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Engineering Branch  
B.C. Forest Service

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## Introduction

Rapid post-war industrial development of the Province, rising timber values and a steadily increasing demand for timber harvesting rights led to a general expansion of Forest Service activities. There was an increase in the acquisition and a need for more maintenance of mechanical equipment and marine vessels, a need for improvement in radios and for faster communication for administrative purposes. Above all else, there was an increasing public pressure to develop the Public Working Circles (P.W.C.) for a sustained yield management program. The latter factor had, by 1950, led the Management Division of the Forest Service to propose a few road developments for those P.W.C.'s where the need seemed most imminent.

The Forest Act of 1948, Section 164(2), clearly gave the Department of Lands and Forests, through the Forest Service, the mandate to get involved in the construction "of forest roads, road systems, and bridges designed for the better, more orderly, or more economical harvesting of timber and forest products in the interests of sustained-yield forest management." The mandate was backed by the establishment of a Forest Development Fund of \$2.5 million in the Provincial Treasury, to be used at the Minister's discretion in the development and construction of Forest Development Roads.

## Engineering Section - Management Division

With the mandate that the Forest Act of 1948 provided, the Forest Service decided to establish an Engineering Section within the Management Division.

The purpose of this section was to locate, design and oversee the building of roads with funds from the Forest Development Fund. These funds were loaned to logging companies to build roads, the loans to be repaid to the Crown at a later stage through stumpage payments. As time progressed, the Section got involved in much more than just supervision of road construction, but at the time of the establishment of the Section the tasks ahead were not spelt out very clearly, only that 10-20 miles of road needed to be located in the Salmon Arm P.W.C.

## Organization and Staffing

In February of 1950, Fred Slaney, a logging engineer, was hired to set up and develop the Engineering Section of the Management Division, to help define its mandate and to clarify its functions.

In May of the same year, two recent university graduates, Pete Hemphill and Bob Thomas, were hired to work with Fred Slaney. Their first project was to recce and locate access to the Fly Hills area in the Salmon Arm P.W.C., later to be known as the Fly Hills Access Road.

With a nucleus of these three engineers, two of them being Engineers-in-Training, the Engineering Section started to grow.

During the course of the first year it became evident that in the Interior of the Province there weren't really any companies with the capability of building forest roads to acceptable standards. As a result, it was decided in the Fall of 1950 that the Engineering Section would set up its own construction unit.

The "own forces" organization was first set up for the Fly Hills Access Road construction. This was in the fall of 1950. Local people in the Salmon Arm area were hired whenever possible. People like Bob Blackburn, Hugh Turner, Jim Maxwell, and Bud Laitinen were hired here for the project and made a long time career with the Forest Service. The next spring more equipment was added and larger crews were hired. Mechanics and shovel operators were not available locally and were hired from the Saanich Peninsula. People like Gordie Mounce, Art Young and Mel Young got their start this way.

### First Projects

Upon completion of the Fly Hills access road, the crews and equipment were moved to Aleza Lake in the Prince George area to construct the 7 miles of access road in the vicinity of Aleza Lake Experimental Station. This was the first time the Forest Service established an on-site trailer camp to house construction crews and personnel that were active on the project. Many stories are told about the difficulties that presented themselves transporting the trailers to the site from the Lower Mainland, along a narrow Fraser Canyon road, up a muddy Cariboo highway to the Prince George area.

Bob Blackburn says: "I towed the first trailer up the Fraser Canyon, although long loads were permitted only on the Hope-Princeton highway. I did it because I didn't know I was overlength. Due to road construction in the immediate area, the scales at Yale were poorly marked and the traffic by-passed them so I wasn't caught."

Trailer camps became a standard feature on many projects from now on: Stone Creek and McGillivray Lake in 1952, Naver Creek in 1953, Morice River in 1954, Willow River in 1955, etc. etc.

These trailer camps were not always pure luxury, but they became a necessity in order to complete the projects. Hans Waelti stayed in a trailer on the Morice River project. By January, he said, all the pipes were frozen solid. There was no way to thaw them out. You just had to wait for May!

During these first two years there were 5-6 road reconnaissance projects and 2-4 survey projects going on at the same time. Other fields of interest, such as investigation of access road standards, timber sale problems, Right-of-way acquisitions, bridge building and marine installations were becoming part of the Section's workload.

## Engineering Services Division - Early Development

In the Spring of 1952, as a result of recommendations by Stevenson and Kellog, Consultants, who had made a survey of all aspects of Forest Service administration, the Engineering Services Division was formed. The Engineering Section was transferred out of Management Division and combined with a Mechanical Section, a Radio Section, a Structural Section and the Forest Service Marine Station, all of which came from Operations Division. Doug Greggor, who up till now had been head of the Forest Service Training School, was appointed Forester I/C of the Division. Fred Slaney, as Chief Engineer, continued as head of the Engineering Section and 2 I/C of the Division. Geoff Playfair was Superintendent and I/C of the Radio Section, Bill Spouse Superintendent and I/C of the Mechanical Section, Howard Taylor Superintendent of Construction and I/C of the Structural Section, and Jim McDonald the Superintendent and I/C of the Forest Service Marine Station.

### Period of Growth

With this organizational structure in place, the Division entered a period of rapid growth and development. The Forest Development Road program dominated the work agenda, with reconnaissance, location survey, design and construction as separate but well integrated functions. The five Sections within the Division operated separately, but coordinated their resources wherever and whenever the program of the Division so dictated. The name of the Division, Engineering Services Division, aptly described its functions. It was designed to serve the other Divisions within the Forest Service, other Departments within the Government and the public at large. The tasks given to the Division demanded the utmost of flexibility, professional know-how and enthusiasm on the part of the Division staff.

Doug Greggor, the Forester I/C, was a Forest Service career man already when he took over the newly formed Division and therefore knew "the ropes" very well. Fred Slaney, 2 I/C of the Division, was known as a great promoter of what the Engineering Services Division could accomplish. He never tired of promoting the Division for new and different types of projects. Pete Hemphill, construction engineer and 2 I/C of the Engineering Section became well known for his personnel management skills, and many credit these natural talents for the success of the many projects that were tackled by the Engineering Section, and which came to affect the entire Division as the years went by.

### Development of Sections

The five sections of the Engineering Services Division will be commented on separately. They all had major accomplishments, and although some may seem to dominate the overall picture during certain periods and therefore receive more coverage, the contributions and importance of each individual Section should not be overlooked.

### Mechanical Section

The Mechanical Section has had the responsibility for the purchase and the maintenance of vehicles and equipment for the entire Forest Service, both Headquarters vehicle fleet as well as the present Regional and District fleets. Bulk purchase of vehicles and overall maintenance standards set by the Section have proved to be money savers for the Forest Service.

During the early years the main impact of the Section was in the area of project work. It provided machine shops for maintenance of project vehicles. These shops were transported to the project sites by the Transport Pool, an arm of the Section. It provided mechanics and other shop personnel, and the Transport Pool became the backbone in the movement of crews, equipment, porta buildings and trailers from one construction site to the next. It also provided for transportation of bridge material such as glulam girders from the point of manufacture to the bridge site. Maurice Allison became the first foreman in the Transport Pool. He also was the first transport driver that was hired.

### Equipment Inventory

The Mechanical Section had a large fleet of heavy equipment at one time. It included bulldozers, graders, dump trucks, pickups, scrapers, a rock crusher, a high lead yarder for R/W logging, etc., and lowbeds to move these machines around. Still, there were problems in getting the equipment to the sites. Due to the road conditions in many parts of the province, the heavy equipment would best be transported only in the winter time, or on cold nights when the mud would be frozen solid.

Bob Blackburn: "When the first TD-24 was purchased it turned out that several major bridges across the Thompson River were not strong enough to carry such a heavy machine. To get it from Kamloops to the project site it had to be walked in over the back roads."

A typical complement of equipment was the following inventory during the construction phase of the Naver Creek and Stone Creek projects in 1954: 4 TD24's, 1 D8, 1 D7, 2 D6, 1 D4, 1 D2, 1 Grader, 1 Rock Crusher, 1 Loader, 1 Power Shovel, 4 Gravel Trucks, 3 Self-Propelled Scrapers.

The inventory also contained numerous trailers with space for offices, cookhouses, dining rooms, bunk houses and family residences. Two fully equipped mechanical shops completed the picture.

The main projects from the middle 60's into the 70's were pondage clearing projects where a mixture of contractors and own forces were used. Heavy timber clearing equipment that was utilized by the Forest Service on the Peace Pondage project included several D-9's, the "Ball and Chain" attachment for the D-9's and two Letourneau "Tree Crushers".

The "Ball" had a 1" thick steel shell. It was eight feet in diameter, and was attached to two 100' anchor chains, each link weighing 100 pounds. The ball and chain were then dragged behind and between two D-9's, thereby cutting a swath through the timber stand.

The "Tree Crushers" were massive vehicles that moved on two rollers, each seven feet in diameter. The rollers had heavy spikes that crushed and splintered the trees as the machine rolled over them. The theory behind it was that new growth would hold the pieces in place long enough to get water logged so they wouldn't float to the surface as the area became flooded. Successful or not, the idea was great.

The first "Tree Crusher" that arrived was a 175 ton giant of a machine that proceeded to get bogged down whenever it was put to work. It took five D-9's to pull it out every time. After a while, though, the crews learned what ground it could operate on, and it did what was expected of it. The next spring a smaller version of the "Tree Crusher", an 80 ton machine, was brought up to the project to complete the contract working together with the first machine. The first arrival, the large "Tree Crusher" was sidelined in the Peace Pondage area upon completion of the contract. It was eventually stripped of useful parts, and is today on display in the town of Mackenzie as a tourist attraction.

Up to 14 mechanics were employed at one time on this project. They were all supervised from Victoria, and this required extensive trips to the site for both work inspections as well as a variety of personnel work.

When the Mechanical Section transferred from the Engineering Services Division in 1979, it divested itself of most of the heavy equipment and concentrated on its own fleet of 4 wheel drive pickups, which is at present complemented by a large annual rental fleet.

#### Staff

Bill Spouse was Mechanical Superintendent for only a few months in 1952 before he retired. Bert Crowe took over, and he stayed on as Mechanical Superintendent till his retirement in 1968. Bob Baker took over from him and left in 1973. Gordie Mounce, who had worked as camp mechanic, shop foreman and Equipment Coordinator became Superintendent of the Mechanical Section in 1973, and remained in that position until after the Section had split off from the Engineering Division during the reorganization of the Ministry in 1979.

Pete Young, the present manager of the Section, took over as Equipment Coordinator in 1973 when Gordie Mounce became Superintendent. Nick Kozoris and Frank Gilbert were other long time employees.

## Radio Section

### Responsibility

The responsibility of the Radio section was to set up and maintain the communication lines between headquarters in Victoria and the Forest Districts, between the District office and the Ranger Stations of that District, and between the Ranger Stations and the local field units; i.e. Asst. Rangers, lookouts, suppression crews, survey camps, construction camps, etc.

### Staff

At the time the Engineering Services Division was formed in 1952, Geoff Playfair was Superintendent of the Radio Section. The staff was one Assistant Superintendent - Harold Ferguson, three operating technicians and two full-time radio operators, one of whom was located in Vancouver and the other in Victoria.

By 1979, when the Radio Section was transferred to the newly created Technical Services Division, the staff had grown to a total of thirty-two Electronic Technicians, including District personnel. The Victoria staff numbered ten. In addition to Electronic Technicians, an Engineering Technician and two clerks were employed in the Victoria office.

Geoff Playfair retired in 1969, and Doug Chorlton took over as Superintendent of the Radio Section. He retired in 1978 and Alex Stewart took over, now as Manager of the Electronics Section with the Technical Services Branch.

A considerable change in operational methods and equipment took place in the Section between 1952 and 1979.

### Equipment Development

The original single line tree line telephone between Ranger Stations and lookouts had by the 1950's for the most part been replaced by A.M. radio sets. These sets were continuously improved upon in terms of portability and noise reduction. By 1953 an improved form of short distance radio communication, using the F.M. mode, had been developed and was introduced to the Vancouver Forest District.

Due to the short distance capability of the F.M. radios, repeater stations had to be built to transmit the signals over longer distances. As time went by the province could be covered more and more by F.M. radio sets, but to this day there are locations, such as Bella Coola and Queen Charlotte Islands that can only be reached by A.M. radios from their Regional Headquarters. This situation may persist for some time due to the high development costs involved.

From 1952 the two most common A.M. radio sets used by the Forest Service were the S.P.F. (Sets Portable Forestry) and the Model B. The S.P.F. was manufactured commercially, but the Model B was designed and produced by the Radio Shop in Victoria, as an improved upon version of the S.P.F.

In 1960 the SSB or single sideband radio was introduced. It is an A.M. radio set with a considerably reduced noise level, and otherwise improved performance over the previous sets. It is still in operation where A.M. sets are required.

The Motorola portaphone appeared on the scene in 1953 and enabled contact to be maintained between Ranger Station and marine launches on one hand, and mobile units such as Reconnaissance, Survey, or Timber Cruising parties on the other hand.

Subsequent development of communication in the Forest Service showed the introduction of Telex, installed by CNCP and coordinated by the Radio Section; Telpak, installed by B.C. Tel. and coordinated by the Section, and Faxcom.

From 1955, the Radio Shop in Victoria was located at 528 Michigan Street. Here, the Section built all the antennae and duplexers needed by the Forest Service over the years. Long term key employees were Doug Chorlton, Alex Stewart, Don Sigler, Trevor Peasland, Frank Longair and Owen Hawkins.

## Structural Section

### Areas of Responsibility

The Structural Section was transferred to the Engineering Services Division from the Operations Division in 1952. Its main responsibility had been, and continued to be, to design and supervise the construction of suitable accommodation for Forest Service staff and their equipment, i.e. residences, offices, warehouse facilities, etc.

In addition to static accommodation, mobile accommodations, both with and without wheels were designed by this Section, to be used for survey and construction camp facilities.

Whereas permanent buildings were usually constructed on contract, the mobile accommodation, trailers and porta buildings, were built at the Forest Service Marine Station.

The building designs for Ranger Stations evolved over the years. In the end they came to include seven different configurations:  
A warehouse, with entrance door on the right side, or on the left side (1 & 2).  
An office building, same alternatives as above, and with or without a basement (3, 4, 5, 6).  
A garage (7).

Building Maintenance was another responsibility of this section. As the number of Forest Service structures grew across the province, the building maintenance load increased proportionally. The supervision of this was the responsibility of the Structural Section, although the District Offices arranged to carry the workload.

Another function of the Section had to do with marine transportation. As a consequence of this, the name of the Section was changed from Structural Section to Buildings and Marine Services Section. Acquisition and disposal of marine vessels, together with the design of new craft and other marine equipment continued to be shouldered by this Section.

#### New Projects

New project fields developed as the years went by. As the activities of the Reforestation Division developed, requests for the design of tools and equipment for nursery work, reforestation and related activities increased. The Buildings and Marine Services Section took up the challenges and produced freezer buildings, seed extraction plants, irrigation systems, etc. Work for the Reforestation Division came to represent up to 60-70% of the Section's workload.

#### Staff

Throughout the period 1952-1979, there were certain key figures that became closely identified with the Section. Howard Taylor was Superintendent of Construction and I/C of the Section for the whole period. John Paynter was Supervisor of Marine Services, and responsible for marine designs, porta buildings and trailers. Other people were Ray Jefferson in Architectural Work; Bob Stewart in Permanent Buildings; Jim Taylor and later Nick Downs, in Acquisition of Materials; Alf Storm in Contracts Administration.

#### Forest Service Marine Station

In 1941 the Forest Service Marine Station, which had originated at Thurston Bay on Sonora Island in the early twenties, was moved to the North Arm of the Fraser River in order to be closer to material and labour supplies.

#### Major Responsibilities

The Station had resulted from the need for a properly equipped repair station designed especially for the maintenance of the fleet of launches used by the Forest Service in coastal waters, and for the repair of small mechanized units such as fire pumps and outboard motors. As the years progressed, the responsibilities of the Station vastly exceeded their original mandate.

In 1952 the design, acquisition and repair of all Forest Service marine craft including the operation of the Marine Station became the responsibility of the newly formed Engineering Services Division, and the

Station came thereby in close contact with the other Sections of the Division. Over the years this led to an especially close cooperation with the Structural Section, under Howard Taylor.

Construction of new craft, and overhaul, maintenance and repair of the whole Forest Service fleet became the foremost responsibility of the Marine Station, from the time the new Division was formed.

#### Acquisition of Launches

From 1946-55 forty-two new launches were acquired, including some beach landing craft that were used to transport men, machinery and materials to road and bridge construction sites, as well as for fire fighting in areas accessible only from coastal waters.

Forty-eight additional craft were acquired in the period 1956-75. The launches ranged from Ranger Launches, Scaling Launches and Cruising Crew vessels to landing barges, some self-propelled and some with helicopter landing facilities. Other craft acquired were jet-propelled river boats, tugs for debris control on reservoirs, boom boats, log-dozers, a debris burning basket that was originally employed on Williston Lake, and an experimental underwater logging barge for Ootsa Lake, which used closed-circuit T.V. to locate and cut off submerged trees.

#### Disposal of Launches

It became apparent toward the mid-70's that the use of marine vessels was not always cost effective when compared to the use of float planes and helicopters, despite the demonstration of the usefulness of a fleet of marine craft. Therefore, there was no surprise that when the reality of the recession hit the province in the early 80's the Forest Service disposed of 75% of its marine vessels.

Today the Forest Service depends largely upon a rental fleet for coastal transportation requirements. Its own remaining craft reflect the changes that time has required. In the past the boats were large, slow (8-10 knots), with heavy, slow turning diesel engines that needed to be overhauled only once a year. At present faster boats (15-20 knots) are requested by the field staff. These boats use highly stressed, high speed engines that need frequent overhaul and maintenance, but they also have fiberglass and aluminum hulls that require much less maintenance than the larger wooden and steel boats of the past.

#### Other Responsibilities

The Marine Station has worked very closely with the Structural Section and when not busy with marine overhaul and repair work it has been involved in construction projects based on designs by the Structural Section, such as porta buildings, trailers, nursery and reforestation equipment and tools, etc.

Furthermore, in off-seasons the Station overhauled fire pumps, fire hoses, chain saws, light plants, outboard motors, etc.

### Staff

The Marine Station, which in 1964 changed its name to the Forest Service Maintenance Depot, had a high number of ninety employees at one time - eighty-three when the Station split off from the Engineering Services Division to go with the newly formed Technical Services Branch in 1979.

Several long time employees are still working at the F.S.M.D. Among them are Wally McDonald, who worked his way from marine mechanic to being the present manager. It includes Bill Wright, a mechanic who has been with the Depot since 1951; Ian Corral, another mechanic since 1958; and last but not least Bernice Ramsay, present-day office manager but who started out as a clerk in 1958.

From the time that the Marine Station joined the Engineering Services Division, the following Superintendents have served there: Jim McDonald, from 1941 till 1952; Harry Hill, 1952-1964; Arnold Bjordahl, 1964-1968; Tommy Edwards, 1968-1979, who was Superintendent at the time the Marine Station (or Maintenance Depot) joined the Technical Services Branch.

### Engineering Section

In 1950 it was determined that the primary function of the Section was to locate, design, supervise the construction of, or construct forest development roads. This continued to be its primary function, its reason for being, but as the years went by its activities became diversified and several subsections materialized within the Section.

At the time the Engineering Services Division was formed, the work was divided between Reconnaissance, Survey, Construction and General Engineering. Later, General Engineering was divided into Design and Management Engineering Subsections. A growing field like R/W acquisitions or Land Titles, for example, was part of the General Engineering workload.

### Growth

From one Engineer and two Engineers-in-Training in the spring of 1950, the Division had grown to the following staff complement in 1955: One Chief Engineer, six senior Assistant Engineers, ten Junior Assistant Engineers, one Engineer-in-Training, three Survey Assistants, one Mechanical supervisor, ten to thirty-five survey personnel, one Road Maintenance unit (grader, tractor, trucks, trailers, etc.) two Construction units (complete plant and personnel for 20-30 miles of road per year); and a group of clerks, stenographers and draughtsmen.

## Production

By 1955 the Division had accomplished the following work: 579 miles of reconnaissance; 439 miles of location survey; 54 miles of road construction, 30 miles of annual road maintenance; 21 investigation and design projects; 3 major projects completed; and 200 land title problems solved.

By 1964 the total output since Spring of 1950 was as follows: 4357 miles of reconnaissance; 2120 miles of location survey; 855 miles of new road construction.

Furthermore, by 1964 the program of Development Engineering was well under way and that year saw five field crews carrying out development studies in sixteen areas covering all five Forest Districts.

To Dick Scarisbrick the period of the Gold River Forest Development Road, which was built from April 1965 till December 1966 was the most productive time for him as Design Engineer.

In addition to regular design duties, nine permanent glulam bridges and three temporary log bridges were surveyed, designed and built for this road. Eleven of these bridges were built by Forest Service crews; one on contract but under Forest Service supervision.

## Projects

From 1950 on, the following project names became household names, not only within the Division, but also for most Forest Service staff. From the early projects such as Fly Hills and Aleza Lake, the Division proceeded to Chase, Stone Creek and Naver Creek. Then on to Morice River, Swift River and Chilliwack River, Willow River and Tochcha Lake. Further projects were Blunt Creek, Parsnip River, Chilcotin South, White River, Kettle River, Harrison West, Kispiox River, Owikeno Lake, West Road River, Port Hardy and Kingcome Inlet.

In 1959, during the construction of two bridges on Chilliwack F.D.R., inmates from an adjacent prison camp were used as labour. Many of them had worthwhile skills for the project, and Engineer-in-Charge H. Miles-Pickup was quite happy with this type of arrangement, which apparently was the first of its kind in B.C.

In 1964 the work started on the Peace Pondage with the layout of the future lake perimeters and navigation channels. Between 1961 and 1964 an access road had been constructed leading to the Peace Pondage area (John Hart highway to Finlay Forks). This road was constructed in two years time with 50 miles being completed the last summer. Jack Bishop and Hugh Turner were responsible for the construction phase of that project.

During the 1960 reconnaissance in the Kimsquit-Kitlope River valleys the Forest Service used jet boats for river traffic for the first time.

Nineteen fifty-eight marked the year when helicopters were first used to move Survey and Recce crews. This happened on the Port Hardy F.D.R.

Cym Williams recalls an event more on the humorous side from this period. As a District Supervisor, he was going to visit the Mountain Creek Survey Camp. Before leaving for the camp he was contacted over the radio by Glen Goerwell, who asked him kindly to pick up the parcel that was lying at the foot of the trail going up to camp. Cym parked his car at the foot of the trail (Mountain Creek was a very appropriate name, apparently), picked up the parcel which was incredibly heavy and proceeded to carry that and his own sleeping bag all the way up to camp. Although young and strong he was totally worn out by the time he reached camp. Glen thanked him with a smile, opened the parcel, checked it and stuffed it away in a corner. The parcel was full of axeheads.

The day after Cym was to learn that supplies to the camp were being ferried in by helicopter!

#### Staff

Fred Slaney left the Division in 1959. Pete Hemphill took over as I/C Engineering Section and 2 I/C of Division. Doug Greggor was still Forester I/C of Division. Around this time, many of the people that made a long term career with the Forest Service worked as supervisors, party chiefs, project engineers, etc. or started off their careers on any of the many survey, recce and construction crews. The following were some of these people:

Bob Thomas, Ray White, Don Cameron, Cym Williams, Julius Juhasz, Terry Prentice, Hans Waelti, Pat Doyle, Norm Read, T.M. Thomson, Rudy Kind, Bob McDonald, H. Miles-Pickup, Jim Taylor, Dick Bryant, John Hannah, Dennis Smith, Bob Bennett, Bob Brock, Al DeGraff, Ernie Krajczar, Frank Nyers, Lehel Porpaczy, Dick Scarisbrick, Des Rice, Jake Jacobsen, Bob Forsberg, Younas Mirza - they all worked as reconnaissance, survey and/or construction engineers, often moving from one subsection to another with short intervals.

Survey party chiefs included Dick Giske, Ted Szamecz, Bruce McFadden, Bill Molnar, Alf Storm, Glen Goerwell, Craig Johnston, Robbie Edwards and Terry Stringer. Hugh Turner, Bud Laitinen, Don Adams, Jack Bishop, Bob Blackburn, George Commandeur, Jim Maxwell became project superintendents. Karl Rieche developed considerable expertise in R/W clearing methods and costs.

Agnes Kennedy and Edith Nadeau were clerks with the Division in this early period. They are well remembered: Edith for her excellent secretarial skills which the Engineering Section made full use of, and Agnes, in the General Office, for her caring attitude toward the field crews in general and the young newcomers in particular.

### Training Camp

During the years from 1965 to 1968 the Engineering Section organized annual 2-week training camps at Mesachie Lake for students that were about to join the survey crews. The students were fresh out of University where they had received their initial survey skills but they lacked the necessary bush craft, including experience in road location, construction survey and various phases of work pertaining to the reservoirs. This was all acquired at the 2 week prefield basic training camp.

The staff at the training camp, although it was drawn from Forest Service staff in general, came mostly from the Engineering Section, and the lectures and demonstrations were meant to take away the initial shock of starting the day to day field work. Dick Giske, Bill Molnar and Frank Nyers organized these camps for the four-year period.

### Field Supervision

During the '50's field supervision was handled by the Construction Engineer and Survey Engineer. Their workload grew to a level that required a full time position for each Forest District, and in the late 1950's the position of District Supervisor (Engineering) was created. The District Supervisor had the responsibility to look after the survey, construction and maintenance projects of his District. He still resided in Victoria, being part of the Headquarters staff.

In order to provide for the day to day leadership of road and bridge construction projects, the position of District Superintendent (Engineering) was established in 1963, to be filled by Senior Technicians. Five people were already in place in the Districts working in that position. They accepted to stay and this was the start of the development of a resident District Engineering organization. The five people were Bob Blackburn in Smithers, Hugh Turner in Prince George, Jack Bishop in Vancouver, Bud Laitinen in Kamloops and Jim Maxwell in Nelson.

Growth and development in the Forest Districts had indicated the need to have a resident engineer in each District, so from 1967 on the position of District Engineering Officer was filled in all the five existing Districts. First Ernie Krajczar went to Prince Rupert. Then Al Dumas went to Prince George, Des Rice went to Kamloops and Bob Brock went to Nelson. Lastly, Dennis Smith moved into the District Engineering Officer position in the Vancouver Forest District. When the Cariboo Forest District was created in 1969, Ernie Krajczar moved from Prince Rupert to Williams Lake, and Younas Mirza took over as District Engineering Officer in Prince Rupert.

### Reservoir Clearing

Throughout the fifties, sixties and seventies, road reconnaissance, location survey and construction remained the main staple of the Engineering Section's itinerary. Other main projects tended to dominate periodically, such as the clearing of Pacific Great Eastern R/W from Whytecliff to Squamish in 1954, in which the Division gained notable experience and expertise.

The reservoir clearing of the Peace Pondage was a major project that required considerable ingenuity and clearing expertise. Later came the Libby, Duncan Lake, Mica Reservoir and Revelstoke 1880 clearing projects, all of which utilized different clearing principles. There was the Peace Pondage with part logging; part slashing and part submersion of the timber cover. The Libby Dam was cleared 100%, whereas Duncan Lake was cleared to the lowest drawdown level. On the Mica Reservoir where the "bathtub" principle was utilized, only the area between certain elevations was cleared all around. On the last clearing project, the Revelstoke 1880, 100% cleanup of debris was accomplished. Ken Nelson, who was with the Division since 1966, was a key man on this project.

Reservoir clearing often created considerable public outcry, intense professional discussions and departmental rivalry, but in the end the Division always got the job done.

The Minister of the time, Ray Williston, was known to lend his full support to the activities of the Division. At the start of the pondage clearing projects he was asked why the Engineering Services Division was given these huge projects with commensurate large budgets. He was quoted as giving this reply: "There are two good reasons for that. One, because I say so! Two, because the Premier says so!" - That seemed to take care of that.

#### Right-of-Way Acquisitions

In the mid-seventies, the Division survey crews were moved to the Forest Districts. The Survey Engineer now turned his full attention to the Land Titles subsection, which had remained under his jurisdiction and which was still very active.

Frank Johnson had looked after the Land Titles office from its very inception, first reporting to Fred Slaney, then to Dick Scarisbrick and now to Dick Bryant. It is interesting, and perhaps very typical of the nature of the Engineering Services Division, the way in which he got started.

In 1953, after having worked on recce and survey crews for a year, Frank Johnson was contacted by R.G. McKee, Forester I/C Operations Division. The location was the old house on Michigan Street where the Engineering Services Division shared office space with the Operations Division. The dialogue went something like this:

McK. "Hello. I am Gerry McKee."  
 F.J. "Oh, hello."  
 McK. "What do you know about Castlegar?"  
 F.J. "Not a damn thing, except that it is over that-a-way. Besides, I don't work for you, anyway!"  
 (Fred Slaney had always told him: You work for me, and not for anybody else.)  
 F.J. "I am very sorry, but..."  
 McK. "Well, I need some help. Somebody here claims that the Forest Service doesn't own this." He laid down two files with a letter on top of it.  
 "Will you please read these files and find out what it is all about."

F.J.(later): I made some notes for him. Then he asked me to draft a reply for him. Two days later the reply came back, with a note: 'You'd better look after this. You seem to be an authority on it.'

That was the start of the Land Titles Office.

As the years went by, more and more work fell on Frank's shoulders. At first he made a 5 year commitment to Doug Greggor. Five years later he made a 10 year commitment to get the work done. After that, till his retirement in 1975, he was too busy to think about quitting.

Other people who also made long term commitments to the Land Titles Office were Dick Giske, Fred Everson, Tom Almond, Art Hegan and Doug Harbicht. All of them except Fred Everson, who retired in 1985, are still with the Branch as Property Negotiators. Shirley Umpleby became the Land Titles Clerk in 1964 and is still going strong.

#### Miscellaneous Developments

Doug Greggor retired in 1967, and Pete Hemphill took over as I/C Engineering Services Division. Bob Thomas became I/C Engineering Section, Cym Williams became Construction Engineer, Dick Bryant Survey Engineer and Hans Waelti took over as Management Engineer. Dick Scarisbrick was Design Engineer.

Air photo interpretation had become recognized and was utilized as a very useful tool for the initial stages of road reconnaissance. As Management Engineer, Hans Waelti developed his own professional and personal interest in it, and was invited to give a paper on the subject in Freiburg, West Germany, in 1973.

Dick Scarisbrick, as the Design Engineer developed the Section's bridge design concepts and became known as "the father" of the Glulam bridges within the Provincial Government. Elvin Gower and Imre Klima worked with him in this period.

The helicopter attached boom for stereoscopic aerial photography was another development that the Engineering Division was part of. The final working model was built entirely by this Division, and Gordon Buffett was the main person involved.

Also in 1973, as Management Engineer, Hans Waelti travelled to several European countries to study cable logging. Afterwards he initiated a Wyssen skyline trial operation near Nelson as a possible method of logging steep and environmentally sensitive slopes in the Interior.

According to Hans, the operation was successful, and the system proved to have merit in B.C. But it was not quite as economical as he had hoped and as others would want it. At a logging symposium in Vancouver where

some people tried to give him a rough time on it, Hans was asked what the actual costs were. Not wanting to give the man the satisfaction of getting a straight reply, he stated the number of men involved, the hours, the production and the type of equipment used. Then he said: "You figure it out yourself! I don't know how much you pay your loggers!"

Bill Lehrle took over as Forester I/C of the Division in 1973, when Pete Hemphill left to become Director of Services. By this time the Forest Road Program had become directed more toward rehabilitation and upgrading, and less toward new construction. This was a result of the development of industrial capability in road construction, particularly in the Interior, where they were lagging far behind the Coastal operations in this field.

In the last half of the 1970's, the Management Engineering unit became involved in a new line of projects, through their Forest Mechanization Specialist. Karl Rieche was now I/C of Management Engineering and Kamill Apt became the first F.M. Specialist. As the years went by the group got involved in a great many diversified projects, such as the development of cone collection equipment, a spot scarifier, reforestation tools; and equipment for juvenile spacing, commercial thinning and brush control.

The Program emphasis was still on area development work and bridge designs, but one could note a gradual shifting of responsibilities toward regional involvement in these operational aspects. The determination of provincial engineering standards were now more and more becoming a major concern of the Branch.

During the early and mid-seventies, a new group of professionals joined the Division. Dave Lawrie, Ron Davis, Elisabeth Juhasz, Zsolt Bige, Andy Mitchell and Einar Kvarv are still with the Branch. They were joined by Graham Browne a few years later. John Stephen was a more recent addition to the professional staff (1982).

Doyle Seaman had been with the Division as a technician from as far back as 1954, first as a survey draughtsman, then in charge of bridge drawings and materials acquisition.

Doyle worked in tandem with the two provincial bridge crews, each headed by a superintendent, Carl Snellman and George Commandeur. Mac Hunt was Engineer in Charge of the bridge building.

Other technicians like Terry Leahey, main operator of the Road Recorder, Peter Castley who soon moved from Management Engineering to Property Services and Grant Bailey whose main involvement has been with Surveying and Contract Administration started in the seventies. Bep deBlois and Cathy Ayerst joined the clerical staff in this period.

## Forest Service Reorganization

### Technical Services Branch

In 1979, as part of a general Forest Service reorganization that was completed in 1981, the Technical Services Branch was formed, and the Mechanical Section, the Radio Section, the Buildings and Marine Services Section and the Forest Service Maintenance Depot all became part of the new Division. The Engineering Division, as it was now called, retained what used to be called the Engineering Section, with all its sub-sections.

The Engineering Division became the Engineering Branch, and at this time the following Sections made up the Branch structure:

The Construction and Survey Sections were combined to a Construction and Survey Section, under Don Cameron, the Construction Engineer.

The Survey Engineer became the manager of the new Property Services Section, the work of which he had also been responsible for up till now. Upon his retirement in 1981 Peter Downs, a professional appraiser, took over as manager.

The Design Section had come into its own as a separate Section in the early seventies. When Dick Scarisbrick retired in 1983, this Section was combined with the Construction and Survey Section to make up the Design, Surveys and Construction Section.

The Management Engineering Section became the Resource Development Section. It remained intact, supervised by Karl Rieche.

Two Draughting positions that had been part of the Buildings and Marine Services Section, now became part of the Administrative Services Section of the Engineering Branch. This Section had several long term employees, such as Irene Brown, Steve Larocque, Larry Ellington and the Manager, Edith Smith. Barb Langley, a clerk-receptionist, joined the Branch in 1974 and retired in 1986. Garth Campbell joined the Section as a draughtsman in 1982.

Having removed itself from practically all project involvement, the Branch workload had by now become very administrative in nature. The Branch formulated its new status and position and restated its mandate in the following way:

1. The Branch shall set policies and provincial standards for Regional Engineering Activities.
2. The Branch shall act as a specialist agency to which Regions and Branches can turn for solutions to professional/technical problems that relate to their responsibilities.

As a result there is a more equal partnership recognized between the Regions and the Branch.

### Projects

Since the reorganization, the Branch has undertaken projects under the umbrella of all of their goal commitments. Some of these projects are mentioned here.

Transportation studies and cost analyses have been undertaken regularly. Well known areas of concern have been Skeena West, Williston Lake Causeway, Sustut and Takla Lake Development, B.C. Rail Dease Lake Extension, and many other major and minor studies. People undertaking these studies were Frank Nyers, Dave Lawrie, Andy Mitchell, John Stephen and Einar Kvarv.

The Branch was responsible for the project management of the Tachie River bridge, to mention a recent structural development. Ron Davis was the key source of energy for this project.

The Branch has also developed Engineering Manuals and established guidelines for steep slope logging practices. Dave Lawrie, who has been involved in working out these guidelines, also had a short stint as party chief on the Naver Creek F.D.R. project back in 1951.

Procedures related to roads and bridges built under Section 88 and the Small Business Enterprise Program have been clarified by the Branch.

The Log Haul Simulation model, the Forest Road Design system and the Forest Road Bridge Register and Management system were developed by the Engineering Branch. The computer programming expert working on these systems was Jim Bonfonti, a Branch employee from 1979 till 1986.

Since 1980 the Property Services Section, previously called the Land Titles Office, has been responsible for obtaining R/W through approximately 260 separate parcels of land for some 105 Forest Service roads. In total, since 1952, R/W has been acquired through 1150 parcels of land for some 400 Forest Service roads.

The Road Recorder, which was prototyped by the Engineering Division in the late 1960's, is an automated vehicle that allows logging truck haul routes to be rapidly surveyed. In its present state of development, this vehicle is an integral part of the Forest Road survey and management program.

### Recent Developments

The Engineering Branch is heading into the late 80's primarily as an administrative unit devoid of operational responsibilities. The development of computer programs to enhance data manipulation of various administrative systems is an integral part of its function now.

The Branch has, in recent years, developed a Harvest Feasibility System that uses digitized geographic inventory data from the Inventory Branch. The basic computer program used in the system originates outside the Forest Service, but the Branch has modified it to fit the Harvest Feasibility System and is currently promoting the system throughout the Forest Service. Andy Mitchell has been responsible for keeping the development of the system alive.

A provincial road register has all but been completed for all Forest Service roads. It was initiated by the Property Services Section in 1974 and further developed and computerized by the Resource Development Section. It is presently being administered and maintained on a District basis. A copy of the province-wide register is kept with the Property Services Section in Victoria.

Through its Forest Mechanization program, the Branch continues to develop tools and equipment for silvicultural purposes, at present primarily nursery equipment. Zsolt Bige is the present Forest Mechanization specialist. Sam Lam, a mechanical engineer who joined the Branch in 1981, works with him. So does Elisabeth Juhasz, as Design Engineer.

In addition to the administrative responsibilities for Forest Service roads and bridges, the Branch is developing standards for technical audit of Regional Engineering programs. Furthermore, the Branch has placed some attention on the development of a plan for coordinated access road management, and quite regularly it gets involved in solving specific major transportation analysis problems in conjunction with Regional and District staff.

More recent staff additions to the Branch were Linda Turnbull and Rob Rawluk of the Administrative Services Section; Jill George and Wayne Verwoord of the Property Services Section.

In 1984 Cym Williams, who had been the Branch Director since the late seventies, took ill and although he seems to be on the road to recovery he still has not returned to the Branch. Several Acting Directors have served in the position. At present, Younas Mirza, who recently won the competition to succeed Don Cameron as Manager, Design, Surveys & Construction, fills in as Acting Director.

### Epilogue

The Engineering Branch, or its predecessors in name, started with one man in 1950, developed and grew into a formidable work unit with a budget and political support that was the envy of many divisions, and the goal of all.

At the height of the activities the Engineering Services Division had a fulltime staff of close to 250 people. Summer students numbered more than one hundred on a regular basis; the number was even higher for the

pondage projects. After the Technical Services Branch broke off, the staff complement was 55. The Provincial Restraint Program has further reduced the number of Branch personnel to thirty-nine full time positions.

The mandate of the Branch and the way it functioned assisted in the orderly development of the Forest Industry of this province. As time went by the Forest Industry itself was able to assume more and more of the duties and responsibilities of the Branch, and thus there was no need any more for the dynamic reality that had been the focus for all provincial forest engineering activities for 20-25 years.

As this change took place, the Engineering Branch moved into an administrative mode, in order to fulfill a different need within the Forest Service's province-wide engineering commitments. With this change of function there also could be detected changes in levels of day to day enthusiasm, work motivation, clarification of Branch purpose, and staff identification with the Branch, and it may be interesting to note what the "old timers" say when they compare the past accomplishments and work conditions with the present situation.

#### Comments

Pete Hemphill: "Everybody working in the Division in those years were doing what they wanted to do, and enjoying it.

We were newcomers to the Forest Service, and not part of the Old-Boy network. We had to rely upon ourselves, our own ingenuity. This developed a very self-reliant, cohesive work unit."

Julius Juhasz: "I always received tremendous pleasure from survey and road construction work. And great pleasure from designing and building bridges."

Hans Waelti: "In those days people were doers, using the best engineering principles available.

The Division always had a variety of engineers, from countries all over the world. Pete Hemphill was very open-minded regarding new ideas. It was to his credit that he was able to use engineering skills from so many different backgrounds. As a result, the Division established itself as one of the best forest engineering teams in the province."

Dick Bryant: "It was a period when engineering methods were thoroughly learned, and a large corps of technicians and engineers became well trained and were given a very valuable experience."

Don Cameron: "The Construction Engineer's job was gradually transformed from one of directing active contract operations throughout the province to one of planning, establishing priorities, developing policy and monitoring operations that were taken over by the Districts (Regions)."

Dick Scarisbrick: "I found it an interesting and challenging sort of job always with new things to do and investigate. Because of this list of new and interesting things I didn't want to leave the Division.

I felt that we did some pretty good work, at a lower cost than a consulting company could have done it."

Imre Klima: "The reasons for the success of the Division were many. It was a relatively young staff, and everybody felt needed. From the Deputy Minister all the way down were professionals. Many were trained in the Canadian Army, and therefore very well disciplined. There was always a tremendous amount of work available. Everybody was accepted equally; there was no discrimination."

Dick Giske: "The Division parties and dances, everybody came to them. There was always a great atmosphere, and everyone was accepted by everyone else regardless of position."

George Commandeur: "The years from 1953 to 1973, when I was with the Engineering Services Division, were the most rewarding years of my career with the Forest Service."

John Paynter: "I had a wonderful job - a school boy's dream of a job."

Frank Johnson: "When a difficult job needed to be done by the Provincial Government in those days, it was said: "Let Engineering do it - they'll find an answer!"

Hans Waelti: "The Branch has changed from Past Doers to Present Administrators."

Julius Juhasz: "It was the Go-Go Division!"

Cym Williams: "No history about the early days of the Engineering Services Division would be complete without recognizing the contribution made by the wives. Many of them spent from months to years living in the trailer camps, and many are the tales that could be told about risky trips over slippery winter roads, be it either to a doctor, to go shopping or to get the children off to school. The success of the Division owes a great deal to the happy and friendly atmosphere that the wives were able to create within the project communities."

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On February 16, 1987, exactly 37 years after Fred Slaney started up the Engineering Section of the Management Division, the Engineering Branch again became the Engineering Section, this time of the Timber Harvesting Branch, as part of a Ministry-wide reorganization.