WHB:IL

HISTORY OF THE PYROTECHNIC SECTION 1938 - 1945.

Intermittent production of Pyrotechnic Stores was carried on from the early thirties under the control of Mr. Monk of the Propellant Section, but it was not until 1938 that the Section became a separate entity with permanently attached personnel.

When I was posted to the Section late in 1938, the personnel numbered 14 under the control of an Assistant Foreman, and consisted of two process buildings, one process building in course of completion, a press house and 3 stores.

There was a large programme outstanding, and during the period 1939-40 a considerable number of new buildings was erected until the Section consisted of 4 large and 4 small process houses, a press house and 5 stores and magazines.

The number of section personnel had gradually increased to approx. 40 at the end of 1939, and to approx. 90 at the end of 1940, and shift work had been introduced to step up production.

When Mr. Monk retired early in 1939, Mr. Jack became Head of Section, and I was appointed Chemist-in-Charge of Production.

The programme had, following the outbreak of war, become extremely large, and it became obvious that the maximum production of the Section could only ever be a drop in the bucket. It was then decided to build a new section as further expansion of the present section was impossible owing to lack of space.

New Section:

Accordingly a number of sites was suggested and after considerable discussion the present site, on the South Side of Ordnance Factory, was selected and the plans of the Section were drawn up on that site. Contracts had been let towards the end of 1940 when the occurrence of a fatal accident on the Old Section threw the plans for general purpose buildings into the discard. After considerable discussion with the Operational Safety Committee a series of designs of special purpose buildings was evolved and approved.

Fresh plans were drawn and new contracts let, with the result that building commenced early in 1941. Considerable labour troubles and shortages were experienced during the building and the completion of the Section was delayed for approx. 4 months.

Meanwhile, the male personnel of the Section had been expanded to the limit of the changeroom capacity and in addition 4 bays had been borrowed from Fuze Section in order to train a nucleus of women operatives. The numbers at the end of 1941 were approx. 150 males and 30 women.

Production had, by this time, reached an extremely high figure when the amount of space available was considered and in September 1941 the production of flame tracer composition commenced in the New Section.

A considerable amount of experimental work on the new stores to be produced in the New Section had been carried out, but at the end of 1941 the shortage of components left a large number of stores which could not be produced experimentally and so soften the shock of starting up the New Section.

During 1941, Mr. Hedding assumed control of the Section, and the staff to handle the equipping of the New Section to take control of Shifts etc. was engaged. Mr. Hedding introduced a developmental staff to investigate the possibility of mechanising as many as possible of the production operations.

/2.

By January 1942 it was obvious that no large scale production would be possible before March - April, so it was decided to open production in the maturing houses in order to have a labour pool to operate on as buildings became available. So in February 1942 the production of Cart. Sig. White Smoke Puff commenced in the New Section with a modified use of the maturing buildings.

The intake of labour commenced in February - March 1942 when it was possible to commence production of Ctge. Illum. 1" J IIIT to be followed within the next 2 months by the remainder of the Cartridges Signal. The last big job to start up was Flares, Reconn. 4.5" and by this time the Section was in full production with a labour strength of approx. 750 operatives of whom approx. 60% were women.

The attempt at mechanisation was abandoned following two accidents, one fatal, during the mechanical handling of composition and all subsequent mixing was done by hand.

During the peak of production the New Section was mixing in the vicinity of 1½ tons of magnesium composition per day, and this involved the use of approx. 45 people.

The rate of production from the specialised buildings was much greater than was estimated, and by September the three months leeway in production had been nearly overcome. The rate of production of Ctges. Signal had reached between 60 - 70,000 a week by July.

In September the Army announced the first cut in the programme following the fighting in New Guinea where it was found that Ctges. Signal were unsuitable for signalling, and it was necessary to cut the personnel to approx. 450 by transferring operatives to other Sections.

It was at this stage that a considerable amount of experimental work was carried out, in conjunction with D.O.A., on the development of rocket fillings to fill the breach in the signalling equipment caused by the failure of the Ctges. Signal.

In February - March 1943 further cuts were introduced and the Section strength was reduced to approx. 280 by the transfer of further operatives to other Sections. In April'43 I was appointed Head of Section.

Experimental work on the granulation of red phosphorus was put in hand following a demand for 40-50,000 Box Smoke 1¼ oz./week and by June 1943 production had commenced using granulated phosphorus.

The labour strength gradually declined through wastage until early in 1945 the New Section personnel numbered approx. 150. At this stage 30 men were transferred from other Sections as the programme showed signs of increasing. This trend was maintained until peace was declared.

Old Section:

With the start up of the New Section, the Old Section was reserved for production of Smoke Stores and various subsidiary jobs for the New Section and the personnel was allowed to gradually dwindle until at the end of 1943 they numbered approx. 30.

However, an urgent demand for large quantities of Smoke Floats and Generators Smoke No.24 led to considerable structural alterations and installation of several Mixers for Smoke Composition. By May 1944 production was in full swing following the intake of approx. 40 men transferred from other Sections.

Towards the end of the year the requirements re smoke stores changed, and it became necessary to transfer approx. 40 operators to other Sections. This transfer left approx. 25 operators on the Old Section and this number was maintained until peace was declared.

/3.

Production:

About 6,000,000 articles were made at New Pyrotechnic, the main items being :-

Ctge. Sig. 1" x 1½"	2,180,000
Shot 2 pdr.	580,000
Flares Reconn. 4.5"	12,500
Rockets various	32,000
Box Smoke 1¼ ozs.	2,500,000

And in addition smaller quantities of approx. 60 other stores. The attached list, covering both sections, shows the quantities of service stores produced in the yearly periods commencing 1941/42 to 1944/45.

Experimental:

The production of New Stores and amendments to existing stores called for a considerable amount of experimental work, and a staff was engaged on such work during the whole period. In addition a considerable amount of experimental work was carried out at the request of the Army and also some work in collaboration with M.S.L.

This experimental work carried out in conjunction with an advance section proof of each lot kept the numbers of rejections to a minimum, and indicated that such a procedure was an essential part of large scale production of pyrotechnic stores.

Personnel:

With the Old Pyrotechnic nucleus of men and women the personnel was expanded from approx. 180 to approx. 800 in 4 months, and it speaks highly of the efforts of the staff and the personnel that in this time the majority of stores started up and manufactured were being made for the first time in Australia.

The use of women on production of pyrotechnic stores was a great success and their efforts, when the pressure was on, were worthy of the highest praise.

In general, the calibre of the personnel was high, and this was shown in the co-operative spirit that prevailed throughout the section and in their attitude towards discipline.

However, when the pressure eased slightly and newspaper reports began to talk of the unimportance of munitions, the absentee figure began to rise, without, however, effecting discipline and the quality of production.

Efficiency:

During the first six months of production when production amounted to 60-70,000 Ctges. a week, a check on the man hours/1000 showed that the sections figures of man hours/1000 compared more than favourably with those obtained in English factories.

However, production of small quantities of stores of the type of rockets, lights, etc., has never compared with those obtainable in England. This is due in part to the subdivision of production operations adopted after the first accident and the smallness of production.

Conclusion:

After the end of the World War II, the personnel was paid off in two stages, and the section strength now consists of 26 men.

/4.

These men are engaged in destroying surplus production, following cancellations and short closures of orders, cleaning up the New Section etc., preparatory to putting it on a care and maintenance basis.

The New Section will close down at the end of 1945 and the remaining personnel will go back to the original Section which, it is anticipated, will be able to handle the peace time requirements of service pyrotechnic stores.

W. A. Bryson

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HEAD OF PYROTECHNIC SECTION.

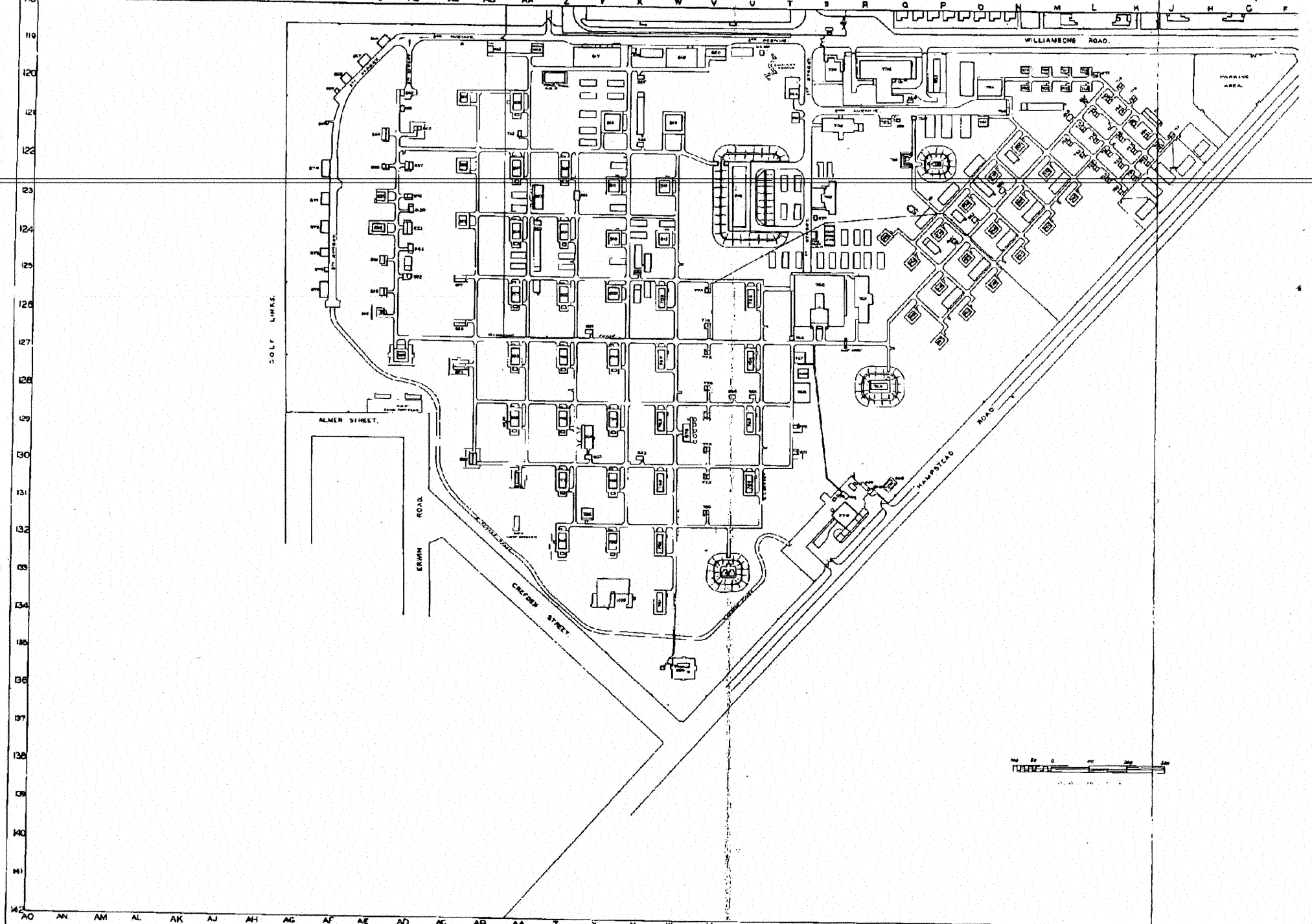
PYROTECHNIC SECTION

YEARLY PRODUCTION OF SERVICE STORES

SERVICE STORE	July 1941 - June 1942	July 1942 - June 1943	July 1943 - June 1944	July 1944 - June 1945
Bombs ML Mortar 2" Rectn.	-	-	-	16,740
Box Smoke HE Shell 2¼ oz	722,952	763,665	141,768	47,232
Box Smoke HE Shell 1¼ oz	-	-	1,127,480	1,128,533
Box Smoke 3¾ oz	-	-	2,509	6,270
Candles Smoke Ground (Exp.)	-	20,139	3,146	20,634
Cart. Illum. 1" "J" MK.III.T.	MK.IIT.6,222			
" " 1½" "J" MK.III.T.	469,016	211,730	19,289	-
Cart. Signal Double Star 1½" MK.II.T.	20,005	22,298	-	-
" " Green 1" MK.XI.T.	-	81,419	-	-
" " " 1" MK.V.T.	-	10,290	3,931	7,598
" " " 1½" MK.V.T.	18,899	131,858	-	-
" " " 1½" MK.I.T.	-	102,645	-	-
" " Red 1½" MK.V.T.	52,239	-	-	-
" " " 1½" MK.I.T.	57,391	76,109	3,877	-
" " White 1" MK.IX.T.	15,150	-	-	-
" " Red 1" MK.XI.T.	2,570	7,075	7,518	-
" " White 1½" MK.II.T.	159,280	146,580	7,230	7,194
" " " Smoke Puff 1½"	2,016	-	-	-
" " Yellow 1½" MK.III	189,357	169,063	-	-
Containers Smoke Float	20,739	215,969	-	-
	2,021	2,320	5,458	3,666
Flares Landing Wing Tip	-	2,517	-	-
" Reconn. 4.5" Yellow	294	12,134	-	-
" Signal Green Mk.II	1,430	2,938	4,225	2,354
" " Red	-	1,871	3,060	-
" Training 4"	-	-	-	1,406
Generators Smoke No.5	2,879	21,406	23,468	4,401
" " No.6	252	2,113	-	-
" " No.24	-	-	2,593	10,582
Grenade No.69 - Flash	-	-	-	100

SERVICE STORE	July 1941 - June 1942	July 1942 - June 1943	July 1943 - June 1944	July 1944 - June 1945.
Igniter Grenade No.75	-	-	246,184	20,016
" Smoke Float Mk.IX	-	3,887	8,548	3,090
" Torpedo MK.XI	-	969	540	5,940
Lights Long Blue	-	696	-	-
" Short G.S. MK.III	795	499	593	816
Markers Sea Aluminium	1,141	18,853	-	-
Pellets Auramine	-	-	54,110	18,972
" Gunpowder, Solid	-	1,376	29,007	7,797
" Magnesium 2½ oz 1.62"x.4"xl.7"	-	7,170	-	-
" " 2½ oz 1.63"x.4"xl.7"	-	803	8,460	2,847
Portfires Common Mk.I	-	5,636	820	-0-
" Friction	1,021	-	1,231	3,060
Projectile 2 pdr Mk.VxxT	-	-	1,539	-
" Tracer 2 pdr Mk.VII.T.	-	-	3,985	1,896
Puff Powder No.6	-	-	-	1,000
" " No.7	-	-	-	3,000
Rockets Burster 1 lb	-	150	-	-
" Illum. 9 lb	-	-	384	272
" ½ lb 2 Star Red W.S.P.	-	-	499	-
" 3 Star White Trailer	-	-	2,342	-
" 3 " " "	-	788	-	-
" Signal 1 lb Green Mk.II	2,090	466	472	-
" " 1 lb Red MK.II	-	2,080	1,482	-
" " 1 lb Service MK.III	1,893	2,021	3,467	1,842
" " 1 lb 3 Star Green	-	1,032	1,414	204
" " 1 lb 3 Star Red	-	1,050	1,012	439
" " 2 Star Red & W.S.P. MK.I.T.P. ½ lb	-	404	-	-
" " 2 " White & W.S.P. MK.I.T.P. ½ lb	-	485	-	-
" " 2 " Green & W.S.P. MK.I.T.P. 1 lb	-	525	-	-
" " 2 " Red & W.S.P. MK.I.T.P. 1 lb	-	3,038	-	-
" " 2 " White & W.S.P. MK.I.T.P. 1 lb	-	3,030	-	-

SERVICE STORE	July 1941 - June 1942	July 1942 - June 1943	July 1943 - June 1944	July 1944 - June 1945
Shell Stars Mk.I.B. Q.F.	-	-	-	-
" " 25 Pdr.	1,849	2,550	12,886	7,673
Signal Distress Marine	-	-	1,695	8,227
" " Smoke Packets	-	2,938	3,851	3,123
" 5 Star Green	-	3,020	2,026	10,145
Simulators Gunflash No.3	-	1,821	909	-
Star Cases filled with C.2. Mk.VIII	2,860	-	4,564	-
		-	-	-
Tracer No.1 Mk.V	-	9,601	-	-
Tracers No.2 MK.III.C.	-	1,836	-	-
Tracer Cavity A.P. Shot 25 pdr.	-	33,933	-	-
Tracer & Igniter No.7 MK.III & IV	-	33,815	55,021	59,164
Tracer Projectile 2 pdr MK.V.T.	-	2,826	-	-
Tracer Shell No.1 MK.VI	568	-	1,170	3,207
" " No.1 Mk.VIA.	-	-	-	5,498
" " No.2 MK.V.	-	-	-	10,931
" " No.2 MK.VI	-	-	-	970
" " No.13	-	-	-	7,185
" Shot A.P. Q.F. 2 pdr.	67,882	404,161	-	-
" " Pract. 2 pdr.	13,211	98,043	-	-



ALTERATIONS.

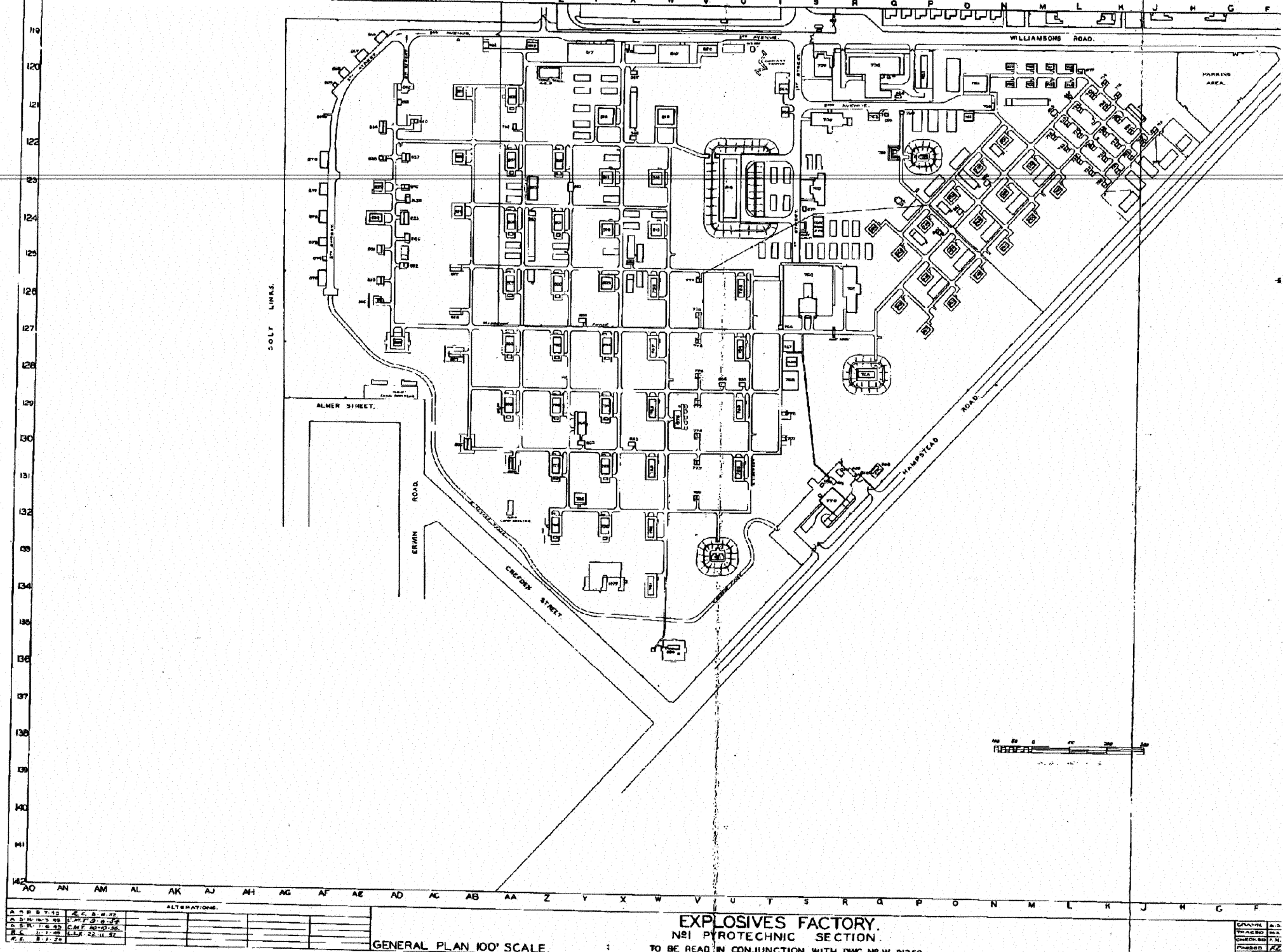
GENERAL PLAN 100' SCALE.

EXPLOSIVES FACTORY.

No1 PYROTECHNIC SECTION.

TO BE READ IN CONJUNCTION WITH DWG No W-91259

F. F. M.



ALTERATIONS.

GENERAL PLAN 100' SCALE.

EXPLOSIVES FACTORY.
No1 PYROTECHNIC SECTION.

TO BE READ IN CONJUNCTION WITH DWG No W-91259

E. F. M.

Explosives Factory Maribyrnong - New Pyro Annexe

Blg No.	Use	Grid Ref.
439		R130
456	WORKSHOP	R131
701	OFFICE I.B.	T121
702	GUARD ROOM #8	S119
703	OFFICE GENERAL	S121
704	MESS ROOM	Q119
705	STORE CHEMICAL	O120
706	OFFICE & BOOT CHANGE	N120
707	HOUSE GRINDING	N119
708	HOUSE GRINDING	N120
709	HOUSE GRINDING	M120
710	HOUSE GRINDING	N119
711	HOUSE STOVING	M119
712	HOUSE STOVING	M120
713	HOUSE STOVING	L120
714	HOUSE STOVING	L119
715	HOUSE WEIGHING	K120
716	HOUSE WEIGHING	K120
717	HOUSE WEIGHING	K121
718	HOUSE WEIGHING	J121
719	HOUSE MIXING	J121
720	HOUSE MIXING	K121
721	HOUSE MIXING	K121
722	HOUSE MIXING	K121
723	HOUSE MIXING	L120
724	HOUSE MIXING	L120
725	CHANGE-ROOM	Y121
726	HOUSE MIXING	K121
727	HOUSE MIXING	K121
728	HOUSE MIXING	K122
729	HOUSE MIXING	K122
730	HOUSE MIXING	K122
731	HOUSE MIXING	K122
732	HOUSE MIXING	L122
733	HOUSE MIXING	L121
734	HOUSE MIXING	M121
735	HOUSE MIXING	L122
736	HOUSE MIXING	L122
737	HOUSE MIXING	L122
738	HOUSE MIXING	K122
739	HOUSE BLENDING & MATURING	L123
740	HOUSE BLENDING & MATURING	M123
741	HOUSE BLENDING & MATURING	N124
742	HOUSE BLENDING & MATURING	N125
743	HOUSE BLENDING & MATURING	O126
744	HOUSE BLENDING & MATURING	P126
745	HOUSE BLENDING & MATURING	Q126
746	HOUSE BLENDING & MATURING	P125
747	HOUSE BLENDING & MATURING	O124
748	HOUSE BLENDING & MATURING	O124
749	HOUSE BLENDING & MATURING	N123
750	HOUSE BLENDING & MATURING	M122
751	HOUSE BLENDING & MATURING	N121
752	HOUSE BLENDING & MATURING	O122
753	HOUSE BLENDING & MATURING	O123
754	HOUSE BLENDING & MATURING	P124
755	HOUSE BLENDING & MATURING	Q124
756	HOUSE BLENDING & MATURING	R124
757	HOUSE DRYING GP	Q123
758	MAGAZINE	P122
759	HOUSE UNHEADING GP	Q122
760	SHED LOADING	Q121
761	STORE MAGNESIUM	O121
762	GARAGE	R121
763	CASUALTY ROOM	S123
764	CHANGE ROOM & MESS ROOM	S125
765	CHANGE ROOM WOMEN	R125
766	ROOM BOOT CHANGE	T126
767	OFFICE	T127
768	LABORATORY	T128
769	STORE COMPONENTS	R128
770	BOILER HOUSE	R131
771	STORE EXPENSE	T130
772	STORE EXPENSE	T129
773	STORE EXPENSE	V125
774	STORE EXPENSE	V126
775	STORE EXPENSE	V127
776	STORE EXPENSE	V128
777	STORE EXPENSE	V128
778	STORE EXPENSE	V129
779	STORE EXPENSE	V130
780	STORE EXPENSE	V131
781	MAGAZINE	U133
782	HOUSE PRESSING	U130
783	HOUSE PRESSING	U129
784	HOUSE PRESSING	U127
785	HOUSE PRESSING	U126
786	HOUSE PRESSING	W126
787	HOUSE PRESSING	W127
788	HOUSE PRESSING	W129
789	HOUSE PRESSING	W130
790	HOUSE PRESSING	W132
791	HOUSE PRESSING	W134
792	HOUSE ASSEMBLING	Y132
793	HOUSE ASSEMBLING	Y130
794	HOUSE ASSEMBLING	Y129
795	HOUSE ASSEMBLING	Y127
796	HOUSE ASSEMBLING	Z132
797	HOUSE ASSEMBLING	Z130
798	HOUSE ASSEMBLING	Z129
799	HOUSE ASSEMBLING	Z127
800	HOUSE ASSEMBLING	Z125

Bld No.	Use	Grid Ref.
801	HOUSE ASSEMBLING	Z124
802	HOUSE ASSEMBLING	Z122
803	HOUSE ASSEMBLING	AA129
804	HOUSE ASSEMBLING	AA127
805	HOUSE ASSEMBLING	AA126
806	HOUSE ASSEMBLING	AA124
807	HOUSE ASSEMBLING	AA122
808	HOUSE ASSEMBLING	AA120
809	HOUSE LOADING	Y125
810	HOUSE LOADING	Y124
811	HOUSE LOADING	Y123
812	HOUSE LOADING	W123
813	HOUSE LOADING	W124
814	STORE BOND	W123
815	HOUSE PACKING	W121
816	HOUSE PACKING	Y121
817	STORE BOX & COMPONENTS	Y119
818	STORE PAINT & SOLVENTS	X119
819	STORE TOOL & WORKSHOP	W119
820	STORE	V119
821	STOVE	AC120
822	STOVE	AC122
823	STOVE	AC124
824	HOUSE PROCESS	AD127
825	MAGAZINE	AA130
826	MAGAZINE	AB130
827	MAGAZINE	AB127
828	MAGAZINE	AB126
829	MAGAZINE	AB125
830	HOUSE PROCESS	AE125
831	HOUSE PROCESS	AE124
832	HOUSE PROCESS	AD125
833	HOUSE PROCESS	AD124
834	HOUSE PROCESS	AE124
835	HOUSE PROCESS	AE123
836	HOUSE MIXING	AD123
837	HOUSE PROCESS	AD122
838	HOUSE MIXING	AE122
839	HOUSE PROCESS	AE121
840	HOUSE MIXING	AD120
841	STOVE	AD121
842	SHED LOADING	AD120
843	SHELTER BICYCLE	P120
844	LAVATORY MEN	AF121
845	LAVATORY MEN	AD123
846	LAVATORY WOMEN	AD124
847	LAVATORY MEN	X120
848	LAVATORY WOMEN	X122
849	LAVATORY MEN	AA124
850	LAVATORY MEN	X125
851	LAVATORY WOMEN	Y127
852	LAVATORY WOMEN	Y130
853	LAVATORY MEN	X130
854	LAVATORY WOMEN	U128
855	LAVATORY MEN	U128
856	LAVATORY MEN	S131
857	LAVATORY WOMEN	O123
858	LAVATORY MEN	N122
859	LAVATORY MEN	M121
860	LAVATORY MEN	Q121
861	ROOM WASHING	P124
862	ROOM WASHING	L120
863	TEA HOUSE	AA123
864	TEA HOUSE	Y129
865	SUB-STATION	T120
866	STOVE	AE119
867	STOVE	AE119
868	STOVE	AF120
869	STOVE	AF120
870	STOVE	AF122
871	STOVE	AF123
872	STOVE	AF124
873	STOVE	AF124
874	STOVE	AF125
875	STOVE	AF125
876	HOUSE PUMPS FOR ACCUMULATOR	W129
877	HOUSE WASHING CANISTER	L120
878	GUARD ROOM #9	R130
879	HUT FIREMAN	S123
880	BURNING GROUND	W135
906	PIT FUEL OIL TANK	Q131
935	WORKSHOP	R130
946	GARAGE FOR 704	Q120
962	STORE	AB119
963	STORE BOND	AA119
964	CHANGE ROOM	AA121
965	ROOM BOOT CHANGE	Z123
968		AA119
1029	CHAMBER STATIC FIRING (DSL)	Y134
1056	HOUSE BATTERY TRUCK CHARGING	T127