

**NOTE:**

- ALL SERVICE CONNECTIONS AND CATCHBASIN CONNECTIONS TO BE MADE PER CITY OF OTTAWA DETAIL S11 AND S11.2
- BACKWATER VALVES TO BE PROVIDED ON ALL STORM AND SANITARY LATERALS AS PER CITY OF OTTAWA DETAILS S14, S14.1, AND S14.2. DOWNSTREAM OF ANY GRAVITY OUTLET FROM THE BUILDING. REFER TO MECHANICAL PLANS FOR DETAIL
- ALL FLOWS FROM THE UNDERGROUND PARKING GARAGE ARE TO BE CONVEYED TO THE SANITARY SERVICE. SANITARY FLOWS ARE TO BE PUMPED TO THE PROPOSED SANITARY SERVICE (TYP)
- PROPOSED SERVICES TO BE SLEAVED THROUGH FOUNDATION WALL. FOUNDATION DRAINS TO BE PUMPED TO STORM SERVICE. REFER TO MECHANICAL DRAWINGS FOR FURTHER DETAILS ON INTERNAL PLUMBING (TYP)
- PROPOSED AREA DRAINS, ROOF DRAINS AND TRENCHDRAINS ARE TO BE CONVEYED TO THE PROPOSED CISTERN VIA THE INTERNAL PLUMBING. REFER TO THE MECHANICAL DRAWINGS FOR DETAILS.

**PROPOSED WATERMAIN (150mmØ DOMESTIC SERVICE TABLE)**

STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
2+000.0	70.90	69.00	CONNECTION TO EXISTING 300mmØ WM
2+003.8	70.84	68.45	CROSS ABOVE 300mmØ SAN (0.40m CLEARANCE)
2+007.1	71.05	68.65	150mmØ VALVE AND VALVE BOX
2+008.1	71.07	68.67	CAP

**PROPOSED WATERMAIN (150mmØ DOMESTIC SERVICE TABLE)**

STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
1+000.0	70.89	69.00	CONNECTION TO EXISTING 300mmØ WM
1+003.8	70.83	68.43	CROSS ABOVE 300mmØ SAN (0.39m CLEARANCE)
1+007.1	71.04	68.64	150mmØ VALVE AND VALVE BOX
1+008.1	71.06	68.66	CAP

**PIPE CROSSING TABLE**

CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
①	900mmØ CI WM OBV = 69.41	250mmØ STM INV = 69.96	0.55m
②	300mmØ WM OBV = 69.00	250mmØ STM INV = 69.99	0.97m
③	*300mmØ SAN OBV = 67.92	250mmØ STM INV = 70.03	2.11m
④	*300mmØ SAN OBV = 67.90	150mmØ WM INV = 68.30	0.40m
⑤	*300mmØ SAN OBV = 67.89	150mmØ WM INV = 68.28	0.39m



**EXISTING 900mmØ WATERMAIN NOTES:**

- THE CONTRACTOR WILL NOT BE ALLOWED TO USE MECHANICAL EXCAVATION WITHIN 3m FROM THE OUTSIDE EDGE OF THE EXISTING 900mmØ BACKBONE WATERMAIN.
- THE CONTRACTOR IS TO CONFIRM THE ACTUAL DEPTH OF THE 900mmØ WATERMAIN IN THE FIELD.

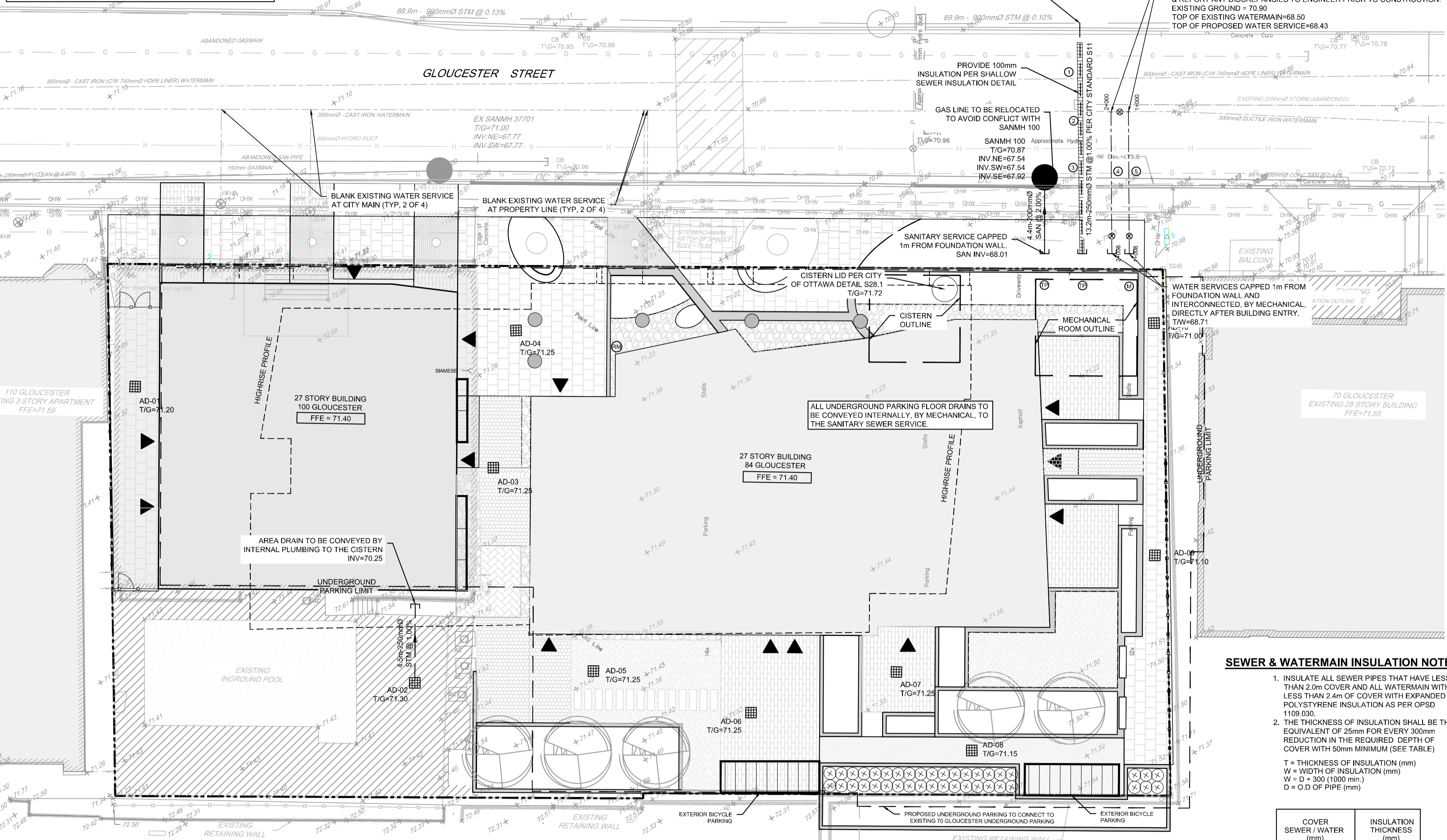
\*CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

\*CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO PROJECT ENGINEER PRIOR TO CONSTRUCTION.

\*INVERTS/OBERTS ON CONCRETE PIPES ARE OUTSIDE DIAMETER

20.6m - 250mmØ STM SDR35 @ 1.0%. CONNECT ABOVE SPRINGLINE OF MAIN USING EUROPLAST ADAPTER. CONNECT INVERT ELEVATION = 68.91m. EXISTING INVERT = +68.25m. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION, AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION. CONNECT AS PER CITY STANDARD S11.

2 - 150mmØ PVC DR 18 WATER SERVICES, SEPARATED BY A PROPOSED ISOLATION VALVE, TO BE CONNECTED TO EXISTING 300mmØ WATERMAIN B CITY FORCES, EXCAVATION, BACKFILLING, AND REINSTATEMENT BY CONTRACTOR. CONTRACTOR TO CONFIRM EXACT LOCATION AND ELEVATION & REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION. EXISTING GROUND = 70.90 TOP OF EXISTING WATERMAIN=68.50 TOP OF PROPOSED WATER SERVICE=68.43



**LEGEND**

- PROPERTY LINE
- PROPOSED RETAINING WALL
- PROPOSED SEWER INSULATION
- PROPOSED SIEMSE CONNECTION
- PROPOSED WATER MAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED REMOTE WATER METER
- PROPOSED WATER METER
- PROPOSED SANITARY MANHOLE & SEWER
- PROPOSED STORM MANHOLE & SEWER
- DIRECTION OF FLOW
- PROPOSED AREA DRAIN
- PROPOSED BUILDING ENTRANCE
- PIPE CROSSING (REFER TO CROSSING TABLE)
- PROPOSED SANITARY/STORM MONITORING PORT
- EXISTING UNDERGROUND BELL LINE
- EXISTING UNDERGROUND TELECOMMUNICATIONS LINE
- EXISTING UNDERGROUND HYDRO LINE
- EXISTING UNDERGROUND HYDRO LINE
- EXISTING GAS MAIN
- EXISTING OVERHEAD HYDRO LINE
- EXISTING STREETLIGHT
- EXISTING WATERMAIN CM WATER VALVE
- EXISTING HYDRANT CIV VALVE & LEAD

**GENERAL NOTES:**

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- 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.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- 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.
- 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.
- 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.
- ALL ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CVD28 GEODETIC DATUM, HORIZONTAL DATUM MTM ZONE 9 - NAD83 (ORIGINAL), THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV.=71.83), LOCATED ON THE SOUTH SIDE OF GLOUCESTER STREET IN FRONT OF THE SUBJECT SITE. REFER TO ANNEX SULLIVAN TOPOGRAPHIC PLAN OF SURVEY OF LOTS 44, 45, AND 46 (SOUTH GLOUCESTER STREET LOTS) PART OF LOTS 44 AND 45 (NORTH NEPEAN STREET LOTS) REGISTERED PLAN 2986, CITY OF OTTAWA.
- REFER TO GEOTECHNICAL REPORT (No. PG6351-1, DATED JULY 26, 2023), PREPARED BY PATERSON GROUP 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.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
- REFER TO SERVICING AND STORMWATER MANAGEMENT BRIEF (REPORT NO. R-2022-197, DATED FEBRUARY 09, 2024) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE/PARKING PAINTING.
- 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 TIG ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

**SEWER NOTES:**

- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
STORM / SANITARY MH FRAME & COVER	S25	CITY OF OTTAWA
SEWER TRENCH - BEDDING (GRANULAR A)		
COVER (GRANULAR A OR GRANULAR B TYPE I, WITH MAXIMUM PARTICLE SIZE=25mm)		
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER WITH 50mmX1200mm HI-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0% (2.0% IS PREFERRED).
- WHEN PLACED ON A SOIL SUB-GRADE, PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
- WHERE HARD SURFACE AREAS ARE TO BE CONSIDERED ABOVE THE TRENCH BACKFILL, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (ABOUT 1.8m BELOW FINISHED GRADE) AND ABOVE THE COVER MATERIAL SHOULD MATCH THE SOILS EXPOSED AT THE TRENCH WALLS TO MINIMIZE DIFFERENTIAL FROST HEAVING. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 225mm THICK LIFTS AND COMPACTED TO A MINIMUM OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ALL COBBLES LARGER THAN 200mm IN THEIR LONGEST DIRECTION SHOULD BE SEGREGATED FROM RE-USE AS TRENCH BACKFILL.
- 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.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE IN ACCORDANCE WITH OPSD 410.07.15, 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.
- STORM MANHOLES AND CBMHs ARE TO HAVE 300mm SUMP/INS UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO TELEVISION (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.

**WATERMAIN NOTES:**

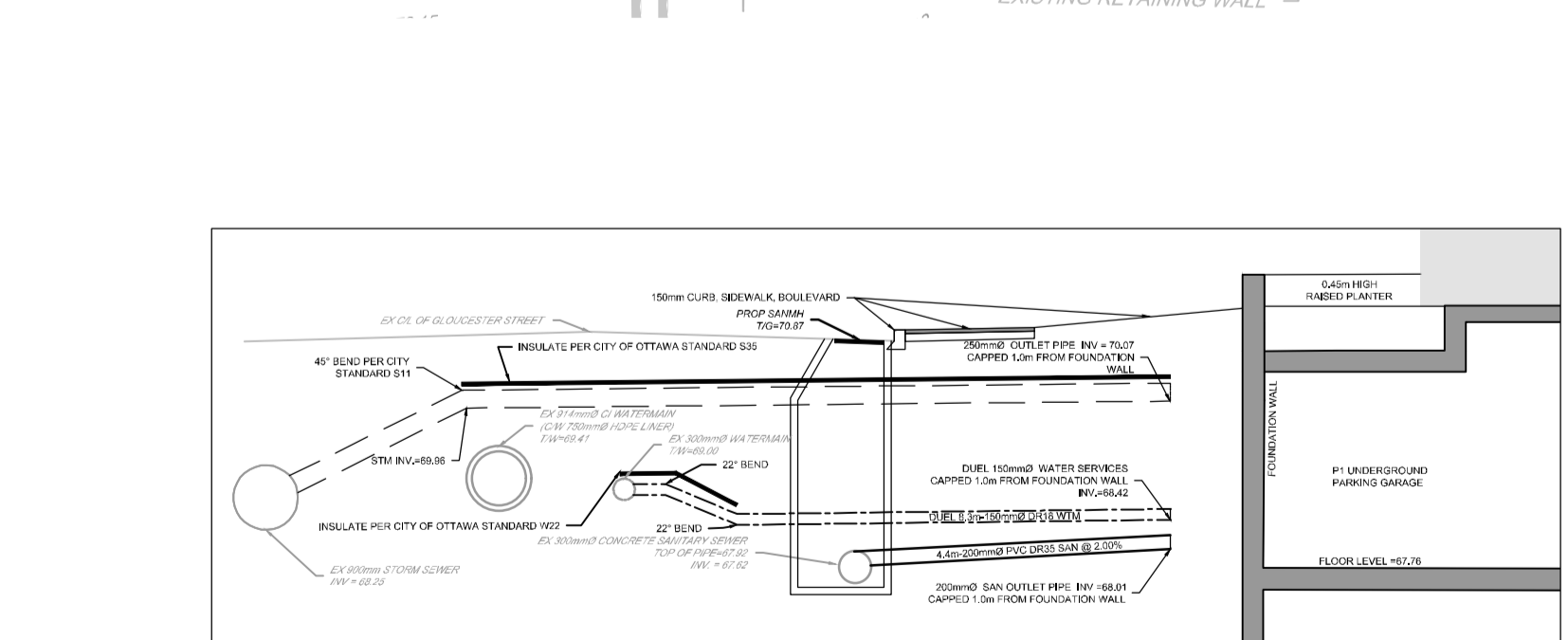
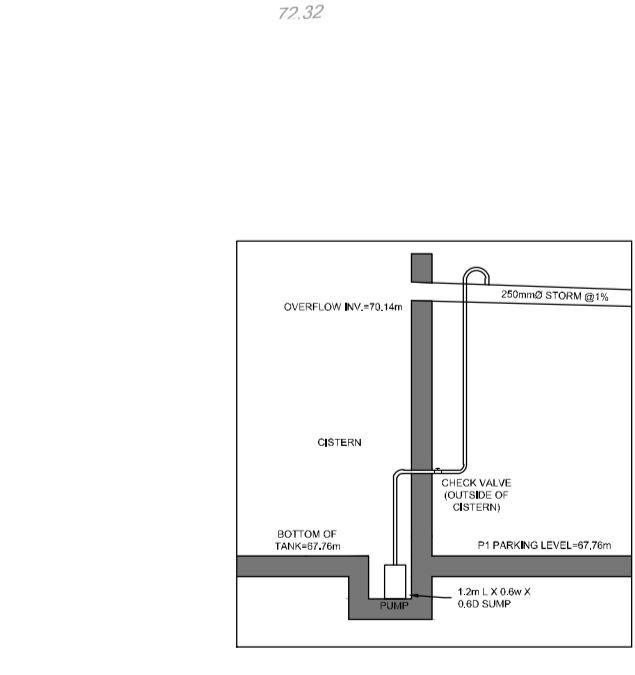
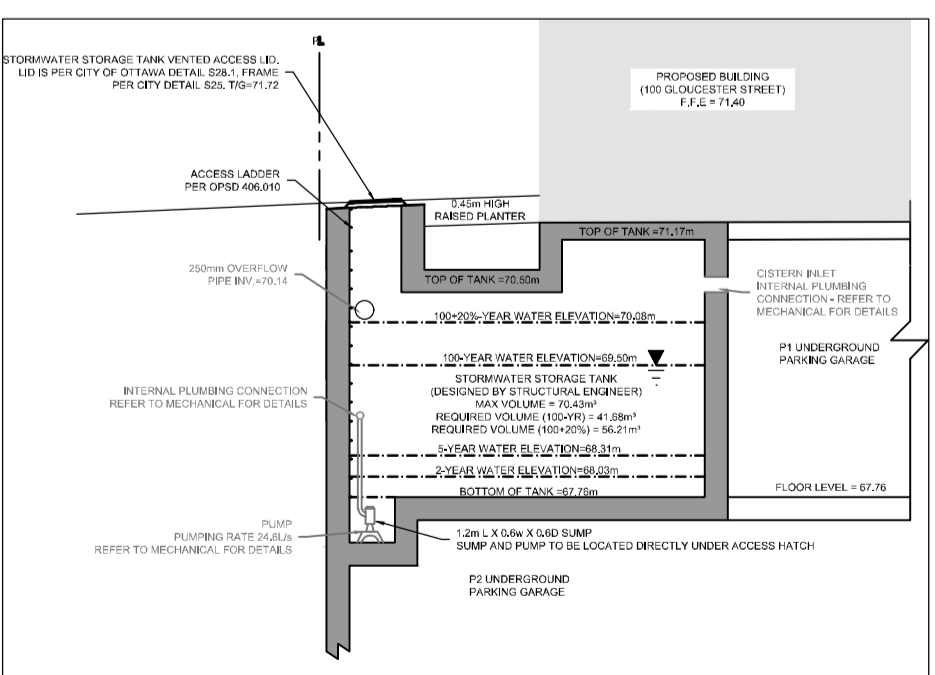
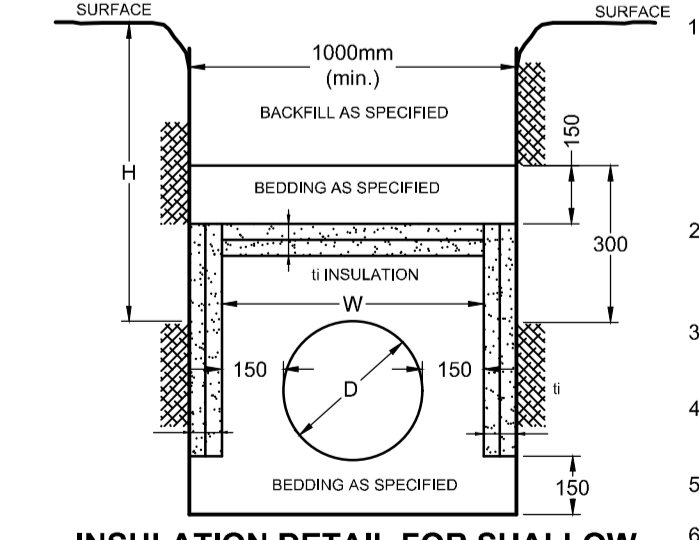
- SPECIFICATIONS:
 

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER/ABOVE SEWER	W25 / W25.2	CITY OF OTTAWA
WATERMAIN VALVE AND VALVE BOX	PVC DR 18	CITY OF OTTAWA
- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. ANY WATERMAIN WITH LESS THAN 2.4m COVER TO BE INSULATED PER THE SHOWN DETAIL.
- PROVIDE MINIMUM 0.25m ABOVE, 0.5m IF BELOW, CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS PER CITY OF OTTAWA STANDARDS W25/W25.2.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.
- PROVIDE THERMAL INSULATION FOR WATERMAIN AT OPEN STRUCTURES PER CITY OF OTTAWA STANDARD DETAIL W-23.
- IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.

**SEWER & WATERMAIN INSULATION NOTES:**

- INSULATE ALL SEWER PIPES THAT HAVE LESS THAN 2.0m COVER AND ALL WATERMAIN WITH LESS THAN 2.4m OF COVER WITH EXPANDED POLYSTYRENE INSULATION AS PER OPSD 1109.030.
- THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER WITH 50mm MINIMUM (SEE TABLE)

COVER SEWER / WATER (mm)	INSULATION THICKNESS (mm)
2000-1700 / 2400-2100	50
1700-1400 / 2100-1800	75
1400 - / 1800-1500	100



**NOTE:** THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, 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
4.	REVISED PER CITY COMMENTS	FEB 09/24	GJM
3.	REVISED PER CITY COMMENTS	AUG 09/23	GJM
2.	ISSUED FOR SITE PLAN CONTROL	JAN 26/23	GJM
1.	ISSUED IN SUPPORT OF SITE PLAN	NOV 30/22	GJM

**FOR REVIEW ONLY**

DESIGN: RJG  
 CHECKED: GJM  
 DRAWN: RJG/MF  
 CHECKED: ARM  
 APPROVED: GJM

SCALE: 1:150

PROFESSIONAL ENGINEER  
 G.J. MacDONALD  
 Feb. 9, 2024  
 PROVINCE OF ONTARIO

**N VATECH**  
 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  
 84 & 100 GLOUCESTER STREET

DRAWING NAME: GENERAL PLAN OF SERVICES

PROJECT No.: 122173-00  
 REV: REV #4  
 DRAWING No.: 122173-GP

M:\2022\122173\CAD\CAD\122173-GP.dwg, GP, Feb. 09, 2024, 10:07 am, dalmatjan

PLAN # 189444 002-02-23-0013 & 007-12-23-0021