PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
BARRIE, ONTARIO

Dwg.No.	Description
	TITLE PAGE
EX–1	EXISTING CONDITIONS AND PLAN
ESC–1	EROSION AND SEDIMENT CONTROL PLAN
ESC–2	EROSION AND SEDIMENT CONTROL DETAILS AND NOTES PLAN
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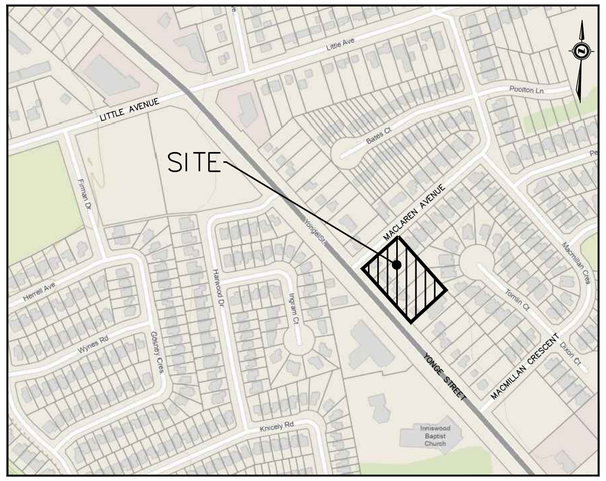
SERV–2	UNDERGROUND PARKING SERVICING PLAN
PP–1	MACLAREN AVENUE PLAN AND PROFILE – 0+000 TO 0+140
GP–1	SITE GRADING PLAN
PM–1	SITE PAVEMENT MARKINGS PLAN
PRE–1	PRE DEVELOPMENT CATCHMENT PLAN
POST–1	POST DEVELOPMENT CATCHMENT PLAN
DET–1	CONSTRUCTION NOTES AND DETAILS PLAN
DET–2	STANDARD DETAILS PLAN



SITE LOCATION

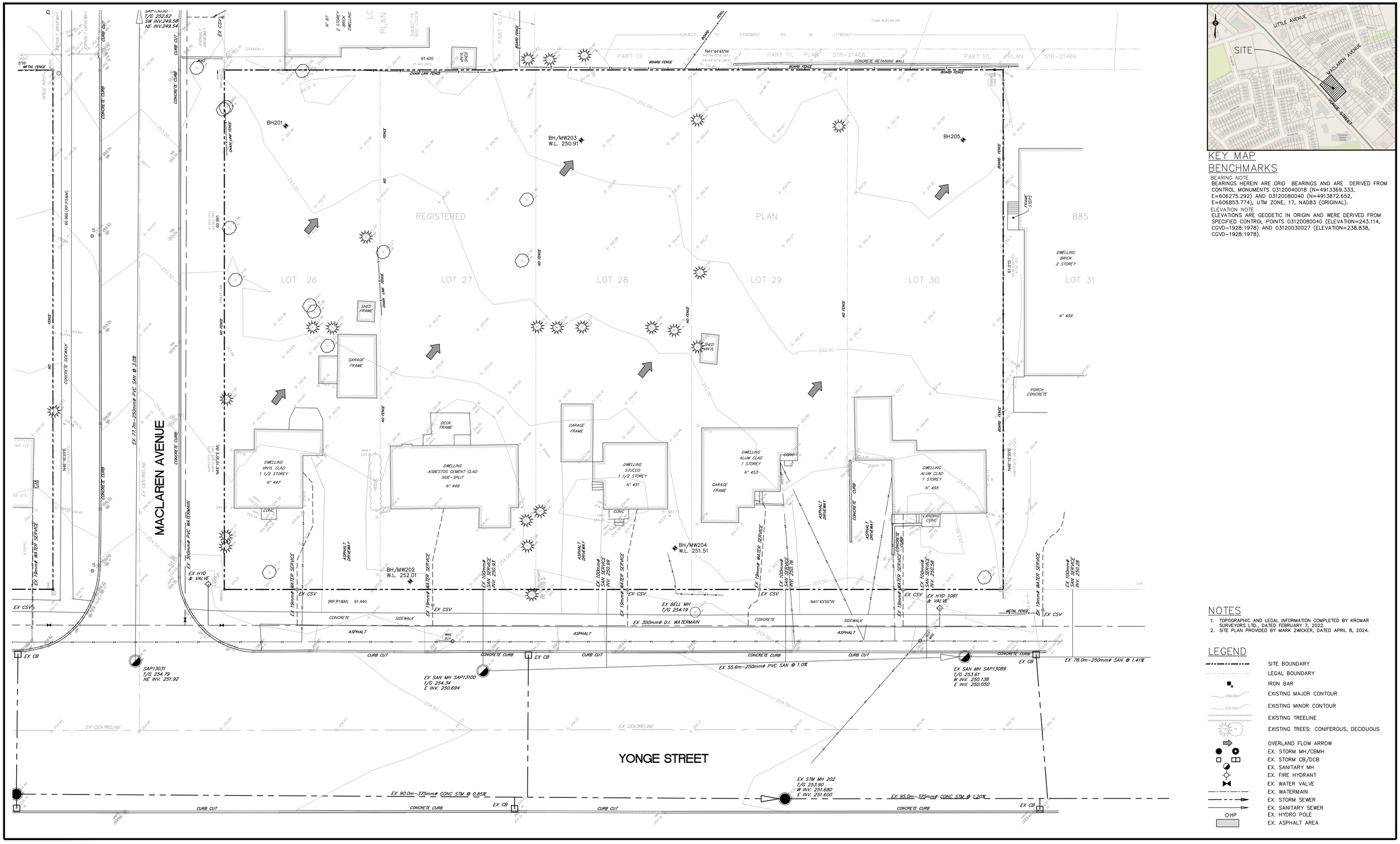
PUBLIC WORKS DEPARTMENT
CITY OF BARRIE DEVELOPMENT SERVICES
70 COLLIER STREET
BARRIE, ONTARIO
L4M 4T5

DEVELOPER
BARRIE YONGE DEVELOPMENTS GP INC.
80 MARITIME ONTARIO BLVD, UNIT 239
BRAMPTON, ONTARIO
L6S 0E7

DEVELOPER'S ENGINEER
PINESTONE ENGINEERING LTD.
20 BELL FARM ROAD, UNIT 1
BARRIE, ONTARIO
L4M 6E4

PEL
PINESTONE ENGINEERING LIMITED | www.pel.ca

1ST SPA SUBMISSION
MAY 2024
PEL Project No. 22-11672B



KEY MAP

BENCHMARKS

BEARING NOTE
BEARINGS HEREIN ARE GRID BEARINGS AND ARE DERIVED FROM CONTROL MONUMENTS 03120040018 (N=4913369.333, E=606275.292) AND 03120080040 (N=4913872.652, E=606853.774), UTM ZONE, 17, NAD83 (ORIGINAL).

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NOTES

1. TOPOGRAPHIC AND LEGAL INFORMATION COMPLETED BY KRCMAR SURVEYORS LTD., DATED FEBRUARY 7, 2022.
2. SITE PLAN PROVIDED BY MARK ZWICKER, DATED APRIL 8, 2024.

LEGEND

- SITE BOUNDARY
- LEGAL BOUNDARY
- IRON BAR
- EXISTING MAJOR CONTOUR (230.00m)
- EXISTING MINOR CONTOUR (229.50m)
- EXISTING TREELINE
- EXISTING TREES: CONIFEROUS, DECIDUOUS
- OVERLAND FLOW ARROW
- EX. STORM MH/CBMH
- EX. STORM CB/DCB
- EX. SANITARY MH
- EX. FIRE HYDRANT
- EX. WATER VALVE
- EX. WATERMAIN
- EX. STORM SEWER
- EX. SANITARY SEWER
- EX. HYDRO POLE
- EX. ASPHALT AREA

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SEAL
LICENSED PROFESSIONAL ENGINEER
D. P. HORDYK
100530228
2024-05-09
PROVINCE OF ONTARIO

DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
D.H.	
SCALE:	DATE:
1:200	MAY 2024

NO.	YY.MM.DD	REVISION	BY

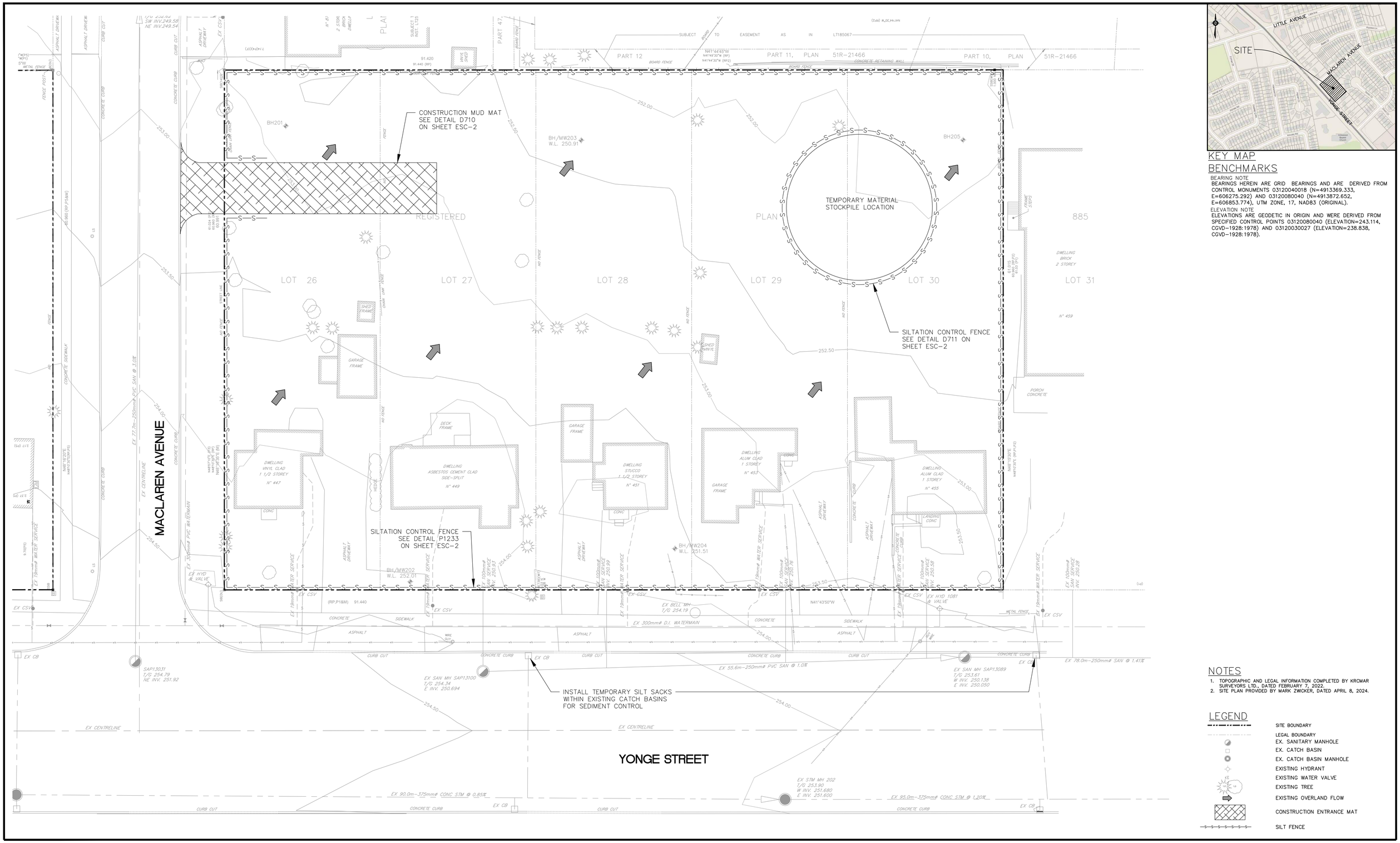
NORTH ARROW

PROJECT:
PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING:
EXISTING CONDITIONS PLAN

PROJECT No. : 22-11672B

DRAWING No. EX-1



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LEGEND

- SITE BOUNDARY
- LEGAL BOUNDARY
- EX. SANITARY MANHOLE
- EX. CATCH BASIN
- EX. CATCH BASIN MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING TREE
- EXISTING OVERLAND FLOW
- CONSTRUCTION ENTRANCE MAT
- SILT FENCE

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SEAL
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D. P. HORDYK
100539228
2024-05-09
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DRAWN BY:	CHECKED BY:
C.A.	J.V.
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1:200	MAY 2024

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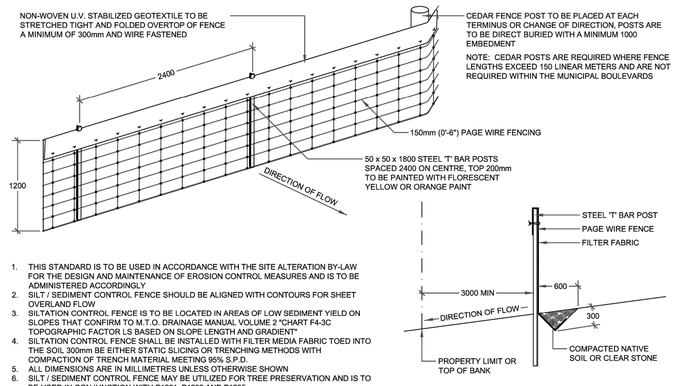
NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: EROSION AND SEDIMENT CONTROL PLAN

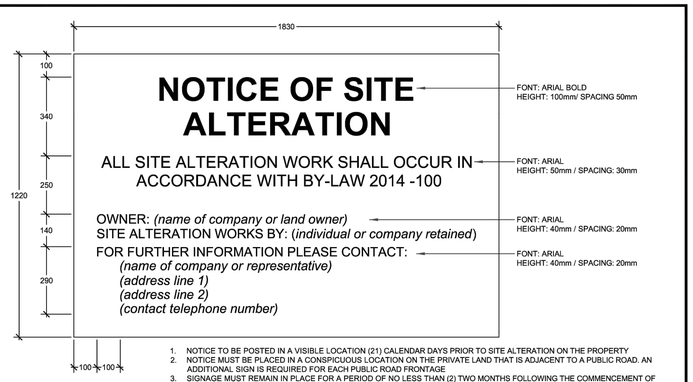
PROJECT No. : 22-11672B

DRAWING No. ESC-1



1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH THE SITE ALTERATION BY-LAW FOR THE DESIGN AND MAINTENANCE OF EROSION CONTROL MEASURES AND IS TO BE ADMINISTERED ACCORDINGLY
2. SILT / SEDIMENT CONTROL FENCE SHOULD BE ALIGNED WITH CONTOURS FOR SHEET OVERLAND FLOW
3. SILTATION CONTROL FENCE IS TO BE LOCATED IN AREAS OF LOW SEDIMENT YIELD ON SLOPES THAT CONFIRM TO M.T.O. DRAINAGE MANUAL VOLUME 2 "CHART F4-3C TOPOGRAPHIC FACTOR LS BASED ON SLOPE LENGTH AND GRADIENT"
4. SILTATION CONTROL FENCE SHALL BE INSTALLED WITH FILTER MEDIA FABRIC TOED INTO THE SOIL 300mm BE EITHER STATIC SLICING OR TRENCHING METHODS WITH COMPACTION OF TRENCH MATERIAL MEETING 95% S.P.D.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
6. SILT / SEDIMENT CONTROL FENCE MAY BE UTILIZED FOR TREE PRESERVATION AND IS TO BE USED IN CONJUNCTION WITH P1231, P1232 AND P1235

Barrie	FENCE SILTATION CONTROL	REV No. 3	DATE: APR 2023 SCALE: N.T.S.
			P1233



1. NOTICE TO BE POSTED IN A VISIBLE LOCATION (21) CALENDAR DAYS PRIOR TO SITE ALTERATION ON THE PROPERTY
2. NOTICE MUST BE PLACED IN A CONSPICUOUS LOCATION ON THE PRIVATE LAND THAT IS ADJACENT TO A PUBLIC ROAD. AN ADDITIONAL SIGN IS REQUIRED FOR EACH PUBLIC ROAD FRONTAGE
3. SIGNAGE MUST REMAIN IN PLACE FOR A PERIOD OF NO LESS THAN (2) TWO MONTHS FOLLOWING THE COMMENCEMENT OF SITE ALTERATION
4. CONTACT INFORMATION TO CONTAIN THE ADDRESS AND TELEPHONE NUMBER OF A PERSON ACTING ON BEHALF OF THE COMPANY/LAND OWNER FOR WHOM FURTHER INFORMATION ON THE PROPOSED SITE ALTERATION MAY BE OBTAINED
5. COLOUR OF LETTERING TO BE BLACK ON WHITE
6. ALL DIMENSIONS ARE IN MILLIMETRES

Barrie	SIGN SITE ALTERATION NOTIFICATION	REV No. 2	DATE: APR 2023 SCALE: N.T.S.
			P1237

KEY MAP

NOTES

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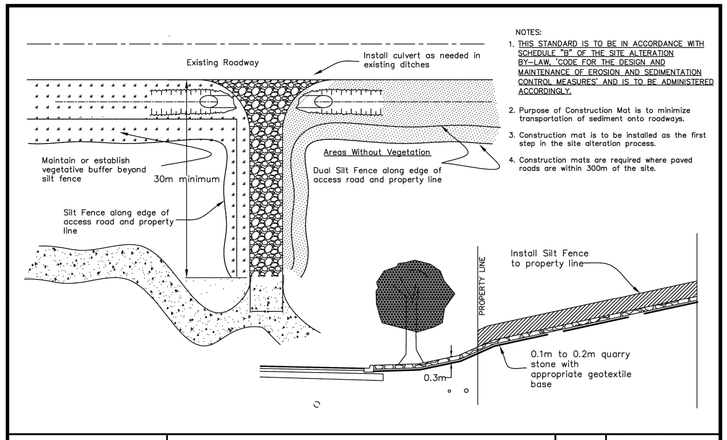
2. SITE PLAN PROVIDED BY MARK ZWOKER, DATED APRIL 8, 2024.

EROSION CONTROL NOTES:

1. All silt fencing to be installed prior to any grading or excavation.
2. Erosion control fencing to be installed around the base of all stockpiles.
3. Additional erosion control measures may be required as site development progresses. Contractor to provide all additional erosion control structures as directed by the engineer.
4. Pinestone Engineering Ltd. to monitor erosion control structures to ensure fencing is installed and maintenance is performed to municipal requirements.
5. Erosion control structures to be monitored regularly and after every rainfall. Any damage repaired immediately. Sediments to be removed when accumulations reach a maximum of 0.30m above the base of the fence.
6. All erosion control structures to remain in place until all disturbed ground have been re-stabilized either by paving or restoration of vegetative ground cover.
7. No alternate methods of erosion protection shall be permitted unless approved Pinestone Engineering Ltd. and the City of Barrie.
8. Install mud mat prior to any grading works onsite.
9. Contractor is responsible for municipal roadway to be cleared of all sediments from vehicular tracking etc. at the end of each day.



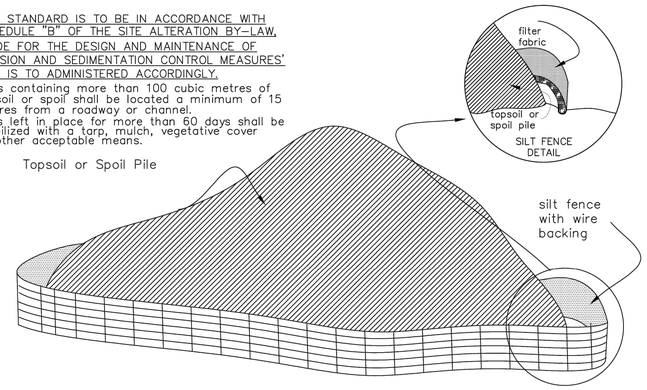
NOTES:

1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, 'CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES' AND IS TO BE ADMINISTERED ACCORDINGLY.
2. Purpose of Construction Mat is to minimize transportation of sediment onto roadways.
3. Construction mat is to be installed as the first step in the site alteration process.
4. Construction mats are required where paved roads are within 300m of the site.

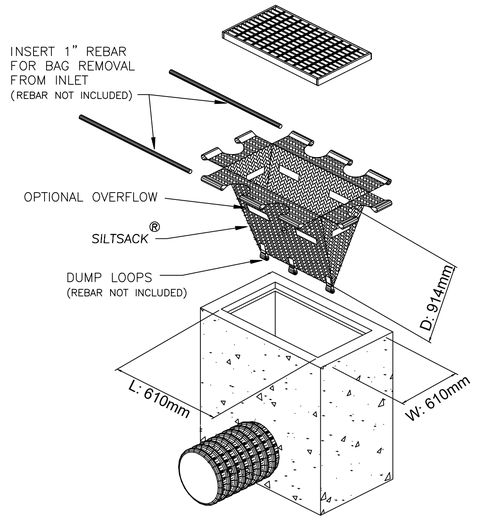
Barrie	Construction Entrance	REV No. 2	DATE: APR 2023 SCALE: N.T.S
			D710

NOTES:

1. THIS STANDARD IS TO BE IN ACCORDANCE WITH SCHEDULE "B" OF THE SITE ALTERATION BY-LAW, 'CODE FOR THE DESIGN AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL MEASURES' AND IS TO ADMINISTERED ACCORDINGLY.
2. Piles containing more than 100 cubic metres of topsoil or spoil shall be located a minimum of 15 metres from a roadway or channel.
3. Piles left in place for more than 60 days shall be stabilized with a tarp, mulch, vegetative cover or other acceptable means.



Barrie	Siltation Control	REV No. 1	DATE: APR 2023 SCALE: N.T.S
			D711



TYPICAL SILT SACK CONSTRUCTION TYPE B

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SEAL: LICENSED PROFESSIONAL ENGINEER D. P. HORDYK 100530228 2024-05-09 PROVINCE OF ONTARIO

DRAWN BY: C.A.	CHECKED BY: J.V.
DESIGNED BY: D.H.	
SCALE: 1:200	DATE: MAY 2024

NO.	YY.MM.DD	REVISION	BY

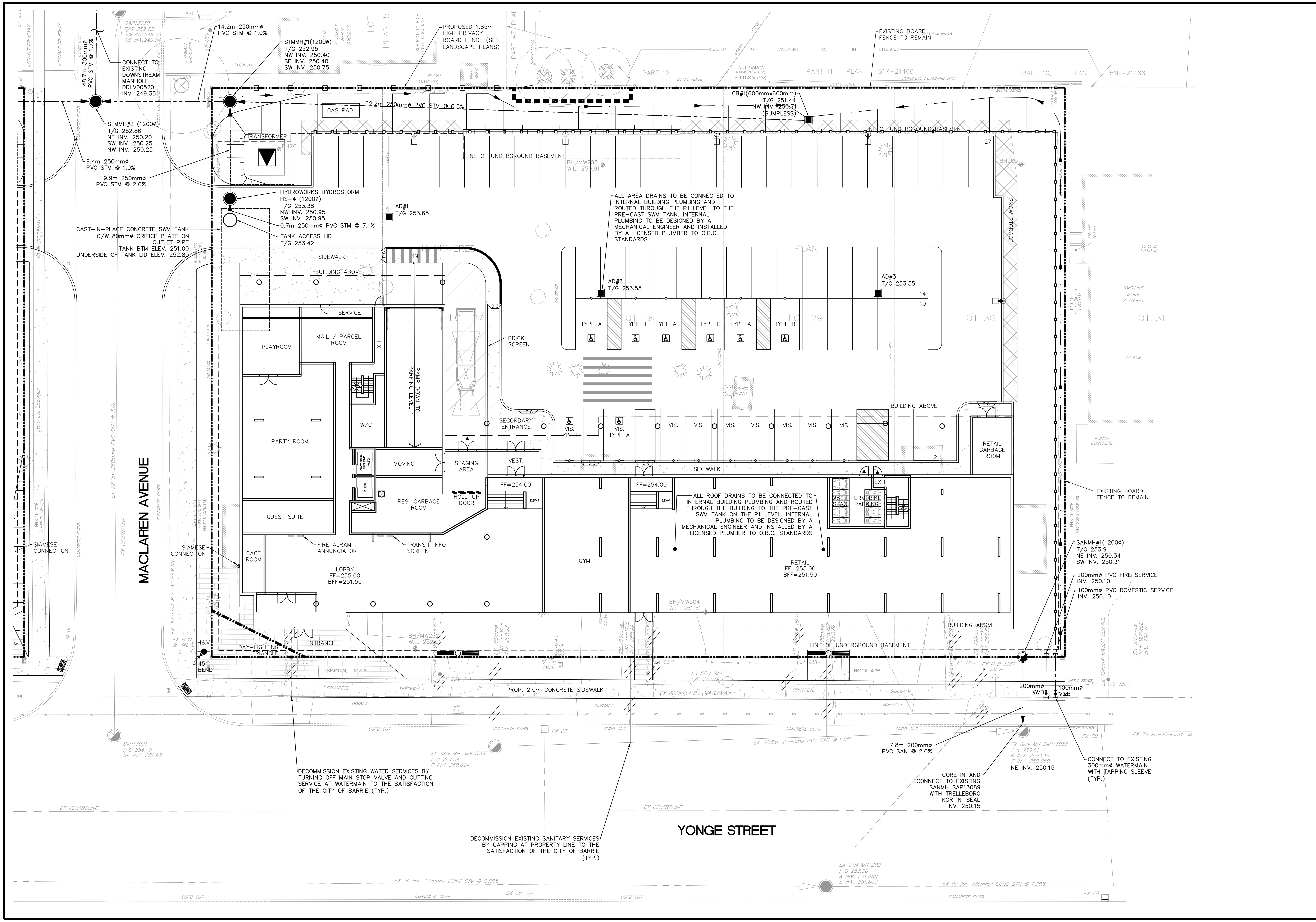
NORTH ARROW

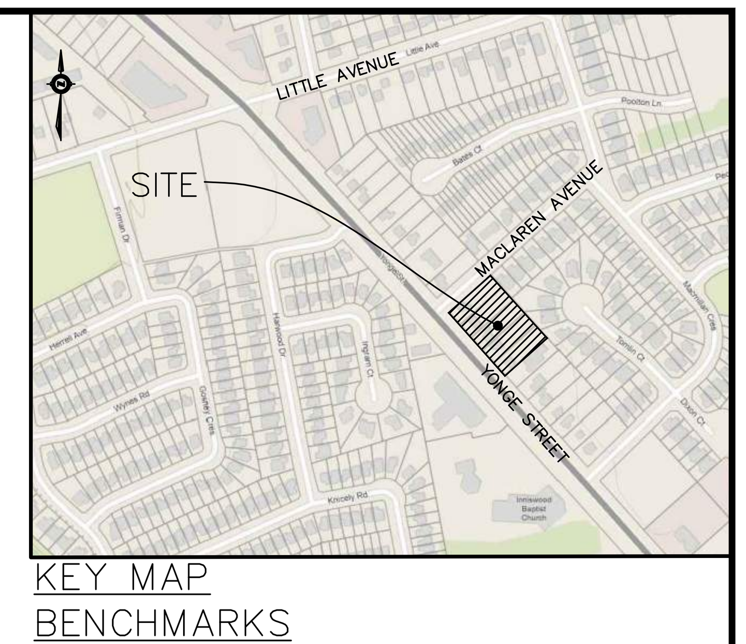
PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: EROSION AND SEDIMENT CONTROL DETAILS AND NOTES PLAN

PROJECT No. : 22-11672B

DRAWING No. ESC-2





KEY MAP

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LEGEND

- SITE BOUNDARY
- LEGAL BOUNDARY
- IRON BAR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TREELINE
- EXISTING TREES: CONIFEROUS, DECIDUOUS
- PROP. WATER VALVE
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED FENCE
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE
- PROPOSED LIGHT STANDARD
- TREE PRESERVATION FENCE (BY OTHERS)
- EXISTING BOUNDARY TREES TO RETAIN

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DRAWN BY: C.A.	CHECKED BY: J.V.
DESIGNED BY: D.H.	
SCALE: 1:200	DATE: MAY 2024

NO.	YY.MM.DD	REVISION	BY

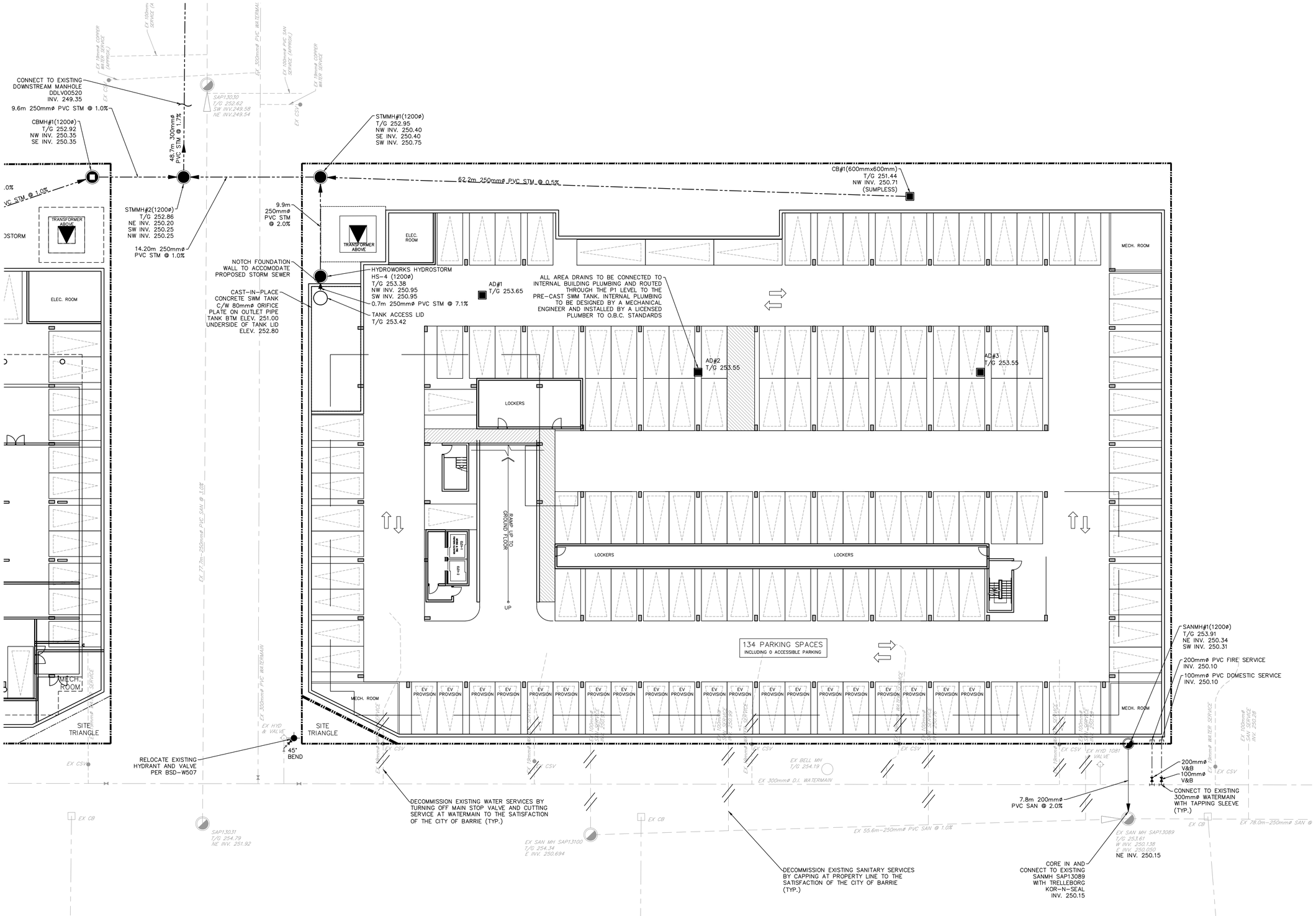
NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT 447-455 YONGE STREET CITY OF BARRIE

PROJECT No. : 22-11672B

DRAWING: SITE SERVICING PLAN

DRAWING No. SERV-1



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- SITE BOUNDARY
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- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING TRELINE
- EXISTING TREES: CONIFEROUS, DECIDUOUS
- PROP. WATER VALVE
- PROPOSED ASPHALT DRIVEWAY
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100330228
2024-05-09
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C.A.	J.V.
DESIGNED BY:	
D.H.	
SCALE:	DATE:
1:200	MAY 2024

NO.	YY.MM.DD	REVISION	BY

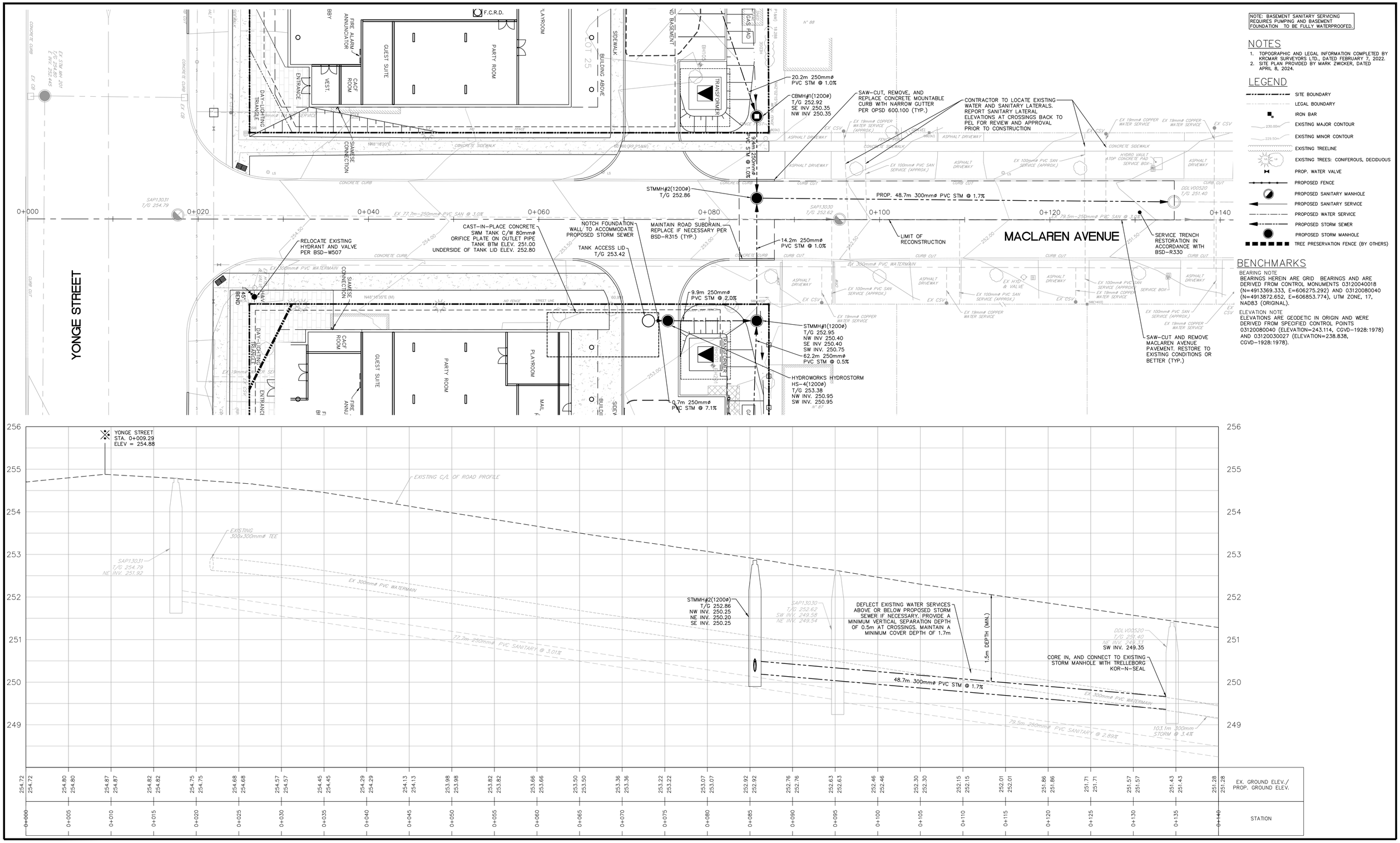
NORTH ARROW

PROJECT:
PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING:
UNDERGROUND PARKING SERVICING PLAN

PROJECT No. : 22-11672B

DRAWING No. SERV-2



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- EXISTING TREES: CONIFEROUS, DECIDUOUS
- PROP. WATER VALVE
- PROPOSED FENCE
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE
- TREE PRESERVATION FENCE (BY OTHERS)

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LICENSED PROFESSIONAL ENGINEER
D. P. HORDYK
100530228
2024-05-09
PROVINCE OF ONTARIO

DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
D.H.	
SCALE: HOR. 1:200 VERT. 1:40	DATE: MAY 2024

NO.	YY.MM.DD	REVISION	BY

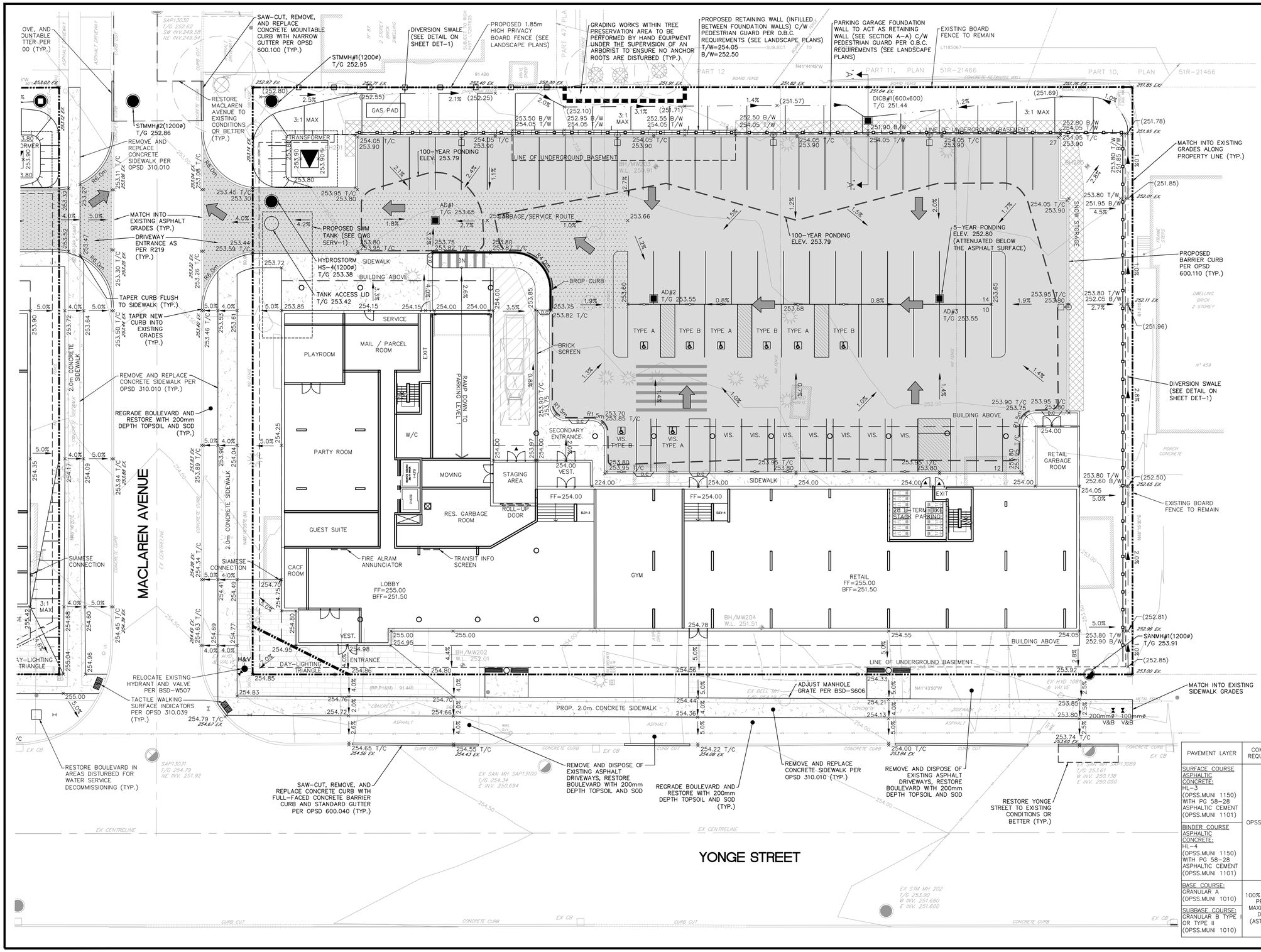
NORTH ARROW

PROJECT:
PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING:
MACLAREN AVENUE
PLAN AND PROFILE
0+000 TO 0+140

PROJECT No. : 22-11672B

DRAWING No. PP-1



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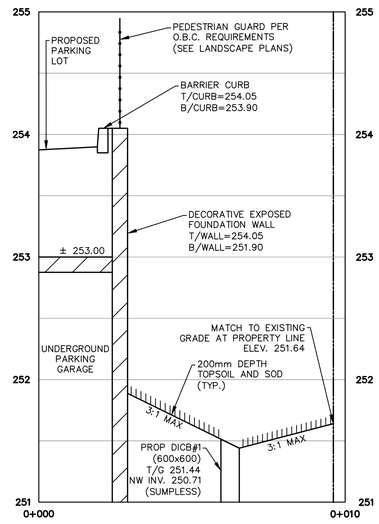

SECTION A–A

SCALE H=1:100
V=1:25

NOTES

1. TOPOGRAPHIC AND LEGAL INFORMATION COMPLETED BY KRCMAR SURVEYORS LTD., DATED FEBRUARY 7, 2022.
2. SITE PLAN PROVIDED BY MARK ZWICKER, DATED APRIL 8, 2024.

PAVEMENT LAYER	COMPACTION REQUIREMENTS	LIGHT DUTY MINIMUM THICKNESS	HEAVY DUTY MINIMUM THICKNESS
SURFACE COURSE ASPHALTIC CONCRETE: HL-3 (OPSS.MUNI 1150) WITH PG 58-28 ASPHALTIC CEMENT (OPSS.MUNI 1101)	OPSS.MUNI 310	40mm	40mm
BINDER COURSE ASPHALTIC CONCRETE: HL-4 (OPSS.MUNI 1150) WITH PG 58-28 ASPHALTIC CEMENT (OPSS.MUNI 1101)		50mm	70mm
BASE COURSE: GRANULAR A (OPSS.MUNI 1010)	100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D698)	150mm	150mm
SUBBASE COURSE: GRANULAR B TYPE II OR TYPE II (OPSS.MUNI 1010)		300mm	450mm

LEGEND

- SITE BOUNDARY
- LEGAL BOUNDARY
- IRON BAR
- 230.00m EXISTING MAJOR CONTOUR
- 229.50m EXISTING MINOR CONTOUR
- EXISTING TREELINE
- EXISTING TREES: CONIFEROUS, DECIDUOUS
- OVERLAND FLOW ARROW
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- × 254.10 EX EXISTING GRADE
- × 254.50 PROPOSED GRADE
- × 253.80 T/W PROPOSED TOP OF WALL GRADE
- × 253.80 B/W PROPOSED BOTTOM OF WALL GRADE
- × (253.50) PROPOSED SWALE GRADE
- TREE PRESERVATION FENCE (BY OTHERS)
- EXISTING BOUNDARY TREES TO RETAIN

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Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.

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SEAL
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100530228
2024-05-09
PROVINCE OF ONTARIO

DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
D.H.	
SCALE:	DATE:
1:200	MAY 2024

NO.	YY.MM.DD	REVISION	BY

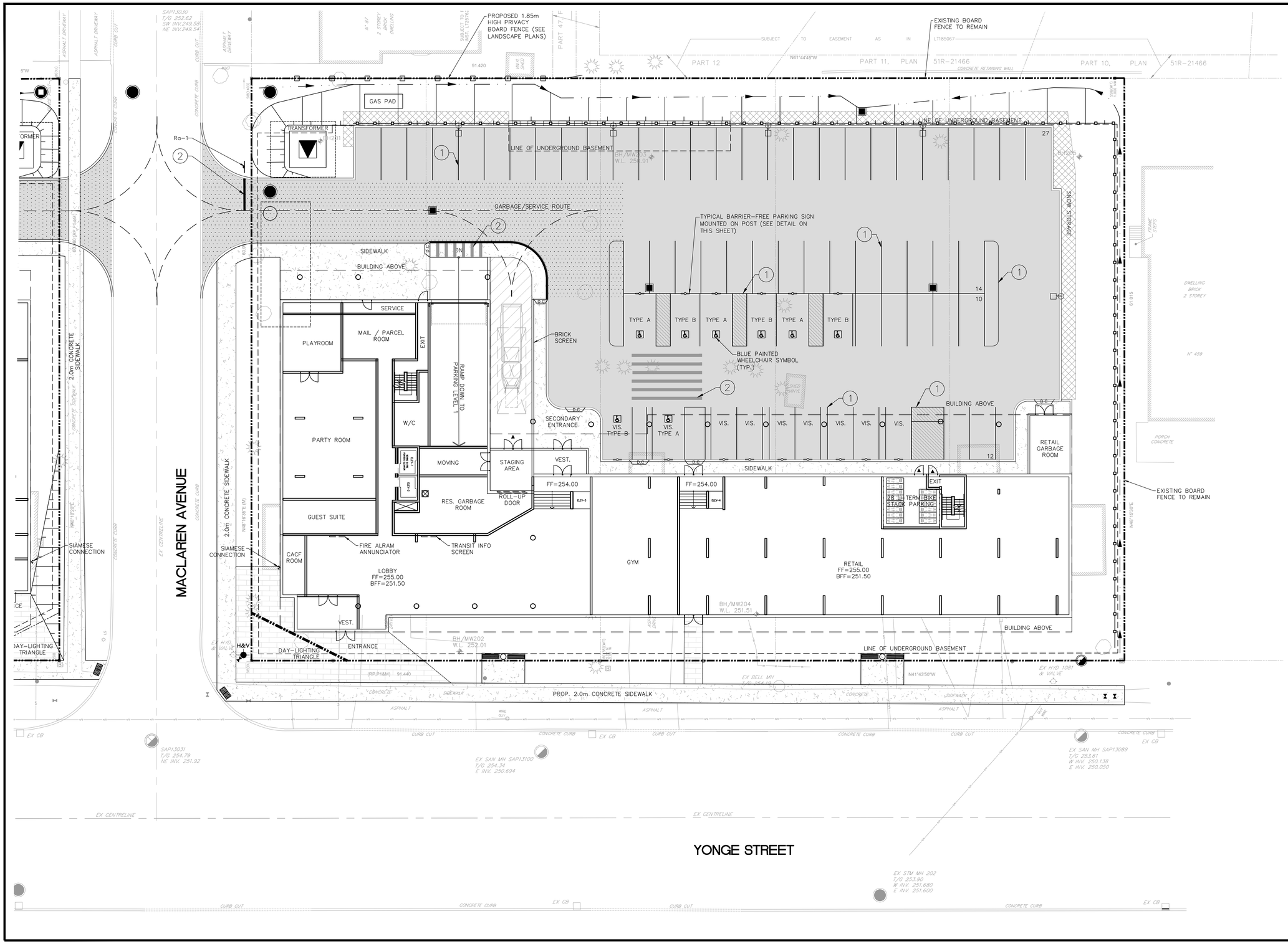
NORTH ARROW

PROJECT:
PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING:
SITE GRADING PLAN

PROJECT No. : 22-11672B

DRAWING No. GP-1



KEY MAP

BENCHMARKS

BEARING NOTE
BEARINGS HEREIN ARE GRID BEARINGS AND ARE DERIVED FROM CONTROL MONUMENTS 03120040018 (N=4913369.333, E=606275.292) AND 03120080040 (N=4913872.652, E=606853.774), UTM ZONE, 17, NAD83 (ORIGINAL).

ELEVATION NOTE
ELEVATIONS ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM SPECIFIED CONTROL POINTS 03120080040 (ELEVATION=243.114, CGVD-1928:1978) AND 03120030027 (ELEVATION=238.838, CGVD-1928:1978).

NOTES

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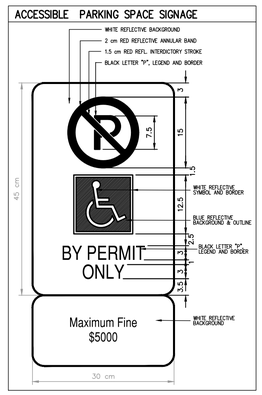
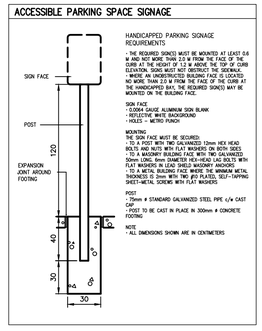
2. SITE PLAN PROVIDED BY MARK ZWICKER, DATED APRIL 8, 2024.

LEGEND

STOP Ra-1	STOP SIGN (Ra-1)
1	SOLID WHITE, 10cm WIDTH
2	SOLID WHITE, 30cm WIDTH
	PROPOSED LIGHT DUTY ASPHALT AREA
	PROPOSED HEAVY DUTY ASPHALT AREA
	TACTILE PLATE PER OPSD 310.039 (TYP.)





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DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
D.H.	
SCALE:	DATE:
1:200	MAY 2024

NO.	YY.MM.DD	REVISION	BY

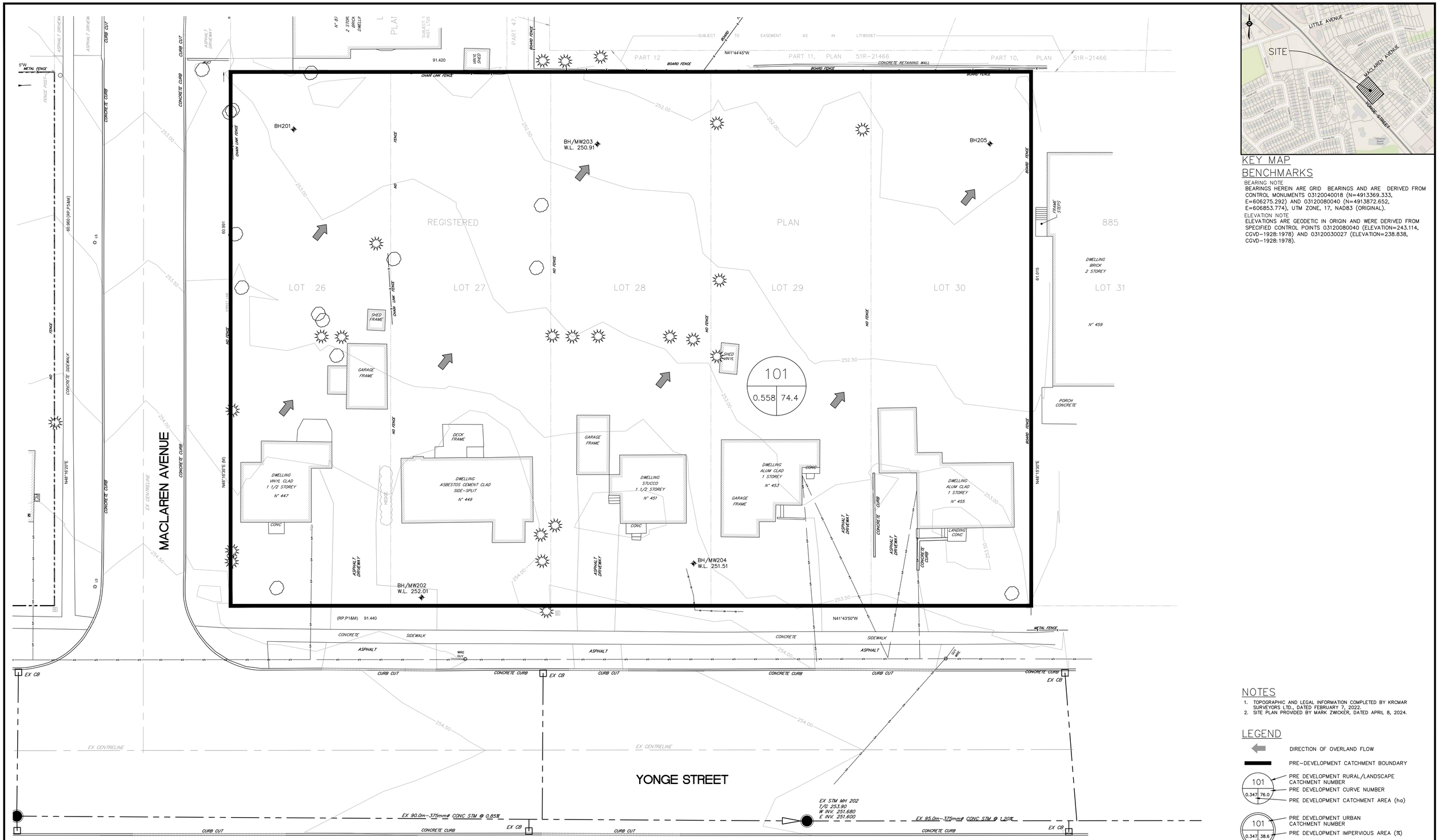
NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: PAVEMENT MARKING AND SIGNAGE PLAN

PROJECT No. : 22-11672B

DRAWING No. PM-1



KEY MAP

BENCHMARKS

BEARING NOTE
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NOTES

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2. SITE PLAN PROVIDED BY MARK ZWCKER, DATED APRIL 8, 2024.

LEGEND

DIRECTION OF OVERLAND FLOW

PRE-DEVELOPMENT CATCHMENT BOUNDARY

101 / 0.347 / 76.0
- PRE DEVELOPMENT RURAL/LANDSCAPE CATCHMENT NUMBER
- PRE DEVELOPMENT CURVE NUMBER
- PRE DEVELOPMENT CATCHMENT AREA (ha)

101 / 0.347 / 38.6
- PRE DEVELOPMENT URBAN CATCHMENT NUMBER
- PRE DEVELOPMENT IMPERVIOUS AREA (%)
- PRE DEVELOPMENT CATCHMENT AREA (ha)

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D.H.	
SCALE:	DATE:
1:200	MAY 2024

NO.	YY.MM.DD	REVISION	BY

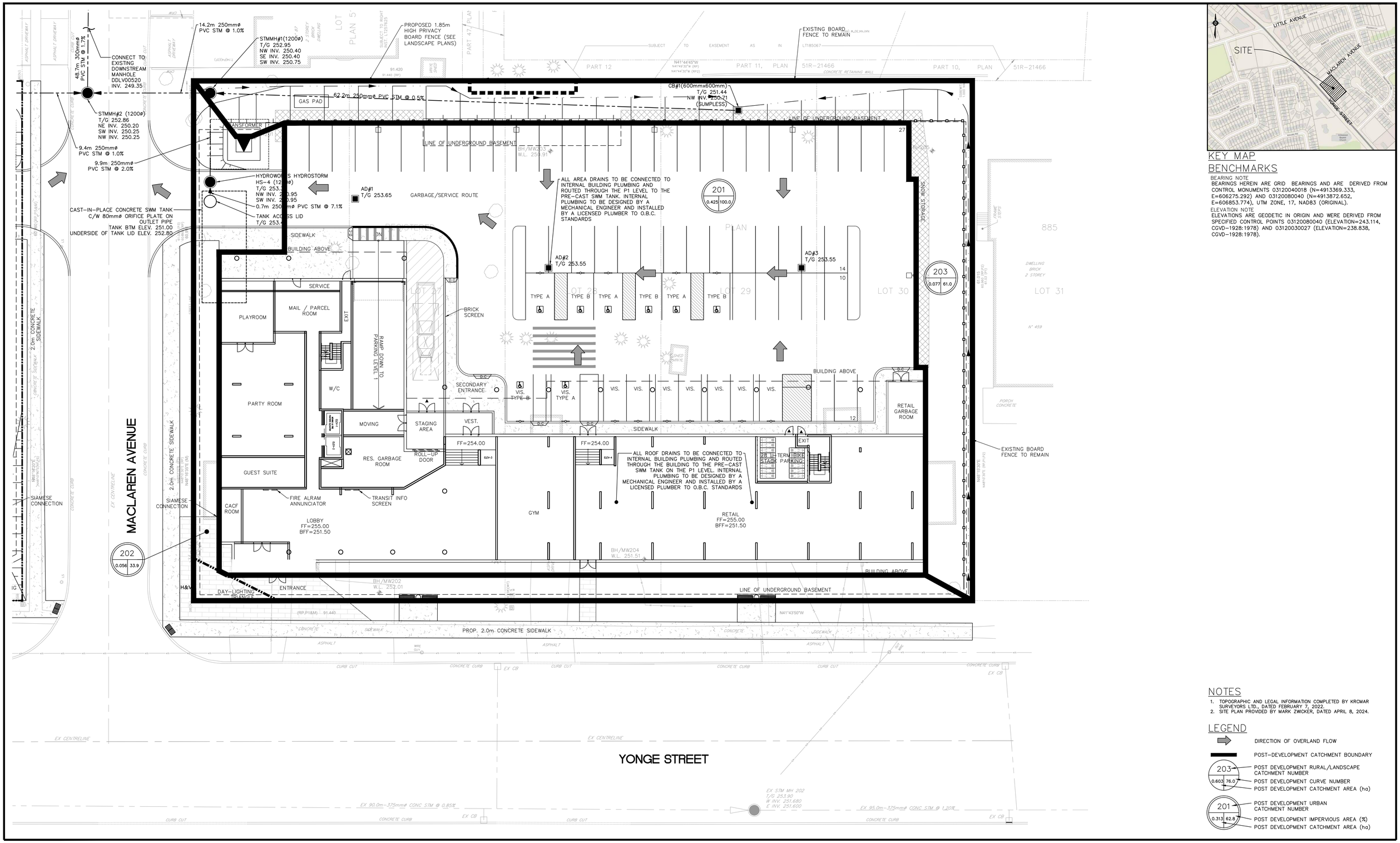
NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: PRE DEVELOPMENT CATACHMENT PLAN

PROJECT No. : 22-11672B

DRAWING No. PRE-1



KEY MAP

BENCHMARKS

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NOTES

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2. SITE PLAN PROVIDED BY MARK ZWCKER, DATED APRIL 8, 2024.

LEGEND

DIRECTION OF OVERLAND FLOW

POST-DEVELOPMENT CATCHMENT BOUNDARY

203 — POST DEVELOPMENT RURAL/LANDSCAPE CATCHMENT NUMBER
0.603 — POST DEVELOPMENT CATCHMENT AREA (ha)
76.0 — POST DEVELOPMENT CURVE NUMBER

201 — POST DEVELOPMENT URBAN CATCHMENT NUMBER
0.313 — POST DEVELOPMENT CATCHMENT AREA (ha)
62.8 — POST DEVELOPMENT IMPERVIOUS AREA (%)

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1:200	MAY 2024

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NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: POST DEVELOPMENT CATCHMENT PLAN

PROJECT No. : 22-11672B

DRAWING No. POST-1

RESTORATION NOTES

1. REINSTATE ROADS TO PREVIOUS CONDITION OR BETTER. MINIMUM PAVEMENT COMPOSITION:
   - YONGE STREET: 40mm HL1, 100mm HL4, 150mm GRANULAR 'A AND 1130mm GRANULAR 'B'.
   - MACLAREN AVENUE: 40mm HL3, 70mm HL4 OR HL8, 150mm GRANULAR 'A', AND 530mm GRANULAR 'B'.
2. CONTRACTOR TO RESTORE DRIVEWAYS AND BOULEVARD IN AREAS DISTURBED BY CONSTRUCTION TO EQUAL OR BETTER CONDITIONS.
3. MINIMUM GRAVEL DRIVEWAY RESTORATION TO BE 150mm, GRANULAR 'A'. ASPHALT DRIVEWAY RESTORATION TO BE 50mm OF HL3. AND 200mm GRANULAR 'A'
4. ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED WITH 200mm DEPTH TOPSOIL AND SOD. MAINTAIN UNTIL ESTABLISHED.
5. ALL RESTORATION WORK TO BE COMPLETED TO THE SATISFACTION OF THE ENGINEER.

PARKING LOT/DRIVEWAY NOTES

1. EXISTING SOILS AND GRANULAR MATERIALS TO BE REMOVED TO THE LIMITS SHOWN ON THE DRAWINGS AND ANY SURPLUS IS TO BE DISPOSED OFF-SITE AT A LOCATION CHOSEN BY, AND PAID FOR, BY THE CONTRACTOR.
2. PROPOSED SUB-GRADE TO BE INSPECTED AND PROOF-ROLLED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACEMENT OF GRANULAR "B". DEFICIENT AREAS ARE TO BE SUB-EXCAVATED AND REPLACED WITH GRANULAR "B" AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
3. THE GRANULAR SUB-BASE IS TO BE INSPECTED AND PROOF-ROLLED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACEMENT OF THE GRANULAR "A".
4. THE GRANULAR BASE IS TO BE INSPECTED AND PROOF-ROLLED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER AND APPROVED PRIOR TO PLACEMENT OF THE ASPHALT.
5. CONTRACTOR TO PROVIDE SAMPLES OF GRANULAR MATERIALS AND THE ASPHALT MIX DESIGNS TO THE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.
6. GRANULAR MATERIALS TO BE UNIFORMLY COMPACTED TO MINIMUM 100% STANDARD PROCTOR MAXIMUM DRY DENSITY. HOT LAID ASPHALT TO BE ROLLED UNIFORMLY TO A MINIMUM OF 97% MARSHALL BULK DENSITY.
7. GRASSED AREAS DISTURBED DURING CONSTRUCTION TO BE RESTORED WITH MINIMUM 200mm TOPSOIL AND SOD.
8. TOPSOIL SHALL CONFORM TO OPSS 570, EXCEPT THAT TOPSOIL SHALL CONTAIN NOT LESS THAN 4% ORGANIC MATTER FOR CLAY LOAMS AND NOT LESS THAN 2% FOR SANDY LOAMS, WITH AN ACIDITY VALUE RANGING FROM P.H. 6.0 TO P.H. 7.5 AND CAPABLE OF SUSTAINING VIGOROUS PLANT GROWTH. IT SHALL BE FREE FROM ANY ADMIXTURE OF SUBSOIL, CLAY LUMPS, STONES GREATER THAN 25mm IN DIAMETER AND ANY OTHER EXTRANEOUS MATTER.
9. SOD SHALL CONFORM TO OPSS 571.

GENERAL NOTES

1. DRAWINGS

A. ALL DRAWINGS SHALL BE PRODUCED IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARDS & SYMBOLS FOR PLAN & PROFILE DRAWINGS, GENERAL SERVICE PLANS AND LOT GRADING PLANS.

2. MEASUREMENTS

A. ALL DIMENSIONS ARE IN METRES, EXCEPT PIPE DIAMETERS, WHICH ARE IN MILLIMETRES, UNLESS SPECIFIED OTHERWISE.

3. GENERAL

A. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT CITY OF BARRIE STANDARD DRAWINGS (BSD) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

B. ORDER OF PRECEDENCE OF STANDARD DRAWINGS IS FIRSTLY CITY OF BARRIE STANDARD DRAWINGS (BSD) AND SECONDLY ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).

C. LOCATION OF EXISTING SERVICES ARE NOT GUARANTEED. THE CONTRACTOR IS REQUIRED TO NOTIFY THE VARIOUS UTILITY COMPANIES 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK.

D. A ROAD OCCUPANCY PERMIT IS REQUIRED FROM THE ROADS AND PARKS OPERATIONS BRANCH PRIOR TO THE COMMENCEMENT OF WORK WITHIN ANY CITY RIGHT-OF-WAY.

E. A SITE ALTERATION PERMIT IS REQUIRED FROM THE ENGINEERING DEPARTMENT PRIOR TO THE COMMENCEMENT OF ANY EARTH WORKS ON THE SITE.

F. NATIVE MATERIAL, SUITABLE FOR BACKFILL, SHALL BE COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.

G. GRANULAR MATERIAL , USED FOR BACKFILL , SHALL BE PLACED IN LAYERS 150mm IN DEPTH MAXIMUM AND COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.

H. ALL DISTURBED AREAS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION OR BETTER, AS DETERMINED BY THE CITY ENGINEERING DEPARTMENT.

I. ALL SILT CONTROL AND EROSION PROTECTION DEVICES ARE TO BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL CONSTRUCTION IS COMPLETE AND THE GRASS HAS ESTABLISHED GROWTH, SUBJECT TO APPROVAL BY THE CITY ENGINEERING DEPARTMENT.

Barrie	Development General Notes	REV No. 5	DATE: APR 2023	SCALE: N.T.S	G200B

STORM SEWER

A. STORM SEWER TO BE PROVIDED ON ALL ROADS WITH CURB AND GUTTER.

B. PLACE ALL CATCH BASIN LATERALS AT 2% GRADE UNLESS OTHERWISE NOTED. PIPE SIZE MINIMUM 250mm DIA. SINGLE , 300mm DIA. DOUBLE.

C. STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING AS PER OPSD-802.010 (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-802.030 OR 802.031 CLASS B (GRAN. 'A' BEDDING MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

D. MAINTENANCE HOLE TOPS (FRAMES) AND CATCH BASIN (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACED. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.

E. STORM SEWER TO BE LOCATED OFFSET 3.0m SOUTH OR EAST OF CENTRELINE UNLESS OTHERWISE SPECIFIED.

F. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH A STORM MANHOLE OR APPROVED FACTORY TEE CONNECTION AS PER OPSD-708.01 OR 708.03.

G. PIPE MATERIAL TO BE REINFORCED CONCRETE WITH A MINIMUM STRENGTH OF 50 N/m/mm CERTIFIED TO C.S.A. STANDARD A247.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II) OR PVC CERTIFIED TO C.S.A. STANDARDS 182.2 AND 182.4.

H. STORM SEWER TO BE MINIMUM 300mm DIAMETER WITH JOINTS CONFORMING TO C.S.A. STANDARD A257.3.

I. ALL PIPE BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METRES UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.

J. ALL PIPE HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURES INSTALLATION GUIDES AND THE O.C.P.A. OR UNIBELL GUIDELINES.

K. SUMP PUMP DISCHARGE PIPING IN BOULEVARD:
IN THE EVENT OF OVERACTIVE SUMP PUMP ACTIVITY, A 150mm DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGES OF DESIGNATED LOTS, WITH AN OFFSET OF 0.6m FROM BACK OF CURB. THIS SEWER IS TO BE CAPPED AT THE UPSTREAM END AND IS TO OUTLET INTO THE NEAREST CATCHBASIN DOWNSTREAM. DEPTH OF SEWER IS TO BE EQUAL TO SUBDRAIN DEPTH. NOT TO BE DIRECTLY CONNECTED TO FOUNDATION DRAINS.

Barrie	Storm Sewers General Notes	REV No. 5	DATE: APR 2023	SCALE: N.T.S.	D788

KEY MAP

NOTES

1. TOPOGRAPHIC AND LEGAL INFORMATION COMPLETED BY KRCMAR SURVEYORS LTD., DATED FEBRUARY 7, 2022.
2. SITE PLAN PROVIDED BY MARK ZWICKER, DATED APRIL 8, 2024.

GENERAL NOTES - WATERMAIN

1. CONTRACTORS SHALL INFORM THE CITY OF BARRIE WATER OPERATIONS DEPARTMENT A MINIMUM OF 48 HOURS IN ADVANCE OF THEIR INTENTIONS TO PERFORM WORK ON WATER INFRASTRUCTURE.

2. OPERATION OF HYDRANTS AND VALVES ON THE POTABLE WATER SYSTEM BY OTHER THAN QUALIFIED WATER OPERATIONS STAFF IS PROHIBITED BY CURRENT BY-LAW. CITY SERVICE FEES ARE PER THE CURRENT FEES BY-LAW. THE CITY'S WATER OPERATIONS STAFF WILL SWAB, PRESSURE TEST, CHLORINATE AND FLUSH ALL NEW WATERMAINS.

3. MINIMUM COVER OVER WATERMAIN SHALL BE 1.7m. THE MINIMUM HORIZONTAL SEPARATION BETWEEN WATERMAIN AND SEWERS SHALL BE 2.5m. WHERE WATERMAIN CONFLICTS WITH SEWER PIPES, DEFLECT WATERMAIN HORIZONTALLY OR VERTICALLY WHILE PROVIDING A MINIMUM OF 0.5m CLEARANCE BETWEEN WATERMAIN AND SEWERS. MAINTAIN MINIMUM DEPTH OF COVER AT ALL TIMES.

4. WATERMAIN SHALL BE INSTALLED IN BEDDING AS PER OPSD 802.010 (GRANULAR 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.031 CLASS 'B' (GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. ALTERNATIVE EMBEDMENT MATERIAL - SAND MEETING GRADATION REQUIREMENTS OF OPSS.MUNI 1004.05.07 COMPACTED TO 95% STANDARD PROCTOR MAXIMUM DRY DENSITY IS PERMISSIBLE WHERE NOTED IN STANDARD DETAILS. GEOTECHNICAL CERTIFICATION OF MATERIAL AND COMPACTION TESTING MUST BE PROVIDED EVERY 150 METRES. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).

5. COPPER WATER MAINS AND SERVICES 25mm TO 50mm IN DIAMETER SHALL BE EMBEDDED IN SAND 100mm ABOVE AND BELOW TO CONFORM TO OPSS.MUNI 1004.05.07.

6. RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS. THRUST BLOCKS, AS PER OPSD 1103.010 AND 1103.020. RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT THE CITY'S DISCRETION.

7. NEW WATERMAINS TO BE PVC DR18 CL150 MINIMUM; DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.

8. TRACING WIRE SHALL BE #12 AWG HIGH STRENGTH COPPER CLAD (HS-CSS) AND SHALL BE INSTALLED ON THE TOTAL LENGTH OF ALL WATERMAIN AND BROUGHT UP AT EACH HYDRANT AND TERMINATED INSIDE A HYDRANT TEST STATION. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURERS PRODUCTS FOR LINEAR WATER SYSTEMS LIST.

9. ALL WATER SERVICES SHALL BE MINIMUM 25mm TYPE 'K' COPPER OR 25mm CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.

10. SERVICE TAPPINGS SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0m AND A MINIMUM OF 0.6m FROM JOINTS. (ENDS OF PIPE)

11. RISER PIPES ARE TO BE INSTALLED AS PER BSD-510, AND REMOVED AS DIRECTED. SWABBING SCHEDULE TO BE SUPPLIED BY A WATER OPERATIONS FIELD REPRESENTATIVE. ALL RISERS ARE TO BE RESTRAINED OR THRUST BLOCKED.

12. ALL NEW CURB STOPS AND BOXES TO BE LOCATED AT PROPERTY LINE AND OUT OF DRIVEWAYS AND SIDEWALKS.

Barrie	Watermain General Notes	REV No. 4	DATE: APR 2023	SCALE: N.T.S.	W539

GENERAL NOTES

SANITARY SEWERS

A. SANITARY SEWER TO BE LOCATED AT THE CENTRELINE OF THE ROAD.

B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-1005.02, (GRAN. 'A' EMBEDMENT MATERIAL) FOR FLEXIBLE PIPES AND OPSD-1005.01 CLASS B (GRAN. 'A') FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF MUNICIPAL WORKS.

C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURES RECOMMENDED SPECIFICATIONS.

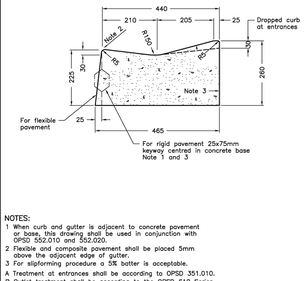
D. PVC, CONCRETE AND PROFILE WALL PVC SEWERS SHALL HAVE RUBBER GASKET TYPE JOINTS AND SHALL BE CERTIFIED TO CONFORM TO ALL APPLICABLE CURRENT C.S.A. SPECIFICATIONS.

E. CONCRETE SANITARY SEWERS SHALL HAVE A MINIMUM STRENGTH OF 50 N/m/mm CONFORMING TO CSA STANDARD A257.2-1982, CLASS 50-D (PREVIOUSLY C.S.A. STANDARD A257.2-1974, CLASS II).

F. MAINTENANCE HOLE TOPS (FRAMES) ARE TO BE SET TO BASE COURSE ASPHALT GRADE AND THEN ADJUSTED TO FINAL GRADE WHEN THE TOP LIFT OF ASPHALT IS PLACE. ALL ADJUSTMENT WILL BE ACCORDANCE WITH BSD-N2.

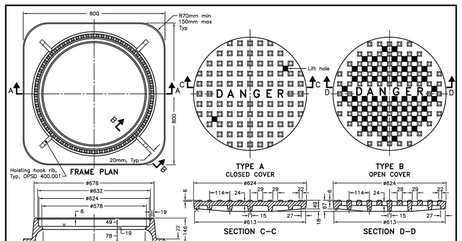
G. ALL CONNECTIONS TO NEW SANITARY MAINS SHALL BE PRE-MANUFACTURED, FABRICATED TEES. CONNECTIONS TO EXISTING SANITARY SEWER SHALL BE MADE WITH APPROVED FACTORY MADE TEES OR INSERTA-TEES IN STRICT ACCORDANCE TO MANUFACTURES GUIDELINES.

Barrie	Sanitary Sewers General Notes	REV No. 3	DATE: APR 2023	SCALE: N.T.S	S607



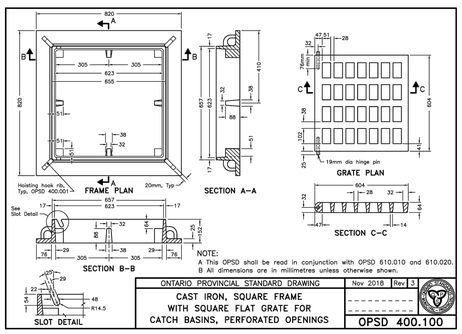
NOTES:
1 When curb and gutter is adjacent to concrete pavement or base, this drawing shall be used in conjunction with OPSD 562.010 and 562.020.
2 Flexible and composite pavement shall be placed 5mm above the adjacent edge of gutter.
3 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE MOUNTABLE CURB WITH NARROW GUTTER	OPSD 600.100	



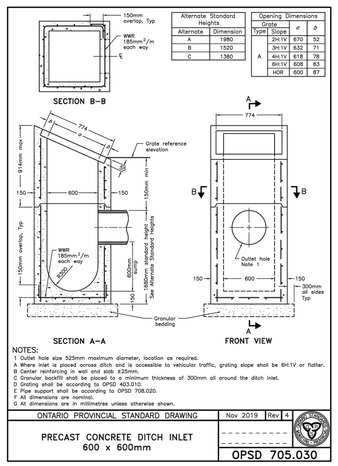
NOTES:
A Covers shall be Type A or Type B, as specified.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4
CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES	OPSD 401.010	



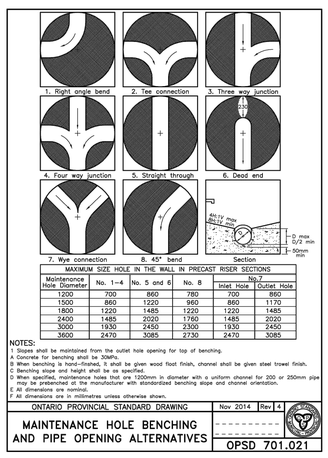
NOTE:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, PERFORATED OPENINGS	OPSD 400.100	



NOTES:
1 Outlet hole size 525mm maximum diameter, location as required.
A Where inlet is placed across ditch and is accessible to vehicular traffic, grating slope shall be 6H:1V or flatter.
B Center reinforcing in wall and slab 825mm.
C Granular backfill shall be placed to a minimum thickness of 300mm all around the ditch inlet.
D Grating shall be according to OPSD 403.010.
E Pipe support shall be according to OPSD 708.020.
F All dimensions are nominal.
G All dimensions are in millimetres unless otherwise shown.

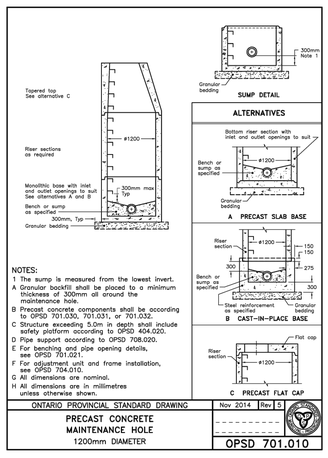
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE DITCH INLET 600 x 600mm	OPSD 705.030	



MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS						
Maintenance Hole Diameter	No. 1~4	No. 5 and 6	No. 7			
			No. 8	Inlet Hole	Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

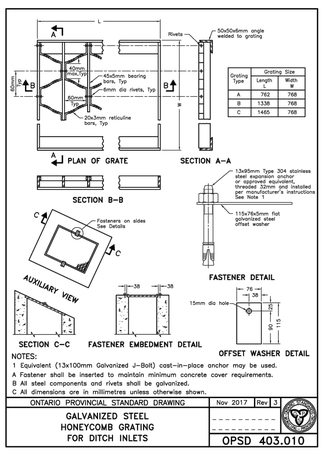
NOTES:
1 Sloped shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer with standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES	OPSD 701.021	



NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

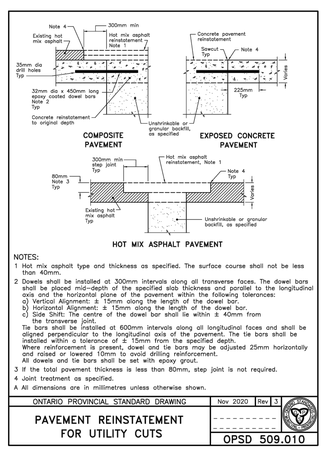
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER	OPSD 701.010	



Grating Type	Grating Size	
	Length L	Width W
A	762	768
B	1338	768
C	1465	768

NOTES:
1 Equivalent (13x100mm Galvanized J-Bolt) cast-in-place anchor may be used.
A Fastener shall be inserted to maintain minimum concrete cover requirements.
B All steel components and rivets shall be galvanized.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS	OPSD 403.010	



NOTES:
1 Hot mix asphalt type and thickness as specified. The surface course shall not be less than 40mm.
2 Dowels shall be installed at 300mm intervals along all transverse faces. The dowel bars shall be installed at mid-depth of the specified asphalt thickness and parallel to the longitudinal axis and the horizontal plane of the pavement within the following tolerances:
a) Vertical Alignment: ± 15mm along the length of the dowel bar.
b) Horizontal Alignment: ± 15mm along the length of the dowel bar.
c) Side Shift: The centre of the dowel bar shall lie within ± 40mm from the transverse joint.
Tie bars shall be installed at 600mm intervals along all longitudinal faces and shall be aligned perpendicular to the longitudinal axis of the pavement. The tie bars shall be installed within a tolerance of ± 15mm from the specified depth.
Where reinforcement is present, dowel and tie bars may be adjusted 25mm horizontally and raised or lowered 10mm to avoid drilling reinforcement.
All dowels and tie bars shall be set with epoxy grout.
3 If the total pavement thickness is less than 80mm, step joint is not required.
4 Joint treatment as specified.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2020	Rev 3
PAVEMENT REINSTATEMENT FOR UTILITY CUTS	OPSD 509.010	

The position of existing above ground and underground utilities and facilities are not necessarily shown on the drawings, and where shown, the accuracy of the position of such utilities and facilities is not guaranteed. Before starting work, the contractor shall confirm the exact location of all existing utilities and facilities, and shall assume all liability for damage to them

Drawings shall not be used for construction unless sealed and signed. All work to be performed in accordance with the Occupational Health & Safety Act 1990.

Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.

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SEAL

LICENSED PROFESSIONAL ENGINEER
D. P. HORDYK
100539228
2024-05-09
PROVINCE OF ONTARIO

DRAWN BY: C.A.	CHECKED BY: J.V.
DESIGNED BY: D.H.	
SCALE: 1:200	DATE: MAY 2024

NO.	YY.MM.DD	REVISION	BY

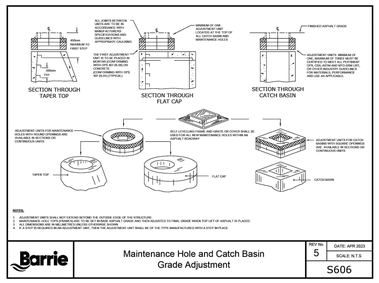
NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

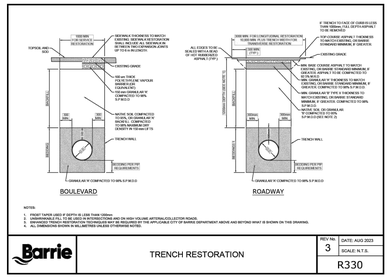
DRAWING: CONSTRUCTION NOTES AND DETAILS PLAN

PROJECT No. : 22-11672B

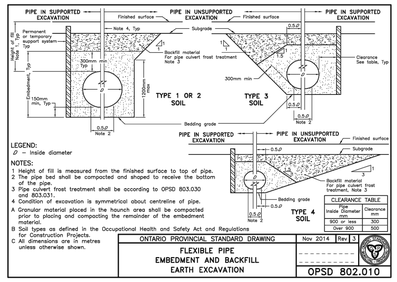
DRAWING No. DET-1



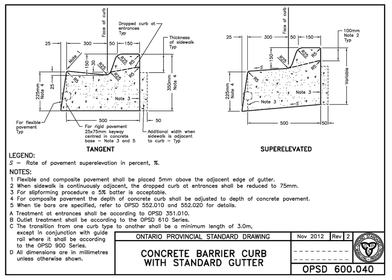
Barrie | Maintenance Hole and Catch Basin Grade Adjustment | REV No. 5 | DATE APR 2023 | SCALE N.T.S. | S606



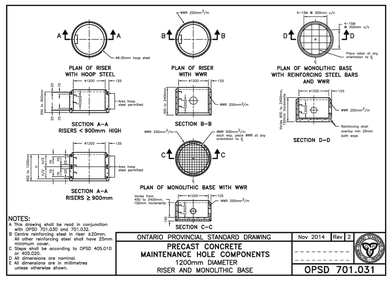
Barrie | TRENCH RESTORATION | REV No. 3 | DATE AUG 2023 | SCALE N.T.S. | R330



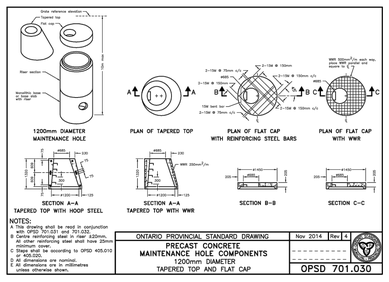
ONTARIO PROVINCIAL STANDARD DRAWING | FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION | Nov 2014 | Rev 3 | OPSD 802.010



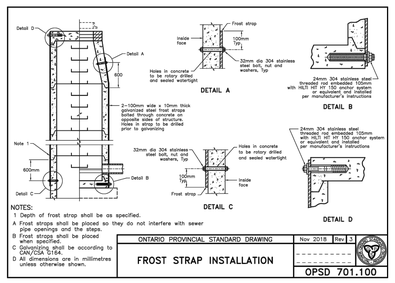
ONTARIO PROVINCIAL STANDARD DRAWING | CONCRETE BARRIER CURB WITH STANDARD GUTTER | Nov 2012 | Rev 2 | OPSD 600.040



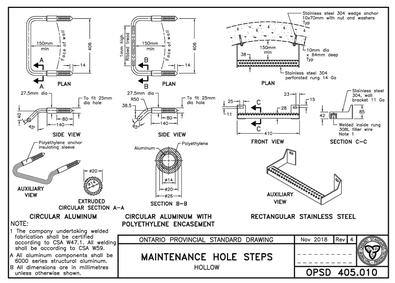
ONTARIO PROVINCIAL STANDARD DRAWING | PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER RISER AND MONOLITHIC BASE | Nov 2014 | Rev 2 | OPSD 701.031



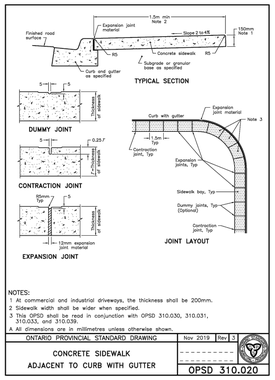
ONTARIO PROVINCIAL STANDARD DRAWING | PRECAST CONCRETE MAINTENANCE HOLE COMPONENTS 1200mm DIAMETER TAPERED TOP AND FLAT CAP | Nov 2014 | Rev 4 | OPSD 701.030



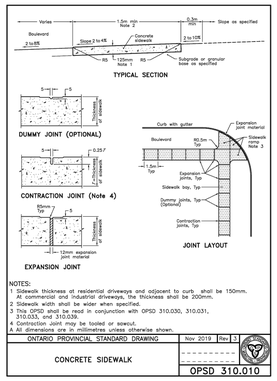
ONTARIO PROVINCIAL STANDARD DRAWING | FROST STRAP INSTALLATION | Nov 2018 | Rev 3 | OPSD 701.100



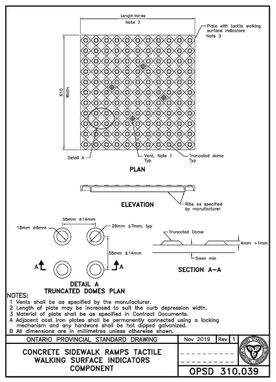
ONTARIO PROVINCIAL STANDARD DRAWING | MAINTENANCE HOLE STEPS HOLLOW | Nov 2018 | Rev 4 | OPSD 405.010



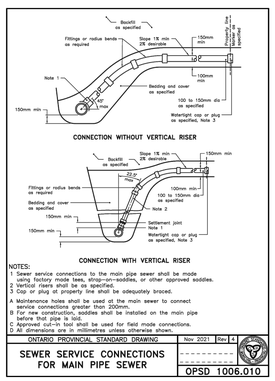
ONTARIO PROVINCIAL STANDARD DRAWING | CONCRETE SIDEWALK ADJACENT TO CURB WITH GUTTER | Nov 2019 | Rev 3 | OPSD 310.020



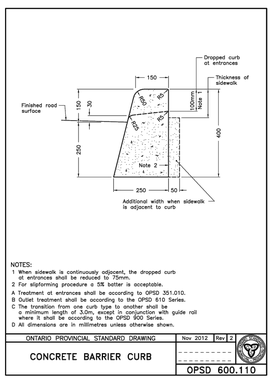
ONTARIO PROVINCIAL STANDARD DRAWING | CONCRETE SIDEWALK | Nov 2019 | Rev 3 | OPSD 310.010



ONTARIO PROVINCIAL STANDARD DRAWING | CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT | Nov 2019 | Rev 1 | OPSD 310.039



ONTARIO PROVINCIAL STANDARD DRAWING | SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER | Nov 2021 | Rev 4 | OPSD 1006.010

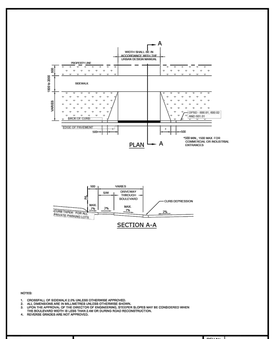


ONTARIO PROVINCIAL STANDARD DRAWING | CONCRETE BARRIER CURB | Nov 2012 | Rev 2 | OPSD 600.110

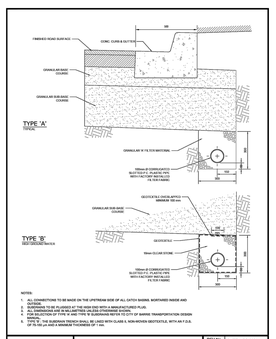
KEY MAP

NOTES

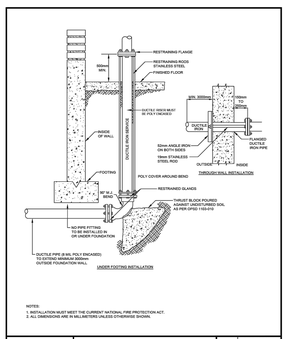
1. TOPOGRAPHIC AND LEGAL INFORMATION COMPLETED BY KRCMAR SURVEYORS LTD., DATED FEBRUARY 7, 2022.
2. SITE PLAN PROVIDED BY MARK ZWICKER, DATED APRIL 8, 2024.



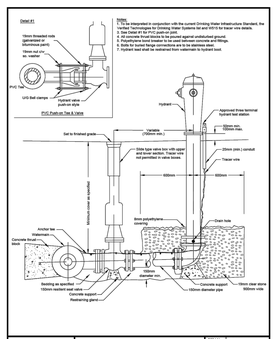
Barrie | DRIVEWAY AND ENTRANCE DETAIL | REV No. 2 | DATE APR 2023 | SCALE N.T.S. | R319



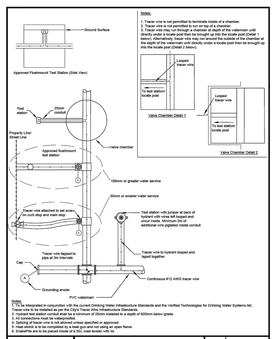
Barrie | ROAD SUBDRAIN | REV No. 2 | DATE APR 2023 | SCALE N.T.S. | R315



Barrie | Water Service 100mm to 300mm | REV No. 2 | DATE APR 2023 | SCALE N.T.S. | W505



Barrie | Hydrant and Valve | REV No. 4 | DATE APR 2024 | SCALE N.T.S. | W507



Barrie | Water Infrastructure Tracer Wire | REV No. 6 | DATE APR 2024 | SCALE N.T.S. | W515

Specifications

1. Must be independently tested to the 2013 NJDEP Laboratory Protocol and 2013 ETV Canada protocol (ISO 14034:2016). Separate must be used based on the data.

2. Any testing performed by the manufacturer is unacceptable to demonstrate an alternate equal.

3. Field Testing is unreliable, site and storm specific, and subject to compounding equipment and analytical errors and therefore is unacceptable as verification of an alternate equal. TARP verification as per NJDEP is testing consistent with the 2013 NJDEP laboratory protocol.

4. The separator must be designed based on the following criteria:

Flow Criteria
Water Quality Flow Rate cfs (L/s)
Peak Design Flow Rate cfs (L/s)

TSS Removal Criteria
Annual TSS Removal (%)
NJDEP/ETV Canada TSS
OK110 Sand
City of Toronto
Other

Notes:

1. Headloss K factor of 1.04 for hydraulic gradeline calculations

2. Sump depths shown are typical. Additional depth can be added as required

3. Multiple inlet pipes allowed

4. Drops allowed

5. Inlet invert elevations should be the same or higher than the outlet invert elevation. Inlet can be up to 12" (300 mm) lower than outlet if pretreatment area is omitted but 12" (300 mm) must be added to sump depth to maintain overall treatment volume.

6. Solid Cover shown. Hydrostorm can be designed with an inlet grate if required.

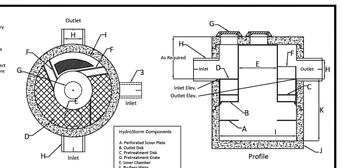
7. Oil capacities given are spill capacities.

8. Sediment depths are maximum holding capacities and not recommended capacities for regular maintenance.

9. Capacities are rounded down to nearest 5 gal or 19.3 (1L or 0.1 m3 for metric units)

10. Base Extensions not provided on standard units larger than the HS 6. Extensions can be provided if required due to groundwater/buoyancy concerns at the request of the engineer of record.

11. HS4 to HS6 models require one frame and cover. HS7 to HS12 models require two covers



HydroStorm Components

A. Perforated Scour Plate
B. Outlet Disk
C. Pretreatment Disk
D. Pretreatment Grate
E. Inlet Deflector
F. By-Pass Weirs
G. Frame and Cover (1-2)
H. Inlet Pipe Adapter
I. Structure Diameter
J. Base Extension (HS4 –HS6)
K. Sump Depth

HydroStorm by Hydroworks, LLC
US Patent No. 10,710,907
www.hydroworks.com
888-290-7900

HydroStorm Dimensions / Capacities

Model	Diameter ft-in (mm)	Sump Depth ft-in (mm)	Max. Outlet Pipe Diam. ft-in (in)	Max. Inlet Pipe Diam. ft-in (in)	Sediment Capacity ft3 (L)	Sediment Capacity yd3 (m3)	Total Volume gal (L)
HS 3	3 (0.9)	3 (0.9)	1.5 (0.45)	18 (450)	40 (1132)	20 (0.35)	155 (800)
HS 4	4 (1.2)	4 (1.2)	2 (0.6)	24 (600)	95 (2691)	30 (0.45)	375 (1420)
HS 5	5 (1.5)	5 (1.5)	2.5 (0.8)	30 (750)	165 (4674)	40 (1.8)	730 (2760)
HS 6	6 (1.8)	6 (1.8)	3 (0.9)	36 (900)	270 (7650)	110 (5.3)	1265 (4800)
HS 7	7 (2.1)	6.5 (2.0)	3.5 (1.0)	42 (1050)	410 (11642)	160 (4.6)	1870 (7080)
HS 8	8 (2.4)	7 (2.1)	4 (1.2)	48 (1200)	615 (17430)	220 (6.2)	2630 (9960)
HS 10	10 (3.0)	9 (2.7)	5 (1.5)	60 (1500)	1130 (32035)	465 (13.1)	5285 (20015)
HS 12	12 (3.6)	11 (3.3)	6 (1.8)	72 (1800)	1875 (71150)	835 (23.7)	9305 (35225)

Hydroworks HydroStorm	
PROJECT:	Hydroworks
LOCATION:	
REVISION DATE: 08/07/2020	

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SEAL

LICENSED PROFESSIONAL ENGINEER
D. P. HORDYK
100530228
2024-05-09
PROVINCE OF ONTARIO

DRAWN BY: C.A.	CHECKED BY: J.V.
DESIGNED BY: D.H.	
SCALE: 1:200	DATE: MAY 2024

NO.	YY.MM.DD	REVISION	BY

NORTH ARROW

PROJECT: PROPOSED APARTMENT AND RETAIL DEVELOPMENT
447-455 YONGE STREET
CITY OF BARRIE

DRAWING: STANDARD DETAILS PLAN

PROJECT No. : 22-11672B

DRAWING No. DET-2