

**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 DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
- ALL ELEVATIONS ARE GEODETIC. THE SITE BENCHMARK IS CURRENTLY SET ON TOP OF THE FIRE HYDRANT SPINDLE (ELEV. = 82.40), LOCATED AT THE NORTHWEST CORNER OF THE MAIN ROAD/PAGE ROAD INTERSECTION. REFER TO THE ANNIS O'SULLIVAN VOLLEBEK LTD TOPOGRAPHIC SURVEY OF PART OF LOT 6 CONCESSION 3 (OTTAWA FRONT), GEOGRAPHIC TOWNSHIP OF GLOUCESTER, CITY OF OTTAWA.
- REFER TO GEOTECHNICAL REPORT (No. PG6527-1, DATED MARCH 22, 2023) AND THE GRADING PLAN REVIEW MEMO (No. PG6527-MEMO.01 REVISION 2, DATED MAY 3RD), 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 REPORT PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD. R-2023-077 (DATED FEBRUARY 08, 2024).
- 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 T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.
- CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.

**SEWER NOTES:**

SPECIFICATIONS:	SPEC. No.	REFERENCE
ITEM		
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200mm)	701.010	OPSD
CB, FRAME & COVER	400.020	OPSD
STORM / SANITARY MH FRAME	S25	CITY OF OTTAWA
SANITARY COVER	S24	CITY OF OTTAWA
STORM COVER (CLOSED)	S24.1	CITY OF OTTAWA
STORM COVER (OPEN)	S28.1	CITY OF OTTAWA
SEWER TRENCH	S6 & S7	CITY OF OTTAWA
GAS PIPE CROSSING	R20	CITY OF OTTAWA
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
CATCHBASIN LEAD	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 (REFER TO DETAIL).

- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0% (2.0% IS PREFERRED).
- SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
- PIPE BEDDING FOR SEWER AND WATER PIPES SHOULD CONSIST OF AT LEAST 150mm OF OPSS GRANULAR A. THE BEDDING LAYER THICKNESS SHOULD BE INCREASED TO A MINIMUM OF 300mm WHERE THE SUBGRADE WILL CONSIST OF GREY SILTY CLAY. THE MATERIAL SHOULD BE PLACED IN A MAXIMUM 225mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 99% OF ITS SPMD. THE BEDDING SHOULD EXTEND AT LEAST TO THE SPRING LINE OF THE PIPE.
- THE SEWER AND WATER PIPE COVER MATERIAL SHOULD CONSIST OF OPSS GRANULAR A, AND SHOULD EXTEND FROM THE SPRINGLINE OF THE PIPE TO AT LEAST 300mm ABOVE THE OVERTOP OF THE PIPE. THE MATERIAL SHOULD BE PLACED IN MAXIMUM 225mm THICK LIFTS AND COMPACTED TO A MINIMUM OF 99% OF ITS SPMD.
- WHERE HARD SURFACE AREAS ARE CONSIDERED ABOVE TRENCH BACKFILL, THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (ABOUT 1.8m BELOW FINISHED GRADE) SHOULD MATCH THE SOILS EXPOSED AT THE TRENCH WALLS TO MINIMIZE DIFFERENTIAL FROST HEAVING. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 300mm THICK LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS SPMD.
- 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 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.
- STORM MANHOLES AND CBMHS ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mm Ø OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
- ALL CATCHBASINS AND CATCHBASIN MANHOLES TO BE PROVIDED WITH MINIMUM 3 METER LONG PERFORATED SUBDRAINS EXTENDING IN TWO DIRECTIONS AT THE SUBGRADE LEVEL. SUBDRAIN IS TO BE PROVIDED AT THE TRANSITIONS BETWEEN DIFFERENT PAVEMENT COMPOSITIONS. THE SUBGRADE SURFACE SHOULD BE SHAPED TO PROMOTE WATER FLOW TO THE DRAINAGE LINES.

**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	PVC DR 18	
HYDRANT	W19	CITY OF OTTAWA
VALVE AND VALVE BOX	W24	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.
- CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS CITY OF OTTAWA STANDARD DETAILS W-39, 40, 41, 42, 43 AND 44.
- 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.

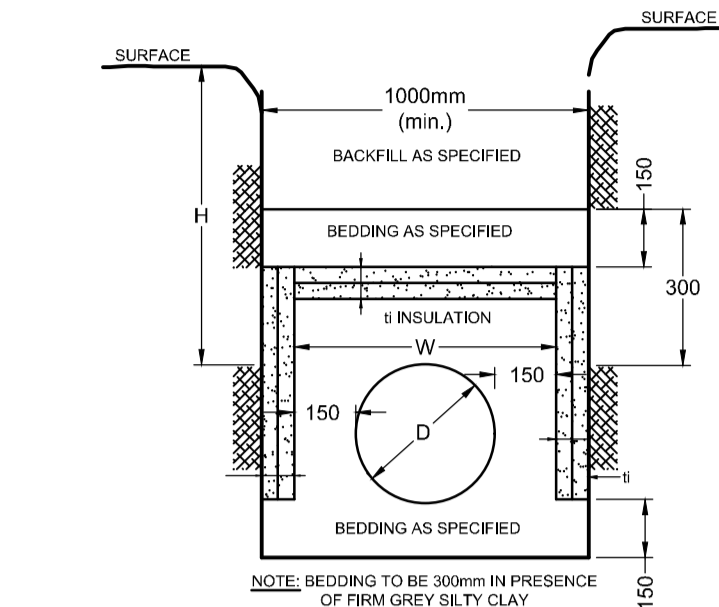
**GRADING NOTES:**

- ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
- NON-SPECIFIED EXISTING FILL ALONG WITH SITE EXCAVATED SOIL COULD BE PLACED AS GENERAL LANDSCAPING FILL AND BENEATH EXTERIOR PARKING AREAS WHERE SETTLEMENT OF THE GROUND IS OF MINOR CONCERN. THESE MATERIALS SHOULD BE SPREAD IN MAXIMUM 300mm THICK LOOSE LIFTS AND COMPACTED BY THE TRACKS OF THE SPREADING EQUIPMENT TO MINIMIZE VOIDS. IF THE MATERIAL IS TO BE USED TO BUILD UP THE SUB-GRADE LEVEL FOR AREAS TO BE PAVED, IT SHOULD BE COMPACTED IN MINIMUM 300mm THICK LIFTS TO AT LEAST 95% OF THE MATERIALS SPMD. THE PACEMENT OF SUB-GRADE MATERIAL SHOULD BE REVIEWED AT THE TIME OF PLACEMENT, BY THE GEOTECHNICAL ENGINEER'S PERSONNEL (PATERSON GROUP).
- EXPOSED SUB-GRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
- ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
- FILL USED FOR GRADING BENEATH THE BASE AND SUB-BASE LAYERS OF PAVED AREAS SHOULD CONSIST, UNLESS OTHERWISE SPECIFIED, OF CLEAN IMPORTED GRANULAR FILL, SUCH AS OPSS GRANULAR A, GRANULAR B TYPE I OR SELECT SUB-GRADE MATERIAL. THIS MATERIAL SHOULD BE TESTED AND APPROVED PRIOR TO DELIVERY TO THE SITE. THE FILL SHOULD BE PLACED IN LIFTS NO GREATER THAN 300mm THICK AND COMPACTED USING SUITABLE COMPACTION EQUIPMENT FOR THE LIFT THICKNESS. FILL PLACED BENEATH THE PAVED AREAS SHOULD BE COMPACTED TO AT LEAST 100% OF ITS SPMD.
- THE TRANSITION BETWEEN THE PAVEMENT STRUCTURE OVER THE PODIUM DECK SUB-GRADE AND SOIL SUB-GRADE BEYOND THE FOOTPRINT OF THE PODIUM DECK IS RECOMMENDED TO BE TRANSITIONED TO MATCH THE PAVEMENT STRUCTURES PROVIDED FOR THE AREAS NOT ABOVE THE PODIUM DECK (REFER TO "PAVEMENT STRUCTURES" BELOW). FOR THIS TRANSITION A 4H:1V IS RECOMMENDED BETWEEN THE TWO SUB-GRADE SURFACES. FURTHER, THE BASE LAYER THICKNESS SHOULD BE INCREASED TO A MINIMUM THICKNESS OF 500mm BELOW THE TOP OF THE PODIUM SLAB A MINIMUM OF 1.5m FROM THE FOUNDATION WALL PRIOR TO PROVIDING THE RECOMMENDED TAPER.
- MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
- MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
- ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
- ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED.

**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
1400-1100 / 1800-1500	100



PIPE CROSSING TABLE			
CROSSING	LOWER PIPE	HIGHER PIPE	CLEARANCE
①	200mm Ø SAN CBV = 77.60	250mm Ø STM INV = 77.89	±0.29m
②	250mm Ø STM CBV = 78.20	200mm Ø VM INV = 78.50	±0.30m
③	250mm Ø STM CBV = 78.21	200mm Ø WTM INV = 78.51	±0.30m

PROPOSED WATER SERVICE (1+000.0)			
STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
1+000.0	80.81	78.28*	CONNECTION TO EXISTING 200mm Ø SERVICE
1+002.7	80.95	78.70	CROSS ABOVE 300mm STM AS PER CITY OF OTTAWA DETAIL W25.2 (CLEARANCE ±0.30m)
1+014.4	80.80	78.40	CAP SERVICE 1.0m FROM THE FOUNDATION WALL

PROPOSED WATER SERVICE (2+000.0)			
STATION	SURFACE ELEVATION	TWM ELEVATION	COMMENTS
2+000.0	80.82	78.28*	CONNECTION TO EXISTING 200mm Ø SERVICE
1+002.9	80.96	78.71	CROSS ABOVE 300mm STM AS PER CITY OF OTTAWA DETAIL W25.2 (CLEARANCE ±0.30m)
1+012.4	80.87	78.47	150mm HYDRANT TEE CONNECTION
1+013.5	80.81	78.41	PROPOSED VALVE AND VALVE BOX
1+014.4	80.80	78.40	CAP SERVICE 1.0m FROM THE FOUNDATION WALL

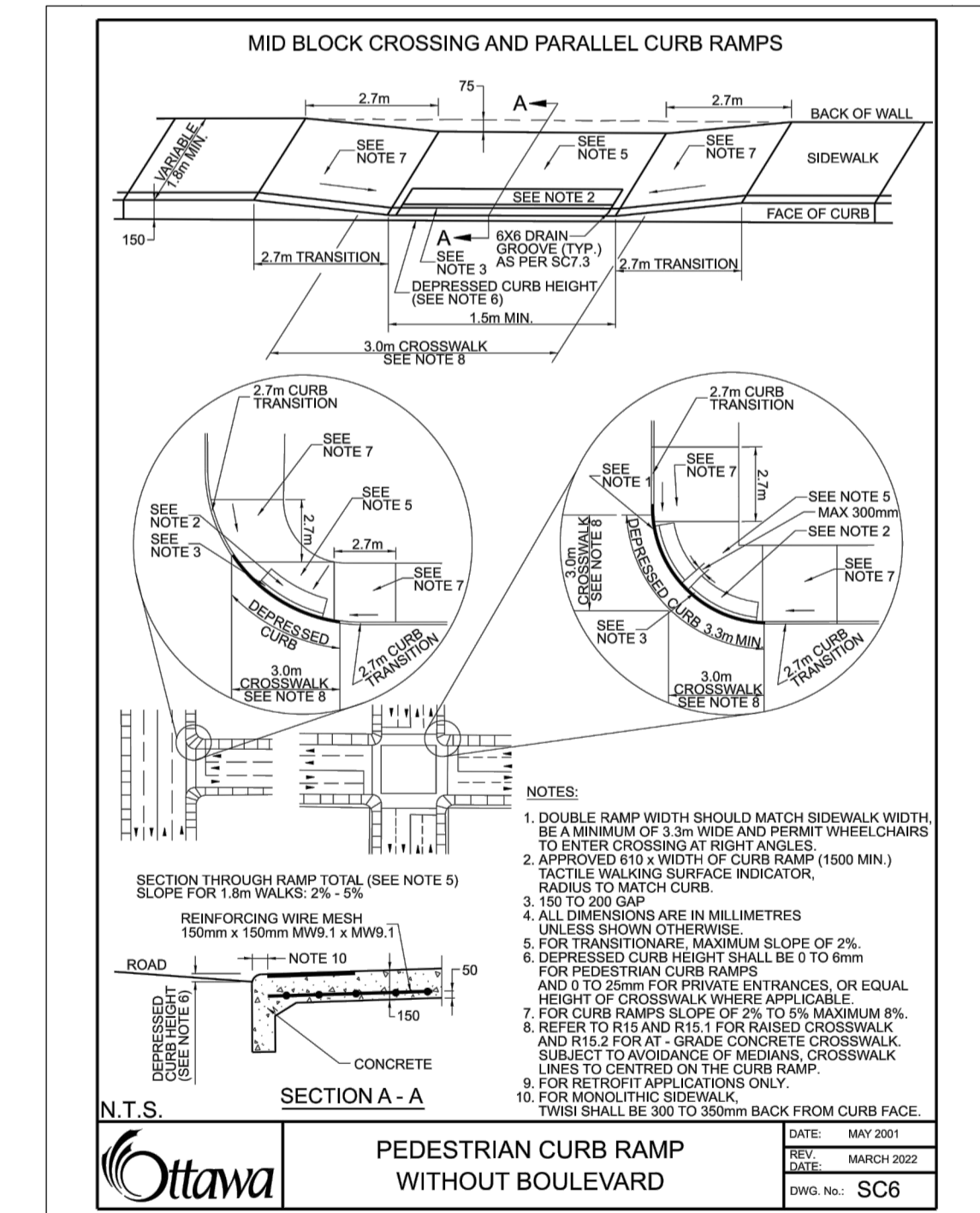
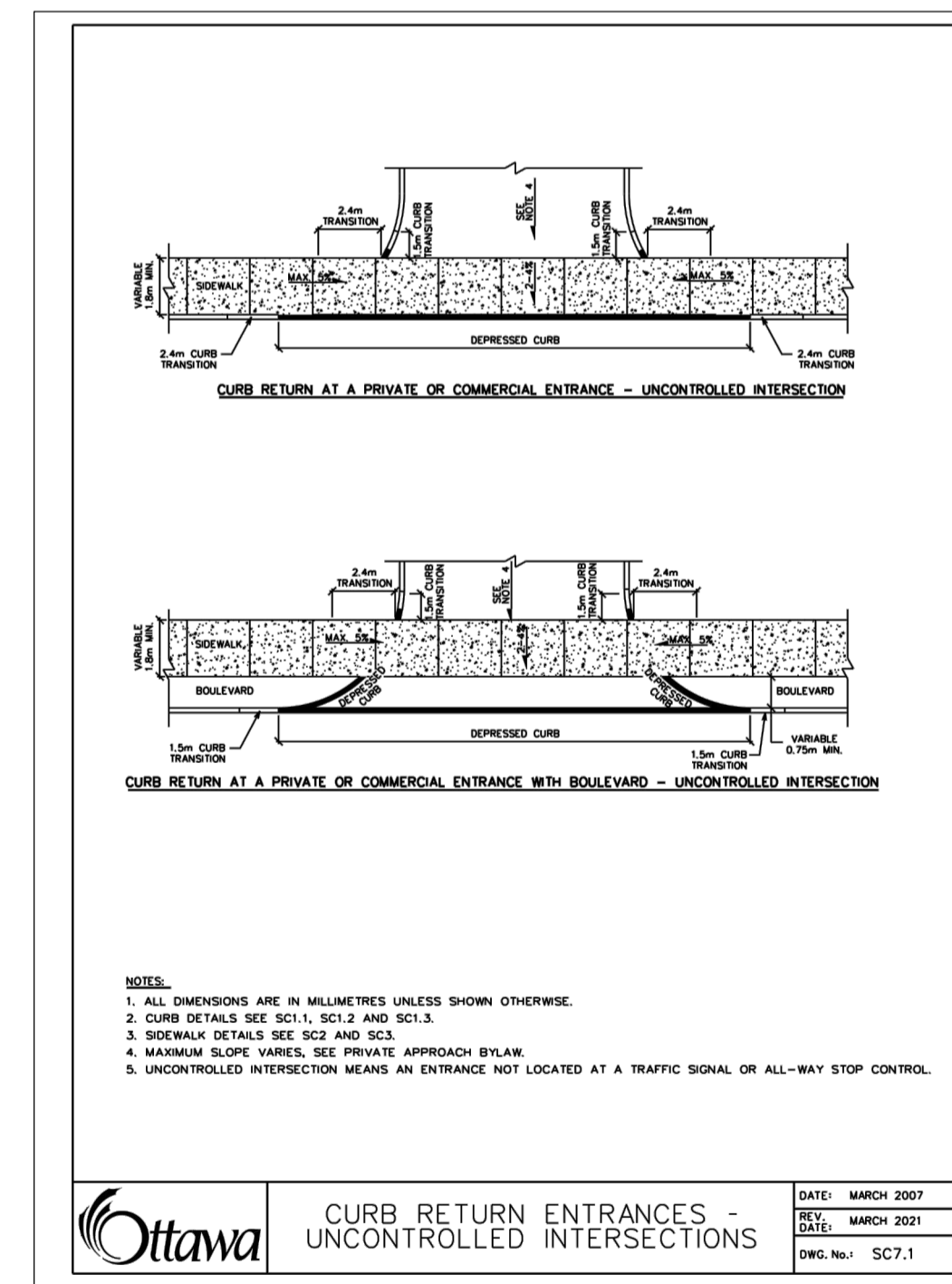
\* CONTRACTOR TO CONFIRM THE ELEVATION OF THE EXISTING WATER STUB AND NOTIFY THE ENGINEER IF DIFFERENT

ICD SIZING AND FLOWS						
STRUCTURE	TEMPEST LMF/ ORIFICE ICD SIZE	ICD INVERT (m)	T/G (m)	100-yr HGL (m)	100-yr HEAD (m)	100-yr RELEASE RATE (L/s)
CBMH02	LMF 95	77.95	80.45	80.60	2.55	12.8
CISTERN	108mm	78.02	80.64	79.28	1.21	27.4

**PAVEMENT STRUCTURE:**

- ACCESS LANE, FIRE TRUCK LANE, RAMP AND HEAVY TRUCK PARKING AREAS (PODIUM DECK)
  - 40mm HL3 OR SUPERPAVE 12.5
  - 50mm HL8 OR SUPERPAVE 19.0
  - 300mm\*\* OPSS GRAN "A" CRUSHED STONE
  - 101.6mm RIGID INSULATION
  - 31.8mm WATERPROOFING MEMBRANE AND PROTECTION BOARD (SUBGRADE - REINFORCED CONCRETE PODIUM DECK)
- HEAVY TRUCK TRAFFIC AND LOADING AREAS
  - 45mm HL3 OR SUPERPAVE 12.5
  - 50mm HL8 OR SUPERPAVE 19.0
  - 150mm OPSS GRAN "A" CRUSHED STONE
  - 450mm OPSS GRAN "B" TYPE II (SUBGRADE - EITHER IN SITU SOIL, FILL OR OPSS GRANULAR TYPE I OR II MATERIAL PLACED OVER IN SITU SOIL.)
- CAR ONLY PARKING AREAS (PODIUM DECK)
  - 50mm HL3 OR SUPERPAVE 12.5
  - 200mm\*\* OPSS GRAN "A" CRUSHED STONE
  - 101.6mm RIGID INSULATION
  - 31.8mm WATERPROOFING MEMBRANE AND PROTECTION BOARD (SUBGRADE - REINFORCED CONCRETE PODIUM DECK)
- CAR ONLY PARKING AREAS
  - 50mm HL3 OR SUPERPAVE 12.5
  - 150mm OPSS GRAN "A" CRUSHED STONE
  - 300mm OPSS GRAN "B" TYPE II (SUBGRADE - EITHER IN SITU SOIL, FILL OR OPSS GRANULAR TYPE I OR II MATERIAL PLACED OVER IN SITU SOIL.)

- NOTE:**
- MINIMUM PERFORMANCE GRADED (PG) 58-34 ASPHALT CEMENT.
  - IF SOFT SPOTS DEVELOP IN THE SUBGRADE DURING COMPACTION OR DUE TO CONSTRUCTION TRAFFIC, THE AFFECTED AREAS SHOULD BE EXCAVATED AND REPLACED WITH OPSS GRANULAR B TYPE II MATERIAL.
  - THE PAVEMENT GRANULAR BASE AND SUB-BASE SHOULD BE PLACED IN MAXIMUM 300mm THICK LIFTS AND COMPACTED TO A MINIMUM OF 100% OF THE MATERIALS SPMD USING SUITABLE COMPACTION EQUIPMENT.



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**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
5.	UPDATED PER CITY NAVAN ROAD WIDENING	APR/22/2024	GJM
4.	UPDATED PER CITY COMMENTS	FEB/08/2024	GJM
3.	UPDATED PER CITY COMMENTS	NOV/21/2023	GJM
2.	UPDATED PER CITY COMMENTS	SEPT 15/23	GJM
1.	ISSUED FOR SPA	APR 26/23	GJM

SCALE	
DESIGN	ARM
CHECKED	ARM
DRAWN	ARM
CHECKED	ARM
APPROVED	ARM

AS SHOWN

ARM

ARM

GJM

GJM

GJM

**Ottawa**

CURB RETURN ENTRANCES - UNCONTROLLED INTERSECTIONS

DATE: MARCH 2021  
REV: MARCH 2021  
DWG. No.: SC7.1

**Ottawa**

PEDESTRIAN CURB RAMP WITHOUT BOULEVARD

DATE: MAY 2021  
REV: MARCH 2023  
DWG. No.: SC6

**NOVATECH**

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LOCATION	
CITY OF OTTAWA 3080 NAVAN ROAD (RHYTHM APARTMENTS)	
DRAWING NAME	
NOTES AND DETAILS	
PROJECT No.	122180
REV	REV # 5
DRAWING No.	122180-ND

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