULED TIME FOR STARTING THE ABOVE WORK.
c) THE COST FOR THIS WORK SHALL BE INCLUDED IN THE ITEM ON THE EXTENT OF WORK AND NO EXTRA PAYMENT SHALL BE MADE TO THE CONTRACTOR, EXCEPT IF ROAD RESTORATION IS REQUIRED.
 - ALL TREES, SCRUB, BRUSH, ETC. TO BE CLEARED AND GRUBBED IN ACCORDANCE WITH SECTION B.3 AND C.4 SPECIFICATIONS.
 - RIP-RAP TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH SECTION A.28 IN THE SPECIFICATIONS.
 - CONTRACTOR TO ARRANGE A PRE-CONSTRUCTION MEETING WITH THE ENGINEER, DRAINAGE SUPERINTENDENT, AND THE AFFECTED OWNERS. ALL PARTIES SHALL RECEIVE 48 HOURS NOTICE TO THE MEETING.
- CLOSED PORTIONS**
- ALL CONCRETE AND PLASTIC TILE AND PIPE TO CONFORM TO SECTION C.1 IN THE SPECIFICATIONS.
a) SEWER PIPE TO BE CONCRETE, H.D.P.E. PLASTIC 320 KPA (BELL & SPIGOT WITH RUBBER GASKETS, CONFORMING TO C.S.A. 1026-08), PVC ULTRA RIB OR PVC SDR 35
b) CONCRETE TILE SHALL BE HEAVY DUTY.
 - ALL CATCHBASINS SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH SECTION C.16 IN THE SPECIFICATIONS, EXCEPT AS FOLLOWS:
a) ALL CATCHBASIN LEADS TO BE CONNECTED TO NEW TILE DRAIN WITH PRE-FABRICATED "WYE"
b) ALL NON ROAD DITCH INLET CATCHBASINS TO HAVE BERRIS (CONSTRUCTED WITH SUBSOIL) WITH OVERFLOW CHUTE PROTECTED WITH N.A.G. C350 TURF MAT
 - EXISTING TILE DRAINS TO BE EXPOSED IN AS MANY LOCATIONS AS ARE NECESSARY TO CONFIRM THEIR EXACT LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. EXACT LOCATION OF NEW TILE DRAINS THEN TO BE CONFIRMED BY DRAINAGE SUPERINTENDENT OR ENGINEER.
 - a) INSTALLATION OF TILE AND TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH SECTION C.16 DRAIN IN THE SPECIFICATIONS.
b) SEWER PIPE UNDER TRAVEL PORTION OF ROADS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILED DRAWING No. 02 IN THE SPECIFICATIONS.
c) ALL CONCRETE TILE AND TILE-PIPE JOINTS TO BE WRAPPED WITH GEOTEXTILE IN ACCORDANCE WITH SECTION C.8 IN THE SPECIFICATIONS.
d) NO CONSTRUCTION EQUIPMENT OR FARM MACHINERY SHALL CROSS OVER THE MOUNDED BACKFILLED TILE TRENCHES UNTIL SUFFICIENT SETTLEMENT HAS OCCURRED.
e) STRIP AND STOCKPILE TOPSOIL FROM CONSTRUCTION AREA (4 METRE WIDE) FOR ENTIRE LENGTH. EXCESS SPOIL TO BE LEVELLED AND TOPSOIL RELEVELLED OVER SPOIL, MOUNDED TRENCH AND REMAINING CONSTRUCTION AREA.
 - IF IT BECOMES IMPRACTICAL TO INSTALL THE NEW TILE IN THE EXISTING TILE LOCATION DUE TO EXISTING TILE ALIGNMENT AND/OR TOO MUCH WATER FLOWING THROUGH THE TILE, THEN THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND/OR THE DRAINAGE SUPERINTENDENT.
IF SO ORDERED BY THE ENGINEER AND/OR DRAINAGE SUPERINTENDENT THEN THE CONTRACTOR SHALL INSTALL THE NEW TILE IMMEDIATELY ADJACENT TO THE EXISTING TILE. AFTER CONSTRUCTION IS COMPLETED THE EXISTING TILE SHALL BE DESTROYED WITH A RUBBER TIRE BACKHOE. TILE CONNECTIONS INTO THE EXISTING TILE SHALL BE CONNECTED TO THE NEW TILE.
 - a) THE CONTRACTOR SHALL ENSURE THAT ALL TRIBUTARY DRAINS ARE CONNECTED DURING TIME OF CONSTRUCTION. ANY MISSED TILE CONNECTIONS THAT ARE FOUND DURING THE WARRANTY PERIOD OF THE CONTRACT SHALL BE COMPLETED BY THE CONTRACTOR AND SHALL BE PAID THE AMOUNT SET OUT ON PAGE 2 OF THE "FORM OF TENDER". NO ADDITIONAL PAYMENT FOR MOBILIZATION WILL BE ALLOWED. THE CONTRACTOR IS NOT RESPONSIBLE FOR COMPLETING MISSED TILE CONNECTIONS THAT ARE FOUND AFTER THE WARRANTY PERIOD FOR THE CONTRACT HAS EXPIRED.
b) ALL TILE CONNECTIONS TO BE MADE WITH CORING MACHINE AND PLASTIC ADAPTOR OR PREFABRICATED FITTINGS.
c) THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A LIST SHOWING STATIONS OF ALL TILE CONNECTIONS UPON COMPLETION OF CONSTRUCTION.

MILLS DRAIN
Township of
Perth South

Drainage Superintendent:
SCOTT RICHARDSON
519-292-2059

No.	REVISIONS	DATE

Drawn By: MM
Date: MAR 2021
Field Book: GFS
JOB No: 218228
Drawing No: 2 of 2

PLAN, PROFILE, & DETAIL

SPRIET ASSOCIATES
LONDON LIMITED
CONSULTING ENGINEERS
155 YORK STREET - LONDON (519) 672-4100 - NEA 1A8

PRELIMINARY

To: Chair and Members of the UTRCA Hearings Committee
From: Tracy Annett, Manager – Environmental Planning and Regulations
Karen Winfield, Land Use Regulations Officer

Date: March 10, 2021

Agenda # 3

Subject: Addendum to (January 11, 2021) Hearing Report –
Section 28 Permit Application #27/20 for Proposed
Development in a Floodplain, Development in a River or
Stream Valley, Development Affecting the Conservation
of Land and Alteration to a Watercourse associated with
Mills Creek (aka the Mills Award Drain) - North and
South of Perth Line 29, Township of Perth South.

Filename Document#
124318

Background

The UTRCA Hearings Committee met on January 21, 2021 to consider a Section 28 *Application for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* permit application (No. #27/20) for the proposed enclosure of approximately 2.3 km of a watercourse and the proposed filling in of a floodplain and stream valley associated with the headwaters of Mills Creek (also known as the Mills Award Drain) north and south of Perth Line 29 (Lot 12, Concession 4 and Lot 12, Concession 5 and Lot 13, Concession 5 – former Downie Ward) in the Township of Perth South.

After considering information from the applicants, the following information was provided:

The Committee appreciated the input from Spriet Engineering as agent for the proponent, as well as individual landowners. After a lengthy closed session discussion, the following resolution was passed:

"That the Hearing Committee defer the decision for 45 calendar days for the parties to make further submissions and will schedule a Hearing Committee meeting on that basis."

The Hearing Committee's intent is to be open, transparent and pragmatic. The proposal brought forward by the proponent requests a significant departure from UTRCA policy. Hearing Committee members were uncomfortable with the proposal as presented which seemed to be on an "all or nothing" approach. The committee thought that the proponents might reconsider their proposals during the 45 day recess to determine whether alternative plans might be discussed addressing the needs of both parties including the plans of the proponents and the policies of the UTRCA. The UTRCA can assist with reviewing technical components of the proposal if desired. If the parties do not want to

consider revisions to their proposals, the proponent is encouraged to communicate with the Chair as soon as possible so that a Hearing may be rescheduled and concluded in a timely manner within the 45 day period above-noted.

On March 8, 2020, the UTRCA received an updated project proposal from the applicants (via an e-mail and attached concept plans from Brandon Widner of Spriet Associates London Ltd.) that is again before the Hearings Committee. It is recommended that this addendum report from staff be read in conjunction with the previously provided full staff Hearing Report (dated January 11, 2021) in order to compare drawings and refer to photos, maps, definitions, policies and other relevant documentation.

Items for Discussion Specific to the Updated Project Proposal

- i. The updated project proposal is not measurably different from the previous proposal. The original proposal was for the enclosure of approximately 2.3 km linear length of watercourse. This enclosure length has been reduced to approximately 1.7 km. Rather than the municipal drain portion stopping at the north end of the Quast property as before, the proposal now also includes converting to municipal drain the entire extent of the watercourse all the way to the confluence of the Avon River to allow for future maintenance dredging. Water and Sediment Control Basins (WASCoBs) are still proposed and their locations have now been more clearly identified on the submitted plans.
- ii. It is unclear if a grassed swale over the entire extent of the enclosure is still proposed as this does not appear on the plans, however, the accompanying letter mentions that *“the above features have been added to the project, in conjunction with others that were previously presented, many of which are considered Best Management Practices, for controlling soil erosion.”* We are presuming that statement to mean the grassed swales are still proposed to be included as per previous swale descriptions and size criteria. (UTRCA staff have asked for confirmation on this from the applicant but have not heard back as of the date of this report.)
- iii. In calculating the contributing watershed (catchment) above the enclosure the applicants have removed areas that have been field tilled to other watersheds. The Conservation Authority does not concur with that method of calculation. While at smaller flows, the water may go subsurface to drain through the underground tile network at larger precipitation events the water will generally still follow surface elevations towards the open watercourse. We note the contributing watershed remains at a size greater than what staff would generally permit.
- iv. Since the previous January 21, 2021 Hearing meeting UTRCA staff have had discussions with the applicants. Through discussions we agreed that, at a staff level, we may be in a position to recommend approval of the project if the enclosure was limited to the lands on the north side of Line 29 and if appropriate compensation (“Net Environmental Benefit”) measures were included that were in keeping with other approved drainage projects in the area. We advised that we were not comfortable with the enclosure extending south of Line 29. UTRCA technical staff also discussed general Best Management Practices (BMPs) regarding the use and design of two stage channels and Water & Sediment Control Basins (WASCoBs).
- v. The current proposal is suggesting that the inclusion of the WASCoBs, (potentially the grassed swale(s)), the two stage channel and the stilling basin at the outlet would all be features that will incur a Net Environmental Benefit. We are very supportive that any agricultural drainage project includes this as part of their normal design standards, especially in areas where there are complaints of existing erosion. We concur that these features are a benefit in terms of

mitigating for soil loss and improving water quality, but we do not concur that they are measurable compensation for the loss of an open watercourse at this particular location. These features are all standard BMPs recommended by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) for any drainage design project of this size/nature.

- vi. The current proposal is suggesting the “*ditch work will be completed from one side leaving the existing vegetation on one bank.*” Please note that work from one side is a standard requirement through our permit process for most drain projects and not any particular site specific Net Environmental Benefit.
- vii. The current proposal is suggesting the inclusion of two stilling basins (pools and riffles), presumably as compensation (Net Environmental Benefit) measures. One stilling basin is proposed at the outlet (1+000) and we note it is a standard design BMP to include a stilling basin at the outlet of any pipe for the purpose of reducing erosion/scour. The second pool and riffle area is proposed further downstream (0+600). From photos previously provided in the January 11, 2021 Hearing Report it is noted that there are already well defined riffles and pools at this location. While the inclusion of the riffles and pools are beneficial in drainage design BMPs, at this location they would not provide any measurable compensation for the loss of the open watercourse.
- viii. Staff are supportive of the BMPs currently proposed, but suggest they would form part of any standard drain design of this size/nature and are not specifically mitigation or compensation or any measurable Net Environmental Benefit for the loss of an open watercourse. As the works are designed to benefit specific private landowners, rather than the greater public good, we suggest a more appropriate Net Environmental Benefit proposal be included as part of the works as other rural landowners have done for similar enclosure projects.
- ix. There is no mention in the plans of vegetated buffers to be included adjacent the open watercourse feature. We understand that this proposal is a concept only for review of the enclosure itself and the buffers could be included within the report at the detail design stage. For information purposes we would like to draw your attention to the BMP guidance info from:

a) **Agriculture and Agri-Food Canada;**

<http://www.agr.gc.ca/eng/science-and-innovation/agricultural-practices/agroforestry/shelterbelt-planning-and-establishment/design/riparian-buffers/?id=1344888191892>

and,

b) **Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA).**

<http://www.omafra.gov.on.ca/english/environment/bmp/buffer.htm>

We note as a farm best management practice (BMP) both documents indicate the buffer width should be (at a minimum) 5 metres for bank stability and 10-30 metres for sediment removal. They also both indicate that "buffer width alone will rarely replace the benefit of upland soil and water conservation BMPs". As the landowners have already expressed their concerns with existing soil erosion, we suggest the AG Canada and OMAFRA guidance on buffers be used to include vegetated buffer strips on both sides of the open watercourse and that details on these buffers be included within the final Drain Report. Increasing the riparian buffer width on

these properties in combination with appropriate upland BMPs (such as the WASCoBs) would be a great first step in reducing or preventing erosion and soil loss into the Avon River.

- x. In general all reasonable alternatives to enclosures should be investigated prior to considering enclosure. We are still unclear if any other alternatives – such as Natural Channel Design options - have been considered for this location.

Municipal Drains and Tests of the Regulation

- xi. The landscape of the 36 Conservation Authorities in Ontario varies dramatically across the province and hence so does the nature and extent of municipal drainage systems: From urban CA watersheds having few to no municipal drains within their boundary to the more agricultural based CA watersheds (such as the UTRCA) whose stream network (both headwaters and larger order streams) is comprised of predominately designated municipal drains.

In the UTRCA watershed 64% or 2858 km of our entire stream network are agricultural drains. That is substantial. All of our rivers and the majority of our large creeks contain reaches that have been designated as municipal drains under the *Drainage Act*. In the Avon River subwatershed alone approximately 52 percent of the stream network has been channelized and 22 percent has already been buried in pipes.

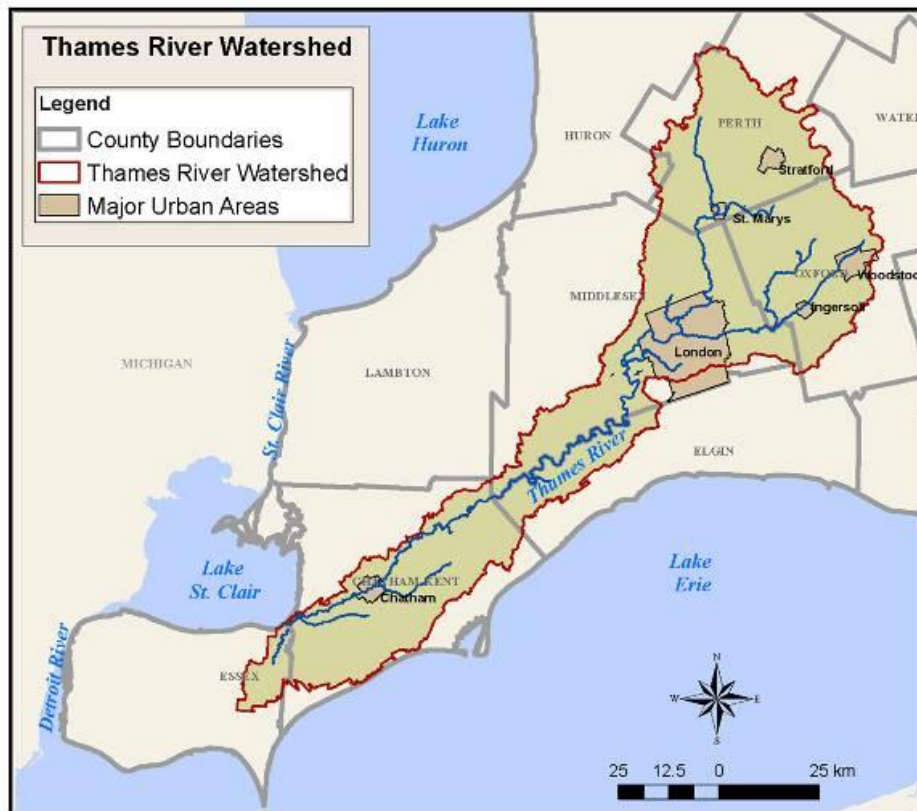


Figure 1: Whether natural watercourse, “improved” watercourse, award drain, municipal drain or private drain, these channels are all interconnected through the stream network that eventually outlets to the Lower Thames and Lake St. Clair.



Figure 2: While there are multiple stressors involved, the cumulative impacts of negative land management practices in the headwaters (which includes straightening watercourses, piping watercourses, dredging, filling in floodplain lands and wetlands, removing riparian vegetation, etc.) can be felt all the way downstream. (While piping a watercourse may alleviate local soil erosion off the field it can actually increase soil erosion in the channels downstream.)

- xii. As per the recent Ontario's Special Advisor on Flooding Report to Government: An Independent Review of the 2019 Flood Events in Ontario (page 81 (page 82 of the pdf):

"Municipalities also have an important role for managing surface runoff in rural areas. They, along with landowners, have responsibility for municipal drains that drain and convey surface runoff under the Drainage Act. Tile drains, which are important to agricultural productivity, collect and convey surface runoff to natural waterways directly or indirectly via municipal drains. Surface runoff from municipal roads are also conveyed and release to natural

waterways. The cumulative drainage of the vast rural areas and rapid conveyance contributes to downstream urban (fluvial) flooding risk."

Focusing on one aspect of watershed hydrology (drainage) without considering – or even having a clear understanding of - how improved drainage may cumulatively and substantially increase the flood and erosion risks for landowners outside the drainage catchment on downstream waters is contrary to the recommendations from the Provincial Flood Advisor's Report.

- xiii. Current straight channel design and current maintenance methods are inherently unstable and contribute to flooding and erosion further downstream in a watershed system. The existing drainage system design involves vegetation removal, straightening, hardening, piping, etc. all of which improve upstream drainage but only seek to concentrate flood flows through downstream lands – moving runoff and snowmelt (which would historically have infiltrated into the ground to augment groundwater and baseflow) downstream at a faster rate and impairing the natural ability of the floodplain lands to flood. While frequent and higher in magnitude precipitation events result in flooding, drainage interventions upstream only seek to exacerbate the flooding for downstream landowners who are often not in the catchment area of the drainage engineer's report. In watersheds where the majority of the headwaters have been converted to municipal drainage systems (such as the UTRCA) the cumulative impacts of artificial drainage upstream (often in rural areas) has the ability to exacerbate problems in downstream (often urban) areas. The municipal drain might stop at a municipal boundary but the water and downstream impacts do not.
- xiv. In general we recommend that current rural (straight channel or piped channels) drainage design (for all municipal drain projects) needs to be reviewed and modernized to better reflect farming today, environmental needs, climate change, flooding and erosion, rural stormwater management needs, downstream impacts, wetland protection, and so on.

SUMMARY

Watercourse enclosure requests through our office are assessed on a case-by-case basis having full regard for a variety of site-specific conditions. Rather than placing focus on one aspect of watercourse function (drainage) there are other multi-disciplinary factors that should be considered when deciding whether it is responsible to enclose a watercourse – biology/ecology, geomorphology, topography, hydrology, hydrogeology, stream order, etc. Alterations to watercourses in the form of enclosures or removal by infilling should generally not be permitted unless there are no other viable alternatives and there is an overriding need to do so. Watercourse enclosures generally:

- Increase the risk of flooding, erosion and blockages downstream;
- Alter the flow regime and channel morphology and disrupt the natural transport of sediment;
- Impact water chemistry and nutrient cycling;
- Limit the opportunity for groundwater discharge/recharge;
- Degrade the ecology of the watercourse and riparian area resulting in a net loss of habitat;
- Result in a net loss of food and drinking water source for wildlife.

If the Hearings Committee chooses to approve the current proposal staff recommend the approval include the following conditions:

- 1) That following detail design and staff receipt of the final Drain Report a UTRCA Section 28 *Application for Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* permit be obtained prior to commencing the work. This permit will include all our standard conditions for construction works in and around water;
- 2) That the WASCoBs be designed and sized in accordance with current OMAFRA design standards and all of these details be clearly outlined in the final Drain Report;
- 3) That the grassed swale(s) be designed and sized in accordance with current OMAFRA design standards and to (at a minimum) the slope and size criteria previously provided to the UTRCA (in an e-mail from B. Widner of Spriet Associates London Ltd. dated January 16, 2020) and all of these details be clearly outlined in the final Drain Report;
- 4) That appropriately sized grass buffers be included along both sides of the remaining open portion of the watercourse in accordance with Agriculture Canada and OMAFRA guidelines as noted above and that these grassed buffer widths be clearly outlined as requirements in the final Drain Report;
- 5) That the final Drain Report confirm that all future drain maintenance access on the remaining open portion of the watercourse be on the east side of the drain in order to preserve trees/shrubs on the west (shade producing) side of the watercourse.

Recommended by:

Prepared by:

Tracy Annett, Manager
Environmental Planning and Regulations

Karen Winfield
Land Use Regulations Officer

- c.c. Ken Bettles, Director of Public Works, Township of Perth South, Applicant
Scott Richardson, Drainage Superintendent, Township of Perth South, Applicant
Lizet Scott, Clerk, Township of Perth South, Applicant
Brandon Widner, Spriet Associates (London) Limited, Agent for the Applicant
Brad Glasman, UTRCA
Tatianna Lozier, UTRCA
Cari Ramsey, UTRCA
Jessica Schnaithmann, UTRCA
Ian Wilcox, UTRCA
Grant Inglis, UTRCA Solicitor