

200mmØ WATERMAIN TABLE			
STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
0+00	82.70	83.30	TEE CONNECTION TO EXISTING 200mmØ WATERMAIN
0+09	82.82	80.42	45° HORIZONTAL BEND
0+12.9	82.85	80.45	V&VB @ PROPERTY LINE
0+15	82.95	80.55	45° HORIZONTAL BEND
0+20	83.15	80.75	CROSS BELOW 200mmØ STM SEWER (CLEARANCE = 0.85m)
0+23.5	83.30	80.90	50mmØ SERVICE (1+00)
0+25	83.35	80.95	---
0+50	83.25	80.85	---
0+54.2	83.24	80.84	CROSS BELOW 375mmØ STM SEWER (CLEARANCE = 0.80m)
0+57	83.23	80.83	50mmØ SERVICE (2+00)
0+64.4	83.16	80.76	CROSS BELOW 375mmØ STM SEWER (CLEARANCE = 0.85m)
0+67	83.14	80.74	CROSS BELOW 200mmØ STM SEWER (CLEARANCE = 0.85m)
0+75	83.18	80.78	---
0+79.1	83.19	80.79	200x200x150 TEE - FIRE HYDRANT LEAD (4+00)
0+88	83.38	80.98	50mmØ SERVICE (5+00)
0+99	83.39	80.99	50mmØ SERVICE (6+00)
0+100	83.40	81.00	200mmØ CAP AND THRUSTBLOCK

* EXACT DEPTH OF EXISTING WATERMAIN TO BE DETERMINED AT TIME OF EXCAVATION. CONTRACTOR TO CONFIRM TOP OF WATERMAIN. PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W22 WHERE COVER IS LESS THAN 2.4m

150mmØ FIRE HYDRANT LEAD			
STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
4+00	83.19	80.79	200x200x150 TEE - FIRE HYDRANT LEAD (0+79.1)
4+02.7	83.52	81.00	CROSS BELOW 600mmØ STM SEWER (CLEARANCE = 0.50m)
4+04.7	83.58	81.15	FIRE HYDRANT

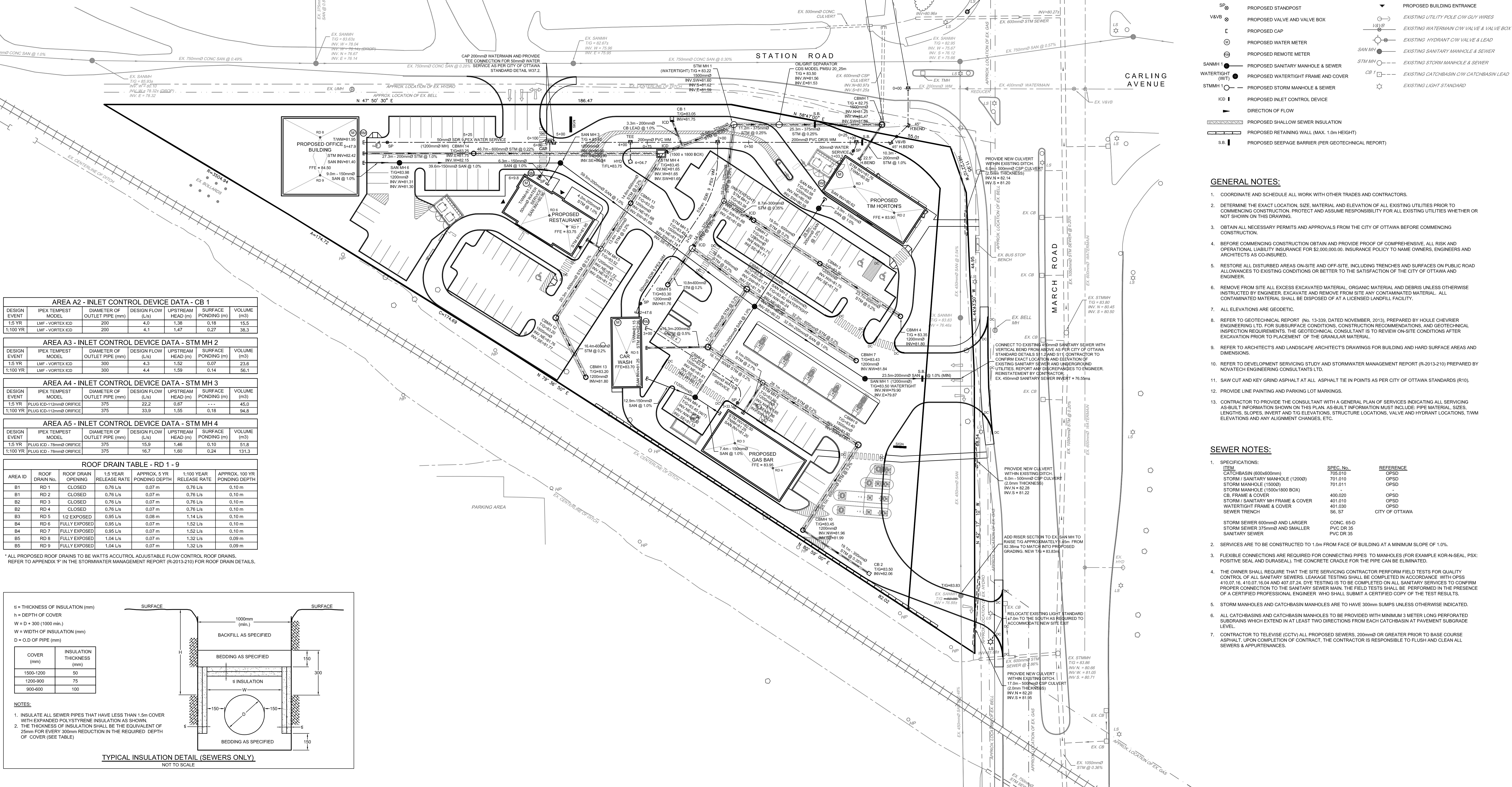
50mmØ WATER SERVICE TABLE			
STATION	SURFACE ELEVATION	TOP OF WM ELEVATION	DESCRIPTION
1+00	83.30	80.30	50mmØ SERVICE (0.23.5)
1+02.3	83.50	80.95	50mmØ STAND POST
1+03.3	83.60	80.95	50mmØ CAP FOR BUILDING SERVICE
2+00	83.23	80.83	50mmØ SERVICE (0.57.7)
2+25	83.53	81.13	---
2+28.3	83.48	81.08	CROSS ABOVE 200mmØ SAN SEWER (CLEARANCE = 0.40m)
2+45	83.68	81.15	50mmØ STAND POST
2+47.6	83.55	81.15	50mmØ CAP FOR BUILDING SERVICE
3+00	83.68	81.15	50mmØ CAP FOR BUILDING SERVICE
3+09.6	83.37	80.97	CROSS BELOW 200mmØ STM SEWER (CLEARANCE = 1.05m)
3+19.7	83.45	81.05	CROSS ABOVE 200mmØ SAN SEWER (CLEARANCE = 0.43m)
3+25	83.58	81.15	---
3+21.5	83.65	81.25	50mmØ STAND POST
3+33.1	83.75	81.25	50mmØ CAP FOR BUILDING SERVICE
5+00	83.38	80.98	50mmØ SERVICE (0+98)
5+25	83.38	80.98	---
5+44	84.10	81.70	50mmØ STAND POST
5+47.9	84.47	81.95	50mmØ CAP FOR BUILDING SERVICE
6+00	83.38	80.98	50mmØ SERVICE (0+99)
6+02.7	83.45	81.20	CROSS BELOW 600mmØ STM SEWER (CLEARANCE = 0.45m)
6+05.1	83.48	81.41	CROSS ABOVE 200mmØ SAN SEWER (CLEARANCE = 0.25m)
6+09	83.55	81.30	50mmØ STAND POST
6+25	83.65	81.25	50mmØ CAP FOR BUILDING SERVICE

** WATERMAIN CROSSING ABOVE SANITARY SEWERS AS PER CITY OF OTTAWA STANDARD DETAIL W22. PROVIDE ADEQUATE INSULATION AS PER CITY OF OTTAWA STANDARD DETAIL W22

WATERMAIN NOTES:

- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH ALL CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS, SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION OF WATERMAIN AT OPEN STRUCTURES	W23	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W25	CITY OF OTTAWA
HYDRANT INSTALLATION	W19	CITY OF OTTAWA
WATERMAIN 150mmØ AND LARGER	PVC DR 18	
WATERMAIN 50mmØ AND SMALLER	PEX SDR 9	
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- WATER SERVICES ARE TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.



LEGEND

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|----------|--|--------|---|
| DC | PROPOSED DEPRESSION CURB | CB 1 | PROPOSED CATCHBASIN AND LEAD |
| 150mmØ | PROPOSED WATERMAIN AND DIAMETER | CBMH 1 | PROPOSED CATCHBASIN MANHOLE |
| SP | PROPOSED STANDPOST | RD 1 | PROPOSED ROOF DRAIN |
| V&VB | PROPOSED VALVE AND VALVE BOX | SB | PROPOSED BUILDING ENTRANCE |
| W | PROPOSED WATER METER | W | EXISTING UTILITY POLE CW/GUY WIRES |
| W | PROPOSED REMOTE METER | W | EXISTING WATERMAIN CW VALVE & VALVE BOX |
| SBMH 1 | PROPOSED SANITARY MANHOLE & SEWER | W | EXISTING HYDRANT CW VALVE & LEAD |
| W | PROPOSED WATERTIGHT FRAME AND COVER | STM MH | EXISTING SANITARY MANHOLE & SEWER |
| STM MH 1 | PROPOSED STORM MANHOLE & SEWER | STM MH | EXISTING STORM MANHOLE & SEWER |
| ICD | PROPOSED INLET CONTROL DEVICE | CB 1 | EXISTING CATCHBASIN CW CATCHBASIN LEAD |
| → | DIRECTION OF FLOW | | |
| --- | PROPOSED SHALLOW SEWER INSULATION | | |
| --- | PROPOSED RETAINING WALL (MAX. 1.0m HEIGHT) | | |
| S.B. | PROPOSED SEEPAGE BARRIER (PER GEOTECHNICAL REPORT) | | |

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 \$2,000,000.00. 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.
- REFER TO GEOTECHNICAL REPORT (NO. 13-338, DATED NOVEMBER, 2013), PREPARED BY HOLE CHEVNER ENGINEERING LTD. 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 ARCHITECTS AND LANDSCAPE ARCHITECTS DRAWINGS FOR BUILDING AND HARD SURFACE AREAS AND DIMENSIONS.
- REFER TO DEVELOPMENT SERVING AS STUDY AND STORMWATER MANAGEMENT REPORT (R-2013-210) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- SAW CUT AND KEY GRIND ASPHALT AT ALL SPALL TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE PAINTING AND PARKING LOT MARKINGS.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVING 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
CATCHBASIN (600x600mm)	750.010	OPSD
STORM / SANITARY MANHOLE (1200x)	701.010	OPSD
STORM MANHOLE (1500x)	701.011	OPSD
STORM MANHOLE (1500x/1600 BOX)	-	OPSD
CB, FRAME & COVER	400.020	OPSD
STORM / SANITARY MH FRAME & COVER	401.030	OPSD
WATERTIGHT FRAME & COVER	401.030	OPSD
SEWER TRENCH	86.57	CITY OF OTTAWA
STORM SEWER 600mmØ AND LARGER	CONC. 65-D	
STORM SEWER 375mmØ AND SMALLER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- FLUXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE GRADE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPS 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 CATCHBASIN MANHOLES ARE TO HAVE 300mm SLUMPS UNLESS OTHERWISE INDICATED.
- ALL CATCHBASINS AND CATCHBASIN MANHOLES TO BE PROVIDED WITH MINIMUM 3 METER LONG PERFORATED SUBDRAINS WHICH EXTEND IN AT LEAST TWO DIRECTIONS FROM EACH CATCHBASIN AT PAVEMENT SUBGRADE LEVEL.
- 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.

AREA A2 - INLET CONTROL DEVICE DATA - CB 1					
DESIGN EVENT	IPEX TEMPEST MODEL	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	UPSTREAM HEAD (m)	SURFACE PONDING (m)
1.5 YR	LMP - VORTEX KCD	200	4.0	1.38	0.18
1:100 YR	LMP - VORTEX KCD	200	4.1	1.47	0.27

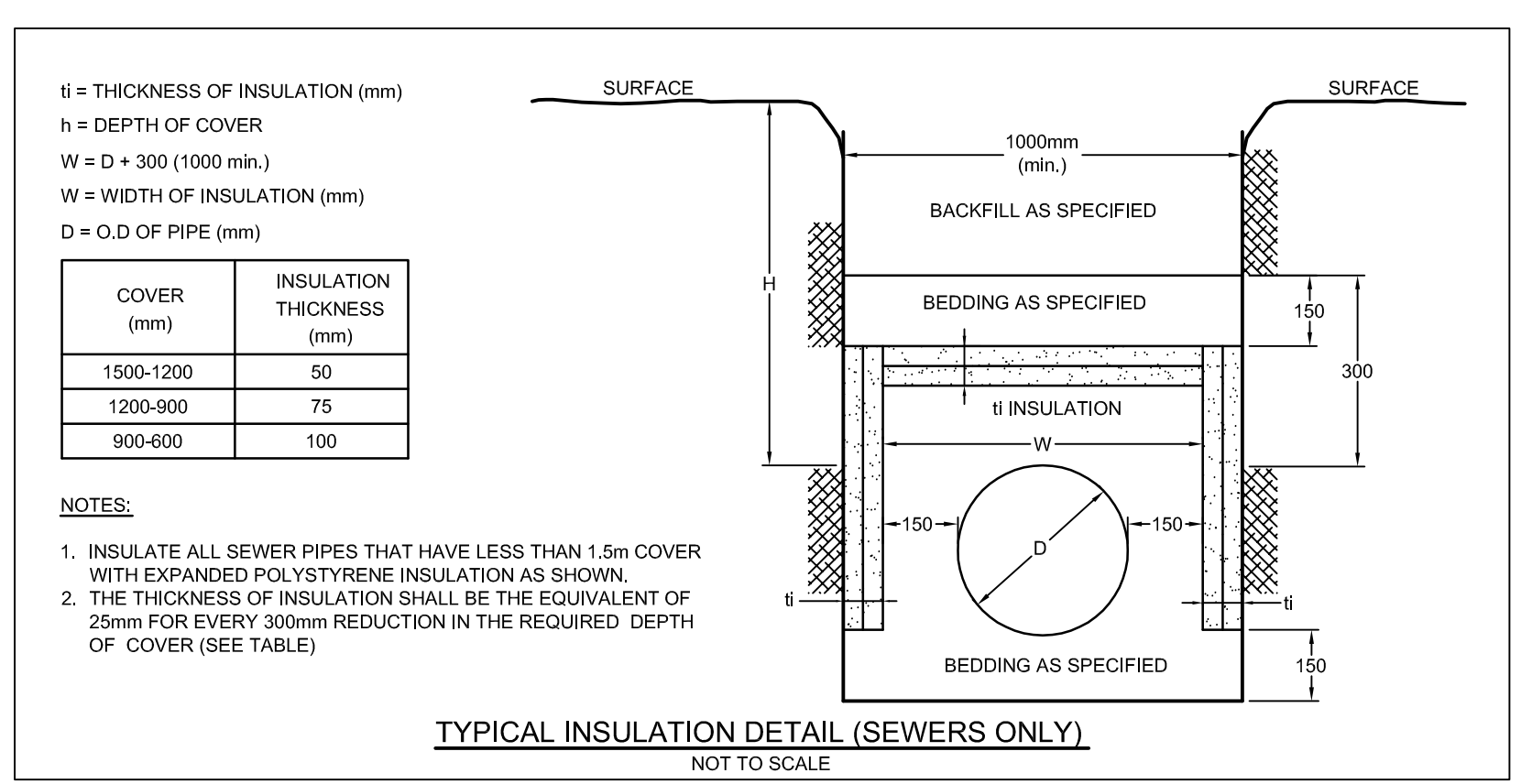
AREA A3 - INLET CONTROL DEVICE DATA - STM MH 2					
DESIGN EVENT	IPEX TEMPEST MODEL	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	UPSTREAM HEAD (m)	SURFACE PONDING (m)
1.5 YR	LMP - VORTEX KCD	300	4.3	1.52	0.07
1:100 YR	LMP - VORTEX KCD	300	4.4	1.59	0.14

AREA A4 - INLET CONTROL DEVICE DATA - STM MH 3					
DESIGN EVENT	IPEX TEMPEST MODEL	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	UPSTREAM HEAD (m)	SURFACE PONDING (m)
1.5 YR	PLUG KCD-112mmØ ORIFICE	375	22.2	0.67	---
1:100 YR	PLUG KCD-112mmØ ORIFICE	375	33.9	1.55	0.18

AREA A5 - INLET CONTROL DEVICE DATA - STM MH 4					
DESIGN EVENT	IPEX TEMPEST MODEL	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	UPSTREAM HEAD (m)	SURFACE PONDING (m)
1.5 YR	PLUG KCD - 78mmØ ORIFICE	375	15.9	1.46	0.10
1:100 YR	PLUG KCD - 78mmØ ORIFICE	375	16.7	1.60	0.24

ROOF DRAIN TABLE - RD 1 - 9						
AREA ID	ROOF DRAIN No.	ROOF DRAIN OPENING	1.5 YEAR RELEASE RATE	APPROX. 5 YR PONDING DEPTH	1:100 YEAR RELEASE RATE	APPROX. 100 YR PONDING DEPTH
B1	RD 1	CLOSED	0.76 L/s	0.07 m	0.76 L/s	0.10 m
B1	RD 2	CLOSED	0.76 L/s	0.07 m	0.76 L/s	0.10 m
B2	RD 3	CLOSED	0.76 L/s	0.07 m	0.76 L/s	0.10 m
B2	RD 4	CLOSED	0.76 L/s	0.07 m	0.76 L/s	0.10 m
B3	RD 5	1/2 EXPOSED	0.95 L/s	0.08 m	1.14 L/s	0.10 m
B4	RD 6	FULLY EXPOSED	0.95 L/s	0.07 m	1.52 L/s	0.10 m
B4	RD 7	FULLY EXPOSED	0.95 L/s	0.07 m	1.52 L/s	0.10 m
B5	RD 8	FULLY EXPOSED	1.04 L/s	0.07 m	1.32 L/s	0.09 m
B5	RD 9	FULLY EXPOSED	1.04 L/s	0.07 m	1.32 L/s	0.09 m

* ALL PROPOSED ROOF DRAINS TO BE WATTS ACCUTROL, ADJUSTABLE FLOW CONTROL, ROOF DRAINS. REFER TO APPENDIX "F" IN THE STORMWATER MANAGEMENT REPORT (R-2013-210) FOR ROOF DRAIN DETAILS.



TYPICAL INSULATION DETAIL (SEWERS ONLY) NOT TO SCALE

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.

OWNER INFORMATION
 STARBANK DEVELOPMENTS 401 CORP.
 329 BROOKE AVENUE
 TORONTO, ONTARIO, M5M 2L4

DUNG LAM
 PHONE: (416) 922-2222
 E-MAIL: starbank@rogers.com

No.	REVISION	DATE	BY
1.	ISSUED FOR REVIEW	DEC 13/13	MS
2.	ISSUED FOR SITE PLAN APPROVAL	DEC 20/13	MS

SCALE: 1:400

FOR REVIEW ONLY

MS / MS / MTM / SM / MS

NOVATECH ENGINEERING CONSULTANTS LTD.
 240 MICHAEL COWPLAND DRIVE
 OTTAWA, ONTARIO, CANADA
 (613) 254-9643
 novatech@novatech-eng.com

LOCATION: 401 MARCH ROAD, KANATA, STARBANK DEVELOPMENTS

DRAWING NAME: GENERAL PLAN OF SERVICES

PROJECT NO.: 113023-00

REV #2

113023-GP