Problem of the Week

Problem E

Discarding Digits

Stef forms the integer \( N \) by writing the integers from 1 to 50 in order.
That is,
\[
N = 1234567891011121314151617181920212223242526272829303132333435363738394041424344454647484950.
\]
Stef then selects some of the digits in \( N \) and discards them, so that the remaining digits, in their original order, form a new integer. The sum of the digits in this new integer is 200.
If \( M \) is the largest integer that Stef could have formed, what are the first ten digits of \( M \)?