

there are federal requirements for emission controls depending on the age and size of equipment used.

5.5.3 Water Use & Impacts to Water Resources

Significant water usage is not expected as part of the remediation of this site. Additionally, impacts to water resources are not expected during or after completion of the remedial action. Erosion control best management practices (BMP's) shall be installed prior to any land disturbing activities and shall remain in place until the site is deemed restored by the WDNR. During site remediation, the excavating contractor shall assume full responsibility for inspection and maintenance of the erosion control devices.

5.5.4 Future Land Use & Enhancements of Ecosystem

REI's goal is to minimize disruption of the local ecosystem to areas with identified impacts. Collection of confirmation samples prior to the completion of the soil excavation will allow for further delineation of the area to be excavated.

5.5.5 Reducing, Reusing, and Recycling Materials and Wastes

Impacted soils excavated from the subject property will be transported to the Marathon County Landfill for disposal. No other significant waste streams are expected to be generated during the remedial actions. If the culvert is reinstalled following the excavation, recycled concrete from non-contaminated sites could be utilized to armor the outfall location and stabilize the backfilled slope if needed.

5.5.6 Optimizing Sustainable Management Practices During Long-term Care and Stewardship

After completion of the excavation long-term care and/or stewardship should not be required except for any maintenance or intervention required to reestablish native vegetation on the slope.

6.0 EXCAVATION SCOPE

6.1 Landfill Approval

Prior to hauling impacted soils for disposal, approval will be required from the landfill. For the Marathon County Landfill this includes providing all requested analytical results required

by the landfill. For material impacted with Dioxins, the Marathon County Landfill will need analytical results for all parameters listed under Protocol 1, which is included as Appendix A. Due to the volume of soil to be removed from the site, three (3) to four (4) composite samples will need to be collected from the proposed excavation area for the required parameters. The additional sampling for disposal approval will need to be completed prior to any material being transported to the Marathon County Landfill. Please note, if the material does not pass the Protocol 1 requirements, the landfill will not be able to accept the material as a solid waste. This would require the material to be shipped to a hazardous waste landfill, which could accept the material, or further examine other remedial options.

6.2 Site Preparation

The majority of the proposed excavation area consists of thick vegetation including bushes and trees. Additionally, a portion of the proposed excavation area has abandoned railroad tracks present. Prior to excavation, the area will need significant vegetation removed along with the railroad tracks contained within the excavation area. However, trees and shrubs should be cut off at grade as the stumps and root mass should be excavated for disposal with the surrounding impacted soils due to entrainment of soils within the root mass.

6.3 Volume of Soil to be Removed

Based on laboratory analytical data the proposed excavation consists of an irregularly shaped area depicted in Figure 10. In total an area of approximately 12,950 square feet is proposed to be excavated to a depth of one (1) foot below land surface. Two (2) areas within the initial excavation area will also need to be extended vertically an additional two (2) to three (3) feet to a total depth of three (3) to four (4) feet bls. These areas are depicted on Figure 10 and measures approximately 2,960 square feet. Excavation to four (4) feet bls would remove the entire direct contact zone in these locations.

6.4 Confirmation Soil Samples

REI is estimating between twenty (20) to thirty (30) confirmation soil samples will be collected to verify the effectiveness of the excavation. REI is proposing that approximately ten (10) confirmation soil samples be collected prior to the start of excavation activities to ensure that the lateral extent of soil contamination is completely contained within the proposed soil excavation in all directions except the southwest due to property boundaries. These samples

can be collected during the same sampling event as the waste determination samples required prior to disposing of impacted materials at the Marathon County Landfill.

6.5 Site Restoration

Due to the slope of the land surface in a large portion of the excavation area, erosion control measures will need to be implemented by the excavation contractor to ensure any backfilled material does not migrate down slope due to rainfall events until vegetation is able to be reestablished on the slope. This may include fast growing grasses, bushes, or trees. Additionally, if the culvert located beneath the railroad tracks is to be replaced, riprap or armoring would be advisable to prevent erosion due to the channeling effects of the culvert.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the effectiveness, technical feasibility, cost, and estimated time to site remediation and closure, soil excavation appears to be the preferred remedial action at this site.

8.0 REFERENCES

- ATSDR. (1999). *Chlorinated Dibenzo-p-Dioxins (CDDs)*. U.S. Department of Health and Human Services, Division of Toxicology and Environmental Medicine. Atlanta: Agency for Toxic Substances and Disease Registry.
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