

Appendix A

The following are allowable methods to reuse or recycle uncontaminated concrete materials to meet an engineering need on MnDOT projects:

Applicable MnDOT Specifications

Specifications 2105 and 2106 – Excavation and Embankment: allow for uniform blends of 100% concrete no larger than 24” to be placed within the roadway embankment, if used for select grading material.

1. 2105/6.1A.9 Uniform Soils

Uniform soils have the same soil class per the Triaxial Chart in the Grading and Base Manual and have similar color, moisture content and performance characteristics.

2. 2105/6.3E Placing Embankment Materials

Place embankments in uniform lifts, parallel to the Plan profile grade, over the full width of the roadway. Construct each lift of material using uniform soil.

Use embankment material in the road core with particle sizes no larger than specified in Table 2105-4 from MnDOT Specifications:

Table 2105-4 Maximum Particle Size in Road Core		
Depth from Grading Grade	Maximum Particle Size	
	Inches	Mm
< 12 in [300 mm]	3	75
1 ft. – 3 ft. [300 mm – 900 mm]	6	150
3 ft. – 6 ft. [900 mm – 1,800 mm]	12	300
> 6 ft. [1,800 mm]	24	600
≤ 2 ft. [600 mm] from a structure	3	75
Areas where piling is to be placed	6	150

- 3. 3138 Aggregate for Surface and Base Courses.** Recycled concrete may be used for MnDOT Specification 3138 Aggregate for Surface and Base Courses at 100%. Recycled concrete may be used on base and shouldering, but not on normal driving surfaces, i.e. gravel roads.
- 4. 3149 Granular Material.** Recycled concrete may be used for many products under MnDOT Specification 3149 Granular Material at up to 50%.

Additional Methods of Uncontaminated Concrete Reuse/Recycling That Meet an Engineering Need

1. Concrete pavement can be rubblized, left in-place to act as an underlying base material for a new pavement. This may have been part of the roadway design plan or it may have been a field change during construction.
2. Concrete structures can be left in-place in back slopes steeper than 3 horizontal to 1 vertical where removing the concrete foundation and backfilling with soil would likely result in a slope failure in the future.
3. Broken concrete pieces can be used to backfill long term erosion ruts. The concrete can be broken into pieces similar in size to rocks/rip rap that would be used for that application. Placement of the concrete material must meet aesthetic requirements (covered with soil and vegetated or covered with natural rip rap rock) or meet ecological context requirements (match natural environmental conditions).
4. Concrete pavement can be left in-place under unbonded concrete overlays and bituminous overlays.