

REPORT OF THE SPECIAL COMMITTEE
HAMILTON AND DISTRICT GROUP OF O.L.S.

This report is a consolidation of the original report presented to the January General meeting of the Hamilton and District Group of Ontario Land Surveyors in order to comply with the time allotment to be given to each subject at this open forum.

A Committee comprised of Bruce Donaldson, Frank Robinson, Bob Shoemaker and Wayne D. Brubacher, Chairman, was appointed at the General Meeting of the Hamilton and District Group of Ontario Land Surveyors, October 2, 1967, to study the implications and problems arising with regards to buried services of all types and to report to the January General Meeting of the Hamilton and District Group.

The terms of reference were somewhat vague but the Committee studied the subject under the following headings:

1. The Surveyor's Liability.
2. The Surveyor's loss of time.
3. Danger to the Surveyor, to his men and to the general public.
4. Investigation into legislation which could implement strict controls on the location of buried services.
5. The possibility of legislation to make it mandatory that a surveyor prepare a plan of survey showing the installed services "as located".

We hear many stories about surveyors and their employees getting involved with buried services. One surveyor was engaged by a municipality to establish street corners and to plant standard iron bars in the course of the survey. One such standard iron bar penetrated a 4" gas main, and being winter time the gas spread underneath the frozen ground and penetrated the stone foundation of an adjacent house. The gas slowly seeped in until the mixture was just right, an explosion followed shattering the house sending its two occupants through open windows to relative safety. A 69 year old woman suffered severe shock, and a child suffered cuts and bruises. This was indeed a miracle because the house was completely destroyed. The adjacent house was damaged to the extent that it had to be condemned and a third house was damaged as well. Law suits were laid jointly against the surveyor, the municipality and the gas company. Eventually the suits were dropped after the surveyor spent several thousand dollars preparing his defence. Weeks later, I personally drove a standard iron bar through a 4" gas main in Elmira, fortunately under the supervision of two Union Gas employees who assured me that I would miss the gas main with the standard iron bar I was driving in the position that it was. I was, of course, absolved of all liability, since I was given the go-ahead to plant the bar by the Gas Company representatives. Although the gas was shut down to a low pressure within a reasonable time, several houses had to be evacuated because, being winter, the ground was frozen and the gas spread below the frozen ground, through the stone foundations and quickly began to fill the houses.

Another surveyor tells of his men who drove a bar through a power cable. Sparks shot out of the ground along the side of the bar and into the air. When the sparks stopped coming out, the men tried to remove it, wiggling it with their hands. Little did they know that the power would come on again automatically when the thermo breakers cooled down and this would happen two more times followed by an attempt to have the power restored manually. It must have been a co-incidence that the men touched the bar at the time the thermo breakers were open. Another surveyor tells of driving a standard iron bar through three sets of Bell Telephone toll cables, one being installed over the other, and these were right on the street line with a portion encroaching on private property without any easement provided. There are many more similar situations and I

am sure each of you could contribute a close call.

1. Probably the largest, most important and most contentious aspect of buried services is the "Surveyor's Liability". No clear cut "rule-of-thumb" presents itself. When a Bell Telephone buried cable is severed, there may be costs of repairs and interruptions in service. When a hydro cable is cut, there may be costs of repairs and interruptions and danger to the men involved. But when a gas service is cut or punctured, there are the costs of repairs, possible interruptions and danger to the men involved and the general public.

Contractors installing services are not concerned with knocking out surveyor's bars because they only face the wrath of the party who paid to have the bars planted, and prosecution under the Criminal Code, an empty deterrent because it is never enforced. However, if a Surveyor takes a similar chance and damages a buried service, he may face law suits of unimaginable proportions.

Another question of liability, which requires a clear-cut answer, is the case of the utility which does not follow the course set out in a registered easement, and is damaged by a surveyor.

2. The second term of reference is a surveyor's loss of time. After driving the S.I.B. through the gas main in Elmira, I found myself extremely aware of the problem of buried services. I made a study of the urban surveys undertaken by our office since practically all surveys required cable or gas locations and found that loss of time due to these locations was in excess of 15%. The client must bear the final cost of the economic policy of the utilities, since tariff is based on cost. He gets the same survey, he is probably penalized by getting poor service as it is difficult to match times with the utility representatives, and he pays 15% more.

3. The third term of reference is the danger to the surveyor and his men and to the general public. The puncturing of a telephone line offers no particular danger to persons directly involved but the interruption of a service could be a vital issue if a fire alarm could not be given, or an ambulance or police could not be summoned in an emergency arising elsewhere and simultaneously. Buried hydro lines involve a great danger to persons directly involved, and could also be a vital issue by virtue of services interrupted. Recently, a bulletin from the Hydro Electric Power Commission was circulated warning of the danger of electrical wires above the ground and quoted Regulation 44 from the Construction Safety Act, 1961-62, which stated "No person shall bring any object,, within eight feet of an electrical power line of more than 750 volts unless: 1. (a) he arranges for the electrical supply to be disconnected, or (b) arranges for the insulation of the conductors." Buried electrical services are only several feet below ground and objects of all types are brought within 8' continuously; a homeowner putting up a fence, a gardener's shovel, construction engineers setting batter boards and hubs, and of course, surveyors shovels and iron bars. Many of these services are unprotected except for neoprene insulation.

When a gas main is punctured, especially in winter, the implications of danger to surveyors and the public in general are only limited by one's own imagination. The escaping gas could blow off harmlessly in the air or could fill the basement of any building. We are warned that even static electricity could set off an explosion. When gas companies are allowed to instal lines carrying such a lethal and dangerous substance and not required to know the precise location of such lines, how can anyone be held responsible when a line is punctured. Surely the negligence is on the part of the utility when they gamble economy against public safety.

4. The fourth term of reference is the investigation into legislation which could implement strict control on the installation of buried services. Very explicit regulations govern the installation of gas and electric service within buildings but extend only to the meter. Beyond that point very little is done to control the depth and alignment of

buried services from the standpoint of government regulations.

Under Section 28, Subsection (1) (g), of the Planning Act, when applying for draft approval, the applicant must list anything "that constitutes a fire hazard". Should we not include a notation on our Plans indicating that buried gas services are to be installed? Section 28, Subsection 4, reads in part "In considering a draft plan of subdivision, regard shall be had, among other matters, to the health, safety, convenience and welfare of the future inhabitants".

5. The last consideration was the possibility of legislation to make it mandatory that surveyors prepare a plan of survey showing the installed services "as located". Many complications present themselves here. If a plan is prepared by an O.L.S., it must be filed in a place common with all other survey plans of buried services. The only place it could be is the Registry Office or Land Titles Office. If the service is within street limits, then it could be next to impossible to determine what buried services may affect any particular section. This could be overcome if the utility, in realizing its responsibility to the public, would acquire a 1' easement over private property contiguous with the street line where such a buried service is near enough to the property line that the chance exists that it would be damaged by surveyor's bars. A brief Registry Office search of the subject lot would easily show that a buried service is near and cable or gas line locations are obviously required. This would serve both as a notice and also would cover the eventuality where a buried service accidentally crosses on to private property.

Another problem is that most surveyors are not able to send a party out to check locations before backfilling is completed. Also, many Bell Telephone cables are laid by machines that dig, lay and cover, all in one operation.

This Committee's recommendations are:

That a Special Committee of Council be appointed to investigate the subject of buried services with Surveyor's liability being the first term of reference. This Special Committee should poll all the regional groups for actual cases of surveyors causing damage to utilities, the extent of the damage and the outcome;

That a further study by the Special Committee appointed by Council be undertaken regarding "as located" Plans signed by Ontario Land Surveyors;

That until something concrete can be worked out regarding the immediately preceding recommendation, this Committee recommends that each utility continue to keep its own records but that "on site" inspections be undertaken by each municipality to see that they are installed according to their engineering drawings regarding location, and that survey bars used for alignment are evident at the time of inspection;

That the Special Committee ask the governing body of the Association of Professional Engineers to instruct their membership to include in all general specifications made by engineering firms for all contracts involving the digging or removal of earth, a clause stating that all survey markers removed during the course of construction and by their workmen or equipment, or by any sub-contractors, workmen or equipment, shall be replaced at the contractor's expense;

That utilities be required to keep records of the actual location of laterals

by plus-chainages or by other means suitable to locate such laterals with a reasonable degree of accuracy;

That Engineers in the practice of Road Design be made aware of the problems encountered by surveyors when services are located too near the street limits;

That the Special Committee should consider our regulations on monumentation to allow for the planting of short standard iron bars or even 3", 1" square, iron bars in lieu of standard iron bars;

That the Public Utilities Act and/or any other pertinent Act be amended to specify the depth for services and that such depth be in excess of the length of iron bars used by surveyors under the regulations which now exist or which may be amended.

A motion was made and carried that this Report be referred to Council for study at the open forum of the Annual Meeting, that Council should take note of the recommendations and that a Special Committee be formed to look into the entire problem immediately. Therefore, as directed by the Hamilton District Group and as Chairman of this Special Committee, I would move that this consolidation and a copy of the original report in its entirety be referred to Council and that a Special Committee of Council be set up to study and implement its recommendations as quickly as possible.

Wayne D. Brubacher, Chairman