

2.2. 2.4.

19. ALL WATERMAIN TO BE EQUIPPED WITH TRACER WIRE.

SAN STRUCTURE TABLE			
RIM ELEV.	INVERT IN	INVERT OUT	DESCRIPTION
84.47	NW81.820	SW81.760	STRUC OPSD 701.010 FRAME CITY S25 COVER CITY S24
84.50	NW81.141	SE81.090	STRUC OPSD 701.010 FRAME CITY S25 COVER CITY S24
84.78	S81.180 NW80.990	E80.921	STRUC OPSD 701.010 FRAME CITY S25 COVER CITY S24
84.20	W80.640 SE80.650	NW80.582	STRUC OPSD 701.011 FRAME CITY S25 COVER CITY S24
84.24	NE81.690 SW81.360	SE81.350	EXISTING MH
85.10	S81.280 SW81.300	N81.270	EXISTING MH
84.30	SE80.510	N80.500	EX.MH
	RIM ELEV. 84.47 84.50 84.78 84.20 84.24 85.10	RIM ELEV. INVERT IN   84.47 NW81.820   84.50 NW81.141   84.78 S81.180 NW80.990   84.20 W80.640 SE80.650   84.24 NE81.690 SW81.360   85.10 S81.280 SW81.300	RIM ELEV.   INVERT IN   INVERT OUT     84.47   NW81.820   SW81.760     84.50   NW81.141   SE81.090     84.78   S81.180 NW80.990   E80.921     84.20   W80.640 SE80.650   NW80.582     84.24   NE81.690 SW81.360   SE81.350     85.10   S81.280 SW81.300   N81.270

## MUNICIPAL SEWER/WATERMAIN RELOCATION NOTES:

1. CONSTRUCT ALL SEWERS, MANHOLES AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS CITY.

- 2. SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE 2.1. BEDDING SHALL BE A MINIMUM 150mm OF GRANULAR "A", COMPACTED TO MINIMUM 98% STANDARD PROCTOR DRY DENSITY (SPMDD). CLEAR STONE BEDDING SHALL NOT BE PERMITTED. BEDDING THICKNESS TO BE INCREASED TO 300mmm IF PLACED ON BEDROCK. SUB-BEDDING, IF REQUIRED SHALL CONSIST OF 450mm OF COMPACTED GRANULAR "B" TYPE 1. 2.3. BACKFILL TO AT LEAST 300mm ABOVE TOP OF PIPE WITH GRANULAR "A" OR GRANULAR "B" TYPE 1.
- TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 1.8 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 225mm THICK LOOSE LIFTS AND COMPACTED TO 98% OF THE MATERIAL'S SPMDD.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION PHASING AND LAYOUT. A PHASING PLAN SHALL BE ESTABLISHED FOR THE REALIGNMENT OF THE PROPOSED WATER AND SANITARY SERVICES TO ENSURE CONTINUAL SERVICE FOR THE OFF-SITE FLOWS.
- 4. SEWERS AND CONNECTIONS 200mmØ-375mmØ TO BE PVC SDR-35. SEWER CONNECTIONS 450mmØ AND LARGER TO BE CONCRETE. BEDDING TO BE TYPE "B" EXCEPT AT RISERS, UNLESS NOTED OTHERWISE. SEWER CLASS IN ACCORDANCE WITH OPSD 807.010 & 807.030, AS APPLICABLE.
- 5. CONTRACTOR TO CCTV SANITARY SEWER UPSTREAM AND DOWNSTREAM OF PROPOSED TIE IN LOCATIONS PRIOR TO AND AFTER PROPOSED WORKS.
- 6. PROPOSED SANITARY MAINTENANCE STRUCTURES TO BE BENCHED PER OPSD 701.021.
- 7. SEWERS AND WATERMAINS LOCATED PARALLEL TO EACH OTHER SHOULD BE CONSTRUCTED IN SEPARATE TRENCHES. WHEN IT IS IMPOSSIBLE OR NOT PRACTICAL TO MAINTAIN VERTICAL AND/OR HORIZONTAL SEPARATION PER MECP STANDARDS, ALL SEWERS SHOULD BE CONSTRUCTED OF WATERMAIN QUALITY PIPE, PRESSURE TESTED IN PLACE AT A PRESSURE OF 350 kPa (50 psi) WITHOUT LEAKAGE USING THE TESTING METHODOLOGY IN ONTARIO PROVINCIAL STANDARD SPECIFICATION 701 (OPSS 701) OF THE OPS.
- 8. WHERE SANITARY SEWERS ARE 0.6M BELOW GROUNDWATER TABLE, SANITARY MAINTENANCE HOLES SHALL BE EXTERNALLY WRAPPED WITH WATERPROOF MEMBRANE PLACED EXTERNALLY AROUND ALL PRECAST JOINTS. INCLUDING JOINTS BELOW THE MAINTENANCE HOLE FRAME AND COVER, WITH A MINIMUM 300MM WIDE STRIP.
- 9. THE LOCATION OF EXISTING UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION. 10. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO
- OTTAWA, BELL, ROGERS AND THE CITY. 11. CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND
- SPECIFICATIONS, AS WELL AS CITY STANDARDS
- 12. WATERMAINS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 2.4m. INSULATE ALL WATERMAINS AND SERVICES THAT HAVE LESS THAN 2.4m COVER WITH THERMAL INSULATION AS PER CITY DETAIL W22. 13. IF THE WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS EQUAL TO OR LESS THAN THAT WHICH IS RECOMMENDED BY THE MANUFACTURER.
- 14. THERMAL INSULATION OF WATERMAINS AT OPEN STRUCTURES AS PER CITY DETAIL W23.
- 15. VALVES TO BE OPERATED BY CITY STAFF ONLY.
- 16. NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE CITY. CONNECTION BY CITY FORCES. EXCAVATION, BACKFILLING AND REINSTATEMENT TO BE COMPLETED BY CONTRACTOR.
- 17. CONCRETE THRUST BLOCKS TO CONFORM TO OPSD 1103.010, OPSD 1103.020 AND CITY OF OTTAWA STANDARDS. RESTRAINED JOINTS TO CONFORM TO CITY OF OTTAWA STANDARDS.
- 18. ALL WATERMAIN TO BE CLASS 150 DR-18 OR APPROVED EQUIVALENT.

EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.

20. AS PER CITY GUIDELINE, THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.25 FOR CROSSING OVER THE SEWER, AS PER CITY DETAIL W25.2 FOR CROSSING UNDER SEWER, THE MINIMUM VERTICAL CLEARANCE IS 0.5m AS PER CITY DETAIL W25. FOR CROSSING UNDER SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE



