SPECIFICATION FOR EARTHWORKS CONSTRUCTION

1. SCOPE

1.1 This specification covers the construction of the earthworks including: the clearing and removal of all obstacles within the limits of the earthworks; the excavation of all cuts, including excavation below the final subgrade surface; the excavation of borrow areas, benches and surface drainage facilities; the carting of the excavated material to fill or waste; and construction of the fills and subgrade; shaping, trimming, grassing and maintaining of the works.

2. DEFINITION OF TERMS

2.1 "Bulk Fill" is all that material placed in the fill, from the ground surface after clearing and removing of top soil.

2.2 "Borrow" is excavation from outside the construction batter limits shown on the drawings.

2.3 "Cut" is excavation within the construction batter limits shown on the drawings and above the final subgrade surface.

2.4 "Granular Fill Material" is material which has been placed in the fill and which contains less than 35% passing a 75µm sieve and has a sand equivalent greater than 20.

2.5 "Overbreak" is the excavated material removed by the Contractor's operations from outside the construction cut batter limits shown on the drawings, but not authorised as borrow.

2.6 "Rock" is any igneous, sedimentary, or metamorphic stone which is solidly bonded or cemented together and which occurs in masses, ledges, seams or layers.

2.7 "Side Drain" is an open drainage excavation often at the toe of a fill batter.

2.8 "Slip" is material dislodged by the forces of nature from outside the cut batter limits or from the fill slope shown on the drawings.

2.9 “Subgrade” is defined as that layer of material in the top 1.0 m of the construction measured down from the underside of the subbase course. It may be fill or insitu material.

2.10 "Surface Water Channel" is a water channel formed at the subgrade surface at the edge of the road.

2.11 "Undercut" is excavation from just below the subgrade surface. This may be an extension of the depth of cut in a cut area.

2.12 “Topsoil” is that layer of material immediately below the ground surface, which includes vegetation, turf and humus or other organic matter.

3. CLEARING

3.1 The area contained by the limits of the earthworks and any additional area shown on the drawings or specified shall be cleared of all obstructions except those specifically mentioned in the contract documents as remaining. Clearing shall include the complete removal of stumps, trees, logs, scrub and coarse vegetation and disposal by burning, or dumping and burying in accordance with any particular requirements of the contract documents. Areas used to dump cleared material shall be treated as specified in Clause 9.4.

3.2 All objects and vegetation designated to remain shall be preserved from injury or defacement during clearing and subsequent operations.

4. REMOVAL OF TOPSOIL

4.1 Topsoil shall be removed within the limits of the earthworks. Care shall be taken during the removal to avoid contamination of the topsoil.

4.2 Topsoil shall be stockpiled in areas approved by the Engineer for this purpose. The Contractor shall control all stockpiling operations to ensure the maximum utilisation of each area.

5. SURFACE DRAINAGE

5.1 Surface drainage shall be constructed so as to maintain the natural water drainage facilities and limit the introduction of water into the earthworks.

5.2 Adequate provision shall be made for the control of surface water within the construction site as required by any resource consents.

5.3 Additional temporary surface drainage works shall be carried out during construction as required to safeguard the integrity of the works.

5.4 The earthworks shall be carried out in such a manner that their surfaces have at all times a sufficient fall to shed water and prevent ponding.

6. TEMPORARY FENCING

6.1 Temporary fencing shall be erected and maintained until permanent fencing is constructed or until the end of the contract at locations indicated in the documents and wherever existing fencing is dismantled unless the Engineer approves otherwise in writing.

6.2 The temporary fencing shall have a stock holding capacity similar to that of adjacent existing fences unless detailed otherwise in the contract documents.

7. SALVAGING AGGREGATE FROM EXISTING PAVEMENT

7.1 When required by the contract documents, aggregate from the existing pavement, which is no longer required, shall be salvaged for reuse.

7.2 The limits of the area to be salvaged will be defined in the contract documents.

7.3 The area shall be scarified and windrowed free of soil, clay, or other contaminating material. The aggregate shall then be uplifted and carted to stockpile and/or spread as specified.

8. CLASSIFICATION OF MATERIAL

8.1 General

8.1.1 Material to be excavated shall be classified as type A, R1, R2, W, U as defined below.

8.1.2 Whenever the Contractor wishes material to be classified as other than type A, the Contractor shall notify the Engineer in writing as soon as possible seeking a decision. This decision shall be progressed promptly.

8.2 Type A Material

Type A material is all material which does not fall within categories R1, R2, W, or U.

8.3 Type R1 Material

This is rock which cannot be productively ripped unless equipment is used which is more powerful than a crawler tractor having net engine (or flywheel) power in the range 100-115 kW and fitted with a twin shanked hydraulic ripper. If a tractor meeting the above specification is not readily available then, a 30 tonne hydraulic excavator using a bucket may be used to determine R1 materials. Alternatively, a smaller excavator with a single tyne ripper may be used providing its performance has been compared with a crawler tractor in similar materials.

8.4 Type R2 Material

This is rock which cannot be productively ripped unless equipment is used which is more powerful than a crawler tractor having net engine (or flywheel) power in the range 270-310 kW and fitted with a single shanked hydraulic ripper. If a tractor meeting the above specification is not readily available then, a 30 tonne hydraulic excavator with a single ripper on the boom may be used to determine R2 materials, providing the performance of the hydraulic excavator has been compared with a crawler tractor in similar materials.

8.5 Ripping Trials

8.5.1 Where agreement cannot otherwise be reached on classification of type R1 and R2 materials. Productivity trials shall be carried out using one of the categories of plant required to determine the classification as described above, under the supervision of the Engineer. The Engineer shall determine the material type from the trial.

8.5.2 Where the appropriate plant is not available on site, the Contractor will be reimbursed for the cost of transporting it.

8.6 Type W Material

This is material which is too wet for immediate use but is suitable for use in construction fill after drying. This material may be cut to waste if the Engineer considers the drying operation to be uneconomic.

8.7 Type U Material

This is material which should not be used in construction fill due to one or more of its following inherent properties making it unsuitable:

- grain size;
- moisture sensitivity; or
- organic content.

9. EXCAVATION

9.1 Management

9.1.1 Where the material being excavated includes "cut to fill" material and "cut to waste" material, the excavation shall be carried out in such a manner as to avoid mixing of the materials.

9.1.2 Material that is excavated to waste below the subgrade surface shall be replaced with suitable material, either:

(a) from surplus cut elsewhere in the works, in which case the material will be paid for as cut to fill as if it had been from the same cutting as the wasted material, or as approved by the Engineer,

(b) from borrow, in which case payment will also be made as cut to fill.

9.1.3 The earthworks shall also be managed in such a manner that as far as is reasonably practicable the best material (material with the higher California Bearing Ratio) is reserved for the construction of the subgrade. Double handling or extended leads exceeding 500 m of the material for this reason, shall be carried out where ordered by the Engineer and the extra work involved will be treated as a variation.

9.1.4 Where construction traffic uses the construction, cuts and fills shall be left 400 mm above or 400 mm below the final subgrade surface respectively, until most of the earthworks have been completed.

9.1.5 Excavation shall be carried out so as to limit overbreak as far as is practical.

9.1.6 Where specified in the contract documents material shall be excavated in such a manner as to minimise strength loss in the material.

9.2 Undercutting

9.2.1 All cuts, unless specifically excluded, shall be undercut to ensure continuity in the construction of the subgrade layers.

9.2.2 The depth of the undercut in materials will be specified by the Engineer when the material at the subgrade level has been exposed and evaluated.

9.2.3 On completion of the undercut, the surface shall be shaped, trimmed and compacted so as not to hold water. The compaction shall be as specified in Clause 10.5.

9.3 Construction Batters

9.3.1 Cut batters shall not be grader trimmed to a smooth surface but all loose rocks or other materials which appear likely to fall at a later stage shall be removed as the cut proceeds.

9.3.2 Fill batters shall be adequately compacted as the filling proceeds.

9.3.3 All batters shall be left with a texture which will help establishment of vegetation.

9.4 Dump Areas

9.4.1 The locations of dump areas shall be agreed by the Engineer before use.

9.4.2 The Contractor shall control all dumping operations to ensure the optimum utilisation of each area. The dump shall be shaped during the progress of the work to conform with the contours of the adjoining land and prevent ponding of storm water or as directed by the Engineer.

9.4.3 The Contractor may provide alternative dumpsites outside the works area on provision of adequate approval to use the dump site.

9.5 Borrow Areas

9.5.1 Borrow areas shall be opened up and excavated in an orderly manner at locations agreed by the Engineer.

9.5.2 At completion, the borrow area shall be shaped to blend with surrounding contours or as agreed by the Engineer.

9.6 Benching

9.6.1 Any portion of the ground whose slope is steeper than three horizontal to one vertical shall be benched before filling is placed on it, unless otherwise directed by the Engineer.

9.6.2 Each bench shall be constructed to a width adequate to permit suitable construction equipment to operate on it. The base of the benches shall be sloped inwards at a slope of 12 horizontal to 1 vertical. The longitudinal profile of each bench shall be graded to ensure adequate drainage and safe discharge of water.

9.7 Side Drains

9.7.1 Side drains shall be excavated as detailed in the contract documents with an even and true grade to outlets so that water will not stand in any part.

9.7.2 All outlets shall be clear of made ground or as otherwise described in the contract documents.

9.7.3 Material excavated from side drains shall be utilised or disposed of as appropriate to its classification.

10. FILLING

10.1 General

10.1.1 The Engineer will nominate material which shall not be used in bulk filling and material which shall not be used in subgrade filling. If cuts do not provide sufficient suitable material for fills, additional material shall be obtained from nominated borrow areas.

10.1.2 The material used in fill shall be spread and compacted in layers of uniform quality and thickness, parallel to the camber and grade for the full width of the cross-section unless specified otherwise or approved otherwise by the Engineer.

10.1.3 The thickness of each layer shall be limited to ensure that the specified compaction is achieved for the full depth of each layer.

10.1.4 The movement of all construction vehicles and other traffic shall be evenly distributed over the full width of the filling area, so as not to damage or overstress the construction.

10.1.5 If material which has already been placed in the fill is considered by the Engineer to be too wet then, the Contractor shall either:

(a) dry or mix the material so that it is suitable for fill, or

(b) excavate the material to waste and replace it with suitable material.

Payment for this work shall not be made if the materials have become wet due to the Contractor's negligence, insufficient attention to the closing-off of cut and fill areas, or the lack of adequate and efficient drainage for control of surface water within the construction site.

10.2 Subgrade Filling

10.2.1 If part width construction is approved for subgrade filling, the layers of the second part shall be placed to overlap on the completed part by benching out the completed part at the level of each successive layer.

10.2.2 The subgrade layer shall be constructed over adjoining cut and fill sections in one operation so as to provide continuous construction over the joining line between cut and fill.

10.3 Compaction and Size Control Methods

10.3.1 The Contractor shall submit to the Engineer details of the proposed compaction methods and details and capacities of the compacting equipment before filling commences.

10.3.2 Where the Engineer requires, the Contractor shall submit details of the proposed method of controlling the maximum particle size for the subgrade.

10.4 Layer Thickness

10.4.1 The maximum thickness of each layer of fill before compaction shall be in accordance with Tables 1 and 2 unless field trials show, to the satisfaction of the Engineer, that the specified compaction is obtained with thicker layers.

Table 1: Bulk Fill

Nominal Maximum Particle Size	Maximum Layer Thickness
Up to 100 mm	200 mm
100 mm to 200 mm	1.5 times the 85 percentile size
Over 200 mm	Refer contract documents where applicable

Table 2: Subgrade

Position Within Subgrade layer	Maximum layer Thickness	Maximum Particle Size (Measured on Square Opening Screen)
Lower 600 mm	200 mm	125 mm
Top 400 mm	135 mm	75 mm

10.5 Compaction

10.5.1 Granular Material

For granular fill material, compaction of each layer shall continue until the whole layer has attained a dense condition. Water shall be added as necessary to aid compaction. The degree of compaction of each layer shall be such that when trimmed to a smooth surface, the resultant impression in the surface under a smooth wheel roller having a minimum loading of 6259 kg per metre width of fill, shall not be greater than 7 mm for bulk fill or 5 mm for subgrade fill.

10.5.2 Non Granular Material

Compaction of material other than granular fill material shall be measured by the field wet density expressed as a percentage of the wet density at standard compaction[1] and at the same moisture content. Construction will be accepted on the basis of an area at a time. Each area offered for acceptance shall consist of material which is basically the one soil type at what appears to be a constant moisture content and which has received a uniform number of roller passes. The Engineer or his representative shall determine the locations of tests within each area.

Test results shall be analysed in groups of five. The percentage density indicated by the average of the five tests shall not be less than 98% plus 0.30 times the range (differences between the largest and smallest percentages) indicated by the five tests. The whole area represented by the tests shall be given additional compaction if the specified standard is not attained.

10.5.3 When drying is necessary, it shall be carried out to allow the full depth of the layer to dry uniformly. Drying and compaction shall be carried out under favourable weather conditions.

10.5.4 Wetting of material which has become too dry for use in the fill shall be carried out with sprinkling equipment of a type which ensures uniform and controlled distribution of water. After wetting, the material shall be mixed to ensure a uniform distribution of moisture throughout the layer.

10.5.5 Compaction shall not continue if the material shows signs of heaving or weaving excessively. In this situation, the material shall either be left to dry naturally or, where job progress would be affected by a delay, the material shall be dried to a moisture content at which heaving and weaving does not occur.

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[1] Standard compaction is the compaction specified in NZS 4402 Part 2P: 1981, Test 14 "Determination of the Dry Density/Water Content Relationship (NZ Standard Compaction)".

11. SUBGRADE SURFACE FINISHING

11.1 Trimming and Rolling

11.1.1 The entire surface of the subgrade shall be made firm, uniform, and smooth by blading, grading and rolling. Rolling associated with the surface finishing shall be the same as that which would produce the compaction specified for the particular material in Clause 10.5.

11.1.2 The use of construction traffic on the finished subgrade shall be controlled so as not to damage the completed work.

11.2 Surface Finishing Tolerances

11.2.1 The surface of the subgrade shall be finished so that all points are within 30 mm from a 3 m straight edge laid parallel to the centreline of the road and from a cross-section camber board placed at right angles to the centreline. The subgrade surface shall not pond water, where the design slope of the subgrade is 2% or steeper.

11.2.2 The reduced level of any point shall be within the limits of zero above to 30 mm below the designed or nominated level.

11.3 Subgrade Uniformity Testing

11.3.1 Benkelman beam or other subgrade testing shall be carried out as described in Contract documents.

11.4 Surface Water Channels

11.4.1 Surface water channels shall be uniformly graded so that they will not hold water and shall be neatly and evenly trimmed to allow unimpeded flow.

11.4.2 All outlets shall be clear of made ground or as otherwise described in the documents.

12. SLIPS

12.1 Material from slips shall be removed and used in fills or dumped as directed by the Engineer. Slips which occur prior to completion of subgrade trimming at the location of the slip shall be considered as earthworks cut to waste or fill as appropriate.

12.2 The area affected by the slip shall be shaped, trimmed and repaired as directed by the Engineer and the extra work involved will be treated as a variation.

13. INTERSECTING ROADS AND PRIVATE ACCESSWAYS

13.1 All intersecting roads and private accessways within the limits of the contract shall be constructed, trimmed and maintained to the same standard as the highway unless detailed otherwise in the contract documents.

14. SHAPING AND TOPSOILING

14.1 Slopes 2:1 and Flatter

14.1.1 Dump areas, borrow areas, stripped land within the road reserve and any other areas nominated by the Engineer with a slope of two horizontal to one vertical or flatter, shall be trimmed to conform with the adjoining land as directed by the Engineer. The transition zone between disturbed and undisturbed land shall be treated so that the profile is continuous and compatible.

14.1.2 After trimming, the areas shall be covered with topsoil to a depth of 75 mm or as specified in the contract documents.

14.2 Slopes Steeper than 2:1

14.2.1 Disturbed areas steeper than 2:1 other than cut batters shall be trimmed to produce an even profile with a surface texture which will help establishment of vegetation.

15. GRASSING AND BATTER PROTECTION

15.1 General

15.1.1 The Contractor shall programme the batter protection works and grassing of disturbed areas to take advantage of the local optimum growth period.

15.1.2 Unless specified otherwise in the contract documents the Contractor shall submit to the Engineer for approval his proposed seed mixture, fertiliser type, and respective application rates prior to the commencement of the grassing. The generic characteristics of the seed mix for use within the highway reserves shall be such that the vegetation cover is low growing with a robust and deep rooting system, and well suited to the soil conditions and locality.

15.2 Slopes 2:1 and Flatter

15.2.1 The topsoil layer shall be dragged and trimmed to reduce the surface to a tilth free from clods. The top 20 mm of the topsoil layer shall be free and open in preparation for the application of the seed mixture, while the remaining portion shall be firmly compacted.

15.2.2 On completion of the topsoil cultivation, the total area shall be sown with the approved seed mixture and fertiliser at the approved application rates. The sowing operation shall include the broadcasting or direct drilling of the seed and fertiliser mixture, the embedding of the mixture within the surface layer of the topsoil and the final levelling and light compaction of the ground surface.

15.3 Slopes Steeper than 2:1

15.3.1 All batters and other disturbed slopes steeper than 2:1 shall be covered with an approved mulch retention seeding system incorporating the approved seed mixture and fertiliser at the approved application rates.

15.3.2 The mulch shall be homogeneous and of sufficient thickness and durability to hold the seed germination period and until the seeding roots have embedded themselves in the natural soil surface. From this time, the mulch matrix shall gradually disintegrate and decompose completely.

16. TRAFFIC CONTROL

At all times during the construction of the works included in this specification the Contractor shall take responsibility to ensure all traffic control is carried out in accordance with the Specification for Temporary Traffic Control, TNZ G/1.

17. MAINTENANCE OF WORKS

The Contractor shall maintain the subgrade and all other parts of the earthworks construction either until they are covered with later construction or until the end of the maintenance period referred to in the Special Conditions of Contract whichever comes first.

18. METHOD OF MEASUREMENT

18.1 Measurement of quantities shall be by direct survey of the material as specified for payment, except as allowed under Clause 18.2. The direct survey may be wholly or partly based on information available from the contract drawings.

18.2 Where agreed between the Contractor and Engineer, the solid volume before excavation may be derived from measurements taken on truck loads or in stockpiles with a correction to allow for bulking or compaction. The correction to be applied shall be determined from at least two check measurements on each material.

19. BASIS OF PAYMENT

19.1 General

Allowance for all items such as supervision, sampling and testing, conveyance of plant, access roads, charges for plant, labour and materials, general overheads, administration, profit, accommodation and maintenance shall be deemed to be incorporated in the unit rates listed in the schedule.

19.2 Clearing

Payment for clearing shall be a lump sum which shall be full compensation for all grubbing, windrowing, uplifting, carting, dumping or burning and covering of the discarded waste with suitable material and for the control of the dump areas as specified.

19.3 Removal of Topsoil

Payment for topsoil removed to stockpile, will be made on the total volume in cubic metres removed as specified. The quantity for payment shall be the solid volume before excavation.

The unit rate shall be in full compensation for the stripping, loading, carting and stockpiling, and for the control of the stockpile as specified.

19.4 Surface Drainage Control

Temporary surface drainage control is included in the earthworks operation and no separate payment will be made.

19.5 Temporary Fencing

Payment for temporary fencing will be made on the total length in metres erected as specified. The unit rate shall be in full compensation for erecting, maintaining and removing the fencing.

19.6 Salvaging Aggregate from Existing Pavement

19.6.1 Salvage to Stockpile or Spread

Payment will be made on the total volume in cubic metres of road aggregate salvaged under Clause 7 to stockpile or spread as specified. The quantity for payment shall be the solid volume before excavation. The unit rate shall be in full compensation for all scarifying, windrowing, uplifting, carting and stockpiling or spreading.

19.6.2 Stockpile to Spread

Payment will be made on the total volume in cubic metres of salvaged road aggregate uplifted from stockpile and spread in accordance with Clause 7. The quantity for payment shall be the solid volume in the stockpile before removal. The unit rate shall be in full compensation for all uplifting, carting and spreading.

19.7 Cut, Undercut and Borrow to Fill

Payment for cut, undercut and borrow to fill will be made on the total volume in cubic metres of earthworks excavated and placed in fill in accordance with the contract documents. The quantity for payment shall be the solid volume before excavation.

The unit rate shall be in full compensation for excavating, loading, carting, spreading and compacting in layers of type A or W material. Where the material is type R1 or R2, an additional payment will also be made under Clause 19.9.

19.8 Cut, Undercut and Borrow to Waste

Payment for cut, undercut and borrow to waste will be made on the total volume in cubic metres of waste material excavated and carted to dump. The quantity for payment shall be the solid volume before excavation.

The unit rate shall be in full compensation for excavating, loading, carting and dumping all material types and for the control of the dump area as specified. Where the material is type R1 or R2, an additional payment will also be made under Clause 19.9.

19.9 Additional Rates

Where material is classified as R1 or R2 in accordance with Clause 8 of this specification, payment will be made as an addition to the payments detailed in Clauses 19.7 and 19.8. The quantity for payment shall be the solid volume in cubic metres before excavation.

For type R1 and R2 materials, a unit rate shall be paid in addition to the rate for type A material. This shall be in full compensation for the additional work involved in handling the material.

19.10 Preparation of Undercut Areas

Payment for preparation of undercut areas will be made on the total area in square metres prepared as specified in Clause 9.2.3.

The unit rate shall be in full compensation for shaping, trimming and compaction.

19.11 Overbreak

Where overbreak is small, and will not reduce the stability of the batter and is used in fill, instead of borrow material, it will be paid for as borrow to fill. Otherwise no payment will be made.

19.12 Finishing Construction Batters

The compaction of fill batters and finishing of cut batters in accordance with Clause 9.3 shall be an integral part of the earthworks and no separate payment will be made.

19.13 Dump and Borrow Areas

No separate payment will be made for the work of shaping of dump and borrow areas as described in Clauses 9.4 and 9.5.

19.14 Benching

Payment for the construction of benches will be made on the volume of material excavated in accordance with Clause 9.6. Payment will be made under either Clause 19.7 or 19.8 as appropriate.

19.15 Wetting and Drying Fill Material

Wetting of granular fill material to aid compaction is considered to be part of the earthworks operation and no separate payment will be made.

The wetting or drying of any other fill material will be paid for at daywork rates for plant involved in this activity.

19.16 Subgrade Surface Finishing

Payment for subgrade surface finishing will be made on the total area in square metres of the subgrade finished in accordance with Clause 11.

The unit rate shall be in full compensation for all blading, grading and rolling necessary to finish the surface to the required tolerances and to construct the surface water channels and outlets as specified.

19.17 Type W Material

Type W material will qualify for payment at “cut to waste” or day work rates for drying unless:

(a) the condition is due to the Contractor's neglect of adequate surface drainage control; or
(b) the excavation is being undertaken outside the nominated construction season in the contract documents; or

(c) a reasonable time has not been allowed after rainfall for the material to return to its normal condition; or

(d) the excavation can be left until later without affecting the orderly progress of the job.

In any of the above situations, and with the Engineers approval, part of the wet material may be removed immediately so as to facilitate drainage and drying of the remainder. In this case no payment will be made for the material excavated to waste and the contractor shall supply additional fill, if required, at no cost to the principle.

19.18 Slips

Payment for the removal of slip material will be made under the appropriate earthworks items up until subgrade trimming is completed at the location of the slip. Thereafter payment will be made on the total volume in cubic metres under the special schedule item for removal of slip material. The quantity for payment shall be the solid volume in the batter. The unit rates for the different leads for removal of slip material shall be in full compensation for all excavation, carting, spreading in filling and compacting or dumping of the material.

Payment for shaping, trimming or repair of damage required as a result of a slip will be made at daywork rates.

Where the Contractor's negligence or faulty workmanship has been the major cause of the slip, no payment will be made for removal of the slip material, shaping, trimming and repair of damage.

19.19 Intersecting Roads and Private Accessways

Work involved in the construction of intersecting roads and private accessways will be paid for under the appropriate schedule items.

19.20 Shaping and Topsoiling

Payment for trimming and shaping in accordance with Clause 14 will be made at daywork rates except that no payment will be made if the work is required because of the Contractor's non-compliance with other sections of the specification.

Payment for topsoiling will be made on the total volume in cubic metres of topsoil spread. The quantity for payment shall be the solid volume in the stockpile before excavation. The unit rate shall be in full compensation for the uplifting, carting and spreading as specified.

19.21 Grassing and Batter Protection

For slopes of 2:1 and flatter, payment for grassing will be made on the total area in square metres prepared and sown as specified in Clause 15.2. The unit rate shall be in full compensation for the cultivation of the topsoil, supply and sowing of the seed and fertiliser and the embedment of the mix within the soil as specified.

Payment for mulching and seeding slopes steeper than 2:1 will be made on the total area in square metres covered as specified in Clause 15.3. The unit rate shall be in full compensation for the supply of the mulch, seed and fertiliser and the application of the mixture as specified.