



PHILLIPS LIBRARY SUBSURFACE INFILTRATION

DESCRIPTION

The Phillips Library Subsurface Infiltration system is a low impact development practice that reduces stormwater runoff into the Narragansett Bay Commission’s combined sewer system in Eaton Street. It consists of 50 polyethylene stormwater collection chambers, which infiltrate stormwater runoff directed to the system from roof drains of Phillips Library and a catch basin on the west side of the building. The drainage area includes one quarter of the Phillips Library roof and 900 ft² of impervious ground cover to the west of the building. Located beneath the driveway linking parking lots to the south of the library and Hickey/ Albertus Magnus/ Sowa Halls, the subsurface infiltration system was designed to infiltrate storm events up to and including the 25-year storm event. The overflow structure diverts flows in excess of the 25-year storm event to the Eaton Street storm sewer. The invert of the overflow pipe is located at the top of the storage chambers. Sixty-five percent of the 100-year design storm event can be stored before stormwater will be discharged through this overflow pipe.

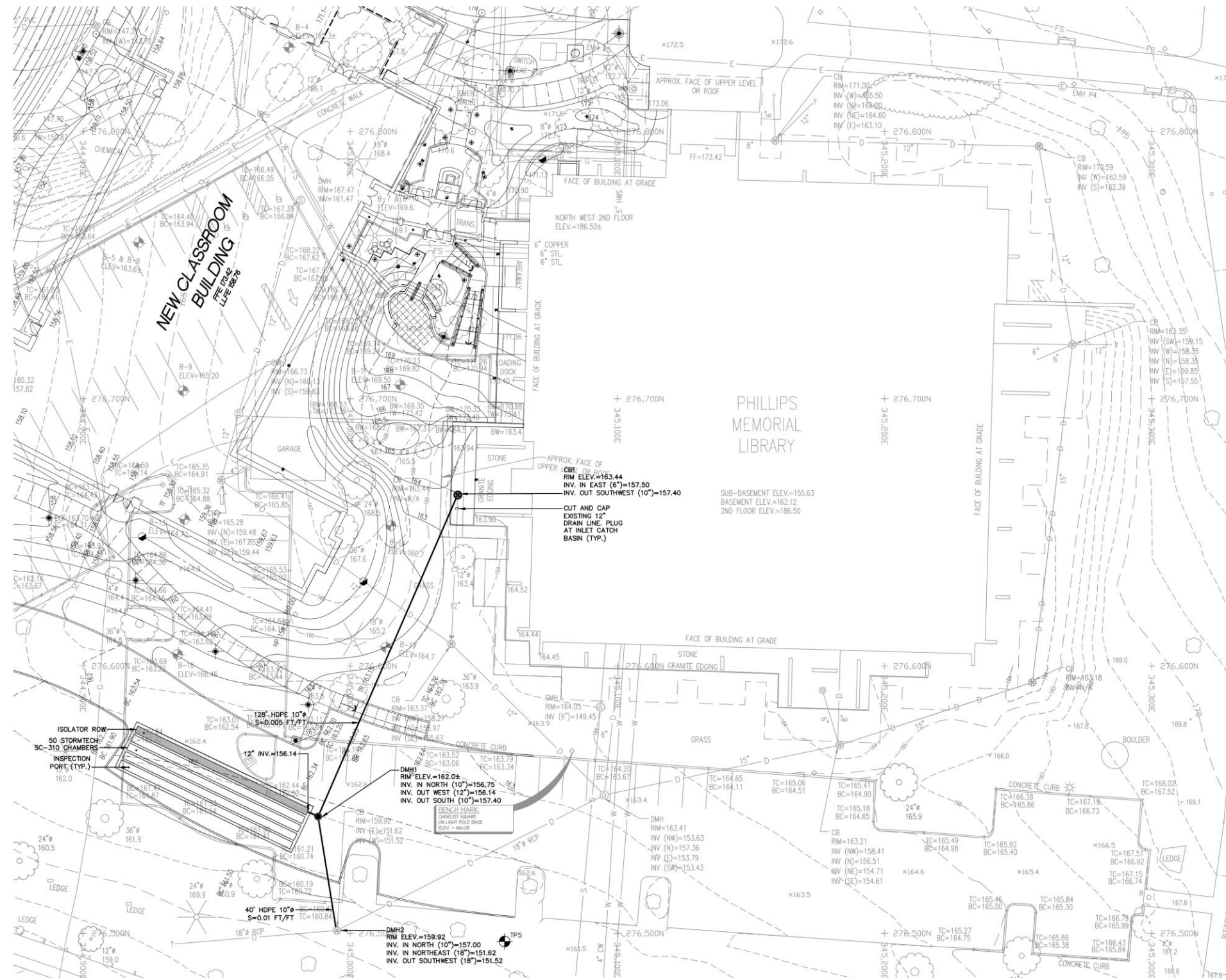


OBJECTIVES

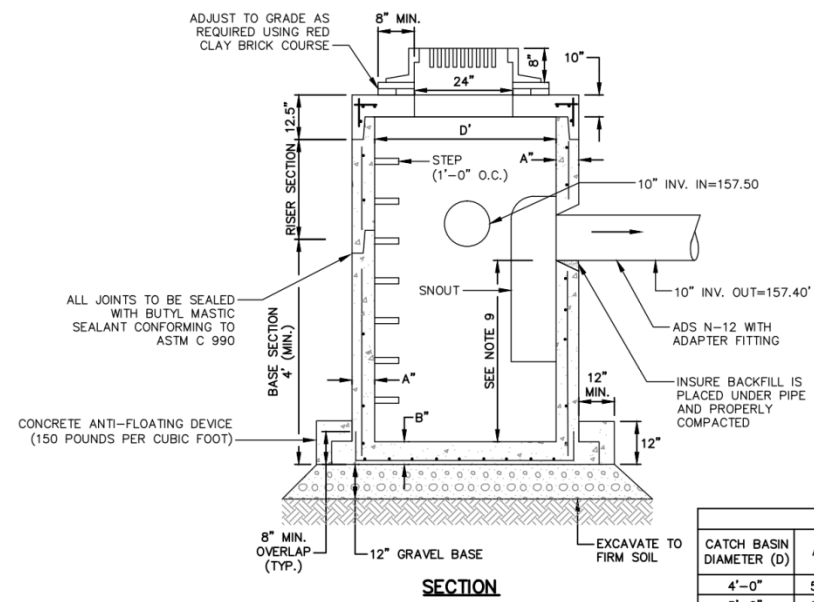
The main objectives of the infiltration system are to increase groundwater recharge, provide treatment of the water quality volume, and reduce peak flow rates for design storms including the 100-year, 24-hour storm event. These key design elements are intended to reduce the rate and volume of runoff from the Providence College campus.

KEY DESIGN FEATURES

Treatment Type	Infiltration
Drainage Area	11,900 ft ² (0.27 ac.)
Drainage Area Imperviousness	100%
Design Storm	25-year
Water Quality Volume (WQv)	992 ft ³ (7,418 gal.)
Infiltration Volume (WQ storm)	996 ft ³ (7,450 gal.)
Notes: Subsurface chambers are surrounded by stone, which contributes to storage and hydraulically connects entire system.	



Grading and Drainage Plan



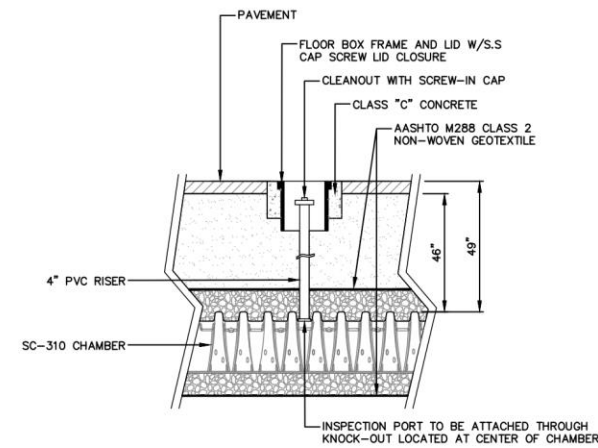
NOTES:

1. FRAME & GRATE SHALL CONFORM TO R.I. STD 6.3.0.
2. SEE TABLE 1 FOR STEEL REINFORCEMENT. REINFORCING STEEL SHALL CONFORM TO ASTM A-185.
3. CONCRETE SHALL BE COMPRESSIVE STRENGTH 4,000 PSI TYPE II CEMENT.
4. CATCH BASIN DESIGN SHALL CONFORM TO ASTM C-478 FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
5. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
6. ONE POUR MONOLITHIC BASE SECTION.
7. MANHOLE STEPS SHALL BE STEEL-REINFORCED COPOLYMER POLYPROPYLENE PLASTIC PER ASTM C-478, PARA. 11.
8. SHALL BE RATED FOR H-20 LOADING.
9. SUMP DEPTH SHALL BE 4 FEET OR AS NOTED IN OVERFLOW STRUCTURE DETAIL.

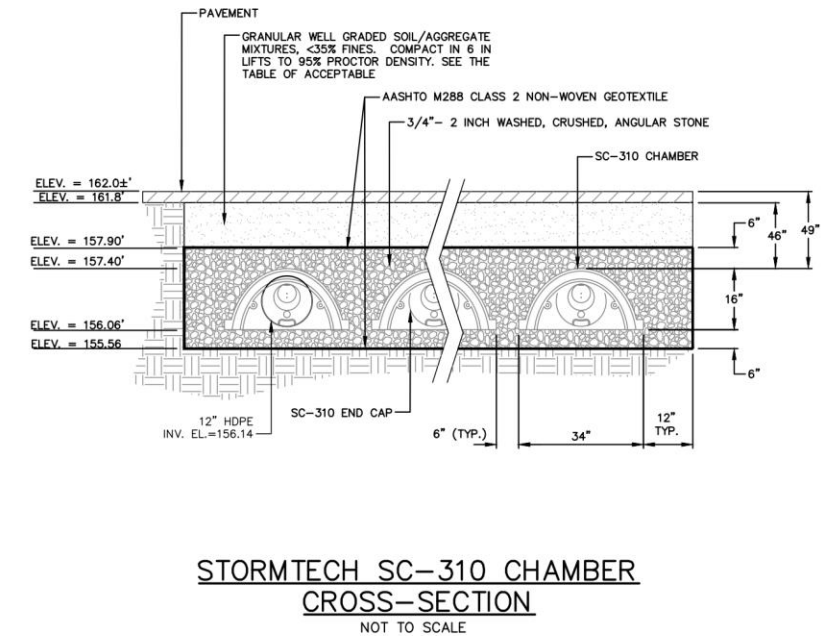
CATCH BASIN DIAMETER (D)	TABLE 1			CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED *
	A	B	E	
4'-0"	5"	6"	12.5"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	13"	0.15 SQ. IN./LIN. FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

DEEP SUMP CATCH BASIN
NOT TO SCALE



STORMTECH SC-310 INFILTRATION SYSTEM INSPECTION PORT DETAIL
NOT TO SCALE



STORMTECH SC-310 CHAMBER CROSS-SECTION
NOT TO SCALE

Catch Basin and Subsurface Infiltration System Details