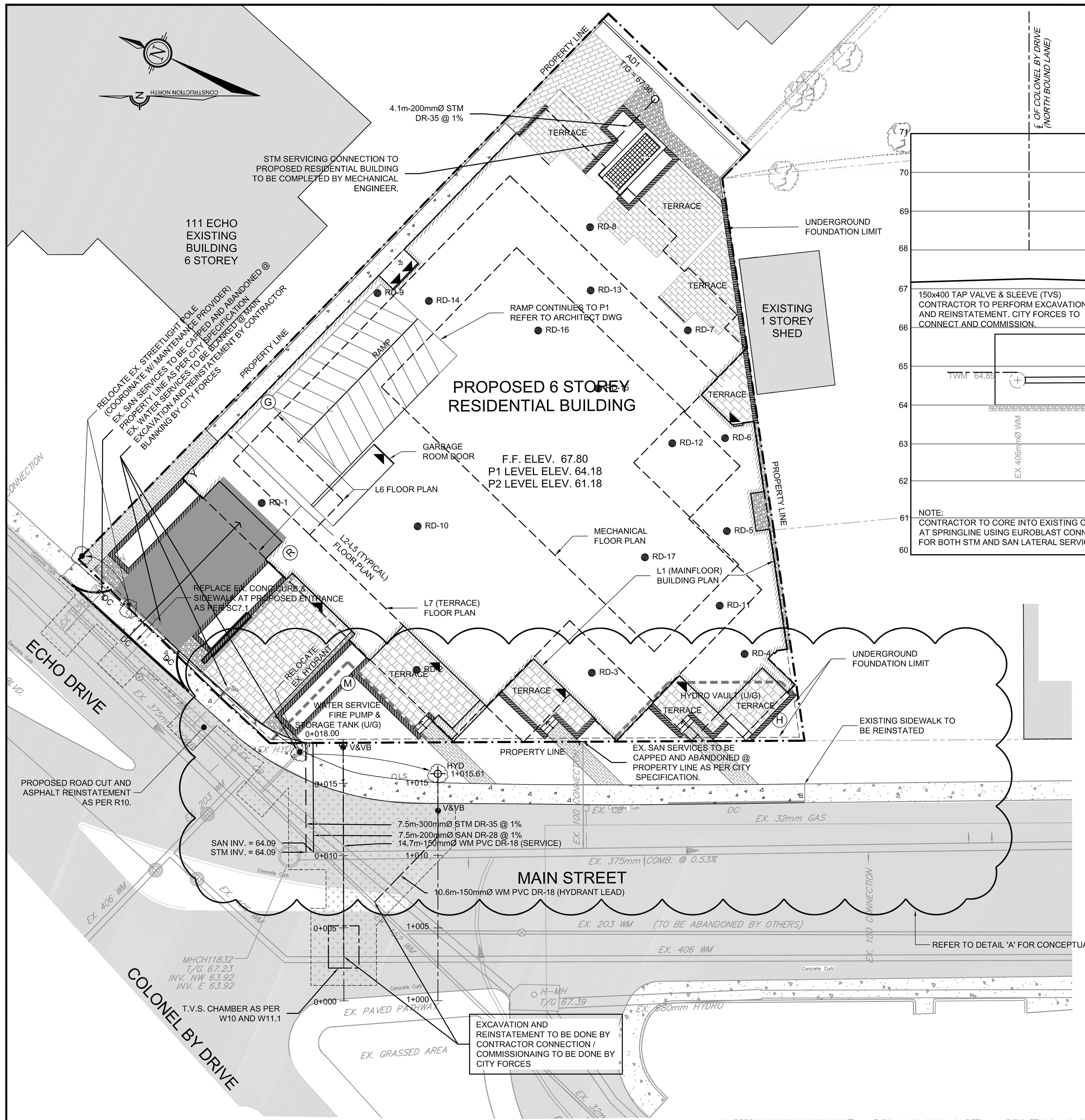
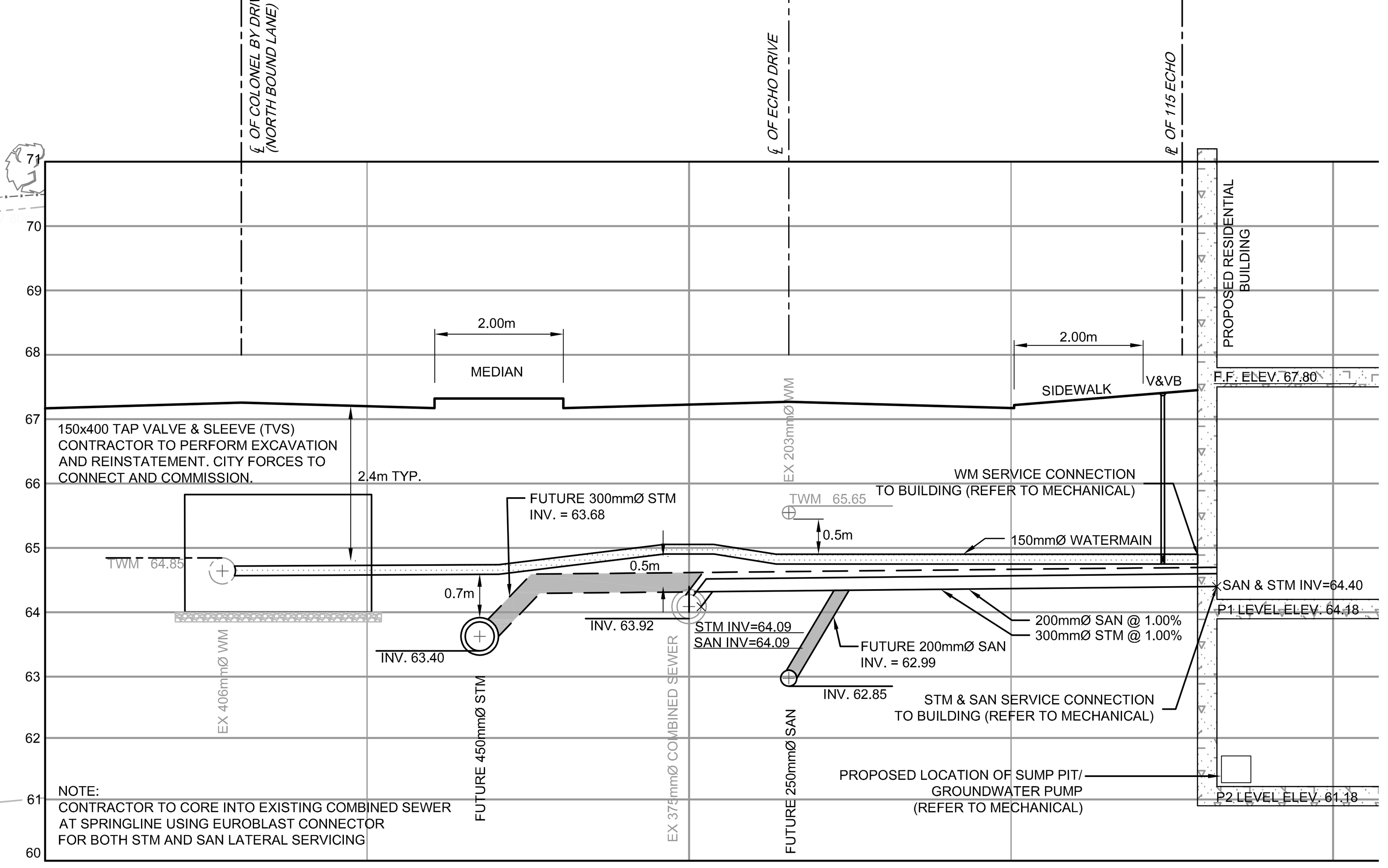


PLAN VIEW
1:200



MAIN STREET CROSS SECTION

GENERAL NOTES:

1) COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.

2) DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.

3) OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.

4) BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.

5) RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.

6) REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.

7) ALL ELEVATIONS ARE GEODETIC.

8) REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.

9) REFER TO SERVICING BRIEF AND STORMWATER MANAGEMENT REPORT (R-2015-130 DATED JULY 2018) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.

10) SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

11) PROVIDE LINE/PARKING PAINTING.

12) CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

14) ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. ONTARIO PROVINCIAL STANDARDS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.

15) ALL PRIVATE APPROACHES MUST BE CONSTRUCTED AS PER CITY SPECIFICATION SC7.1.

GEOTECHNICAL NOTES:

1) FOR GEOTECHNICAL DATA REFER TO REPORT BY PATERSON GROUP INC. REPORT NO. PG3142-1, "*GEOTECHNICAL INVESTIGATION - PROPOSED MULTI-STOREY BUILDING 113 & 115 ECHO DRIVE, OTTAWA, ONTARIO*" DATED JANUARY 15, 2014. REFER TO REPORT FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.

WATERMAIN NOTES:

1) SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
ACCESS, AIR & DRAIN VALVE CHAMBERS R1 & R2	W10	CITY OF OTTAWA
T.V.S. CHAMBER	W11.1	CITY OF OTTAWA
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
CONNECTION DETAIL FROM NEW TO EXISTING WM	W25.1	CITY OF OTTAWA
WATERMAIN CROSSING OVER SEWER	W25.2	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATED AT OPEN STRUCTURE	W23	CITY OF OTTAWA
WATER METER INSTALATION 75mm & LARGER	W32	CITY OF OTTAWA
TYPICAL PRIVATE SESSION - 100mm CONNECTION	W50	CITY OF OTTAWA
WATERMAIN (150mm)	PVC DR 18	

2) SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARD AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY FORCES.

3) WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD. DWG W22.

4) PROVIDE MINIMUM 0.50m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.

5) WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

6) MAX HOURLY WATER DEMAND = 1.78/s

7) ALL EXISTING WATER SERVICES TO BE BLANKED AT MAIN BY CITY FORCES. EXCAVATION AND REINSTATEMENT BY CONTRACTOR.

SEWER NOTES:

1) SPECIFICATIONS:

ITEM		SPEC. No.	REFERENCE
SEWER SERVICE CONNECTION - RIGID PIPE		S 11	CITY OF OTTAWA
SEWER SERVICE ABANDONMENT		S 11.4	CITY OF OTTAWA
SEWER TRENCH -	BEDDING (GRANULAR A)		OPSD
	COVER (GRANULAR A OR GRANULAR B TYPE I, WITH MAXIMUM PARTICLE SIZE=25mm)		OPSD
STORM SEWER	PVC DR 35		
SANITARY SEWER	PVC DR 28		

2) INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.5m COVER WITH 50mmX1200mm HI-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.

3) SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.

4) PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.

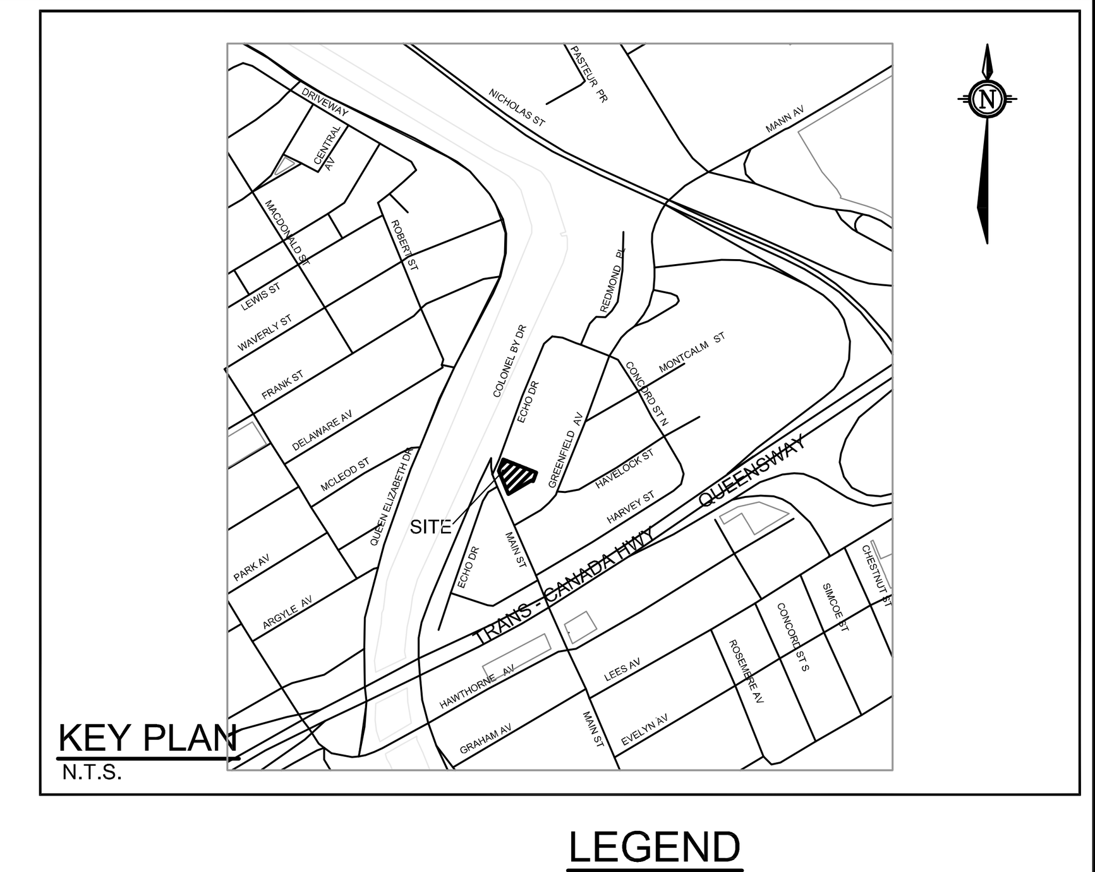
5) FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.

6) THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.

7) FULL PORT BACKWATER VALVES ARE REQUIRED ON THE SANITARY SERVICES, INSTALLED AS PER THE MANUFACTURES RECOMMENDATIONS AND A BACKWATER VALVE IS REQUIRED ON THE STORM SERVICES /FOUNDATION DRAINS FOR EACH BUILDING; INSTALLED AS PER STD. DWG S14.

8) REINSTATE ALL EXISTING PAVEMENT, CURB AND BOULEVARDS AS PER CITY OF OTTAWA R10.

9) ALL EXISTING SANITARY AND STORM SERVICES TO BE CAPPED AT THE PROPERTY LINE TO THE SATISFACTION OF THE CITY OF OTTAWA'S SEWER OPERATIONS.



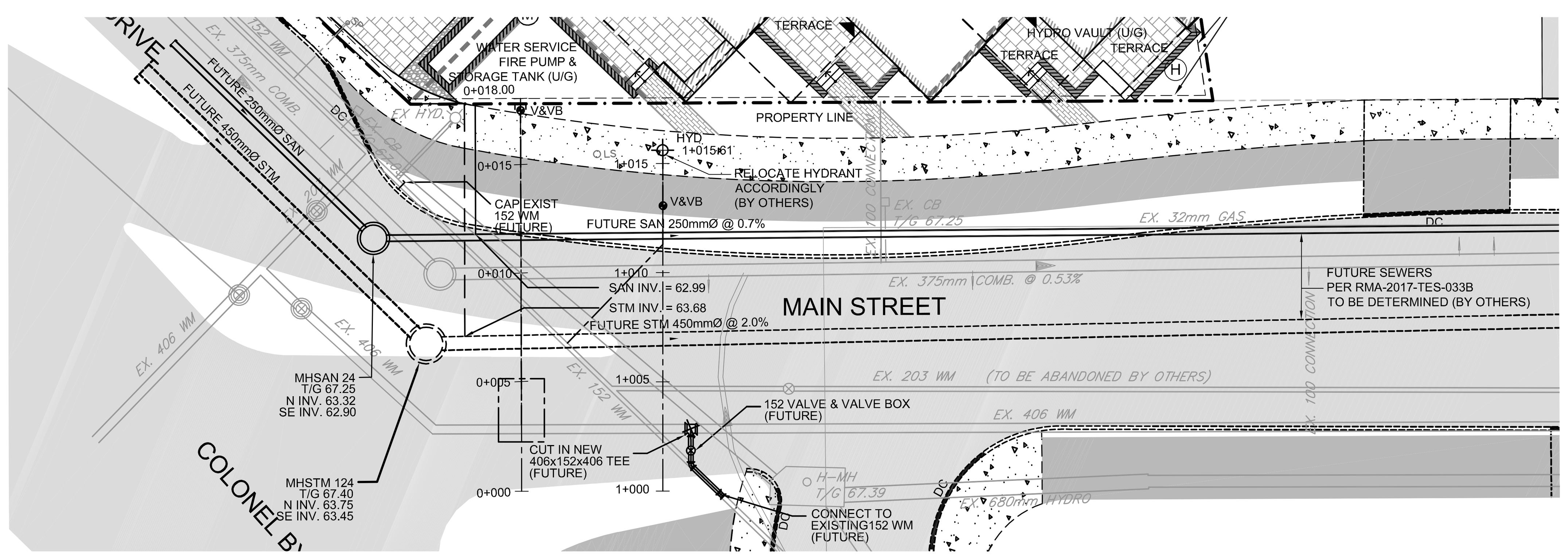
KEY PLAN
N.T.S.

LEGEND

SYMBOL	DESCRIPTION
200mmØ WM	PROPOSED WATERMAIN AND DIAMETER
	PROPOSED VALVE LOCATION
V&VB	VALVE & VALVE BOX
V&VC	VALVE & VALVE CHAMBER
HYD	PROPOSED HYDRANT C/W VALVE & LEAD
T/F=98.45	PROPOSED TOP OF BOTTOM FLANGE
BEND	PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE (SEE PLAN AND PROFILES)
MHSA 101	PROPOSED SANITARY MH & SEWER
MHST 100	PROPOSED STORM MH & SEWER
CB-1	PROPOSED ROAD CATCH BASIN
CBMH-1	PROPOSED REARYARD CATCH BASIN MANHOLE AS PER CITY OF OTTAWA S19
RD-1	PROPOSED ROOF DRAIN
AD-1	PROPOSED AREA DRAIN
H	HYDRO METER
G	GAS METER
M	WATER METER
R	REMOTE METER
Y	SIAMESE WATER CONNECTION
MHCH 101	*EXISTING COMBINED SEWER*
EX. 200mmØ WM	*EXISTING WATERMAIN*
	EXISTING HYDRANT
	EXISTING VALVE
	EXISTING CATCHBASIN
DC	*DEPRESSED CURB*
	EXISTING ASPHLAT
	FUTURE ASPHALT

AREA AND ROOF DRAIN TABLE

DRAIN ID.	ZURN SPECIFICATION	NOTCHES	INVERT	POST-DEVELOPMENT CONTROLLED CONDITIONS					
				1:2 YEAR EVENT		1:10 YEAR EVENT		1:100 YEAR EVENT	
				FLOW (L/S)	DEPTH (m)	FLOW (L/S)	DEPTH (m)	FLOW (L/S)	DEPTH (m)
AD-1	Z-610-H-ADJ-2NH-G-VP-Y	N/A	65.60	3.05	0.00	3.39	0.07	3.61	0.12
RD-1	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.23	0.06	0.29	0.08	0.35	0.09
RD-2	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.25	0.07	0.31	0.08	0.37	0.10
RD-3	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.22	0.06	0.28	0.07	0.34	0.09
RD-4	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.24	0.06	0.30	0.08	0.36	0.10
RD-5	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.22	0.06	0.28	0.07	0.34	0.09
RD-6	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.16	0.04	0.23	0.06	0.28	0.08
RD-7	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.17	0.05	0.24	0.06	0.29	0.08
RD-8	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.24	0.07	0.30	0.08	0.37	0.10
RD-9	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.24	0.06	0.30	0.08	0.36	0.10
RD-10	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.40	0.11	0.48	0.13	0.57	0.15
RD-11	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.22	0.06	0.27	0.07	0.34	0.09
RD-12	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.22	0.06	0.27	0.07	0.34	0.09
RD-13	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.29	0.08	0.36	0.10	0.44	0.12
RD-14	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.25	0.07	0.30	0.08	0.37	0.10
RD-15	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.31	0.08	0.38	0.10	0.46	0.12
RD-16	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.31	0.08	0.38	0.10	0.46	0.12
RD-17	ZCF121-1W-X4-Z-105-10-77	1	N/A	0.30	0.08	0.37	0.10	0.45	0.12



DETAIL 'A': CONCEPTUAL FUTURE SERVICING
1:200

WATERMAIN TABLE FOR 150mmØ SERVICE - INTERIM

STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
0+002.8	67.25±	✱ 64.85±	CONNECTION TO EX. 406mmØ WM
0+006.7	67.30±	64.90±	CROSSING ABOVE FUTURE 450mmØ STM SEWER (CLEARANCE 0.7m±)
0+009.9	67.30±	✱ 65.05±	CROSSING ABOVE EX. 375mmØ COMBINED SEWER (CLEARANCE 0.5m±)
0+011.5	67.25±	64.85±	CROSSING ABOVE FUTURE 250mmØ SAN SEWER (CLEARANCE 1.6m±)
0+017.4	67.40±	65.00±	VALVE BOX LOCATION
0+017.7	67.40±	65.00±	PROPERTY LINE
0+018.0	67.45±	65.05±	CONNECTION AT BUILDING

WATERMAIN TABLE FOR 150mmØ SERVICE - FUTURE

STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
0+002.8	*67.25±*	✱ *64.85±*	*CONNECTION TO EX. 406mmØ WM*
0+006.7	*67.30±*	*64.90±*	*CROSSING ABOVE FUTURE 450mmØ STM SEWER (CLEARANCE 0.7m±)*
0+009.9	*67.30±*	✱ *65.05±*	*CROSSING ABOVE EX. 375mmØ COMBINED SEWER (CLEARANCE 0.5m±)*
0+011.5	*67.26±*	*64.86±*	*CROSSING ABOVE FUTURE 250mmØ SAN SEWER (CLEARANCE 1.6m±)*
0+017.4	*67.46±*	*65.06±*	*VALVE BOX LOCATION*
0+017.7	*67.46±*	*65.06±*	*PROPERTY LINE*
0+018.0	*67.47±*	*65.07±*	*CONNECTION AT BUILDING*

WATERMAIN TABLE FOR 150mmØ HYDRANT LEAD - INTERIM

STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
1+006.8	67.25±	✱ 64.85±	CONNECTION TO EX. 152mmØ WM
1+006.8	67.30±	64.90±	CROSSING ABOVE FUTURE 450mmØ STM SEWER (CLEARANCE 0.7m±)
1+009.8	67.30±	✱ 65.05±	CROSSING ABOVE EX. 375mmØ COMBINED SEWER (CLEARANCE 0.5m±)
1+011.3	67.30±	64.90±	45° WATERMAIN BEND
1+011.6	67.25±	64.85±	CROSSING ABOVE FUTURE 250mmØ SAN SEWER (CLEARANCE 1.6m±)
1+013.2	67.25±	64.85±	VALVE BOX LOCATION
1+015.6	67.25±	64.85±	HYDRANT LOCATION

✱ EXACT DEPTH OF EXISTING WATERMAIN AND UTILITIES TO BE DETERMINED AT TIME OF EXCAVATION.
PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAILS W22 AND/OR W23 WHERE COVER IS LESS THAN 2.4m.

APPROVED ☐ REFUSED ☐

THIS _____ DAY OF _________, 20____

DOUGLAS JAMES, MCIP, RPP, MANAGER
DEVELOPMENT REVIEW CENTRAL,
PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

D07-12-17-0152

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
8.	REVISED AND REISSUED FOR SITE PLAN CONTROL	AUG 23/18	BHB
7.	REVISED AND REISSUED FOR SITE PLAN CONTROL	JULY 16/18	BHB
6.	ISSUED FOR PRICING	APR 30/18	BHB
5.	REVISED AND REISSUED FOR SITE PLAN CONTROL	MAR 06/18	BHB
4.	ISSUED FOR SITE PLAN CONTROL	NOV 01/17	BHB
3.	REISSUED FOR OPA AND REZONING	AUG 11/16	BHB
2.	ISSUED FOR OPA AND REZONING	AUG 18/15	BHB
1.	ISSUED FOR COORDINATION	AUG 06/15	BHB

SCALE: AS SHOWN

DESIGN: BCS
CHECKED: BHB
DRAWN: BCS
CHECKED: BHB
APPROVED: BHB

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
B. C. SWEET
100206031
Aug 23/18
PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
115 ECHO DRIVE

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 115105-00
REV: REV # 08
DRAWING No. 115105-GP