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The Construction of Airfields during the New Georgia Campaign of 1943-44:  
Lessons Learned by the United States Naval Construction Battalions

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A thesis  
presented to  
the faculty of the Department of History  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Master of Arts in History

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by  
Joseph C. Zimmerman, PE  
August 2008

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Dr. Ronnie Day, Chair  
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Keywords: World War II, Pacific, New Georgia, Seabees, Naval Construction

## ABSTRACT

The Construction of Airfields during the New Georgia Campaign of 1943-44:

Lessons Learned by the United States Naval Construction Battalions

by

Joseph C. Zimmerman, PE

Prevalent depictions of United States Naval Construction Battalions (Seabees) were engendered by John Wayne in *The Fighting Seabees* and the musical, *South Pacific*. While capturing the ingenious determination that birthed their motto ‘Can Do’, these incomplete pictures don’t portray the complexity of construction under combat conditions in a harshly unforgiving and demanding environment.

The Seabee’s first combat landing was New Georgia. In six months, these battalions built five airfields, granting Allied forces air superiority over the Solomon Islands and Rabaul. Battalion records stored at the Naval Facilities Command Archives, Port Heuneme, California, combined with documents from the National Archives, provided source materials.

This thesis examines the construction operations undertaken at New Georgia that were the proving grounds from which future construction methodology stemmed. This campaign tempered the men, techniques, and equipment necessary for Pacific construction. The true heart of the Seabee’s was forged by the lessons learned at New Georgia.

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## ACKNOWLEDGEMENTS

I would like to thank Dr. Ronnie Day for all the help and encouragement he has provided me during this long process. I would also like to thank Carol A. Marsh, Staff Historian, at the Naval Facilities Engineering Command Archive and Seabee Museum at Port Hueneme, California for all the assistance she provided during my archival research in September of 2002. Last, but certainly not least, I thank my wife, Katherine D. Zimmerman, for all the love and assistance she has provided me while working on this endeavor. She has been the best research assistant anyone could ask for.

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## CHAPTER 1

### INTRODUCTION

#### The New Georgia Campaign in the Solomon Islands

##### The Solomon Islands

In the years prior to 1942, the Solomon Islands were virtually unknown to the American public and, for all practical purposes, to the United States military. This situation changed in 1942 with the battle for Guadalcanal in the southern Solomon Islands. The battle for the Japanese-built airstrip, renamed by the United States Marines as Henderson Field, engaged American public attention as the only United States combat advance in the South Pacific during that year. As a result, Americans learned a whole new lexicon of names and phrases, including “The Slot”, “PT-109”, and “Seabees”. The battle for that jungle airfield also set the tone and the purpose for the subsequent Allied military activities in the Solomon Islands and in the Southwest Pacific Theater of operations. The objective of these military operations was the capture or construction of airbases, including ones on New Georgia, for the sole purpose of advancing Allied Air Power to neutralize the Japanese base at Rabaul in the Bismarck Archipelago, the key to Japanese power in the South Pacific.

The Solomon Islands themselves form a double chain of parallel islands running southeast from the Bismarck Archipelago toward the New Hebrides Islands for approximately six hundred miles from 5° to 11° south of the Equator. The navigable channel formed by the double row of islands – the New Georgia Sound - became know as “The Slot”. The islands are volcanic in origin with steep mountainous interiors covered with dense jungle and surrounded by extensive coral reef systems. Flat and cultivatable ground on these islands is rare and in the 1940s these spots were the locations of the native population administrative centers or the location of plantations owned and operated by a variety of European companies or Christian

missions. These locations also became the logical choices for airfield construction for both the Japanese and Allied war efforts. The primary inhabitants of these islands are Melanesian peoples along with a small representation of Europeans and Chinese, these later two groups located at administrative and trading centers in the islands and at plantations.

Two different governments administered the seven main island groups that compose the Solomon Islands before the war. Seven of these island groups, including Guadalcanal and the New Georgia Group, were part of the British Solomon Islands Protectorate, headquartered at Tulagi Island. The remaining island group in the chain, Bougainville, administratively belonged to the Australian New Guinea Mandate established from former German possessions after World War I.<sup>1</sup>

#### The New Georgia Group

The New Georgia Group consists of the several large islands and numerous small islands and extends from meridian 156° to meridian 158°. The central island of the group is New Georgia, with the islands of Vangunu and Gatukai to the southeast and the larger islands of Kolombangara and Vella Lavella to the northwest. Rendova Island and Tetipari Island lie just south of the New Georgia Island proper while Arundel, Wanawana, Gizo, and Ganongga Islands extend on the same northwesterly direction just south of Kolombangara and Vella Lavella.

Barrier reefs protect most of New Georgia Island and between the reefs and the island are formed some of the largest lagoons in the world. Roviana Lagoon lies immediately south of New Georgia and is accessed from the north through the Diamond Narrows or from the west across the Munda Bar. These features control access to the area around Munda Point with the only other access to Roviana Lagoon being at high tide through Onaiavisi Entrance between Sasavele and Baraulu Islands, thus allowing only small craft to carry supplies over two miles

down the lagoon. The crossing of the Munda Bar, a line of reefs to the west, was difficult and only possible for small sailing craft and canoes at high tide following a complicated set of sailing instructions provided by plantation personnel from New Georgia.<sup>2</sup> The area of New Georgia around Munda Point was the location of a Methodist Mission, Kokengolo Mission. Adjoining this was the Lambeti Plantation, owned by Les Gill which was a coconut plantation. The Japanese airstrip that became the scene for much of the fighting on New Georgia was built on the site of the Kokengolo Mission Plantation and the Americans would later extend this airstrip onto the Lambeti Plantation.

Like the rest of the Solomon Islands, New Georgia's mountainous interior is covered in dense jungle and was invariably described by service histories as "hot, humid, and unhealthy." The predominant weather pattern in the islands is a wet season in November through December with a peak rainfall expected in December and a dry season that runs from roughly April through October. However, with rainfall that can average over 200 inches per year in the mountains and 150 inches along the coast, the term "dry season" became relatively meaningless to most Americans who served there. The islands also "lie in the only latitudes in the world where evaporation is greater over land than over water." New Georgia was a place where heat and humidity, combined with insects and disease, added a whole new dimension to both combat and construction operations.<sup>3</sup>

### The ELKTON Plan

#### Operation CARTWHEEL

The planning for operations against the Japanese at Rabaul commenced as part of the Joint Chiefs Directive of 2 July 1942.<sup>4</sup> The Pacific Theater of Operation was divided into Pacific Ocean Areas under Admiral Chester W. Nimitz, headquartered at Pearl Harbor, and

South West Pacific under General Douglas MacArthur, headquartered in Brisbane, Australia. This 2 July 1943 Directive initiated a three-part limited advance against the Japanese. Part One consisted of the capture of Tulagi and the Japanese Airfield at Guadalcanal and, under the code name WATCHTOWER, dominated the remainder of 1942. Part Two covered the capture of Lae, Salamaua, and Northeast New Guinea as well as the capture of the remainder of the Solomon Islands, and Part Three dealt with the capture of Rabaul on New Britain Island.<sup>5</sup>

Planning for the second phase began in early 1943 with the Casablanca Conference that set the priorities for Allied military objectives for the year. The decisions from Casablanca maintained the limited offensive style of operations in the Pacific under the “Germany first” policy. Before the Casablanca Conference, the Joint Chiefs had instructed MacArthur to present plans to carry out the remaining parts of the 2 July 1942 Directive. These plans were submitted as ELKTON I, dated 12 February 1943, with the stated objective of achieving Parts 2 and 3 of the 2 July 1942 Directive. It soon became apparent that these plans would need some detailed explanation, so the Joint Chiefs and members from MacArthur’s, Nimitz’s, and Admiral William Halsey, Jr.’s staff convened in Washington for a series of meetings to become known as the Pacific Military Conference which opened on 12 March 43. MacArthur’s representative brought the revised ELKTON II plans dated 28 February 1943 to this conference. These plans were accepted and formed the basis for a converging two pronged assault on Rabaul with one prong moving up the Solomons and one moving along the coast of New Guinea. However, there were insufficient forces from all branches available due to the obligations of Casablanca and overall war strategy to carry out MacArthur’s plans as specified in ELKTON II. Therefore, modifications were made to the plan that limited the scope of operations for 1943 to the basic

objective of Part Two of the previous 2 July 1942 Directive. These objectives were set fourth in the 28 March 43 Directive of the Joint Chiefs that closed the Pacific Military Conference.<sup>6</sup>

The plan adopted by the Joint Chiefs with modifications was incorporated as ELKTON III, dated 26 April 1943. The final plans for CARTWHEEL in 1943 called for the seizure of Woodlark and Kirawina for airbase locations, along with the capture of the Solomons up to southern Bougainville and the capture of Lae and Salamaua in New Guinea. This would be a joint operation between South Pacific Forces under Admiral Halsey and South West Pacific Forces under General MacArthur, with overall command belonging to MacArthur for the portion of Halsey's command operating in the Solomon Islands. The Joint Chiefs 28 March 1943 Directive also confirmed the nature of CARTWHEEL to be one of advancement of air power as the primary role and this became more pronounced as 1943 progressed. All the targets for CARTWHEEL in 1943 were airbases or forward airbase locations for the capture, later changed to neutralization, of Rabaul.

### TOENAILS

Concurrent with MacArthur's preparation of ELKTON, Brigadier General DeWitt Peck, USMC, Commander South Pacific (COMSOPAC) War Plans Officer on Admiral Halsey's staff, prepared the draft plans for the invasion of the New Georgia Group called Operation TOENAILS. The TOENAILS plan was actually presented to the Joint Chiefs in January of 1943 and was accepted into the overall plan of Operation CARTWHEEL. A meeting between Halsey and MacArthur in Brisbane, Australia, after the Pacific Military Conference set the operational date for the invasion of New Georgia for 15 May 1943. This date was pushed back to 30 June 1943 to coincide with MacArthur's movements in New Guinea and the landings at Woodlark and Kirawina, effectively making 30 June 1943 the "D-Day" for CARTWHEEL Operations.<sup>7</sup>

The TOENAILS operation was centered on Task Force 31 commanded by Rear Admiral Richmond K. Turner. Task Force 31 was broken down into the Eastern and Western Forces and the Occupation Forces under Major General John W. Hester, United States Army. Hester's forces were organized into three groups, consisting of the Western Landing Force, the Eastern Landing Force, and the New Georgia Air Command. The primary mission of the Western Force was the capture of the Munda Point Airstrip. The 24<sup>th</sup> Naval Construction Battalion (NCB) was assigned to the landing force for D-Day to assist with operations. The Western landing force under Hester's direct command was divided into the Southern and Northern Landing Groups. The majority of the Western Force was with the Southern group, whose objective was the capture of Rendova Island and then a shore-to-shore movement to Munda for the capture of the air field at Munda Point. The Northern Group was to land on the north coast of Munda at Rice Anchorage with the assigned objective of capturing Bairoko Harbor to prevent Japanese reinforcement of Munda.

The Eastern Landing Force was to capture Viru Harbor, Wickham Anchorage, and Segi Point. Segi Point was to be taken for the construction of a forward airfield to provide fighter coverage for the assault on Munda Point. The 47<sup>th</sup> NCB as part Acorn 7, a naval airfield setup and operation unit, was assigned to build the airstrip at Segi Point and was scheduled to land with the Marines of the 4<sup>th</sup> Raider Battalion on D-Day, 30 Jun 1943.

Starting in February of 1943, numerous advance amphibious scouting patrols made reconnaissance of the New Georgia Group. Most of these groups came in and out of New Georgia through Segi Point. The Markham Plantation at Segi Point was the headquarters of Donald Kennedy, District Officer for the Western Solomons and a key member of the coast watchers. Kennedy had set up a small group of natives under his command to harass the

Japanese as well as to report on their movement through the coast watcher system. Kennedy and other coast watchers assisted Marine reconnaissance patrols into the islands until the landings. It was from these patrols that it was determined that while Segi would make a good location for an airfield, it was unsuitable for major landings for a move against Munda on the other end of the island. Due to enemy pressure against Kennedy's position at Segi and fear of losing the advantage of landings in a secured area, initial landings at Segi were moved forward from 30 June to 21 June 1943, initiating the combat phase of the TOENAILS operation.<sup>8</sup>

TOENAILS had a different purpose and overall object than the operation of the previous year. The Navy's handling of Guadalcanal had been soundly criticized by General Millard F. Harmon, commanding General U.S. Army Forces in the South Pacific Area, to the extent that he felt the "the plan did not have its first and immediate objective the seizure and development of CACTUS as an airbase" and that the Navy "failed to appreciate the importance of airfield construction."<sup>9</sup> In theory, the Navy had listened to Harmon's observations. This coincided with the nature of the CARTWHEEL operations being directed at the use of air power to isolate Rabaul. Therefore, provisions were made for landing airfield and other construction elements directly with the Army and Marine Corps combat units on D-Day.

#### Seabees, Acorns, and Cubs

The NCB, known as CBs or Seabees, were formed after Pearl Harbor and the loss of civilian contractor construction crews on Guam and Wake Island. Their purpose was to perform construction under hostile conditions and under potential enemy fire. For this purpose, trained and experienced construction and trades professionals such as carpenters, welders, and equipment operators were given military training to conduct construction activities in combat zones. Units had been active in the Pacific since 1942 and had previously served with great

distinction in getting Henderson Field on Guadalcanal operational under constant enemy action. With the TOENAILS operation NCBs were slated to go in with the combat forces on “D-Day” in order to overcome some of the problems encountered with the earlier operations on Guadalcanal. This was to be the first such combat landing of a naval construction battalion, preceding that in Sicily by just a few days.

U.S. Navy Construction Battalions were originally to have a complement of approximately 27 Officers and 1052 men of varying enlisted rank.<sup>10</sup> Their bill of equipment varied from unit to unit, depending on date organized and movement overseas for operation. There were three battalions slated for the 30 June 1943 landings as part of TOENAILS. The 24<sup>th</sup> NCB was assigned to Western Landing Force to help secure the beaches for the Rendova Landings and proceed with repairs to the airfield at Munda once it was captured. One half of the 20<sup>th</sup> NCB was to land with the Eastern Landing Force to build PT bases and assist with the landings at Viru Harbor and Wickham Anchorage. The remaining unit was the 47<sup>th</sup> NCB, which was to land at Segi Point to build an airfield. Acorn and Cub were terms assigned respectively for a small air base and a large naval base and these designations were created for the purpose of supply organization and transfer to advance base depots. The 47<sup>th</sup> NCB was assigned to Acorn 7 and it was under the unit designation of Acorn 7 that the 47<sup>th</sup> was ordered to land at Segi.<sup>11</sup> During the course of the New Georgia campaign several other NCBs, either attached to an Acorns, Cub 3, or assigned individually, were sent to the New Georgia group to build one or more of the five airfields completed on the islands.

For the most part, these were supply and administration designations and not related to command structure. An Acorn would consist of all units assigned to the airfield to be built, including NCBs, Aviation Units, and Combat Aviation Service Units (CASUs). For the same

purpose, a Cub was a naval base planed for approximately one-quarter the size of Pearl Harbor (Pearl Harbor size bases were designated Lion).<sup>12</sup> All units assigned to the Segi Point Airstrip on New Georgia were under the umbrella of Acorn 7. The activities at Segi on New Georgia were the only instance where a single NCB worked on a single project keeping the lines between NCB and Acorn related construction activities from blurring. The facilities at Munda became associated with Cub 3 and with Acorn 8. For the majority of this thesis only the activities of the individual NCBs will be reviewed, as Acorn files are not stored with the NCB records at the Naval Facilities Command (NAVFAC) Archive.

Major John N. Rentz, United State Marine Corps historian, sums up the battle field at New Georgia with his statement that the “allies would battle not only a human enemy but also tropical heat, omnivorous jungle and unceasing rain...”<sup>13</sup> Brian Altobello and Eric Hammel have described in detail the Army and Marine Corps battle with the Japanese in the heat and omnivorous jungle. What follows here is the detailed account of the Seabees battle with the islands themselves while facing the same terrible conditions that bred disease and exhaustion in equal amounts. A battle against timetables where victory was not measured in territory gained measured by distance but by amounts of earth and material moved. It was a battle where the opponent was not always another man but was nature itself. The purpose of the entire New Georgia campaign and the umbrella CARTWHEEL operation was to gain air superiority over the Solomon Islands and Rabaul. For that purpose the Seabees built five airfields in New Georgia between July 1943 and January 1944, one each at Segi and Munda, two at Ondonga, and one on Vella Lavella.

## CHAPTER 2

### SEGI

#### Segi Plantation Airfield

##### Segi Landings

The first objective of the TOENAILS operation to be achieved was the seizure of the Markham plantation at Segi Point on the southeastern tip of New Georgia Island. This area was the base of operation for Coastwatcher Donald G. Kennedy. Kennedy and his small force of native scouts used the plantation and its environs as a base of operations not only to report Japanese naval and aviation movements but also to carry out raids against the Japanese. The first Marine Scouting party landed by a Catalina Fly Boat (PBY) at Segi on March 21, 1943.<sup>1</sup> Between this first party and the landing on D-Day on June 30, 1943, there were numerous scouting parties and groups that came into New Georgia through Segi. Thus, this area was well known to the Allies before the start of the TOENAILS landing, and Segi Point was designated to be an airfield for the support of the main thrust against Munda from the inception of the modified plans for the operation.

The landing forces assigned to Segi Point, code named BLACKBOY, were organized as part of the Eastern Landing Force commanded by Colonel D.H. Hammond, USA. The initial units assigned to the Eastern Landing Force were the U.S. Army 103<sup>rd</sup> Infantry, less the 2<sup>nd</sup> and 3<sup>rd</sup> Battalions, along with Batteries A, F, and the 1<sup>st</sup> platoon of E of the 70<sup>th</sup> Coastal Artillery. Attached to the landing force were the Naval Base Units and Acorn 7. Acorn 7 consisted of all Naval Units necessary to construct, operate, and conduct flight operations from a small airfield. Assigned to Acorn 7 for the construction of the Segi Point airfield was the 47<sup>th</sup> NCB.

The landings at Segi Point were scheduled to take place on June 30, 1943, to coincide with the coordinated landings of the remainder of the Eastern Landing Force and the Western Landing force. These plans were altered in mid June when the Japanese stepped up their attempts to neutralize Kennedy's position in response to his raiding activities. Kennedy requested reinforcement from Admiral Turner who received the request some time on the night of the 18<sup>th</sup> of June. In response to this request, the timetable for the assault on Segi was moved up to the 21<sup>st</sup> of June. The assignment of reinforcing Kennedy was given to the 4<sup>th</sup> Marine Raider Battalion under Lt. Col. M.S. Currin, less two companies assigned to the assault on Viru Harbor. Providing reinforcement for Currin's unit were Companies A and D of the 103<sup>rd</sup> Infantry US Army. Currin's force arrived off of Segi Point on the evening of June 20<sup>th</sup> and, though they had some difficulty with navigating the channel, Currin and his men landed at approximately 0550 hours on the 21<sup>st</sup> where they met no Japanese resistance. Instead they were greeted as they came ashore by Seabees of the 47<sup>th</sup> NCB. The army units of the 103<sup>rd</sup>, along with a 47<sup>th</sup> NCB survey party, landed on the morning of June 22<sup>nd</sup>.<sup>2</sup>

#### The Organization of the 47<sup>th</sup> NCB

The 47<sup>th</sup> NCB was commissioned at Camp Bradford, Naval Construction Training Center (NCTC), Nob Fork, Virginia, on 7 December 1942. After commissioning, the battalion was transferred to Camp Peary, Virginia and from there they were sent to the Advanced Base Depot (ABD), Port Hueneme, California, on 10 January 1943. While stationed at Port Hueneme, the 47<sup>th</sup> underwent "considerable amphibious training" and was assigned to Acorn 7 on 1 February 1943 and departed for overseas on 23 Apr 1943. The unit first arrived at Noumea, New Caledonia on 13 May.<sup>3</sup> The battalion was then staged to Banika in the Russell Islands to assist with the airfield construction projects already underway. The unit was fully staffed and

equipped when it arrived in Noumea with a full contingent of 27 officers and 1,052 enlisted personnel. Lt. Commander John S. Lyles, experienced in airfield construction including the Will Rogers Airport in Oklahoma City, was in command of the 47th at the time of its initial deployment to Segi.<sup>4</sup>

### The Reconnaissance of Segi Point

As part of the build-up to the landings at Segi Point, additional officers and non-commissioned personnel were assigned to Acorn 7 and the 47<sup>th</sup> NCB to assist with the reconnaissance of Segi. On or about 15 Jun 1943, Commander W.L. Painter, CEC, was transferred to Acorn 7 from Commander Air Forces South Pacific (COMAIRSOPAC) along with Lieutenants F. E. Swanson, G. S. Tinsley, and W. T. Maley from the 5<sup>th</sup> Naval Construction Regiment. At the same time twenty petty officers from the 5<sup>th</sup> Construction Regiment were also slated to be transferred to Acorn 7 but their transfers never took place.<sup>5</sup> Commander Painter along with the other Civil Engineering officers were transferred to Acorn 7 as part of the preliminary plan for the Segi fighter strip ordered by Vice Admiral Aubrey W. Fitch, COMAIRSOPAC, on 28 May 1943.<sup>6</sup>

Commander Painter, referred to as “Wild Bill,” was something of a well-known figure in the South Pacific. He served on Vice Admiral John S. McCain’s staff as an engineering advising officer. Huey refers to him as an “all around engineering handyman for Admirals McCain, Turner and Halsey.” Commander Painter also performed a reconnaissance of Viru Harbor and Segi in early May 1943 with the assistance of the Coastwatchers for an airfield location prior to commencement of the TOENAILS operations.<sup>7</sup> Painter’s reconnaissance report for the May trip is included as an attachment to the preliminary plans for Segi. Painter inspected the area of Viru Harbor and dismissed it as an airfield location due to heavy clay soil that from experience with

similar material would be unworkable in wet weather and a lack of sufficient coral for surfacing of airfields and roads at the site. The site at Segi was chosen because workable coral for surfacing was available along with an area for a 3,500 foot strip with water approaches. This site would require “some blasting” and “very little grading” to prepare the subgrade for placement of an airfield in this location. Painter’s report ends with recommendations for a follow-up survey to mark beach approaches for navigation and to survey the site and prepare engineering drawings prior to landing with emphasis on drainage necessary to work this site in wet weather.<sup>8</sup>

Commander Painter’s arrival, however, appeared to have caused a disturbance in Commander Lyles’ 47<sup>th</sup> NCB organizational structure.

As detailed in the reports of the 47<sup>th</sup> NCB, the first reconnaissance of the area around Segi Point by members of the 47<sup>th</sup> NCB took place on 14 June 1943 when a party consisting of two army officers and Lt. R. L. Ryan, CEC of the 47<sup>th</sup> NCB arrived at Segi “under orders from task force headquarters” to survey the Segi Point area. Commander Painter along with Lieutenants Swanson, Tinsley, Maley, and four enlisted men arrived at Segi on 22 June 1943 along with the units of the 103<sup>rd</sup> Infantry sent to relieve Kennedy. According to the 47<sup>th</sup> monthly report for July, Lt. Ryan turned his information on Segi over to Painter and returned to the battalion by PBY on the 25<sup>th</sup> of June. Painter and his detachment “surveyed the area, located the air strip and taxiways, marked the limits of clearing and selected and marked landing points for ships.”<sup>9</sup> The US Army commanding officer of the reconnaissance party of 14 June put Lt. Ryan in for a commendation based on his work at Segi prior to Painter’s arrival for his assessment of “tides, beaches, water supply, construction of air strip, location of coral and plan of drainage.”<sup>10</sup>

The arrival of Currin on 21 Jun 43 precipitated one of the most famous Seabee incidents released to the press by the Navy during World War II. This is the famous greeting of the

Marines by the Seabees as they came ashore in Higgins boats to reinforce Kennedy. According to the press release dated 31 Aug 44, when Currin and his men landed on the beach, he was greeted with the famous quote of “Colonel, the Seabees are always happy to welcome the Marines.” It is unknown from documentation in the record files if this was staged because Currin was very aware of the survey party with the remainder of his command to land the next day, or if this was Lt. Ryan just having some fun at the expense of the Marines.<sup>11</sup>

Lt. Ryan’s famous greeting aside, Commander Lyles was not very happy to have Commander Painter assigned to the operation. Though Lyles is very complimentary of the engineering and professional skills of Commander Painter and the other officers sent from COMAIRSOPAC and the 5<sup>th</sup> NCR, he is very, if politely, vocal about his opinion that their presence was an unnecessary impediment to efficient battalion operation. Commander Painter was detached from the 47<sup>th</sup> back to COMAIRSOPAC on 18 July and the four officers from 5<sup>th</sup> NCR were detached to their previous command on 4 August. Commander Lyles notes that these officers “did a good job and their help was appreciated” but he felt that their inclusion “to the battalion just before it started its first real job seriously disrupted the organization.” Lyles felt that the 47<sup>th</sup> “could have done at least as good a job if the officers” in question had not been added to the battalion causing “organizational difficulties.” He felt so strongly about this that he reiterated these statement the following month in the monthly report for August.<sup>12</sup> It must be noted, however, that not counting Painter’s first scouting trip to Segi, this area was surveyed by two NCB details for sixteen days prior to the first piece of equipment landing on June 30.

The plan for Segi Plantation from Commander Aircraft, South Pacific Force called for the strip to be 3,600 feet long and 150 feet wide with 50-foot shoulders. The surface of the strip was to be a minimum of eight inches of compacted crushed coral and there were to be 300 feet of

cleared area around the field. Approaches to each end of the field were also to be cleared. The items in the first priority group in the order of construction at Segi was to construct “perimeter roads” to access the area and “slit trenches” for personnel protection. These were to be followed by equipment dispensary locations and then the completion of the first 1,800 feet of runway and one taxi loop to allow emergency operation and refueling of fighter aircraft as soon as possible. After this, the rest of the field and taxi loops followed by fuel tank farms with dispersal areas and material dispersal areas were to be completed. The second priority group was the construction of camp facilities for 250 ground crew and approximately 150-flight crew of officers and enlisted men. This was to be followed by underground operations rooms, radio communications, field lighting, and radar installation. The third and fourth priority groups were the completion of second and third taxiways. The original plan calls for 40 hardstands, surfaced aircraft parking, and a 100,000-gallon supply of aviation gasoline and corresponding lubrication oil and a 500,000 round supply of 50 caliber ammunition be maintained in supply at the base.<sup>13</sup>

#### Construction - Segi Point - June and July 1943

The first group of the 47<sup>th</sup> NCB landed at Segi Point in one Landing Ship, Tank (LST) at 1010 hours on 30 June. This first group consisted of 17 officers and 477 men and by 1300 hours on 30 June they had already started clearing the work area for the Segi Airfield and working on defensive revetments. The work zone was laid out and staked by the survey party prior to the landing. Even as the 47<sup>th</sup> landed at Segi on D-Day, it was already at less than one hundred percent strength. During the months of May and June the unit had been at Noumea, Guadalcanal and the Russell Islands and had suffered personnel losses due directly to the nature of the tropics. During the month of June alone, the battalion had lost 511 sick days for disease and injury with 298 days of the total lost to malaria.<sup>14</sup> Though this represents an approximate loss of only 1.5%

of the man days available from the potential of the full 1,052 man and 27 officer contingent, it is representative of the trend that continued through combat and construction operations.<sup>15</sup>

The efforts of the 47<sup>th</sup> during the month of July were concentrated on the airstrip and roads necessary to move supplies and equipment to the construction area from the beach. During this phase of the construction at Segi the weather was far from cooperative with only five clear days reported during a period of “nearly continuous rains” from 1 July to 17 July, although there is no indication of the amount of rainfall recorded by the 47<sup>th</sup>. The rainfall abated from the 18<sup>th</sup> through the 25<sup>th</sup> of July but during the last six days of the month the heavy rains returned. These rains made working with the locally available soil material difficult due to the high clay content.<sup>16</sup>

The reports indicate that coral of building quality was “scarce” in the vicinity of Segi and the material that was available had a high clay content. The coral in the immediate vicinity of Segi was described as “of a very poor quality and... not believed to be at all representative of the coral generally found in the South-west Pacific.” The Seabees describe the coral as being in two varieties; that “found beneath a layer of overburden of earth and vegetative mater” and that found “adjacent to the shoreline.” The coral material removed from underneath overburden contained fines, fine particulate materials and organics, that the Seabees refer to as “clay.” This clay material caused compaction and surfacing problems and was also attributed with hardening problems. To deal with this issue, the Seabees found a way to reduce the clay content as described by Chief Carpenter’s Mate M. E. Milone.<sup>17</sup>

The method Milone describes was developed to accommodate for the conditions at Segi and the equipment and means available at the site. The poor quality coral material, once excavated from the coral pit, was dumped on the construction site and spread by bulldozer in

layers to form a subgrade. The bulldozers then were used to 'walk' over the finished subgrade layer to compact and break up any large pieces as needed before surfacing. A sheepsfoot roller, a large rotating toothed drum roller, was then used to compact the layer. The action of walking the sheepsfoot over the compacting layer would bring water and 'mud', fines and impurities, to the surface of the worked layer. This is similar to the technique of floating concrete to bring cement to the surface for finishing. In the case of the water and mud brought to the surface a 'motor-patrol,' or road grader, was used to scrape off the impurities. This placement of layers with compaction by sheepsfoot roller and removal of mud was continued until final grade was reached. After the final grade was motor-patrolled, the surface allowed to dry, as practical in the climate, until only enough moisture remained to allow working of the material. The surface was then dressed with a road roller or smooth drum roller. If more mud was brought to the surface by the roller, it was removed by motor patrol and the process repeated until no more mud comes up and the surface was hard and smooth.

The activity of construction on the airfield at Segi continued 24-hours a day with construction operations being conducted under floodlights until 18 July 1943. Japanese air raids after the 18<sup>th</sup> limited night operations in conjunction with the fact that the airfield was in operation by that time. During the remainder of July, the remaining portion of the 47<sup>th</sup> arrived from the Russells so that by 31 July only seven officers and one hundred eighteen men remained in the Russells with another officer and five enlisted men stationed at Koli Point, Guadalcanal with the battalion vital records. This left a working force of twenty-three officers, included in this number are the three officers from 5<sup>th</sup> NCR, and nine hundred twenty-seven men during the month of July.

Of the man power available during July at Segi, there were 362 man days lost due to illness and injuries with an additional 114 man days lost when factoring in the personnel in the Russells. As with the figures for June, the single largest contributing factor was malaria with 212 total sick days lost in total. Injuries only accounted for 56 days between both groups. Included with this list of injuries was one man injured during the first Japanese air raid against Segi Point on 13 July 1943 with the rest being construction related. This is again a consistent 1.5% loss in manpower with the addition of two men removed from the roster and transferred to rear area for “war neurosis”.<sup>18</sup>

The first Japanese air raid occurred at Segi on 13 July almost two weeks after start of construction under floodlights. This air raid injured one sailor and destroyed most of the dynamite belonging to the 47<sup>th</sup> which limiting their jungle clearing activities and also damaged several pieces of equipment that had to be repaired but were put back into operation during July. The air raids added a great deal of stress to the men and an observation about the constant mental strain on the men due to air raid warnings and air raids after the 18<sup>th</sup> is attributed as the cause. It was noted that it was extremely difficult for the equipment operator to hear the existing air raid siren system and it was recommended that a new louder self-powered siren be used to allow equipment operators to hear it along with “proper radar protection.”

The airfield at Segi was deemed “suitable for operations” on 9 July and aircraft were expected on the 10<sup>th</sup> but did not land due to bad weather. The first landing was an emergency landing by an F4U Corsair on 11 July and the field went into continuous operation on 13 July. The field was usable at 150 feet wide with a length 3,300 feet by the end of the month with 25 hardstands almost complete and two taxiways under construction. Two miles of road were completed and only one of those miles was considered adequately surfaced. One permanent

dock and two temporary docks were constructed and only 50% of permanent camp structures including mess and quarters for men and officers were complete. The unit had its sawmill up and running by the end of July and the operations building were under construction. Commander Lyles estimated that all essential work on the final 3,500-foot strip would be completed on schedule by 30 September 1943.

#### Construction - Segi Point - August 1943

The month of August showed a steady decline in the health of men and their equipment in the tropical heat and humidity. Part of this problem was dictated by the necessity of getting the airfield operational, and in the monthly report for August acting Officer in Charge (OiC) Lieutenant Commander Swanson acknowledged that “everything was subordinate to the principle project” including the drainage and camp construction. One of the casualties of this pace of activity and location was Commander Lyles who was transferred to the rear for medical treatment on 5 August and transferred from the rear by ship to a US Naval Hospital in the USA on 25 August.

He was one of sixty-four men transferred out of the battalion for medical reasons during August, a month that saw only one enemy bombing raid producing only “slight” damage and no personnel casualties. Also during August there were 329 days lost due to illness and injury, with malaria again being the consistent leader, with other various tropical conditions and fevers following closely behind. There were also 54 days lost to burns and injuries from construction and camp related activities. With 988 men present for duty, this represents a slight increase in manpower available for work from the previous two months. This agrees with Lt. Commander Swanson’s assessment that “most men evacuated for medical reasons were men whose physical condition was very poor when they entered the service” and that the “battalion’s experience

indicates it would be beneficial to raise the physical requirements of enlistment in the Sea Bees, particularly the dental requirements.” The last was for eleven men in sick bay for dental abscesses.<sup>19</sup>

The conditions were also taking a toll on the equipment of the 47<sup>th</sup> with the monthly report for August showing that only 55% of the original equipment was available for construction work at Segi, due to transferred, broken and under repair equipment. Table 1 from the 47<sup>th</sup> NCB’s August report shows the status of their equipment as of 31 August 1943.

Table 1 – August Equipment Status 47<sup>th</sup> NCB

Description of Equipment	Amount Originally Received	Converted Equipment	Transferred Out	Beyond Repair	Repaired in 4 Days	Available For Work
¾ Yard Shovel	4	0	0	0	1	3
D8 Bulldozers	8	0	2	0	0	6
TD18 Bulldozers	8	0	4	1	0	3
Dump Trucks	26	1	6	7	4	8
Cargo Trucks	30	1	1	4	4	20
Carrvall Scrapers	8	0	6	0	0	2
Jeeps	22	0	2	0	4	16
Water Trucks	2	0	0	0	1	1
Ditch Diggers	1	0	1	0	0	0
Patrol Graders	2	0	0	0	0	2
TD Grader	1	0	0	0	0	1
Rollers (Tandem)	2	0	0	0	1	1
Rollers	2	0	1	0	0	1
Rock Crusher	1	0	0	0	0	1
Air Compressors	3	0	0	0	0	3
1 ½ Ton Int.	1	1	0	0	0	0
Stump Pullers	4	0	0	0	0	4

The equipment listed as “beyond repair” was so listed because it had an “essential part broken” that was unavailable and could not be manufactured by the battalion. Those listed as transferred out were sent to either Enogi Inlet or Munda. The equipment listed as “repaired in 4 day” was equipment whose damaged or broken parts could be manufactured by the battalion. Swanson lamented that spare parts were only being obtained “by sending men back to large rear area bases

for them” and that “anything that can be done to expedite delivery of parts and material to advance bases will be a tremendous help to the war effort.”<sup>20</sup>

During August, the entire company of the 47<sup>th</sup>, including the last of the men in the Russells and the Disbursing Officer and his men from Koli Point, were moved to Segi. However, by the end of the month one detachment of four men and two D8 bulldozers were detached to Enogi Inlet and a detachment of four officers and 193 men were transferred to Munda with the listed transferred equipment to assist with the completion of the Munda Airfield. This left twenty-one officers and 727 men at Segi. The acting commander estimated the remaining projected work for the 3,500 foot airstrip would be completed by 31 October 1943, based on manpower losses to injury, illness, and transfer. This is a delay of one month from the original completion date.

At the end of the month of August, the 47<sup>th</sup> NCB had completed twenty-three construction projects, including most of the operations buildings for the aviation units, airfield control building, and support facilities. The Segi airfield itself was still considered only 87% complete with three taxi loops and associated hard-stands in varying stages of completion. There were twenty-eight construction projects still ongoing at Segi including the airfield, with major emphasis outside the airfield being placed on road construction. Approximately 5,500 feet of roads were coraled and compacted to ‘all-weather’ standard with between two and nine feet of coral required to allow the road to be considered passable for equipment in wet conditions. An additional 5,100 feet of roads constructed in July were rough graded but were “practically impassable” until they could be coraled.<sup>21</sup>

Other operations were additions and improvements to camp facilities, a hospital and water system. The battalion sawmill was producing 6,000 board feet per day on average and

could not keep up with demand. Proposed projects were recreation facilities, an ammunition dump, and battalion offices. The weather during August also continued to be an issue for construction. No details of rainfall were indicated by the 47<sup>th</sup> NCB, however, the 2<sup>nd</sup> Echelon of the 20<sup>th</sup> NCB at Viru Harbor immediately up the coast of New Georgia from Segi erected a rain gauge on the 11<sup>th</sup> of August and recorded 21.3 inches of rain between the 11<sup>th</sup> and the 31<sup>st</sup> of August with 6.2 inches in 24 hours on the night of the 11<sup>th</sup>-12<sup>th</sup>.<sup>22</sup>

### Construction - Segi Point - September 1943

During the month of September the 47<sup>th</sup> continued to upgrade the Segi fighter strip extending the length to 3,450 feet by September 30<sup>th</sup>. This work was carried out by 780 men, approximately 80% of the battalion's strength, with the remainder being at Munda to assist with construction of the Munda air facilities. Work on the Segi strip continued on a 24-hour basis during September to insure completion of the October deadline. With work on the airfield nearing completion, attention was turned to completing infrastructure. Four thousand eight-hundred feet of road was surfaced to all weather condition, bringing the total all weather surfaced road network at Segi to approximately 10,300 feet with only 1,600 feet of the remaining primary roadway needing to be surfaced. Comments were that much drainage work needed to be completed to keep roads in good condition but this was being delayed until all road surfacing work was completed.

New docking facilities were completed and the original docking facilities were improved upon and a 30-ton marine railway was installed and in near continuous use, supplemented by two 3x7 self-propelled pontoon barges. The battalion's sawmill was still only producing an average of 5,000 board feet of lumber daily, although this amount was not near enough to meet the demand, causing lumber to be rationed out to army and navy units according to priority. Work

had also increased to provide for increased screening on structures and to improve drainage that is acknowledged as increasing sanitary conditions at Segi during September.

The conditions continued their work on men and equipment. Lt.(jg) V. C. Olshefski, one of the battalion's medical officers, was transferred from the battalion to a ship for stateside removal. His removal left the battalion with only one medical officer. The acting OiC, Lieutenant Commander Swanson, requested another medical officer as they were "badly in need of another one."<sup>23</sup> During September 429 man days were lost to the 47<sup>th</sup> due to illness. Of these days 277 were lost at Segi with the remainder being lost from the Munda detachment. As in the proceeding months, malaria was the leading culprit with lost manpower. However, a larger percentage of the lost manpower from malaria was at Munda, showing the improving conditions at Segi as screening of camp facilities and drainage projects took place. In total fourteen men were transferred out of the battalion in September for medical reason to be replaced by seven men returned from medical as well as four transferees. In his closing remarks in the monthly report, Swanson notes that moral and health of the battalion has "shown a definite improvement" during September and this is directly attributed to better living conditions caused by a reduction in mud, improvement in sanitation, and improved mess facilities and food quality. He also notes that "most of the men in poor health have been evacuated and those remaining are the hardier ones who can take it."<sup>24</sup>

The equipment of the 47<sup>th</sup> showed as much wear as the men and the climate and work was also beginning to show which types of equipment could 'take it' as well. The main failures in the toughness category were General Motors Corporation (GMC) Dump trucks, specifically models CCKW 352 and 353. The springs and the frame were breaking "regularly" and only eight could be kept operational by obtaining replacement parts from Guadalcanal. The OiC

complains “that supply is now exhausted and unless more are obtained it will be impractical to keep trucks operating.” The remaining equipment was being kept functional by stripping parts from some equipment to keep others operational. Equipment lists also show that the heavy Caterpillar bulldozers broke down less often than the International heavy tractors.<sup>25</sup>

At the end of September, the Segi fighter strip stood at 96% completion with less than 10% of work remaining on taxiway “B”, shoulders and drainage for the airfield. Camp general construction was 97% complete and the hospital was 98% complete. The remaining major construction projects under way were road surfacing and gasoline and material dispersal areas. Projected projects were now down to an ammunition dump, Dock 2 and the Construction of a Battalion Office Building.

#### Construction - Segi Point - October 1943

Work during the month of October continued on a 24-hour basis and the airfield and basic road system were completed as scheduled on 15 October 1943. This consisted of a 200-foot wide 3,500-foot long coral surfaced fighter strip with 65 hardstands. The completion of surfacing of all weather roads, including the final 6,500 feet of roadway, brought the total surfaced road length at Segi to 17,400 feet by the end of October. Upon completion of the original Segi plan the 47<sup>th</sup> began working on ‘improvements’ including a small taxiway inside taxiway “A” with 10 additional hardstands and widening and improving the strip and dispersal areas as time and material permitted. On 18 October 1943 all of the useable coral at Segi Point was exhausted and coral was now obtained from an island 1,000 feet south of the point. This coral was loaded into trucks and the truck ferried back to Segi on a pontoon barge.<sup>26</sup>

The battalion finished construction on a Pontoon Dock, Dock 2, and a 90 foot log ramp dock for small craft, Dock 3. The sawmill produced 139,139 board feet of lumber during

October 1943, approximately 4,500 board feet day. Demand for lumber started declining in October and more lumber was diverted to decking in enlisted men's tents. The addition of the flooring to enlisted quarters and improved drainage along with the addition of more screened structures for operational structure and offices improved the mosquito situation at Segi. Although the overall sanitation situation improved at Segi again in October, the attrition due to the pace of work and climate continued.

During October, forty-four men were transferred out from the 47<sup>th</sup> for medical reasons with 28 men from Segi and 16 from Munda. Only eight men returned to the battalion from medical detachment. The 47<sup>th</sup> lost 626 man-days labor during October with 325 man days lost at Segi and 301 man days lost at Munda. The Munda numbers are significant showing that approximately half of the lost man hours came from the 20% stationed at Munda and the majority of those hours, 191, were for malaria compared to 65 days lost to malaria at Segi in October. During October, this places the 47<sup>th</sup> at roughly 85% of its manpower capacity based on what was available in June 1943. The number also shows the improving sanitary conditions at Segi as opposed to the ongoing construction at Munda. Also, bombing raids at Segi during September and October were few with minimal damage or casualties, while Munda saw repeated raids.

The OiC of the 47<sup>th</sup> admitted in the October report that the health and moral of the men is only fair and that the climate and work load had aggravated physical ailments increasing the number of evacuations. He attributed the pace of work and lack of recreation and diversion as major contributing factors saying "that the continual hard work appears to be making the men become more indifferent to their work and responsibilities, in spite of the fact that their living and mess conditions have been continually improved." A look at the list of diseases reported for

lost work days in October shows malaria falling but many other illness, especially those related to fatigue and exposure, increasing.<sup>27</sup>

The spare parts situation was again brought up as a primary reason for equipment time lost along with the faulty springs and frames on the GMC trucks assigned to the unit. Lt. Commander Swanson was very direct in his assessment of the parts situation, stating:

“Numerous requests for parts and material have been made but very few of them have been filled. Some few parts and material have been obtained by sending men to nearby rear bases for them. In general this Battalion has had very little success in obtaining needed parts and materials while at this base.”<sup>28</sup>

This parts situation as described by Swanson is the endemic complaint of all the NCB Commanders at New Georgia. A response to the 47<sup>th</sup> from the Bureau of Yards and Docks addresses this issue advising that “spare parts have been and are being shipped to the spare parts depots located at EPIC (Noumea, New Caledonia) and EBON (Espiritu Santo, New Hebrides), in large quantities.” The majority of blame for the inadequacy of parts deliveries is placed on a “lack of inter-island shipping.” There were sixteen pieces of equipment of the 47<sup>th</sup> NCB down for lack of parts or in need of repairs ranging from those that could be repaired to those awaiting parts and three listed as beyond repair.<sup>29</sup>

With major airfield activities at Segi complete, the 47<sup>th</sup> began a series of secondary projects. The projects that were underway by the start of November were the North and South Shoulders of the Airstrip that were almost completed and work around the Tank Farm and Gas Disposal Area. Their newest projects were the refrigerator installations and the Swimming Pool. The swimming pool was completed in early November and was 150 long by 75 feet wide and was considered a great improvement to base morale. Work was stopped on the addition of extra hardstands inside Taxi loop “A” upon notification that aircraft based at Segi were to be reduced.

### Construction - Segi Point – November 1943 through January 1943

During November, much of the work done by the 47<sup>th</sup> at Segi consisted of improvements to camp facilities and to provided maintenance for the base and air operations. While recreation time and opportunity increased greatly for the 47<sup>th</sup> at Segi with the nightly movies, two softball leagues and a scheduled boxing tournament, the toll of the work and the climate again shows up on the roster of men and equipment. There were 274 man-days lost during November between the contingent at Segi and the smaller group at Munda. Of these days seventy-two were lost to malaria with sixty-two of those at Munda. While malaria seems to have been the plague of Munda, there were forty-one days lost to operational and combat fatigue at Segi. The monthly report again lists the health and moral of the men as fair with the tropical climate having “aggravated the physical ailments and weakness of the men,” resulting in the large number of medical evacuations. The manpower roster shows only 882 men for the month of November, down from the 1,052 enlisted manpower complement that originally went overseas.<sup>30</sup>

Equipment status during November was improved from October with only five pieces of equipment non-operational due to breakage or lack of parts. This is accountable for equipment down time for repairs with the majority of work completed at Segi. However, the majority of the equipment listed for the 47<sup>th</sup> was graded as only being in “fair” operating condition at best, with only twenty-eight of the battalions approximately 164 pieces of equipment listed as “good” and the majority of this equipment consisted of new jeeps and trucks with new springs installed.

The 47<sup>th</sup> NCB was placed under the 15<sup>th</sup> Naval Construction Regiment in November 1943 and it received a new commanding officer, Commander Robert W. Van Stan, on 9 December 1943. Commander Van Stan oversaw the move of the 47<sup>th</sup> NCB from Segi to Munda during the month of December 1943. By the end of December, only 150 men were based at Segi

for maintenance and the operation of the sawmill, of which almost all produced lumber was being shipped to Munda. Operation of the sawmill was deemed difficult due the distance suitable lumber had to be hauled to the mill operation. The last of the 47<sup>th</sup> NCB's personnel were detached to Munda on 15 January 1944 with maintenance activities for the Segi Air Strip turned over to Construction Battalion Maintenance Unit 580 during the month of December.

#### Segi Point Airfield - Conclusion

Table 2 is the list of all projects completed by the 47<sup>th</sup> NCB at Segi during their tenure at the base. These projects represent the complete base at Segi as of December 1943 when the maintenance was turned over to the CBMU. There were 17,800 feet of all weather roads connecting the facilities at the strip to the camp, the harbor, and to Munda, with and an additional 3,500 feet of all weather access roads around the airfield. When this figure is taken into consideration with the depth of compacted fill on roadways being between three and nine feet, there is a minimum of 59,200 cubic yards of compacted coral with potentially as much as 118,300 cubic yards of coral in the road system alone using an average of six feet of compacted depth. These figures are based on the length of roads times the reported depth and a minimum road width of twenty feet. The airfield at Segi as completed was 3,500 feet long by 200 feet wide with 75-foot wide shoulders. With an assumed one-foot depth of compacted coral surfacing, this is approximately 45,000 cubic yards of compacted coral in the strip surfacing. With the taxiways and sixty hardstands assumed at one hundred feet in width with a length of 3,500 feet each there is an additional 28,000 cubic yards of compacted material in taxiways and hardstands assuming one foot of compacted material. There exists at Segi the potential for the 47<sup>th</sup> NCB to have excavated and placed as much as 135,000 cubic yards of coral surfacing material between 30 June 1943 and 1 November 1943.<sup>31</sup>

Table 2 – Projects Completed by the 47<sup>th</sup> NCB at Segi

Construction of Sawmill	Control Tower
Homing Tower	Ready Building
Enlisted Men's Galley	Communications Building
Port Director's Office	Operations Building & Dugout
Radar Installation on Vangunu Island	Post Office
SCAT Operations Building	90mm on Vangunu Island
Telephone Exchange	Gasoline Tank and Pipeline
Officer's Showers	Enlisted Men's Showers
AvGas Filling Station	Communications Dugout No. 1
First Aid Station	Harbor Control Tower
Conduits Under Strip	Officer's Mess
Officer's Quarters	Dental Office
Communications Dugout No. 2	Ship's Service Building
Addition to Enlisted Men's Galley	Construction Battalion Dispensary
Mine and Bomb Disposal Building	Dock No. 1
Dock No. 4	CPO Mess
Bomb Fuse Magazine	Automobile Filling Station
Equipment Repair Shop	Electric System
Water System	Marine Railway
Boat Watering Point	"A" Taxiway and Hardstands
"D" Taxiway and Hardstands	Clearing West Strip Approach
Dock No. 2	NCB Office Building
NCB Ship's Service Building	Library
Mosquito Control Building	Gas Disposal Area No. 1
Gas Disposal Area No. 2	Gas Disposal Area No. 3
North Shoulder of Strip	South Shoulder of Strip
Fire Wall around Tank Farm	Taxiway and Hardstands inside "A" loop
Gas Disposal Area No. 4	Refrigerator Installations
Swimming Pool	8 Foxholes near strip
Dock No. 3	Painter Road
Munda Road	CASU Engineering Facilities

The Segi sawmill produced on average between 4,500 and 6,000 feet per day during operation from July until the 47<sup>th</sup> departed. With supply of lumber being used at Segi until November, the battalion produced over 725,000 board feet of lumber assuming an average of 5,000 board feet per day with 145 days of operation. This lumber went into the numerous building projects at Segi, including at least sixteen buildings not counting individual officer's and enlisted personnel quarters. In addition to the dock and marine railway and supply, the 47<sup>th</sup> also performed repair and salvage of aircraft and boats, unloaded ships, and repaired equipment. The 47<sup>th</sup> also ran the Segi Naval Base power and water supply network for approximately 1,700

naval personnel, as well as providing these services for some 1,800 US Army troops and personnel.<sup>32</sup>

All of this work was conducted in incredibly hot and humid conditions that resulted in the evacuation of 114 men reported and the loss of an average of 422 man days per month due to disease, fatigue and injury. This is an average of fourteen men on sick roster, an estimated 1% manpower loss every day that remains consistent throughout the deployment at the different locations. By September the unit was down to 880 men due to the individuals transferred out with serious medical conditions. Accounting for the 20% of the battalion at Munda, the majority of the work at Segi after August was done by around 700 men, which was roughly 2/3 of a full battalion's strength, with only 3/4 of their heavy bulldozers operational. Looking at the medical information by January when the 47<sup>th</sup> NCB reported to Munda from Segi, it was effectively at 76% of manpower capacity with 804 men on the active roster and on any given day was only capable of having 75% of its manpower capacity operational due to sick roster. This along with the fact that 80% of its equipment was listed only as fair after 5 months of heavy use and 2 months of refitting shows the effects of the climate and pace of work.

## CHAPTER 3

### MUNDA

#### The Munda Point Airfield and Naval Base

##### Rendova Landings 30 June – July 1943

The assault on the main objective of the New Georgia campaign, the Japanese airfield at Munda Point, began with the Rendova landings of the Eastern Landing force on 30 June 1943 as per the TOENAILS plan. The landings were set for Rendova Island and then for a shore-to-shore movement to New Georgia under air support from Guadalcanal and artillery support from Rendova. The 24<sup>th</sup> NCB was to be the first Seabee Battalion to perform an amphibious combat landing in conjunction with units of the 43<sup>rd</sup> Division United States Army on D-day. The 24<sup>th</sup> NCB had been in preparation for the landing since the end of May and the 1<sup>st</sup> Echelon of the 24<sup>th</sup> participated in a series of amphibious landing drills with Army combat teams during the last two weeks in June in the Russell Islands. The 24<sup>th</sup> NCBs landing at Rendova and the events that followed were momentous.

The 1<sup>st</sup> Echelon of the 24<sup>th</sup> NCB, consisting of approximately 500 men and officers, landed on Rendova Beach under Japanese fire with the 172<sup>nd</sup> Infantry Combat Team of the 43<sup>rd</sup> Division USA. These units immediately set out to build roads and prepare for unloading of supplies and equipment. The conditions during the first 12 days of the operation were incredibly difficult with equipment bogging down in the mud caused by poor soil conditions and heavy rainfall. The 1<sup>st</sup> Echelon was only allowed to bring six small HD-7 Allis-Chalmers bulldozers for the initial landing and these proved exceedingly unsatisfactory. The commanding officer in his report of activities stated that “this should never be permitted in the future” and that only “HD-10 tractors or larger [are] the only types that could be effectively used.”<sup>1</sup> The

frustration with the smaller size tractors continued with further request that tractors sent to combat conditions be equipped with winches to improve versatility and usefulness in muddy conditions. In order to move Marine and Army equipment from the beaches, the 24<sup>th</sup> built “corduroy” roads out of coconut logs after metal “Summerfield” mesh proved useless in making roads. The metal mesh materials such as Summerfield and Marston Matting proved useless in areas such as Rendova where the soil “was marshy, with no firm substrata” and were unable to provide a stable base. The commander of the 24<sup>th</sup> NCB noted that “had the soil conditions previously been known,” then “a solution could have been previously prepared.” His suggestion was strips of railroad ties or heavy timbers cabled together in rolls and brought with the land force to roll out as temporary roadways.<sup>2</sup>

The second day after the landings, 2 July 1943, saw the 24<sup>th</sup> NCB suffer massive casualties for a CB unit. During a bombing raid at 1330 hours several bombs struck the unit and detonated one of their fuel stores and set off five tons of dynamite. The 24<sup>th</sup> suffered casualties of two officers and eighteen enlisted men killed, eight men missing, and numerous men wounded who had to be evacuated to Guadalcanal. The explosions also destroyed three of the battalion’s bulldozers, their galley equipment, and most of the men’s sea bags and personal belongings. The men of the 1<sup>st</sup> Echelon of the 24<sup>th</sup> lived in very muddy condition for the majority of the month of July, and with the loss of equipment, their living conditions were extremely difficult by Seabee standards. The commander stated that during the first six days of the invasion the men lived in eight inches to one foot of mud and water. A second major bombing raid occurred on 4 July 1943 at 1400 hours but it did little damage to the beach facilities and caused only one Seabee casualty. Most of the Japanese bombers were shot down.

In his report of activities of the first six days and the follow up report of the next four days after D-Day, Commander Whittaker explained in detail some of the concerns and problems facing the Seabees at Rendova and at Munda in general. He recommended that “men over forty not be sent on such expeditions,” not because they are unwilling to serve, but because “they cannot stand it, mentally and physically.”<sup>3</sup> There were constant air raids, nights with no sleep, and what little sleep there was had to be taken in open foxholes with six inches to one foot of water and or mud with no mosquito netting. Adding to the exhaustion factor, they only received two meals per day and were wearing out. The commander also recommended a more serious screening for “possible psychopathic cases.” There were ten such cases, described as war hysteria, evacuated from the 24<sup>th</sup> during the first ten days. By the tenth day after landing, 9 July 1943, the 24<sup>th</sup> had lost twenty-one men in combat, ten more to war hysteria, and thirty-three men were in sick bay.<sup>4</sup> This represents 14% of the manpower of the first echelon lost combined with over 20% of their available heavy equipment out of action. The final tally from the Rendova landings was reported as twenty-eight dead and twenty-one wounded.<sup>5</sup>

In a personal letter written to the “Chief,” Commander Whittaker explained that the most dangerous job run by the 24<sup>th</sup> NCB was the unloading on the beach. Men unloaded munitions and gasoline from LSTs on the open beach and were vulnerable to bombing and strafing runs by enemy aircraft. The tension and stress he noted was extremely high, yet even with this level of stress and tension, Whittaker was proud that his men performed all the tasks that were asked of them and notes that even with the discomforts “the spirits are high.” He again expressed how “our men over 35 years of age and above were completely unprepared for the shock and trial of being under constant red alerts and Japanese air raid” while sleeping on the ground in the mud and water. With most of their mosquito netting destroyed, Whittaker stated “it is only a matter

of time before many of my men will be down with malaria.” He was very correct in his assesment.<sup>6</sup>

The 2<sup>nd</sup> Echelon of the 24<sup>th</sup> NCB of approximately 450 men joined the 1<sup>st</sup> Echelon on 18 July 1943 arriving at Kokurana and Baribuna Islands off of Rendova. The majority of the work of the 24<sup>th</sup> NCB was the building of LST and Landing Craft, Tank (LCT) landings at Rendova, Rovianna, Bau Island, and at Sassavele. The 24<sup>th</sup> also built a Powered Torpedo (PT) Boat Base, boat landing facilities, and roads used to bring supplies to the front. Munda field was taken from the Japanese on 5 August 1943 after over a month of fighting. The 24<sup>th</sup> NCB was ordered to Munda on 7 August 1943 and began the move from Rendova to Munda in small boats. The move to Munda by the 24<sup>th</sup> NCB was not completed until 15 August 1943

#### Munda Field - Japanese

The field that was captured from the Japanese was surfaced with coral and was approximately 150 feet wide by 3,000 feet long. This field had been bombed and shelled by naval task groups continuously since its discovery in December 1942 and bombed and shelled extensively during the battle for Munda during July and early August. The Japanese had built Munda under improvised camouflage netting. It is a widely known legend that the Japanese cabled the tops of the coconut and palm trees together and removed the trunks and stumps to build the airfield underneath a suspended layer of palm tops. No evidence of this was found to support this myth and it was not remarked upon by any Seabee unit stationed at Munda including the 24<sup>th</sup> and 73<sup>rd</sup> NCB, which arrived within a day of the capture of the field. Its feasibility is extremely unlikely from a practical and engineering standpoint. The construction method used by the Japanese at Munda was to build their airfield and taxiways around the tree trunks leaving

them in place as camouflage until the field was near completion and then they removed the trees and filled the resulting holes.

Japanese documents and historical information confirm the method of construction the Japanese used at Munda. The 10th Construction Unit of the Imperial Japanese Army built the airfield at Munda Point with the assistance of Japanese Army and Naval Units, including sections of the 22<sup>nd</sup> and 4<sup>th</sup> Imperial Japanese Naval Construction Units, stationed at Munda starting in November 1942. The official Japanese military history notes that the location chosen at the Methodist Kokengolo Plantation was “covered with palm trees and Japan did not try to fell down trees because Japan did not want enemies to notice” the air field construction.<sup>7</sup> The typical composition of an army construction unit such as the one assigned to Munda was approximately “900 shovels, about 90 hoes, some rollers for surface compaction, and 100 members” and was staffed and equipped on the basis of “using natives and working flat places.”<sup>8</sup>

The Japanese Army had realized the importance of using heavier equipment and “the army selected classified weapons (tanks) for breaking through jungles for cutting down trees” and they also used “construction machinery of Japanese companies” but these were “primitive machines.”<sup>9</sup> There is no evidence that the Japanese construction units at Munda used any equipment heavier than trucks and rollers, some of which were captured and put to use by the Seabees at Munda. However, at Rabaul, the Japanese discovered the “tank was not so much useful although it was useful for pushing down trees.” Most of the construction of airfields as performed by the Japanese Army was done by human labor and “mostly used shovels and saws.”<sup>10</sup>

The Japanese Navy had similar units to the army and these were referred to as Setsusei Tai or Pioneer Units. The Japanese Navy recognized that one of their disadvantages was the lack

of the ability to set up forward bases with the same speed of the United States. The Japanese Navy was very well aware that their method that “used shovel and scoop by humans” could not compete with the US Navy method that “used bulldozer and power shovel.”<sup>11</sup> Similar to the United States the Japanese Navy had incorporated its civilian construction into a military arm in August 1941 and this included the incorporation of civilian technicians into the military, although this organizational change did not reach the field level until after the New Georgia Campaign.<sup>12</sup> This is confirmed by US interrogation reports of Japanese Prisoners of War capture during the Battle for Munda.

Several members of the 17<sup>th</sup> Setsusei Tai, also referred to as a Mitsuda Butai or Naval Construction Unit, were captured between Rendova and Munda and their information provides a look at these Construction Units as they were present at Munda. The estimated strength of the 17<sup>th</sup> Setsusei Tai was around 500 men, most of whom were civilian military employees with one Naval Lieutenant and approximately 15 Naval Petty Officers, according to one interrogation report and up to 2,000 civilian laborer and 300 Naval Guard by another. The report of 500 is from a captured civilian carpenter and the figure of 2,000 civilian laborers was from a Petty Officer 2<sup>nd</sup> Class. The equipment from all sources places the 17<sup>th</sup> Setsusei Tai as having at least five trucks and one “steam roller” and a large supply of hand tools ranging from shovels and picks to carpentry tools. Information from the interrogation reports shows that the unit was divided into seven sections with five primarily airfield construction laborers with one section of carpenters and one section of masons. Other reports also include an electrical section responsible for laying telephone wires and a transportation section.<sup>13</sup>

## The Plan for Munda

The original plan for the allied aviation facilities at Munda was proposed in the Master Plan for Munda Air Field dated June 27, 1943. The first objective was to repair immediately the captured field for the operation of approximately twenty fighter air craft to support continuing combat operations on New Georgia and the immediate vicinity. The runway was then to be repaired to operate scout aircraft and expanded for operation for sixty fighter and scout aircraft as soon as possible. The plan required Munda to be enlarged to support bomber operations and authorized Acorn 8, to which the 73<sup>rd</sup> NCB was attached, to survey Munda for expansion and to survey and submit proposals for the operation of support bases and additional airfields.

The master plan laid out a schedule requiring the field to be operational at a minimum of 2,100 feet by 100 feet wide within four days of capture. Priorities within ten days of occupation were set as the completion of gasoline dumps, ammunition dumps, operations and communications dugouts, and a camp for one Acorn and one-half CASU. The repair and operation for the existing 4,000 feet with operational taxiways and runways was set for twenty days after occupation to accommodate sixty fighter aircraft operations. Specifications for the requirements of fighter and bomber strips for the Munda area were specified with a minimum length of 4,000 feet by 100 feet wide for fighter strips and 5,000 feet by 150 feet for medium bombers and 6,000 feet by 150 feet for heavy bombers. The surfacing requirement for fighter strips was set at a minimum of eight inches of compacted coral for fighter strips with twelve-inch and eighteen-inch minimum surfaces for medium and heavy bombers respectively.

The runways were to be graded with 1.5% slopes from the crown and were to be a minimum of 150 feet wide for both bomber and fighter operations. Taxiways were to be a minimum of forty feet for fighter operations and sixty feet for bomber operations. Runways

were not to exceed a 1.0% grade and taxiways a 2.0% grade. The fields were to be constructed by removing “humus material and vegetation” from the area to be graded for airfields and the underlying coral was to be worked with roter and roller “into a smooth compacted surface.” Once the overburden was removed and the subsurface, or subgrade, was prepared, the surfacing layers of coral were to be placed in approximate eight inch lifts, or layer of crushed coral, and each lift was to be individually compacted.<sup>14</sup>

On 11 July 1943, COMAIRSOPAC, issued an addendum, serial 0559, to the Master Plan for Munda. This letter clarified the desire of Vice Admiral Fitch to get the Munda field reconditioned as soon as possible. It also clarified that Acorn 8 was to survey the vicinity of Munda and find a location for two additional fighter support airfields, preferably a location for a double fighter strip, in the anticipation that Munda Field would be configured for bomber operations. This letter also authorized existing construction troops with the occupation force, the 24<sup>th</sup> NCB, to start work on the captured Munda Airfield prior to the arrival of Acorn 8 and it stipulated that Acorn 8 should be augmented with construction personnel to “insure simultaneous work on three runways.”<sup>15</sup>

The Master Plan for Munda Area was revised on 12 July 1943 in reference to the COMAIRSOPAC serial 0559 of 11 July 1943. The construction deadline for the first revision was set for 25 September 1943. The captured Munda field was to be made capable of servicing, fueling and arming 20 fighter aircraft per hour with capacity of basing 100 fighter aircraft for operation by 25 September. Initial priorities for the first ten days post occupation were set for “passable roads” connecting the airfield to camp areas, beach heads, supply area, and fuel and ammunition dumps. The runway was to be operational at 3,500 feet within seven days of occupation and widened to 150 feet by fifteen days post occupation. The field was to be

operational at 4,000 feet within thirty days and was to be ultimately extended to 6,000 feet to support the operation of a minimum of forty-eight heavy bombers. Aircraft capacity at Munda was to be at twenty fighters within ten days, forty by fifteen days, and sixty by twenty days with the full 100 fighter aircraft capacity by 25 September 1943. This revision planned for a minimum of forty-eight heavy bombers as the planned objective and revised the specifications for size of fuel and ammunition dumps. Requirements for bolting capacity were set at 96,000 rounds per day for .50 caliber ammunition by 25 September and bomb dispersal connected by all weather roads was set for 7,500 bombs by 25 October 1943. Fueling requirements were set for an aviation gas tank farm of twelve 1,000-barrel tanks with a tanker filling connection by 25 September and ultimately a 25,000 barrel tank farm to support bomber operations.

Two fighter airfields were specified, referred to as Munda Fields No. 2 and No. 3, to be built in the vicinity of Munda. These fields were to be capable of rearming, refueling, and servicing twenty fighter aircraft per hour and were to have the capacity of 100 fighter aircraft each by 25 September 1943. The runways were to be completed to 3,500 feet by 100 feet wide by 25 August 1943 and they were to be 4,000 feet by 150 feet by 25 September 1943. Operationally these two fields were to be built as the fields at Segi Plantation. It is noted for both the captured field at Munda Point and the proposed fields No. 2 and No. 3 that the development of these fields “into heavy bomber fields should be kept in mind at all times.”<sup>16</sup>

#### Construction at Munda – August 1943

The 24<sup>th</sup> NCB was ordered to Munda on 7 August and made their transition from Rendova to Munda in stages, completing their move on 15 August. Their assigned priority was the rehabilitation of the captured Japanese Airfield. From 7 August until 13 August the 24<sup>th</sup> NCB used all their “road equipment for reconditioning the air strip” after which time they were

relieved by newly arrived 73<sup>rd</sup> NCB and Acorn 8. Once relieved of airfield duty by the 73<sup>rd</sup> NCB, the 24<sup>th</sup> NCB was assigned to road and camp construction and the improvement of landings at Lambeti Landing and the design and construction of Olsen's landing. The 24<sup>th</sup> NCB expended approximately 3,204 man-hours on the preparation of Munda field. The remainder of their expended man-hours were spent on road construction, landing facilities, and the construction at the landings. The 24<sup>th</sup> had twenty-one men transferred out of the battalion with thirty-four returning to duty with 207 sick days lost and one man killed in action. With these losses, the 24<sup>th</sup> NCB was functionally at 75% of its manpower capacity with many men on light duty. The picture for their equipment was worse. Commander Whittaker reported that the 24<sup>th</sup> NCB was "seriously handicapped by lack of equipment" and that "numerous requests have been made to have the Battalion completely re-equipped." The Commander estimated that the 24<sup>th</sup> was operating with less than 40% of its equipment and that number would fall week to week "due to complete lack of repair parts." In his final assessment Whittaker said that the 24<sup>th</sup> NCB could not produce more than "50% of our capacity" without new equipment.<sup>17</sup>

The 73<sup>rd</sup> NCB, as part of Acorn 8, under Commander K.P Doane began arriving at Munda soon after the capture. A survey team of two platoons arrived on 6 August with another group and 60% of the battalion's equipment arriving on 9 August with the final contingent of the 73<sup>rd</sup> arriving on 11 August 1943. The 73<sup>rd</sup> took over construction of the airfield on 11 August and "all equipment available in the Munda area was obtained from the 24<sup>th</sup> NCB and the various army and marine units for use until the field was open for flying." The Japanese air strip was refurbished and ready for operation by 13 August with hardstands available for fifty aircraft by the morning of 14 August.<sup>18</sup>

Operations were conducted around the clock without lights due to good weather and a “nearly full moon.” Commander Doane described the conditions of the Munda field area, stating that “the coral is in general useable” and there averaged approximately one foot of soil cover over the coral that required removal. The coral was described as being able to be loosened by D-7 and D-8 bulldozers with only some need for blasting and this material could be moved and loaded with  $\frac{3}{4}$  yard shovels. He notes that units with equipment smaller than D-7s and D-8s and with shovels of less than  $\frac{3}{4}$  yards were having to do more blasting because the smaller equipment was not capable of loosening the coral for hauling. The battalion was happy with the performance of their 8 yard pans but recommended 12 yard pans to expedite the work, noting that the “8 yard pans... are small.” The other equipment complaint was that flat rollers were “not entirely satisfactory” and that ten-ton rollers were being obtained from army units and they performed more satisfactorily than the seven-ton units with which the 73<sup>rd</sup> was supplied.<sup>19</sup>

Road construction in August was transferred to the 24<sup>th</sup> NCB and three army engineering units. The commander of the 73<sup>rd</sup> noted that the 24<sup>th</sup> NCBs equipment was light and was “worn out before it was moved to Munda.” Due to this fact, the progress was slow on completion of roads. There is also commentary that there was a lack of screening material for galley and hospitals. He also notes that screen designated for the 73<sup>rd</sup> camp and galley was redirected by orders of the Acorn Commander to screen “the pilots’ camp and the camp for the staff of COMAIR, New Georgia.” He recommended that future Acorns have such material set aside for the facilities of the Air Commander.<sup>20</sup>

Finishing out the month, a detachment of four officers and 201 men for the 47<sup>th</sup> NCB with four bulldozers, six carry alls, six dump trucks, and one roller were transferred to Munda from Segi.<sup>21</sup> It was also noted that the channel through the Munda Bar was hazardous for LSTs

and therefore it became necessary to trans-ship all material from LSTs to LCTs at Sasevell Island. Blasting operations were started on the Munda Bar on 15 August to deepen the channel to allow LSTs to cross the bar. Drilling equipment would be required to deepen the channel to thirty-five feet. Also on 16 August, the 73<sup>rd</sup> was shelled causing the death of two personnel. The first killed was Pharmacy Mate 1<sup>st</sup> Class T.C. Williams for whom the 73<sup>rd</sup> NCB's camp, Camp Williams, was named.

#### Construction at Munda – September 1943

During September the 73<sup>rd</sup> NCB continued construction operations at Munda as the primary unit. In addition to the 24<sup>th</sup> NCB a detachment of the 47<sup>th</sup> NCB the US Army's 828<sup>th</sup> Aviation Engineers were assigned to Munda to assist the 73<sup>rd</sup> NCB with the completion of the field which was scheduled for 15 October for bomber operations. The commander of the 73<sup>rd</sup> noted that the equipment of the 828<sup>th</sup> consisted of "eight D-7 Bulldozers, four D-4 Bulldozers, six road patrols, two 3/8 yard shovels, two road rollers, and twenty-five dump trucks, all of which have been badly worn with nine months of service in the South Pacific." The battle to keep this equipment and that borrowed from the 47<sup>th</sup> and the 828<sup>th</sup> operational was a constant struggle with Doane stating that the 73<sup>rd</sup> had been able to keep 75% of the equipment of these two units running.<sup>22</sup>

The situation with equipment continues to show the problem of spare parts with "the supply of spare running very low" and many parts were having to be manufactured by the base machine shop. Several pieces of equipment were also recognized as being "too light." The 8-yard pans and the 3/4 yard shovels were "both proven light for the work done here." A new 1-1/2 yard shovel delivered to the 24<sup>th</sup> NCB was used in the coral pit and "its added weight and crowding power makes it a much more practicable machine for digging coral..." More

equipment was arriving at Munda with the completion of the fifteen foot deep channel through Munda bar in September. The plan to deepen the channel to thirty-five feet was on hold pending the arrival of a drilling barge and a dredge.<sup>23</sup>

Enemy action was a big concern during September. On 28 September the camp area of the 73<sup>rd</sup> was hit during a night time bombing raid. It was noted “that the bombs fell at the same time the ‘condition red’ signal was given.” The death of SF2c James W. Sparks, for whom the Seabees named the pilot’s camp, was considered avoidable “if the air raid warning system had been functioning properly.” The 73<sup>rd</sup> took to placing men to listen for enemy planes during hours of darkness “in order to have some degree of protection” because the air raid warning system was inadequate. Night time operation of equipment was curtailed after 12 September to prevent damage to personnel and equipment because of the lack of appropriate air raid warnings.<sup>24</sup>

The 24<sup>th</sup> NCB continued building roads and this situation improved with drier weather and took over construction of the aviation gas tank farm from the 73<sup>rd</sup>, but their equipment and manpower situation was dire. The 24<sup>th</sup> NCB reported 1,328 sick days, of which 459 were malaria, with twenty-nine men evacuated during the month of September and the Commander Whittaker continued to press for new equipment because ten of his bulldozers were out of commission for lack of parts or destroyed by bombing.<sup>25</sup> The detachment of the 47<sup>th</sup> NCB at Munda was assigned to extending and widening Taxiway “A” to 3,400 feet long by 300 feet wide. The 828<sup>th</sup> was assigned the task of extending the runway at Munda 2,000 feet with a 500 foot overrun.<sup>26</sup>

### Construction at Munda – October 1943

The Munda Airfield was ready for medium bomber operations prior to the deadline set for the 73<sup>rd</sup> of 15 October 1943. To achieve this, as well as bringing Taxi loops “F” and “E” online prior to their respective November deadline, the 73<sup>rd</sup> NCB obtained the “assistance of the 131<sup>st</sup> Army Engineers.” Their equipment was “very light” and “insufficient” to the task but was put to use to meet the deadline for bomber operations. During the month of October the 73<sup>rd</sup> and associated units worked a daily schedule of 0600 hours to 2400 hours.<sup>27</sup>

The 73<sup>rd</sup> NCB also began to operate a sawmill to provide lumber for the operation for construction activities at Munda. The sawmill was described as “undersized” and “under powered” with 48 inch and 52 inch blades and the commander of the 73<sup>rd</sup> recommended that only sawmill units with 72 inch blades be sent to areas with trees as large as those located at Munda. The sawmill produced an average of 5,000 board feet per day starting in October. Comment is made in the 73<sup>rd</sup> monthly report describing the size of the trees and the difficulty of moving trees of this size, some greater than six feet in diameter, to the sawmill. This activity required the detailing of a Caterpillar D-7 bulldozer to haul logs to the sawmill operation. The commander of the 73<sup>rd</sup> recommended that in addition to larger sawmilling equipment each NCB should be equipped with “one or more tractors of about 60 horse power” for moving logs to the sawmill operation and he recommended the use of “Athey” trailers, which the 73<sup>rd</sup> borrowed from Naval Base Munda Ordnance Department and remodeled for moving logs.<sup>28</sup>

The equipment situation was still very aggravating to all the NCBs at Munda during October. The major concerns were spare parts and lack of appropriate gear oil and gasoline. In his monthly report Doane reports that “some spare parts have been obtained from the Advanced Base Construction Depot at BEVY (Guadalcanal)”. However, he stipulated that it was

“necessary to send an officer... to expedite their delivery.” He expressed his opinion that “it would not seem necessary to send an officer on such a mission, but to date spare parts have been obtained only when an officer has gone to the warehouse to expedite them.” The Status of Heavy Equipment for the 73<sup>rd</sup> NCB for October shows that of the 147 pieces of heavy equipment assigned to the battalion only 137 were working in ‘good condition’, three were working in ‘poor condition’, one was under repair with available parts, three were awaiting spare parts delivery, and three were damaged beyond repair.<sup>29</sup>

Commander Whittaker of the 24<sup>th</sup> NCB expressed similar complaints in October. His situation was somewhat improved with the arrival of “sufficient Heavy Equipment and rolling stock” to replace the equipment lost during the Rendova landings and during the first week at Munda. Yet he continued to comment that he had “eleven tractors awaiting the delivery of new steering clutch discs which have been ordered and requested by so many letters and also dispatches from both the Commanding Officer of the Battalion and the Commanding Officer, Naval Bases, New Georgia.” Of the twenty-six tractors available to the 24<sup>th</sup> NCB, four were destroyed beyond repair and being cannibalized of parts, six of the eleven tractors in need of clutch discs were not operational until those parts could be obtained, and the others were operating in ‘poor’ condition. This still left the 24<sup>th</sup> at a deficit of approximately 60% of its heavy equipment capacity. Of the ‘new’ pieces of equipment received by the 24<sup>th</sup> NCB in October two were Northwest Shovels-Cranes with a 2 cubic yard capacity. One of these was received having “been run before being received without the use of crater compound” resulting in the bearing plates being worn down, and the other had one rehaul drum frozen resulting in “considerable trouble during operation.” No spare parts were available to repair these units.<sup>30</sup>

The trouble with gear oil was affecting all NCB battalions and the Army Engineer units at Munda operating Caterpillar's equipment. The proper manufacturer's recommended gear oil of "140 SAE or heavier" for the operation of the heavy equipment in tropical climate was not being supplied. The 73<sup>rd</sup> monthly report indicates that the Army Services Command, responsible for supplying this material to Munda, had "stated that 90 SAE, all purpose oil, is sufficient, and they recommend that no heavier oil be brought into this territory." Commander Doane remarked that all the units would "continue to have trouble with this equipment unless heavier oil than 90 SAE is made available." The battalions at Munda were also facing a shortage of "80 octane gasoline, cable, oxygen and nails." The gasoline situation was requiring the units to mix 100 octane aviation gasoline with diesel oil or kerosene to run heavy equipment which was causing "considerable valve trouble."<sup>31</sup>

Construction activities during the month of October, in addition to the expansion of the Taxiways "F" and "E" by the 73<sup>rd</sup> NCB, was the completion of extension and widening of Taxiway "A" by the detachment of the 47<sup>th</sup> NCB at Munda who then assisted the 73<sup>rd</sup> on work on Taxiway "F" and other fuel facility and ordnance related projects. The 73<sup>rd</sup> also continued work on Camp Williams, the 73<sup>rd</sup> NCB camp, Camp Sparks, the enlisted aviation crew camp, and 'Maudie's Mansion', the aviation officers' camp. The 24<sup>th</sup> NCB continued to primarily work on roadway construction and landing facilities with additional work on camps and the CUB 3 hospital.

The 73<sup>rd</sup> NCB monthlies do not contain medical reports, Attachment C, but the 24<sup>th</sup> and 47<sup>th</sup> monthly's for October show that the 47<sup>th</sup> lost 301 sick days for its contingent of 184 men at Munda with the majority being lost to malaria. This represents approximately 5% loss of manpower due to sickness at Munda for October. The 24<sup>th</sup> NCB reported 2,076 man days lost

with 522 days lost to Malaria with the next highest lost to skin ulcers. This represents almost 10% of the 24<sup>th</sup> effective manpower of which over 2% was malaria. Commander Doane does note that there “is a small percentage of malaria, which is believed to be a holdover from Guadalcanal.”<sup>32</sup> It is interesting to note that in December Major General Maxwell Murray commented on a medical officer’s report indicating that sanitary conditions at Camp Sparks, 73<sup>rd</sup> NCB, the 24<sup>th</sup> NCB camp and Naval Base Munda all rated “poor”. His comment is that “young commanders have little conception of their responsibility for making the best of their living condition.” This is perhaps unfair in light of the fact that Doane had previously requested more mosquito netting because his had been appropriated for the Pilots camp at Maudie’s Mansion.<sup>33</sup>

#### Construction at Munda – November 1943

During the month of November 1943 all work on the airfield and air housing was confirmed as being the responsibility and under the direction of the 73<sup>rd</sup> NCB. Therefore, under 73<sup>rd</sup> NCB directions were the 828<sup>th</sup> Aviation Engineers and the Munda Detachment of the 47<sup>th</sup> NCB. All work on aviation facilities was on or ahead of schedule for November. The revised plans for Munda called for the air field and taxiway “D” to be extended 2,000 feet with final airfield length to be 8,000 feet for heavy bomber operations and the addition of Taxiways “H” and “J”. The field was extended to 7,000 feet and the first 1,000 of the Taxiway “D” extension was completed by the end of November. In addition to this, “A” Taxiloop was completed by the 47<sup>th</sup> NCB. It was noted that to complete the field to 8,000 feet with appropriate glide angle for heavy bombers that approximately 15 feet would have to be removed from a hill at the East end of the field. This would require 150,000 cubic yards of material removal in addition to the work already scheduled. Other projects approved in November for future construction were the addition of quonset huts to existing units, the expansion of the Command Air Solomons

(COMAIRSOLS) Camp, Pilots camp, and enlisted camp and the construction of new camps for the 14<sup>th</sup> and 11<sup>th</sup> Airdromes and four bomber squadrons with space for 600 officers and 3,000 men. The commander of the 73<sup>rd</sup> requested the services on an additional NCB to complete these projects by the projected 1 January 1944 date.

The resources available to the combined 73<sup>rd</sup> NCB operation as of the end of November 1943 are shown in Tables 3 and 4.

Table 3 – Manpower for Munda Aviation Projects – November 1943

<b>Organization</b>	<b>Officers</b>	<b>Non Commissioned Officers</b>	<b>Enlisted Men</b>
73 <sup>rd</sup> NCB	25	79	889
47 <sup>th</sup> NCB (1 company)	4	14	159
828 <sup>th</sup> Aviation Engineers (US Army)	31	40	765

Table 4 – Equipment for Munda Aviation Projects – November 1943

<b>Organization</b>	<b>Bulldozers</b>	<b>Shovels</b>	<b>Trucks</b>
47 <sup>th</sup> NCB (1 company)	2 D-8 with pans 4 TD-18 with pans (2 down awaiting parts)	0	6 (2-1/2 tons - dump)
828 <sup>th</sup> Aviation Engineers (US Army)	8 D-7 with pans 4 D-4 (8 down awaiting parts)	2 (1/2 cubic yard) (1 down awaiting parts)	20 (1-1/2 tons - dump)
73 <sup>rd</sup> NCB	8 D-8 8 D-7 with pans (2 down awaiting parts)	4 (3/4 cubic yard)	24 (2-1/2 tons - dump)

The commander of the 73<sup>rd</sup> noted that this equipment was not equivalent to the two fully equipped NCBs he estimated would be required to finish the assigned construction tasks by the deadline. He also noted that the equipment of the 47<sup>th</sup> and the 828<sup>th</sup> was “badly worn” and that due to a lack of parts “they are unable to keep more that 50% of it in operation at any one time.”

The status of the 73<sup>rd</sup> NCB's equipment was such that they were "able to keep 95% of it in operation."<sup>34</sup>

The men of the detachments at Munda continued to show the effects of tropical climate and the ever-present mosquito. The monthly report for November of the 73<sup>rd</sup> again does not have a detailed list of sick bay admittance. Commander Doane's attitude toward the presence of malaria changed however with the admission that the 73<sup>rd</sup> had lost 134 men due to death, illness or injury since the start of the operation and that "it is noted that nearly 50% of those on sick list are malaria cases." The lack of screen wire to screen individual crew tents is blamed for the majority of the problem with men being "bitten at night while sleeping." The 24<sup>th</sup> NCB reported 1,231 man-days lost during November with 664 of those lost to malaria reflecting the same approximate 50% of sick list cases as the 73<sup>rd</sup>. The 47<sup>th</sup> NCB detachment at Munda reported 207 sick days lost of which 62 were malaria. Whittaker of the 24<sup>th</sup> continues his appraisal that his battalion was at 60% performance capacity and that they could not maintain their workload with rest and rehabilitation.<sup>35</sup>

The 73<sup>rd</sup> NCB sawmill continued to produce on average 6,000 board feet per day of lumber operating on two six-hour work shifts. Units of the 24<sup>th</sup> NCB were assigned to assist in moving logs to the 73<sup>rd</sup> sawmill operation. There was initially a higher output but damage to the equipment from large timber and from shrapnel embedded in the trees harvested around Munda slowed production. The men of the 73<sup>rd</sup> NCB developed an improvised method of detecting the shrapnel by using a mine detector to look for shrapnel before the trees were run through the mill.

Equipment breakdown and lack of spare parts remained the root of problems. The monthly report for the 73<sup>rd</sup> continued with the litany of the Munda Seabees that "it is still necessary to have someone follow up each requisition personally in order to get the spare parts

for equipment without an excessive amount of lost time.” The lubricating oil situation was still causing problems with the lack of 140 SAE oil causing “gears and other parts to become crystallized” and without the proper oil they estimated that there was only 2 months useful life left in the equipment requiring the heavier oil, specifically the Caterpillar bulldozers, without replacing the drives. It was also noted that the tire situation was getting bad and that without a requisition and shipment of motor grader tires, an unusual size tire not standard to the military, they would soon be out of operation. The 73<sup>rd</sup> and 24<sup>th</sup> NCB list of equipment down for lack of parts stayed virtually unchanged from October to November.<sup>36</sup>

A lack of culvert material for drainage projects resulted in the Seabees coming up with some original and traditional ways to complete drainage projects around the field and camps at Munda. Initially damaged and excess fuel and oil drums were used for culverts but by November the supply of these was used up and the NCBs began building culverts under taxiways using dressed lumber and rough logs to build them under roads and driveways. The amount of sawmill production delayed the installation of some drainage projects. There was a general lack of cement and this was noted. Due to the requests from the 73<sup>rd</sup> and other NCBs, cement and cement molds to cast concrete culverts in the field were added to the standard equipment of an NCB after the New Georgia operations.<sup>37</sup>

The Munda Bar deepening project was completed in late November with the channel at fifteen feet deep to allow the passage of LSTs. A drilling barge was set up to allow drilling and blasting of the coral to deepen the passage through the Munda Bar from fifteen feet to thirty-five feet. It became apparent, however, that there was no dredge available in the South or Southwest Pacific area to remove the blasted material from the channel. Therefore, the 73<sup>rd</sup> began the process of requisitioning cable, high speed drum winches, buckets, and sheaves to build a

floating drag line to remove the estimated 120,000 cubic yards of material expected to be generated by blasting. The Munda Bar project was placed on hold until such a time as the floating drag line could be constructed.

### Construction at Munda – December 1943

December saw construction of the airfield reach the desired 8,000 feet for heavy bomber operations and most of the hardstands and taxiways at useable level for bomber operations. Projected completion of all initial airfield construction was on track to be completed by the deadline of 15 February 1944. The 73<sup>rd</sup> NCB was completing hardstands and camps for all aircrews. The camps for all air crews in the Master Plan were completed in December with the exception of the camps for Bomber Command that were on schedule of completion before a 10 January deadline. The 73<sup>rd</sup> also had water treatment and distribution systems set up for the entire camp network. In an attempt to allay the continued shortage of metal screen wire to screen galleys, heads, and sickbay installation, the 73<sup>rd</sup> managed to secure a promise from Bomber Command to fly in such material to assist with the construction of their own camps. At the same time the 73<sup>rd</sup> NCB's Camp Williams still did not have all personnel housed in fully screened tents.<sup>38</sup>

Sawmill operations for the 73<sup>rd</sup> remained steady with the same two-shift twelve-hour day producing on average 5,000 board feet per day. The 47<sup>th</sup> NCB sawmill at Segi also began to supply lumber to Munda during December to help with the backlog of projects needing lumber. The Munda Bar project was placed on hold until January due to the lack of barges for the crane and dragline. The 47<sup>th</sup> NCB began a move from Segi Point to Munda, and by the end of December, approximately  $\frac{3}{4}$  of the battalion was at Munda where they were at work on

improvement of camp facilities for Bomber Command and Naval base headquarters. The 47<sup>th</sup> NCB completed work on Taxiways “A” and “H” and began to work on hardstand in “E” loop.

The 24<sup>th</sup> NCB continued work on road projects and projects involving the construction of the Liana Boat Pool, Munda Point Warf, and the Cub 3 hospital. The 24<sup>th</sup> NCB also provided construction work for numerous Army and Navy projects around the Munda Naval Base complex. On 7 December 1943 the 24<sup>th</sup> NCB was assigned the task of removing the fifteen-foot section of Lambeti Hill to allow for the glide path of bombers approaching Munda from the east by the 73<sup>rd</sup> NCB. This task was completed by a work detail of ten bulldozers and five LeTourneaus carryalls with a capacity of eight cubic yards. They completed the task of removing the required fifteen feet by 16 December 1943.<sup>39</sup>

The equipment situation for December began to show some improvement but more from a decreasing workload and time for repair than from the arrival of spare parts. The 25<sup>th</sup> NCB still had six bulldozers down for lack of parts. The 73<sup>rd</sup> had eleven pieces of equipment down for lack of parts and the 47<sup>th</sup> had three down for lack of parts. The situation with tires and gear oil persisted in December with motor graders for road and airfield maintenance in dire need of tires for continued operations. The manpower situation was improving from previous months. The 24<sup>th</sup> reported only 283 man days lost in December with 52 being for malaria and the 47<sup>th</sup> had 305 man days lost with 31 of those due to malaria. Commander Doane noted that the number of malaria cases in the 73<sup>rd</sup> was “very small” in December. The improved health of the units is attributed to improved sanitation, improved living quarters, and lessening work schedule.<sup>40</sup>

#### Construction at Munda – January 1944

The majority of all work on the Munda Airfield was completed and the field was considered 99% complete with work on the final Taxiway, “J”, started in January and all airfield

work was expected to be finished in February. The 73<sup>rd</sup> NCB concentrated its efforts in January on the completion of Taxiway “J” and with completing work on Bomber Command housing, aviation gasoline storage, and pyrotechnic magazines. New jobs started by the 73<sup>rd</sup> NCB were the relocation of roadway and drainage at the east end of the airfield, construction of warehouses, and the start of drilling on the Munda Bar project. The 24<sup>th</sup> NCB continued with road maintenance and logging operations to supply the 73<sup>rd</sup> NCB sawmill. The 24<sup>th</sup> also supplied details to the construction of Army facilities and docking facilities. The 47<sup>th</sup> was primarily engaged in camp remodeling and building for Army, Navy, and Marine units.

There is no mention of sick bay status and manpower or equipment status for the 24<sup>th</sup> NCB in January. The 24<sup>th</sup> NCB was informed that they were to be rehabilitated and that they would be rotated out in March 1944. The 73<sup>rd</sup> NCB report for January is equally quiet on status of men and equipment. The 47<sup>th</sup> NCB reports that their strength is down to 804 men or over 246 less than the battalion strength in June 1943. The 47<sup>th</sup> also does not list status of equipment other than to report that a review is underway of equipment status for the next report.<sup>41</sup>

#### Construction at Munda – February 1944

The 73<sup>rd</sup> continued with work on the final details of the field and blasting of the Munda Bar. The Material for the dredge barges arrived at Munda on 10 February 1944 and assembly was started on the dredge barge. The 24<sup>th</sup> NCB was in the process of rehabilitating what equipment could be repaired with limited spare parts in preparation for a March departure. During February the only task assigned to the 24<sup>th</sup> NCB was the assembly of the barges for the Munda Bar project. The 47<sup>th</sup> NCB was primarily responsible for construction of Naval Base facilities at Ondonga and the construction of the facilities for the 321<sup>st</sup> Bomber Group with additional projects for Camp Sparks, Pilots Camp, and Naval Base Munda.

None of the NCB's monthly reports indicate sick days or equipment loss for February. The 73<sup>rd</sup> does report being down 160 men and again the blame is "the effects of the strenuous (work) program in this hot climate." The 47<sup>th</sup> NCB reports being short six ensigns and 330 enlisted personnel in February and requests these to bring them up to complement. The units continue to complain about lack of spare parts for heavy equipment. In attempts to make up for this the units became very good at improvising parts in battalion machine shops and in cannibalizing parts. The 73<sup>rd</sup> reports that two bulldozers that were out of commission for lack of parts for over two months had been scavenged for parts to such an extent that there was "very little left of either one of them" and unless requested parts arrived and time was permitted to rebuild them they would have to be replaced with new machines.<sup>42</sup>

#### Construction at Munda – March 1944

During March the 73<sup>rd</sup> NCB completed Taxiway "J" and was running continuous operation on maintenance of the Munda Airfield. The only other airfield construction was the compass rose and the addition of fighter hardstands in Taxiway "H" along with the construction of additional magazines and roads to access these magazines. The other major projects of the 73<sup>rd</sup> were the Munda Bar project and the construction of facilities for the Bau Island Motor Torpedo Base. The 24<sup>th</sup> NCB was transferred out to New Zealand for rehabilitation in March and their report showed completion of all projects of the 24<sup>th</sup> NCB by 10 March 1944 with their equipment secured and left at Munda to be moved later. The 47<sup>th</sup> NCB was tasked with camp construction and the operation of the Coral Pit to supply coral for all building and maintenance activities including maintenance at Ondonga. The 47<sup>th</sup> continued to operate the sawmill at Segi Point providing lumber to Munda. The 47<sup>th</sup> NCB also supplied diving personnel to assist the 73<sup>rd</sup> NCB in blasting the Munda Bar. With the exception of the opening of the Munda Bar and

expanding and modifying existing facilities, all major activity involving airfield construction was completed at Munda at this time.

The 73<sup>rd</sup> NCB reports in March that it was down by 180 enlisted personnel from full complement and was in need of four officers to be fully staffed. The 47<sup>th</sup> NCB included a list of men injured in March in its monthly reports but there is no report on sick bay admittance, although it does mention that illness continues to be a serious issue. In regard to equipment there is more information available. The 47<sup>th</sup> NCB included a table of the status of its equipment that is very informative and indicative of all the equipment at Munda. This information included the estimated life remaining and the average daily usage and the average time in the field. For bulldozers the average life remaining was estimated at between 6 and 9 months and that was assuming the same working condition with proper maintenance and repair parts. The average daily operation was 12 hours per day under severe conditions and the majority of the tractors had been in use in the field for twelve months.<sup>43</sup>

The 73<sup>rd</sup> again detailed the extensive problems with equipment and parts. Their complaint that spare parts were “not being delivered in any quantity” was voiced in some form by every NCB. Commander Doane of the 73<sup>rd</sup> NCB explained it best, stating that requisitions made in the time frame of September through November of 1943 had still not been filled by March 1944. The reports stated that 25% of the 73<sup>rd</sup> NCB’s equipment was inoperable and awaiting parts and 40% was operating with parts in need of replacement causing loss of productivity and further damage. The report goes on to state that remaining equipment was “in good condition” but good was described with the caveat that the equipment had been in heavy use for 8 months in the tropics. The drive oil situation also continued to be a problem in March.

For two months, the units at Munda had 140 SAE oil originally supplied with the battalions and the Caterpillar equipment, specifically the D-8 and D-7 bulldozers, performed well and “gave little trouble.” When 90 SAE oil was used, “the gear housing transmissions became so hot that the operator was unable to keep his feet on the housing while the equipment was in operation.” The report further states that even though the 90 SAE weight oil was “changed as often as additional lubricant could be provided, bearings, raceways, and gears overheated to the point they collapsed.” The Commander pointed out that his most recent information was that no more 140 SAE would be supplied by Army Services Command and he warned that his D-8 and D-7 bulldozers “will not operate through another two months’ period with 90 SAE lubricant, unless the final drives are replaced periodically.”<sup>44</sup>

#### Opening of the Munda Bar – August 1943 - May 1944

The massive amounts of materials required to operate a bomber command facility and to pursue a bombing campaign against Rabaul, the purpose of Operations Toenails capture of Munda, required a reliable means of getting these operational supplies of fuel and ordnance to Munda. The channel at Sasavele into the Rovianna Lagoon was deemed unsuitable for large transports and it was decided to open the Munda Bar to allow the passage of LST and other larger ships directly into Rovianna Lagoon. This would allow small tankers to be unloaded directly at Munda Point Wharf for the Aviation Gas Tank Farm as well as deliver large quantities of ordnance and munitions.

The initial project involved blasting a fifteen-foot deep channel through the bar some 300 feet wide by 600 feet long. This project was begun by the 73<sup>rd</sup> in August 1943 with the initial phase completed in November 1943. The initial phase managed to achieve a rough depth of fifteen feet by blasting away exposed coral heads. However, blasted material could not be

removed from the area and only exposed “coral heads” could be blasted. The material blasted from the exposed heads filled crevices and voids in the Bar. To achieve a proposed depth of up to 35 feet, a method of drilling the coral and removing the spoil material was devised. Equipment was requested to put together a drilling barge and to appropriate a dredge to remove blast spoil. By November of 1943 it was apparent to the 73<sup>rd</sup> NCB that there was no dredge available and the commander of the 73<sup>rd</sup> put together a proposal to acquire the equipment necessary to outfit and equip a dredging barge. The drilling barge was assembled and began working in December 1943. From the Monthly Report of the 73<sup>rd</sup> for December 1943 the estimated material requiring removal for 15 feet of depth was 3,000 cubic yards, for twenty feet of depth approximately 23,000 cubic yards up to a depth of thirty-five feet requiring 135,000 cubic yards of material to dredge.<sup>45</sup>

The drilling barge was constructed of standard 6x12 navy pontoon cells and when assembled was forty-three feet wide by 103 feet long and propelled by two inboard engines. The drill barge had three 10-ton cranes located down one side to allow drilling along the entire length of the barge. Each crane was equipped with a “thirty-five foot swinging pile driver leads hung from forty foot booms.” The barge was self contained with air compressors, power generator, welding equipment, and diesel stores and was operated by a crew of forty men operating two shifts per day.<sup>46</sup>

To anchor the barge in place for drilling required the placement of four dolphins, pile anchors, with five piles in each dolphin. The dolphins were placed, two in line, and forty feet from the side of the channel on both sides Munda Bar channel. This was done because the strength of swell resulted in broken anchor cables and moved the 1,500-lb anchors initially used to place the barge over the drill site. These dolphins became the channel markers for the

approach to the Munda Bar channel.<sup>47</sup> Two-inch pipe was used to punch holes in soft coral formations and approximately 80 holes could be put down per 8-hour shift. In hard coral six-inch diameter holes were drilled to allow the placement of more dynamite and approximately twenty-four to thirty of these holes could be drilled per shift. Diving operations to place blasting charges were carried out by dive rated personnel from all the NCBs at Munda including the 24<sup>th</sup> NCB, 47<sup>th</sup> NCB, and 73<sup>rd</sup> NCB that was in overall supervision of the Munda Bar operation. In the two-inch hole one-half 50-lb case of dynamite was used and in the six-inch holes between two and three cases of dynamite were used per hole.

Starting in late March, the task of removing the spoil generated by drilling and blasting was turned over to the 47<sup>th</sup> NCB and removal began in April. To achieve this, a 25-ton crawler crane equipped with a 1-1/2 cubic yard clamshell bucket was mounted on a pontoon barge. It was necessary to add 1,000 pounds of ballast to the clamshell to improve its working characteristics underwater. A drag line bucket was initially tried but performance was poor due to the rough nature of the channel bottom left after blasting. The clamshell and crane assembly managed to achieve approximately 350 to 400 cubic yards per twelve-hour day of material removal. Material was removed by loading excavated material onto one of two 4x12-pontoon cell barges. Each barge was unloaded by a 70-hp bulldozer at a location approximately ¼ mile from the channel. Eventually a small spoil “island” was created at this location.<sup>48</sup>

The final channel through the Munda Bar completed by the end of May was 600 feet long and 300 feet wide. It was approximately eighteen feet deep at low water and required approximately 22,000 cubic yards of spoil material to be removed. This allowed the entrance of ships to Munda Pier that was capable of handling two 300-ton vessels at a time with a fifteen-foot draft. The opening of Munda Bar greatly increased supply efficiency because material

unloaded from ships anchored at Sasavele had to be off loaded onto “landing craft or powered flat top pontoons” to be unloaded at Sasavele dock and then loaded onto trucks. These trucks then moved across Sasavele and Roviana Islands to Roviana Dock where the trucks were then ferried to Olsen’s Landing which was an approximate nine-mile trip in total.<sup>49</sup>

### Munda – Conclusion

The construction of the aviation facilities at Munda Point was a tremendous undertaking. It encompassed the work of three US Navy Construction Battalions with the assistance of an Army Aviation Battalion and additional units for two Army Engineering Regiments. It required the services of two companies of the 9<sup>th</sup> “Special” NCB to unload supply ships to keep it operational and it required the services of two Naval Construction Maintenance Battalion Units (CMBUs), CMBU 561 and 568 to operate after the departure of the 24<sup>th</sup> and 73<sup>rd</sup> NCB. The 828<sup>th</sup> Aviation Engineers departed in June 1944 followed by the 73<sup>rd</sup> NCB in July 1944. The 47<sup>th</sup> NCB remained at Munda until November 1944. The Naval Base at Munda was decommissioned in May of 1945 one year after the opening of the Munda Bar.

The facilities at Munda included an 8,000-foot long runway with seven taxi loops capable of supporting heavy bomber operations including “parking on each side for one hundred and fifty four-engine aircraft.” Supply and fueling systems were built to allow the operation of the bomber and fighter wings of COMAIRSOLS located at Munda. Housing for over 3,000 Seabees as well as over 3,000 army aviation personnel, in addition to Naval Base Munda and Marine Corp personnel, were built. Two hospitals were built and a water supply system capable of supplying 500,000 gallons per day was constructed. Unlike at Segi, there is no estimate of the miles of road constructed at Munda or of the amount of coral excavated to build it. The 828<sup>th</sup> Army Engineers estimated that over 50,000 cubic yards of coral was moved and that “over 160,000

square yards of surface was stabilized” in regard to the airfield alone. This value can be easily tripled when the road and pier facilities at Munda are considered. In regard to the 73<sup>rd</sup> NCBs estimate of material moved, they simply state “the Lord alone knows how much dirt and coral was moved and hauled.”<sup>50</sup>

## CHAPTER 4

### AUXILIARY FIGHTER FIELDS

#### Ondonga

##### Plan for Ondonga

The revised Master Plan for Munda dated 12 July 1943 called for two fighter airfields, referred to as Munda Fields No. 2 and No. 3, to be built in the vicinity of Munda. These fields were to be capable of rearming, refueling, and servicing twenty fighter aircraft per hour and were to have the capacity of 100 fighter aircraft each by 25 September 1943. The runways were to be completed to 3,500 feet by 100 feet wide by 25 August 1943 and they were to be at 4,000 feet by 150 feet by 25 September 1943. The spot chosen for placement of these fields was Ondonga Island after it was determined that there was no room for these fields in the immediate Munda area. Ondonga is a small island at the head of Hawthorn Sound barely separated from New Georgia Island proper. The construction of the airfield here was assigned to the 82<sup>nd</sup> and 37<sup>th</sup> NCBs.

##### Ondonga – September 1943

Due to combat conditions, the area was not secure enough for construction until late in August. The two NCBs were detailed to Ondonga for construction in September with the 82<sup>nd</sup> first on echelon arriving on 10 September 1943. The 82<sup>nd</sup> was not at full strength with Company “C”, consisting of four officers and 208 men, with a portion of the battalion’s heavy equipment having been detailed to Vella LaVella and attached to the 58<sup>th</sup> NCB. The units of the 82<sup>nd</sup> at Ondonga consisted of twenty-one officers and 789 enlisted personnel. Due to the detachment of equipment to Vella LaVella and supply issues, the 82<sup>nd</sup> only had seven bulldozers with them at Ondonga. The 82<sup>nd</sup> started camp construction on 12 September and began work on Ondonga No.

1 on 14 September 1943. By the end of September the 82<sup>nd</sup> had completed approximately 70% of Ondonga No.1 and work was started on approximately 4,222 feet of taxiway, the tank farm, and the pilots' camp.<sup>1</sup>

The 37<sup>th</sup> NCB did not arrive with the ease of the 82<sup>nd</sup> NCB. The 37<sup>th</sup> arrived in three echelons on the 12 September through 15 September. The first echelon arrived at Ondonga on 12 September but the second and third echelons arrived first at Munda and were transshipped to Ondonga. All the gear was landed and unloaded at Munda “directly on the beach during which time considerable pilfering by other units on the island took place and many valuable supplies were lost.” Commander West, CO of the 37<sup>th</sup>, expressed great displeasure in this, noting that “there should be stronger measures taken by all units of the armed forces to stop the stealing of valuable equipment and supplies.” He notes that he had to post a “guard of approximately 100 men to endeavor to keep other units from this practice.” What was especially disturbing was that they were “stealing parts and equipment.”<sup>2</sup>

The 37<sup>th</sup> and 82<sup>nd</sup> divided up work on the Ondonga No. 1, the North Runway, with the 82<sup>nd</sup> concentrating on the runway and the 37<sup>th</sup> NCB working on the center taxiway, north taxiway and all road construction. The 37<sup>th</sup> also started on the housing, mess hall and water system construction. As of the end of September, the 37<sup>th</sup> NCB reported the Center Taxiway 85% complete, the North Taxiway was 35% complete and the Hardstands for the taxiways were at 24% complete, while still describing their camp as “temporary in nature”. The progress was not at the deadline originally set at the first revision but was on schedule per the 15 October construction deadline given to the battalions at Ondonga. Both the 37<sup>th</sup> and the 82<sup>nd</sup> reported heavy rain during September and reported periodic shelling by the Japanese from Kolombangara.

### Ondonga – October 1943

By the end of October the 82<sup>nd</sup> NCB reported that the North strip was completed at 4,200 feet long by 300 feet wide and work had started on widening the original landing width of the strip from 150 feet to 180 feet. They reported that 4,500 feet of taxiway at 150 feet wide with 60 foot coral paved centers was completed with hardstands for 35 fighter aircraft. The field was also completed with field lighting and the battalion was clearing the approaches to the strip and the second strip under construction with the 37<sup>th</sup> NCB. Also completed were six 1,000-barrel tanks with a 600-foot submarine crossing and a tanker filling station with assistance from the 37<sup>th</sup> and 24<sup>th</sup> NCBs.

Other projects completed by the 82<sup>nd</sup> included the pilots' camp of thirteen Quonset huts, five 16'x48' framed tents, and a concrete decked mess hall with attached 2,600 square foot galley. The water system included a dug well, a 15,000-gallon storage tank, and three auxiliary 1,000-gallon storage tanks. Water was delivered through over 2,000 feet of supply piping. The water system was designed for 75,000 gallons of water per day and required chlorinating. The 82<sup>nd</sup> began incinerating "liquid garbage" produced by units based at Ondonga. The battalion sawmill began operation with a production output of approximately 150,000 board feet for October.<sup>3</sup>

The 37<sup>th</sup> NCB provides a very detailed list of accomplishments for the month of October. The 37<sup>th</sup> started clearing Ondonga No. 2, the south runway, on 20 September and the runway was approximately 42% complete by the end of October. All taxiways and connections with hardstands were completed by the end of October. A majority of the Building Projects assigned to the 37<sup>th</sup> NCB including dougouts for communications, operations, and ammunition were

completed. The facilities for Marine Fighter Squadron (VMF) 4, Marine Air Group (MAG) 14, and a New Zealand Squadron were also completed by the end of October. The 37<sup>th</sup> NCB reported 1,768 man hours, or approximately 221 man days, lost to injury and illness in October and reported no malaria but the battalion did “actively engage in malaria control work” during October.<sup>4</sup>

#### Ondonga – November 1943

The majority of the 82<sup>nd</sup> NCB work force during November was assigned under the supervision of the 37<sup>th</sup> NCB to complete the South Runway. The 82<sup>nd</sup> also carried out maintenance on the existing field and taxiways. The battalion cleared large areas of jungle west of the field and worked on various malaria control projects in conjunction with the operation of its sawmill. Of an interesting note, the 82<sup>nd</sup> NCB also provided “landscaping” and “coral paths” inside the pilots’ camp as well as installing an underground telephone system and several anti-malaria projects. It is of interest to note that this work inside camp coincides with the earlier mentioned sanitation inspection that caused General Maxwell to call the sanitation at Navy Headquarters at Ondonga very poor and the 82<sup>nd</sup> NCB camp “excellent.”<sup>5</sup>

In the report for November from the 37<sup>th</sup> NCB, it is noted that during the first six weeks of construction there were only five twenty-four hour periods when no rain fell. These data are backed up by the 82<sup>nd</sup> NCBs battalion history that indicates that during this time frame thirty-five inches of rain fell at Ondonga. The North Runway and hardstands were ready for fighter operation on October 18, 1943 and the 37<sup>th</sup> detailed work on the South Runway. Figures given in the report for November indicate that the South Runway required 135,000 cubic yards of excavation prior to the placement of the finished coral surface and approximately 35,000 cubic yards of this material had to be blasted prior to removal. Once this material was removed,

approximately 40,000 to 45,000 cubic yards of coral were placed and compacted to make the runway and taxiways for the South Runway. The South Runway was ready for operations on 1 December 1943 with 140 hardstands complete at Ondonga and another 100 hardstands approximately 85% complete.<sup>6</sup>

The Commander of the 37<sup>th</sup> also included an assessment of problems to date in the operation. He goes through the litany of the lack of spare parts and the lack of tires that all the other units report. However, he brings up two points for consideration including the need to plan for the first echelon to build roads to the work area to prevent lost time due to bogged down equipment. It is his recommendation for joint battalion operations that would shine some light on the construction phase of the airfields at Ondonga. In regard to supervision and coordination between units working on the same project, he states that this “was sadly lacking” at Ondonga. He recommended that where one or more battalions were assigned to a single project that “a competent, experienced officer be assigned in charge, a man with sound practical construction experience, who can forget theory for practicability and speed.”<sup>7</sup>

#### Ondonga – December 1943 Onward

Major construction was completed on the Ondonga Airfields as of 1 December 1943. On 9 December 1943 the 82<sup>nd</sup> NCB began staging out of Ondonga in a move to Sterling in the Treasury Islands. The last echelon of the 82<sup>nd</sup> NCB departed Ondonga on 20 December 1943. The 37<sup>th</sup> NCB remained stationed at Ondonga until February 1943 when they departed for Green Island. The 37<sup>th</sup> performed Maintenance on the field and completed construction of the pilots’ and aircrew camp. With the assistance of the Munda Detachment of the 20<sup>th</sup> NCB, they built a landing area and a docking facility referred to as the 37<sup>th</sup> Dock. Upon the departure of the 37<sup>th</sup>

NCB, elements of the 47<sup>th</sup> NCB took over field maintenance at Ondonga and carried out further base developments.<sup>8</sup>

### Vella Lavella

Construction of aviation and other facilities at Vella Lavella was covered under an individual Master Plan for Vella La Vella referenced as CONSOPAC Serial 00695 and dated 15 August 1943. This plan called for the construction of a single runway fighter strip near the village of Barakoma on the South East coast of Vella Lavella. Initially the field was to service 20 fighter aircraft per hour with a projected capacity of 100 fighter aircraft per hour by 15 October 1943. The construction was planned as three phases, with the first to complete a runway 3,500 feet at 100 feet wide within 20 days with the second phase to widen it to 200 feet within the first 30 days. The third phase to extend the 200 foot wide runway to 4,000 feet within 45 days of start. Hardstands were to be completed for 100 fighter aircraft with revetments built as time and material allowed. In addition, all facilities for operation of the airfield including communications, supply roads, and a aviation gas supply capable of supplying 20 fighter aircraft were to be completed within 20 days of start of work.<sup>9</sup>

The first revision to the Vella Lavella master plan addressed the completion of ammunition belting facility by 25 October 1943 as well as the completion of two, 1,000 barrel aviation gas tanks with gravity fill from drum emptying points and gravity flow to truck loading points for the same date. Repair facilities for Acorn 10 were to be completed by 25 October and a shop for CASU-3 by 1 November with associated storage to follow by 20 November. Additional aviation gas facilities for up to twelve, 1,000 barrel aviation gas tanks with tanker filling connections were left under an “as directed” time frame.<sup>10</sup>

The 58<sup>th</sup> NCB attached to Acorn 10 was set to take part in the landings at Vella and build the airstrip. An advanced survey party of four officers and two enlisted men arrived at Vella by Powered Torpedo boat on 12 August 1943. The main body of the 58<sup>th</sup> arrived with the invasion force on 15 August 1943 near Barakoma Village. The landing party and the 58<sup>th</sup> NCB were under near constant air attack by the Japanese and on 17 August a ship damaged by Japanese fire had to be sunk by American forces causing the loss of some of the 58<sup>th</sup> NCBs equipment. The third echelon of the 58<sup>th</sup> landed on 22 August and was bombed while unloading causing several casualties including one fatality.<sup>11</sup>

#### Vella Lavella – August 1943

During first day after the landings at Vella, the 58<sup>th</sup> “roughed out” nine miles of roads with the primary road running from Biloa Mission to Barakoma Village. In conjunction with this activity, the battalion began working on camp facilities with facilities for a sick bay constructed first. These facilities were expanded as the month of August ended and a second camp was under construction at the airfield location. Three days of preliminary surveys were conducted and clearing started for the placement of the strip on or about 18 August. The 58<sup>th</sup> reported that the majority of the trees and underbrush at the field location could be removed by bulldozer, but that “about 200 large trees” were of such a size that they could only be felled by blasting. By the end of August, clearing of the airfield location was estimated at 80% complete and final surveys for support facilities around the field were at 25% completion. Completion date for airfield operations was designated as 30 September 1943 at the 45-day mark from landing. To assist the 58<sup>th</sup> with airfield construction, Company “C” of the 82<sup>nd</sup> NCB was assigned to Vella under the direction of the 58<sup>th</sup> NCB. Their activities are reported as part of the progress of the 58<sup>th</sup> NCB.

The battalion also worked on building the Island Command Post twice. After the initial command post was under construction, it was decided to move the island command post into a large cave that the 58<sup>th</sup> then outfitted with rooms and a 200 yard long stairway connecting the cave to the command staff living area. The 58<sup>th</sup> also built the Navy Headquarters at Biloa Mission including an LST ramp and the blasting of an approach channel through the reef around Vella. In addition to this, the 58<sup>th</sup> moved and built emplacements of the heavy guns on the island and demolished the native village of Barakoma. In a sad complement to the people whose village they had to tear down, the 58<sup>th</sup> NCB described the village as “sturdily constructed.”<sup>12</sup>

#### Vella Lavella – September 1943

Construction at Barakoma Field continued at a steady pace and the field was ready for flight operations on schedule with 4,000 feet completed at 200 feet wide with the first operational landing on 25 September 1943. Taxiways, dispersal areas, and hardstands for twenty-nine aircraft were roughed in and all projects were on schedule for full operation by the October deadline set forth in the Master Plan for Vella. Auxiliary facilities included operations dugout and control tower, galleys, and mess halls for operating personnel. The arrival of the battalion sawmill allowed for lumber production starting in September. The battalion also expanded landing facilities at the naval base and deepened the channel through the reef to allow for Powered Torpedo Boat Operations.

The 58<sup>th</sup> NCB suffered from the same equipment and spare parts issues that plagued the operations in New Georgia. The battalion monthly report indicated that one of the biggest problems was that the hardness of the coral was destroying the 12-ply tire on the carryalls. However, they noted that they had “obtained” 16-ply tires from the Marines at Vella and that these held up far better under the operating conditions there. The Commander of the 58<sup>th</sup> also

included in his report for September details of the assistance he was provided by his rear echelon staff left at Guadalcanal. This detachment was “extremely useful in procuring items not in the battalion’s stock.” Again, this showed that under most cases, it was necessary to have an officer in a rear area to ‘expedite’ the movement of parts and supplies to forward areas.<sup>13</sup>

On the 25 September the 77<sup>th</sup> NCB landed at Vella Lavella during a Japanese attack and suffered casualties on the beach during a bombing raid. The 77<sup>th</sup> NCB was primarily tasked with the building of Hospital facilities in preparation for the Bougainville landings. They did not take part in airfield construction or maintenance. However, the 77<sup>th</sup> did take over malaria control operations and road building. The 77<sup>th</sup> NCB also began the operation of two sawmills to provide lumber for building projects on Vella Lavella.<sup>14</sup>

#### Vella Lavella – October 1943

The North warm-up area was completed by the 58<sup>th</sup> NCB and work continued on taxiways and south warm-up area. Four dispersal loops with fifty hardstands were in-service by the end of October and work on remaining dispersal loops was slowed down. The work on these loops was slowed because of the number of “dry wells and springs” encountered, which required “a very comprehensive drainage program” for the area. This and other delays led the Commander of the 58<sup>th</sup> NCB to acknowledge that his estimation of being able to complete all projects assigned by October “turned out to be an over-optimistic estimate.”

The fueling facilities for Barakoma field were in operation with a 20,000-gallon per day capacity. However, verbal orders were given to the 58<sup>th</sup> NCB for the construction of an “additional ten (10) one thousand (1,000) barrel gasoline tanks and a sea loading line.” The commander noted that an officer had “been assigned to travel through the forward area rounding up and shipping forward the necessary materials” to complete this project. In addition, the spare

parts situation for the 58<sup>th</sup> NCB had also reached the point where they to felt it necessary to “have an officer on detached duty endeavoring to procure the necessary spare parts to rehabilitate the construction equipment.”<sup>15</sup>

Construction continued on camps and other infrastructures at Vella. During October there were five sawmills in operation at Vella La Vella. The 58<sup>th</sup> NCB Sawmill was operating at approximately 6,000 board feet per day output, with principle supply going to construction at Barakoma. The 58<sup>th</sup> NCB had augmented their sawmill by attaching a Gray Marine diesel to the unit, replacing the motor that had originally been part of the sawmill package, thereby increasing ability to handle heavy timber. The 77<sup>th</sup> NCB operated four saw mills, one under their direct operation, one under their direction operated by a crew from the 25<sup>th</sup> NCB, and two under their supervision manned by crews from the 53<sup>rd</sup> NCB. The majority of the lumber from these operations was being stockpiled for movement as part of the Bougainville Campaign.<sup>16</sup>

#### Vella Lavella – November 1943

The 58<sup>th</sup> NCB completed the drainage project allowing the completion of the taxiways and south warm-up ramp. The final two dispersal areas were completed, bringing all field work to completion with seventy-one hardstands of which sixty-five had revetments. Parking areas for aircraft were completed along the edge of the strip. The original specification for two aviation gasoline tanks was completed and the verbal orders of October had been changed to specify the addition of only four more 1,000-barrel gasoline tanks, bringing the total to six tanks with sea loading capability. One of these tanks was under construction and the remaining tanks and sea loading line were awaiting supplies and material to arrive. Other projected projects to complete the base at Barakoma were coraling of the rearming area and the construction of a road loop north of the strip for additional ammunition storage and bomb dispersal.

The 58<sup>th</sup> does not include a list of men in sick bay and the enclosures for medical reports were not available for the 58<sup>th</sup> NCB. However, the commanding officer of the 58<sup>th</sup> requested that 200 seamen be supplied to the battalion to “replace separations.” This number of 200 men closely resembles the numbers of the other battalions at Segi and Munda for the same time frame if numbers of sick and injured are compared. The situation for obtaining parts remained a concern in November and the commander of the 58<sup>th</sup> broke it down into three distinct problems. The first problem was “locating the necessary parts”, the second “was securing possession”, and third was “transporting them to the base for use.”<sup>17</sup>

During the month of November, the 77<sup>th</sup> NCB completed assigned work tasks including hospitals and over eight miles of roadways complete with bridges. The operations of the four sawmills run by the 77<sup>th</sup> NCB produced and stockpiled approximately 250,000 board feet of lumber. The 77<sup>th</sup> NCB prepared for transfer and the first echelon left during early December for Bougainville with other detachments remaining to operate logging and sawmill operations until early February 1944.<sup>18</sup>

#### Vella Lavella – December 1943

During December, the 58<sup>th</sup> performed routine maintenance of the airfield at Barakoma. They also completed all six Aviation Gasoline tanks and sea loading line, receiving the first tanker with 140,000 gallons of aviation gasoline on 31 December 1943. Company “C” of the 82<sup>nd</sup> NCB departed Vella near the middle of December after completing the bypass road around the Acorn 10 Camp. The 58<sup>th</sup> then expanded ground and docking facilities at the Naval Base including a marine railroad. The 58<sup>th</sup> NCB was relieved from duty at Vella and was scheduled to depart to New Zealand for rehabilitation in January with all major work complete.<sup>19</sup>

The completion of Barakoma field by the 58<sup>th</sup> NCB resulted in a tremendous amount of earth moving. Table 5 shows the estimated volumes reported by the 58<sup>th</sup> NCB in a report dated 23 December 1943. The field at Barakoma, when finished, contained sixty-three hardstands with revetments and eight without. The area of the field itself is cleared “water to water” for a length of 5,420 feet. The final length of runway center line was 4,700 feet with 4,300 feet on the East Side and 5,000 feet on the West Side. The cleared width of the area is approximately 650 feet with the graded width ranging from 380 feet to 470 feet. The field had approximately 3,100 feet

Table 5 – Material Quantities for Barakoma Airfield, Vella La Vella

<b>Runway -</b>	380' wide		
		Cut -	63,400
Earth removed where fill was necessary		Cut -	18,000
		Cut -	<u>81,400</u> Cu. Yds.
<b>Taxiways -</b>			
Along Strip - 40'		Cut -	10,600
South Dispersal Area - 60'		Cut -	50,000
South Dispersal Area - Borrowed Fill		Fill -	25,000
North Dispersal Area - 90'		Cut -	9,000
North Dispersal Area - Borrowed Fill		Fill -	<u>4,500</u>
		Cut -	69,600 Cu. Yds.
		Fill -	29,500 Cu. Yds.
<b>SCAT &amp; Plane Parking Areas -</b>			
		Fill -	18,500 Cu. Yds.
		Cut -	7,500 Cu. Yds.
<b>Warm Up Areas</b>			
South End		Cut -	15,000
North End		Cut -	<u>20,000</u>
		Cut -	35,000 Cu. Yds.
<b>Hardstands - Borrowed Fill</b>			
		Fill -	1,000 Cu. Yds.
<b>Revetments - Borrowed Fill</b>			
		Fill -	5,000 Cu. Yds.
<b>Total Cubic Yards of Earth Moved</b>			<b>247,500 Cu. Yds.</b>
	<b>Total Fill</b>		<b>54,000 Cu. Yds.</b>
	<b>Total Cut</b>		<b>193,500 Cu. Yds.</b>

of taxiway and 7,535 feet in the South Dispersal Area and 1,300 feet in the North Dispersal Area.

The Barakoma Airfield had two miles of main road and three miles of secondary roads associated with it and was connected to the Naval Base at Biloa Mission by a main road approximately twelve miles in length. The material quantity of 247,000 cubic yards moved does not take into account all material for roads and camps. It also labels 18,000 cubic yards of fill as “earth removed where fill was necessary”. This probably means that some of that 18,000 cubic yards removed was replaced with compacted fill. This changes the value for the total fill back to around 72,000 cubic yards of fill. Taking into account the road construction and camp area, the value could again approach the neighborhood of 150,000 cubic yards of fill.<sup>20</sup>

## CHAPTER 5

### CONCLUSION

#### The Lessons Learn by the Seabees in the Solomon Islands

The TOENAILS campaign of 1943 was implemented to capture New Georgia to advance Allied power, specifically Allied air power, ever closer to the ultimate objective of Operation CARTWHEEL, the neutralization and capture of the Japanese base at Rabaul in the Bismarck Archipelago. To build those airfields, the Allies had to first take the islands from the Japanese. The story of the military conquest is an entirely different narrative from what this work has examined but this is nonetheless a combat narrative. The Allies built those airfields in battle with the powerful forces of nature, at times, simultaneously in physical battle with the Japanese.

The primary combatants for the Allies were the Naval Construction Battalions, known as the Seabees, and their United State Army counterparts. Their enemies at New Georgia were many, and were frequently silent and invasive. They ranged from battle with the Japanese Imperial Army and Navy to offensives against the dangers of some of the densest tropical jungles on earth, including omnipresent mud, infestations of disease ridden insects, and the hot and humid weather of the equatorial Pacific. But perhaps the most surprising and insidious enemy was the United States military bureaucracy itself and its logistical supply system. The sheer size and complexity of the operation brought numerous logistical problems to surface, resulting in the failure to supply needed parts or the supply of inappropriate parts.

What is known about the Japanese Imperial forces is not always as straightforward as is explained in the services history, but in regard to the Seabees their effect is the easiest to assess. The damage done on the beaches of Rendova to the 24<sup>th</sup> NCB claimed the greatest loss of life to the Seabees in a single incident. It would not be exceeded until the landings at Iwo Jima. Even

then, it was not just the bombs themselves, but the constant threat of bombs, artillery, and snipers that had to be dealt with. The loss of life experienced by the Seabees at Rendova, Munda, and Vella La Vella was in most instances the tragic fact of war although in a few instances it was a tragedy “that could have been avoided.”<sup>1</sup>

### The Lessons from the Japanese

It goes almost without saying that when an air raid siren sounds ‘condition red’ you dive for the nearest cover, be it a fox hole, a dug out, or the ground between the two stacks of dynamite being unloaded from a landing craft. As was stated earlier, the men of the 24<sup>th</sup> NCB felt the most dangerous job was the unloading of supplies, especially fuel, explosives, and munitions, on the beach. The bombings took a serious toll, but in the estimation of the Seabee commanders and the men it was the threat of bombing and the continual use of ‘condition red’ that led to the greatest loss of productivity. The unrelenting stress of combat combined with the heat and the strenuous work just wore men out. The incessant false alarms, missed alarms, and the unheard alarms added significantly to their state of mental fatigue.

The almost unanimous consensus of the NCB reports from the New Georgia Campaign were that the air raid warning system, especially during the early phase, ranged from inadequate to utterly ineffective. Alarms sounded constantly at night in some places, with many being false, and at other times camps were blindsided by attacks because alarms failed to sound. The men could not make the assumption that an alarm was false, making sleep a tenuous and often disturbed entity. Perhaps worse from the men’s point of view were these late or missed warnings. As was the case with the 47<sup>th</sup> NCB on the night of 28 September 1943, the bombs fell as the air raid warning sounded giving the men no time to seek cover. In response to this, all the battalions not only complained of inadequate air raid warnings, they all devised some battalion

controlled method of taking responsibility for their own air raid warnings, including posting men to listen and watch for bombers at night. Ironically, one of the most consistent false alarms that caused disruption of progress for a few days was caused by a local jungle parrot that learned to imitate the battalion's air raid siren in the vicinity of battalion command. It seemed even the jungle could fight back.

Another action taken in regard to the air raid situation addressed a problem unique to the construction trades. During the early days of the operation, there were numerous injuries and loss of equipment to air raids because the heavy equipment operators could not hear the 'condition red' signal. Some of the early requests to the Bureau of Yards and Docks were for the battalions to be outfitted with their own portable self-powered air raid sirens that were loud enough to be heard by equipment operator over the noise of a bulldozer or carryall engines. This particular set of requests was not answered with more equipment but was acknowledged as a problem, a problem that the Seabees learned to overcome in the field. The basic response of the battalions at New Georgia that was quickly adopted by all the battalions present was to develop their own method of signaling their operators depending upon their assigned mission and location. This usually involved a set of visual signals, flags, or lights to let equipment operators unable to hear the air raid siren to know to seek cover for themselves and their equipment.

It would be unfair to say the Seabees did not learn anything about construction from the Japanese, or that the Japanese learned nothing from the Seabees. However, it was far more a lesson for Japanese than for the Seabees. The Seabees were less than impressed with what they found at Munda as far as Japanese construction, even accounting for the level of bombing it had absorbed. As described previously, the Japanese did almost everything by hand with picks, shovels, and baskets. What little equipment they had were light trucks for moving supplies and

rollers for smoothing and dressing the finished runway surface. The Seabees quickly learned that they far surpassed their adversaries in construction. Commander Joseph Blundon, who commanded Seabees at Guadalcanal, was famous for stating that the Seabees could build more in a day than their Japanese counterparts could build in a month and that “one Seabee operating a 12 cubic yard scraper can move as much dirt in a day as 150 Japanese laborers.”<sup>2</sup> In essence the Seabees learned that Commander Blundon was right. At best, the average laborer with pick, shovel, and basket can move 1.5 cubic yards a day in such heat and humidity giving those 150 men the ability to move 225 cubic yards per day. This is the equivalent of 1 ½ loads for a 12 cubic yard scraper every hour during a twelve-hour day. Those scrapers could actually be turned around as fast as every twenty minutes in most situations and there were usually eight scrapers of between 8 and 12 cubic yard capacity per battalion. The Japanese learned that they needed to emulate the construction practices of the Seabees; however, they were never successfully able to do this during the war. The Allies learned they were doing it right, even with problems, because imitation was the best form of flattery.

#### What the Seabees Learned about Themselves

Not all men are created equal when it comes to physical labor. This is something we all learn as we age and try to move the same number of cement bags at forty that we could at twenty-two. Age was one of the factors that took a heavy toll on the battalions at New Georgia. The lower numbered battalions were formed earlier in 1942 and 1943, and they held a comparatively high number of older men, even in Seabee terms. The Seabees as a group were older than the other units in respective service branches due to the nature of the men recruited. These were professional craftsmen and equipment operators who left skilled well paying jobs in the states to build these bases and as in the nature of many trades, your most skilled tradesmen

are not men in their twenties. It was one of the harshest lessons learned, especially by the 24<sup>th</sup>, 47<sup>th</sup>, and to some extent the 73<sup>rd</sup> NCB, that the conditions on New Georgia were too extreme for men much past their 30s to handle.

The commanders of various battalions used phrases ranging from those who ‘just couldn’t take it’ to a direct assessment that this work was too much for ‘men over 40’. The incredible pace of work in the subequatorial heat and humidity combined with the lack of sleep caused by air raids and atrocious living conditions wore men out, especially those with pre-existing conditions. It was even speculated that some would have been excluded from service in any other type of military unit but their experience and aquired skills brought them to the Seabees. Those men that the conditions did not wear out completely were frequently weakened to the point where they became vulnerable to the multiple diseases rampant in parts of New Georgia.

Malaria and other tropical disease took a heavy toll at Segi and Munda on men and productivity. This came from numerous reasons that varied with the location, including the fact that Segi and Munda are on the leeward side of New Georgia. All the Seabee commanders considered lack of proper insect screening a major problem and when the Seabees requisitioned insect screening, they always asked for wire mesh screening. The lack of availability of screening combined with the inadequacy for long-term tropical use of the standard canvass tents supplied for battalion use was also commented on as a contributing factor to illness. These men operated equipment from dawn to dusk and into the night, often exposing them during the most active part of the day for mosquitoes, then slept in tents with nonexistent, inadequate or damaged screening and ate in mess halls open to the air. These situations improved as the men most susceptible were transferred out and as the sanitation improved. Malaria control measures and

camp construction and sanitation became work-listed priorities equal with airfield construction and maintenance as work progressed, vastly improving the living and working conditions and lowering the rates of illness.

The lessons learned in regard to the men and the health of the battalions are tied directly to the lessons of bombing and the lessons learned on supply. Simply put, exhausted men can't work effectively regardless of the reason for the exhaustion. Several commanders, and specifically the commander of the 47<sup>th</sup> NCB, recommended that the physical requirements be raised for the Seabees in light of the experience on New Georgia. In one instance, the tropical conditions aggravated men with existing tooth problems so severely that over ten men were relieved of duty because of dental disease. Men with pre-existing problems and men who could not handle minimal sleep and twelve to eighteen hour days in tropical climate were not needed. To take care of those men who could handle the strain, a better system of warnings to allow them what rest could be granted was coupled with improved designs for camp setup and drainage with anti malaria control work prioritized earlier in the construction phase. The elevation of camp and malaria control projects to the equivalence of airfield construction priorities benefited all personnel at the base.

#### What the Seabees Learned about Equipment

Perhaps the Solomon Islands and New Georgia campaigns were responsible for a problem that has plagued American industry and purchasing habits for over a half century now. A fundamental lesson of this campaign was that bigger is better. While that may not be a wise choice in a 21<sup>st</sup> century economy, at New Georgia in 1943, it was proven, time and time again, that bigger equipment could indeed do a better and faster job. The battalions liked the LeTourneau 8 cubic yard carryalls until they received the 12 cubic yard models, at which time

the 8 cubic yard model became “too light”. They all loved the D-7 and D-8 Caterpillars because the bigger bulldozer had the power and mass needed to do the job quickly. They could move more material faster with larger tractors than with smaller. This was also true with power shovels and cranes where the larger shovels could break up coral for loading without having to resort to dynamite.

Bigger was not necessarily a case for pure size. With regard to the capacity of a carry all, size was the key factor, but often it was the phrase “too light” that accompanied a complaint about a particular machine that was truly the problem. The larger machines were physically heavier and the extra mass allowed them to work the dense coral, which unlike stateside soil, could be as hard as concrete at times. The extra mass and engine power, referred to as ‘crowding power’, also allowed the machines to be used in the extremely heavy mud and organic overburden that had to be removed to allow placement of the coral foundation. Smaller machines had their uses but certain features and types of machine were preferred. The commander of the 24<sup>th</sup> NCB considered it a necessity of any tractor used in jungle conditions to be equipped with a winch. It was also not just earth moving equipment involved in the size issue. Designed for American soft and hardwoods, the sawmill units furnished to the battalions were undersized for cutting mahogany and other tropical hardwoods whose logs could be six feet in diameter or larger. Whatever the equipment, large and specialized equipment came with its own set of problems.

### The Lessons of Supply and Transportation

The very first problem involving supply and transportation is that you have to get there. In the initial landings, the size of certain machines caused problems because pre-landing plans were disrupted when LST commanders refused to load large bulldozers and shovels saying they

were 'too big.' These same pieces of equipment were later delivered in the same landing craft so obvious and negative assumptions were made by Seabee commanders as to why their equipment was not loaded. There was a prevalent recommendation for future operations that landing craft commanders not be allowed to change or influence loading plans or reject loading of equipment needed for the job based on the commander's opinion of convenience. The landings at Rendova and the difficulties thereafter led to several changes in the loading of assault craft for the forward movement of NCBs.

The sheer mass of equipment wasn't the only issue. Transportation, parts, and the movement of parts were the most critical elements in the efficiency of construction at New Georgia. The lack of spare parts is the gospel of the New Georgia Campaign. It does not matter which battalions' records are examined, the same complaint arises in all of them. The mystique of the Seabees, that they could manufacture spare parts from almost nothing, is largely true because they had no other choice in many cases. The commander of the 58<sup>th</sup> NCB broke the parts problem down to the three basic components of finding the part, acquiring the part, and transporting the part to base.

Finding parts was difficult. As late as March 1944, commanders were still complaining that parts requested in September 1943 were not yet delivered. There was a tremendous disconnect in the initial phase of the New Georgia Campaign between the amount of equipment tasked to the New Georgia and the amount of support material sent to keep that material operational. Some of the problems were from unexpected oversight. The prime example of this is road patrol, or road grader, tires. They used a size not commonly used by the United States military and therefore not stocked or ordered in quantity, meaning they became extremely difficult to find, thereby limiting road patrol operation. The most common parts problem was

caused by the unexpected amount of wear because of unfamiliarity with construction in extreme heat and against coral. Coral and coral dust wore out parts, tires, and tracks at a faster rate than stateside soils especially on the light machines. Supplies were moved forward in quantity to rear area supply depots at Nouemea, New Caledonia and Espiritu Santo, New Hebrides, but these quantities were not available until early 1944 when these units were re-equipping for forward moves.

The most egregious oversight in parts was an intra service conflict. The United States Army Services of Supply was in charge of supplying parts and materials to the forward base areas, including fuel and oil for all the service branches. The requirement of Caterpillar heavy tractors, including those being operated by Army Aviation Engineers, required special weight oil for high temperature operating conditions. After the initial supply ran out, the Army Services Command would not ship the heavy oil stating that all-purpose oil would be adequate. This led to a continuous barrage of complaints and requests to the Chief of the Bureau of Yards and Docks to get the appropriate material. Assurance that the situation would be addressed and the proper material acquired came after May 1944 in time for future moves of these battalions but at the expense of otherwise unnecessary repairs to final gear drives on the affected heavy tractors.

Similar problems were caused by the lack of shipping. The general lack of freight-moving capacity was blamed for much of the delay in delivering parts, both to the rear base areas and for distribution to forward areas. Once parts were found and acquired, moving them required finding space on transportation geared mainly at delivering supplies for aviation operations. In some cases NCB commanders had aviation units, especially Bomber Command, bring in supplies and equipment necessary to complete Bomber Command camps and facilities.

The lack of 80-octane gasoline, not needed for aviation, also led to equipment problems with battalions diluting aviation gasoline to operate equipment.

Acquiring the parts, though second on the 58<sup>th</sup> NCB's list of problems, was the most difficult of the parts related tasks. Once the part was located, it had to be "acquired." This led to the most irritated comments involving the dilemma over spare parts. It was universally recognized by the Seabee commanders that in order to locate and acquire parts, an officer would have to be placed "on detached duty" in the rear area to "acquire" the parts. Some tried sending non-commissioned personnel and some used their rear echelon staff if available, but they all recognized and were dismayed and irritated by the necessity of having to send an officer to perform this function. This lost the battalion a forward officer and it is of interest to note that the standard compliment of an NCB changed from twenty-seven to thirty-three officers over the course of the New Georgia Campaign, possibly to adjust for rear area demand.

#### The Move Forward

By the conclusion of the New Georgia Campaign and close of Operation TOENAILS, the war had moved on. Naval Base Munda was decommissioned in May of 1945, a year after its completion. For the United State Naval Construction Battalions who built the facilities there the lessons learned had been both painful and rewarding. With the experience gained at New Georgia, heavier equipment would move in faster and more efficiently on the next move forward. The very first priority was to set up the access roads and encampments so that work could proceed on the airfields without loss of time because of supply and manpower issues for both the Seabees and the flight crews due to swamp roads of mud and unhealthy camps. And though the problems of transportation remained, and will always remain in a war zone, after New Georgia the rear areas were well supplied with parts and massive repair yards to handle the

equipment. The Solomon's were the proving ground for the men and machines that went on to build the fields at Tinian and on Okinawa. The American people may remember the ingenuity of the Seabees and the courage of their John Wayne image. Yet, it was the ability to literally move mountains, 100,000 cubic yards or more at a time, in places where most men couldn't work for an hour without collapsing that truly makes their slogan of 'Can Do' a legend.

## WORKS CITED

### Chapter 1

<sup>1</sup> Major John N. Rentz, USMC, *Marines in the Central Solomons* (Washington, D.C.: Historical Branch Headquarter USMC, 1952), 1. I have used Rentz's geographic and physical descriptions of the islands in the Solomon Chain because they are consistently some of the most detailed, hereafter, Rentz, *Marines in the Central Solomons*.

<sup>2</sup> General Headquarters Southwest Pacific Area, Military Intelligence Section, Area Study of New Georgia Group (Second Reconnaissance), Terrain Study No. 54, 26 March 1943, Record Group (RG) 127, National Archives and Records Administration (NARA), College Park, Maryland.

<sup>3</sup> Henry I. Shaw, Jr. and Major Douglas T. Kane, USMC, *Isolation of Rabaul: History of U.S. Marine Corps Operations in World War II, Vol. II* (Washington, D.C.: Historical Branch, G-3 Division, Headquarter USMC, 1963), 18-19, hereafter Shaw and Kane, *Isolation of Rabaul*. This volume includes information included in the earlier released and cited Marine Monograph Series with expanded sources and descriptions. The U.S. Marine Corps description of the Solomon Islands remains the best of the three service histories.

<sup>4</sup> The Pacific Theater of Operations was divided into two Areas in March 1942 with the South West Pacific under MacArthur and the Pacific Ocean Area under Nimitz. Nimitz's sector was further broken into Northern, Central and South Pacific command with Nimitz retaining direct control of the North and Central Pacific and Admiral Halsey in command of South Pacific. The dividing line between MacArthur's Southwest Pacific Area and the South Pacific Area fell between Guadalcanal and New Georgia. This line was moved by agreement among the planning staffs of both groups to allow for joint operation of forces from both in the CARTWHEEL Operations and especially as part of TOENAILS.

<sup>5</sup> Louis Morton, *United States Army in World War II, The War in the Pacific: Strategy and Command: The First Two Years* (Washington, D.C.: Office of the Chief of Military History Department of the Army, 1962), 301-304, hereafter, Morton, *Strategy and Command*.

<sup>6</sup> Morton, *Strategy and Command*, 389-411.

<sup>7</sup> John Miller, Jr., *United States Army in World War II - The War in the Pacific: Cartwheel: The Reduction of Rabaul* (Washington, D.C.: Office of the Chief of Military History Department of the Army, 1959), 21-31.

<sup>8</sup> Rentz, *Marines in the Central Solomons*, 37-38.

<sup>9</sup> Morton, *Strategy and Command*, 353-354.

<sup>10</sup> *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineering Corp 1940-1946 – Volume 1* (Washington, D.C.: United State Government Printing Office, 1947), 135-136, hereafter, *Building the Navy's Bases – Volume 1*.

<sup>11</sup> Rentz, *Marines in the Central Solomons*, 26-27 “Landing Force Organization Table”

<sup>12</sup> *Building the Navy's Bases – Volume 1*, 120.

<sup>13</sup> Rentz, *Marines in the Central Solomons*, 2-3. Rentz's description of the “scene of the battle” is just great.

## Chapter 2

<sup>1</sup> Shaw and Kane, *Isolation of Rabaul*, 44.

<sup>2</sup> Rentz, *Marines in the Central Solomon*, 37-39.

<sup>3</sup> Records of the 47<sup>th</sup> NCB, RG 1, Fast File, Naval Facilities Command (NAVFAC) Archive, Port Hueneme, California.

<sup>4</sup> William Bradford Huey, *Can Do! The Story of the Seabees*, (E.P. Dutton: 1944; Annapolis, Maryland: Naval Institute Press, 1997), 38, hereafter Huey, *Can Do!*

<sup>5</sup> Records of the 47<sup>th</sup> NCB, Monthly Report – June 1943, RG 1 Box 4, NAVFAC Archive.

<sup>6</sup> United States Pacific Fleet, Aircraft South Pacific Force, “Fighter Strip, Segi Plantation, New Georgia” 3 June 1943, RG 313, NARA.

<sup>7</sup> William Bradford Huey, *From Omaha to Okinawa: The Story of the Seabees* (E.P. Dutton & Company: 1945; Naval Institute Press, Annapolis, Maryland: 1999), pages 157-163. Huey has a detailed seven-page narrative on Captain Painter in this work including the fact that he made Captain at thirty-five years of age. He was the officer in charge of raising the battleships West Virginia and California after Pearl Harbor as well as his work as engineering advisor to Admiral John S. McCain, I. He had experience in China prior to the war with construction and oil and gas companies. The description paints him as quite a character who would “tell off and admiral as quick as he would a seaman 2<sup>nd</sup> class.”

<sup>8</sup> United States Pacific Fleet, Aircraft South Pacific Force, “Report on Trip to New Georgia Island,” 23 May 1943, RG 313, NARA.

<sup>9</sup> Records of the 47<sup>th</sup> NCB, Monthly Report July 1943, RG 1, Box 4, NAVFAC Archive.

<sup>10</sup> Records of the 47<sup>th</sup> NCB, *Report on Coral for use as Airplane Runways or Roads*, RG 1, Box 1, NAVFACE Archive.

<sup>11</sup> Records of the 47<sup>th</sup> NCB, *Press releases*, RG 1, Box 1, NAVFAC Archive. Lt. Col. Currin’s response to Lt. Ryan’s greeting is allegedly “Well, I’ll be damned.” This is the image given to the press by the CBs in this press release, of an incident over 1 year old at time of release, obviously was to give the impression that the CBs were there first into a hostile area. No mention is made that a friendly coast watcher held this area or that the Marines and Army had been sending recon parties through here for months.

<sup>12</sup> Records of the 47<sup>th</sup> NCB, Monthly Report July 1943, RG 1, Box 4, NAVFAC Archive. As I read this and subsequent statements in the log of commendations I really got the feeling that Commander Lyles had little use for Admiral McCain’s “handyman” being sent to him 15 days before the invasion and being pulled out 18 days after landing. The OiC of the 47<sup>th</sup> states this again in the Monthly Report for August 1943.

<sup>13</sup>United States Pacific Fleet, Aircraft South Pacific Force, "Fighter Strip, Segi Plantation, New Georgia," 3 June 1943, RG 313, NARA.

<sup>14</sup>Records of the 47<sup>th</sup> NCB, Monthly Report June 1943, RG1, Box 4, NAVFAC Archive.

<sup>15</sup>For the purpose of this statistic I took the entire 1052 enlisted contingent plus the 27 officers and multiplied the total number of men, 1079, times the 30 days present in the month of June and divided the 511 total sick days by the total available manpower. The loss is small but the amount of the loss due to disease is significant

<sup>16</sup>Records of the 47<sup>th</sup> NCB, Monthly Report July 1943, RG 1, Box 4, NAVFAC Archive.

<sup>17</sup> Records of the 47<sup>th</sup> NCB, *Report on Coral for use as Airplane Runways or Roads*, RG 1, Box 1, NAVFAC Archive. This report was prepared by M.E. Milone, CCM(AA) USNR and submitted through channels to the Chief of the Bureau of Yards and Docks by letter dated 12 Oct 43 and endorsed by the acting OiC of the 47<sup>th</sup> NCB. There are several other good references on coral and coral airstrips but this is by far the best detailed on actual construction technique and very specific to the experience at Segi Point. It was written and submitted "hoping that it may be of some use to other construction battalions who may have the same type of material." Additional information of coral airstrip construction is contained in the chapter, written by Nathan Bowers, "Airfields of Coral" in *Bulldozers Come First: The Story of US War Construction in Foreign Lands* (McGraw-Hill: New York, 1944). This is a very detail description of the various construction methods used by the Seabees throughout the Pacific including standard techniques and depths of placed layers (8") and final compacted layer thickness (6"). In this chapter Bowers also talks about the "set up" time of different coral types with "live coral", that free of the clay type material at Segi, setting up in approximately 3 day and coral such as that described at Segi setting up in 5 days. This chapter is a re-written and expanded article from *Engineering New Record* (July 13, 1944) pp. 80-85. Another article, "Characteristics of Coral Deposits" by Harold T. Stearns, in the same *ENR* issue describes the nature and chemical properties of coral and why it will set up like concrete. This has to do with corals lime content and the presence of water and other bonding agents such as salt and volcanic ash. Volcanic ash is considered to be one of the ingredients in the "mud" from on land coral deposits such as those at Segi which actually could have aided in the set up.

<sup>18</sup>Records of the 47<sup>th</sup> NCB, Monthly Report July 1943, RG 1, Box 4, NAVFAC Archive. The commander reports that "several men" were evacuated for severe war neurosis. However, I deduced that "several" could be summed up as two based on the difference in the number of personnel available on the roster for July.

<sup>19</sup> Records of the 47<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 4, NAVFAC Archive.

<sup>20</sup>Records of the 47<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 4, NAVFAC Archive.

<sup>21</sup>Records of the 47<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 4, NAVFAC Archive.

<sup>22</sup>Records of the 20<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 1, NAVFAC Archive.

<sup>23</sup>Records of the 47<sup>th</sup> NCB, Monthly Report September 1943, RG 1, Box 4, NAVFAC Archive.

<sup>24</sup>Records of the 47<sup>th</sup> NCB, Monthly Report September 1943, RG 1, Box 4, NAVFAC Archive.

<sup>25</sup>Records of the 47<sup>th</sup> NCB, Monthly Report September 1943, RG 1 Box 4, NAVFAC Archive.

<sup>26</sup>Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 4, NAVFAC Archive. It is of interest to note that per the request of BuDocks (CL No. 35-43) a list of all personnel evacuated from the Battalion between going overseas and the end of October is attached to the monthly report. There were 128 men evacuated for medical treatment between 30 June 1943 and 1 November 1943. The length of incapacitation is not listed and some of these men did return for duty. A partial review of this data allows this author to concur with the medical or commanding officers reports that many of those evacuated where because of aggravated existing conditions from dental problems and arthritis to fevers and war neurosis. However, a large percentage is accounted for by construction related activities including numerous fractures, burns and hernias. Malaria, though it caused the greatest loss of manpower due to sick days, was not the cause for the major percentage of men to be evacuated from the base to rear areas.

<sup>27</sup>Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 4, NAVFAC Archive.

<sup>28</sup>Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 4, NAVFAC Archive.

<sup>29</sup>Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 4, NAVFAC Archive. This citation is for a letter from Bureau of Yards and Docks dated 30 December 1943 attached as an addendum to the monthly report.

<sup>30</sup>Records of the 47<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 4, NAVFAC Archive.

<sup>31</sup>If you take the figure of 135,000 cubic yards and look at truck loads at approximately 8 cubic yards per truck you have approximately 17,000 truckloads which average around 112 truck loads a day over the time the NCB was in construction. It is no wonder the trucks broke down.

<sup>32</sup>Records of the 47<sup>h</sup> NCB, Monthly Report November 1943, RG 1, Box 4, NAVFAC Archive. This citation is for a letter from Bureau of Yards and Docks dated 25 October 1943 attached as an addendum to the monthly report.

### Chapter 3

<sup>1</sup> Records of the 24<sup>th</sup> NCB, 24<sup>th</sup> NCB Activities during the first six days of battle of Munda, RG1, Box 1, NAVFAC Archive.

<sup>2</sup> Records of the 24<sup>th</sup> NCB, 24<sup>th</sup> NCB Activities during the first six days of battle of Munda, RG1, Box 1, NAVFAC Archive.

<sup>3</sup> Records of the 24<sup>th</sup> NCB, 24<sup>th</sup> NCB Activities during the first six days of battle of Munda - 6 July 1943, RG1, Box 1, NAVFAC Archive.

<sup>4</sup> Records of the 24<sup>th</sup> NCB, History of 24<sup>th</sup> NCB at Rendova and Munda, RG1, Box 1, NAVFAC Archive.

<sup>5</sup> Records of the 24<sup>th</sup> NCB, 24<sup>th</sup> NCB Activities - 10 July 1943, RG 1, Box 1, NAVFAC Archive.

<sup>6</sup> Records of the 24<sup>th</sup> NCB, Handwritten letter to the Chief - 17 July 1943, RG 1, Box 1, NAVFAC Archive. I am making the assumption that the Chief referred to is the Chief of the Bureau of Yards and Docks, Admiral Morrell, since this letter is included with the hand written copies of the report of the two reports of activities for the first 10 days.

<sup>7</sup> Boeicho Boei Kenshujo, Senshitsucho, *Senshi Soshō*, vol. 7, *Tobu Nyuginia Homen: Rikugunkoku Saksusen* (Tokyo: Asagumo Shinbunsha, 1977), 73, [Self-Defense Force Research Center, Department of War History, *War History Series*, vol. 7, *Army Air Force Operations in Eastern New Guinea*], hereafter, *Seshi Soshō*, 7: page number(s). (Translated by Hitomi Kinuhata)

<sup>8</sup> *Seshi Soshō*, 7: 43.

<sup>9</sup> *Seshi Soshō*, 7: 43.

<sup>10</sup> *Seshi Soshō*, 7: 73.

<sup>11</sup> Hara Takeshi & Yasuoka Akio, eds., *Nihon Rikukaigun Jiten, Konpakuto-Ban*, 2 vols. (Tokyo: Shinjinbutsu Ooari, 2003), I, 89. [*Japanese Army/Navy Encyclopedia, Abridged Version*], hereafter Hara & Yasuoka, *Nihon Rikukaigun Jiten*. (Translated by Hitomi Kinuhata and Rima Day).

<sup>12</sup> Hara & Yasuoka, *Nihon Rikukaigun Jiten*, 74.

<sup>13</sup> Prisoner of War Interrogation Reports #118 and #117, Records of the Japanese Navy (RJN), Naval Historical Center (NHC), Navy Yard and #164, Box 16a, National Archives of New Zealand (NANZ), Wellington. These are interrogation reports for members of the 17<sup>th</sup> Setsuei Tai captured near Munda.

<sup>14</sup> United States Pacific Fleet – Aircraft South Pacific Force, Master Plan for Munda Airfield - 27 June 1943, RG 313, NARA. The master plan shows the immediate objective with attachment “A” detailing time table, attachment “C” setting specifications for fighter fields and attachment “D” the specifications for bomber fields.

<sup>15</sup> United States Pacific Fleet – Aircraft South Pacific Force, Air Facilities to be established in the vicinity of Munda and on Kolombangara - 11 July 1943, RG 313, NARA.

<sup>16</sup> Records of the 24<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 1, NAVFAC Archive.

<sup>17</sup> Records of the 24<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 1, NAVFAC Archive.

<sup>18</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report August 1943, RG 1, Box 36, NAVFAC Archive.

<sup>19</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report August 1943, RG 1, Box 36, NAVFAC Archive.

<sup>20</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report August 1943, RG 1, Box 36, NAVFAC Archive.

<sup>21</sup> Records of the 47<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 4, NAVFAC Archive.

<sup>22</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report September 1943, RG 1, Box 36, NAVFAC Archive.

<sup>23</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report September 1943, RG 1, Box 36, NAVFAC Archive.

<sup>24</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report September 1943, RG 1, Box 36, NAVFAC Archive.

<sup>25</sup> Records of the 24<sup>th</sup> NCB, Monthly Report September 1943, RG 1, Box 1, NAVFAC Archive. It is worthy to note here that the monthly medical reports for the 24<sup>th</sup> NCB and 47<sup>th</sup> NCB are included in the files censored for names. There are no medical officer’s reports for the 73<sup>rd</sup> NCB to compare them to. The CO of the 73<sup>rd</sup> stated in his August report that anophlese mosquitoes are rare at Munda yet the other units there have constant problems with malaria.

<sup>26</sup> Operations of Aviation Engineers in the South Pacific, January 1942-August 1944, Headquarters XIII Air Force Service Command, 753.01-1, Jan. 1942-Aug 1944, p. 96, Air Force Historical Research Agency (AFHRA), Maxwell AFB.

<sup>27</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report October 1943, RG 1, Box 36, NAVFAC Archive.

<sup>28</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report October 1943, RG 1, Box 36, NAVFAC Archive.

<sup>29</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report October 1943, RG 1, Box 36, NAVFAC Archive.

<sup>30</sup> Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 4, NAVFAC Archive.

<sup>31</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report October 1943, RG 1, Box 36, NAVFAC Archive.

<sup>32</sup> Records of the 24<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 1, NAVFAC Archive; Records of the 47<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 36, NAVFAC Archive. The medical reports for the 24<sup>th</sup> NCB and the 47<sup>th</sup> NCB are contained in the files at the NAVFAC Archive. The archivist sanitized these files for release by blacking out the names and service numbers of the men listed in the report. However, these reports were missing from the files of the 73<sup>rd</sup> NCB. It is possible that there was less of an instance of malaria due to the fact that this was a newer and ‘younger’ battalion than the 24<sup>th</sup> and 47<sup>th</sup> and contained fewer older volunteers. However, with the known incubation period of malaria Commander Doane’s belief that the “small percentage” was a holdover from Guadalcanal more than sixty days past by 1 November 1943 is questionable especially in light of Gen. Maxwell’s comments, see note 33.

<sup>33</sup> Records of the 20<sup>th</sup> NCB, Monthly Report December 1943, RG 1, Box 1, NAVFAC Archive. Reference is a letter attached to monthly report December 1943, Serial 3779, second endorsement of a letter dated 17 November 1943, “Anti-malaria Measures and General Sanitary Conditions.” This letter is commenting on the malaria and sanitary conditions of various bases and facilities at New Georgia. The 20<sup>th</sup> NCB camp was also rated poor (as was the 73<sup>rd</sup> and 24<sup>th</sup> NCB camps) and the CO of the detachment of the 20<sup>th</sup> NCB at Munda has addressed this in his monthly report. This letter is commenting on conditions during October and November and is included in the 20<sup>th</sup> NCB December report when their conditions were improved. Arrival of more screening and deck planking (lumber) material to improve camps as well as more time to work on their own camps and drainage/malaria control projects as opposed to airfield and base construction is credited with no new malaria cases in December for the 20<sup>th</sup> NCB.

<sup>34</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report November 1943, RG 1, Box 36, NAVFAC Archive.

<sup>35</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report November 1943, RG 1, Box 36, NAVFAC Archive; Records of the 24<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 1, NAVFAC Archive; Records of the 47<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 3, NAVFAC Archive. The medical officer’s report for the 24<sup>th</sup> NCB gives the malaria numbers for the preceding three months as 1,746 man days lost with 186 cases of malaria or over 10% of the

battalion. The total manpower figures for the 24<sup>th</sup> NCB are 4,635 man-days lost due to sickness in the Sept-Nov time frame. Fatigue and lack of wire mesh netting are the big complaints for malaria along with the pace of work on the airfield. There is a rejoinder letter from Bureau of Yards and Docks in response to the 73<sup>rd</sup> NCB report for November dated 18 January 1944 suggesting the battalion requisition more replacement mosquito net flaps for there existing tents which are available at rear supply. This was obviously not the preferred solution to the Seabees how universally had nothing good to say about the longevity of tents in the tropics especially when the air crew units were getting metal screened living quarters.

<sup>36</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report for November 1943, RG 1, Box 36, NAVFAC Archive.

<sup>37</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report for November 1943, RG 1, Box 36, NAVFAC Archive. The addition of concrete forms and extra cement is from the last item in the 18 January 1944 rejoinder letter mentioned in note 35. There are numerous references to using drum as drainage under the taxiways and runways. The best description is included in the History of the 828<sup>th</sup> Aviation Engineers were they describe using a double placement of 55 gallon drums as culverts where the outer ring of drums is split open and placed in a staggered manner over the inner drums so there are no exposed seams.

<sup>38</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report December 1943, RG 1, Box 36, NAVFAC Archive.

<sup>39</sup> Records of the 24<sup>th</sup> NCB, Monthly Report December 1943, RG 1, Box 1, NAVFAC Archive. It was estimate that this would require 150,000 cubic yards of material. Assuming that all 5 carryalls were working a 12 hour day it would take 28 runs per carryall per day for the full 11 days for them to move 150,000 cubic yards. This would be less than a 30 minute turn around and therefore very doable. However, it is this author's assumption that many of the estimates given were conservative predictions and something less than 150,000 cubic yards was moved for this activity.

<sup>40</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report December, 1943, RG 1, Box 36, NAVFAC Archive; Records of the 24<sup>th</sup> NCB, Monthly Report December, 1943, RG 1, Box 1, NAVFAC Archive; Records of the 47<sup>th</sup> NCB, Monthly Report December, 1943, RG 1, Box 54, NAVFAC Archive. The malaria seemed to subside as a major issue in December. This also coincides with completion of sanitation improvements at camps including the screening of latrines, mess halls and living quarters as screen material comes available. This improvement also comes the month after Gen. Maxwell did his sanitation inspection tour. Malaria control also becomes a line item in all the NCB work details starting in December, as time became available with the completion of major work on the airfield.

<sup>41</sup> Records of the 47<sup>th</sup> NCB, Monthly Report January 1944, RG 1, box 5, NAVFAC Archive.

<sup>42</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report February 1944, RG 1, Box 36, NAVFAC Archive.

<sup>43</sup> Records of the 47<sup>th</sup> NCB, Monthly Report March 1944, RG 1, Box 4, NAVFAC Archive. The item referenced is a five page table detailing battalion equipment by type, size and manufacturer included as an attachment to the standard monthly report. This table is very detailed. It includes the most frequent breakdowns and most requested parts. In general Caterpillar bulldozers lasted longer, provided they had the heavy 140 SAE oil, than International Bulldozers and both are preferred over the Allis-Chalmers that were supplied to the 24<sup>th</sup> NCB due to size and power not necessarily reliability.

<sup>44</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report March 1944, RG 1, Box 36, NAVFAC Archive. As the lead NCB at Munda a lot of the communications with command over parts seems to be spearheaded by the 73<sup>rd</sup> with other units echoing the problems.

<sup>45</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report December 1943, RG 1, Box 33, NAVFAC Archive.

<sup>46</sup> Nathan A. Bowers, "Submarine Drilling with Job-Assembled Rig", *Engineering News Record (ENR)*, Vol. 134, (April 19, 1945), page 84-88. All detailed descriptions of the drill rig the dredge rig and blasting and drilling operations are taken from this article for ENR. Mr. Bowers was the Pacific Coast Editor of ENR and was given access to Munda by the military during a South Pacific tour in March and April 1944. A series of articles were written the monthly reports for the 73<sup>rd</sup> and 47<sup>th</sup> NCBs detail cooperation given to Mr. Bower and Mr. Bowman, ENRs Managing Editor, including detailed lists of photographs provided. This article does not mention Munda by name and appears almost one year after the completion of the Munda Bar project and one month before Munda was decommissioned in May 1945.

<sup>47</sup> Allied Land Forces in South West Pacific Area 2/1Augs. Mov. & TN. GP., Australian War Memorial (AWM) 54 497/7/13 "Movement Intelligence Report: Munda New Georgia Island," page 3 – Report on Port Facilities – Munda. Describes the dolphins marking the channel approach and indicates channel is 18' deep at low water with fall of tide at 2' making high tide depth at 20' which coincides with the projected removal of material estimated by 73<sup>rd</sup> NCB and reported by ENR.

<sup>48</sup> Nathan A. Bowers, "Submarine Drilling with Job-Assembled Rig", *Engineering News Record*, Vol 134, April 19, 1945, page 86-87

<sup>49</sup> Allied Land Forces in South West Pacific Area 2/1Augs. Mov. & TN. GP., HWM 54 497/7/13 "Movement Intelligence Report: Munda New Georgia Island," page 3 – Report on Port Facilities – Munda.

<sup>50</sup> Operations of Aviation Engineers in the South Pacific, January 1942-August 1944, Headquarters XIII Air Force Service Command, 753.01-1, Jan. 1942-Aug 1944, AFHRA: *The Story of the Seventy-Third United States Naval Construction Battalion*, Army & Navy Pictorial Publishers, Baton Rouge, LA, page 19. There is little detail to determine or estimate the amount of material moved at Munda but it is considerable when you take into account the road to the different landings and connecting Munda to Sasavele, Doke Doke, and Bau Island. The Army

record does estimate some quantity numbers for their portion of the work. The 73<sup>rd</sup> NCB in their cruise book make no estimate of earth movement other than to say that it was a lot. The monthly reports do not shed light on the extent of systems in specific.

## Chapter 4

<sup>1</sup> Records of the 82<sup>nd</sup> NCB, Monthly Report September 1943, RG 1, Box 1, NAVFAC Archive.

<sup>2</sup> Records of the 37<sup>th</sup> NCB, Monthly Report September 1943, RG 1, Box 2, NAVFAC Archive. The commander of the 37<sup>th</sup> was not happy that his supplies were pilfered and though he did not name other NCBs he implied it by clarifying that it was the stealing of “parts and equipment” that really caused him concern.

<sup>3</sup> Records of the 82<sup>nd</sup> NCB, Monthly Report October 1943, RG 1, Box 1, NAVFAC Archive. The 82<sup>nd</sup> had to “borrow” a chlorinator from the Marine Corps to achieve the volume of water purification required.

<sup>4</sup> Records of the 37<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 2, NAVFAC Archive.

<sup>5</sup> Records of the 82<sup>nd</sup> NCB, Monthly Report November 1943, RG 1, Box 1, NAVFAC Archive.

<sup>6</sup> Records of the 37<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 2, NAVFAC Archive.

<sup>7</sup> Records of the 37<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 2, NAVFAC Archive. This comment seems to be leveled at the CO of the 82<sup>nd</sup> in particular. He continues about saving essential building materials and supplies and this author cannot be sure but this appears to be commenting on the coral pathways and landscaping in the pilots’ camp. He would like an officer who understands practical field construction and understands aviation problems and airfield construction.

<sup>8</sup> *Building the Navy’s Bases – Volume 1*, pp. 265-266.

<sup>9</sup> General File – Vella La Vella, NAVFAC Archive, Port Hueneme, CA, RG1 “Proposed Master Plan for the Construction of Airfields and Seaplane Bases in the South Pacific Area – Vella La Vella Section – 14 August 1943”

<sup>10</sup> General File – Vella La Vella, Master Plan for the Construction of Airfields and Seaplane Bases in the South Pacific Area – Vella La Vella Section – Proposed First Revision – 08 October 1943, RG 1, NAVFAC Archive.

<sup>11</sup> Records of the 58<sup>th</sup> NCB, 58<sup>th</sup> NCB History, RG 1, Box 1, NAVFAC Archive.

<sup>12</sup> Records of the 58<sup>th</sup> NCB, Monthly Report August 1943, RG 1, Box 1, NAVFAC Archive. Monthly report is attached to battalion history.

<sup>13</sup> Records of the 58<sup>th</sup> NCB, Monthly Report September 1943, RG 1, Box 6, NAVFAC Archive.

<sup>14</sup> Records of the 77<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 2, NAVFAC Archive.

<sup>15</sup> Records of the 58<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 6, NAVFAC Archive.

<sup>16</sup> Records of the 77<sup>th</sup> NCB, Monthly Report October 1943, RG 1, Box 2, NAVFAC Archive.

<sup>17</sup> Records of the 58<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 6, NAVFAC Archive.

<sup>18</sup> Records of the 58<sup>th</sup> NCB, Monthly Report November 1943, RG 1, Box 3, NAVFAC Archive.

<sup>19</sup> Records of the 58<sup>th</sup> NCB, Monthly Report December 1943, RG 1, Box 6, NAVFAC Archive.

<sup>20</sup> Records of the 58<sup>th</sup> NCB, 1.1 Airfields – Detail of Barakoma, RG 1, Box (unnumbered), NAVFAC Archive. Report on estimated C.Y of Earthwork Required for Construction of Barakoma Airfield dated 23 December 1943. These documents came from file folder 62 in a Box of records of the 58<sup>th</sup> NCB with no number (or the number tag has fallen off). The folder was labeled misc. construction and contained files such as these. The document showing airfield dimensions is labeled Section 1.1 and is obviously a portion of another document not in the file. The estimate of yardage is typed and attached to the hand written version on 58<sup>th</sup> NCB Stationary from W.H Moss CCM to Lt. Commander L.R. Qualye.

## Chapter 5

<sup>1</sup> Records of the 73<sup>rd</sup> NCB, Monthly Report September 1943, RG 1, Box 36, NAVFAC Archive.

<sup>2</sup> Lieutenant Fred M. Mosley, "Building Under Fire... The Navy's Seabees," *Engineering News Record*, Vol. 132 (February 24, 1944), page 289.

## ANNOTATED BIBLIOGRAPHY

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Records from AHARA, NARA, NHC and AWM were obtained by Dr. Ronnie Day as part of his research on the air campaigns in the central Solomons and were provided to me for use in my research.

Australian War Memorial (AWM), Canberra, Australia.

National Archives and Records Administration (NARA), College Park, Maryland

Naval Historical Center (NHC), National Archives of New Zealand, Wellington, New Zealand

United State Navy Naval Engineering Facilities Command (NAVFAC) Archive, Port Hueneme, California

The records for all NCBs serving at New Georgia are housed in Record Group 1 of the NAVFAC Archive.

### Japanese Sources

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Hara Takeshi & Yasuoka Akio, eds. *Nihon Rikukaigun Jiten Konpakuto-Ban*, 2 vols. (Tokyo: Shinjinbutssu Ooari, 2003), I. [*Japanese Army/Navy Encyclopedia, Abridged Version*]. (Translated by Hitomi Kinuhata and Rima Day).

### Internet Sources

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Nesbitt, Walter. “The Solomon Islands Campaign.” <[http://www.historylink.com/1/world\\_war\\_II/battles\\_pacific\\_front.htm](http://www.historylink.com/1/world_war_II/battles_pacific_front.htm)>. August 2003.

“New Georgia: Introduction to New Georgia Island.” <[http://www.worldwar2history.info/New\\_Georgia/](http://www.worldwar2history.info/New_Georgia/)>. August 2003.

The information on this web page is credited to the U.S. Army Center for Military History, which uses the official history by Miller.

“Northern Solomons”. <<http://www.army.mil/cmh-pg/brochures/northsol/northsol.htm>>. August 2003.

This is the US Army’s Center for Military History web page. This is the best Internet overview of the Solomons campaign after Guadalcanal. It relies heavily on Miller’s work and acknowledges this. It has a suggested further reading list that covers “all the usual suspects”.

Transano, Vincent A. “History of the Seabees.”<http://www.history.navy.mil/faqs/faq67-1.htm>>. 1997.

This is a General History of the Seabees compiled by Dr. Vincent A. Transano, command historian of the Naval Facilities Engineering Command who retired in 2001. There are no details on the Munda Operation just a mention.

#### Published Articles

Armstrong, Peter F. C. “The Battle of Guadalcanal: A 50-Year Retrospective.” *Marine Corps Gazette* 76(8) (1992): 76-87.

Baldwin, Hanson J. “Solomons Action.” *Marine Corps Gazette* 49(11) (1965): 75-77.

Bartlett, Merrill and Robert William Love, Jr. “Anglo-American Naval Diplomacy and the British Pacific Fleet, 1942-1945.” *American Neptune* 42(3) (1982): 203-216.

Bowers, Nathan A. “By Surface to Pearl.” *Engineering News Record*. February 17, 1944: 3-8.

In earl 1943 Dr. W. G. Bowman, the editor of *Engineering News Record*, the nation’s biggest general engineering specific periodical, sent his West Coast Bureau Chief, Nathan A. Bowers, PhD., to the South Pacific to write about engineering activities in the combat zone. This is the first of those articles that are listed in chronological order. The Seabees had previously given Dr. Bowman access to photographs and reports on engineering activities at Munda and they had a working relationship with him for self promotion. Dr. Bowers was given access to many of the facilities in operation including those on New Georgia.

Bowers, Nathan A. “South From Pearl By Air.” *Engineering New Record*. March 2, 1944: 3-4.

Bowers, Nathan A. “‘Up the Slot’ from Noumea.” *Engineering News Record*. March 30, 1944: 3.

This is the article in the series that most directly deals with New Georgia and the base at Munda.

Bowers, Nathan A. "On the Front in New Guinea." *Engineering News Record*. April 6, 1944: 55.

Bowers, Nathan A. "At Tarawa, Kwajalein and Eniwetok." *Engineering News Record*. May 25, 1944: 5-6.

Bowers, Nathan A. "Mission Completed." *Engineering News Record*. June 15, 1944: 78-81.

Bowers, Nathan A. "Seabees Speed Construction in Pacific." *Engineering News Record*. June 29, 1944: 80-85.

Bowers, Nathan A. "Coral Airstrips on Pacific Islands." *Engineering News Record*. July 13, 1944: 80-85.

This is a great article the Dr. Bowers did on the construction of coral airstrips that details the means the Seabees used to construct them and the problems and difficulties encountered. It is paired with another article by Streans on Coral Deposits and how the engineering groups mine and processes coral for use in airstrips.

Bowers, Nathan A. "Submarine Drilling with Job-Assembled Rig." *Engineering News Record*. April 19, 1945: 84-88.

This article is a detail of the work done on opening the channel through the Munda Bar and contains the most detailed description of the work on Munda Bar found. It was released just prior to the decommissioning of the Naval Base at Munda allowing these details to come past censors.

Bowman, Waldo G. "The Seabees Are Coming." *Engineering News Record*. September 24, 1942: 65-72.

Dr. Bowman was the editor of Engineering News Record and he had been given access to the Seabees by Admiral Moreell to write about their operations. ENR was supplied with the photos for this article (I have the letter releasing them to Dr. Bowman in the records of the 24<sup>th</sup> NCB). This article talks about the Seabee and most of the photos are from New Georgia. This shows the lag in reporting due to censors, the public had first become aware of the Seabees due to the actions of the 6<sup>th</sup> NCB at Guadalcanal earlier in 1942.

Bowman, Waldo G. "Navy Construction in Theaters of Operation." *Engineering News Record*. February 11, 1943: 123-125.

Bowman, Waldo G. "Seabees Rush Jungle Airfield to Early Completion." *Engineering News Record*. December 23, 1943: 8.

Bowman, Waldo G. "Construction Equipment Goes to War." *Engineering News Record*. February 24, 1944: 131-131.

This is a very good article on construction equipment including production numbers provided by the War Productions Board. This is one of the few articles on construction equipment I have found.

Caporale, Louis G. "Marine Air in the Solomons, 1943." *Marine Corps Gazette* 77(5) (1993): 64-67.

Carl, Marion E. and Barrett Tillman. "Marion Carl and the Assault Up the Solomons." *Marine Corps Gazette* 78(2) (1994): 74-77.

Condon, John P. "Comairsols: A Real Joint Command." *Proceedings (U.S. Naval Institute)* 118(11) (1992): 88-91.

Condon, John P. "The Solomons and the Role of Marine Aviation." *Marine Corps Gazette* 77(5) (1993): 60-63.

Condon, John P. "Solomons Sunset - 1944: Marine Aviation in the Reduction of Fortress Rabaul." *Marine Corps Gazette* 78(2) (1994): 66-73.

Feldt, E. A. "Coast-Watching In World War II." *U.S. Naval Institute Proceedings* 87(9) (1961): 72-79.

Any work in the Solomons has to account for the actions and contributions of the Coast Watcher. The coast watchers were instrumental to the landings at Rendova and at Segi. At Segi they help scout the airfield locations with the Seabees before the landings.

Fisher, Edward C., Jr. and Robert S. Egan. "The Saga of Transport Division No. 12." *Warship International* 7(2) (1970): 139-146.

Transportation was always sited as the reason of slow re-supply and re-equipping.

Henderson, F. P. "NGF Support in the Solomons." *Marine Corps Gazette* (1956) 40(3): 44-51, (6): 36-40, (12): 46-51.

Hoffman, Jon T. "The Central and Northern Solomons." *Marine Corps Gazette* 78(2) (1994): 60-65.

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McGivern, Charles F. "Bush Navigation in the Solomon Islands." *U.S. Naval Institute Proceedings* 1974 100(2): 68-72.

McMillan, George. " 'I've Served My Time in Hell.' " *American Heritage* 17(2) (1966): 10-15, 103-111.

Merrill, Edson L. "Three Thousand Meals a Day." *Marine Corps Gazette* 74(11) (1990): 88-93.

Merillat, Herbert Christian. "The 'Ultra Weapon' at Guadalcanal." *Marine Corps Gazette* 66(9) (1982): 44-49.

Moreell, Ben. "The Seabees in World War II." *U.S. Naval Institute Proceedings* 88(3) (1962): 85-101.

Mosley, Fred M. "Building Under Fire... The Navy's Seabees." *Engineering News Record*. February 24, 1944: 138-140.

This article by Lt. Mosley explains the role of the Naval Construction Battalions or Seabees. Lt. Mosley was assigned to the 24<sup>th</sup> NCB and did this article for ENR with support from Adm. Moreell's office.

Porter, R. Bruce and Eric Hammel. "Air Combat Over Kahili." *Marine Corps Gazette* 70(5) (1986): 24-26.

Prados, John. "US Intelligence and the Japanese Evacuation of Guadalcanal, 1943." *Intelligence and National Security*

Rosengrn, R.P. "Building Under Fire... The Army Engineers." *Engineering News Record*. February 24, 1944: 144-146.

Transano, Vincent A. "Seabee Insignia During The Second World War." *Military Collector & Historian* 33(1) (1981): 4-12.

Dr. Transano was the Director of the NAVFAC Archive and was their chief historian until his retirement in 2001.

Verna, Renato. "FRONTE DEL PACIFICO: CAMPAGNA DELLE SALMONE (1 AGOSTO 1942-7 FEBBRAIO 1943)" (The Pacific front: the Solomons campaign, 1 August to 7

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Wolfe, Eugene. "Derailing The Last Tokyo Express." *Naval History* 10(2) (1996): 34-39.

### Published Books

20<sup>th</sup> Naval Construction Battalion. *20<sup>th</sup> Battalion First Cruise 1942-1944*. Self Published (no date)

The "Cruise Book" for each of the NCBs is a great source of stories and information. The 20<sup>th</sup>'s book has lots of personal stories and information. All but one of the NCBs that served at New Georgia printed a cruise book. These books are very hard to find since they were a limited printing for the members of the unit printed by the Navy as a courtesy or self-published. The best collection is at the Seabee Museum and Archive at Port Hueneme and they don't let them out of their possession; and even they don't have all of the Cruise Books from World War II.

24<sup>th</sup> Naval Construction Battalion. *The Twenty-Fourth United States Naval Construction Battalion*. Self Published (no date).

Two pages of general history and a series of articles and stories on the Rendova Landings, the rest of the book is entirely pictures.

73<sup>rd</sup> Naval Construction Battalion. *The Story of the Seventy-Third United States Naval Construction Battalion*. Self Published (no date)

The cruise book contains a summary history and a great deal of photographs. It also lists every member of the 73<sup>rd</sup> by state and hometown. Five of these men were from the Tri-Cities Area.

Altobello, Brian. *Into the Shadows Furious: The Brutal Battle for New Georgia*. Presidio Press. California. 2000.

This is the most current book of the two of books written about the Battle for New Georgia to date. It is a standard account of the military action and covers the Seabees only in their combat action during the landings. Their construction activities are mentioned but in no detailed. However, it should be noted that the Seabees are addressed more thoroughly here than in Eric Hammel's *Munda Trail*.

Boyington, Gregory. *Baa Baa Black Sheep*. Arno Press Inc., 1972.

Anything to do with Boyington and the Black Sheep you need to look at simply because this is one of two subjects that Americans know anything about that are related to the New Georgia Campaign and the Solomons. The Black Sheep were stationed at Munda and their exploits were fictionalized on television in the 1970s. The other subject is PT 109 and John F. Kennedy. Kennedy's PT boat was based and operated out of New Georgia.

Bowman, Waldo G. et. al. *Bulldozers Come First*. McGraw-Hill, 1944.

This book is a compellation of engineering articles from all theaters of operation prepared by the editors of *Engineering News Record*. It is probably the definitive non-official account of military construction activities in World War II. It was published in 1944 with censorship in effect so there are few specific details and it is more of an overview of activities.

Castillo, Edmund L. *The Seabees of World War II*. New York: Random House, 1963.

This is a good general overview of Seabee Operations in the Pacific and Atlantic Theaters written by a Naval Officer using mostly secondary sources, personal interviews and experience. No official unit records are cited. This is a narrative short narrative history that does not go into any details.

Cates, C. B. *Bougainville and the Northern Solomons*, Historical Branch Headquarter U. S. Marine Corps. U.S. Government Printing Office, Washington, D.C., 1949.

Cave, H. B. *We Build! We Fight!* Harper, 1944.

Cave was a war correspondent during the war and he wrote five books on various subjects including this one on the Seabees during the war. H.B. Cave was most famous for writing fantasy and horror stories for pulp magazines before the war and horror novels after the war.

Condon-Rall, Mary Ellen and Albert E. Cowdrey. *United States Army in World War II - The Technical Services - The Medical Department: Medical Service in the War Against Japan*. Center for Military History United States Army. Washington, D.C., 1998.

This is part of the US Armies official history of the war and it covers medical facilities including a small section on the medical facilities at New Georgia.

Craven, Wesley Frank and James lea Cate (editors). *The Army Air Forces in World War II - Volume Four - The Pacific: Guadalcanal to Saipan - August 1942 to July 1944*. The University of Chicago Press, Chicago, Illinois, 1950.

This work is concerned with high command and strategic bombing and is a top down look at the strategy of the Army Air Force. More interested in the bombing of strategic targets such as cities and industrial centers as opposed to tactical targets such as airfields.

Dexter, David. *Australia in the War of 1939-1945: Series I - Army - The New Guinea Offensives*. The Griffin Press, Adelaide, Australia, 1961.

Look at the role of Australian forces in the Solomons. The Australians were at Bougainville after the New Georgia Campaign.

Dod, Karl C. *United States Army in World War II - The Technical Services - The Corps of Engineers: The War Against Japan*. Office of the Chief of Military History United States Army. Washington, D.C., 1966.

This work provides an overview of operations. One volume covers the whole war so you have to go to operational records of units to get information of use for a thesis on individual units/projects.

Feltd, Eric A. *The Costwatchers*. First published Oxford University Press, 1946, Nelson Doubleday, Inc., New York, 1979.

Any work in the Solomons has to account for the actions and contributions of the Coast Watcher. The coast watchers were instrumental to the landings at Rendova and at Segi. At Segi they help scout the airfield locations with the Seabees before the landings

Feur, A. B. (editor). *Coast Watching in the Solomon Islands: The Bougainville Reports, December 1941 - July 1943*. Praeger Publishers, New York, 1992.

Frank, Richard B. *Guadalcanal*. Random House, New York, 1990.

This book is the new standard covering operations on Guadalcanal. Frank uses Japanese primary sources more than others. One problem is the book is 700 pages in which only 100 pages cover army operations after withdrawal of marine units prior to final Japanese evacuation. You have to look at Guadalcanal to provide a basis for the rest of the Solomon Island Campaign.

Gailey, Harry A. *Bougainville: The Forgotten Campaign 1943 – 1945*. The University Press of Kentucky. Lexington, Kentucky, 1991.

Gamble, Bruce. *Black Sheep One: The Life of Gregory 'Pappy' Boyington*. Presidio Press, Inc. Novato, California, 2000.

Gamble, Bruce. *The Black Sheep: The Definitive Account of the Marine Fighting Squadron 214 in World War II*. Presidio Press, Inc. Novato, California, 1998

Gillespie, Oliver A. *Official History of New Zealand in the Second World War 1939 - 45 - The Pacific*. War History Branch, Department of Internal Affairs. Wellington, New Zealand, 1952.

This work covers the New Zealand Army fighting in the Pacific Theater. From the forward “reveal achievements which have not yet been adequately appreciated by the great

majority of the public.” New Zealand forces were used on Vella Lavella Island in the Solomon group. New Zealander’s admired CBs and the admiration was returned.

Griffith, Samuel B., II. *The Battle for Guadalcanal*. The Nautical & Aviation Publishing Company of America, Annapolis, Maryland, 1963 (Fourth Printing 1983).

This book along with the Cactus Air Force, and Samuel Morris’ book were considered “the” trilogy on Guadalcanal. Newer books, especially the work by Richard Frank have more source material and a more thorough picture. This book was the standard for 30 years.

Griffith, Thomas E., Jr. *MacArthur’s Airman: General George C. Kenney and the War in the Southwest Pacific*. University Press of Kansas, 1998.

Hammel, Eric. *Air War Pacific: America’s Air War Against Japan in East Asia and the Pacific 1941-1945: Chronology*. Pacifica Press, Pacifica, California, 1998.

Hammel, Eric. *Guadalcanal: Vol. 2: The Carrier Battles; The Pivotal Aircraft Carrier Battles of the Eastern Solomons and Santa Cruz*. New York: Crown, 1987.

Hammel, Eric. *Munda Trail: Turning the Tide Against Japan in the South Pacific*. New York: Crown, 1989.

This was the first book written specifically about the Battle for New Georgia and more specifically about Munda. Eric Hammel is a well-published author whose specialty is in the Marines and Navy in World War II in the Pacific.

Horton, D. C. *Fire Over the Islands: The Coast Watchers of the Solomons*. Leo Cooper LTD, London, 1975.

Howlett, R. A. *The History of the Fiji Military Forces, 1939 - 1945*. Published by The Crown Agents for the Colonies on behalf of the Government of Fiji, 1948.

Huie, William Bradford. *Can Do! – The Story of the Seabees*. New York: E.P. Dutton & Company, 1944. Reprint, Maryland: U.S. Naval Institute, 1997.

If there is a book to be read on the Seabees this one is it. Huey was a well-known author commissioned as a Seabee who was directly assigned the task of writing this book by Vice Admiral Ben Moreell, Chief of Civil Engineers of the Bureau of Yards and Docks. Narrative and descriptive first hand account written as history and it is obvious Huie is a journalist. There is a section on New Georgia but it is short. Published in 1944 it was done while Munda was still operational and before any classified documents were available for use or release.

Huie, William Bradford. *From Omaha to Okinawa – The Story of the Seabees*. New York: E.P. Dutton & Company, 1945. Reprint, Maryland: U.S. Naval Institute, 1999.

This is the follow up to Can Do! No information on the Solomons campaign other than a section on Commander William Painter and his reconnaissance of Segi but good reading on the Seabees. Especially their function as a unit and personal stories.

Long, Gavin. *Australia in the War of 1939-1945: Series I Army - The Final Campaigns*. The Griffin Press, Adelaide, Australia, 1963.

McCarthy, Dudley. *Australia in the War of 1939-1945: Series I Army - South-West Pacific Area - First Year: Kokoda to Wau*. The Griffin Press, Adelaide, Australia, 1959.

Miller, John, Jr. *The United States Army in World War II: The War in the Pacific - Cartwheel: The Reduction of Rabaul*. Washington D.C.: Department of the Army, 1959.

This is the U.S. Army's Official account of Operations in World War II. This work is in my opinion better and more complete than Morison's work on the Navy. However, it is much drier and Morison could tell a more rousing tale than Miller and company. It is a very good historical work with excellent references and maps and is the definitive account referenced by everyone since its publication in 1959.

Miller, John, Jr. *The United States Army in World War II: The War in the Pacific – Guadalcanal: The First Offensive*. Washington D.C.: Department of the Army, 1949.

Miller, Thomas G., Jr. *The Cactus Air Force. The Story of the Handful of Fliers who Saved Guadalcanal*. Harper & Row, Publishers, New York, 1969.

This is the "famous" work on the air units on Guadalcanal. This book was one of "the standards" for 30 years.

Morison, Samuel Eliot. *History of the United States Navy in World War II. Vol. V, The Struggle for Guadalcanal, August 1942 – February 1943*. New Jersey: Castle Books, 2001.

The U.S. Navy's semi official History of operations during WWII. Admiral Morison was a professional historian and a former Professor of American History at Harvard. This is the must read for U.S. Naval Operations during the Guadalcanal phase of operations in the Solomons. Morison tells a rousing story but his opinions and biases are very evident.

Morison, Samuel Eliot. *History of the United States Navy in World War II. Vol. VI – Breaking the Bismarck Barrier, 22 July 1942 – 1 May 1944*. New Jersey: Castle Books, 2001.

See the annotation above. This one is for the remainder of the Solomons Campaign including the campaign for New Georgia.

Morton, Lewis. *United States Army in World War II - The War in the Pacific - Strategy and Command: The First Two Years*. Center for Military History United States Army. Washington, D.C., 1989.

This book is very well done and goes over the issues of joint command of the Pacific and strategies and objectives. The book covers the Central Solomons and operation Cartwheel.

Odgers, George. *Australia in the War of 1939-1945: Series III Air - Air War Against Japan 1943-1945*. Hogan, Poole Pty. Ltd., Sydney, Australia, 1957. (Reprinted in 1968).

Okumiya, Masatake and Jiro Horikoshi with Martin Caidin. *Zero!* E.P. Dutton & Co., Inc. New York, 1956.

Okumiya, Masatake and Jiro Horikoshi with Martin Caidin. *The Zero Fighter*. Cassell & Co Ltd. London, 1958

Rasor, Eugene L. *The Solomon Islands Campaign, Guadalcanal to Rabaul: History and Annotated Bibliography*. Connecticut: Greenwood Press, 1997.

The biggest issue with this book is that the author made the statement that this was the “definitive” bibliography of the Solomon Islands. In several book reviews it was pointed out the many sources not mentioned. However, the book is a wealth of information and a good research tool to start digging.

Rentz, John N. *Marines in the Central Solomons*, Historical Branch Headquarter U. S. Marine Corps. U.S. Government Printing Office, Washington, D.C., 1952.

Ross, J. M. S. *Official History of New Zealand in the Second World War 1939 - 45 - Royal New Zealand Air Force*. War History Branch, Department of Internal Affairs. Wellington, New Zealand, 1955.

The official history of NZ Air operations has chapters on Guadalcanal, Central Solomons, and Bougainville.

Sakaide, Henry. *The Siege of Rabaul*. Minnesota: Phalanx Publishing Co., Ltd., 1996.

Shaw, Henry L. and Maj. Douglas T. Kane. *History of the U.S. Marine Corps in World War II, Vol. 2, The Isolation of Rabaul*. Marine Corps Historical Branch, Washington, 1963.

Sherrod, Robert. *History of Marine Corps Aviation in World War II*. Combat Forces Press, Washington, 1952.

Skordiles, Kimon. *The Seabees in War and Peace: Volume I – To 1945*. California: Argus Communications, Inc., 1973.

This book is another general work on the Seabees. This book covers a little on every unit and every location up to 1945. It draws on published histories and articles but does not appear to site unit records. This work does have some very good sections for military reports and accounts not held at the Seabee Archive.

U.S. Bureau of Yards and Docks. *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineering Corps, 1940-1946*. Washington: GPO, 1947. 2 vols.

This is the big official history of the Naval Construction activities and it forms the basis for all works on the Seabees to date. Volume I covers organization and equipment and Volume II covers individual bases by theater of operation.

Waters, S. D. *Official History of New Zealand in the Second World War 1939 - 45 - Royal New Zealand Navy*. War History Branch, Department of Internal Affairs. Wellington, New Zealand, 1956.

New Zealand Forces assisted/supplemented US naval forces.

Woodbury, David O. *Builders for Battle: How the Pacific Naval Air Bases were Constructed*. New York: E. P. Dutton and Company, Inc., 1946.

If this text were less useless for the purpose of my thesis I would be amazed. It is supposed history written like a south sea travel journal. I'm very glad it doesn't cover the Solomons.

#### Published Movie and Video Sources

*The Fighting Seabees*. Dir. Edward Ludwig. Perf. John Wayne, and Susan Hayward. Republic Pictures Corp., 1944.

This movie starring John Wayne is probably the way the Seabees are most remembered by people along with the Seabees portrayal in Oscar and Hammerstein's *South Pacific*. Vice Admiral Moreell supported the production of this movie and his second in command was assigned as a technical advisor to the movie.

*South Pacific*. Dir. Joshua Logan. Perf. Rossano Brazzi, Mitzi Gaynor, Juanita Hall, Ray Walston, and John Kerr. 20<sup>th</sup> Century Fox, 1958.

The image of Ray Walston as Billis (a Seabee Chief Petty Officer) singing *There is Nothin' Like a Dame* is probably more the image that most Americans have of the Seabees than Wayne's portrayal in *The Fighting Seabees*.

*Home for the Seabees*. Per. John Wayne. Navy No.: MN-11727. United States Navy, 1977.

The film *Home for the Seabees* is a documentary about the Seabees and their Home Base at Port Hueneme, California produced in 1977. It was the last motion picture John Wayne made before his death in 1979. Wayne had a long-term involvement with the Seabees since making the *Fighting Seabees* in 1944 and was their unofficial spokesman. The only copy I have ever seen of this film is at the Seabee Archives and Museum at Port Hueneme.



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