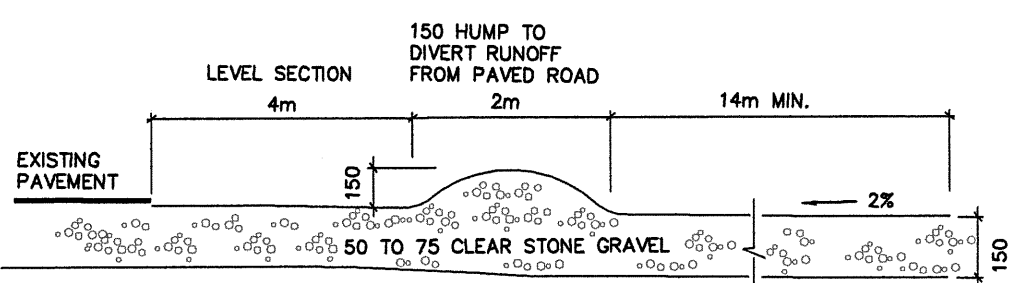


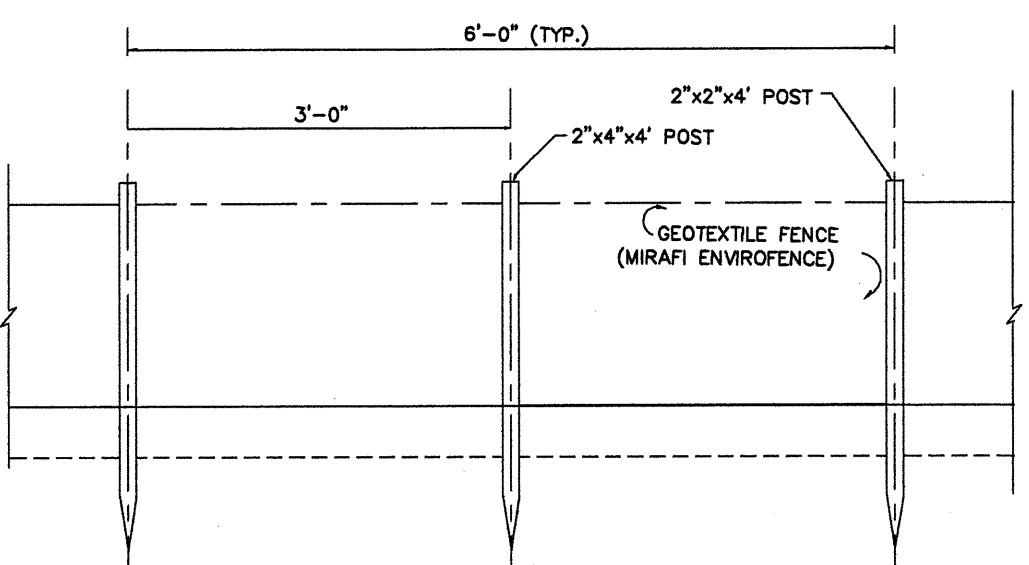
**GRAVEL FILTER**  
N.T.S.



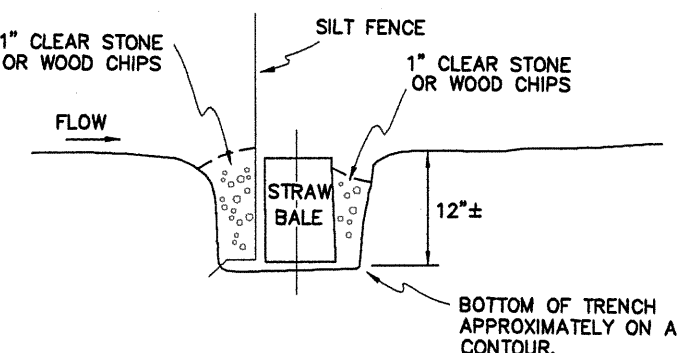
MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. SHOULD MUD BE TRACKED OR WASHED ONTO THE EXISTING PAVED ROAD, IT MUST BE REMOVED IMMEDIATELY.

WIDTH - 6m FLARED TO EXISTING ROAD  
LENGTH - 20m  
GRADE - 2%

**TEMPORARY GRAVEL CONSTRUCTION ENTRANCE**  
N.T.S.



**SILTATION FENCE**  
N.T.S.



**FILTER SPREADER**  
N.T.S.

**EROSION & SEDIMENT CONTROL**

- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED TO PROTECT ALL NATURAL WATERCOURSE FROM DAMAGE DUE TO SILT LADEN RUN-OFF FROM CONSTRUCTION.
- RECOMMENDED CONSTRUCTION AND MAINTENANCE PROCEDURES MAY BE OBTAINED FROM THE LATEST REVISION OF "EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION SITE", PREPARED BY THE NOVA SCOTIA DEPARTMENT OF THE ENVIRONMENT.
- PERIODICALLY INSPECT AND CORRECT EROSION AND SEDIMENTATION CONTROL MEASURES TO ENSURE CONTINUED EFFECTIVENESS.
- STABILIZE ALL DISTURBED AREAS TO PREVENT EROSION IMMEDIATELY AFTER COMPLETION OF WORK.
- PROTECT ALL POINTS OF CONSTRUCTION SITE ENTRANCE AND EXIT TO PREVENT TRACKING OF MUD ONTO PUBLIC STREETS.



**CONCEPTUAL STORMWATER MANAGEMENT**

THE PURPOSE OF THIS PRELIMINARY STORM WATER MANAGEMENT PLAN IS TO ADDRESS THE POTENTIAL EFFECTS UPON WATER QUALITY AND QUANTITY FROM THE PROPOSED DEVELOPMENT OF THE HALIFAX WEST LANDS.

THE GOAL OF THIS SWMP FOR STORMWATER QUANTITY CONTROL IS TO MATCH CLOSELY THE PRE-DEVELOPMENT HYDROLOGIC CONDITIONS TO THE POST-DEVELOPMENT CONDITIONS ON THE ENTIRE DEVELOPMENT SITE (NO NET INCREASE IN PEAK FLOW AS A RESULT OF DEVELOPMENT).

- CONTROL POST-DEVELOPMENT PEAK FLOWS FROM THE 2, 5, 10, 25, 50 AND 100 YEAR 24 HOUR STORM EVENTS.
- RAINFALL QUANTITIES OF EACH STORM EVENT ARE SUMMARIZED AS FOLLOWS:

RAINFALL INTENSITY - DURATION FREQUENCY VALUES

DURATION	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR
5 min.	5.8	7.8	9.2	10.9	12.2	13.4
10 min.	8.7	11.3	13.1	15.3	17.0	18.6
15 min.	10.7	13.6	15.6	18.0	19.8	21.6
30 min.	14.6	18.6	21.2	24.5	26.9	29.4
1 hr.	20.4	25.1	28.2	32.2	35.1	38.0
2 hr.	29.4	38.1	44.0	51.3	56.7	62.1
6 hr.	48.7	63.1	72.7	84.7	93.7	102.6
12 hr.	58.3	74.5	85.2	98.8	108.8	118.8
24 hr.	65.9	89.7	105.5	125.5	140.3	155.0

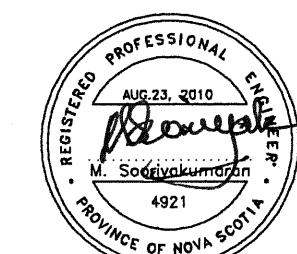
STORMWATER QUANTITY AND QUALITY CONTROLS FOR THIS DEVELOPMENT INCLUDE:

- COMMERCIAL AND MULTI-UNIT RESIDENTIAL BUILDINGS WITH FLAT ROOF SO THAT STORM WATER IS DETAINED AND THE ROOF IS DRAINED AT A CONTROLLED RATE.
- DURING LESS FREQUENT RAINFALL EVENTS UTILIZE STORAGE OVER PARKING AREA AT PODIUM WITH CONTROL FLOW RATE, WHEN REQUIRED.
- DIRECT RUNOFF FROM PARKING AREA FOR THE OFFICE AND MULTI-UNIT BUILDINGS TO OIL SEPARATOR, SUCH AS STORMCEPTOR, BEFORE DISCHARGING TO DRAINAGE SYSTEM.

**LEGEND:**

EXISTING	PROPOSED
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○	○
□	□
□	□
□	□
○	○
○	○
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2	NOV.22-10	REVISED PER HALIFAX WATER COMMENTS	
1	AUG.23-10	ISSUED FOR APPROVAL	
NO.	DATE	REVISION DESCRIPTION	APPRD



**UNITED GULF DEVELOPMENTS LIMITED**

380 BEDFORD HIGHWAY  
HALIFAX, NOVA SCOTIA  
CANADA B3M 2L3

TEL: (902) 493-3070  
FAX: (902) 832-1752

**ckm engineering inc.**  
BEDFORD, NOVA SCOTIA  
TEL: (902) 835-7471  
FAX: (902) 835-1472

**STORMWATER MANAGEMENT PLAN**

**HALIFAX WEST**

DRAWN		DATE		PLAN NO.	
BIC		AUGUST 23, 2010		1079-02	
ENGINEER		SCALE		SHEET	
SOORI		1:1000			<b>2</b>

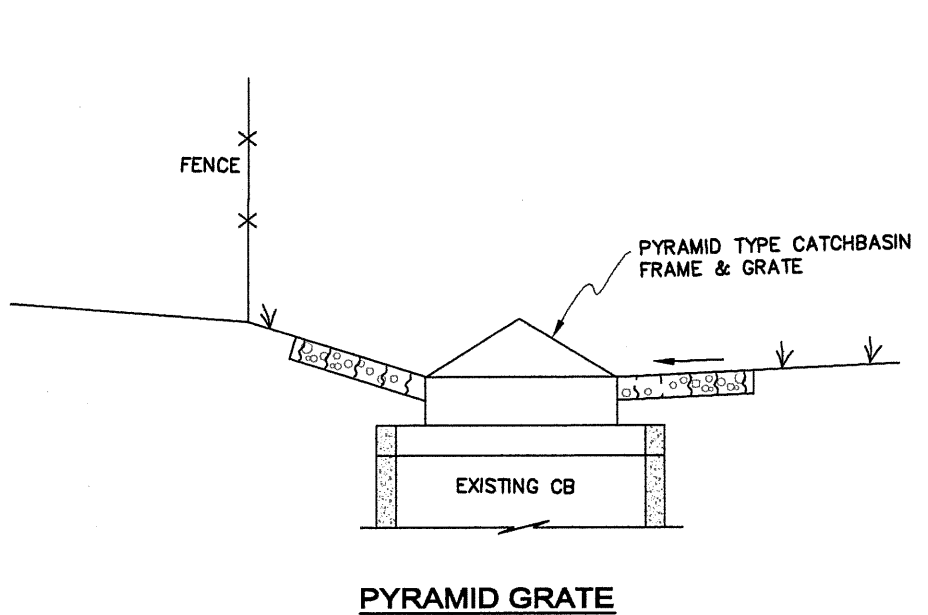
**PRELIMINARY PEAK FLOW ESTIMATES**

DEVELOPMENT CONDITION	REFERENCE POINT	AREA ha	TIME OF CONCENTRATION min.	RUN-OFF COEFFICIENT		INTENSITY mm/hr		PEAK FLOW cms	
				5 yr.	100 yr.	5 yr.	100 yr.	5 yr.	100 yr.
PRE-DEVELOPMENT	A	7.3	5	0.38	0.65	93.6	160.8	0.714	2.088
POST-DEVELOPMENT	A	7.3	5	0.38	0.65	93.6	160.8	0.689	1.973

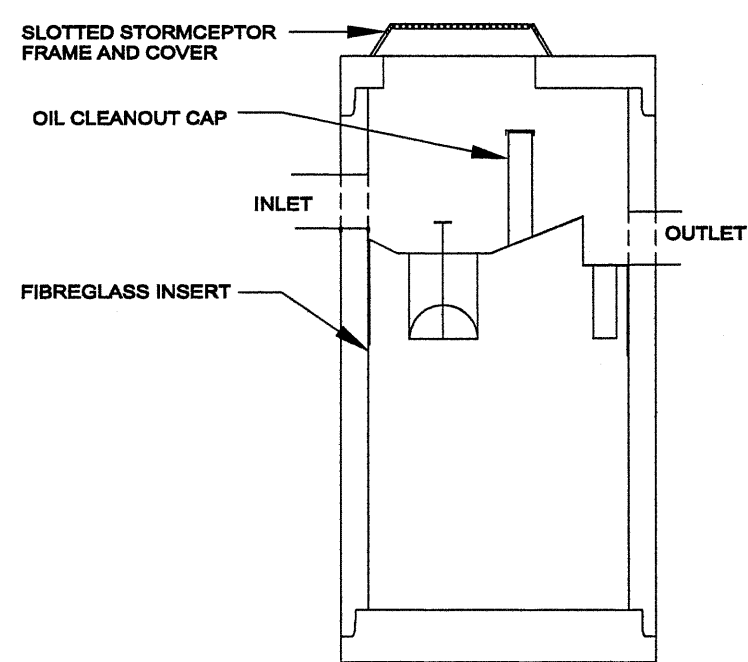
\* USE NO MORE THAN 12 "ZURN CONTROL - FLO" ROOF DRAINAGE SYSTEM, WITH NO MORE THAN A TOTAL OF 12 NOTCHES. CONNECT ROOF DOWNSPOUTS TO THE PROPOSED STORM LATERAL.

**CARRYING CAPACITY**

CARRYING CAPACITY OF THE EXISTING DOWNSTREAM STORM PIPE, 600Ø AT 3% = 1.11 cms



**PYRAMID GRATE**  
N.T.S.



**STORMCEPTOR**  
N.T.S.