

Addendum to Pelham Works Letter

1. Altered Flow Regimes and Holding Ponds

The Region of Niagara states that it supports Green Infrastructure (aka Low Impact Development Strategies (LIDS)) in its Official Plan. All urban area development should be undertaken only if the natural water balance can be protected. This means that water should not simply be passed from impervious areas (roads, roof tops, parking areas/driveways) to storm water ponds and then into the Twelve. Water from urban areas must also be allowed to evapotranspire and infiltrate as it did prior to development. This is the only way that baseflow in the watershed can be preserved and flows can be kept from becoming too 'peaky' and thus highly erosive. This appears to be the main problem in the Twelve. Pelham does not yet appear to be in line with the Region's Official Plan in this regard. Source: <http://greeninfrastructureontario.org/green-infrastructure-ontarios-official-plans-update/>

Flooding of inadequate holding ponds in existing developments in Fonthill has led to vastly increased sedimentation and channel alteration in Twelve Mile Creek. The maintenance of these ponds into the future is in question. Who is responsible, and what measures are being taken to ensure upkeep and proper function of these ponds? Increased flows are causing erosion and sedimentation problems through all channels downstream of the Fonthill Urban Area, right into Short Hills Provincial Park. (See figure 1 attached)



2. Road design and maintenance

In many instances, road design actually directs runoff of rainwater and salt-laden snow and sand into the fragile headwaters, polluting and warming the stream where it is most vulnerable (i.e. Metler Road). Snow removal, salting and sanding, and road maintenance must be undertaken with consideration of the importance and fragility of the Twelve Mile Creek ecosystem.

Of specific concern is Sulphur Springs Road, where excessive runoff (caused by inadequate measures taken upstream due to urban development) has caused a catastrophic failure of the roadway. The resulting sedimentation has adversely affected the stream all the way down to Short Hills Park. The failure of the Gabion Baskets in this stretch of the stream illustrates the need for long term solutions that are ecologically sustainable and suitable for fish habitat value such as bioengineered live crib wall and mechanically stabilized earth structures (MSE) planted with suitable riparian plant species (see <https://www.layfieldgroup.com/Landing-Pages/Flex-MSE-Retaining-Wall.aspx>). (See figures 2 and 3)



3. Riparian planting and maintenance

The Town is in some areas, actively removing riparian vegetation in road rights-of-way abutting Twelve Mile Creek that are clearly not causing sight line problems or blockage of roads (see figure 4). Stream shading vegetation needs to be left in place wherever possible. The preservation and augmentation of riparian vegetation stabilizes stream banks and provides shading that cools the stream; its removal allows erosion and sedimentation, and contributes to the warming of the watershed. Using native species in the riparian zone is good practice both in terms of aesthetics and effectiveness.

