THE MAIL BAG

The Editor:

I found the article "Considerations in Contracting Ontario Hydro Surveys" very interesting and wonder if you could prevail upon the Editor of THE ONTARIO LAND SURVEYOR to publish this, if necessary, at my request.

Colin D. Hadfield
Director of Legal Surveys

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SPECIAL ARTICLE

CONSIDERATIONS IN CONTRACTING ONTARIO HYDRO SURVEYS

by C. E. Stauffer
Chief Surveyor, Ontario Hydro

At a recent meeting of the Northeastern Regional Group of Ontario Land Surveyors at North Bay, on October 15th, 1966, the subject of contracting of Ontario Hydro Surveys was discussed. For the benefit of our contractors who were not present at the meeting, the discussion is summarized in the following remarks.

It was stated in the notice of the meeting, "The Ontario Hydro has had a marked effect on the economy of surveyors in our Region." How should one approach the subject, "Considerations in Contracting Ontario Hydro Surveys" in the light of that remark? It can be rightfully asked, if Ontario Hydro has contributed to the economy of northeastern surveyors, have they contributed to Ontario Hydro's economy?

If perhaps the following remarks appear to be critical, please bear in mind they are intended to be constructive. The intent is to present some of our problems to give our contracting surveyors an idea of what we are up against, so that in the future, when we contract a survey, it will be known what we expect of the contractor in return for that little Item (b) of Schedule "A", "That the basis of payment . . . . . will be the applicable tariff of the Association of Ontario Land Surveyors."

Our Contract Surveys were discussed from several standpoints:

(1) General Considerations
(2) Engineering surveys and drafting of route plans and profiles
(3) Legal surveys and "R" plans
(4) Administration

General Considerations

Surveyors are well aware that costs are going up all around us. Is it realized however what rising costs mean in a large organization such as Ontario Hydro? It means demands for more productivity - which in turn mean - demands

for improved methods - demands for more economical use of time and equipment - demands for innovation, etc., etc. Our Surveyors are geared to these demands, so that it may seem to some private Surveyors, that we are very impatient with some of their actions.

Ontario Hydro must be considered as a special client. Many clients, even big corporations, may not know what they want and are willing for the surveyor to given them what the surveyor thinks they should have. We however know what we want and expect the contracting surveyor to give us what we want in the way we want it, when we want it. That, it is submitted, is what we are paying for, not for what the surveyor would like to give us. That is not an unreasonable expectation on our part.

So we are forced to set up exacting specifications and requirements. We are forced to prescribe accuracies, methods, etc. to get things done - done right, as will be mentioned later.

So we expect the surveyor to go along with us, that he be not reluctant to innovate, and that he try out new methods and types of equipment which we may suggest. In that way lies progress, and he may even surprise himself by learning something. So we expect an honest endeavor to provide surveys at the most economical cost consistent with our requirements.

One item of great concern to us is the matter of schedules. The Survey Department's work is only a part of Ontario Hydro's production line from the start to the finish of a project.

A project starts with system studies. Let us say a study shows a requirement for a transmission line from "X" to "Y". This sets up a long line of activities - System and Program planning - estimates - Commission approval - location studies - location reconnaisance - determination of control points - centre-line location - engineering survey - legal survey - route plans and profiles - design - acquisition of right-of-way - requisitioning of material - clearing of right-of-way - staking of structures - and line construction - all to meet an in-service date.

It can readily be realized, because we are responsible for the early stages of the project, what happens when our schedules are not met. Considerable work dislocation takes place. Most contracts are tied in to a schedule. When a surveyor signs the contract, he commits himself to that schedule. If he doesn't meet it, can we be blamed for not being too enthusiastic about giving him another contract? We take it for granted that if a surveyor says he will meet the schedule, he will. But often that is not the case. We try to be reasonable, but it's tough when we have to explain to Management, or the next Department on Hydro's production line, why work cannot be started on their phase of the project because we have not met our schedules.

Engineering Surveys and Drafting of Plans and Profiles

When a project is contracted, we consider that our Commission Surveyors are responsible for that project, in the same way as if they were doing it themselves. They plan their operational approach and will expect the contracting Surveyor also to have a properly planned operation, adequately staffed so that there is no back-tracking. Why should not centre-line hubbing and chaining

followed by R.D.S. and swamp soundings be carried out so that each phase of the work is completed without delay and without back-tracking? This in turn will permit the profile and route plan drafting to be started before the completion of a 10 mile section of ground survey.

Why should checking of field notes and calculations, particularly R.D.S., not be done so that errors in elevations are non-existent? Many of the plans submitted had vertical equations. This makes it difficult for the design engineer to plot his structure locations and to use his sag templates. In many cases the plan has had to be replotted to permit the selection of structure sites on each side of the vertical equation and the detail then transferred back to the original profile.

We regret to say that profile and route plan plotting was not accurate. All plans contained errors. Plot errors were from 5' - 15' vertical and from 4' to 60' horizontal. It may be thought that these errors are small and therefore insignificant. But no! The reason for an accurate profile and sidehill plot is that the design engineer is limited to a clearance of 25 feet from the low point of sag with a tolerance of ±1 foot. If for any reason a circuit faults out the remaining circuit load is increased and the rise in temperature increases the sag and consequently lowers the clearance. For the same reason more accurate work is required at what are called critical crossings, such as telephone, telegraph power lines, railway tracks, highway, etc.

The matter of schedules has been mentioned previously. Very few plans were delivered on the specified dates. This caused problems - with the Engineering Department concerned with the design of the line and the ordering of steel (it takes up to 2 years to get steel!); with the Property Department in regard to easement or purchase agreements; with the Construction Department for right-of-way clearing; (in the north most clearing work is planned for the winter months so that burning can be carried on at the same time); etc. Therefore any drafting contracted as part of the overall work should be done in the field where the Surveyor doing the survey can check his own work and where the Hydro Surveyor or his representative can make his checks.

Another requirement of concern to us is the centre-line bearings to check angular work and to provide information for Orders-in-Council, which are required for the Commission to legally proceed with the Project.

Legal Surveys and "R" Plans

Phase I. A legal survey will be initially requested for sufficient land ties to prepare Orders-in-Council. In general 3 or 4 ties across a township are sufficient to position the proposed centre line for description purposes.

In addition certificates of search are required for ownership and parcel number. This phase of the work is required so that within a week after the route plan has been prepared this information may be included and the plan delivered to Hydro. This then means that route and profile plans must be complete no more than 3 weeks after the survey, in order that right-of-way acquisition may be commenced.

Phase II. This phase of the legal survey will be the final survey for "R" plans under Land Titles regulations or easement plans under Registry Office regulations.

These plans should be prepared progressively as the work is done - not waiting until the survey has been completed across the township. The reason for this is that as agreements are taken with the owner the shortest possible time should elapse before he gets his money. Unfortunately, this aspect is not always kept in mind. We are always in "hot water" because of enquiries from irate owners demanding their money from Ontario Hydro.

The matter of "R" plans is of continuing concern. You as private Surveyors have that problem in your own private work. Assistant Examiners have their own problems. They have enough work to do to keep busy checking plans to see that plans meet the Regulations - without checking for correctness of survey information.

So we should assist the Assistant Examiners by double-checking all plans and calculations. Somehow approvals and delivery of plans to Hydro must be speeded up. One way to help out is to prevent overloading the Assistant Examiners by a progressive plan preparation and submission rather than dumping a lot of plans in his lap at one time.

Therefore it goes without saying almost that plans submitted for approval should be correct and contain all required information. This will assist everybody, i.e., yourselves, the Assistant Examiners, we the Survey Department, our Property Division, our Law Division, our Design and Construction Division, and we hope, it will avoid serious criticism from the property owners.

Administration

All contracts require some administrative work, so before concluding, a few administrative comments are in order.

Why cannot estimates be more realistic? We have to have an estimate of the total cost of a major contract, in order to obtain approvals so that a contracting Surveyor can be paid for his work. We are open to serious criticism if additional money has to be requisitioned. It is tough to estimate costs of survey work. We have gone through years of work study to set up cost standards which we do not expect of a private surveyor. However, unforeseen circumstances do arise. If such is the case, we expect the contractor to let us know as soon as he is aware of them, in writing, with complete information as to the whys and wherefores, so that we can explain and have reasonable answers for what may appear to be excessive costs. Don't wait until the end of the job!

And there is the matter of paper work. If you want prompt payment for your services, invoices should be submitted promptly and regularly, weekly, or twice monthly if the job is long. They should show the contractor's name and the contract number.

Invoices should coincide with the party-time record forms. These

forms should accompany the invoices and should also show the contractor's name and the contract number.

Conclusion

It is hoped we have not been too critical. We have tried to be constructive, to give our contract surveyors an idea of why we do as we do and that a better understanding will result when a contract is arranged.

One thing is certain. We are very grateful to those survey firms who have assisted us. Without their help we would have had a tough proposition. Your rapidly developing North would not have had the accrual to it of the security of electrical power of the transmission lines and other facilities which you have surveyed for us.

If therefore we have had a marked effect on your economy, we are glad to have played a part in it. The real credit however belongs to those members of our staff who have worked with you. Dave Richardson, our Project Surveyor, Northeastern and Northwestern Regions, Harold Wilde and Rich Lees, our Senior Surveyors, and our Party Chiefs, our field office staff and all our field personnel who have helped out with long hours and hard work. It is hoped the comments on our engineering and legal survey contract work will help both them and our contract Surveyors to better understanding and more communication to our mutual advantage in obtaining good contract surveys, to meet our requirements within time schedules.

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ONTARIO LAND SURVEYOR

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