

sheet size: Super A1 24" x 36" publication: 11 (metric) 24-0107-012_C - Tab3.0 Plotted By: GGrain 25/05/15 [Thu 3:10pm]

LAND DRAINAGE CALCULATIONS

CALCULATIONS WERE DONE USING RATIONAL METHOD $Q = C i A$ WHERE:

- Q = RUNOFF IN cfs (L/s, m^3/s)
- C = RUNOFF COEFFICIENT
- i = RAINFALL INTENSITY IN in/hr
- A = AREA IN acres (m^2 , ha)

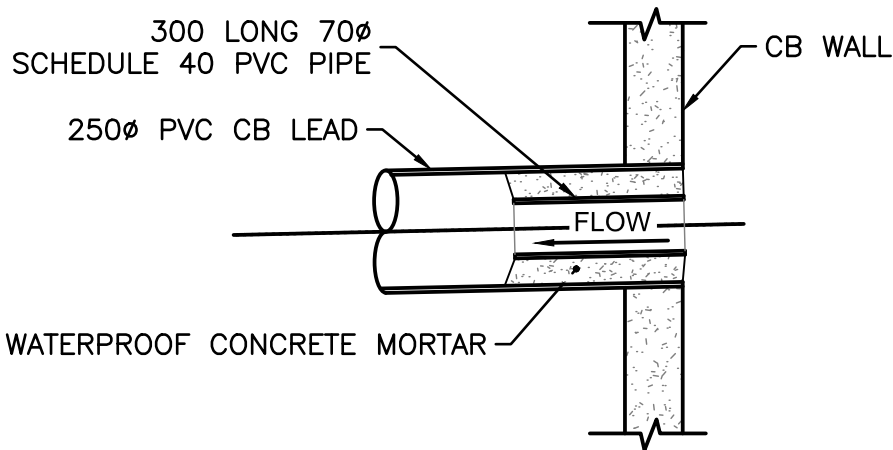
PRE-DEVELOPMENT (ALLOWABLE) DISCHARGE RATE WAS CALCULATED FOR 5-YEAR STORM USING TIME OF CONCENTRATION OF 10 MIN AND ACCORDING TO THE RAINFALL INTENSITY EQUATION OUTLINED IN MACLAREN 1974 DRAINAGE CRITERIA MANUAL FOR THE CITY OF WINNIPEG.

- $C = 0.5$ (SUPPLIED BY CITY OF WINNIPEG)
- $i = 109.50$ mm/hr
- A ENTIRE CATCHMENT = $994.053 m^2$, 0.099 ha
- Q PRE-DEVELOPMENT (ALLOWABLE) = $(0.5) * (109.50 \text{ mm/hr}) * (0.099 \text{ ha}) = 15.117 \text{ L/s}$, $0.015117 m^3/s$

POST-DEVELOPMENT DISCHARGE THROUGH A 70mm DIAMETER RESTRICTOR ORIFICE

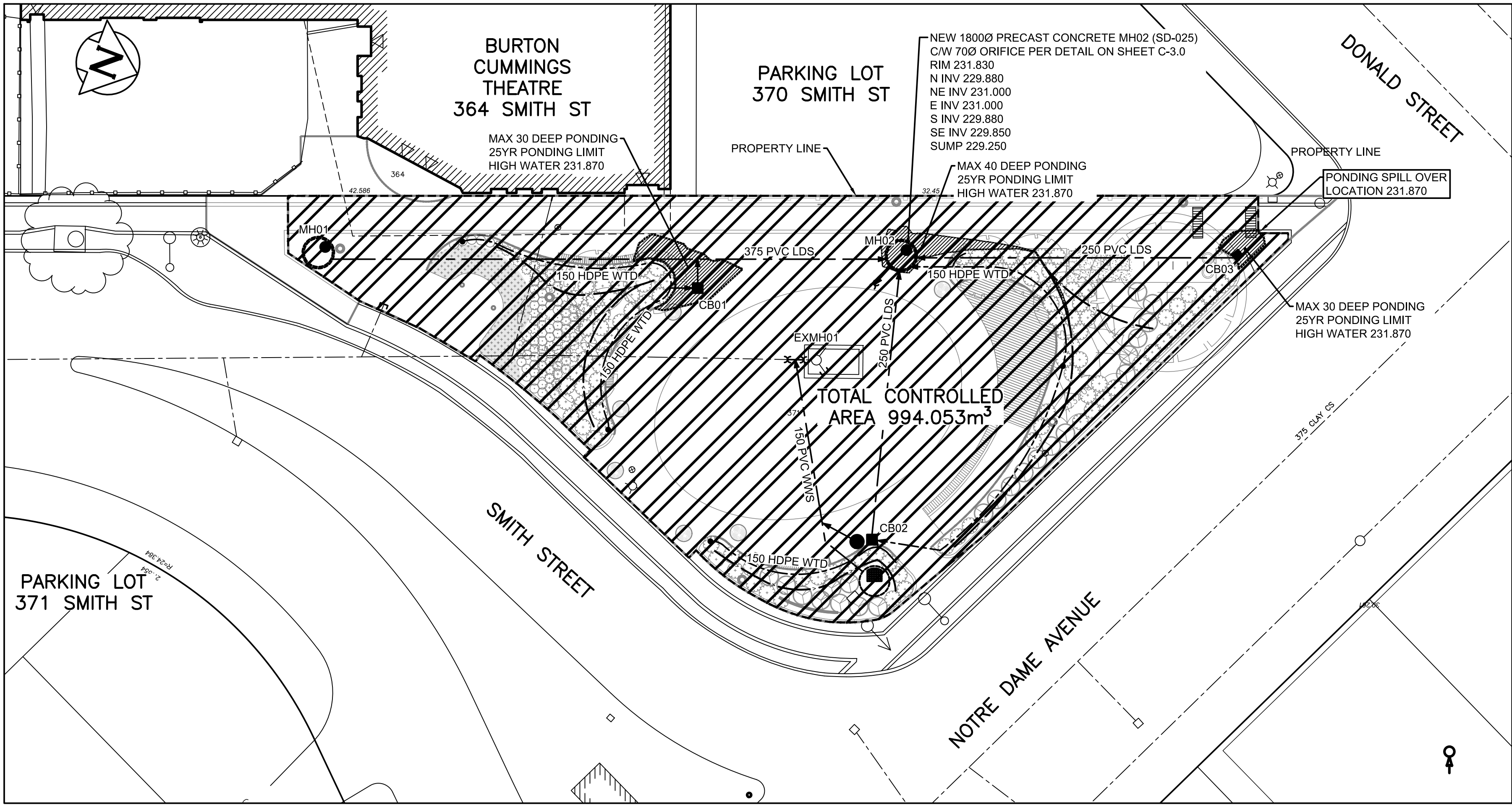
- $Q_0 = (Cd * (2 * g * h)) * (3.14 * (r^2)) = ((0.62) * (2 * 9.81 m/s^2 * (231.87 m - 229.85 m)^{0.5})) * (3.14 * (0.035^2)) = 0.0150211 m^3/s$, $15.021 L/s$
- A 70 mm DIAMETER ORIFICE SHALL BE INSERTED INTO THE SOUTH EAST 250Ø PIPE OF MH 2 PER DETAIL ON THIS SHEET.

REQUIRED 25-YEAR STORAGE VOLUME FOR SITE DETERMINED USING ISOCHRON METHOD FOR THE TOTAL RESTRICTED AREA OF PROPERTY $994.053 m^2$ AS SHOWN IN THE STORMWATER KEY PLAN. POST-DEVELOPMENT CONDITIONS, AND RESTRICTED RUNOFF RATE OF $15.021 L/s$ A MINIMUM OF $16.56 m^3$ IS REQUIRED. TEMPORARY STORAGE VOLUME IS ACHIEVED IN UNDERGROUND 1800Ø MANHOLE, 250Ø AND 300Ø LAND DRAINAGE PIPE, STORAGE TOTALING $17.89 m^3$ AT PONDING ELEVATION 231.870m. WHICH IS GREATER THAN THE REQUIRED $16.56 m^3$ THEREFORE, THE CITY TEMPORARY STORAGE REQUIREMENTS ARE MET.



RESTRICTION PIPE DETAIL (AS PER SD-025B)

SCALE: NTS



POST-DEVELOPMENT STORMWATER MANAGEMENT KEYPLAN

SCALE: 1:200

300 LDS	LAND DRAINAGE SEWER	300 LDS	---	FENCE	---	---	---	---	---
250 WWS	WASTE WATER SEWER	250 WWS	---	SWALE	---	---	---	---	---
---	GAS	---	---	---	---	---	---	---	---
---	HYDRO	---	---	BACK OF CURB	---	---	---	---	---
---	M.T.S.	---	---	ASPHALT MILL & FILL	---	---	---	---	---
150 WM	WATER MAIN	150 WM	---	ASPHALT	---	---	---	---	---
---	HYDRANT	---	---	CONCRETE	---	---	---	---	---
---	VALVE	---	---	LANDSCAPING	---	---	---	---	---
---	MANHOLE	---	---	PROPERTY LINE	---	---	---	---	---
---	CATCH BASIN	---	---	TEST HOLE	---	---	---	---	---
---	CURB INLET	---	---	GEODETIC BENCHMARK	---	---	---	---	---
---	POLES T-MTS	---	---	ELEVATION	---	---	---	---	---
---	GUY WIRE	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---
EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	EXISTING	LEGEND-PLAN	PROPOSED	---

LOCATION APPROVED UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE DATE: _____

NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

WARNING

NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.

TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS.

SEE PROVINCIAL REGULATION 210/72 FOR DETAILS.

PROPERTY LIMITS DELINEATION

DELINEATION OF PROPERTY LIMITS AS SHOWN ON THIS DWG DOES NOT REPRESENT A "LEGAL SURVEY". KGS GROUP MAKES NO REPRESENTATION OR WARRANTY AS TO THE ACCURACY OF PROPERTY LIMITS DELINEATED ON THIS DWG, NOR ON THE DIMENSIONAL ACCURACY OF DWG FEATURES RELATIVE TO THOSE PROPERTY LIMITS.

METRIC

WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

NOTES:

KGS GROUP

SCATLIFF + MILLER + MURRAY
visionary urban design + landscapes

CONSULTANT FILE NAME 24-0107-012_C.dwg

CLIENT CITY OF WINNIPEG
PLANNING, PROPERTY & DEVELOPMENT



ODEON PARK
REDEVELOPMENT

CITY DRAWING NUMBER SHEET OF
- 1 1

CIVIL
NEW SITE PLAN

DESIGN	DRAWN	DATE - Y / M / D	SCALE
GLG	GLG	25/05/14	AS NOTED
CHECKED	APPROVED	PROJECT No.	DRAWING No.
MAT	MAT	24-0107-012	C3.0

BID OPPORTUNITY No. xx-xxxx