Problem of the Week

Problem E

Select Digits

An integer, N, is formed by writing the integers from 1 to 50 in order. That is,
N =12345678910111213141516171819202122232425262728293031323334353637383940414243444546474849 50.

We will abbreviate N by writing only the first twelve positive integers and the last three integers, 48, 49, and 50. We place three dots between 12 and 48 to represent all of the integers between 12 and 48. So,

$$N = 123456789101112 \ldots 484950$$

Some of the digits are selected from N and discarded. The remaining digits, in their original order, form a new integer such that the sum of the digits of this new number is 200.

If M is the largest number that can be formed this way, what are the first ten digits of M?