



September 9, 2015

Hydrology Narrative

Existing Conditions

The subject site is a former McDonald's restaurant located at 256 Main Street (Assessor Map ID F3-116) within a parking lot associated with a Kmart store located at 252 Main Street (Assessor Map IDs F3-139 and F2-129-1). The former McDonald's lease area occupies the north-easternmost corner of the parcel. The existing McDonald's building is approximately 3,406 sf according to Assessor records.

The site currently drains mostly to an on-site catch basin which discharges via a headwall directly to wetlands on the southern boundary of the Kmart parking lot. A drain line from the street appears to also carry stormwater from several catch basins within the street through the aforementioned on-site catch basin before outletting to the wetlands.

Proposed Conditions

The project proposes to raze the former McDonald's building and construct a new $\pm 6,020$ sf freestanding restaurant with an outdoor patio and 189 seats. The work area is proposed to be limited to the building pad and the immediately surrounding parking area in order to improve traffic circulation by modifying one on-site island within the parking lot and replicating several parking spaces lost to these modifications such that the parking count in the proposed condition matches that in the existing condition.

Drainage patterns are proposed to be retained to the greatest extent practicable, with $\pm 1,260$ sf of additional impervious area created compared to the existing condition. This increase is largely due to the larger building and the associated patio, both of which will produce runoff considered clean under Massachusetts stormwater management regulations. To mitigate the increase in impervious area, a shallow one-foot deep swale has been designed around the boundary of the patio which is sized to contain and infiltrate the entirety of the clean stormwater sheet flow runoff of the patio from all storms up to and including the 100-year storm.

The proposed patio, $\pm 1,516$ sf impervious patio has been graded to enter the proposed swale. This impervious area just larger than the overall increase in project impervious area. The swale has been designed conservatively, with no exfiltration modeled in the HydroCAD analysis to show that the swale volume has been designed to capture the entire 100 year event.



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Soil mapping in the area is designated Urban, and therefore a Hydrologic Soil group has not been assigned to this area. Soil testing will be completed during demolition to show the proper two foot offset from the bottom of the swale and determine subsoil infiltration rates. Conservatively, we have also estimated the wetland flag elevation to determine water table offset. The wetland flags nearest the headwall at elevation ± 209 leaving approximately a 3.5 ft offset from water table to the bottom of the swale.