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WESTERN AUSTRALIA.

GERALDTON AND NORTHAMPTON
RAILWAY.

SPECIFICATION OF WORKS,

GENERAL CONDITIONS OF CONTRACT,

&c., &c.

PERTH:

BY AUTHORITY: RICHARD PETHER, GOVERNMENT PRINTER.

Price 10s. (without Drawings.)

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GERALDTON AND NORTHAMPTON RAILWAY.

SPECIFICATION OF WORKS.

1. This Contract commences at a point 30 links to the eastward of Government School, in the Town of Geraldton, marked A on the General Plan, and extends through the District of Victoria, in the Colony of Western Australia, to a point in the Township of Northampton, marked B on the General Plan, being a distance of thirty-three miles sixty-six chains, or thereabouts.

2. It comprises the supply of materials, and making or doing of all the works shewn on the drawings or described in this specification; and afterwards maintaining them, in accordance with clause 20 of the General Conditions of this Contract, for a period of twelve months from and after the completion of the Line, as certified by the Engineer.

3. The Contractor shall at his own expense erect such temporary cottages and conveniences, to be approved by the Engineer, as may be necessary for the accommodation of the workmen during the execution of the works; and at the termination of this Contract, or at such other time as the Engineer may think proper, he shall take down and remove from the works or adjoining property such cottages; the materials to be the property of the Contractor.

4. The Governor reserves to himself the right to run trains for the purpose of conveying materials, or for any other purpose, over the Line, as soon as the rails shall be laid, and before the Line is open for public traffic; and the Contractor shall have no claim for any addition to the Contract price for maintenance on account of such use of the Line. Provided, always, that the Governor shall not use the Line upon any occasion or at any time when, in the opinion of the Engineer, doing so would materially interfere with the progress of the works.

5. All timber used for the purposes of this Contract shall be of the description specified for each particular work, and shall be thoroughly seasoned, free from sap-wood, heart-wood, shakes, large or dead knots, sap veins, waney edges, or other imperfections, and shall be sound and straight, and out of winding, and hold the full scantling shewn on the drawings or described in this Specification. All timber must be charred to a depth of a quarter of an inch, if the Engineer shall order it to be done. The timber must be cut at those seasons of the year during which the trees are most free from sap.

6. Where it is specified that any of the timber shall be wrought fair on the surfaces which are exposed to view, and prepared for painting, the same shall be done in the best manner, and in all respects to the satisfaction of the Engineer.

7. All wrought timber work to be painted three coats of the best white lead and oil, having been previously knotted, primed and stopped, and well rubbed down; the whole of the paint to be the very best procurable, and the oil to be raw Linseed oil—no boiled oil will be allowed to be used in the work under any pretence whatever. The paint shall not be put on until after the timber has been erected in its place and become perfectly dry, to the satisfaction

of the Engineer. The iron-work in gates, fencing, &c., shall be picked out in two coats of black paint, after having received the same number of coats of white-lead paint as the wood-work.

8. The clay used for making bricks shall be of the best quality, and shall be thoroughly rolled when the Engineer may deem it necessary, and pugged in a mill with the proper quantity of water. After the bricks are moulded they shall be placed on properly constructed floors (previously to placing them in hacks), and remain on the floors until they are half dry; the bricks shall be properly burned with coal or wood in a kiln, and the whole process of manufacture shall be subject to the Engineer's approval.

9. All brick-work is to be executed with the best, new, sound, well-shaped, hard-burned, kiln bricks, moulded in the case of arching to such form and dimensions as the Engineer may direct, free from all defects, and of a perfectly uniform size. Where used for the face of works, they shall be selected of a uniform color, as well as size, and there shall be no difference in the quality of materials or workmanship between the inside and outside work.

10. Previous to being used, all bricks must be thoroughly soaked in water, and must be wet when put into the work.

11. The bricks shall be laid closely, and well bonded in such manner as the Engineer may direct; the joints shall be flushed with mortar, and not exceed a quarter of an inch in thickness; the work shall be grouted at every second course with thin grout, and in face-work the joints shall be raked out to a depth of half-an-inch, and then neatly and carefully pointed with good putty mortar, and *drawn*. The whole of the work shall be executed in the best manner, and to the satisfaction of the Engineer.

12. A dry lining of broken stone or bricks shall be put in behind each abutment, wing-wall, and retaining wall; the bottom of such lining shall be puddled, and openings left for the escape of water.

13. The stone used in all buildings throughout this Contract shall be of the best quality of ironstone or granite, or other hard building stone; the limestone will not be allowed in any portion of the works.

14. The rubble masonry shall be good, sound, flat-bedded stone, set flush in mortar properly grouted and well bonded together, having one bond-stone through the full thickness of the wall, whenever practicable, to every superficial yard of the face. Dry stone walling shall be executed with materials and workmanship of the same quality as that specified for rubble masonry, and completed to the satisfaction of the Engineer.

15. The Contractor shall provide for effectually securing and covering the several walls and works, when necessary, from the weather; and in frosty weather all masonry in progress must be suspended. If any damage should happen to any of the works from the action of the weather, the Contractor shall at once repair and make good such damaged works at his own expense, and to the satisfaction of the Engineer.

16. The mortar for general purposes, and where not otherwise specified, shall be composed of one part of fresh, well-burned, good lime, ground in its dry and unslaked state under edge-stones, and two parts of clean sharp sand. The lime and sand must be intimately mixed and worked with a proper quantity of water in a pug-mill, and must in all cases be used fresh. No slaked lime will be allowed to be used in any part of the works.

17. The grout for general purposes, and where not otherwise specified, shall be of the same composition as the mortar, and mixed with the proper quantity of water.

18. All the wrought iron in spikes, bolts, dogs, nuts, straps, plates, cramps, dowels, tension bars, keys, wedges, or in any other form whatsoever, used for the purposes of this Contract, shall be of the best S.C. crown iron, or such other description of iron as shall, in the opinion of the Engineer, be of equal quality. All the wrought iron work shall be of the

exact form and dimensions shewn on the drawings, and while in a hot state shall be dipped in boiled linseed oil. The greatest care must be taken in making welds, and all the workmanship shall be of first-rate quality and satisfactory to the Engineer. The quality of material and workmanship shall be subjected, at the expense of the Contractor, to such tests as the Engineer may deem necessary.

19. All wrought-iron work which shall be exposed when fitted in the work, shall receive three coats of paint of approved quality and color.

CLEARING.

20. The Line of Railway shall be cleared of all Timber, Bush, &c., for a width of half a chain on each side of the centre Line, as now pegged out.

FORMATION OF THE LINE.

21. The red line laid down on Drawing No. 1, and divided into miles and chains, represents the Line which has been staked out by the Engineer on the ground, and is to be the centre Line of Railway when completed.

22. The tops of embankments, when finished and fully settled, and the bottoms of cuttings when excavated, shall be of the heights and depths respectively shewn by the red line on the working section, Drawing No. 2, which represents the "formation level" or base of the ballast.

23. In all cases where "Forming" is marked on the working section, either in embankment or cutting, the formation shall be regarded as surface-forming, and be paid for at per chain run. And the surface-forming shall comprise clearing the surface of all objectionable material, grubbing and removing stumps of trees, trimming the surface for a width of ten feet to the precise level and longitudinal inclination of the formation line, as shewn on the "Section," and to the shape transversely, or at right angles to the Line of Railway, shewn in the cross-sections of the Line (Drawing No. 3); providing additional material where there is a deficiency, and removing superfluous material where it is in excess.

24. All earthwork shall be measured in cutting.

25. The bottom of each cutting, and the top of each embankment, when properly consolidated to the satisfaction of the Engineer, shall be carefully dressed to the precise gradient, longitudinally, shown by the formation line on the working section; and transversely or at right-angles to the Line of Railway, to the form shown on Drawing No. 2.

26. The cuttings in rock shall be formed with slopes of two (2) inches horizontal to twelve (12) inches vertical; and shall be trimmed even and true as the works proceed. The width of the cuttings at formation level shall be ten (10) feet, as shown on Drawing No. 3; cuttings in clay or sand shall be formed, with slopes of one (1) foot horizontal to one (1) foot vertical, which shall be trimmed perfectly even and true as the works proceed; the width of these cuttings to be the same as in rock. The cuttings shall in no case be excavated below the proper level, and if such should take place, all holes or low places shall be filled up with *clay* well punned in, to the satisfaction of the Engineer.

27. Table-drains, nine (9) inches wide and six (6) inches deep, for taking the water from the formation and ballast, shall be cut along the foot of the slopes in cuttings, as shewn on Drawing No. 1, and so connected with the drainage of the country as the Engineer may direct.

28. Care shall be taken to cut such drains as may be necessary, either to the inlets of culverts, or from their outlets, or from any hollows across which an embankment may be constructed; these drains shall be cut in the position, and of the size directed by the Engineer.

29. The Contractor shall, at his own expense, keep the cuttings free from water, and construct all such water-courses and drains as may be necessary to preserve the slopes from

injury by the action of water during the time the works are in progress; and should any slip, in the slopes of either cuttings or embankments, take place during that time, the Contractor shall at his own expense clear away and make good such slip in a manner satisfactory to the Engineer.

30. The embankments shall be formed with slopes one and a-half ($1\frac{1}{2}$) horizontal to one (1) vertical, which shall be trimmed, as the works proceed, perfectly even and true. The width of embankments at formation-level shall be twelve (12) feet wide, as shown on Drawing No. 3.

31. The slopes of earth and sand cuttings, and the slopes of embankments, shall be sown with *couch grass* or such other seed as the Engineer may direct; and should the seed fail, the Contractor shall re-sow the same at his own expense.

32. The embankments shall be carried forward in such a manner as shall be approved by the Engineer, and at such height and width as shall secure their safe execution, and their being, when consolidated, of the specified size and form.

33. No wet materials or sludge shall be used in the construction of the embankments, and water shall not be allowed to lodge and remain either at the base or on the surface. In wet weather, embankments in course of construction shall be temporarily drained as the Engineer may direct.

34. In constructing embankments on side-lying ground, horizontal steps or benchings shall be cut in the surface of the ground to prevent slips; no step shall be less than two (2) feet in width.

35. If any settlements should take place in the embankments after they have been dressed to the true gradients and slopes, the Contractor shall at his own expense immediately make good the same, and shall also deliver them over to the Governor, at the termination of the Contract, in perfect form.

36. Whenever it may be necessary to take material from side-cutting, or to deposit earth in spoil-bank, the position or site of such side-cutting or spoil-banks shall be subject to the approval of the Engineer; and all land required for the purposes of side-cutting or spoil-banks shall be provided by the Contractor at his own expense, and he will not be allowed the use for such purposes of any of the land shown on the ground plan *coloured red*.

37. The excavations for the foundations of all bridges, viaducts, culverts, walls, or other works shall be made by the Contractor of the depth and dimensions shown on the drawings; but if, in the opinion of the Engineer, the foundations then reached should be unsatisfactory, the Contractor shall at his own expense excavate to a satisfactory foundation, or put in such artificial foundation as the Engineer may direct; and no work shall be commenced on any foundation until it has been examined and approved by the Engineer.

38. Excavations for foundations shall be taken out to the net dimensions required for the works: and if from any cause the Contractor shall excavate a larger space, he shall at his own expense fill up such extra excavation with concrete or hard rammed earth.

39. The water shall be properly and effectually pumped out of these excavations, and the side shall be properly shored and planked up; and if any slip or falling-in occur it shall be made good by the Contractor at his own expense.

40. The Contractor shall dispose of all superfluous earth arising from these excavations, in such situations as the Engineer may direct.

41. The general character and the dimensions of each culvert to be used on the Line, is shown on Drawing No. 3, and the position at which each culvert is to be built is shown on the longitudinal section, Contract Drawing No. 2.

42. The culverts shall be laid at the level shown on Drawing No. 3 unless otherwise ordered by the Engineer.

43. All culverts shall be built of stone or timber, as directed on Drawing No. 3, and the materials and workmanship shall be in accordance with the Clauses in this specification, and in the general conditions referring to such class of work.

44. Aprons shall be constructed, either of timber or stone, at the in-let and out-let of all culverts.

45. The timber used in the construction of any culvert shall be "Jarrah" or other timber of equal quality, if approved of by the Engineer, and shall be in accordance with Clause 5 of this specification, and shall be charred to a depth of one quarter ($\frac{1}{4}$) of an inch.

46. All culverts shall be set at such angles with the direction of the Railway as in the opinion of the Engineer the lines of the water-courses or the fall of the ground may render suitable. And whenever the direction or position of a culvert does not correspond with that of the stream, either in level or line, the direction and level of the stream shall be altered and protected at the expense of the Contractor, by proper slopes or walling, so that the water may be conducted to or from each end of the culvert in the manner best fitted for facilitating drainage.

47. Level crossings shall be constructed by the Contractor in the positions ordered by the Engineer; the general character and dimensions are shown on Contract Drawing No. 3.

48. The guard rails shall be of "Jarrah" timber or other timber of approved quality, and shall be firmly spiked to the sleepers to the satisfaction of the Engineer.

49. Between the inside guard rails there shall be well rammed in iron-stone, gravel, or broken stone, metal-broken to a $1\frac{1}{2}$ inch gauge, for a depth of (9) nine inches below the upper surface of the guard rails, and blinded to a depth of (1) one inch with iron stone sand; from the top surface of the outer guard rails, on both sides of the line, the approaches shall be made with a minimum gradient of one (1) vertical to twenty (20) feet horizontal, the top surface being constructed in the same manner as that portion of the crossing between the inner guard rails, and the gradient carried out to intersect the existing one on the road.

50. Proper provision shall be made for the drainage of the crossing, and if the Engineer shall direct it, glazed stone pipes must be laid under the approaches, in the position shown on Drawing No. 1.

51. Where it may be necessary to embank the approaches to level crossings, the cross section of the embankment shall be that shown on Drawing No. 3.

TIMBER BRIDGES.

52. The following timber bridges shall be included in the Contract, namely:—

Bridge No. 1.—Over the Chapman River; four spans 30 feet each, and one span 20 feet.

Bridge No. 2.—Darby's Gully Stream; one span, 20 feet.

Bridge No. 3.—Creek at 10 miles 40 chains; one span, 10 feet.

Bridge No. 4.—Creek at 10 miles 45 chains; one span, 10 feet.

Bridge No. 5.—Buller River, No. one crossing; one span, 10 feet.

Bridge No. 6.—Buller River, No. two crossing; one span, 10 feet.

Creek at 17 miles 26 chains 50 links; one span, 10 feet.

Saddle Creek.—1st. Crossing; one span, 10 feet opening.

Do. 2nd. Crossing; one span, 30 feet opening.

Do. 3rd. Crossing; one span, 20 feet opening.

Ballatarra Creek—Two bays, each 30 feet span.

Bowes River—Two bays; one 20 feet and the other 30 feet span.

Creek at 31 miles 25 chains; One bay, 20 feet span.

53. All the timber used in these bridges shall be West Australian Jarrah, grown on stony ground and felled when the sap is quite down, or such other timber as may be approved of by the Engineer; all the timber shall be of the quality specified in Clause 5.

54. The timber-work in the bridges shall be done in the best style of rough or ship carpentry; that is, undressed in all the main scantlings, but wrought perfectly true at all surfaces which are to be in contact, and all mortices and tenons, housings, homelets, &c., well and truly formed and fitted, and made with white lead and oil. All planking to be well and truly laid, close jointed, and firmly spiked to bearers, the length of the spikes to be equal to twice the thickness of the plank.

55. When timber piles are used in any of the works comprised in this Contract they shall be properly hooped and shod with wrought iron, and shall be driven in the usual manner with a ram weighing not less than one ton, and falling sixteen feet, until three (3) blows of the ram will not drive them more than a quarter of an inch. If in driving any pile it shall rend, or split, or be otherwise injured, or if it shall twist so that when fully driven it shall not be out of winding with the other piles, the Contractor shall at his own expense draw such pile, and (in the former case) substitute a sound one in its place, in the latter, re-drive it to the satisfaction of the Engineer; the piles shall be of such length that, when driven home solid as above specified, and the head cut off to the proper form, they shall be of sufficient length and free from all imperfections.

56. All timber, whether in piles, sills, uprights, &c., that will be in the ground or below high-water mark, shall be charred to a depth of a quarter ($\frac{1}{4}$) of an inch to a height of one (1) foot above the level of the ground or high-water mark.

57. All iron work in bolts, straps, plates, &c., shall be of the quality specified in Clause 18; and where exposed to the weather shall be painted in accordance with Clause 19.

58. The bolts, straps, nuts, &c., shall be of the dimensions shown on the Drawing. All bolt-holes throughout the work shall be bored of such a size only as the bolts will fit without any play; and should any holes be bored too large, the Contractor shall at his own expense provide bolts of a larger size that will completely fill them; and all bolts shall be kept tightly screwed up,—so as to prevent the working of any of the joints during the period they are in the Contractor's charge, and shall be delivered over in such condition, and to the satisfaction of the Engineer.

59. The longitudinal rail bearers shall be one continuous log over the bridge where it is two spans or a less number; when the bridge exceeds two spans the continuous bearer shall cover at least two of them, the scarf at the junction of two bearers shall break joint with the scarf in the second rail bearer; the scarf shall in all cases be made over a pile-head, and the joint made as specified in Clause 54, and shall be spiked together with two $\frac{3}{4}$ -inch jagged spikes, 12 inches long.

PERMANENT WAY.

60. The Governor will deliver to the Contractor the rails, fish-plates, bolts, crossings, switches, &c., for the permanent way, on board ships in Champion Bay Harbour (duty free), and he shall remove them from thence to the works at his own cost, and shall stack them carefully on such places as may be approved by the Engineer, until they shall be required for laying in the permanent way, and the Contractor will be responsible for any loss or damage to the rails, fish-plates, bolts, spikes, &c., for the permanent way after they shall have been delivered to him. And if any rails be bent when delivered to the Contractor he shall, at his own expense, straighten them to the satisfaction of the Engineer; and if any demurrage or extra wharf charges should arise from delay on the part of the Contractor in conveying the rails, &c., to the appointed place, he shall be liable for all such charges; and further, if these charges be not paid by him within one calendar month after demand, the Governor shall have

power to pay the same, and to deduct the amount from any monies which may be then or may thereafter become due to the Contractor.

61. In the event of the Governor failing to deliver to the Contractor, as aforesaid, the permanent way materials specified above, in time to admit of his completing the Line in the time agreed upon, he shall be allowed such extra time beyond that named for completing the works as, in the opinion of the Engineer, may be reasonably necessary; but he shall not be entitled to any other compensation on that account.

62. The Contractor shall not use any of the permanent way materials during the execution of the works, except under the following conditions, which will be strictly enforced:— After the permanent rails are properly laid and fastened, to the satisfaction of the Engineer, and the line boxed up as shown on the cross section of the permanent way (Drawing No. 4), the Contractor will be allowed to convey along the line, permanent way materials; but in so doing care must be taken to keep the sleepers well covered so as to protect them from injury; and should any sleepers be injured from any neglect of this precaution, or from any other cause, the Engineer shall have full power to order such injured sleepers to be re-placed by new ones, which shall be supplied and fixed at the sole expense of the Contractor. And in conveying materials over the permanent way rails, the Contractor shall use such description of waggon, with such wheels as in the opinion of the Engineer will not do any injury to the permanent way.

63. The Contractor shall lay and ballast the permanent way along the whole length of the Line, and in addition two and a-half per cent. of that length at stations and passing places. This shall be done as hereinafter specified, in a thoroughly workmanlike manner and in all respects to the satisfaction of the Engineer.

64. The ballast shall consist of clean gravel, free from earthy matter, or of any stone found in the District—except limestone—broken to pass in every direction through a two-inch ring in diameter. Where there is no gravel or stone of approved quality on the line, it shall be procured by the Contractor, and deposited where required on the line at his own cost and charges. No ballast shall be laid on the line until it shall have been examined and approved by the Engineer. The quantity of ballast to be used, and the form to which it shall be dressed, are shown on Drawing No. 3.

65. The Contractor shall provide the sleepers, which shall be of Jarrah Timber of the quality specified in Clause 5, and shall be straight on each face and out of winding, and shall be sawn to a rectangular shape, seven inches by four inches in section and six feet in length; Sleepers of extra length shall be laid under *all crossings* so as to be under both Lines of Rail, and if in the opinion of the Engineer it shall be necessary to bolt the ends the Contractor shall do so, with $\frac{3}{8}$ -inch diameter bolts, as shewn on Drawing No. 4. The thread cut on these bolts shall be sufficiently long to allow of their being screwed up as the sleeper shrinks, and they shall during the period of construction be kept tightly screwed up, and delivered over in that condition at the expiration of the Contract.

66. The seating for the rails on the sleepers shall be well and truly made, perfectly flat and out of winding.

67. The gauge of the Line shall be three (3) feet between the inner edges of the rails when they are in their places.

68. When six inches in depth of ballast shall have been laid on the full width of ten (10) feet and levelled, the sleepers shall be placed in their true position, at such distances apart as are shown on the Drawings, averaging two feet six inches from centre to centre; and the rails shall be fastened to them as shown on Drawing No. 4, in a proper and workmanlike manner.

69. The joints of the rails shall be as nearly as possible opposite to each other; and in the case of curves, where to insure this it shall become necessary to saw off a portion of the

inner rail, such sawing off, and the drilling of fresh holes to receive the bolts for fastening the fish-plates, shall be done by the Contractor without extra charge.

70. For curving rails, or straightening crooked ones, the Contractor shall use a press approved by the Engineer; and he shall not on any pretence use a hammer for either of these operations.

71. The augers used for boring the holes to receive the dog-spikes shall be of a suitable size to ensure firmness and security. The line shall be perfectly true to gauge, and the rails spiked to the sleepers, to the satisfaction of the Engineer. Due allowance shall be made for expansion by the use of proper distance pieces, to be placed between the adjacent ends of the rails at every junction when the fish-plate bolts are being screwed up. The rails shall be perfectly straight where the line is straight, and properly curved where the line is in a curve; the outer rail on curves shall have the proper elevation above the inner rail. And the permanent way shall be in every respect laid in the most perfect manner, and to the satisfaction of the Engineer. The amount of the super-elevation of the outer rail on curves, and the space to be allowed for expansion, shall be determined by the Engineer.

72. After the permanent rails have been properly laid and fastened, and the sleepers carefully packed to the entire satisfaction of the Engineer, the line shall be properly boxed up and trimmed to the form shown on the cross section of the permanent way, Drawing No. 4.

73. In laying the permanent way the Contractor will not on any account be permitted to lay it at any other level than that specified. The system of lifting through the ballast will not under any circumstances be allowed.

GENERAL CONDITIONS

(TO BE COMPLIED WITH UNDER THE CONTRACT, AND TO BE EMBODIED THEREIN).

1. In the conditions the word "Governor" shall mean the Governor of the Colony of Western Australia for the time being. "The Engineer" shall mean any Engineer who may from time to time be appointed by the Governor to supervise the works or buildings; and "The Contractor" shall mean the Contractor or body of Contractors who shall undertake to execute the work.

2. If any difference or dispute shall arise between the Governor and the Contractor on the subject of "quantities or prices," or any other matter or thing in connection with the execution of the works, not hereafter left to the sole determination of the Engineer, such differences or dispute shall be referred to arbitration in the manner hereinafter provided. But in all cases the Engineer shall be the sole judge of the quality of the materials and workmanship, and his decision shall be final and binding as between the Governor and the Contractor.

3. All materials used shall be the best of their respective kinds, and the Engineer shall have power to order the removal from the site of the works of any materials, whether fixed or not, which may appear to him to be of an inferior or improper description, and the Contractor shall remove the same within twenty-four hours after a written notice in that behalf given to him by the Engineer; and in case of neglect or refusal to remove the same according to such

notice, the Engineer may, until such materials are removed, withhold all further certificates, and the Governor may withhold payment of all sums of money that may be due or that may become thereafter due to the Contractor.

4. All works of every description throughout shall be executed conformably to the several drawings and details prepared or that may be prepared for that purpose and herein referred to, generally in strict accordance with the provisions of the specification, and in the best and most workmanlike manner and to the satisfaction of the Engineer; and should any work not be so executed it shall be altered and amended by the Contractor within twenty-four hours after a written notice in that behalf given to him by the Engineer; and if the Contractor shall neglect to alter and amend such work within the above-named time, the Engineer shall have power to employ men and plant to do so and to charge the cost of doing so to the Contractor.

5. If the Contractor shall supply any materials or execute any work, which in the judgment of the Engineer shall not be in accordance with the Contract, and if the Governor shall elect to allow such materials to be used, or such work to remain, then and in such case the Engineer shall have power to fix the price to be paid for any such materials or workmanship, and the Contractor shall be bound by the decision of the Engineer on the subject.

6. The drawings referred to in the specification and the specification shall be taken together to explain each other, and if in the execution of the works it shall be found that anything has been omitted or mis-stated either in the drawings or specification which may be necessary for the proper performance and completion of any part or parts of the works, the Contractor shall, at his own expense, execute the same and provide whatever may be requisite for so doing. Any written dimensions on the drawings shall be taken in all cases in preference to the scale attached, and anything contained either in the drawings or specification shall be as binding on the Contractor as if it were contained in both; and in case the written or figured dimensions on the drawings shall disagree with the scaling, or in case there shall be any discrepancy between the drawings and specification, or any ambiguity in them, such occurrence shall not invalidate the Contract, but such discrepancy or ambiguity shall be rectified by the Engineer, if he shall think it necessary so to do, and the Contractor shall not be entitled to any compensation or damage on account of any discrepancy or ambiguity. If neither the drawings nor the specification contain any notice of minor parts of the works, necessary for the completion and stability of the whole of such works, all such parts are to be made and executed by the Contractor without extra charge.

7. When measurements are made, the *net* measurement shall in all cases be taken, notwithstanding any custom to the contrary.

8. The Contractor shall provide, at his own expense, copies of the specification and of any drawings or working drawings.

9. The Contractor shall in like manner, and with such materials as aforesaid, make, execute, and complete any deviations from, additions to, or alterations in the works, which the Engineer may from time to time previous to the commencement of, or during the progress of the works by an order in writing require; and the price at which the Contractor shall be paid for any of the works so altered, or for any such deviations or additions as aforesaid, shall be ascertained by actual measurement of the quantities of the works so altered, or of such deviations or additions, as the case may be, and shall be at the rates mentioned in the Schedule hereto annexed for that particular kind of work; but the Governor shall not be liable for any extras, additions, or alterations whatsoever which may be executed without an order in writing signed by the Engineer, authorising or requiring the same.

10. The Governor shall be at liberty at any time, or from time to time, by a notice in writing under the hand of the Engineer, to require the omission of any portion or portions of the works described in the specification or shown on the drawings, whatsoever; and the value

of such omissions shall be deducted from the amount of the Contract, estimated at the rates named in the Schedule for such class of work. And the Contractor shall have no claim for any loss, damage, or compensation in respect of such omissions, anything herein contained to the contrary notwithstanding.

11. Whenever, from time to time during the progress of the works, it may be found desirable to make any substitution for works contracted for, the Engineer shall notify to the Contractor, in writing, his intention to withdraw such work from the Contract and to substitute other work for it, and shall provide him with drawings and specification of such substituted work, and shall by such notice request the Contractor within seven (7) days to tender for such substituted work; and if the Governor shall accept such tender, then the substituted work shall be deemed a portion of this Contract, and all the provisions of this Contract shall apply to such substituted work as if the same had been part of the works originally contracted for. But the Governor shall be at liberty, in the exercise of his discretion, to reject any such tender, and may thereupon let such work to be constructed by any other person or persons, or have it executed in any manner he may think fit; and the Contractor shall not offer any let or hinderance to the execution of such substituted works by any person or persons who may Contract to perform the same, or who may be employed by the Governor for such purpose. And the Contractor shall have no claim for damages against the Governor in consequence of the admission of such other person or persons upon the works or otherwise in consequence of the execution of any such additional or substituted work, unless any injuries done to his works or any damage in any way caused to him by the execution of such substituted works might, in the opinion of the Engineer, by reasonable care or good management on the part of the person or persons executing the same, have been avoided; in which case any sum which the Engineer shall assess as being the value of such last-named injury or damages shall be paid by the Governor to the Contractor.

12. The Contractor shall at his own cost and risk set out accurately, according to the Drawings or figured dimensions thereon, all the works comprised in this Contract, and shall be responsible for the execution and completion of the several works in exact conformity with the said drawings and figured dimensions thereon; and the Engineer shall have full power to check the position and dimensions of all the works, but his doing so shall not relieve the Contractor from any of his responsibilities under this Clause.

13. The Contractor shall provide at his own cost and charges all materials, labour, tools, tackle, machinery, scaffolding, cordage, cartage, stores, planking, and everything necessary for the proper execution and completion of the several works. The Contractor shall also provide at his own cost for keeping all the trenches and foundations free from water, and for preventing slips of ground into the trenches.

14. All plant, prepared work, or materials, brought on the ground of the works for use thereon shall be considered the property of the Governor, and shall be held by him as a portion of the security for the due fulfilment of the Contract; and the Contractor shall not take away such work or material without the written authority of the Engineer.

15. The Contractor, at all times during the progress of the works when he is not personally superintending them, must have a responsible and competent agent or overseer stationed on them, to receive instructions from the Engineer, and to represent the Contractor for all the purposes of this Contract.

16. If the Contractor shall fail to make such progress with the works as the Engineer may deem sufficient to insure their completion within the specified time; or if the Contractor shall in the opinion of the Engineer use or employ bad or insufficient materials or execute any work in an imperfect manner, and shall fail or neglect to rectify any such cause of complaint for seven (7) days after being thereunto required in writing by the Engineer; or if the Contractor shall, in the judgment of the Engineer, commit a wilful breach of this Contract, then and in any such cases it shall be lawful for the Governor, by a notice in writing delivered to the

Contractor or his representative on the works, or left at the Contractor's usual or last known place of abode or business, absolutely to determine this Contract; and from and after the delivery of such notice, this Contract shall be absolutely determined; and in the event of such determination, any moneys which shall have been previously paid to the Contractor under this Contract shall be deemed to be the full value of the work executed, and shall be taken and accepted by the Contractor in full payment and satisfaction of all claims and demands under this Contract; and any deposit or percentages, or retention money, in the hands of the Governor or payable by him, and also all materials, implements, and plant then being in or upon the works, or being used in connection therewith, shall become the absolute property of the Governor, and may be disposed of as the Governor shall think fit.

17. If the Contractor shall commit any breach of, or fail to comply with, any of the conditions on the part of the said Contractor to be observed or performed, it shall be lawful for the Governor either to pursue the remedy, if any, provided herein for such breach, or the usual remedy, or to have assessed by arbitration, in the manner herein provided, the damage and loss that may have arisen or occurred, or be likely to arise or occur thereby, and to deduct the same from any money that may be due or owing, or may thereafter become due or owing, to the Contractor under this Contract.

18. If the Contractor shall become bankrupt or insolvent, or shall make an assignment of his estate for the benefit of his creditors, it shall be lawful for the Governor to take the works out of the hands of the Contractor and of the assignees or trustees of his estate, and to re-contract with any other person or persons to proceed with and complete the same upon such terms, stipulations, and conditions as he shall deem expedient; and all the materials, implements, and plant then being in or upon the works, or being used in connection therewith, may be used in and applied for the purposes of the works; and on the final completion of the works, the surplus, if any, of such materials, implements, and plant shall become the property of such assignees or trustees, but without any allowance for any loss or diminution, wear, tear, or injury they may have sustained in the meantime; and the Governor shall be at liberty to deduct from any deposit or percentages or retention money in his hands or payable by him, any moneys which shall be paid, or become payable, under such re-contract; and on the final completion of the works the residue, if any, of such deposit or percentage or retention money, but without any interest thereon, shall belong to the said assignees or trustees.

19. The Contractor shall complete the whole of the works of this Contract on or before the first day of October, 1875; and for every day's delay in the completion of the works after that day, the Governor shall be entitled to deduct or set-off from or against the Contract price as and by way of liquidated damages, and not as or in the nature of a penalty, the sum of £50 per working day. Provided, always, that in the event of any alterations, deviations, additions, or extra works being required, the Engineer shall allow such an extension of time, if any, as he shall think necessary in consequence of such alterations, deviations, additions, or extra work, and at the expiration of the time so extended the Governor shall be entitled to make such detentions or sets-off as aforesaid.

20. The Contractor shall be responsible for and repair, at his own cost, all damages, defects, or failures that may appear or occur to any portion of the work from any cause whatsoever, either during the period of construction and for twelve months after the Engineer shall have given a certificate that the works are completed to his satisfaction; and he shall maintain all the works comprised in this Contract in perfect working order during the above-named period of twelve months; and at the expiration of the time of maintenance the Contractor shall deliver over the works to the Governor in perfect order; and it is hereby expressly declared and agreed that any certificate for the receipt of money given at anytime by the Engineer to the Contractor, shall be given by the Engineer and accepted by the Contractor without prejudice to the operation of this Clause.

21. The Contractor shall be liable and responsible for any accident, damage, or loss which may happen to any person or persons during the progress of the works, in consequence

of the construction of such works; and all reasonable claims brought against the Contractor for damage arising from any of the above-named causes, or from any other cause contingent upon the execution of the works, if not satisfied by the Contractor within one month from presentation, shall be paid by the Governor, and the amount deducted from any moneys that may be then due or may afterwards become due to the Contractor.

22. The exercise by the Governor or Engineer of any of the powers reserved to them hereby, shall not relieve the Contractor from any liability to which he may be subject for any breach of the Contract.

23. The Governor hereby undertakes to allow the Contractor to enter on the ground or works within thirty (30) days from the signature of the Contract by the Contractor; but in case of any delay in so doing the same shall not invalidate this Contract, but the Contractor shall be entitled to an equivalent extension of time for the completion thereof.

24. The Contractor shall not sub-let any portion of the works, or enter into any sub-contract for the execution thereof, or any portion thereof, or assign all or any of the moneys payable or to become payable under the Contract, or all or any part of any other benefit whatsoever arising or which may arise under the Contract, without the consent of the Governor under his hand.

25. The workmen, tradesmen, and laborers of every class, employed on the works, to which these conditions refer, shall be paid their wages in full, in money current coin of the Colony, at least once in every fortnight, and not by ticket, or any other system of payment by provisions, liquors, or goods; nor shall the Contractor, or any person or persons employed by him, or in any way connected with him, establish any shop for the supply of provisions, liquors, or goods, except tools and implements used for the purposes of the works of this Contract; nor shall the Contractor oblige his workmen to take provisions, liquors, or goods of any kind from any person in particular. The workmen of every class shall be paid on the works if it be possible, or in some building adjoining, and in no case shall they be paid at a public house, or other place where liquors or refreshments are sold. In case of any breach of this or the preceding clause, it shall be lawful for the Governor to determine this Contract, and the powers conferred on him by clause 16 shall apply to such a case.

26. Before the payment of any money to the Contractor, the Governor may require from him a statutory declaration that the workmen and laborers of every kind employed on the works to which these conditions refer have been paid their wages and claims of every kind in full, in money current coin of the Colony, and to the latest date at which such wages or claims are due, and the Governor may withhold the payment of any money that may be due or become due to the Contractor, till such declaration has been made and delivered. If the Contractor shall fail or omit to pay the wages of any workman employed on the works in the current coin of the Colony, it shall be lawful for the Governor, as often as the same shall happen, upon complaint of such failure or omission, made by any such workman, and upon production of an order from any Magistrate's Court, to pay the amount mentioned in such order to such workman, and to deduct the same amount from any money that may be due or owing, or thereafter to become due or owing to the Contractor under this Contract.

27. The Engineer may require the dismissal within twenty-four hours by the Contractor of any responsible agent, overseer, foreman, workman, or other person employed by him on the works contracted for, and in the event of the Contractor refusing or neglecting to comply with such requisition, the Governor shall not be liable to make any further payment on account of the work until such dismissal is carried out; and the delivery of a notice from the Engineer to any such agent, overseer, foreman, workman, or other person, informing him that his dismissal has been demanded, is to be considered as an absolute dismissal, and he may be thereafter ejected from the works as a trespasser. If the agent whose dismissal is thus required should be acting in the absence of the Contractor, and is the only responsible agent present, then the Governor shall be at liberty to appoint whomsoever he may think fit to act in the stead

of such dismissed agent, or to suspend the works, or absolutely determine the contract; and in the event of the Governor deciding to determine the Contract, the provisions contained in clause 16 shall apply to this case.

28. Payments will be made to the Contractor, every month, of the amount which the Engineer may certify as the price or value of the work performed during the preceding month, less ten (10) per cent. upon each such certified amount, until the sum so retained shall amount to seven and a-half ($7\frac{1}{2}$) per cent. of the total price of the works; and that sum will be retained by the Governor until the final completion of the entire works to the satisfaction of the Engineer; one-half the amount so retained, less the amount set down for maintenance of the line, will be paid to the Contractor as soon as he shall receive a certificate from the Engineer that the entire works have been completed to his satisfaction, and the remaining half will be paid to the Contractor after a Certificate shall have been given by the Engineer that all the works have been maintained to his satisfaction for the aforesaid period of twelve (12) months after their completion. Provided, always, that no money shall be considered due or owing to the Contractor, nor shall the Contractor be entitled to payment for or on account of any work executed or maintained by him, unless the said Engineer shall certify the amount thereof, and that the Contractor is reasonably entitled to such payment, whether the same shall be a monthly payment on account or in respect to such balance as aforesaid.

29. No certificate given to the Contractor for the purpose of any progress payment shall prevent the Engineer, at any future time before the termination of the Contract, from rejecting all unsound materials and improper workmanship discovered subsequently to the giving of the last previous certificate; and notwithstanding the giving of any certificate the Engineer may require the Contractor to remove and amend, at any future time previously to the final payment on account of the maintenance of the works, any work that may be found not to have been performed in accordance with the Contract; and the Contractor shall remove and amend, at his own cost, all such work, when so required, notwithstanding any approval made or given by the Engineer. The Governor shall be at liberty, on the report of the Engineer that the work is not in accordance with the Contract, to deduct from any moneys that may be due or become due to the Contractor, the whole amount that has been paid on account of such work.

30. When any dispute shall arise which by this Contract is left to arbitration, the same shall be settled in such manner as may hereafter be provided by The Legislature of Western Australia.

S U P P L E M E N T A R Y .

PARTIES tendering for the construction, completion, and maintenance of the Geraldton and Northampton Line of Railway must forward their Tender, marked outside "*Tender for Geraldton and Northampton Railway*," in a securely sealed cover, addressed to The Honorable The Colonial Secretary, Perth, Western Australia; the said Tender to reach the Colonial Secretary's Office before noon on the tenth February, 1874.

To ensure the *bona fides* of intending Contractors, a deposit must accompany the Tender, in cash or accredited order to the amount of £500; the same to be returned by the Government of Western Australia in the event of the Tender not being accepted.

Two Tenders may be presented, one shewing the supply of all labor and materials, including Rolling Stock and Permanent Way, according to memorandum attached, the other shewing only labor and materials on Line construction, landing and storage of Rolling Stock and Permanent Way materials; and maintenance of Line for one year.

All Rolling Stock and material to be supplied from Great Britain; to be subject, if required, to the approval of such persons as may be nominated by the Crown Agents for the Colonies for that purpose, prior to shipment.

Tenders should state the full amount, and how the same has been arrived at in detail.

The Government of Western Australia do not bind themselves to accept the lowest or any Tender, nor to meet any expenses attendant on their preparation or deposit.

The parties offering themselves as aforesaid shall state in their respective Tenders the names and designations of two responsible persons for the approval of the Western Australian Government as sureties to become bound with them jointly and severally in the sum of £5,000, for the due execution of the works and completion of the Contract.

The parties whose offer is accepted, and their sureties, shall enter into a regular Contract with the Western Australian Government for the execution of the works, which shall contain or otherwise give full effect to the Conditions, Specification, Tender, Schedule, and quantities hereafter agreed on; and in which the Government of Western Australia shall become bound for payment of the sums to fall due to the Contractor; and the Contractor and his said sureties, and their respective heirs, executors, and administrators shall become bound jointly and severally for the full and complete execution of the Contract.

The said Contract shall contain all clauses usual in such deeds and necessary for giving full effect to the Conditions, Specification, and Tender, and shall be prepared by the Solicitor to the Government of Western Australia, and the expense thereof be defrayed equally by the Government of Western Australia and the Contractor.

In the event of the Contract prepared by the Government Solicitor not being approved of by the Contractor, the Government shall be at liberty, if they think fit, to declare the agreement between them and the Contractor at an end, and the Contractor shall have no claim for damages by reason thereof.

It is anticipated that the completion of the Line should not extend beyond the 1st of October, 1875.

The parties whose tenders may be accepted must be prepared to sign the Contract Deed within one month of the date of the acceptance of Tender, and be prepared to proceed with the execution of the works within one month of the date of signing the Contract Deed.

MEMORANDUM OF ROLLING STOCK AND PERMANENT WAY. GERALDTON AND NORTHAMPTON LINE,

THREE FEET GAUGE.

ROLLING STOCK.—Engines, No., 2; Class Contractor's tank, driving and trailing wheels coupled; leading Bissell bogie, fire-box for wood or coal, Gifford's injector, to run free on 5 chains curve; heaviest gradient 1 in 40; gauge 3 feet; average speed with load 15 miles; weight from 16 to 18 tons; duplicate working parts; fitter's tools, best maker.

CARRIAGES.—No., 2; saloon pattern, on bogie frame, end entrance, seats alongside, to accommodate 24 passengers, light framing, centre buffers and draw bars, double roof, end brakes.

BRAKE VANS.—No., 2; guard accommodation only, rest open; screw brakes.

WAGGONS.—No., 40; short, low sided, local timber and fitting, to accommodate 2½ tons; lever brakes, centre buffers and draw bars; spindles and bolsters for long timber carriage.

PERMANENT WAY.—Iron; as per specification and drawing; best makers.

TIMBER.—Sleepers of Jarrah, according to specification.

