AWM4

Australian Imperial Force unit war diaries, 1914-18 War

Engineers

Item number: 14/11/18

Title: Headquarters 5th Australian Divisional Engineers

November 1917

AWM4-14/11/18

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WAR DIARY
or
~~INTELLIGENCE SUMMARY.~~

Army Form C. 2118.

Instructions regarding War Diaries and Intelligence Summaries are contained in F. S. Regs., Part II. and the Staff Manual respectively. Title pages will be prepared in manuscript.

(*Erase heading not required.*)

Headquarters 5th.Australian Divisional Engineers.

Place	Date	Hour	Summary of Events and Information	Remarks and references to Appendices
YPRES. Sheet 28. I.14.a.5.5.	1.		The Division having been relieved in the line, Divisional Engineers are working under Corps. C.R.E's 1/8/63 submitted to C.E. 1st.ANZAC*	* Appl
			Effective Strength of Divisional Engineers 18 Officers 539 O.R.	
			Units located as follows:-	
			H.Q.D.E. I.14.a.5.5. Sheet 28.	
			8th.Field Co. I.8.c.3.4. " 28.	
			14th.Field Co. I.14.a.7.4. " 28	
			15th. Field Coy. I.8.c.4.3. " "	
			8th. Field Coy. working on hutting, stabling, also accommodation in YPRES.	
			14th. Field Coy. on C.H.A. Gun Positions and accommodation.	
			15th. Field Coy. do do do	
	2		Lieut-Col. V.A.H. STURDEE DSO left for England on duty: authority D.A.G., A.I.F. 10/544. C.R.E's. Circ. Memo. No.2. issued to 8/14/15th. Field Cos., 28th. HAG., & 57th. HAG in continuation of conference referred to in Appendix 1. *	*App.2
			C.R.Es. Circ. Memo No.3 issued to 8/14/15 Fd.Cos. 28th. & 57th. H.A.G. in continuation of conference referred to in App. 1 & 2. *	*App.3
			C.R.Es. 24/39/12 submitted to C.E. Corps, with regard to the value of French Wire *	*App3A
	3/5		C.R.Es. Circ. Memo. No. 4 submitted to 8/14/15th.Fd.Cos. 28th.& 57th. HAG in continuation of report on conference referred to in app.1. *	*App.4
			5th. Aus. Div. Engineers handed over to 4th. Aus. Div. Engineers. 5th. Div. Engrs. ceased work as from midnight 5/6th.	
			Orders issued for move to RENINGHELST AREA * (C.R.Es.3/170/29).	*App.5
SCOTTISH CAMP G.23.a.8.6. Sheet 28 France & N.B.	6		H.D.Q.E. moved to Scottish Camp G.23.a.8.6. Sheet 28.	
			8th. & 15th. Field Cos. moved to G.22.d.2.4. 14th. Field Coy. moved to G.34.d.3.9.	
			Lieut. Ewart, reported back from hospital.	
	7		Plan of suggested platform and train buffer for 6" How. received from 14th.Field Co. and submitted by C.R.E, to C.E., Corps *	*App.6
			Lieut. Oliver returned from leave. Major Greenway left for England on leave.	
	8		Capt, F.W. Stradwick late 16th.Field Coy. reported for duty & posted to 8th.Field Co.	
			Mr. Breuskin, Belgian Mission returned from leave.	

A7092). Wt. W12839/M1297 750,000. 1/17. D. D & L., Ltd. Forms/C2118/14.

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WAR DIARY
or
~~INTELLIGENCE SUMMARY.~~

(*Erase heading not required.*)

Army Form C. 2118.

Sheet 2. Headquarters, 5th. Aus. Divl. Engineers.

Place	Date Nov.	Hour	Summary of Events and Information	Remarks and references to Appendices
Scottish Camp. G23a8.6. Sheet 28. France & N.B.	8		Movement order No. 3/170/29 issued to Field Cos. *	*App.7
	9		14th.Field Coy. moved to N.28.c.2.6.) and come under orders of C.R.E. 30th.Div. 15th. Field Co. moved to N.28.a.8.4.)	
	10		Col. Carey proceeded to 14th. Field Coy. pending the Div.Hqrs. moving into new area.	
	11th.		8th.Field Coy. moved to M.35.d.8.9. with 8th. Brigade Group. H.Q.D.E. moved to BAILLEUL.	
	12		8th. Field Coy. moved to T.19.b.9.4. under orders C.R.E., 33rd.Division. Preliminary details of the organization of R.E. Stores in "D" Corps Area see app 8	App.8.
	13/15			
Dranoutre Sheet 28 M.35.c.7.2.	15		H.Q.D.E. moved to Dranoutre Sheet 28, M.35.c.7.2. & took over from 30th. & 33rd. Divs. Col. Carey returned from 14th. Field Coy. to Divl. Hdqrs.	
	.16		8th.Field Coy. moved to Daylight Camp N.33.d.1.5.	
	17/18		Copy of works policy (C.R.E's. 28/75/10) issued to Field Cos. & Pioneers *	App.9
	19/20		Engineer Instructions No. 11/81/3 issued to Field Cos. and Pioneers *	App.10
			Lt. Col. A.B. Carey, C.M.D., D.S.O., R.E. ardered to report to 47th.Div.(Impl.) for duty as C.R.E. Lieut-Col. V.A.H. STURDEE D.S.O. (Late O.C.4th.Pioneer Bn.A.I.F.) will report for duty as C.R.E., 5th.Aus.Division. Authority DAG, AIF, 1st.Anzac 10/558 of 20/11/17. (2nd.Army A301/289).	
	21/22		List of Strong Points in course of construction and proposed compiled. *	App.11
			Works report for week ending 21/11/17 rendered to Division. *	App.12
			Horses being clipped at DRANOUTRE Clipping Shed. 10 horses per day per Field Company arranged for, but this number could not be maintained. All Divisional horses being clipped at this shed. Delay occurs when horses arrive wet.	
	23/24.		Copy of C.E. Instructions No.63 issued to Field Coys. and Pioneers. *	App.13
			In reply to a letter from 2nd.Armycalling for a report of experiences in recent operations , appendix 14 submitted to C.E. 1st.ANZAC and a copy to 5th.D.H.Q. *	App.14
	25.		Brevet Lieut.-Colonel A.B.Carey,C.M.G.,D.S.O.,R.E. left for 47th.Division to be C.R.E. of that Division. Lieut-Colonel V.A.H.Sturdee, D.S.O.,A.E. assumed duties as C.R.E. 5th.Australian Division	

A7092). Wt. W12839/M1297 750,000. 1/17. D. D & L., Ltd. Forms/C2118/14.

Army Form C. 2118.

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WAR DIARY
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Sheet 3. Headquarters 5th.Aus.Divl.Engineers.

Place	Date	Hour	Summary of Events and Information	Remarks and references to Appendices
DRANOUTRE.	25.		Started burying water pipes on SCHARPENBERG-WYTSCHAETE Line.	
Sheet 28.			C.R.E. inspected Reserve and Support Line, Right Sector.	
M35.c.7.2.	26.		C.R.E. visited Field Companies and Pioneers and held consultation with regard to policy of work.	
	27.		Major Greenway, O.C. 15th.Field Co. returned from Leave to U.K..	
			C.R.E. and Adjutant inspected R.E.Dumps in Divisional Area.	
	28.		Works Report for week ending 28/11/17 submitted to D.H.Q. *	App.15.
	29.		C.R.E. siting posts on Corps Line with Brigade Major, 8th.Brigade and O.C. 8th.Fd.Co.	
	30.		The following Tunnelling programme, submitted to Divisional Headquarters on the 26th. inst., has been approved and 177th.Tunnelling Company notified accordingly:-	
			"The following Deep Dugouts should be constructed. They are arranged in the order in which they are to be worked on. (1) Ravine Wood (O10d25) for Bn.H.Q., Coy.H.Q., 200 O.R., A.D.S.. (2) How Farm (O27b11) for Coy.H.Q. and 200 O.R.. (3) Verne Road (O21c) for Coy.H.Q. and 200 O.R.. (4) Bethleem Farm (U3a93) Coy.H.Q. and 200 O.R.. (5) Fanny's Farm (O33a75) Coy.H.Q. and 200 O.R.. (6) O22a. for One Coy. and 200 O.R.. (7) Brigade H.Q. Wytschaete (O19 central). Nos.1,2,&3 sites have been verified by boring. Nos. 4 5,6 & 7 are in hand, and O.C. 177th.Tunnelling Coy. thinks they are suitable. It is proposed to abandon Gabion Farm site (U8d25) for the present in favour of more forward work. (Sgd) V.A.H. STURDEE, Lt-Col.A.E."	
			C.R.E. and Os.C. 14th. and 15th.Field Companies discussed the work to be done on the Corps Line.	
			Casualties during the month 2 O.R. Killed, 2 O.R. Wounded.	
			Effective Strength of Divisional Engineers 21 Officers 674 O.R.	

J.F. Goddard [signature]

Capt.& Adjt.,
Divl.Engineers.,
5th.Australian Division..

A5003 Wt. W128:0/M1207 750,000. 1/17. D. D & L., Ltd. Forms/C2118/14.

Appendix 1. 4

Reference E - in - Cs. para 2 :-

Blockage of plank roads by streams of mules, by lorries side slipping in wet weather, by delay in repairing shell holes, by defects in control of traffic, by lorries and horse vehicles dumping their loads on the road and short of their proper destination instead of in recognised dumps, difficulties caused by Corps and Division side slipping, rendering a settled policy of road construction difficult and breaks the continuity of interest in the advancement of a road or a tramline. Difficulties in housing men sufficiently near the work, in getting messages for urgent repairs sufficiently quickly when large parties are needed, difficulties due to congestion caused by various forms of traffic al converging on one well known locality instead of being fairly well distributed throughout the area.

Reference E. - in - Cs. para 3 :-

(a) SEPARATION OF TRAFFIC. Each form of traffic should have its own track and should rigidly adhere to it, for instance, in wet weather there should be separate tracks for men, mules, horse vehicles, lorries. Tracks for men and mules should start some 8/10,000 yards behind the front line from a position where the roads are in thoroughly good order and admit of three vehicles passing one another at one time. Lorries should be kept off plank roads which are single width and which are not fit for lorries in winter. Mules should on no account be allowed to use either the lorry road or the vehicle road; as a string of mules will block a road sometimes as badly as lorries.

(b) Provision of organised dumps with road loops. DUMPS

These should be provided at every place where there is a change in the method of transport, such as for instance, where material is changed from lorries to wagon transport, disciplinary measures should be taken with any driver who dumps his load short of the organised dump, and still greater care must be exercised to prevent drivers dumping their loads actually on the road and thus blocking traffic. These dumps should have road loops sufficient to allow both the unloading and the loading vehicles standing clear of the main traffic road; usually a length of about 120 yards will suffice.

(c) Duckwalks.

A double duckwalk should be provided for every 600 yards of front starting from a main three vehicle road, 8/10000 behind the front line and going fairly straight towards the front line. Sirgle duckwalks 3' wide should not be used but two single duckwalks with a space of a few inches between them so as to permit of loaded men passing one another. These double duckwalks may be reduced to single after passing the support Brigade Area, when the three Brigades of a Division are echeloned in depth. When there are two Brigades in line the double

width shoudl be carried up to within about 2,500 yards of the front line. When going through an Area liable to continual shelling it is probably better to separate the two single duckwalks by from 5 to 10 yards, so that one shell cannot blow out both walks, and to provide numerous switches between the walks so that in the event of a blow out men cann be diverted easily on the other walk until the break is mended, using a system, infact similar to the ladder system on a telephone line. The rungs of the ladder should not be squares across the two duckwalks but should be diagonally inclined so as to automatically divert traffic to the right.

(d) Mule Tracks. For these a formation should be made about 5' wide with good ditch on either side. There should be one for up Traffic and one for down Traffic for each Division. In dry weather, a formed track will usually be sufficient. In wet weather a track should either be corduroyed with corduroy mats of 2'6" pickets 3" diameter wired together in 7'6" lengths or else of beech planking 12" to 20" wide laid longitudinally on 3' sleepers at 7' centres. These longitudinal planks require some protections to prevent mules slipping, several patterns are under trial. The up and down mule walks should be sufficiently far apart to prevent one shell bursting both walks, but should be near enough together for the stream of trsffic of each walk to be clearly visible from the other and should be provided with inclined tracks joining the two main walks in the same way as in the system proposed for the duckwalks. the 12" width is sufficient on good ground, 20" on boggy ground

(e) Plank Roads. Single plank roads in wet weather should be utilised for horse vehicles only unless they have been specially strengthened for lorry traffic. In dry weather single plank road can take horsed and lorry traffic provided a sufficiency of turning places for lorries are put in, say one to every quarter of a mile. Before the rain comes they should be ditched and drained on both sides. Culverts should be put in when they are first made and in order that this may be done it is essential that the culverts shall be sent up from behind continuously, and that the unit making the road shall not wait until it comes to a ditch and then have to demand for a culvert to be sent up from away back. If this latter procedure nas to be followed the result is that when work is hurried the culverts are left out and considerable trouble is caused later. It is thought that the ladder system can be applied to single plank roads giving considerable advantages in traffic control and diversion over a broken section, with installation of a block system on the short sections parallel to it. The rungs of the ladder should not in this case be diagonal' inclined but the essentials are that each rung should be visible from the rung next ahead of it or next behind it and the two sections of road should be visible in the same way from one another so as to permit of easy

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(3).

visual control.

(f) Repair Gangs. Reserve Repair Gangs during their tour of duty should be housed central to the area in which they work & should be responsible for the repair of all plank roads, duckwalks and mule tracks in that area ~~they~~ should be connected by phone to all main points in the area so that they can be rung up without delay by their patrol*s or by the traffic control and informed of the exact nature and locality of any breaks. This phone system should be entirely separate and independent of any Signal Service and its cost would probably be covered by the first message sent giving warning of a bad break and the consequent quicker repair and easing of traffic congestion.

(g) Light Railways. These appear to have been fully occupied in the transport of heavy ammunition and material for repairing and prolonging their own line and consequently in this sector have not been of great assistance to the Infantry or to the Divisional Artillery. This has resulted in wet weather in long strings of ammunition mules blocking the roads.

(h) Divisional Tramways. The utility of these vary considerably with the nature of the operations. In the case of a slow advance it is doubtful whether the provision of good plank roads and mule tracks would not render the Divisional Tramway unnecessary particularly in a heavily shelled area. In case of a retirement of the Bosche for a considerable distance and a consequent diminution or cessation of shelling a Divisional Tramway across the poached area and worked by mules is undoubtedly an enormous advantage in shifting material from one good road system on to another good road system while the broadgauge, light railways and roads are being pushed across. A Divisional Tramway should have a mule track along side it for haulage on grades not exceeding 1/30 with sidings capable of holding 20 trucks at every half mile and should be able to put 200 tons a day across a shelled area not exceeding 4 miles in depth with 60 mules & 80 trucks. These trucks should be of a lighter pattern than the flat trucks used on Light Railway = blue print attached = A Divisional Tramway is also extremely useful in a section in which a large advance has been made when it comes to preparing that section for a comparatively peaceful winter occupation. It is not necessary in a nursery sector such as FLEURBAIX where a main road, canal and railway are comparatively close to the trenches and where good metal roads exist to within 1100/1200 yards of the front line, from which several small push lines can be used to get material forward from several points. Under comparatively war like conditions such as encountered on the SOMME mule tramway has this great advantage ~~with it~~, that it requires no ballast and that one mule will haul from 2 to 3 tons, which would require 6 to 10 mules in wagons on a plank road or 25 to 35 mules packing. This means fewer mules and drivers out in the rain and consequently proportionately reduced casualties. The chief reason why Divisional Trams have not been more used has been the lack of knowledge and of unity of interest & control. If these 3 features were assured the Divl: Trams would probably largely supersede the Single plank road.

APPENDIX. 7

(i) Mono Railway. These appear to have many disadvantages, for instance, special rolling stock is required. They form a fence across the country. Two guide rails are generally required besides the rail on which the carriages run. Owing to the necessity of either having a more heavy rail or else frequent supports for it, they require more material than a mule tramway and more skill in erection and repair. Their capacity is less than that of a mule tramway. The rolling stock is heavier and more expensive to manufacture. Any advantages that there might be do not appear to be sufficient to form any compensation for the above serious disadvantages.

(j) Wire Ropeways. These are a mono rail reduced to its logical conclusion. They are of great value in very broken and hilly ground. If a wire ropeway can be evolved having standards at 60 to 80' centres and the standards not weighing more than * about 1½ cwt. a piece and being easily and quickly fixed and repaired when damaged, and also providing for the passing of cross traffic it would seem that considerable advantages might be gained from them particularly during a fighting advance. The essential factors are that the wire ropeway must be far more easily and quickly laid than the mule tramline; that when it is laid a man or a mule will be able to pull on it at least five times as much as he can carry ; that the original laying of it shall not cost more men in labour of carrying to site and arranging than would be utilised in an average 24 hours in carrying parties or pack mules if it did not exist, and that the average cost of upkeep shall not exceed about one tenth of that number of men. These requirements do not seem impossible of attainment.

Reference E -in - C's. para. 4. of Divisions & Corps

(3) If the difficulties of side slipping could be got over; the Divisional Tramways started from a good three vehicle road; and continuity of policy assured; it would seem best that Pioneer Battalions should all be trained in mule haulage tramways and that Divisions should make repairs and operate their own tramways with their own Pioneers. It is not considered desirable that these tramways should be dependant on the Light Railway system which is bound to give preference to heavy ammunition during serious operations, thus leaving the Infantry in the lurch. It seems possible however that the ropeway and the mule track may eliminate the necessity for the Divisional Tramline. Until, however, the ropeway has been worked out & proved to be a success there is no doubt that the mule hauled tramway is the cheapest & most efficient means of forward transportation and that it also reduces the hours & period in the forward area and fewer casualties result.

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Appendix 2

8

WINTER BATTERY POSITIONS.

Circular Memo. No. 2.

Comparison between Pill Boxes and Deep Dug-outs ;-

(1) A Pill Box to accommodate 20 men requires about 160 toms of concrete. A deep dug-out made with 16 tons of mining sets will accommodate 25 men in bunks, 2 or 3 Officers and a Telephone room. Therefore there is a very large advantage in the question of transport to site in favour of the deep dug-out. This question of transportation is easily the governing factor in the construction of works in the forward area. It may therefore be concluded that wherever it is possible to put a deep dugout, this should be provided for the accommodation of gun crews, rather than Pill Boxes. These latter should only be provided in sites where deep dugouts are absolutely impossible and where transportation is easy. Under heavy shell fire with big stuff a deep dugout is a safer proposition than a pill box.

(2) Construction of Pill Boxes.

It is not practicable to make these of reinforced concrete in an area which is being heavily shelled with heavy stuff as the vibration set up by one big shell bursting within a couple of hundred yards may be enough to disturb the initial set of the concrete, and three or four such shells would undoubtedly completely ruin it. Monolith concrete without reinforcement would have the same objections, though to a very much less degree. The only practicable means, therefore, of construction is to use the concrete block system. Designs have been prepared and sample blocks are being manufactured, but, if the question is to be taken up seriously, construction of these blocks should be put in hand at a gravel bed in the back area, such as for instance a place like AIRE, where the small gravel could be sived out and used for the concrete blocks, avoiding the use of large gravel or macadam, which is more valuable for the roads. Blocks should be allowed to set for at least a fortnight and preferably three weeks before being transported.

A site for a deep dugout ~~for~~ for the selected forward winter battery positions on ANZAC RIDGE has been chosen, and work will be started as soon as mining sets are received. Application for these was made on 31/10/1917.

Lieut-Col.,
C.R.E., 5th. Aus. Division.

2/11/17

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Appendix 3

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WINTER BATTERY POSITIONS.

CIRCULAR MEMO. NO. 3.

A blue print is attached shewing in diagram form suggested methods of constructing and draining a platform and recoil buffer for a medium howitzer. Diagram is not to scale. Too much stress cannot be laid in very careful attention to drainage for winter use. The system of pit-props driven in to the ground or sunk by means of post hole augers and provided with fascines and rubble in front and behind is considered the most economical and soundest for general use.

Particular attention should be paid to the drainage of the recoil buffer.

2/11/17

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Lieut-Col.,
C.R.E. 5th. Aus. Division.

C.E., 1st. Anzac,
28th. H.A.G.
~~27~~ 57th. H.A.G.
6th. Field Co.E.
14th. do
16th. do
W.D. I

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Appendix 39 10

Headquarters, 5th. Australian Divisional Engineers.

Chief Engineer,
1st. Anzac.

Reference S.S. No. 177.

The putting out of wire under ordinary trench warfare conditions is a comparatively easy matter and can generally be handl ed by the Infantry or the Engineers with Infantry carrying parties without undue difficulty.

The most important and at the same time the most difficult task is the putting out of wire in front of the out-post line during battle conditions such as for instance experienced at POLYGON WOOD between 26th.& 28th.Sept.and later on the BROODSEINDE RIDGE. Under these conditions it must be remembered that the quantity of enemy shell coming over renders the life of a wire obstacle very short,. Communications to the new outpost line are very difficult. The out-post line is subject to fluctuation. Under these conditions the greater portability and ease of erection of French Wire gives it an immense superiority over any other form.

As war gets more open the comparative lightness of French Wire becomes still more important in saving transport and labour.

It is thought that Infantry Schools should lay very much greater stress on the use of French wire and simple methods anchoring it with screw pickets, sandbags or staples or even simply pressing the lower edge into the mud so that the Infantry may come to regard the sending up of French wire and putting it out as part of their regular procedure on taking a position.

Lieut-Col., R.E.,
C.R.E.,
5th. Aus. Division .

2/11/17.

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App. 4

11

WINTER BATTERY ACCOMMODATION.

Circular Memo. No. 4.

Blue print is attached shewing platform and recoil buffers as actually constructed. 2 buffers for 170th. Battery; 1 for 141st.; 2 for 329th.; 1 platform for 141st. Work on other platforms is on hand. 5th. Aus. Divl. Engineers cease work tonight, handing over to the 4th. Aus. Divl. Engineers. Drainage details are not shewn on this blue print but drainage is absolutely essential for any battery position that is to last for any length of time on bad ground during the winter. Details were shewn on blue print issued with Circular Memo. No. 3.

Lieut-Col.
C.R.E., 5th. Aus. Div.

5/11/17.

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Appendix 5 12

HEADQUARTERS. 5th. Australian Divisional Engineers.

S E C R E T . 5th. November 1917.

MOVEMENT ORDER NO. 3/170/29.

1. (a) The Divisional Engineers will move tomorrow 6th. November from their present billets to the RENINGHELST Area. No restrictions as to route.
(b) The usual distances will be maintained on the march.
(c) Headquarters, Divl. Engineers will be established at SCOTTISH CAMP.

2. The following is a forecast of moves ;-
8th. & 15th. Infty. Bde. Groups by march route to MERRIS Area about 10th. or 11th. inst.

3. Supplies. No supplies will be drawn on the 6th. November. On the 7th. Novr. the 8th. Div. Engrs. Hqrs. and the 15th. Field Coy. will draw supplies from S.O., 15th. Infty. Bde. at G.26.d.8.5., Sheet 28. On the same day the 8th. & 14th. Field Cos. will draw supplies from the S.O., 8th. Infty. Brigade at G.22.a.8.8. Sheet 28. Units will continue to draw from these dumps until further notice.

4. Quartering. 8th. & 15th. Field Cos. will be quartered in huts at G.28.d.2.4. Sheet 28 at which camp there are standings for all animals of the 3 Field Cos. The 14th. Field Coy. will be quartered in RENINGHELST.
8th. Div. Engineer Hdqrs. will be accommodated at Scottish Lines Camp, G.23.a.8.6. Sheet 28.

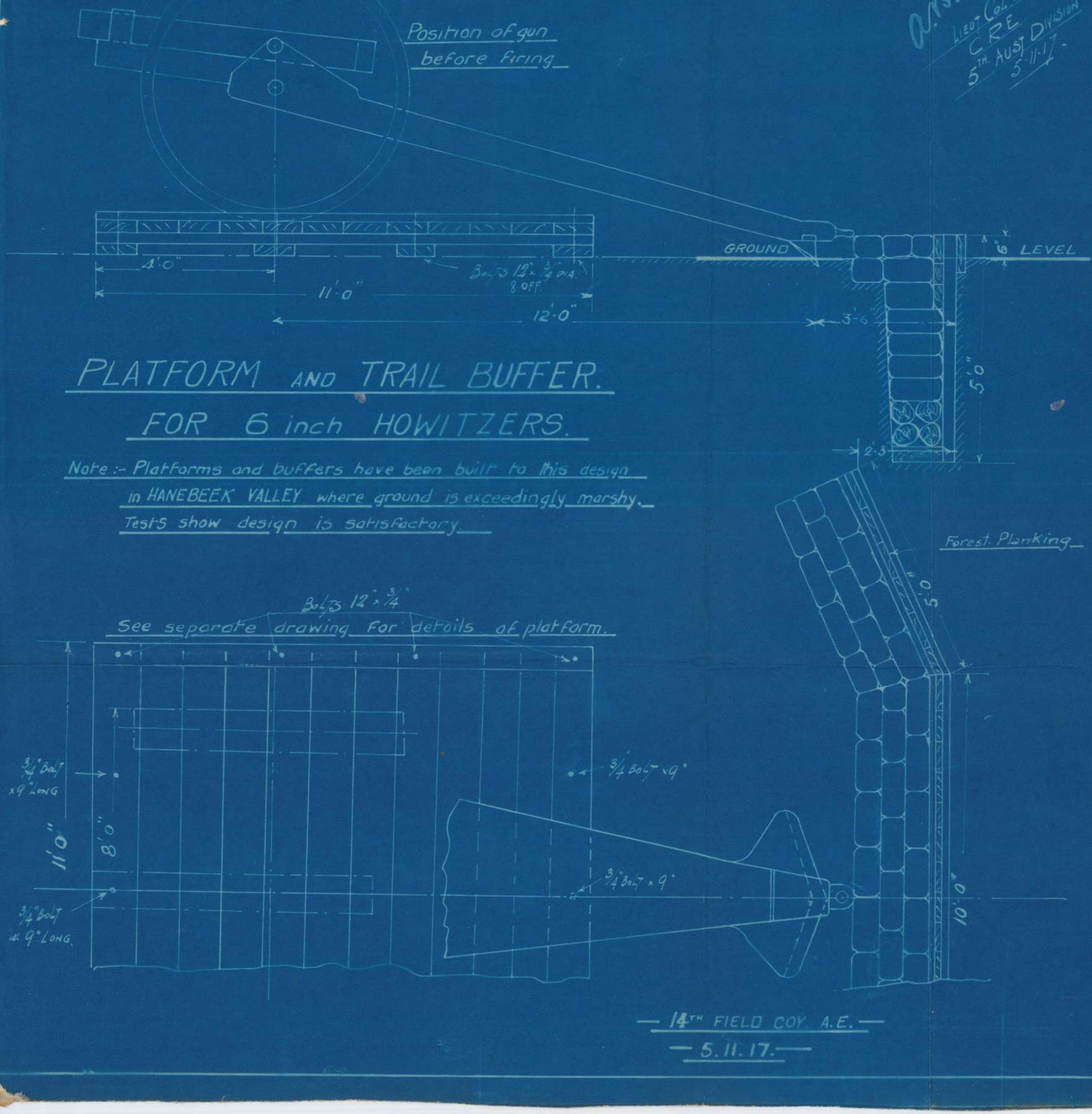
5. Advance Parties. An advance party for 8th. & 15th. Field Cos. will report at Area Commandant RENINGHELST area, OUDERDOM at 8 a/m 6th. November.
The advanced party for the 14th. Field Coy. will report to the Assistant Area Commandant, RENINGHELST AREA, RENINGHELST at 8 a/m 6th. November.
8th. Div. Engineer Headquartrs will be accommodated by Camp Commandant, 8th. Australian Divisional Headquarters.

6. Acknowledge.

J. Cadell
Captain,
Adjutant, Divisional Engineers,
5th. Australian Division.

A.M. Carey
Lieut Col. R.E.
C.R.E.
5TH. AUST DIVISION
5.11.17.

Position of gun
before firing



PLATFORM AND TRAIL BUFFER.
FOR 6 inch HOWITZERS.

Note :- Platforms and buffers have been built to this design in HANEBEEK VALLEY where ground is exceedingly marshy. Tests show design is satisfactory.

Bolts 12" x 3/4"
See separate drawing for details of platform.

APPENDIX 6

14TH FIELD COY. A.E.
5.11.17.

Reference Sheet
27 & 28, 1/40,000

SECRET
Appendix 7.

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Headquarters,
5th. Aus. Div. Engineers.,
8th. Nov. 1917.

Movement Order No. 3/170/29

1. (a) The 5th. Aus. Division will relieve the 33rd. Division, and the 30th. Division in the line from LA DOUBE RIVER to G.11.a.1.7. (HOLLEBEKE) on the nights of 13/14th. & 14/15th. Novr. 1917.

(b) The boundaries between the 33rd. Division and the 30th. Division is the BLAUWEPOORTBEEK .

2. (a) The 8th. Infty. Brigade will take over the frontage held by the 100th. Brigade of the 33rd. Division.
(b) The 14th. Infty. Bde. will relieve the Right Bde. (21st. Infty. Bde.) of the 30th. Division.
(c) The 15th. Infty. Bde. will relieve the Left Bde. (9th. Infty. Brigade) of the 30th. Division.
(d) The Inter-brigade boundary of the 30th. Division is the ROOSEBEEK. This boundary will be maintained pending readjustment of Frontages later.

3. Separate orders will be issued regarding the relief.

4. Moves from the present billeting areas to the VIII Corps staging area (LOCRE) will be carried out in accordance with the attached march table.

5. For the purposes of these moves each Infty. Brigade Group unless otherwise stated, will consist of ;-
1 Infty. Brigade,
1 M.G. Coy.
1 L.T.M. Batty.
1 Field Coy.
1 Coy. A.A.S.C.
1 Field Ambulance.

6. The following distances will be maintained between units on the march ;-

Companies	100 yards.
Unit & its transport	100 "
Battalions	500 "

When transport is brigaded, between each battlion transport - 100 yards.

7. Brigade group billeting parties will report in advance to the area commandant, LOCRE, for accomodation.

8. (a) The A.A. & Q.M.G. will arrange for the move of units not mentioned in the march table.
(b) Separate administrative instructions will be issued by "Q", 5th. Aus. Div.

9. Acknowledge.

J. Howell
Captain,
Adjutant, 5th. Aus. Divl. Engineers.

SECRET. MOVE TABLE TO ACCOMPANY C.R.E's. 3/1170/29. 8/11/1917.

250.

Serial No.	Date	Unit	From	TO	Route	Remarks.
1.	9/11/17	5th. Pioneer Bn.	Pioneer Area	HQ & 1 Coy SPY WME (N.28.c.) 3 Cos. PROWHAM (N.30.a.)	Via Dickebusch - La CLYTTE-KEMMEL	March to be complete by 12 noon. to Relieve 11th.S.Lan R.
2.	10/11/17	14th. Inf. Bde. Group (less 14th.Fd.Coy.)	BERQUIN AREA	LOCRE AREA	Via BAILLEUL	March to be complete by 12 noon.
3.	10/11/17	14th. Field Coy.	RENINGHELST AREA	LOCRE AREA	Via WESTOUTRE	March to be complete by 12 noon. To join 14 Bde. Gp
4.	11/11/17	8th. Infty.Bde.Group. & 25th. M.G. Coy.	WIPPENHOEK & RENINGHELST AREAS.	LOCRE Area.	WESTOUTRE	March to be compl ete by 12 noon.
5.	11/11/17	5th.Aus.Div.H.Q.	Scottish Camp	BAILLEUL (temporarily)	WESTOUTRE - LOCRE	D.H.W. will be established at DRANOUTRE at 10 am. on 13/11/17
6.	12/11/17	15th. Infty.Bde. Group	Reninghelst Area	LOCRE AREA	WESTOUTRE	March to be complete by 12 noon.

APPENDIX. 7

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Appendix 8 16

COPY.

FIRST AUSTRALIAN AND NEW ZEALAND ARMY CORPS.

270/87.

Headquarters,
10/11/17.

C.R.E. 5th.Aus.Division.

Preliminary Details of the organisation of R.E. Stores in "D" Corps Area.

1. The following Dumps and workshops will be taken over, and run by C.E.

Corps Park, Steenwerck.
Workshops, Steenwerck (Sub-let from C.E. II Army)
De Seule Dump.
De Kennebak Dump.
Lindenhoek Dump.
Bailleul 'Nutting'Dump.

2. The usual procedure for the issue of stores will be for the C.R.E's. Divisions of the line to fill up their forward Dumps direct by Light Railway from Bailleul, Steenwerck and Kennebak.

3. The Divisions will advise the Stores Officer what stores they require daily to stock their forward Dumps. As far as possible this information should reach C.E's Office by 11.30 a.m. on previous day.

4. For 'local work','when more convenient' or ' in cases of emergency' the following Divisions can draw direct from the Detail Dumps on indents signed by C.R.E's. or Officers authorised by them.

Right Division.	De Seule Dump.
	De Kennebak Dump.
Left Division.	De Kennebak Dump.
	Lindenhoek Dump.

5. It is proposed to make De KENNEBAK the Advanced Corps Dump for both Divisions, and workshops will be installed.

6. The broadgauge will shortly be removed from DE SEULE dump & it is probable that later it may not be necessary to retain this dump.

7. LINDENHOEK dump has no railway facility and will be closed when the stores are issued.

8. The Broadgauge is now into PARMA dump, but it is not yet decided how this will be utilised.

9. The first Anzac portion of the out-put from the 2nd. Army Workshops BAILLEUL will be distributed to the forward Divisional Dumps.

10. Every effort will be made to utilise the railway to the fullest possible extent so that mechanical & horse transport can be reduced to an absolute minimum

Appendix 9 17

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C. R. E.,
5th AUSTRALIAN
DIVISION.
No. 28.75.10.
Date 18.11.17.

PART V.

WORKS POLICY.

1. The following policy of work will be adhered to :-

2. By Infantry garrisons of trenches
(a) Improvement of trenches and posts, and accomodation for the garrison
(b) Drainage
(c) Wiring
(d) Improvement of communications
(e) Provision of notice boards
(f) Provision of dummy trenches and wire.

3. Under C.R.E.
(i) The C.R.E. will divide the sector into 3 sub-sectors to each of which will be allotted a Field Company as under

Right Subsector - 8th Field Co.
(and including Divisional Headquarters).
Centre Subsector - 14th Field Co.
Left Subsector - 15th Field Co.

The Eastern and Western boundaries of these subsectors will b the Front line and the Western Divisional boundary respectively.

The boundaries between subsectors will be as follows :-

Right Subsector.- Southern Boundary :- The Southern Divisional boundary.
Northern boundary :- The BLAUWEPOORTBEK Westwards to O.33.a.9.9. thence to Cross Roads at N.36.b.2.9. thence to DAYLIGHT CORNER at N.33.d.1.5. and thence due West to the Divisional boundary.

Centre Subsector - Southern boundary :-
The Northern boundary of the Right Sub-sector as described above.
Northern Boundary :-
From O.23.a.80.95 due West to Cross Roads at OOSTTAVERNE (O.21.b.65 75), thence a direct line to the Cross Roads at O.20.a.3.8, - N.23. central- N.22. central - Cross Roads N.21.d.3.3. - N.20.d.5.0. and thence a line running due west to the divisional boundary.

Left Subsector - Southern boundary :-
The Northern boundary of the centre sub-sector as described above.
Northern boundary :-
The Northern Divisional boundary.

(ii) The dividing line between the Forward and back areas will b the STEENEBEEK from the Southern divisional boundary (abou U.8.central) to N.30.b.15.75 thence due North to WYTSCHAETE BEEK and thence along the WYTSCHAETE BEEK to the Northern divisional boundary at N.18.a.80.75.

(iii) DUMPS. The Dumps at PARMA (N.12.c.5.0) RAILWAY (O.20.c.2.3. and CORRY (T.12.b.4.4.)will be run respectively by the 15th 14th and 8th Field Cos, and as far as possible all material for forward work will be delivered to these dumps direct. The dump at LINDENHOEK will be run by the 5th Aust. Pioneer Battalion as a Divisional Hutting Dump and for back area work.

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(iv) A Reserve line will be constructed extending from the Southern Divisional boundary through O.33 central to O.9 central, and a SUPPORT LINE from the Southern Divisional boundary through O.34 central to O.10 central. Brigade Commanders in consultation with C.R.E. will be responsible for the siting of works which will be marked out by the Field Companies in their respective sectors. The work will be supervised by the Engineers. Both lines will consist of chains of strong points to accomodate one platoon each. Existing deep dug-outs and "pill boxes" will be worked into the scheme where feasible. Each strong point must have a field of fire covering the strong points on its flanks
The flank strong point on each ridge will be thrown back slightly.
Special attention will be paid to drainage, and lateral communication will be supplied by duck walk track where necessary across the valley on each line.
Strong points will be clearly marked with the name of the ~~Ridge~~ Spur; whether Reserve or Support line; and - the number of the strong point commencing from the right on each Ridge. ~~Ridges~~ are named as under commencing from the South Spurs

GAPAARD ~~Ridge~~ Spur
LAMBEKE ~~Ridge~~ "
COSTAVERNE ~~Ridge~~ "
HOLLEBEKE ~~Ridge~~ "

The question of wiring the Reserve and Support lines will be taken up as the position of strong points have been fixed and the existing works located.
Field Companies will supply supervision for the improvement and drainage of the front line where necessary, and will arrange for a sufficient supply of wire at Battalion Headquarters to meet all requirements for the front line and outposts.

(v) Communication Trenches.
Field Companies will supply supervision where necessary on the communication trenches when these are taken over by the Brigades from the Pioneers.

(vi) Hutting.
The completion of all huts and stables is to be pressed on. The troops living in the camps will supply labour for this work as far as possible.

(vii) The 5th Aust. Pioneers are responsible for putting all communication trenches into such condition that a hard and dry walk is provided to the front line. They will then hand over the communication trenches to the respective Infantry Brigades who will then become responsible for their upkeep.
The Pioneers will maintain Divisional Tramways and convert them to mule haulage where possible. They will supply one company for the construction of Stabling commencing at DONEGAL Camp, and carrying on with other camps until completion. They will be responsible for the upkeep of roads forward of the Corps line. As communication trenches and Stables are handed over Pioneers will be utilized for work on Reserve and Support lines.

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Appendix. 10 19

Headquarters 5th. Australian Divisional Engineers.

ENGINEER INSTRUCTIONS
No. 11/61/5.

8th.Field Coy.
14th.Field Coy.
15th.Field Coy.
6th.Pioneer Bn.
War Diary. ✓
File.

1. Allocation to Areas.

177 Tunnelling Coy. to LEFT Divisional area.

2. WORK TO BE UNDERTAKEN.

LEFT Division.

(1) Dugout accommodation in front or main defensive system.
(2) Battln. & Coy. Headquarters.
(3) Dugout accommodation in and behind second defensive system.

RIGHT Division.

(1) Battln. & Coy. Headquarters in front or main defensive system.
(2) Improvement of existing dugouts and shelters in the front defensive system.
(3) Improvements of existing dugouts and shelters in and behind second defensive system.

3. RESPONSIBILITY.

(1) The C.E. is responsible for the work of all Tunnelling Coys. but the 177 and 184 Tunn.Coys. will be employed under the C.R.E's of the LEFT and RIGHT Divisions respectively. The C.R.E's to be directly responsible to the C.E. for Tunnelling work in their areas.

(2) The C.R.E's of LEFT and RIGHT Divisions in consultation with the O.C. Tunnelling Coys. will submit their proposed programme of work to C.E. at earliest possible date. These programmes when approved will be definitely adhered to.

(3) All new proposals (of size) in Divisional areas are to be submitted to C.E. who will consult the Controller of Mines as to their practicability.

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(2)

3. RESPONSIBILITY.

(4) O.C. 250 Tunnelling Coy. will be directly responsible to C.E. for the C.H.A. work.

4. BORING.

The Controller of Mines, II Army, has a Boring Section , available for testing sites of proposed deep dugouts. No new systems will be commenced without bores being put down, unless the Coys. have previous information to shew that the ground is suitable.

5. INFORMATION.

All the available particulars of existing dugout accommodation together with details of the geological formation of area will be forwarded to C.R.E's of RIGHT and LEFT Divisions under a separate cover.

Each Division will maintain an up to date list of dugout accommodation each locality being numbered.

6. RELIEF.

One section, 177 Tunnelling Coy. at present employed under C.R.E. - Corps Troops on forward roads will be relieved by C.E. with other labor under instructions to be issued later.

20/11/17.

J. Bowen

Capt. A Adjt.,
Divl. Engineers,
5th. Aus. Division.

Appendix. H

250

STRONG POINTS.

U.5.d.1.4.	Front Line	No. 1.	
U.5.b.5.4.	"	" 2.	
U,5.b.3.9.	"	" 3.	
0.35.c.7.7.	"	" 4.	
0.35.a.85.0.	"	" 5.	
0.35.a.4.5.	"	" 6.	
0.11.b.20.45.	"	" 7.	Oak Trench.
0.22.c.4.7.	Oosttaverne	Spur	Support No.1.
0.22.a.4.0.		do	do 2.
0.22.a.3.5.		do	do 3.
0.22.a.3.9.		do	do 4.
0.16.c.5.5.		do	do 5.
0.16.c.8.9.		do	do 6.
0.21.a.45.1.		do	Reserve No.1.
0.21.a.75.4.		do	do 2.
0°15.c.9.2.		do	do 3.
0.15.d.0.5.		do	do 4.
0.16.b.0.6.	Hollebeke	Spur	Support No.1.
0.10.d.35.15.		do	do 2.
0.10.d.1.5.		do	do 3.
0.10.d.3.7.		do	do 4.
0.10.b.4.4.		do	do 5.
0.15.b.2.3.		do	Reserve No.1.
0.15.b.15.65.		do	do 2.
0.9.d.7.2.		do	do 3.
0.9.d.6.8.		don	do 4.
0.9.b.5.1.		do	do 5.
-0.9.b.3.4.		do	do 6.
0.27.d.25.25.	Wambeke	Spur	Reserve No.1.
0.27.d.45.6.		do	do 2.
0.27.d.4.85.		do	do 3.
0.27.b.2.2.		do	do 4.
0.27.b.1.6.		do.	do 5.
0.21.d.05.05.		do	do 6.
0.21.c.9.5.		do	do 7.
0.34.a.6.98.		do	Support No. 1.
0.28.c.75.72.		do	do 2.
0.28.a.8.25.		do	do 3.
0.22.c.75.05.		do	do 4.
U.4.c.9.3.	Gapaard	Spur	Support No. 1.
U.4.a.85.15.		do	do 2.
0.34.d.0.1.		do	do 3.
0.34.d.0.6.		do	do 4.
0.34.b.25.40.		do	dp 5.
U.9.a.8.7.		do	Reserve No. 1.
U.3.c.8.7.		do	do 2.
U.3.b.0.5.		do	do 3.
0.33.d.3.2.		do	do 4.
0.33.d.3.6.		do	do 5.
0.33.d.0.6.		do	do 6.
0.33.a.7.5.		do	do 7.

0.34.b.3.4.
Will probably be taken over by D.M.G.O. and Platoon S.P. will be moved to about 0.34.a.7.3.

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Defensible deep dugouts are projected in rear of support line and also for defense of the flanks in O.8.d. and U.2.d. approximately.

Further distribution in depth will be obtained on flanks of Division and in valleys by M.G's and on ridge by siting a defence of Coy. and Battalion Headquarters.

Subject to alteration.

Lieut-Col.,
C.R.E.,
5th. Australian Division.

Copies to :-
G.O.C.,5th.Aus.Div.
C.E.1st.Anzac.
8th.Field Coy.
14th.Field Coy.
15th.Field Coy.
D.M.G.O.
C.R.E.3rd.Aus.Div.

PROGRESS OF WORKS REPORT for week ending 6 p.m. 21/11/17

App. 12

SERVICES SUBJECT.	PARTICULARS.	PROGRESS OF WORK Total Work.	State of completion.	TIME REQUIRED to complete	REMARKS.
ROADS.	LAMPOST Cr.to WYTSCHAETE & SOMER Fm to GOUDEZEUNE Fm.	300 yds.cleared mud. 54 loads metal carted. Road metalled & maintained. 100 yds.drained.			
	U.8.b.1.2. to U.3.b.9.3.	Road formation made into DAY-LIGHT Camp.			Reconnaissance and report made on this Rd.
	N.27.d.7.7.	Repaired corduroy.			
WATER SUPPLY.	0.19.d.7.3.	One L & F pump, One 50 gall tank			For Soup Kitchen..
R.E.DUMPS.	0.20.c.2.3. (WYTSCHAETE.)	Stores being delivered here and maintained.			
	BELLE Fm.& CURRIE.	35 loads of material by Coy.transport.			14th.Field Co.
	PARMA - CLARKE - ROSE				8th.Field Co.
					15th.Field Co.
WORKSHOPS.	NEUVE EGLISE and LINDENHOEK	Party of 1 Officer & 39 D.R.			5th.Pioneers.
TRACKS.	Duckboard.N32.c.4.9.	80, 3'& 125 - 18" laid.			DONEGAL Camp.
	N.27.d.7.7. Dkwks.	10 - 3' laid.			Y.M.C.A.
	N.28.c.2.6. "	80 - 18" & 15 - 3' laid & wired.			14th.Field Co.Camp.
	PIONEER Lane.)	2070 Yds.Dkwk. Track laid.			
	ANZAC Farm)	General maintenance & repairs.			
	0.20.a.2.0.)				
	DORSET St.& BOB St.)				
ACCOMMODATION.	N.28.c.2.6.	1/8'x 7' (6 bunks).8/10'x 7' (9 bunks). Cookhouse. Harness shed 26'x 12'. Stable 10' x 9'.	Complete.		
	T.6.a.20.25.	6 huts almost complete.			MISSEN Camp.
	BELLE Fm.Dump.	Accommodation for 50 men.			
	U.7.b.0.8.	do do 15 men.			Near CURRIE Dump.
	CURRIE Dump.	do do 1 platoon.			

APPENDIX. 12

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ACCOMMODATION.	CLIPPING Shed DRANOUTRE.	Cookhouse & odd jobs.			
	BULLER Camp.	do Fodder Shed 18'x 10', Farriers Shed 14'x 11', 40' horse trough & pump.			
	DONEGAL Camp. (N.32.c.4.9.)	9 N.B. Huts, 4 Cockhouses, 4 Ablution Sheds, 1 Feed Store. Stables - 50' flooring 720 rafters & pitprops put in.			
	DAYLIGHT Camp.	4 N.B.Huts tarred & general improvements, stables for 70 horses, roofed.			
	HILLSIDE North Camp.	Stables for 70 horses roofed.			
	REDVERS Camp.	Ablution Shed complete, Cookhouse 50 % complete		2 days.	
	KEMMEL Camp.	Ablution Shed. Stables. Incinerator.		1 day.	
	KEMMEL Chateau.	General repairs.			
	GRAND BOIS.N.18 b.9.4.	Bunking.			
	BELLE Fm.Dump.	2 Pill Boxes pumped & cleaned out.			
	U.8.b.0.2.	2 Pill Boxes do do			
	U.4.c.4.3. Bn.H.Q.	Concrete roof being put on shelter.	75%.		
	O.16.a.8.7. Coy.H.Q.	Drained.4 bunks,table,forms etc.	Complete.		
	O.20.central. (Prince Ruperts Duguts	Drained & pump fitted.			
	O.27.b.0.8. Pill Box.	Pumped out & cleaning.			14'x 10' x 5'6".
	O.19.d.9.3. do	Pumped out.			
	O.22.c.3.7. do	do do s			
	O.21.c.9.5.S.Pf.Dugout	4/4 men, 2/3 men dugouts erected.			
	O.22.b.4.7. do	1/4 men, do			
	O.27.b.1.6. do	1/3 men, 1/4 men, do			

APPENDIX. 12

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250

Accommodation (continued)						
	0.23.c.2.7.- 0.23c2.9.	5/4 man dugouts.	complete.			3, 50% complete.
	0.23.c.3.8.	1/3 man dugout complete				Shell Hole Post 7.
	0.23.c.3.6.	" " "	50%			do 6.
	0.23.c.3.3.	" " "	"			do 5.
	0.25.b.6.7. A Battery	General repairs to dugout				148th.Bde. R.F.A.
	B. do	" " " " & draining.				do
	D. do	" " " " "				do
	0.19.d.5.9. Arty.O.P.	Drive* from entrance to old Bosche dugout to underside Pill box complete. 50% timbered.	***			
SIGN POSTS.	Manchester & Dorset St. to Kile Farm.	Six erected.				
	To 8th. Brigade A.I.F. At N.28.c.2.6.	50 misc. made & delivered. 3 Salvage Signs. 35 Strong Point Signs. 2 "To Left Bde."				
STRONG POINTS.	Front Line No.7	Sites marked out. excavation & revetted commenced.	35%	7 days	0.11.b.2.5.	Work night only.
	OOSTTAVERNE SPUR SUPPORT NO.4	Complete with M.G. Position.	Cmpl.	-	0.22.a.3.9.)	
	" " " 5.	Excavation & "A"s complete. Revetment & C.T. to Pill Box in rear to be completed.	75%	4 days	0.16.c.5.5.)	Time reqd. to complete depends on clearness of atmosphere. Estimates based on 6 hours work daily.
	" " " 6.	Excavation & "A"s nearing completion. 1 fire bay compl.	45%	7 days	0.16.c.8.9.)	
	" " Reserve No. 3.	Old Tr. drained, cleaned & revtd.	50%	5 days	0.15.c.9.2.)	
	" " " " 4.	Revetment to be improved. Shelters put in & parapet tknd.	75%	4 days	0.15.d.0.5.)	
	HOLLEBEKE SPUR SUPPORT NO. 1.	Excavation. "A"s. & Dkwkd. complete. Revetment & shelters to be finished off.	90%	3 days.	0.16.b.0.6.)	
	" " " " 2.	Sited work not commenced.			0.10.d.35.15)	
	" " " " 3.	Excavation "A"s. revetment & duckboarding complete. M.G. pos. to construct & shelter to put in.	75%	4 days	0.10.d.1.5.)	
	4	Excavation A framing Revetment = dwlls compl. Shelters & to be put in.	95%	2 days	0.10.d.3.7.)	

APPENDIX 12

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STRONG POINTS.			
HOLLEBEKE SPUR SUPPORT NO. 5.	Excavation partly complete.	25%	0.10.b.4.4.)
" " RESERVE No. 1.	Sited -	-	0.15.b.2.3.)
" " " " 2.	Sited		0.15.b.15.65.
" " " " 3.	Sited		0.9.d.7.2.
" " " " 4.	Sited		0.9.d.6.8.
" " " " 5.	Sited		0.9.b.5.1.
" " " " 6.	Sited		0.9.b.3.4.
WAMBEKE SPUR SUPPORT " 1.	(Pegged out, camouflaged all		0.28.c.6.0.
" " " " 2.	(ready, drainage commenced		0.28.c.7.8.
" " " " 3.	(~~waiting for artillery covering.~~		0.28.a.8.3.
" " " " 4.	(		0.22.c.8.0.
OOSTTAVERNE SPUR SUPPORT NO. 1.	Drained, revetted, duckboarded. C.T. from Manchester St. 50%.		0.22.c.4.7.
" " " " 2.	(Pegged out, camouflaged ~~ready~~		0.22.a.4.0.
" " " " 3.	~~(waiting for artillery covering.~~		0.22.a.3.5.
WAMBEKE SPUR RESERVE " 1.	Excavation, drainage compl.		0.27.d.3.3.
" " " " 2.	Drainage, revetted, dkwks compl.		0.27.d.5.6.
" " " " 3.	Accommodation 25 % complete.		0.27.d.4.9.
" " " " 4.	do		0.27.b.2.2.
" " " " 5.	do		0.27.b.1.6.
" " " " 6.	do		0.21.d.0.0.
" " " " 7.	do		0.21.c.9.5.
OOSTTAVERNE SPUR RESERVE NO. 1.	Digging, revetting, drainage	50%	0.21.a.4.1.
" " " " 2.	Digging, drainage & revetting & duckboarding completed. Accommodation 10% compl.		0.21.a.7.4.
Shell Hole Post. No.5.	8 yds. revetted tr. 50% compl.		0.23.c.3.3.
do No.6	do		0.23.c.3.6.
do No.7	do completed.		0.23.c.3.8.
Front Line System	Dug and revetted. S.Ps. for one platoon each.		U.5.b.3.9.
do			0.35.c.7.7.
do			0.35.c.9.5.
do	Traced		U.5.d.1.4.

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STRONG POINTS (continued)

GAPAARD SPUR SUPPORT	NO. 1.	Located.	U.4.c.9.3.
" " "	" 2.	"	U.4.a.85.15.
" " "	" 3.	"	0.34.d.0.1.
" " "	" 4.	"	0.34.d.0.6.
" " "	" 5.	"	0.34.b.25.40.
" " Reserve	No. 1.	"	U.9.a.8.7.
" " "	" 2.	"	U.3.c.8.7.
" " "	" 3.	"	U.3.b.0.3.
" " "	" 4.	"	0.33.d.3.2.
" " "	" 5.	"	0.33.d.3.8.
" " "	" 6.	"	0.33.d.0.5.
" " "	" 7.	"	0.33.a.7.5.

Miscellaneous. Guard Wire. A guard wire has been erected across Brigade front from the DOUVE to the BLAUWEPOORTBEEK immediately behind the support line.
Drainage. Side drains from the HIRONDENE ROAD at 0.35.c.7.6. have been cleaned out for 50 yds. & drainage to this from Strong Point at 0.35.c.7.7. made. Outpost line drained from 035a83 towards the BLAUWEPOORTBEEK.
SCREENING. 40 yards screening has been erected at U.9.a.8.6. This work was stopped.
TRENCHES. 40 yards of trench has been revetted at Right Bde. Hdqrs. U.4.c.4.3.
Div. LAUNDRY. Work has been commenced on building & extension to laundry DRANOUTRE.
SURVEY. Survey has been made of all pill boxes in forward area and positions of old wire enyanglements located.
CARPENTRY. Carpentry jobs have been carried out for Division, Brigade & Daylight Camp.
GUIDE WIRE. 1350 yards pickets & one strand wire erected behind outpost line between 0.17.d. and Molsbeke.Rd 75% complete.
Stoves fitted. Pumps repaired. 30 bunkd fitted in shelters at 0.21.c.8.2.
BATHS. DRANOUTRE. For 15th. Field Ambulance. Work in progress.
DONEGAL CAMP. N.32.c.4.9. 450 yds. Drains dug. 2 Incinerators. 15 N.B. Huts painted. 4 latrines compl. 35 yds. drain revetted with C.I.

APPENDIX. 12

5th AUSTRALIAN DIVISIONAL ENGINEERS

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Headquarters 5th. Australian Divisional Engineers.

8th.Field Coy.
14th.Field Coy.
15th.Field Coy.
✓War Diary.
✗ File.
5th.Pioneer Bn.

C.E. 1st ANZAC
ENGINEER INSTRUCTIONS
No. 63 ~~13/160/56~~.

1. RESPONSIBILITY.

(i) C.R.E. is responsible for the construction and maintenance of all roads up to the D.H.Q. Line.

(ii) The Right and Left Divisions are responsible for the construction and maintenance of all roads in their areas forward of the D.H.Q. Line.

2. ROADS TO BE MAINTAINED AND IMPROVED.

A. BY RIGHT DIVISION.

(1) MAIN ROADS.
(a) Le Bizet - Prelinghien Road.
(b) Ash Avenue.

(2) MINOR ROADS.
(a) Saccoteer Corner (Ploegsteert) - Gunner Farm.
(b) Ploegsteert - Le Gheer.

(3) LATERAL ROAD. (For consideration).
(a) Ash Avenue-Le-Gheer.

B. BY LEFT DIVISION.

(1) MAIN ROADS.
(a) Messines-Huns Walk-Comines.
(b) Wytschaete-Oosttaverne-Junction Buildings.

(2) MINOR ROADS.
(a) Scott Farm.
(b) Cutting Road.
(c) Gordon Road.
(d) White Road.
(e) North House Road.
(f) Kenty Road.
(g) Messines-St. Eloi.

(3) LATERAL ROAD. (For consideration.)
(a) Oosttaverne-Gapcard.

(4) TRACK.
(a) Fanney's Farm track.

3. PRIORITY FOR WORK.

(1) All MAIN roads to be started immediately.
(2) Divisions to decide priority of MINOR Roads.

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(2).

4. CLASS OF ROADS.

(1) All MAIN Roads to be made suitable for TWO-WAY lorry traffic.

(2) All MINOR Roads to be suitable for TWO-WAY Horsed Transport and improved for lorries as materials and labor will permit.

5. ROAD MATERIALS.

(1) C.R.E's of Divisions in Line will indent for materials on C.R. who will deliver to nearest site by Light Railway.

(2) It is hoped to increased the supply of road materials by working a local gravel pit with L.R. facilities.

6. RELIEFS.

(1) C.R.E. 5th. Aust.Divn. will relieve the section of 177 Tunnelling Company R.E. at present engaged under C.R.E. Corps Troops on forward roads in vicinity of WYTSCHAETE. Relief to be completed by night of 22/23rd.

(2) On completion of relief the section of 177 Tunnelling Company R.E. will rejoin their Unit for work on dugouts in Left Division Area.

7. LOCATION OF D.O.T. LINE.

A plan shewing the D.O.T. Line is forwarded to C.R.E's concerned under a separate cover.

For your information.

J. Abbott

Capt. & Adjt.,
Divl. Engineers,
5th. Aus.Division.

23/11/17.

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Appendix 14

The following remarks are all based on operations in a congested area where there is a heavy concentration of Artillery.

1. PLANK ROADS. Single Plank Roads in wet weather should be utilised for horsed vehicles only unless they have been specially strengthened for lorry traffic. In dry weather single plank road can take horsed and lorry traffic provided a sufficiency of turning* places for lorries are put in, say one to every quarter of a mile. Before the rain comes they should be drained and ditched on both sides. Culverts should be put in when they are first made and in order that this may be done it is essential that the culverts shall be sent up from behind continuously, and the the unit making the road shall not wait until it comes to a ditch and then have to demand for a culvert to be sent up from away back. If this latter procedure has to be followed the result is that when work is hurried the culverts are left out and considerable trouble is caused later. It is thought that the ladder system can be applied to single plank roads giving considerable advantages in traffic control and diversion over a broken section, with installation of a block system on the short section parallel to it. The rungs of the ladder should not in this case be diagonally inclined but the essentials are that each rung should be visible from the rung next ahead of it or next behind it and the two sections of road should be visible in the same way from one another so as to permit of easy visual control.

CONSTRUCTION. The rate of construction of a single plank road can be taken as 600 yards per day in dry weather . The general difficulty is getting material to the end of the road, and I have no doubt that a better rate of progress should have been obtained had the constructing authority had complete control of the traffic. A single plank road should have 4 sleepers under it which should break joint. It is considered that a double plank road should have the sleepers breaking joint in the centre of the road, so that an overlap of say 9" occurs.

A comparison of single and double plank roads and of mule track follows in paragraph 13.

2. MULE TRACKS. For these a formation should be made about 5' wide with good ditch on either side. There should be one for UP traffic and one for DOWN traffic for each Division. In dry weather, a formed track should usually be sufficient. In wet weather a track should either be corduroyed with corduroy mats of 2'6" pickets, 3" diameter, wired together in 7'6" lengths or else of beech slabs. The corduroy pattern is the most portable and therefore the quickest for a rushed job. The beech slab pattern is considered the best where durability is required The longitudinals of this should be 7' long and the sleepers 3'. The minimum width of the walk on decent ground should be 15". Over boggy ground the minimum width should be 20". Where two planks are used a space of 1" to 1½" should be left between them. 6 or 8 gauge wire should be stapled on to prevent slipping: 6 gauge preferred. Formation should invariably be made and box culverts put in where necessary. Two single mule tracks, one up and one down, are considered better than one double one. The up and down mule walks should be sufficiently far apart to prevent one shell bursting both walks, but should be near enough together for the stream of traffic of each walk

STOCK ISSUE JUMP. date, 19 7.

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to be clearly visible from the other and should be provided with inclined tracks joining the two main walks in the same way as in the system proposed for the duckwalks.

One mule can carry two lengths of 7' and two of 3'. The 3' lengths being next the mule and the 7' lengths outside, thus avoiding rubbing the mule's shoulders, and quarters with the longer length..

3. DUCKWALKS. A double duckwalk should be provided for every 600 yards of front starting from the main three vehicle road 8/10,000 yards behind the front line and going fairly straught towards the front line. Single duckwalks 3' wide should not be used but two single duckwalks with a space of a few inches between them so as to permit of loaded men passing one another. These double duckwalks may be reduced to single when within say 2000 yards of the front line, this distance depending on the density of the concentration of Infantry in the forward area. When going through an area liable to continual shelling it is probably better to separate the two single duckwalks by from 5 to 10 yards, so that one shell cannot bloe out both walks, and to provide numerous switches between the walks so that in the event ofa blow out men can be diverted easily on to the other walk until the break is mended, using a system, in fact, similar to the ladder system on a telephone line. The rungs of the ladder should not be square across the two duckwalks but should be diagonally inclined so as to automatically divert traffic to the right

4. Notice Boards. For operations it would seem desirable that a standard iron notice board on a round iron rod should be turned out in quantities; one somewhat similar to those turned out for the Signal Service would probably be suitable.

Compasses. Generous issue of luminous compasses with an open face and a dead beat action is very essential During the battle men are usually too shaken to hold a prismatic compass steady enough to allow it to settle, also valuable time is wasted which may cost the man his life. Under these conditions it has been found necessary to place the compass on the ground in order to give it a chance to settle, a proceedure which is obviously undesirable for Advancing Infantry. One of the chief reasons for the necessity of this is the enormous clouds of dust and mud raised by the modern barrage, which at times, limits the view to 300 or 400 yards.

5. Light Railways. These appear to have been fully occupied in the transport of heavy ammunition and material for repairing and prolonging their own line and consequrntly in this sector have not been of great assistance to the Infantry or to the Divisional Artillery. This has resulted in wet weather in long strings of ammunition mules blocking the roads.

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(8)

6. DIVISIONAL TRAMWAYS.

For absolute efficiency in a forward area there is no question but that the mule haul tram has every other form of transportation beaten hollow. The utility of the Divisional Tram has varied considerably in the past owing to a lack of general knowledge of the conditions essential to their successful use both as regards construction and operation and at the beginning of the war the mule haul tram was not recognised as having been a successful means of transportation in civil life for temporary jobs out of the reach of more efficient appliances.

The essential conditions are ;-

(1) Unity of interest and control.
(2) Allocation of suitable personnel and trainingof same.
(3) Utilization of mule haulage on a side track and elimination of mechanical haulage.
(4) Provision of suitable track and rolling stock.
(5) Location to serve interests of Division including Div. Artillery, and not to serve ulterior purposes of Light Railways.
(6) Provision of sufficient sidings.
(7) Start from 3 way D.S.T. Lateral 8/10,000 yards behind the front line so as to have a reliable source of supply.
(8) That all work on Divisional Trams in comparatively peaceful sectors should be regarded as training for getting the maximum speed of construction for use in an immergency.

To take the first condition, unity of interest and control, it is essential that the same man shall control both the construction and operation of the line and that both the controller and the troops employed on construction and operation shall be immediately interested in supplying the Division and in the success of the operations in which the Division is engaged.

(2) In order to obtain (1), the troops employed on the tramway must form part of the Division, and the Pioneer Bn. forms a very suitable unit. It is very wasteful to employ a Field Coy. Of Engineers on a Divisional Tramline, as the great bulk of the labour required is unskilled and a Field Coy. diluted with Infantry is not as satisfactory on a job of this nature owing to the fact that the Infantry are liable to be changed frequently whereas if it is recognised that it is the duty of the Pioneer Battalion to construct and operate all Divisional Tramways they very soon learn and we get a body of men who become thoroughly efficient and who are not likely to be called off their job like an Infantry party because of heavy casualties in any particular battalion, or any other reason.

(3) Utilization of mule haulage.

This is absolutely essential in the forward area for several reasons. A mule can pull trucks up grades that no locomotive or tractor will look at. The line can therefore go much straighter towards the front and is shorter. There is therefore less upkeep. In case of a shell hole in the line the mule can get round and both the truck and its contents can be man handled across the break and mule hauled on the far side. A tractor cannot do this. The weight on any one truck can be limited to one ton and ballast can be eliminated. In case of a shell hole at the side of the line where an engine or a tractor would upset, the mule and his light trucks will get by. In case of a

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derailment one or two men can quickly put thetrucks on the rail again whereas with an engine or a tractor there may be a delay of several hours. If the mule is shot it is very much easier to get a new mule than to get a new tractor.

(4) Tracks for mule haul tramway should be designed to take light trucks carrying a load of one ton or 1¼ tons.

The old 9 lb. track was unsatisfactory. The new 20 lb. track is much heavier than necessary. The 16 lb. track was not found entirely satisfactory either. The reasons of the failure of the 9 & 16 lb. track are due to insufficiency and unsuitability of sleepers. 9 lb. track has been used with success where broad wooden sleepers and ballast were employed or when laid on duckboards. For 9 lb. track the sleeper only extends a couple of inches beyond the track and is very narrow. It does not give enough bearing surface on bad ground 16 lb. track on rather better sleepers, but not nearly good enough to take a load of one ton on soft ground. In 20 lb. track the rail and sleepers are heavy enough to take much heavier loads than one ton, and the bearing surface is just about sufficient for a one ton load on soft ground. It is therefore recommended that a standard track should be adopted for Divisional Tramways having a weight of rail of about 12 lbs. and having sleepers with a width of 10" at the extreme ends and projecting 9" beyond the rail so as to give a good bearing surface outside the rail to prevent lateral settlement. Sleepers should be placed at 20" centres. Blue print of suggested design attached. This track with its sleepers should work out at about 40 lbs. a yard. Rolling stock for the Divisional Tramway should be made very much lighter than the usual pattern. No attempt should be made to make rolling stock suitable for either a tramway or a light railway, just as no attempt should be made to make a railway track suitable for both purposes. A Divisional Tramway is essentially different to a Light Railway whether as regards location, grade or utility, and any attempt to make it conform to light railways specifications will only lead to inefficiency With steep grades the weight of the rolling stock must be kept down also it is essential that when there is a derailment one man should be able to off-load a truck, put it back on the rails, and reload again. The trucks should not be so heavy that in putting it back on the rail it is dropped hurridly & breaks a sleeper or damages a joint. Blue print of suitable truck is attached.

(6) SIDINGS. To take 20 trucks each should be provided at every half mile with switches at both ends. From two to three times this accommodation should be provided at the commencement of the line and at any main loading or unloading post.

(5) LOCATION. The line should be laid out to start from an absolutely reliable source of supply.

The Divisional Tramway should then run by the most direct possible route to the centr of the Divisional Area, or as near that as can be managed, having regard to keeping away from a main road and avoiding marsh places or unduly steep grades, but a grade of 1/30 is comparatively easy for a mule tram, and a grade of 1/12 is quite practicable and is often preferable, if it shortens the line by 50%.

(7) In order to get a reliable source of supply a Divisional Tramway must start from a 8/10,000 yd. D.G.T. Lateral so as to be independent of the Light Railways, which system is bound to give preference to Artillery Ammunition or Engineer Stores in an emergency. The light railway might well have feeders to the Divisional Tram at intervals of say

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3000 yds. which would immensely assist under ordinary conditions, but it is most essential that the fighting troops should be able to depend upon an organization which is entirely their own for getting up stuff in the worst emergencies. This can only be obtained by basing the Divisional Tramway on a thoroughly good and reliable lorry road.

(8) While one of the main objectives of the Divl. Tram is to enable the Division to get its material forward with a minimum of labour, and of exposure of its men to weather and shell fire, another essential object of the mule tram is to provide the quickest laid means of transportation in the event of a rapid advance across a shelled area, and of saving both roads and horse flesh. The speed that the Divl. Tramway can be laid and brought into use may well be a decisive factor in the success of an advance and consequently it is evident that all tramway work in quiet sectors should be undertaken with a view to enabling Divl. Pioneers that they are able to lay a tramway under the worst conditions in the quickest possible time.

One of the essentials for this is to have the mule track always on the side of the line and to pay particular attention to drainage rather than to use a timbered track as usually mules can operate over a track of which only the very worst patches have been corduroyed or provided with plank track. As a plank track for mules may weigh some 40 tons to the mile it is evident that it can be done without; 40 tons more ammunition can be got up directly the line is opened than would have been the case if the wooden mule track had been laid throughout. If the line is in use for a considerable time the wooden track can be added later. If the advance is a considerable one the probability is that the line will be taken up and relaid further forward before the wooden mule track becomes necessary.

7. <u>WATER SUPPLY</u>

The rapid sinking of wells should be developed, as this will frequently be a quicker and more economical method than pipe laying for providing water in advanced situations. In the GUEUDECOURT - LES BOEUFS Sector two wells were sunk in deep dugouts a few hundred yards behind the front line. The dugout floor was about 30 ft. below ground level; water level about 70 ft. below ground. One of the wells was sunk at the rate of 10' per day. During the Boche retreat to the HINDENBURG Line several other wells were sunk by Field Cos., thus providing water much more quickly than could have been done by laying a pipe forward. Some wells were sunk in the POLYGON WOOD SECTOR, averaging 15' deep. Two or three were blown out by shell fire but fresh wells were sunk and proved invaluable. A standard mining set was made for these wells consisting of 9" x 1½" planks cut so as to give a 4' x 3' well. In the Broodseinde Ridge sector, 6 wells were sunk. These also averaged about 15' deep and averaged a yield of about 100 gallons per hour. Two were on the Reverse Slope of the BROODSEINDE Ridge, one on the forward slope of ANZAC Ridge and two on the reverse slope of WESTHOEK Ridge. These wells took only 3 or 4 men per shift to sink, and 3 or 4 day's time each, and, as two Brigades can utilise some 7 tons of water daily, it will be seen that the saving in mule and man carrying parties was fairly large and out of all comparison with the small amount of labour expended on sinking the wells.

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8. WIRING.

During battle conditions such as POLYGON WOOD and BROODSEINDE RIDGE it is considered that French Wire has enormous advantage over any other form, the chief reason being that it is incomparably lighter and therefore far less labour is required to get it up to the position required and to put it out when it is there. This value is accentuated under heavy artillery fire when the wire may have to be frequently renewed. It will be more accentuated as the warfare becomes more open and advances are made for greater distance. It is thought that Infantry Schools should lay very much greater stress on the use of French wire and simple methods of anchoring it with screw pickets, sandbags or staples, or even simply pressing the lower edge into the mud.

12. ATTACHMENT OF INFANTRY TO R.E. & PIONEER UNITS.

Essential when operations are contemplated for each Field Coy. to have one hundred infantry permanently attached to it for the operation. These should join if possible 2 or 3 days beforehand and should not be changed during operations.

During standing trench warfare they should not be relieved more than once a fortnight. It is recommended that these attached infantry should be supplied from reinforcements direct and not drawn actually from the Brigade. They can be absorbed from the R.E. into the Bde. from time to time as necessary.

13. GENERAL POLICY FOR FORWARD TRAFFIC COMMUNICATIONS.

The forward area in a battle zone can be considered as starting from a D.G.T. Lateral Road some 8/10,000 yds. behind the front line. In order to lay out our communications ahead of this it is first necessary to classify the different kinds of traffic and then to adapt our communications to suit them; for instance, it is obviously wasteful to have troops marching on a metal road that will carry heavy guns & lorries and the weight of which is several thousand tons per mile, when they might be marching on a narrow duckboard - weight perhaps 8 tons to the mile and that with considerably more comfort to themselves. Again, pack mules going in a single file on a mule track require a plank of wood 15 to 20" wide whereas, on a road they require a width of about 6' and very often occupy a great deal more than that; i.e. a train of pack mules on a properly constructed mule track only utilise about a quarter of the width that would be required if they were walking on a plank road.

Forward Traffic can be classified into;-

(1) Heavy Guns and ammunition.
(2) Medium Guns and ammunition.
(3) Corps Engineer Stores.
(4) Divisional requirements including requirements of Divisional Artillery.

The heavy and medium Artillery can be handled best by one main road going forward with single plank laterals and by the Light Railway system.

The Corps Engineer Stores will mostly consist of road material for the construction of a main forward Corps road, but also for certain essential laterals for getting guns into position off the main road.

Divisional requirements include the movement of troops and the carriage of material by tramline, pack mule and by

(7)

man pack.

The chief value of the Corps Main Road in case of an advance is to get the bulk of the heavy artillery and its ammunition lorries and all the heavy transport ofthe Army across the shelled area and on to the enemy's road system. Its position will generally be defined by the existance of some previous main road joining up the important towns.

The location of Light Railways depends on the site of heavy artillery and the contour of the ground.

The Corps Road requires to have sufficient width to give space for traffic going in two directions while vehicles are halted on the side for loading and off loading. It also requires to take the heaviest nature of traffic and will consequently weigh several thousand tons to the mile.

The Light Railways which use both tractors and steam engines must have easy grades and will consequently wind about and also require large quantities of ballast. Divisional Trams and Tracks, on the other hand, are dependent for their efficiency on the small amount of material required in their construction and on the fact that they go fairly straight to their objective comparatively regardless of the contour of the ground.

A single slab road 10' wide runs about 5 yards to the t on. A mule track about 40 yards to the ton.

A Divisional Tram fitted for mule haulage about 25 yards to the ton, and this latter can be laid quicker than the single slab road, requires less transport and labour in construction and very much less labour in operation.

DISTRIBUTION.

Just as distribution in depth is known to be essential for the fighting troops in order to avoid undue losses from shell fire, so is distribution in width absolutely essential for traffic communications both to avoid congestion, to provide ensurances against the dislocation of traffic due to a barrage in any particular area and to force the Hun to expend his Artillery ammunition over a larger area and consequently render it less efficient.

The Corps main road and the Light Railways being more or less fixed by the existing conditions of peace times roads and by contour of the ground it remains to so fit in the duckwalks, mule tracks and Divisional Tramlines as to give the best lateral distribution possible to avoid congestion and reduce casualties. It therefore follows that duckwalks, mule tracks and tramlines should start from about 8/10,000 yds. DaT lateral and should be spaced so as to fairly equally divide the available width of front and to deliver approximately to the centre of the Divisional Area, thus avoiding the use of the Corps Main Road by Divisional Infantry Parties, Engineer Stores, or supplies and ammunition and particularly pack mules.

Lieut-Col. R.E.
C.R.E., 5th. Aus. Division.

23/11/17.

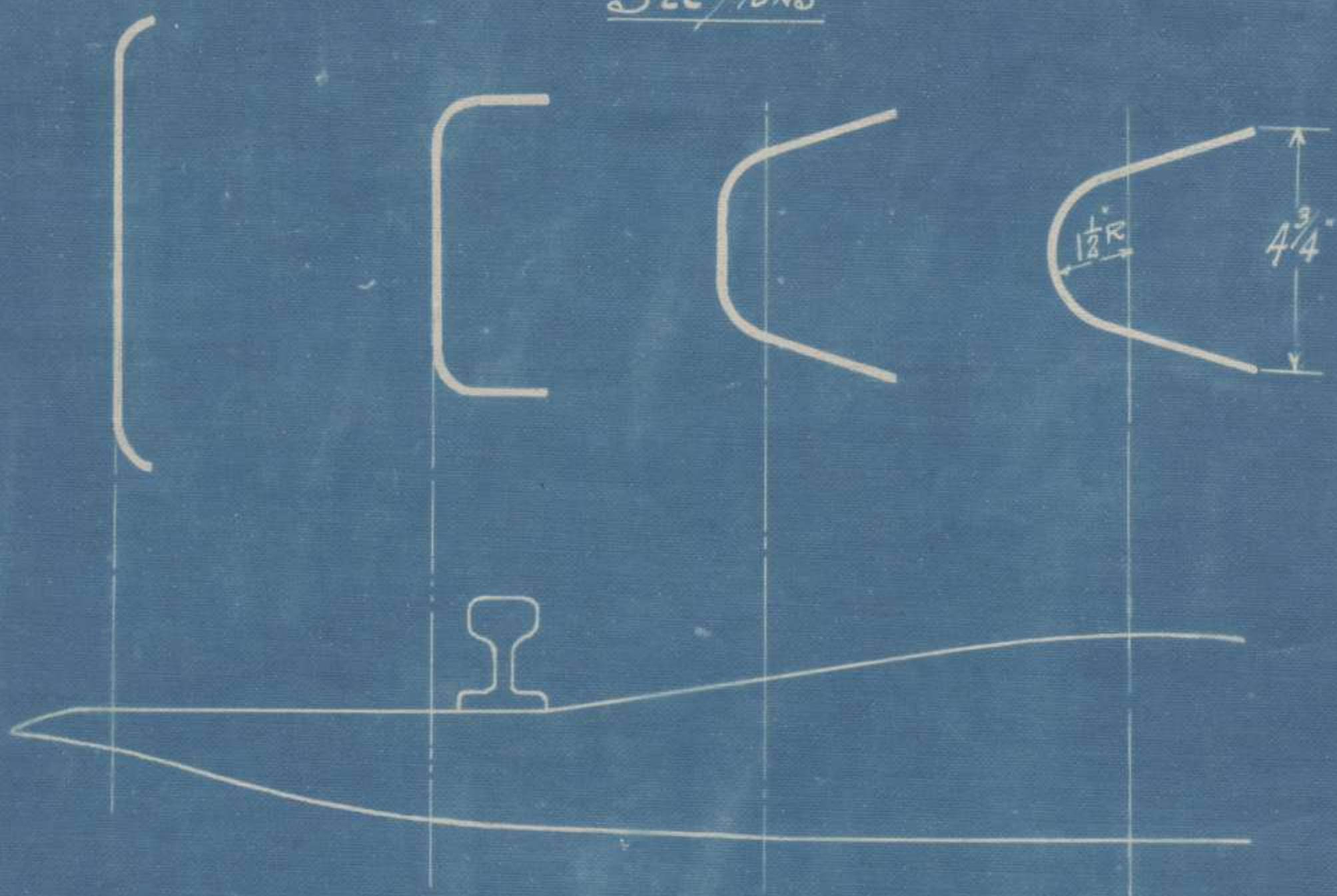
APPENDIX 14

SLEEPER FOR MULE-HAULED DIVISIONAL TRAMWAY.

¼ FULL SIZE.

STAMPED FROM RECTANGULAR SHEET 45" x 10".

SECTIONS



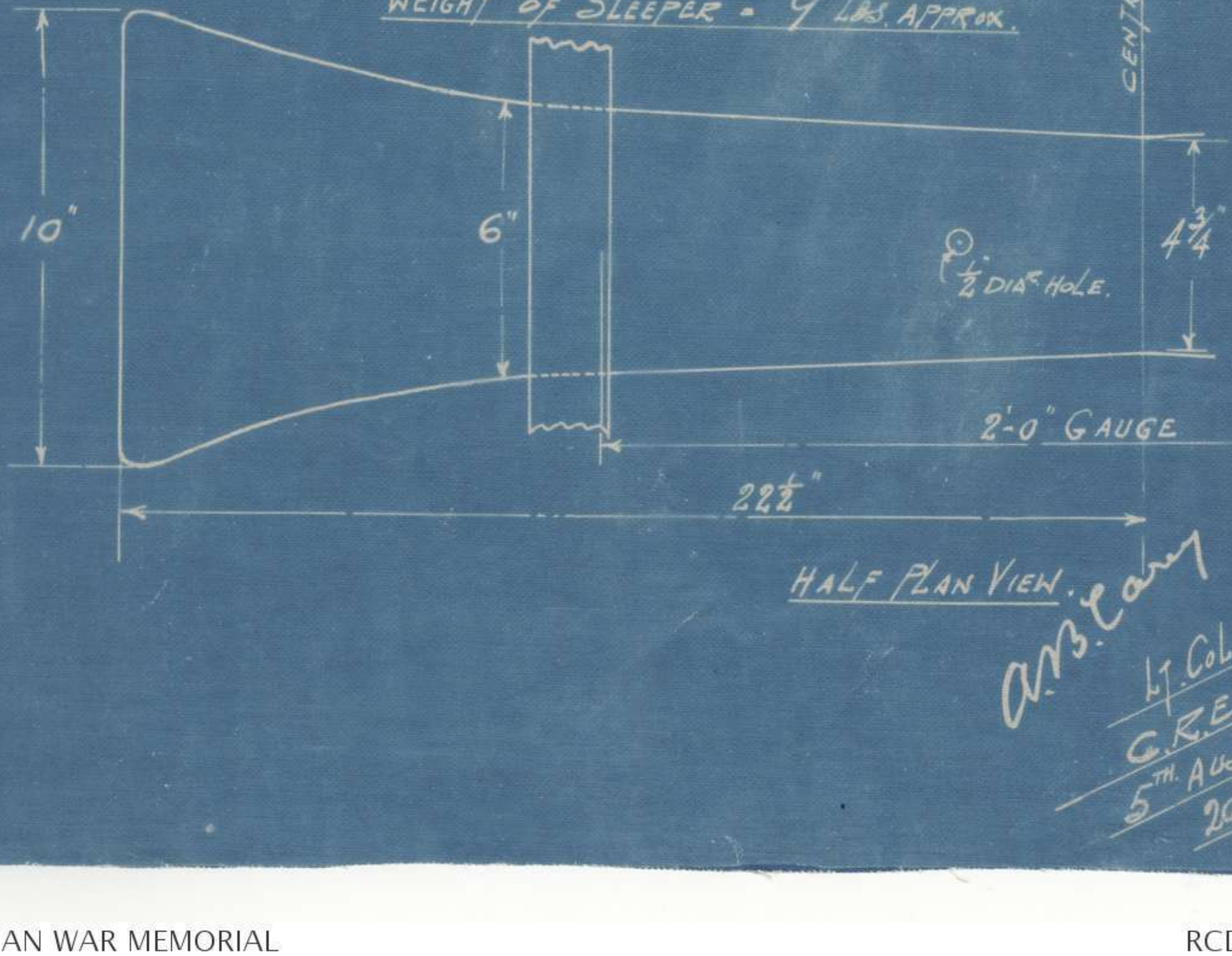
HALF ELEVATION.

RAIL 9 TO 16 LBS.

SLEEPERS OF 15 GAUGE SHEET STEEL.

SPACED 20" APART CENTRE TO CENTRE.

WEIGHT OF SLEEPER = 9 LBS. APPROX.



HALF PLAN VIEW.

A.B. Cowan
Lt. Col. R.E.
C.R.E.
5TH. AUST. DIV.
20.11.17.

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APPENDIX. 14

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APPENDIX. 14

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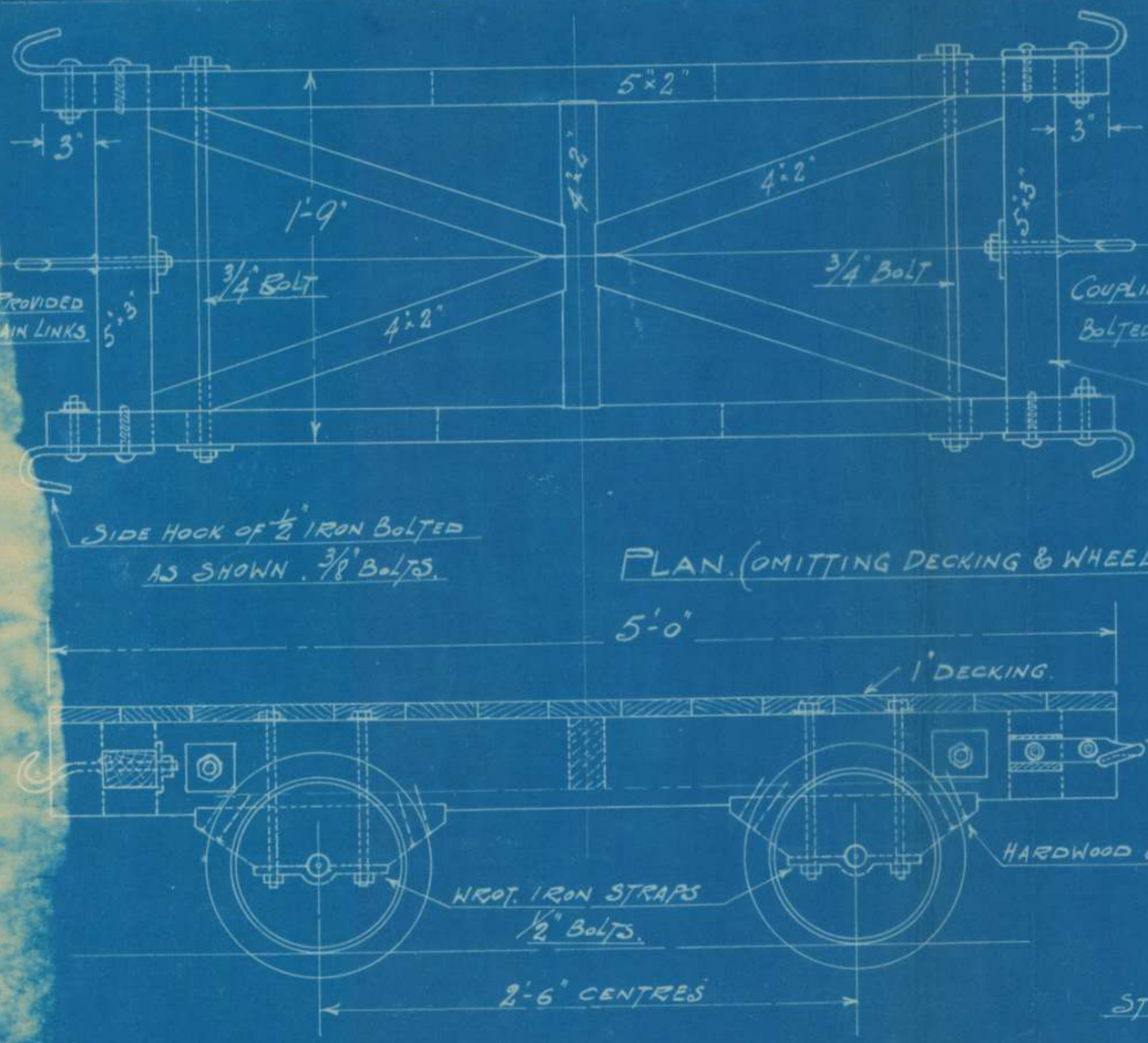
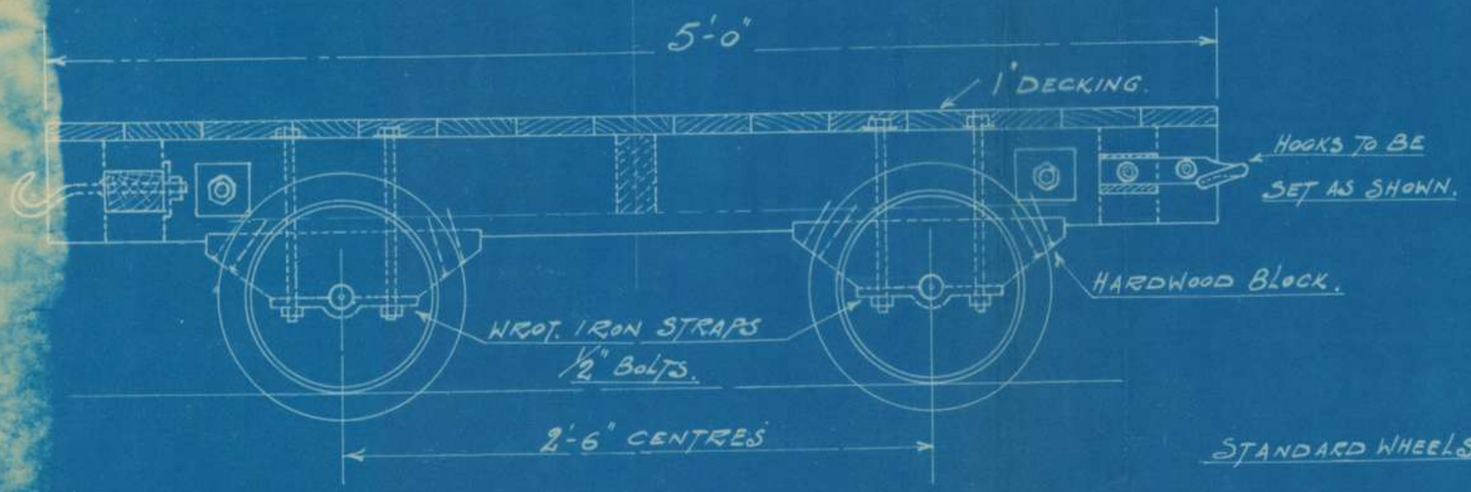
TRUCK FOR MULE HAULAGE ON LIGHT RAILWAYS.

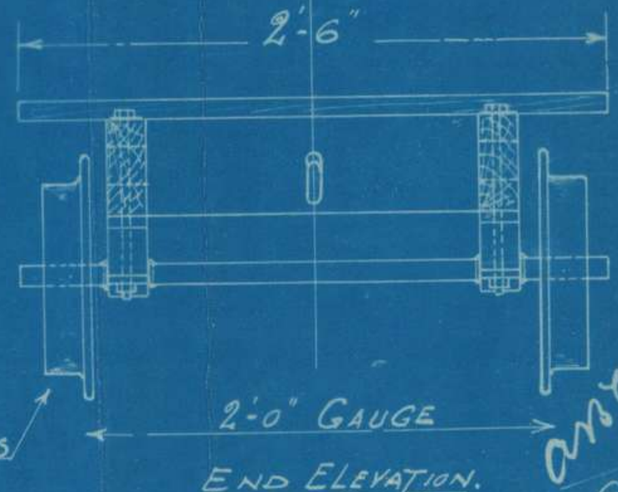
1½" = ONE FOOT.



PLAN. (OMITTING DECKING & WHEELS)



SIDE ELEVATION.



END ELEVATION.

A. Lt. Col. R.E.
C.R.E.
5TH. AUST. DIV.
9.10.17.

Appendix 1s 250

PROGRESS OF WORKS REPORT for week ending 6 p.m. 28/11/17.

SUBJECT	PARTICULARS.	PROGRESS of WORK. Total Progress of work.	TIME State of Completion.	TIME Required to Complete	REMARKS.
R.E.DUMPS.	Lindenhoek: Parma: Railway: Bell Farm and Currie.	Stores delivered and issued.			
WORKSHOPS.	~~Neuve Eglise and~~ Lindenhoek.	Sawing timber, making signboards &c.			
ROADS.	Oosttaverne Wood - Ravine Wood.- Gordon Road.	20 loads brick spread. 1350 yds. drained, cut & improved, box culvert put in.200 yds.road crowned. Filling shell holes.			
	Daylight Camp.	30 yds.corduroy track laid.			
ACCOMMODATION	T6c.2.2.	10 Nissen Bow Huts erected,making group of 15.			
	T5d.7.6.	2nd.group of 8 huts erected.			
	U1a.35.15.	Soup Kitchen erected.			
	U4c.4.5.Bn.H.Qrs.	8½ tons concrete completing roof & back.			
	Curry Dump.	Shelters for 11 men erected.			
	Daylight Camp.	General improvements.			
	Donegal Camp.N32c49.	All hutting completed.			
	027d33 : 027d49.	2-4 man shelters in progress.			
	027b16	4-4 man shelters completed.			
	021d00.	3 shelters in progress.			
	021c95.	4 do do			
	021a41.	2-5 man shelters completed.			
	021a74.	3 shelters in progress.			
	021c82.	Repairs to shelters & drainage.			
	027b08.	Bunking Pill Boxes.			
	027c18.	Cleaning do.			
	023c27 - 023c29.	10-4man shelters complete.			
	N28c26.	1-4 man shelter complete.			

APPENDIX. 15

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ACCOMMODATION	N27d77.	E.P.tent & Duckboards for Y.M.C.A.
	N18b94.	82 bunks fitted.
	014d83.	Pumping out Pill Box.
	014d46.	do do.
	Redvers Camp.	Building Cookhouse.
	Kemmel Camp.	do Incinerator.
	013c39.	Erecting Shelters.
	011b13.	Repairs & drainage of Pill Box.
	Buller Camp.	Cookhouse & laying Duckboards.
WATER SUPPLY.	Clipping Shed DRANOUTRE.	Pump installed.
	N21b98.	275 yds.pipe buried.
TRACKS.Dkwk.	T6d79.-La PETITE DOUVE.	2000 yds laid.
	U2c13 - U2d98.	900 yds laid.
	SWAYNES Fm.-forward.	1500 yds.laid.
	N28c26.	100/18" laid & wired.
	ROSE Wd.-HOLLEBEKE	Track nearing completion.
	014c48.- 014a31.	100 yds.laid.
	Manchester Tr -	1750 yds.laid. 3030 yds.wired.
	Dorset Street -	Drainage,revetting & Maintenance.
	Bob St.-New Cross - Pioneer Lane.	
SIGN POSTS.	--	103 made.
TRAMWAYS.	Wolverghem - Ravine Wood.	100 yds.duckwalks laid between rails 850 yds.mule tr.made. Ballasting & repairs.
FOOT BATHS.	8th.Bde.	50 made.
SCREENING.	027d36.	58 yds.hedge thickened.
	Rt.Bde.Area.- OOSTTAVERNE.	Maintenance & erection of road screens.
ING.	Donegal Camp.	Erection.
	15th.Field Ambulance	Dranoutre. Water heating plant completed.

171 trucks material.
Direct hits repaired.

STRONG POINTS.	Front Line No.1. U5d14.	Dug & revetted,ready for occupation.	
	do No.5..035a85.0.	Dug & revetted.	
	do No.2..U5b54.	Ready for occupation.	One Platoon.
	do No.3..U5b39.	do.	do.
	do No.4..035c77.	do	do.
	do No.6..035a45.	do.	do.
Gapaard Support	No.1.. U4c93.	70 yds.trench revetted.15 yds. parapet bagged.12yds.firebay dug.	
do	No.3.. 034d01.	Dug & revetted"A"frames & C.I.	
do	No.4.. 034d06.	do do do.	
do	No.5.. 034b25.40.	Revetted with panels throughout.	
Wambeke Support	No.1.. 028c60.	8 yds.Tr.dug,100 yds.drain dug. 27 yds.revetted.	
do	No.2.. 028c78.	64 yds.Tr.Dug.	
do	No.3.. 028a83.	70 yds.Tr.revetted,30 yds.drain dug. 80 yds.Tr.dug.	
do	No.4.. 022c80.	78 yds.Tr.dug,10 yds.ditching.	
Wambeke Reserve	No.1.. 027d33.	70 yds.drain dug,35 yds.Tr.dug, 70 yds.Tr.Deppened,67 yds.revetted, 19 yds.parapet heightened,27 Dwks.laid.	
do	No.2.. 027d56.	10 yds.Tr.cleaned out,41 yds.parapet and parados thickened,44 yds.revetted.	
do	No.3.. 027d49.	15 yds.revetment thickened.	
do	No.4.. 027b22.	15 yds.parados rebuilt,67 yds. revetted,10 yds.Tr.revetted,15 yds. drain dug.	
do	No.5.. 027b16.	80 yds.drain dug.	
do	No.6.. 021d00.	Thickening Parapet 2'in 2 bays.	
Oosttaverne Support	No.1..022c47.	50 yds.drained.14 yds.revetted, 10 yds.deepened,7 yds.dug.15 yds.cleaned out.	
do	No.2..022a40.	50 yds.drain dug,2 yds revetted, 50 yds.Tr.deepened.	
do	No.3..022a35.	60 yds.Tr.dug,30 yds.drained,17 yds. revetted.	

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STRONG POINTS.				
Oosttaverne Reserve	No.1..021a41.	26 yds.Tr.dug,40 yds.revetted.		
do	No.2..021a74.	40 yds.parapet sandbagged,10yds trench revetted.		
Shell Hole Post	No.5.. 023c.33.	Completed.		1-3 man shelter.
do	No.6.. 023c.36.	do.		do.
do	No.9.. 023a96.	do.		do
O.P's. 0.19.a.5.9.		7'landing timbered,13'ladder made, trap door fitted.		
STRONG POINTS.				
Frontline	No. 7.. 011b.20.45.	Excavation,revetting,duckboarding & "A" Frames.		
Oosttaverne Support	No.4..022a39.	Repairs.		
do	No.5..018c55.	"A"Frames & revetments.		
do	No.6..018c89.	---	75%.	
do Reserve	No.3..015c92.	Excavation,"A" Framing,Duckboarding & hurdles.		
do Front Line.	017c74.	---	80%.	
Hollebeke Support	No.1..016b06.	Complete.		
do	No.2..010d35.15.	---	30%.	6 days.
do	No.3..010d.1.5.	Complete.		
do	No.4..010d.3.7.	do.		
do.	No.5..010b.4.4.	---	65%.	7 days.
DRAINAGE. Hirondelle Rd.		Old side drain deepened & cleaned out, from QUATRE ROIS Xroads to Outpost Line in U.5.b.		
Fanny C.T..		Side drains cleaned out in places.		
Artillery O.P..033a.25.25.		150 concrete blocks salved, and used in construction.Wooden loopholes.		
GUIDE WIRE. 0.23.a.9.6.to 011b97. (behind Outpost Line)		Pickets & One strand plain wire erected.		
DRYING Shed.	014c.45.85.	---	10%.	7 days.
Misc. Camps.		Revetment against Bomb Splinters.		

APPENDIX 15

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APPENDIX. 15

APPENDIX 1.

Stabling - Donegal Camp for 24 hours ending 9 a.m. 28/11/17.

No. 1. Finished.
2. Occupied & finished except part of roof to be adjusted.
3. All rafters up & all purlins on, half floored and posts wired.
4. All posts up and wired.
5. All complete with exception of 40' floor.
6. 48 posts up, all holes dug.
7. Roofing complete with exception of half ridging & one-third floored.
8. All posts up, 24 wired. Drains complete.