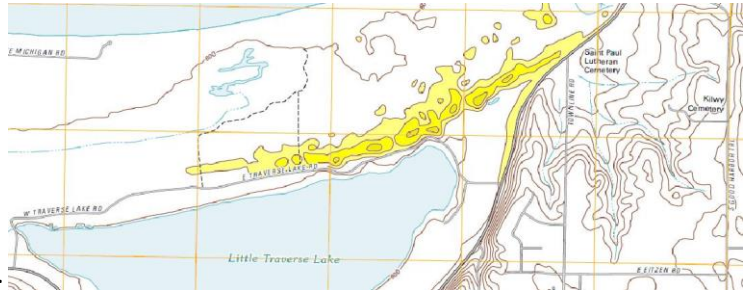


State Protected Critical Dune Area

An independent botanical survey along the 4.25 miles Segment 9 staked route, "[Pathway to Good Harbor: Heritage Trail Segment 9 Tree Survey](#)," was recently completed by Borealis Consulting for Little Traverse Lake Association. According to field survey, 85% of the trail route is located within State protected Critical Dune Area. The Michigan Legislature enacted Part 353 Sand Dunes Protection and Management as part of the Natural Resources and Environmental Protection Act 451 of 1994 to provide protection of Michigan's critical dune areas. As part of the state law, "The legislature finds that: (a) The critical dune areas of this state are a unique, irreplaceable, and fragile resource that provide significant recreational, economic, scientific, geological, scenic, botanical, educational, agricultural, and ecological benefits to the people of this state and to people from other states and countries who visit this resource" 324.35302 Legislative findings. Sec. 35302.

There is an extensive permitting process through the Michigan Department of Environment, Great Lakes and Energy (EGLE) with opportunity for public input and comment into the granting of permits to excavate any critical dunes. The National Park Service would be required to obtain approval from EGLE to construct the proposed Segment 9 Heritage Trail through the State protected Critical Dune Area.



Mansfield Land Use Consultants studied the construction of the proposed Segment 9 Heritage Trail through the Critical Dune Area in their report, "[Engineering Design Analysis of Recreational Opportunities in the Good Harbor Region](#)." Large and steep State protected Critical Dunes are located along TLR on the east end and extend for nearly 950' along the road edge, beginning across from 1382 East Traverse Lake Road and ending across from 1292 East Traverse Lake Road. There is another shorter segment of State protected Critical Dune Area across from 1244 - 1136 East Traverse Lake Road that will also require excavation and/or construction of retaining walls. The large Critical Dune Area has dunes that are as high as 50' in elevation above the roadway.

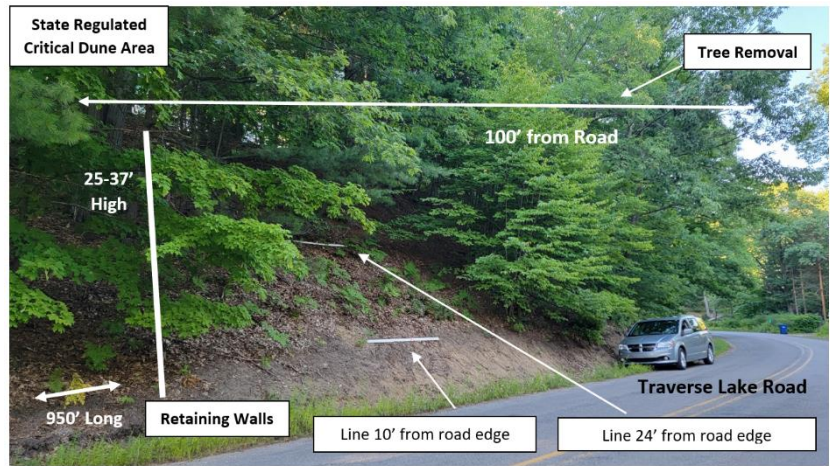
The current Critical Dune Area is covered by numerous established trees, many significant in size and maturity, that provide stability to the dune slope but also provide scenic beauty along Traverse Lake Road and provide a shade canopy that extends over and alongside the road. Traverse Lake Road is a local road that services the neighborhood along the north shore of Little Traverse Lake and is considered by many to be a unique scenic beauty road with a wilderness feel bordering the Wilderness Area within Sleeping Bear National Lakeshore that runs along the north side of Traverse Lake Road. The road is currently used by many area cyclists and local residents for walking and biking due to its scenic beauty.



In order for the trail to transverse this State protected Critical Dune Area, trees would need to be cleared towards the top of the slope, a significant portion of dune material would be removed and transported off site to a land fill area, retaining walls would be built to help back the remaining dune hill, and then the 14' wide trail would be built.

The Mansfield report states: **Based on our field measurements, LCRC design requirements, OSHA safety requirements, and generally accepted design practices, our staff concludes that construction of the trail through the State regulated Critical Dune Area along east Traverse Lake Road requires building retaining walls for 950' (nearly 1/5 mile) that can be 25' or more in height. A multi-tiered design for the retaining walls would extend the height up to 37' in height. The retaining wall height would be greater than a 2.5 story house.**

Trail construction through this steep State protected Critical Dune Area along Traverse Lake Road would take place within the Leelanau County Road Commission LCRC) road right-of-way (ROW) and thus a permit is required from LCRC to excavate the Critical Dunes and to build the retaining walls. Construction activities in this Critical Dune Area would extend beyond the road ROW. The boundary area of the federally protected Wilderness Area is located within 100' from the centerline and no construction activities can take place beyond that. The massive urban-like retaining wall will change the scenic nature of this wilderness road. Tree canopy over the road will be removed. The southern exposure of the retaining wall and the asphalt path will retain heat in the summer while street noise will bounce off the retaining walls.



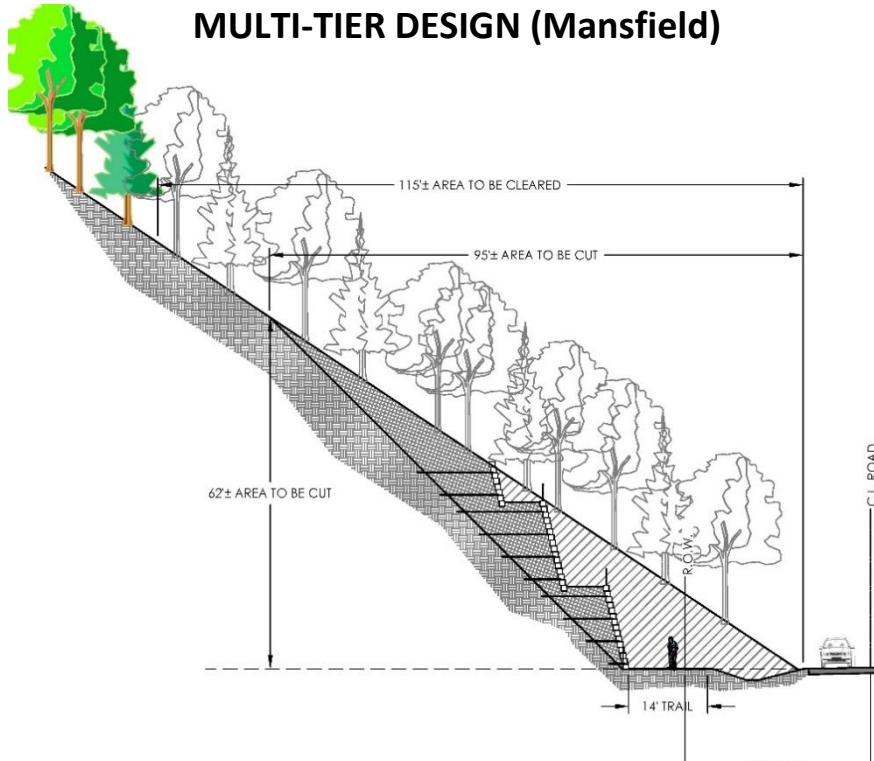
The proposed Segment 9 Heritage Trail also crosses State protected Critical Dune Area through the Dune Forest along Traverse Lake Road and through the Wooded Dune and Swale Complex in the Bufka Farm Area. The Borealis study identified 7,300 trees for removal along the staked route. NPS should be about leaving the State protected Critical Dune Area in this scenic wilderness area untouched; not removing trees, excavating the landscape, and hauling away a significant portion of Critical Dunes to a land fill area. This impact is avoidable as Mansfield has demonstrated that several feasible alternatives to the proposed Segment 9 Heritage Trail existed that would make routing through State protected Critical Dune Area unnecessary.

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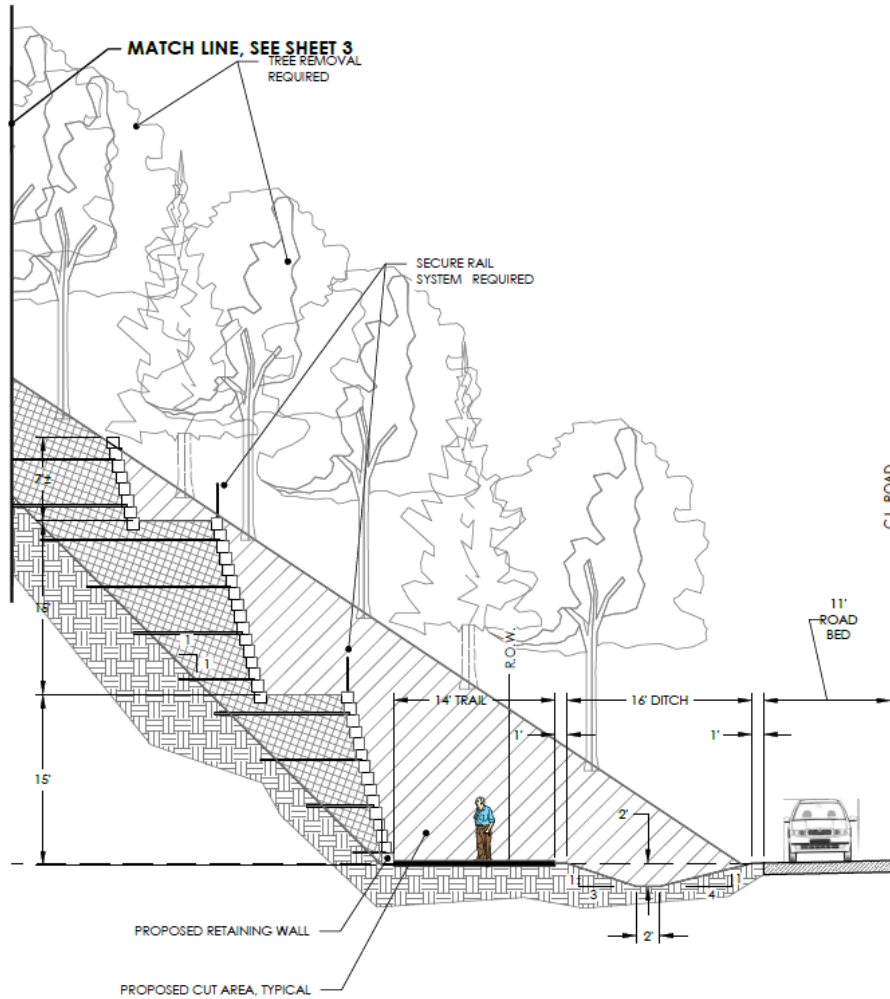
Examples of retaining wall construction



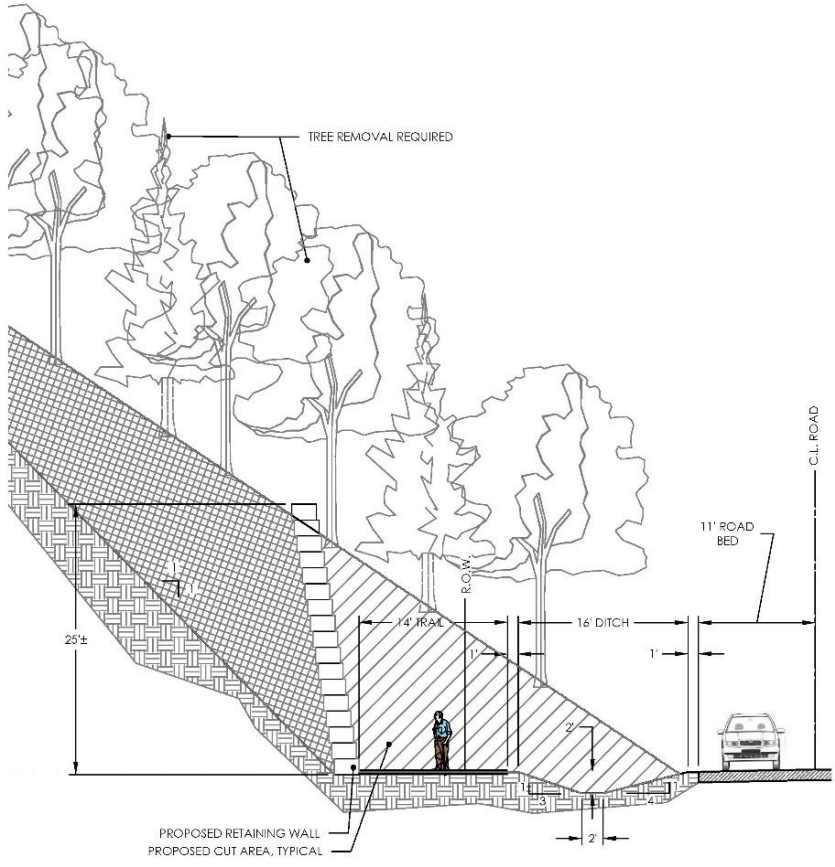
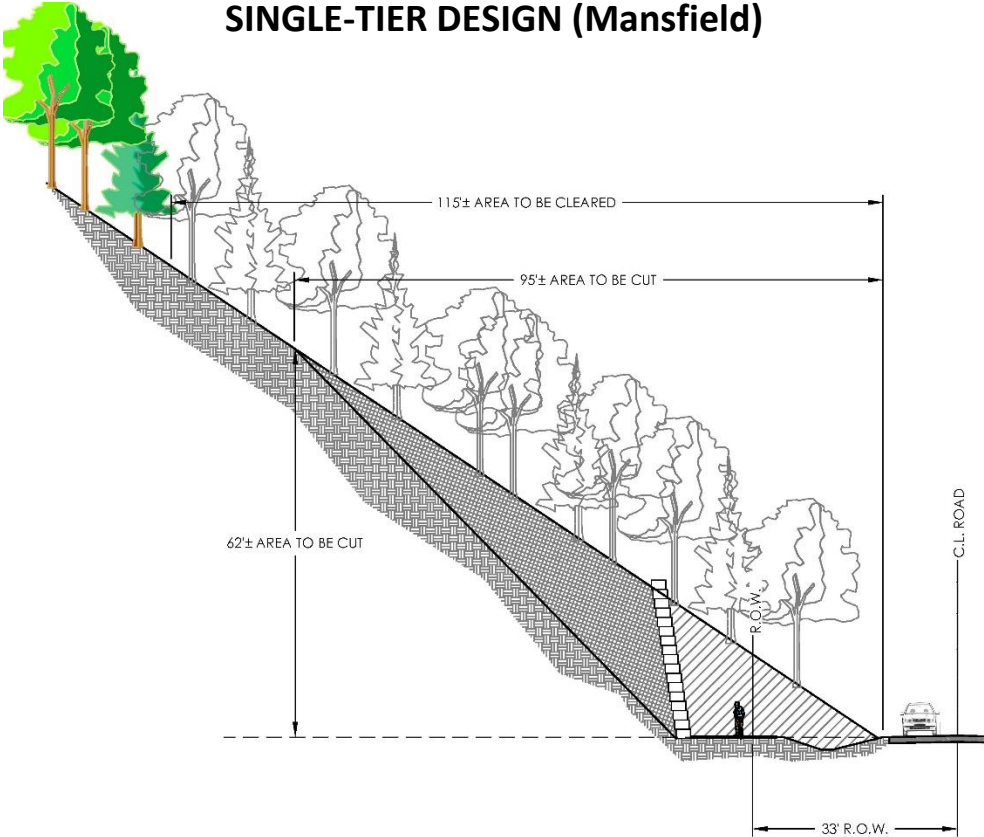
MULTI-TIER DESIGN (Mansfield)



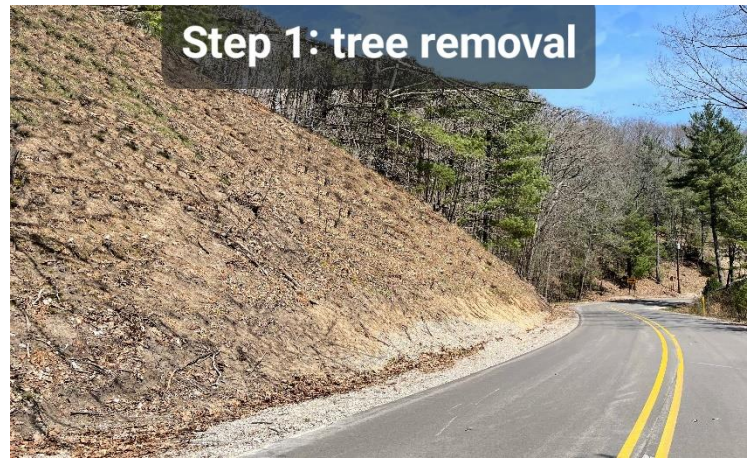
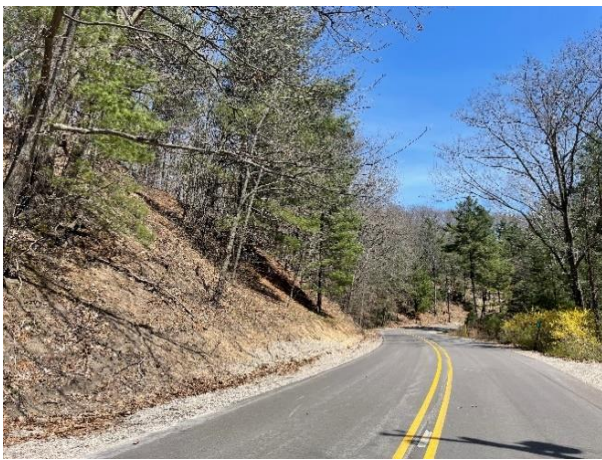
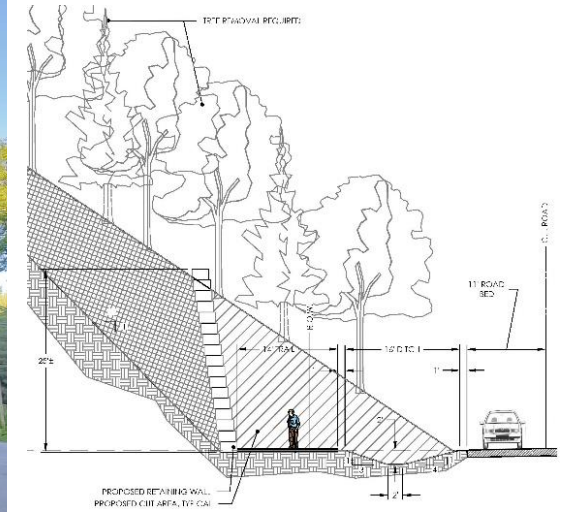
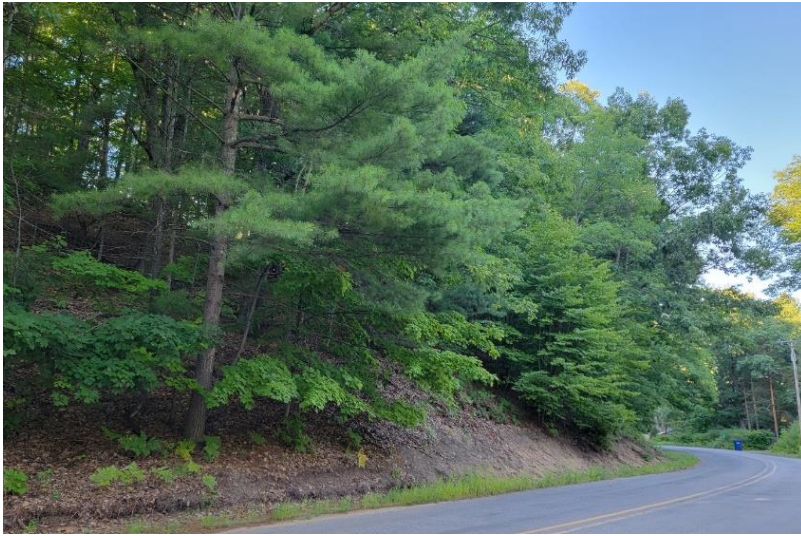
Cross Section - Detail



SINGLE-TIER DESIGN (Mansfield)



THIS EXHIBIT ILLUSTRATES MAINTAINING THE EXISTING PAVED ROAD BED WITH DEVELOPING THE STANDARD DRAINAGE DITCH, INCORPORATING THE TRAIL SECTION AND A SINGLE 25 FOOT HIGH RETAINING WALL.



Rendering of retaining wall design along Traverse Lake Road

