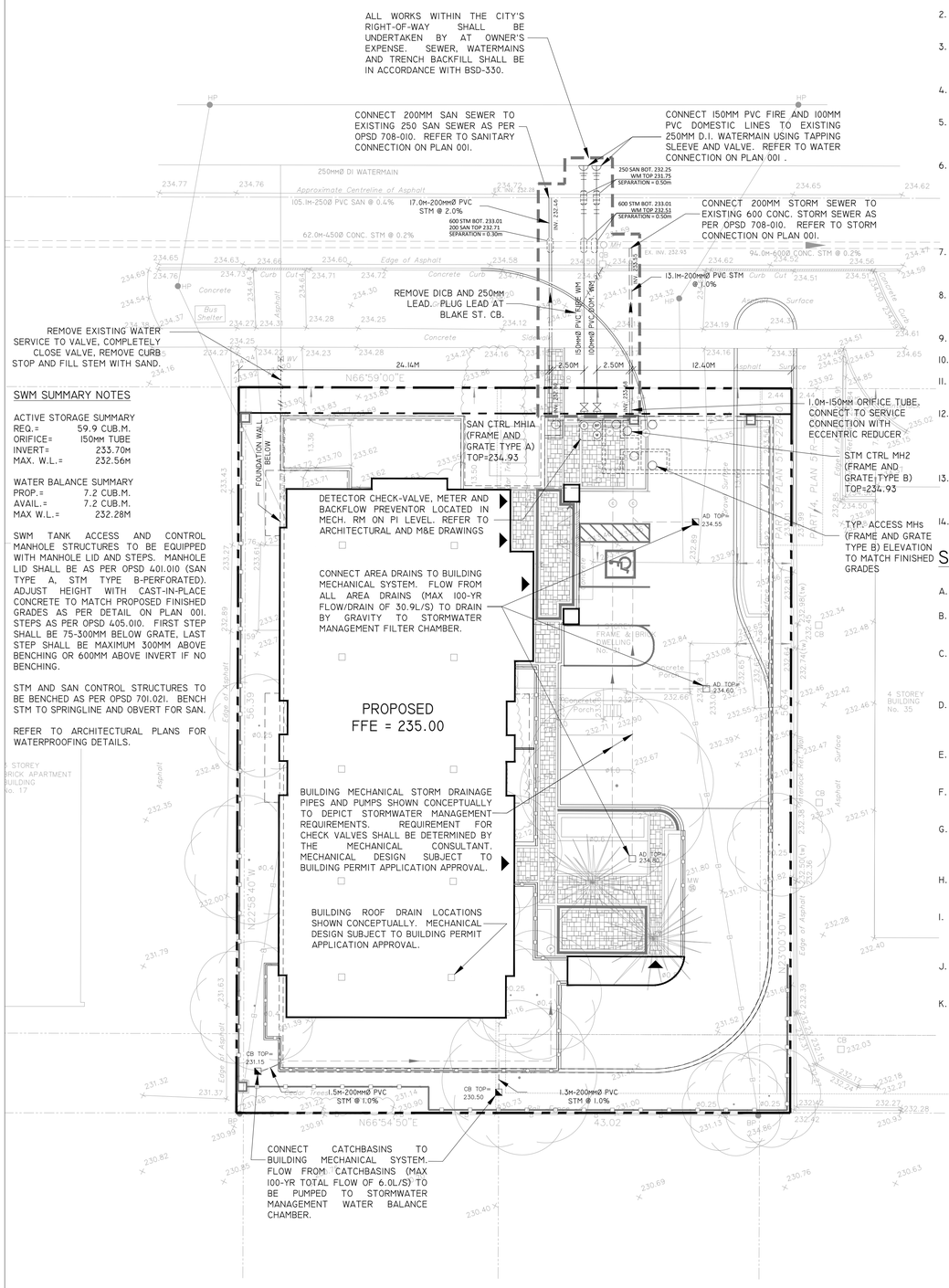
NOTE:
CONTRACTOR TO VERIFY INVERTS OF EX. STORM AND SANITARY 48 HOURS PRIOR TO ANY CONSTRUCTION & NOTIFY ENGINEER OF ANY DISCREPANCIES



SWM SUMMARY NOTES

ACTIVE STORAGE SUMMARY
REQ.= 59.9 CUB.M.
ORIFICE= 150MM TUBE
INVERT= 233.70M
MAX. W.L.= 232.56M

WATER BALANCE SUMMARY
PROP.= 7.2 CUB.M.
AVAIL.= 7.2 CUB.M.
MAX W.L.= 232.28M

SWM TANK ACCESS AND CONTROL MANHOLE STRUCTURES TO BE EQUIPPED WITH MANHOLE LID AND STEPS. MANHOLE LID SHALL BE AS PER OPSD 401.010 (SAN TYPE A, STM TYPE B-PERFORATED). ADJUST HEIGHT WITH CAST-IN-PLACE CONCRETE TO MATCH PROPOSED FINISHED GRADES AS PER DETAIL ON PLAN 001. STEPS AS PER OPSD 405.010. FIRST STEP SHALL BE 75-300MM BELOW GRATE, LAST STEP SHALL BE MAXIMUM 300MM ABOVE BENCHING OR 600MM ABOVE INVERT IF NO BENCHING.

STM AND SAN CONTROL STRUCTURES TO BE BENCHED AS PER OPSD 701.021. BENCH STM TO SPRINGLINE AND OBVERT FOR SAN.

REFER TO ARCHITECTURAL PLANS FOR WATERPROOFING DETAILS.

GENERAL NOTES:

1. PRIOR TO STARTING ANY WORKS, THE CONTRACTOR MUST ENSURE THAT ALL NECESSARY APPROVALS ARE IN PLACE FROM THE CITY OF BARRIE, THE LSRCA, AND OTHER EXTERNAL AGENCIES, AS REQUIRED.
2. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
3. ALL WORK AND MATERIALS TO CONFORM WITH THE CURRENT PROVINCIAL BUILDING CODE, MOECP, CITY OF BARRIE, ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
4. FOR ALL CONSTRUCTION DETAILS NOT SHOWN ON THE DRAWINGS, REFERENCE SHALL BE MADE TO THE DESIGN STANDARDS OF THE CITY OF BARRIE.
5. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
6. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH PROVIDER PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE REPORTED TO THE ENGINEER 48 HRS PRIOR TO CONSTRUCTION. LOST TIME AND/OR ANY ADDITIONAL WORKS DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF ANY CONFLICTS 48 HRS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
7. ALL DIMENSIONS, ELEVATIONS AND OTHER INFORMATION SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR 72 HOURS PRIOR TO ANY CONSTRUCTION. ANY DISCREPANCIES FOUND MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
8. THE CONTRACTOR IS TO PROVIDE A TOTAL OF TWO CCTV CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT AND TWO CD COPIES IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.
9. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
10. ALL PVC SANITARY SEWERS TO BE MANDREL AND AIR TESTED.
11. ALL PVC STORM SEWERS TO BE MANDREL TESTED. AIR TEST ONLY ON RECOMMENDATION BY SOIL CONSULTANT
12. ALL RESTORATIONS AND RELOCATION SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY'S DIRECTOR OF ENGINEERING. ALL AREAS WITHIN PUBLIC RIGHT-OF-WAYS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER. GRASSED AREAS SHALL BE PROVIDED WITH 150MM OF TOPSOIL AND SODDED TO THE SATISFACTION OF THE CITY'S DIRECTOR OF ENGINEERING.
13. DRAWINGS ARE NOT TO BE SCALED. ALL SURVEY LAYOUT WORKS ON SITE TO BE BASED ON DIGITAL FILES ONLY. CONTRACTOR AND HIS SURVEYOR TO ADVICE PROJECT ENGINEER OF ANY DISCREPANCIES NOTED PRIOR TO PROCEEDING WITH CONSTRUCTION.
14. UNLESS OTHERWISE NOTED ON THE DRAWING, THE FOLLOWING REQUIREMENTS SHALL APPLY TO THE WORKS:

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 HOLES 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 SEWERS TO BE LOCATED OFFSET 3.0M SOUTH OR EAST CENTERLINE UNLESS OTHERWISE SPECIFIED.

F. ALL CONNECTIONS TO THE STORM MAIN SHALL BE MADE WITH STORM MANHOLE OR APPROVED FACTOR TEE CONNECTIONS 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 PIPES BEDDING MUST CONFORM TO OPSD, MAXIMUM COVER TABLE. NO FLEXIBLE PIPE SEWERS WILL BE INSTALLED WITH A DEPTH OF COVER GREATER THAN 6 METERS UNLESS SPECIFICALLY APPROVED BY THE DIRECTOR OF ENGINEERING.

J. ALL PIPES HANDLING INSTALLATIONS MUST BE IN STRICT COMPLIANCE WITH MANUFACTURER'S INSTALLED GUIDES AND THE O.P.C.D.A. OR UNIBELL GUIDELINES.

K. SUMP PUMP DISCHARGE PIPING IN BOULEVARD: IN THE EVENT OF THE OVERACTIVE SUMP PUMP ACTIVITY, A 150MM DIAMETER PVC DR-28 SEWER MAY BE INSTALLED, WHEN SO DIRECTED BY THE DIRECTOR OF ENGINEERING, ALONG THE FRONTAGE OF DESIGN LOTS, WITH AN OFFSET OF 0.6M FROM BACK OF THE 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.

SANITARY SEWERS

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

B. SEWERS SHALL BE CONSTRUCTED WITH BEDDINGS AS PER OPSD-802.010, (GRAN. 'A' EMBEDMENT MATERIAL) FOR RIGID PIPE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.

C. MAXIMUM DEFLECTION FROM COMBINED LIVE AND DEAD LOADING SHALL NOT EXCEED ANY C.S.A., O.P.S. OR MANUFACTURERS 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 MAXIMUM STRENGTH OR 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 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 INSTRICT ACCORDANCE TO MANUFACTURERS GUIDELINES.

SANITARY SERVICE LATERALS

A. SANITARY LATERAL CONNECTION TO BE LOCATED AT THE CENTRELINE OF THE LOT AND CAPPED.

B. LOCATION OF LATERAL TO BE MARKED 2.0M PAST PROPERTY LINE WITH A 50X100MM WOOD MARKER, PAINTED GREEN, EXTENDING FROM SERVICE INVERT TO 300MM ABOVE GROUND LEVEL.

C. PIPE TO BE MAXIMUM 100MM DIA. PVC SDR28, RUBBER GASKET TYPE JOINTS AND SHALL CONFORM TO C.S.A. (B-182.2.3.4.) (COLOURED) FOR A RESIDENTIAL HOUSE AND 150MM MINIMUM DIA. PVC SDR28 FOR INDUSTRIAL/COMMERCIAL DEVELOPMENT.

D. MINIMUM DEPTH OF LATERAL AT PROPERTY LINE SHALL BE 2.4M MEASURED FROM THE SEWER OBVERT TO FINISHED GORUND SURFACE ELEVATION UNLESS NOTED OTHERWISE.

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

F. MINIMUM PIPE SLOPES TO BE 2.0% MAXIMUM 8.0% (SEE OPSD-1006.010, 1006.020).

WATERMAIN

A. 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.

B. 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.

C. 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.

D. 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; 9GRANULAR 'A' BEDDING MATERIAL, GRANULAR 'A' OR SELECT NATIVE COVER MATERIAL) FOR RIGID PIPES 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 METERS. THE COMPACTION TESTING MUST INCLUDE THE ENTIRE EMBEDMENT ENVELOPE (HAUNCHES, BEDDING, TOP OF PIPE AND COVER).

E. RESTRAINING WILL BE REQUIRED ON ALL HYDRANTS. THRUST BLOCKS, AS PER OPSD 1103.010 AND 1103.202 RESTRAINING DEVICES MAY BE REQUIRED IN ADDITION TO STANDARD CONCRETE THRUST BLOCKING WHERE SOIL CONDITIONS WARRANT AT CITY'S DISCRETION.

F. NEW WATERMAINS TO BE PVC OR DR18 CLI50 MINIMUM; DUCTILE IRON CL52 AS PER THE APPROVED MANUFACTURERS PRODUCTION FOR LINEAR WATER SYSTEMS LIST.

G. 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 CONNECTED TO FLANGE BOLT. ALL SPLICES TO UTILIZE CONNECTORS AS PER THE APPROVED MANUFACTURES PRODUCTS FOR LINEAR WATER SYSTEMS LIST.

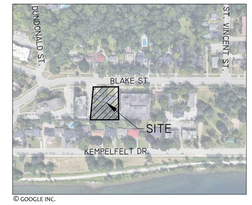
H. ALL WATER SERVICES SHALL BE MINIMUM 25MM TYPE 'K' COPPER OR 25MM CROSS-LINKED POLYETHYLENE UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF WATER OPERATIONS. WATER SERVICE SADDLES SHALL BE USED WHEN TAPPING INTO PVC WATERMAIN.

I. SERVICES TAPPING SHALL BE PLACED AT A MINIMUM SEPARATION OF 1.0M AND A MINIMUM OF 0.6M FROM JOINTS. (ENDS OF PIPE)

J. 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.

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

SCALE - 1:200



LOCATION PLAN
N.T.S.

LEGEND

- EX. WM
- EX. SAN
- EX. STM
- PROP. WM
- PROP. SAN
- PROP. STM
- PROP. TAPPING SLEEVE AND VALVE
- VALVE
- WATERMAIN BEND
- PROP. AREA DRAIN/CB
- DCVA/METER/BACKFLOW PREVENTOR
- PUMP/DUAL PUMP
- STM/SAN MH LID
- REMOVALS

SURVEY INFO.	BENCHMARK
YOUNG & YOUNG SURVEYING 2 HOLLAND DR. UNIT 5 BOLTON, ON L7E 1E1 PHONE: (905) 951-6000 FAX: (905) 857-4811	ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF BARRIE BENCHMARK NO. 03120030003, HAVING A PUBLISHED ELEVATION OF 241.011 METRES.
SITE PLAN INFO.	**LIST OF DRAWINGS**
STUDIO K ARCHITECTS 3950 14TH AVENUE SUITE 205 MARKHAM, ON L3R 0A9 PHONE: (416) 554-7751	001 DETAILS PLAN 101 SERVICING PLAN 401 GRADING PLAN 601 ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
2.	REVISED COMMENTS FOR RZA/SPA	07/23/21	LPM
1.	ISSUED FOR RZA/SPA	11/30/20	LPM

SITEPLANTECH INC.
339 - 16 ELGIN ST.
MARKHAM, ON L3T 4T4
PHONE: (416) 270-7515

LICENSED PROFESSIONAL ENGINEER
LUC MASSUE-MONAT
100824283
July 23, 2021
PROVINCE OF ONTARIO

BLAKE STREET APPARTMENTS
27-31 BLAKE ST.
BARRIE, ON

SERVICING PLAN

PROJECT No.: 20-006
DRAWING: 101

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