CLAIMS

1. A reinforcement element~~(12)~~ for a diaphragm wall including a reinforcement cage ~~(18)~~ which has a height defining a longitudinal direction ~~(A)~~, a width ~~(l)~~ and a thickness ~~(e)~~, the reinforcement cage ~~(18)~~ having a first end part ~~(18a)~~ and a second end part ~~(18b)~~ considered along its width as opposite to the first end part, the first and second end parts ~~(18a, 18b)~~ extending along the longitudinal direction ~~(A)~~ of the reinforcement cage, the reinforcement element further including at least one seal–carrier ~~(30)~~ provided with a mounting part ~~(32)~~ for receiving at least one seal ~~(14)~~ which is elongated, the seal–carrier ~~(30)~~ being fixed to the first end part ~~(18a)~~ of the reinforcement cage ~~(18)~~ and extending along the longitudinal direction ~~(A)~~ of said reinforcement cage, the seal–carrier having two flanges ~~(30a, 30b)~~ extending along the longitudinal direction ~~(A)~~ and a bottom ~~(34)~~ so as to define a housing ~~(36)~~ for receiving the seal ~~(14)~~, at least a first part of which ~~(14a)~~ is surrounded by a sacrificial material ~~(16)~~.

2. The reinforcement element according to claim 1, wherein the seal–carrier ~~(30)~~ is a longitudinal profile ~~(31)~~.

3. The reinforcement element according to claim 2, wherein the longitudinal profile ~~(31)~~ has a "U" section.

4. The reinforcement element according to claim 2 ~~or 3~~, wherein the longitudinal profile consists of two "L"–shaped longitudinal elements ~~(30a, 30b)~~.

5. The reinforcement element according to ~~any one of the preceding claims~~claim 1, wherein the mounting part ~~(32)~~ includes a longitudinal slot ~~(40)~~formed in the bottom~~(34)~~ to receive the seal ~~(14)~~.

6. The reinforcement element according to ~~any one of the preceding~~ claim~~s~~ 1, further including reinforcing members ~~(42, 44)~~connecting at least one of the flanges to the reinforcement cage ~~(18)~~.

7. The reinforcement element according to ~~any one of the preceding claims~~claim 1, wherein the reinforcement cage ~~(18)~~, considered in a plane perpendicular to the longitudinal direction ~~(A)~~, includes two adjacent reinforcement portions ~~(19, 21)~~ each provided with at least two

parallel reinforcements ~~(23, 25)~~, the seal–carrier being fixed to each of the two adjacent reinforcement portions.

8. A reinforcement device ~~(10)~~including a reinforcement element ~~(12)~~ according to ~~any one of the preceding claims~~claim 1, as well as at least one seal ~~(14)~~ and a sacrificial material ~~(16)~~ in the housing ~~(36)~~, the seal being mounted on the seal–carrier while being at least partly bordered by the sacrificial material.

9. The reinforcement device according to claim 8, wherein the seal further has a second part ~~(14b)~~, the first and second parts ~~(14a, 14b)~~ being disposed on either side of the bottom ~~(34)~~ when the seal ~~(14)~~ is mounted on the seal–carrier ~~(30)~~, so that the seal extends transversely relative to the bottom, the first part being located in the housing and flanked by the sacrificial material.

10. The reinforcement device according to claim 8 ~~or 9~~, wherein the sacrificial material ~~(16)~~ comprises polystyrene.

11. A scraping tool ~~(100)~~ for discharging the sacrificial material ~~(16)~~ disposed in a housing ~~(36)~~ of a reinforcement device ~~(10)~~ according to ~~any one of~~ claims ~~8 to 10~~, the scraping tool including two parallel teeth ~~(104, 106)~~ spaced apart from each other so as to define a passage ~~(109)~~ for the seal ~~(14)~~, the width ~~(g)~~ of the scraping tool being substantially equal to the distance between the flanges ~~(30a, 30b)~~ of the seal–carrier ~~(30)~~.

12. A method for making ~~(30a, 30b)~~ a diaphragm wall in the ground, comprising:

drilling ~~(S)~~ ~~wherein~~ a first vertical trench ~~(T1) is drilled~~ in the ground ~~(S);~~,

placing in the first trench a reinforcement element for a diaphragm wall including a reinforcement cage which has a height defining a longitudinal direction, a width and a thickness, the reinforcement cage having a first end part and a second end part considered along its width as opposite to the first end part, the first and second end parts extending along the longitudinal direction of the reinforcement cage, the reinforcement element further including at least one seal–carrier provided with a mounting part for receiving at least one seal which is elongated, the seal–carrier being fixed to the first end part of the reinforcement cage and extending along the longitudinal direction

of said reinforcement cage, the seal–carrier having two flanges extending along the longitudinal direction and a bottom so as to define a housing for receiving the seal, at least a first part of which is surrounded by a sacrificial material;

~~a first reinforcement device (10) according to any one of claims 8 to 10 is placed in the first trench (T1),~~ pouring concrete ~~is poured~~ into the first trench then, after hardening of the concrete, drilling a second vertical trench ~~(T2) is drilled~~ in the ground ~~(S)~~, juxtaposed with the first vertical trench ~~(T1)~~ on the side of the seal–carrier ~~(30);~~,

discharging the sacrificial material ~~is discharged~~ out of the housing using a scraping tool including two parallel teeth spaced apart from each other so as to define a passage for the seal, the width of the scraping tool being substantially equal to the distance between the flanges of the seal–carrier, ~~the scraping tool of claim 11,~~ so that the first part ~~(14a)~~ of the seal ~~(14)~~ extends into the second trench; and then

~~,~~ putting ~~then~~ concrete ~~is put~~ in the second trench ~~(T2)~~.