

❑ Extension of street grid to the lakeward side of Lakeshore/ Shoreline Drives (all areas where feasible or practical).

❑ Require larger commercial buildings to be situated at right angles to the shoreline (except where a different treatment is warranted).

❑ Limit building “footprint” size through floor area ratio (FAR) or other bulk control devices (commercial and industrial).

❑ Promote/ require a reduction in the visual mass of larger buildings through such design devices as recessions and protrusions in the building wall, gables, L-shapes, change of roof height/ pitch etc. (all areas).

❑ Prohibit “pole-barn” type construction. (unarticulated building walls, metal surfaces etc.)

❑ Encourage buildings that have maximum transparency (numerous windows and other openings). Limit use of tinted or reflective glass).

❑ Require parking lots to have generous perimeter and interior landscaping.

❑ Apply maximum height and/or bulk restrictions in sensitive view-sheds. (*Note: Variance should be allowed if it can be shown that development minimally or favorably impacts an existing view-shed. Variance may also be allowed if the developer mitigates the view impact by narrowing the building footprint (bulk), orienting the building at an angle to the shoreline, or by dedicating and developing public access easement.)

I. Environmental Issues

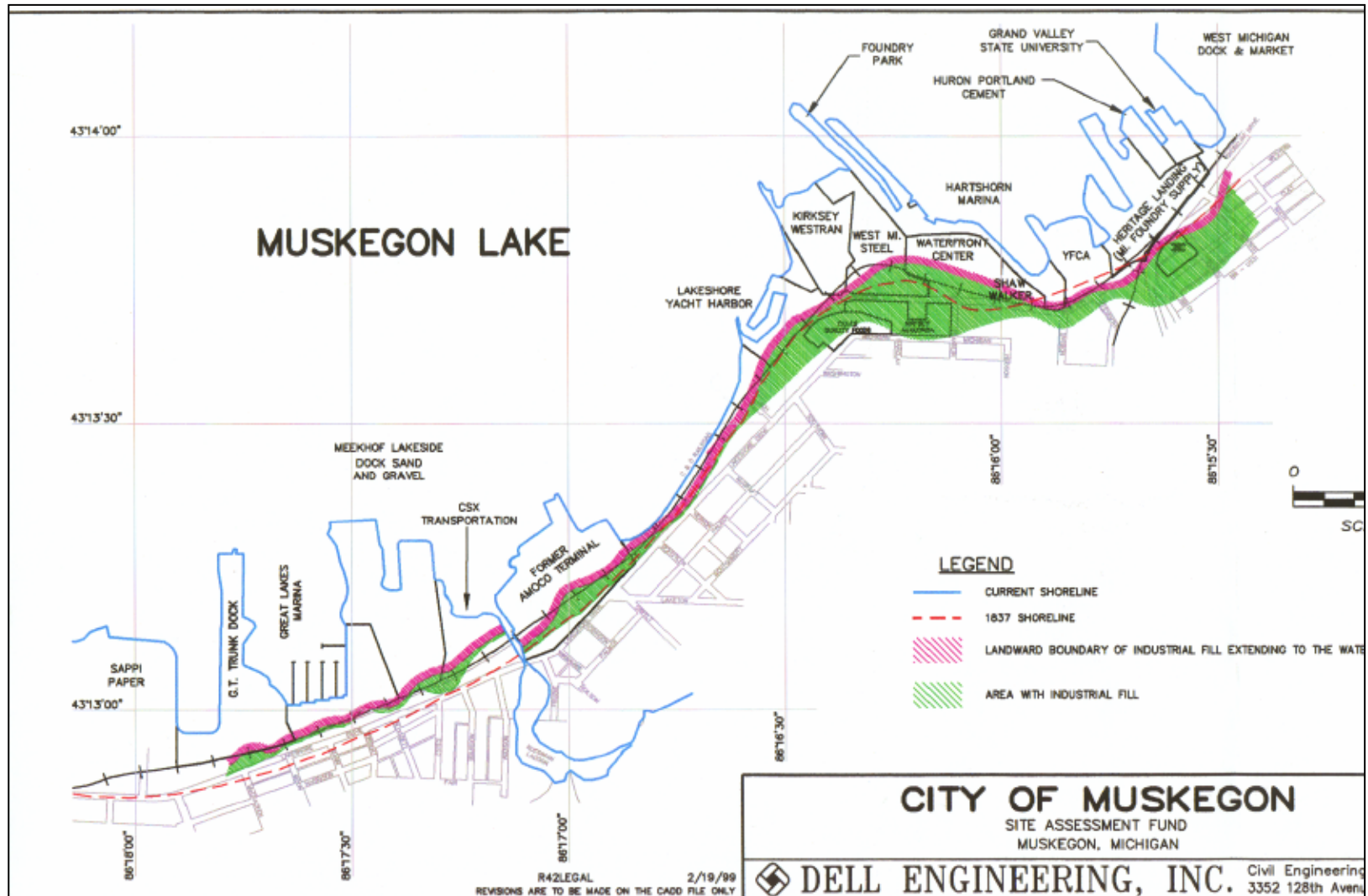
As discussed above, the historical development of the Muskegon Lake shoreline involved extensive cutting, filling and dredging to accommodate waterfront dependent industry and commerce. It is widely known that much of the fill material used to create the numerous land spits and jetties were waste materials originating from these industries themselves; most notably foundry sands and lumber mill debris.

Foundry sand was commonly used as fill throughout the City, and is generally considered hazardous if disturbed. The latter material is mostly harmless (benign), but is notoriously unstable and often requires additional filling to prevent settling.

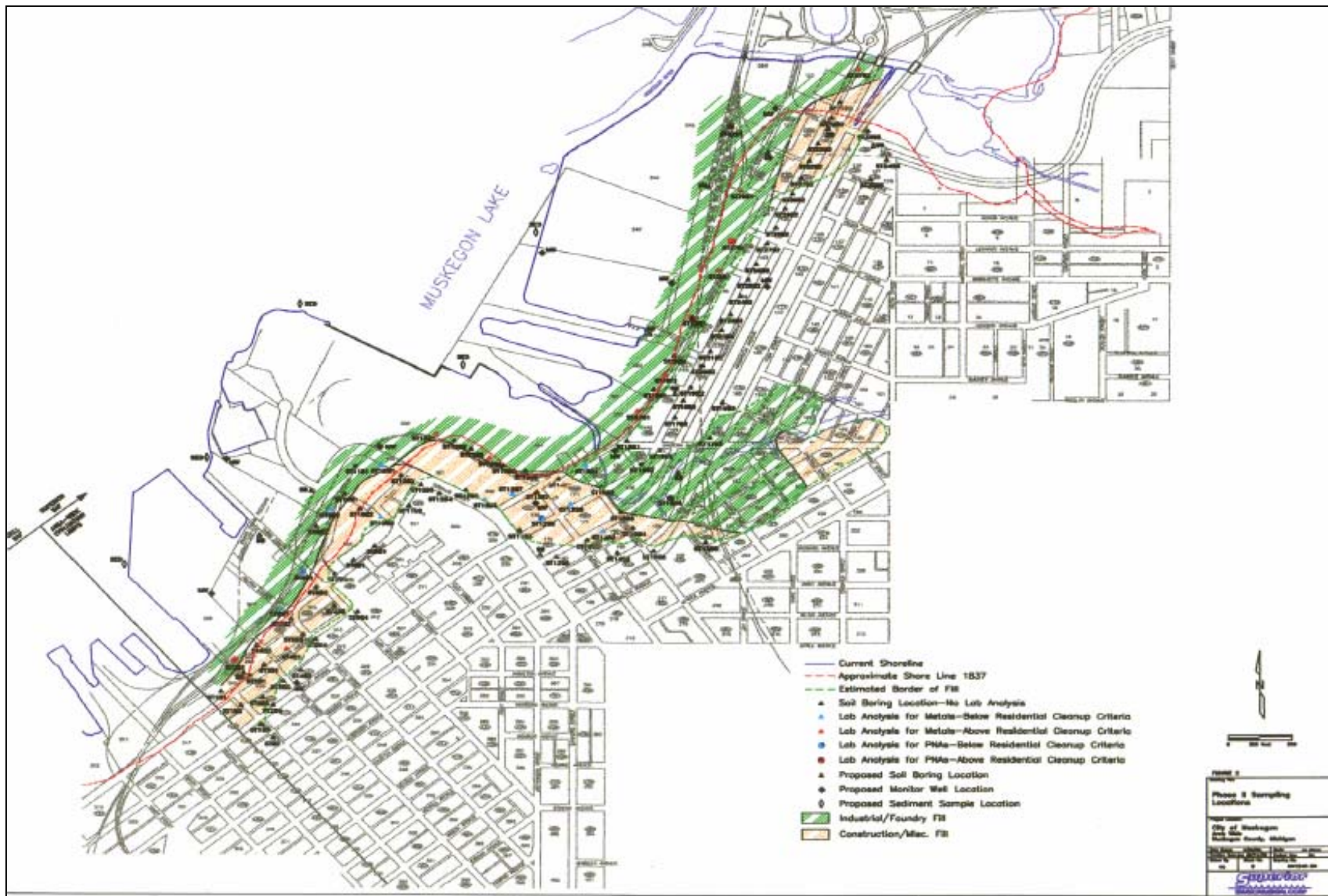
Other potential hazards include underground storage tanks especially in the vicinity of the petroleum tank farm where the remaining presence of petroleum based contaminants continues to pose a hazard to Muskegon Lake.

Finally hazardous runoff into Rudimann Creek and other tributaries continue to present hazards to local wildlife. While nearly the entire lakeshore has been classified as a “facility” by the Department of Environmental Quality (DEQ), there are no known CERCLA (Superfund) sites on the southern shore of Muskegon Lake.

As discussed in the *City of Muskegon Master Plan*, and in the *Muskegon Lake Remedial Action Plan (RAP)*,



The maps above show the findings of recent site assessment activities along Muskegon Lake. The dashed red line indicates the approximate location of the shoreline in 1837. The shaded areas represent fill materials; typically: foundry sands, lumber mill waste, and building demolition debris. The map on this page shows the western site assessment area from Heritage Landing west to the Grand Trunk Dock in Lakeside. *Source: Dell Engineering.



The eastern site assessment area from Mart Dock to CMS Energy. * Source: Superior Environmental Corp.

he lake continues to be a DEQ “Area of Concern”. This is due to continued high levels of contaminants found in Muskegon Lake and its many tributaries.

Most of these contaminants are residual affects from previous industrial practices (i.e. leeches from hazardous fill and releases from historically contaminated sediments) as well as current industrial and municipal discharges. Other toxins enter the watershed through “non-point source” runoff originating from urban storm water and agricultural activities (i.e. animal waste, pesticides, fertilizers etc.).

According to the 1994 RAP update, there has been no detectable deterioration or improvement in the water quality since the time the original RAP was drafted in 1987. According to the document cited, toxicity levels at 14 of the 15 sites sampled as part of the RAP update exceeded federal EPA standards. Problem areas include: Ryerson Creek, the 11th Street outfall, Ruddiman Creek and points near Sappi Paper.

(* Many of the recommendations below expound upon those previously contained in the City’s *Master Plan* and the *Muskegon Lake RAP*.)

Recommendations

- Work with Sappi Paper, and Consumers Energy (Cobb Plant) to mitigate the effects of olfactory emissions.



- Work to relocate existing heavy industry inland, or to a central port location.
- Aggressively promote the incentives offered by the City of Muskegon’s Brownfield Redevelopment Authority, and Clean Michigan Initiative to encourage environmental cleanup and redevelopment along the lakeshore.
- Increase public awareness of recent changes in liability laws designed

to protect “innocent” brownfield investors.

- Identify additional lakefront properties for future MDEQ and EPA Site Assessment/ Remediation grants.
- Organize a consortium consisting of: DNR, DEQ, Soil Conservation District, Muskegon Lake Public Advisory Council (PAC), Grand Valley State Water Resources Institute, the Lake Michigan Partnership (U of M), and private landowners to identify, eliminate/ mitigate non point sources of contamination
- Work with the above groups to develop a program, or series of guidelines to avoid/ mitigate future habitat loss associated with new waterfront development.
- Produce and implement institutional environmental response guidelines to address known fill materials.
- Complete Area-Wide Site Assessment, including an approved Baseline Environmental Analysis (BEA) for the entire lakeshore.