

GENERAL NOTES

- OUR SPECIFICATIONS DATED JANUARY 2020 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 - 10 METERS (INCLUDING 2M BUFFER)
 - CLOSED PORTIONS (EXCEPT LAWN) - 3.0 METERS
 - CLOSED PORTIONS (LAWN AREAS) - 8 METERS
 THE WORKING WIDTH FOR PURPOSES OF FUTURE MAINTENANCE SHALL BE THE SAME AS ABOVE EXCEPT FOR CLOSED PORTIONS (NOT THROUGH LAWN) WHICH SHALL BE 10M AND FOR LAWN AREAS SHALL BE 8M.
- 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.
- 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.
 - CONTRACTOR TO NOTIFY ALL UTILITIES 72 HOURS PRIOR TO HIS SCHEDULED TIME FOR STARTING THE ABOVE WORK.
 - 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.12" IN THE SPECIFICATIONS.
- TURF REINFORCEMENT MAT SHALL BE "NORTH AMERICAN GREEN C 350" OR APPROVED EQUAL. MAT SHALL BE INSTALLED ON SEEDBED BANK IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS WITH THE FOLLOWING EXCEPTIONS:
 - STAPLES TO BE 200MM LONG AND SHALL BE INSTALLED TO MANUFACTURER'S "D" PATTERN.
 - MAT TO BE KEYED 300MM BELOW DITCH BOTTOM 200MM INTO BANK SLOPE AT UPSTREAM LIMIT AND SHALL BE STAPLED 200MM BELOW TOE OF BANK.
- 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.
 - SEWER PIPE TO BE CONCRETE, H. D. P. E. PLASTIC 320 KPA (BELL & SPIGOT WITH RUBBER GASKETS, CONFORMING TO C.S.A. 1026-09), PVC ULTRA RIB OR PVC SDR 35
 - CONCRETE TILE TO BE HEAVY DUTY UNLESS SPECIFIED 2000 D OR 2400 D ON PROFILE.
 - SMOOTH WALL PLASTIC PIPE (PERFORATED WITH SOCK) SHALL BE FLEXIBLE (COILABLE) DUAL WALL 250KPA OR STRONGER PIPE SUCH AS "GOLD FLEX", "ADS" OR APPROVED EQUAL. FILTER SOCK SHALL BE "TEXEL F100-D", "TERRAFIX 200R" OR APPROVED EQUAL.
 - SMOOTH WALL PLASTIC PIPE (PERFORATED WITH SOCK) SHALL BE FLEXIBLE (COILABLE) DUAL WALL 250KPA OR STRONGER PIPE SUCH AS "GOLD FLEX", "ADS" OR APPROVED EQUAL.
 - SMOOTH WALL PLASTIC PIPE (SOLID) SHALL BE FLEXIBLE (COILABLE) DUAL WALL 250KPA OR STRONGER PIPE SUCH AS "GOLD FLEX", "ADS" OR APPROVED EQUAL.
 - PLASTIC TILE SHALL BE H. D. P. E. SMOOTH WALL FLEXIBLE (COILABLE) L. 25KPA OR STRONGER PIPE SUCH AS "IDEAL", "ADS" OR APPROVED EQUAL. TILE TO BE PERFORATED WHERE SPECIFIED.
- ALL CATCHBASINS SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH "SECTION C.16" IN THE SPECIFICATIONS, EXCEPT AS FOLLOWS:
 - ALL CATCHBASIN LEADS TO BE CONNECTED TO NEW TILE DRAIN WITH PRE-FABRICATED "U" PIE
 - ALL NON ROAD DITCH NLET CATCHBASINS TO HAVE BERM'S (CONSTRUCTED WITH SUBSOIL) WITH OVERFLOW CHUTE PROTECTED WITH N. A. G. C350 TURF REINFORCEMENT MAT (SEE DETAIL "A")
- NEW TILE DRAINS TO BE LOCATED AS FOLLOWS:
 - DRAIN A
 - STA. 0 + 000 TO STA. 0 + 150 - EXACT LOCATION TO BE DETERMINED AT TIME OF CONSTRUCTION
 - STA. 0 + 150 TO STA. 0 + 485 - TO BE PLACED IN SAME LOCATION AS EXISTING TILE DRAIN WHERE POSSIBLE. EXIST. TILE TO BE DESTROYED AND EXPOSED TILE SHALL BE DISPOSED OF OFF - SITE.
 - DRAINS C2, D4 & E
 - DRAIN C2, D4 & E - EXACT LOCATION TO BE DETERMINED AT TIME OF CONSTRUCTION

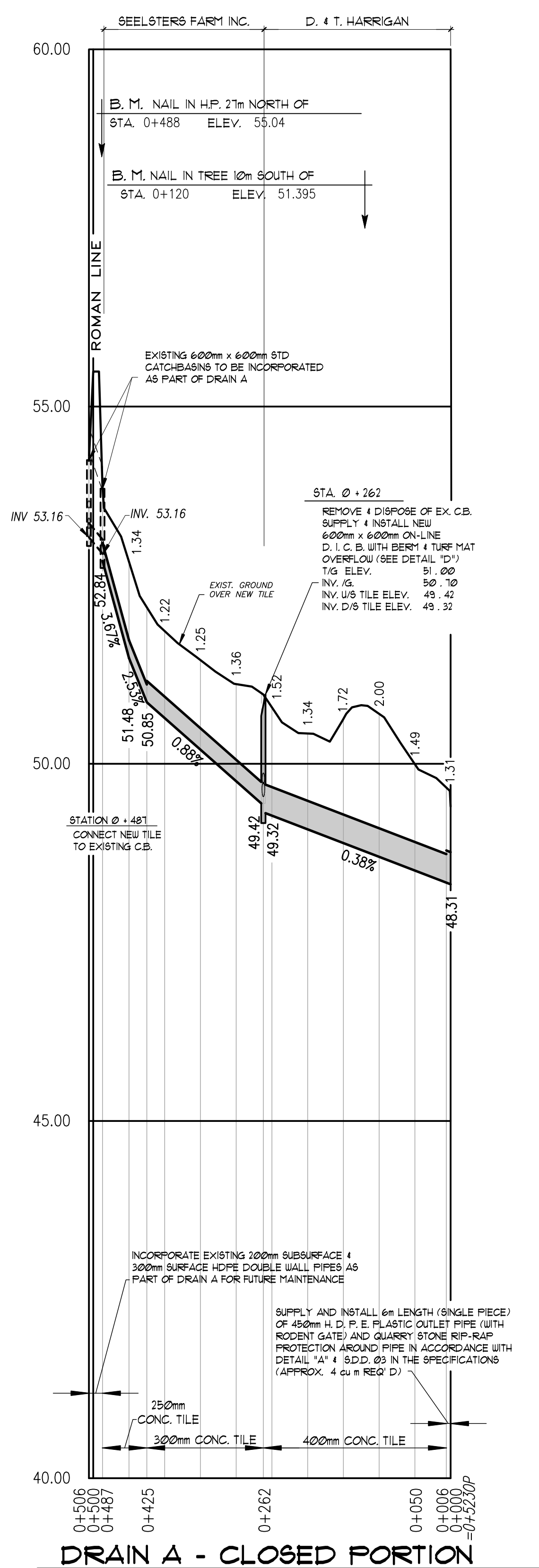
EXISTING TILE DRAINS TO BE EXPOSED IN AS MANY LOCATIONS AS ARE NECESSARY TO CONFIRM THEIR EXACT LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. EXACT LOCATION OF NEW TILE DRAINS THEN TO BE CONFIRMED BY DRAINAGE SUPERINTENDENT OR ENGINEER.

- INSTALLATION OF TILE AND TRENCH WIDTHS SHALL BE IN ACCORDANCE WITH "SECTION C.1" TILE DRAIN" IN THE SPECIFICATIONS.
- SEWER PIPE UNDER TRAVEL PORTION OF ROADS TO BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILED DRAWING NO. 02 IN THE SPECIFICATIONS.
- ALL OTHER SEWER PIPE TO BE INSTALLED IN ACCORDANCE WITH DETAIL "C".
- ALL CONCRETE TILE AND TILE-PIPE JOINTS TO BE WRAPPED WITH GEOTEXTILE IN ACCORDANCE WITH "SECTION C.8" IN THE SPECIFICATIONS.
- NO CONSTRUCTION EQUIPMENT OR FARM MACHINERY SHALL CROSS OVER THE MOUND BACKFILLED TILE TRENCHES UNTIL SUFFICIENT SETTLEMENT HAS OCCURRED.
- STRIP AND STOCKPILE TOPSOIL FROM CONSTRUCTION AREA (4 METRE WIDTH) EXCEPT LANEWAYS & ROADS. EXCESS SOIL TO BE LEVELLED AND TOPSOIL RELEVELLED OVER SOIL, MOUND TRENCH AND REMAINING CONSTRUCTION AREA.
- RESTORATION OF LAWN AREAS SHALL BE IN ACCORDANCE WITH "SECTIONS A.14 AND C.10" IN THE SPECIFICATIONS WITH THE FOLLOWING EXCEPTIONS:
 - IT IS NOT NECESSARY TO STRIP TOPSOIL.
 - 100MM DEPTH OF IMPORTED FIRST QUALITY TOPSOIL IS TO BE LEVELLED OVER THE TRENCH AND ADJACENT AREAS DISTURBED BY CONSTRUCTION.
 - TOPSOILED AREAS TO BE SEEDBED IN ACCORDANCE WITH "SECTION A.14" IN THE SPECIFICATIONS.
 - LANEWAY TO BE RESTORED TO ORIGINAL CONDITION IN ACCORDANCE WITH SPECIFICATIONS.
- 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.

- 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.
 - ALL TILE CONNECTIONS TO BE MADE WITH CORING MACHINE AND PLASTIC ADAPTOR OR PREFABRICATED FITTINGS.
 - THE CONTRACTOR SHALL SUPPLY THE ENGINEER WITH A LIST SHOWING STATIONS OF ALL TILE CONNECTIONS UPON COMPLETION OF CONSTRUCTION.

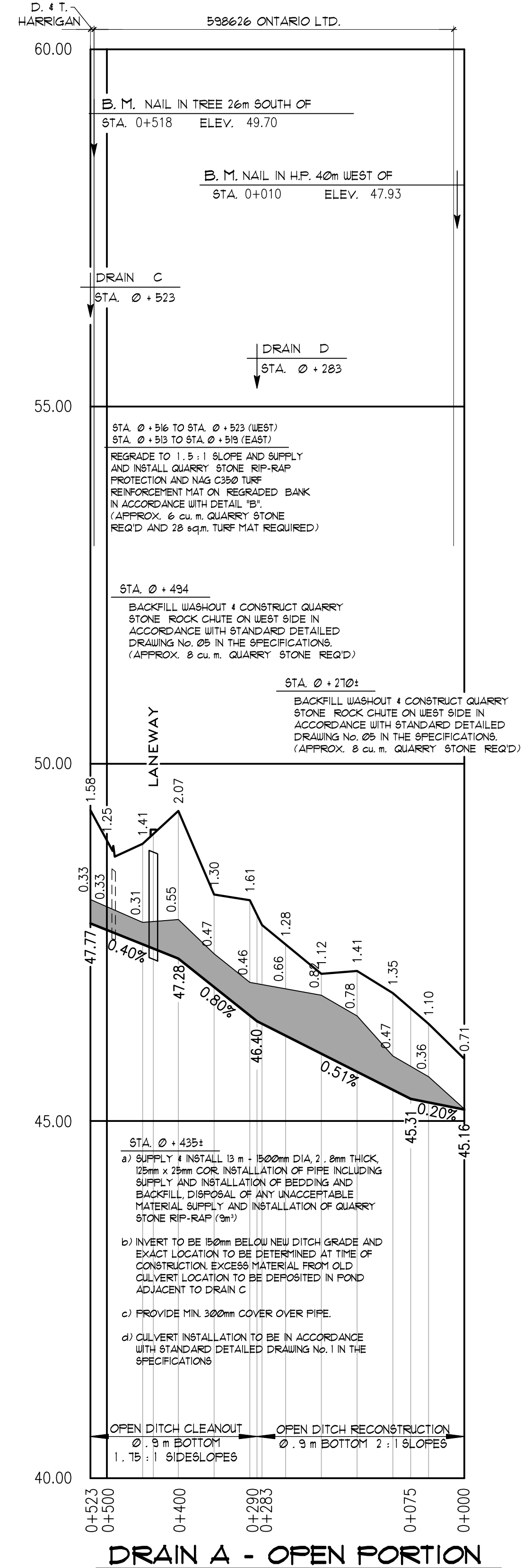
OPEN PORTIONS

- EXISTING DITCH BOTTOM ONLY TO BE CLEANED OUT IN ACCORDANCE WITH SPECIFICATIONS UNLESS OTHERWISE NOTED ON PROFILES AND IN SECTIONS.
- WORK TO BE COMPLETED FROM FOLLOWING SIDES OF THE DITCH:
 - DRAIN C - TO BE DETERMINED AT TIME OF CONSTRUCTION
 - DRAIN A - ON WEST SIDE OF DITCH
 APPROX. 300 CU. M. OF EXCAVATED MATERIAL TO BE HAULED TO POND ADJACENT TO DRAIN C. REMAINERS TO BE REDEPOSITED AND LEVELLED ON WORKING SIDES OF DITCH IN ACCORDANCE WITH "SECTION B.5" IN THE SPECIFICATIONS.
- A 2.4 METER WIDE BUFFER STRIP OF NEW & EXISTING VEGETATION BETWEEN THE TOP OF THE BANK AND THE CULTIVATED LANDS ON BOTH SIDES OF THE DITCH SHALL BE MAINTAINED AS PART OF THE OPEN PORTION OF THE DRAIN.
- NEWLY EXPOSED DITCH BANKS ARE TO BE HAND SEEDBED UPON COMPLETION OF CONSTRUCTION IN ACCORDANCE WITH "SECTION B.11" IN THE SPECIFICATIONS.
- SILT FENCES TO BE PLACED ACROSS DITCH BOTTOM AT STA. 0 + 000 OF DRAIN A AND DRAIN C DURING CONSTRUCTION TO PREVENT SILT FROM FLUSHING DOWNSTREAM, AND ARE TO BE MAINTAINED AS NECESSARY DURING CONSTRUCTION. SILT FENCES AND SILT TO BE REMOVED AND DISPOSED OF AFTER CONSTRUCTION.



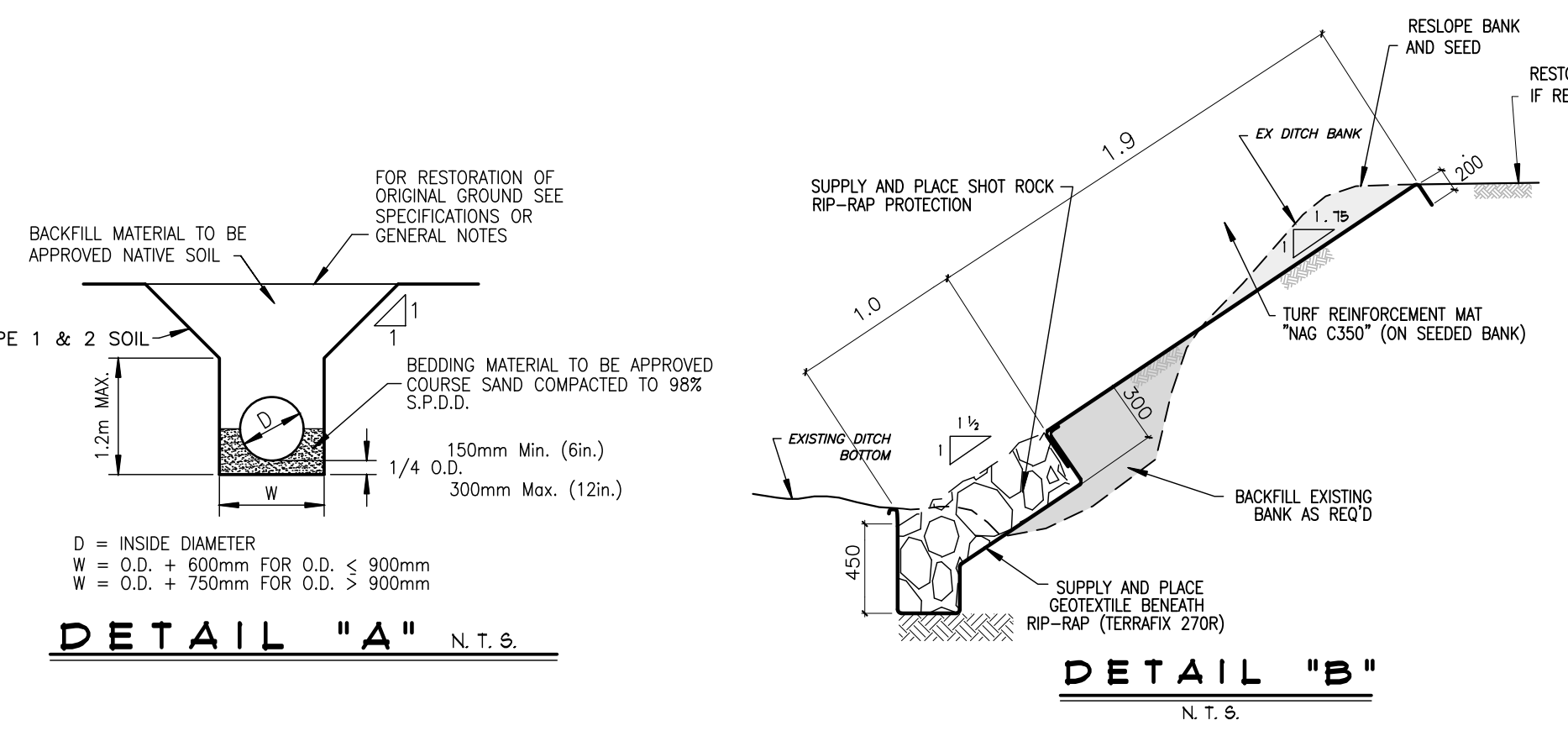
DRAIN A - CLOSED PORTION

SCALE: HOR 1:5,000
VERT. 1:500



DRAIN A - OPEN PORTION

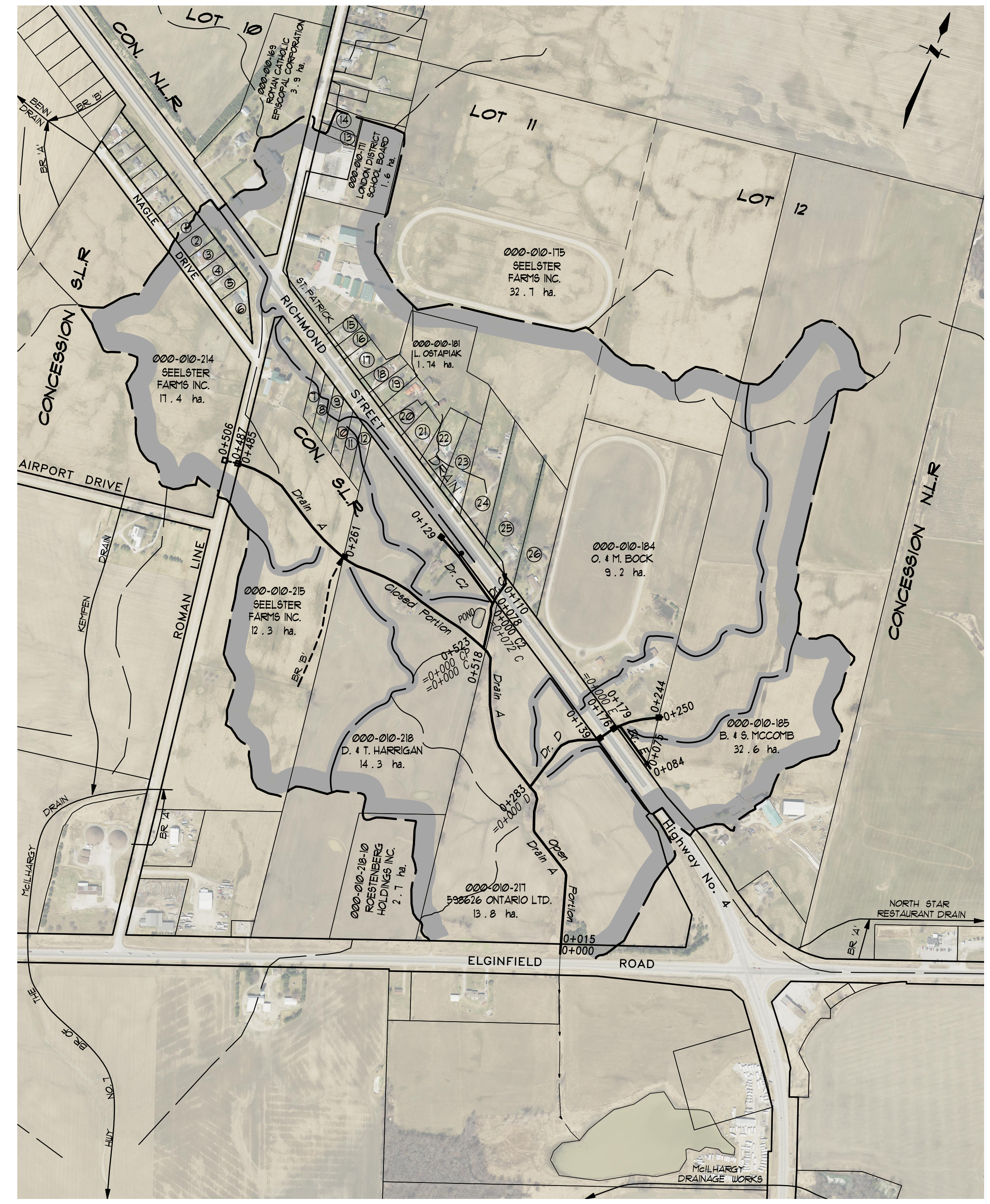
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DETAIL "A" N.T.S.

DETAIL "B" N.T.S.

TYPICAL DITCH RECONSTRUCTION
RESLOPE ONE BANK ONLY



PLAN SCALE 1:5,000

PLAN LEGEND

- Light of watershed area
- Proposed drainage works
- Exterior or interior watershed
- To be included for future maintenance
- Exist. municipal drain
- Private tile or surface water run
- Exist. watercourse or private ditch

LOT LEGEND

ROLL NO.	OWNERSHIP	HECTARES OWNED
1) 000-010-214-12	J. SMALE & D. FEARN	0.14
2) 000-010-214-10	J. & C. GALBRAITH	0.14
3) 000-010-214-08	J. ANDERSON & A. CARUSO	0.14
4) 000-010-214-06	G. & C. RICHARDSON	0.14
5) 000-010-214-04	G. & K. LANGENIKY	0.15
6) 000-010-214-02	V. FEKE	0.22
7) 000-010-215-01	M. TVE	0.22
8) 000-010-215-02	P. MANSER	0.22
9) 000-010-215-03	A. DITTMER	0.22
10) 000-010-215-04	J. GIMSTAD	0.22
11) 000-010-215-05	S. & A. GREB	0.22
12) 000-010-215-06	D. DRAGER	0.22
13) 000-010-172	K. PALON & J. SCOTT-MALLETT	0.10
14) 000-010-173	K. ELLIOTT & C. FINLAYSON	0.18
15) 000-010-176	SEELSTER FARMS INC.	0.18
& T. HOWARD		
16) 000-010-178	A. CAMERON & B. MORR	0.13
17) 000-010-179	J. & E. ROESTENBERG	0.21
18) 000-010-181-03	J. GREENLEE	0.17
19) 000-010-181-02	R. HAMILTON & J. CAMPBELL	0.20
20) 000-010-181-04	P. & S. FITZGERALD	0.15
21) 000-010-181-01	P. & J. HART	0.25
22) 000-010-180-01	S. & J. BEATIE	0.42
23) 000-010-180	J. SMITH	0.42
24) 000-010-183	A. & N. HOFSTETER	1.0
25) 000-010-183-01	J. & J. O'BRIEN	1.2
26) 000-010-182	K. & A. WERR	1.0

NAGLE DRAIN 2024

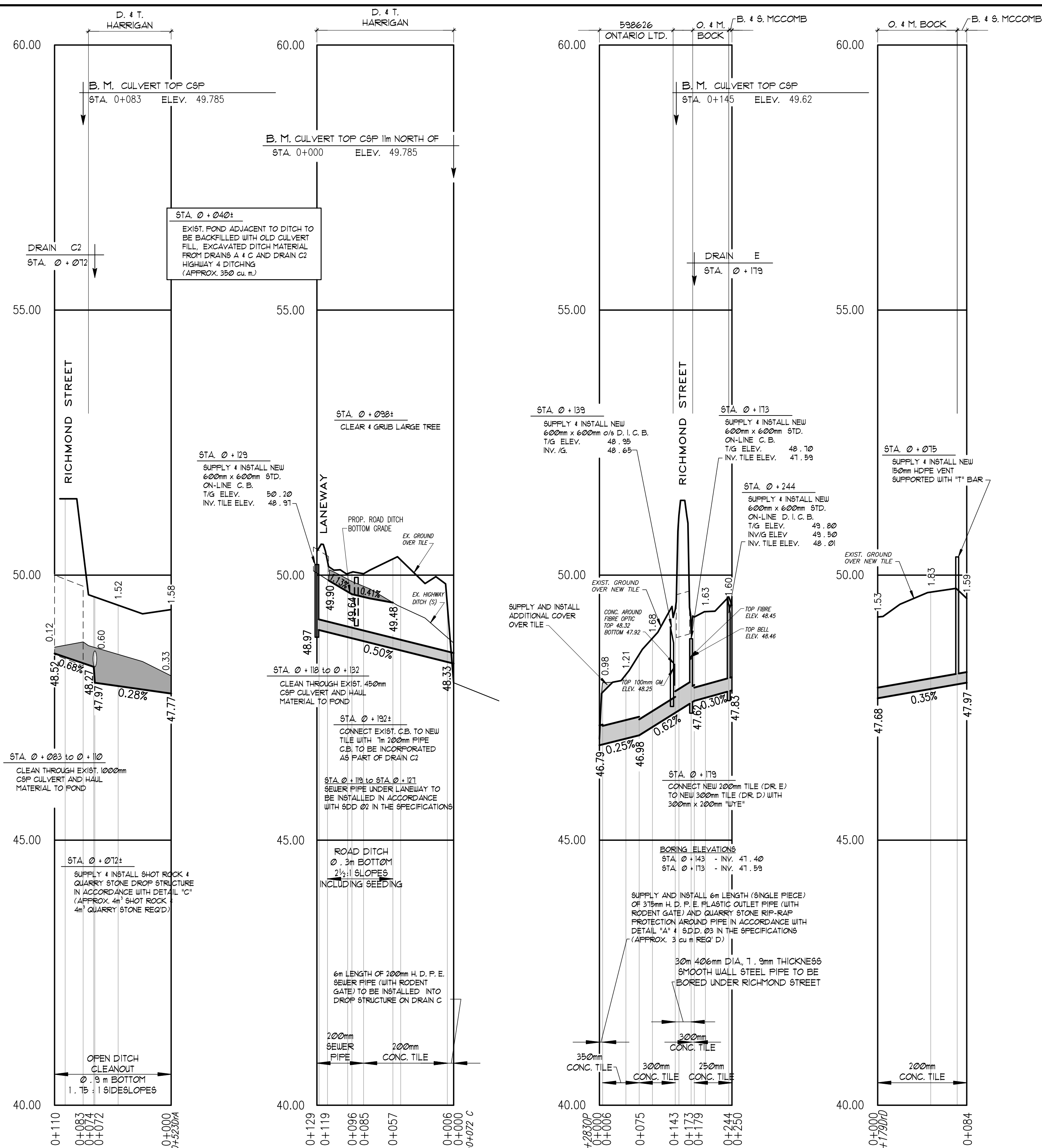
Township of Lucan Biddulph

Drainage Superintendent: **ALEX VERBEEK**
519-672-4100

Drawn By: AV
Date: JUNE 12, 2024

Field Book: D - 213
JOB No.: 222306
Drawing No.: 1 of 2

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

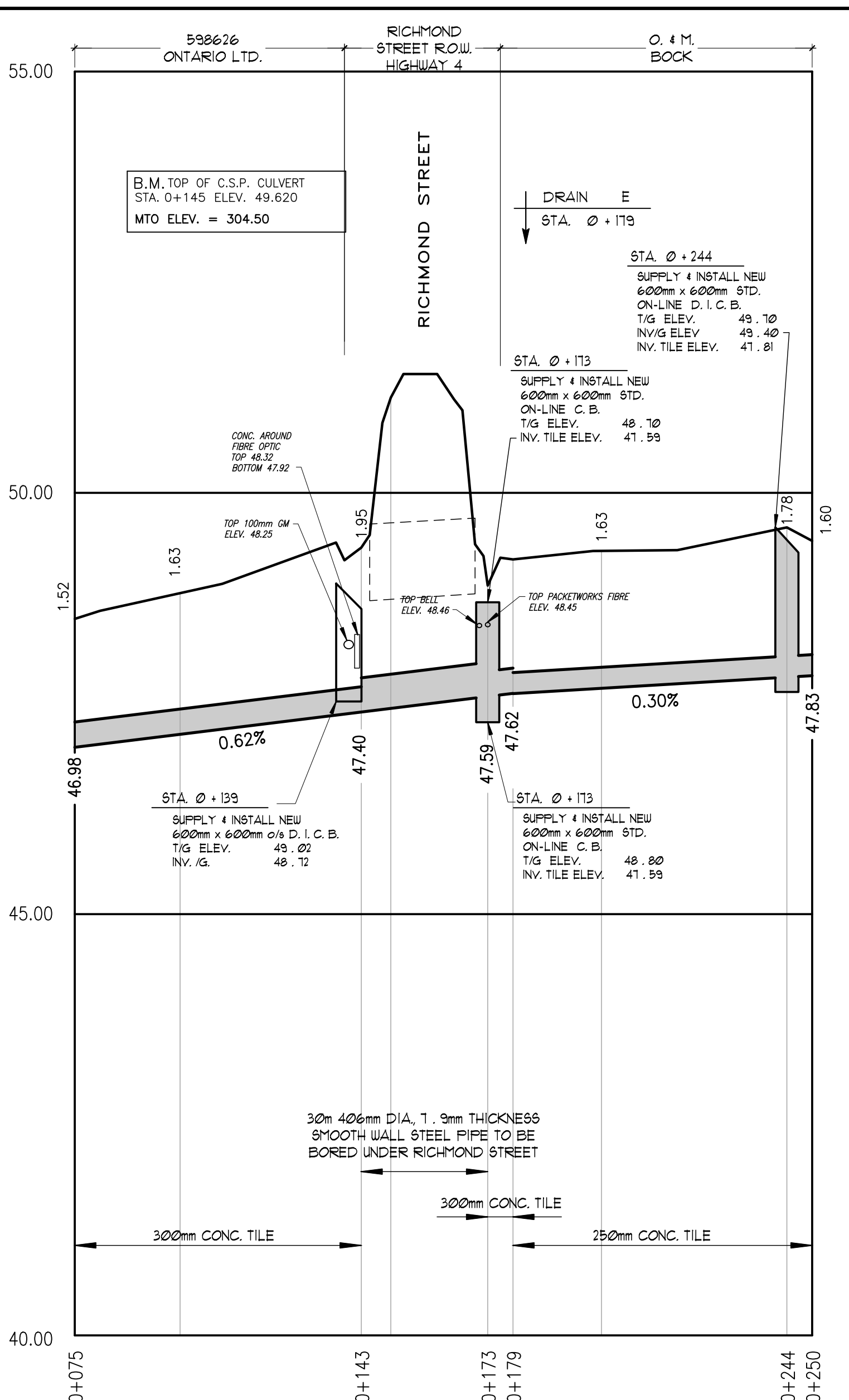
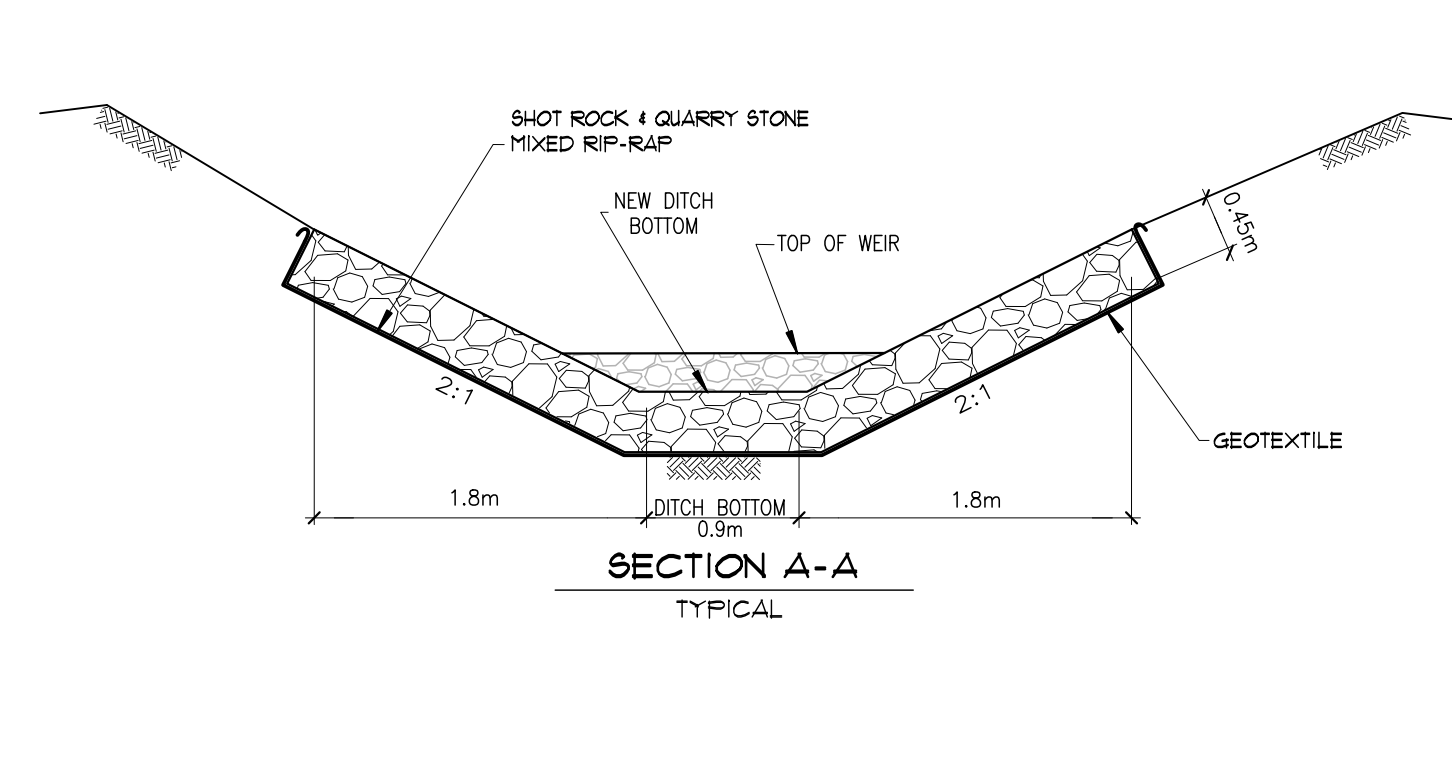
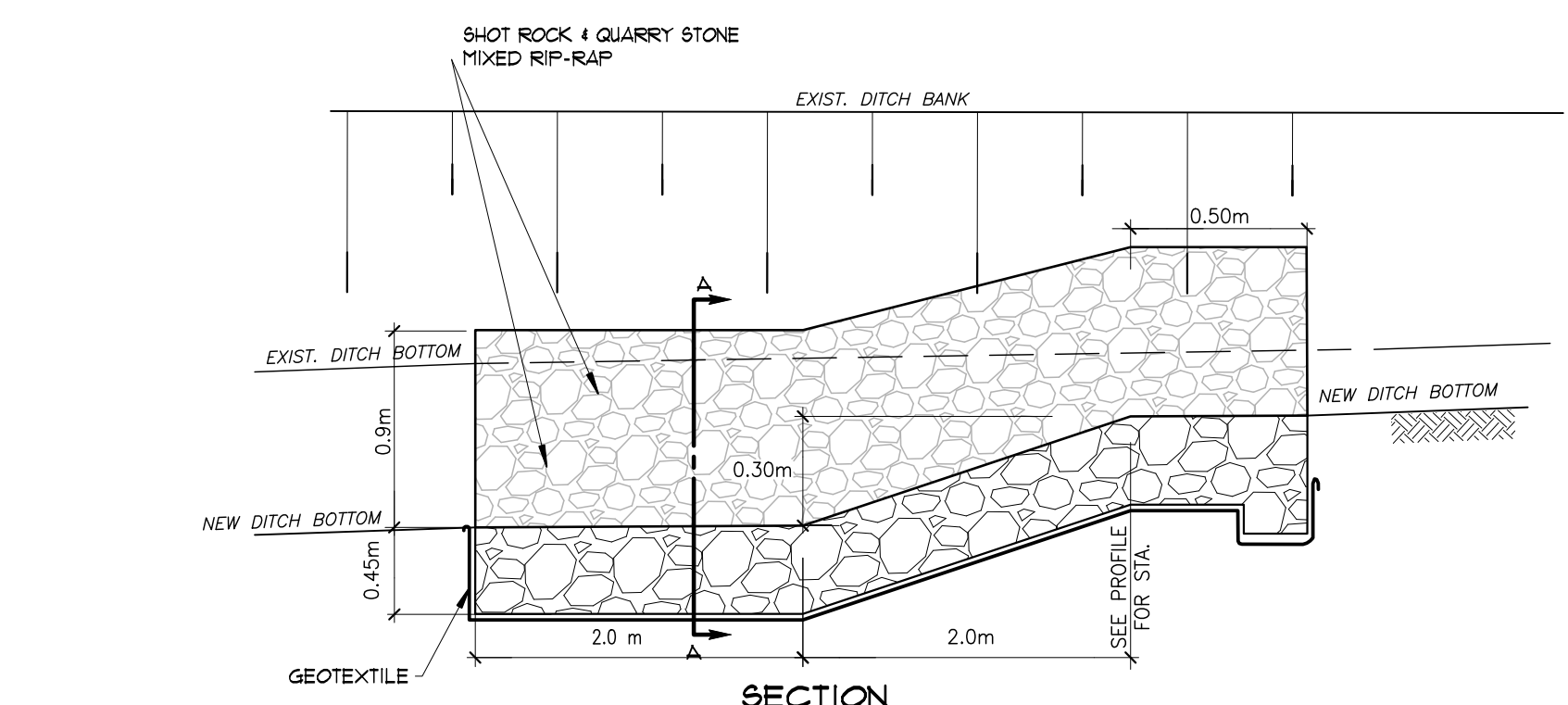


DRAIN C
SCALE: HOR 1:2,500 VERT. 1:50

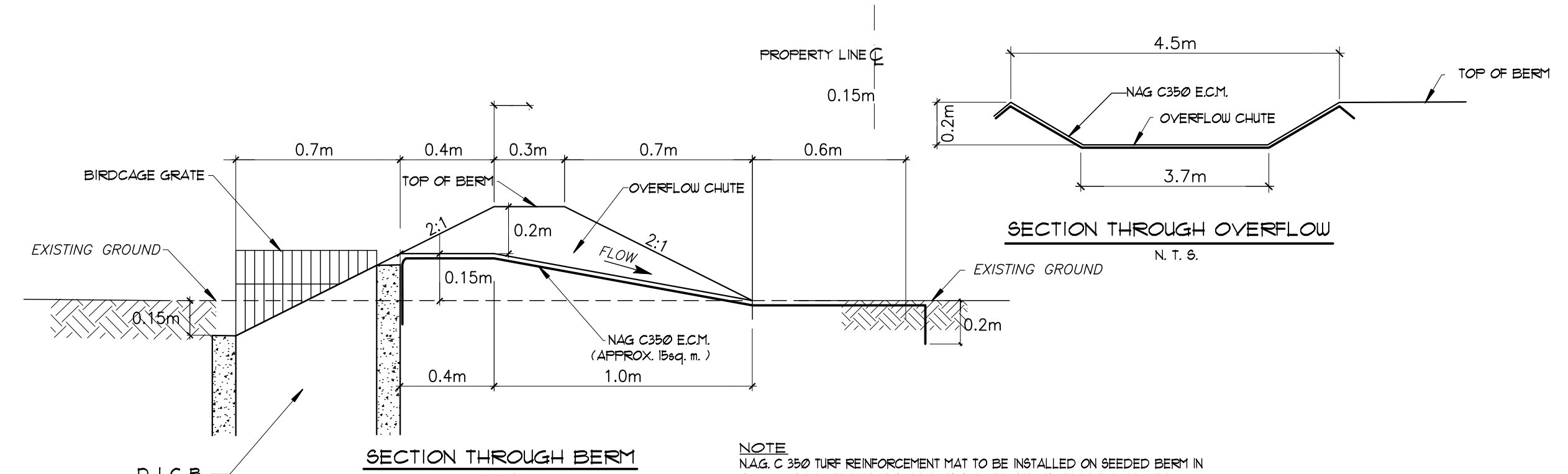
DRAIN C2
SCALE: HOR 1:2,500 VERT. 1:50

DRAIN D
SCALE: HOR 1:5,000 VERT. 1:50

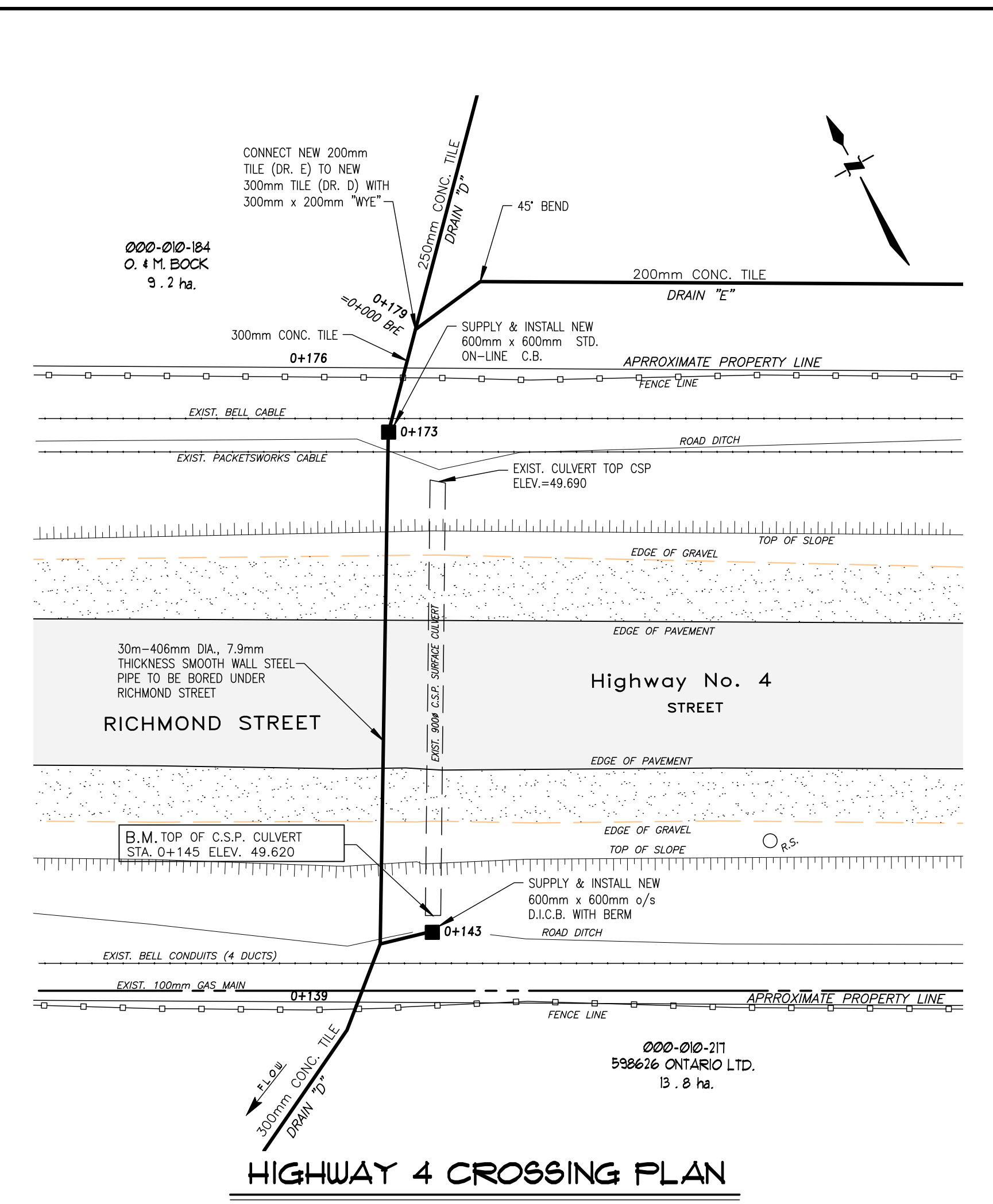
DRAIN E
SCALE: HOR 1:2,500 VERT. 1:50



HIGHWAY 4 CROSSING PROFILE
SCALE: HOR 1:1,000 VERT. 1:50



NOTE
NAG C350 TURF REINFORCEMENT MAT TO BE INSTALLED ON SEEDED BERM IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS WITH THE FOLLOWING EXCEPTIONS:
1) STAPLES TO BE 200mm LONG AND SHALL BE INSTALLED TO MANUFACTURER'S 'D' PATTERN



NAGLE DRAIN 2024
Township of Lucan Biddulph

Drainage Superintendent:
ALEX VERBEEK
519-672-4100

No.	REVISIONS	DATE

Drawn By: AV Field Book: D-213 JOB No.: 222306 Drawing No.: 2 of 2
Date: JUNE 12, 2024

PROFILES & DETAILS

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

LICENSED PROFESSIONAL ENGINEER
M. P. DeVOS
PROVINCE OF ONTARIO