1. \( m = 0.055 \text{ kg} \quad r = 0.01 \)
   \[ A = \pi r^2 = 0.00031416 \text{ m}^2 \]
   \[ h = 320 \text{ m} \]

<table>
<thead>
<tr>
<th></th>
<th>( mgh )</th>
<th>( \frac{1}{2}mV^2 )</th>
<th>( \text{TOTAL} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>release</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ground</td>
<td>0</td>
<td>( \frac{1}{2}(0.055)^2 )</td>
<td>0.0275 ( V^2 )</td>
</tr>
</tbody>
</table>

Conservation of energy:
\[ 0.0275V^2 = 172.98 \]
\[ V = 79.2 \text{ m/s} \]

2. \[ \text{F}_{\text{drag}} = \text{w} \quad \text{no acceleration} \]
   \text{terminal velocity}

\[ \frac{1}{2}C_p A v^2 = mg \]
\[ \frac{1}{2}(0.6)(1.2)(0.00031416) v^2 = (0.055)(9.8) \]
\[ v = \sqrt{\frac{(0.055)(9.8)}{(0.6)(1.2)(0.00031416)}} = 69.0 \text{ m/s} \]

Energy lost:
\[ \frac{1}{2}mV_A^2 - \frac{1}{2}mV_B^2 \]
\[ \frac{1}{2}(0.055)(79.2)^2 - \frac{1}{2}(0.055)(69)^2 = 41.6 \text{ Joules} \]