Mean High Water Mark Accretion and Erosion

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Introduction

At the '95 Staff Surveyors / APAS Conference, Peter Blume, in his paper "Mean High Water Mark Revisited", showed that there was considerable confusion surrounding the theoretical definition of Mean High Water. That paper showed that as a result of the uncertainty and non uniformity in the definition of MHW, there could be serious doubt as to precisely where the mean high water title boundary is located. To locate the MHW boundary in the field can also be just as confusing. Just as the theoretical location of the MHW boundary is uncertain, so to is the definition of this boundary, and its subsequent changes, from a practical field perspective. This paper is an attempt to show the elements that add up to this confusion and uncertainty. It will also show that the doctrine of accretion and erosion, for the most part, has been totally ignored when new MHW boundaries have been created.

The context of this presentation has been gained as a result of continued field investigations of redefined MHW boundaries. The main source of information has been from actual cases that have been sent to the district office for investigation. The problems encountered through these investigations have not always been able to be solved, only put aside for future consideration. Now is probably as good a time as any to open up this area for discussion and further investigation. The hope being that the associated problems can be solved and an acceptable methodology adopted. That is if a MHW boundary can be defined correctly in the first place.

This presentation can perhaps be considered as my own viewpoint. It may not necessarily agree with others. Some may even say that I am on a shaky ground. But at least it will cause people to stop and think, and to seriously evaluate the procedures that are in place. I must apologise for the lack of specific detail in the examples that I have chosen. Of my own choosing I have removed, as much as possible, specific identification of individual cases, as a matter of propriety.

Much of what is discussed will equally apply to the changes in the banks of non tidal streams.

Where is the Boundary ?

How would the average hard pressed for time surveyor define MHW in the field, while at the same time minimising the cost to the client, and gaining and acceptable rate of remuneration for the effort? Install a tide gauge and observe the tide levels over a lunar cycle, of course disregarding any non "ordinary" tides; transfer a level from the nearest Public Works tide gauge, if there is one; or any other precise method as required by any of the numerous definitions of MHW? Probably not. It would be reasonably safe to assume that most field definitions for a MHW boundary are carried out by instantaneous observation. This would be done irrespective of whether the tide is in or out. The point chosen being that which looks like the place the tide would mostly come to, and the dry land begin.

The Survey Practice Regulation 1990 gives us a series of options as to how to locate this wandering line by measurement, so as to depict it on a plan. (Clauses 15, 16, 20, 51(3),(4) apply) But how often have even these procedures been adhered to. Sometimes, especially in older plans, it would seem that the offset from the traverse to MHW has been a pure guess, and even then a very poor guess.

> *Plan 1 shows the river MHW boundary immediately adjacent to the traverse. The northern end of the traverse is on top of an extremely steep bank about 20 metres above the river. The actual MHW is about 10 metres west of that shown at the northern end. The southern end of the traverse is lower down and the MHW is correctly located. Allowing for some erosion over the last 80 years since the survey was done, the location of the river bank could only have been a guess and a poor one at that. The surveyor covers himself though by not giving any dimensions to MHW even though the title describes the western boundary as the bank of the river and thus presumably MHW. Plan 3 shows an "approx tidal limit (end of mangroves)". Is the whole MHW approx?*

Today's more modern plans are at times not much better. Even though the procedures for observing offsets may have been adhered to, the quality of the drafting of the plan results in the critical MHW boundary been poorly shown.

> *Plans 2 and 3, though surveyed only a few years apart, show marked differences in the position of the creek (tidal). It is not apparent from the plans as to why there should be any difference. Replotting from the field notes at a larger scale showed improvements and better agreement, but not a precise agreement. From the notes it could be shown that the number and location of offsets taken were perhaps insufficient. However, in any case, there was no procedures shown as to how or why the location of the MHW boundary was chosen on the bank, particularly where the bank is fairly flat. Perhaps an instantaneous observation was taken?*

Not a good start in locating the MHW boundary in the first place. But what happens if things start to change?

Changes in the MHWM

If the banks of the streams and thus the MHW boundary did not change, then the redefinition of the boundary would be simple. Unfortunately nature, and man, usually has other ideas. When it comes time to resurvey a parcel of land, invariably the high water boundary is found to be different from that shown on the original or previous plan of survey.

The Survey Practice Regulation 1990 gives the following directions for "*relocation of high water marks*"

> Clause 55 *If, since the date of any survey, there has been a change in the position of high water mark forming a boundary of land to be surveyed caused*

otherwise than by gradual and imperceptible accretion or erosion, in any subsequent survey the position of mean high water mark as it was immediately before the change must be relocated after examination of all relevant accessible information.

Seems straight forward enough. But now the fun starts.

Original Plans of Survey

Lets begin at the beginning, with the first plan, probably surveyed around 1900 or before, for the first grant. Mostly these plans are quite good and bear a reasonably close resemblance with the more modern survey dimensions. But invariably the plan which you are comparing your survey appears to be full of errors. It may not be possible to establish a correlation at all or within an accuracy of about +/- 10 metres or even greater. There may even be missing information that will not allow the high water traverse to be related to the right line boundary.

Plan 4 surveyed in 1869 is one such example which appears to be full of errors. Not only is there some bearings shown in reverse to the direction shown in the traverse schedule but some of the traverse points are missing. Directions are given from these points which are not shown on the traverse schedule, though they are plotted on the plan. There is also no connection between the traverse and the right line boundaries.

Not only have we taken an instantaneous guess as to the location of the MHW boundary but are now trying to compare it with one of 100 years ago which has been poorly documented or the records have not survived adequately enough. If the original or previous plan is so unreliable as to not be useable, then where do you go? There are no directions in this case.

The regulations do however tell us what to do for a particular type of change in the MHW boundary.

Sudden Change

Clause 55 directs that if the change is *caused otherwise than by gradual and imperceptible* means, that is sudden, quickly or perceptible, then *the position of mean high water as it was immediately before the change must be relocated.* In other words the title boundary does not change, if the physical high water boundary is changed, as a result of a sudden change such as flooding or by man excavating or adding to the bank.

But how can it be determine if the change is sudden. The only evidence that we may have on hand is a series of survey plans, if they are reliable, which show different distances down side boundaries to the high water. There is no evidence on any plan to indicate why the distance is different from the previous survey. The difference just is. It is like a series of snapshots in time. They tell us what is the case at that instant but not of what has happened during the interval. A life long feature length movie is what would be needed.

Table 1 shows the common boundary dimensions of a series of plans which gives such snapshots in time. There are no explanations on any plan as to why the differences. The original plan for the grants should also be included but the dimensions could not be correlated to better than 10m, and thus was unable to give any comparisons.

Date (Year)	Distance (Metres)	Time interval (Years)	Difference (Metres)
1923	48.28		
1930	43.45	7	4.83
1961	38.62	31	4.83
1987	30	26	8.62

It is doubtful that the ebb and flow of the tide in the coastal river systems, once you get away from the immediate river mouth, would cause very large changes in the location of the banks. Generally it is flooding that brings about a significant change in the location of the banks.

Records are kept of the heights of various floods. NSW Public Works have compiled flood analysis for most river systems along the coast. This will tell you when the flood occurred and its height, but not what all the effects are. Certainly in the areas of high public visibility, such as in towns, the changes are well noted.

> *A local fishing establishment had a series of wharves along a section of river bank. Officers of the associated fish cooperative confirmed that one particular flood took away all the wharves and some of the bank. New wharves were built against the new bank. Thus it was verified that there was at least one change had occurred suddenly.*

But what about in areas not often frequented by people? Generally there is no record of the before and after conditions of the bank. The only source of information may have been the old farmer who once lived in the area, but he/she died recently. If such a source is available then they will generally will not be able to tell you how much change occurred with each or any particular flood, only if a change occurred.

> *With the case of the fishing wharves there was no doubt that one change had occurred suddenly, but there were no measurement or plans that could show how much of a change occurred. The fishermen themselves did not know any closer than "about".*

Where then should the MHW boundary be located. According to the Survey Practice Regulation, the boundary should be located where it was immediately before the change. But where is that? No one knows exactly how much change occurred with the last flood. Was it right back to the location of the previous plan, which could be the original survey and possibly unreliable? There may have been a number of sudden changes between the two surveys. Before which successive sudden change should the boundary be located?

During the period between the previous survey and immediately before the flood, the changes may even have been occurring gradually (and imperceptibly) or in a combination of gradual and sudden movements.

One other source of information may be available to the investigation. A soil profile can be obtained by excavating the bank. This will show the deposition layers in a vertical direction. Unless a trench is cut from the present high water right through the bank to the old high water, the deposition of material in a lateral direction cannot be determined. This information may give some idea of the extent of shifts if there is distinct banding in the soil profile. The profile may be fairly uniform which doesn't help much. In the case of erosion there is no soil to excavate.

Some times there may be a case of the bed of the river rising vertically over a large section. Such would be the case if material were deposited within a reed bed or mangrove swamp. It would not matter if the deposition was gradual or sudden, because the build up is in a vertical direction only. The lateral shift in the high water boundary occurs when sufficient material has been deposited to raise the bed up above the level of MHW. Thus the lateral change is quick. However this occurrence can not easily be determined as again we only have random snapshots in time from plans and perhaps aerial photos. Most of the determination is based on supposition.

Determining if a sudden shift has occurred generally only happens if the change has been documented or witnessed. We do not have a full life long feature film of the happenings of any particular stretch of river. The occurrence of a sudden change can perhaps be the easiest to determine, but not necessarily the extent of the change. Gradual and imperceptible is another matter with even worse guidelines.

Gradual Change

The implication of Clause 55 is that if the change in the bank is by *gradual and imperceptible accretion or erosion* then the title boundary also changes. But what is gradual and imperceptible. Consulting that icon of all definitions, the office dictionary, the following is found.

Concise Oxford Dictionary seventh edition

> **gradual** taking place by degrees, slowly progressive, not rapid, steep, or abrupt
> **imperceptible** that cannot be perceived; very slight, gradual , or subtle

To these definitions, an acceptable time frame must be added, otherwise a considerable amount of time could be considered. The accepted time frame is *from day to day, week to week, month to month*. Within this time *a man cannot see where his old boundary was*. (Hindson v. Ashby 1896).

Further to this is the added proviso that the change must take place naturally and unintentionally. That is you cannot physically cause the change to occur.

What this seems to add up to is that if a land owner cannot perceive any changes in the position of the bank, up to the month to month time frame, by just standing on the bank and casting his/her gaze out over the scenery then a change is classified as being gradual and imperceptible.

What if there was a post driven into the bank on exactly the MHW line. Each time the land owner came down to have a look at the post day to day, week to week or month to month, there was no perceivable change? Obviously the bank was not accreting or eroding. If change were occurring then it was not perceived. But if a change were noted, no matter how small, then the change would be perceptible. Now take away the post. With no point of reference then there is no way of determining if any change was occurring. With the post, a change would be perceptible, but without the post that same change could be classed as imperceptible.

> *Take for example the case of the Southern Centre of Theosophy Inc v State of South Australia. Here the rate of advance of the foreshore of a lake calculated from a series of plans and air photos, was 15.16 metres per annum in the direction of advance of the dunal system, which equated to 7.14 metres pere annum perpendicular to the lake shore. The actual event of the wind blown sand dune was discounted as this was perceptible in a short period of time and was considered as not the same as the movement of the land into the sea. A rate of 15.16m/pa equates to 1.26 m/month, 0.3m/week (1 foot) and 0.04m/day. The shift perpendicular to the shore being 0.6m/month. This seems extremely fast, but if there were no post with which to refer to, to see if any change were occurring, then this rate of change could be and was considered as gradual and imperceptible.*

It could now be presumed that for gradual and imperceptible to be applied, there should not be any reference point, such as a post, upon which any change could be seen. You must have a vacant landscape. The rate of change can also conceivably be very large. It could also equally be very small.

Table 2 completes the story of table 1. The rates of change are only of the order of 0.2-0.7m/year. Well within the scope of the above example. The changes do not appear to be consistent over the 68 years. Either the gradual rate of change slowed down and eventually stopped or there was a series of not uniform sudden changes. No change occurred in the last 30 year interval. The conditions causing the changes had not re-occurred or they in themselves had changed.

Date (Year)	Distance (Metres)	Time interval (Years)	Difference (Metres)	Rate of Change (Metres/year)
1923	48.28			
1930	43.45	7	4.83	0.7
1961	38.62	31	4.83	0.2
1987	30	26	8.62	0.3
1991	30	4	0	0

The snapshots in time have not shown how the changes took place or what occurred between those documented positions of MHW. There must be some other method of determination.

Perhaps a consultation with an expert in the field of drifting coastal sand dune systems, or one conversant with the meanderings of tidal rivers in a coastal flood plain situation will provide some answers. You will certainly obtain the theory associated with these events, but it will not provide data on a specific event. Only recorded observations of that event will give the required information.

Where does that leave us? The original definition was an instantaneous guesstimate which could be unreliable for comparisons; the changes have been determined from a rough casting of the gaze across the scenery and an expert has provided a valuable lesson in coastal geography. Unfortunately the MHW boundary has not been determined with any absolute degree of certainty. Where next?

Artificial Changes

It is generally accepted that for the MHW boundary to change, those changes should be by natural means. Assuming of course the change is gradual and imperceptible.

This thus rules out a property owner gaining more land by reclamation. The same would apply if structure was placed out into the river and land accumulated on one side of it. But that is for the offenders land. The next door neighbour however may reap a benefit because the change occurring to their land is by natural accretion not influenced by them. It is the first neighbour that has influenced the change.

Today we tend to live in the fast lane. Boating has moved from the nostalgic era of sail to high powered leisure craft. The resultant wash is having serious repercussions on the stability of river banks. The wave action usually occurs around the MHW line, undermining the bank slowly and usually unobserved, over an extended period. The top of the bank then collapses in a sudden movement. There are 3 elements to the erosion; gradual and imperceptible, sudden and by artificial influences. The action of the wave against the bank is natural and so to is the erosion, however the wave has been induced artificially. Here the change has been induced unintentionally by a third party not related to the owners of the land above or below MHW. The type of treatment for the changed MHW in this case is unclear. How is the hard pressed surveyor to determine what is appropriate.

Artificial changes have now been introduced into the equation. The situation has not improved. If anything the head is spinning even faster.

Has A Change Occurred?

Sometimes it is unknown or unclear that a change had occurred. This can be a result of a number of factors.

DON'T CROSS THE ROAD

There is philosophy that is unfortunately prevalent amongst some surveyors that you do not cross the road. I have heard of one instance where a supposed parallel road 20.115 wide actually tapers to a point when both sides are taken into account. A similar occurrence can occur with a creek, particularly a narrow one. A survey may define say the western side of a tidal creek. Some years later the eastern side is surveyed. No connection is made across the creek and no comparison made with the survey on the other side. It is not until many years later and a subsequent survey that connects the two original surveys. And guess what? When the two original surveys are plotted together it is found the eastern side of the creek is in places, west of the western bank.

> *Plan 5 show just such an example. Alternate definitions of the MHW were carried out on opposite sides of the creek. The surveys were never connected. It was not until the investigation of yet another definition, that it was found there was encroachment into someone else's land. A more recent unrelated plan provided the connection which the comparison could be made.*

NO CHANGE DECLARATIONS

"The location of the existing MHW boundary shown hereon is substantially the same as shown on ...". This has often been used giving the impression that there has been no changes worth considering between the later survey and previous ones. A lot will depend upon how the definition of "substantially" is viewed. It could be perceived similarly to imperceptible.

> *In the same area as the plans of table 1 and 2 the substantially the same statement was show on a later plan. The plan was partially compiled and partially surveyed. The compiled end of the land which intersected the MHW was shown with the same dimension as the previous plan. The surveyed part showed a 3 metre reduction in the length of the common boundary measured to MHW. The rate of change was consistent with the other changes of that time as shown in the tables.*

Just because a plan makes the statement that indicates that there are no changes does not necessarily mean that none have occurred. This may just be one surveyors way of minimising costs to a client and realising a reasonable rate of return. Even if no changes are indicated, there could be differences resulting from other adjacent surveys not necessarily related to the land under investigation.

DRAFTING

Drafting can also lead to undetermined changes. On a plan scale of 1:5000, which is quite plausible in a country situation, a line thickness of 0.5mm represents 2.5 metres on the ground. A slip of the pen of 2mm in drafting of the wavy MHW boundary would mean a error of 10m on the ground. You can add any other scale you like but the point is that the representation of the MHW boundary is dependent upon the plan upon which it is drawn. Even though the Survey Practice Regulations implore us to determine the position with appropriate accuracy, the limiting factor is the survey plan. The resultant accuracy, when translated to the ground could be considerably less than any field re-determination.

> *Plans 2 and 3 are an example where the drafted representation on the plans may have been a limiting factor in comparing the MHW's. Plan 6 is the same plans replotted from the field notes using a computer. The comparison is much closer.*

Legislation vs Clients

The hard pressed surveyor is usually trying to do the right thing by everyone, caught somewhere between legislative requirements, clients demands and looking after number one. In some instances what is done depends upon expedience rather than the letter of the law. During one case investigated the same surveyor in the same locality applied three different methods in determining the MHW boundary.

1. Used the "substantially the same" declaration even though the changes were consistent with other changes of that time in the area;

2. Changed the location of the boundary between subsequent plans of his own doing as though the changes were gradual and imperceptible;

3. Sought the location of MHW to be determined in the location of the previous plan as though the changes were sudden.

One of the reasons the surveyor offered for the various approaches was "I adopted the MHWM in ... because the owner wasn't interested in owning the river and it seemed like the most practical line to adopt."

It would seem that the doctrine of accretion and erosion has only been followed when it suits. Other more easy approaches have been used which effectively alter the MHW boundary. The surveyors first two methods resulted in plans being registered and new boundaries adopted, and approved of by default, by both the land owner and the Crown.

Strike the surveyor off! Lets not be too harsh. The establishment's track record has yet to be examined.

Officialdom

Over the last 50 or so years the instances where the Surveyor General, or the Department (ex Lands), has reviewed or had the opportunity to review MHW boundary definitions, has been sporadic. In a lot of cases the plan of survey went straight to the Land Titles Office, bypassing the Surveyor General. In many instances there were significant changes in the MHW location. With the subsequent registration of the title the changed boundary is adopted by the Crown, by default, and that land now below MHW presumably reverting the Crown. Thus neatly side stepping legislation, and having the need to examine the doctrine of accretion and erosion. This type of MHW boundary change is not covered by any of the rules. It has the appearance of a new type of practice which has evolved of its own volition.

When the plan has on the odd occasion been examined by the authorities, inconsistent approaches have often resulted. Usually it is only the cases of accretion to the land, and thus loss of ownership from the Crown, that are investigated. In one case of substantial erosion, the official record shows "*definition accepted as Crowns interest is not adversely affected*". Subsequently no investigation was carried out. Legislation does not draw any differences if the Crowns interest is adversely affected or not. All changes in MHW have to be thoroughly investigated and substantiated.

Clause 57(5) Survey Practice Regulation 1990

> *If a mean high water mark is determined, the approval of the Minister administering the Crown Lands Act 1989 (or of a person authorised by that Minister) to the determination and of any other owner of any adjoining land below the mean high water mark must be obtained.*

Often records have either not been kept of determinations or they have been lost or destroyed over the years. There is usually no way of determining how the relocation of MHW from one plan to the next has been determined. There is no indication on the face of the plan and the department has no record of the determination.

Conflicting statements have also been issued over the same parcels of land.

> *"..the Crown is not prepared to forego its claim to ... and should be regarded as an indication of future Departmental policy."*

A later statement reversed this view.

> *".. it was later determined that the land was not Crown land and the titles extended with accretion."*

The stretch of river in question has altered its banks in some places over 200 metres. Some of the once river bed and now dry land was originally surveyed by the Crown for disposal. Some of the resultant lots gained freehold status by either sale or unopposed

claim of accretion. Other land retains tenure as a permissive occupancy. Not only does the Department appear to be confused as to the status of the land but the adjacent owners are even more so.

> *Plan 7 shows an example of where the river is now completely outside its original banks and on freehold land. The original river bed having been sold off. It is also an example of do not cross the road as the parish dealing on either side have not caught up with each other and there is no room left for the river.*

The latest Surveyor General's Directions require the surveyor to place at the bottom of the signature and seals panel of the plan form the statement:

> *'The location of Mean High Water Mark shown hereon has been approved by the Surveyor General via file .. on ... "*

This is fine, it tells us that the Department (Surveyor General) has examined the plan and approved of the changed MHW boundary, but there is still no indication as to why that boundary has altered. Hopefully the file will be kept and the determination retained for future reference.

There is still the "substantially the same" clause which can be used to bypass the Surveyor General. A requisition may be issued if the investigating officer is of a different opinion to that of he surveyor as to what "substantially" constitutes.

If the surveyor is to be struck off then it would appear that so should the Department.

Who Owns Below MHW?

Clause 57(5) of the Survey Practice Regulation 1990 implies that there are two types of ownership of land below MHW. Crown and any other owner. Approval of a MHW determination is required of the Minister administering the Crown Lands Act 1989 and *"of any other owner of any adjoining land below the mean high water mark"*. Owners other than the Crown would only exist if there had been a grant below MHW or if changes had been brought about as a result of sudden change. The Crown's interest could cease at the old MHW line. It may be conceivable that there have been several steps of sudden change from the original grant, those depicted in tables 1 & 2 for example. If such were the case then there may be several owners in variable width strips between the Crown ownership and the present MHW boundary. There is also the possible freehold condition of a grant below MHW.

The Surveyor General's Directions however state *"titles to the beds of all tidal waters, unless specifically vested in another authority or the subject of a Crown Grant, are invested in the Crown"*. This does not allow the flexibility that could be interpreted from the Survey Practice Regulation. For all river beds to belong to the Crown, grant excluded, then any changes could only have occurred as a result of gradual and imperceptible means. The poor old fishing wharves were not swept away by gradual and imperceptible means. There does not appear to be any allowance for freehold ownership brought about by sudden change.

The situation with the fishing wharves is shown in plan 8. The location of a redetermined MHW boundary for lot 101 in 1969 is a subdivision of lot 10. Lot 10 redefined MHW in 1924 behind the right line boundaries of a road excised out of the original portions in 1891. The road was supposedly against the original bank of 1869 though the drafted boundary shows marked differences to the original plan and the road plan has the notation "bank extremely eroded" adjacent to the land in question. A flood in 1963 swept away the old wharves and some of the bank. The wharves were subsequently rebuilt against the new bank which was redetermined in the 1969 survey.

The legal opinion was that what was shown as a MHW boundary was not a water nor an ambulatory boundary. The submerged land was also freehold land. Thus the plan defining lot 101 should show 3 lots instead of only the two above MHW. One below water between the 1969 definition and the 1924 definition. It is also conceivable that there could be a number of freehold strips below the present line of MHW.

The doctrine of accretion and erosion stops at a right line boundary and does not proceed beyond even though the physical MHWM continues to fluctuate. That is if I can understand correctly legal speak. This policy originates with a ruling by Simpson CJ in McGrath vs William, which sets the landward boundary of a 100 feet reservation to be a right line representation 100 feet parallel to the MHW at the time of the grant. Even though the water boundary could fluctuate, the inland boundary remains fixed. It has since been the Departmental policy that the landward boundary is not subject to accretion and erosion. Thus the MHWM could pass landward of that line, gradually and imperceptibly, leaving the bed of the river in freehold ownership.

Contrary to this is now a decision of Bannon J in EPA vs Saunders which concluded that all land below MHW belonged to the Crown unless a grant was intended to apply below MHW. That is provided that the land which had become submerged was caused by gradual and imperceptible processes. The Department's legal professionals of course have called Bannon incorrect.

By Bannon's process it would be possible for the MHW to erode away part or all of a parcel of land and then continue on into the next. The land below MHW at all times being Crown. The line between the two properties would remain fixed, according to Simpson, but the Departments policy of no erosion or accretion landward of a right line boundary would not be adhered to. The process would however agree with the Surveyor General's Directions. It would be interesting to have a case Simpson vs Bannon, just to see what outcome would evolve.

Now lets throw in the Commonwealth Native Titles Act 1993. This Act questions the ownership of what once was considered as Crown tenure. It opens the way to possible native ownership of the remainder of all that was considered as Crown. The exact extent of that ownership has yet to be determined. But what it could ultimately mean is that the Crown no longer owns below MHW.

Where are we now? The original definition was an instantaneous guesstimate which could be unreliable for comparisons; the changes have been determined from a rough

casting of the gaze across the scenery; an expert has provided a valuable lesson in coastal geography; we are not sure if a change has really occurred because no one went across the other side of the road; the bank has changed when the plan says it hasn't; plotting accuracy leads to suspect ground location; artificially induced river bank movements; the official procedures are in a chaotic state and we are not really sure of who owns what. It seems that we are getting further and further away from an acceptable MHW boundary definition. At least there is someone who can make a ruling on this boundary. Or is there?

Who Rules on MHW Boundary Definitions?

Who said the Surveyor General? May be not!

Clause 57(5) of the Survey Practice Regulation 1990

> *If a mean high water mark is determined, the approval of the Minister administering the Crown Lands Act 1989 (or of a person authorised by that Minister) to the determination and of any other owner of any adjoining land below the mean high water mark must be obtained.*

Seems straight forward enough. The consent of the Minister administering the Crown Lands Act 1989, or a nominee, the Surveyor General (clause 57(6), and any other owner (presuming other freehold ownership) must be obtained, for a determination of MHW to be approved.

The Crown Lands Act 1989 however does not give any powers to deal with lands other than Crown Lands as defined by the Act. Remember also the case of the vanishing fishing wharves? The legal opinion was that the land was not Crown Land and thus the Department had no right to deal with the land. Following this through, it would seem that the Minister administering the Crown Lands Act 1989, would not have any power to deal with land other than Crown Land. So too would a nominee. It could thus be shown that the Surveyor General should have no power to deal with a MHW boundary determination, other than where the Crown has an interest. In submerged tidal lands where the boundary is between freehold owners, such as with the fishing wharves, the Surveyor General should have no say, as it is between two freehold owners.

The Surveyor General's Directions

> *Titles to the beds of all tidal waters, unless specifically vested in another authority or the subject of a Crown Grant, are invested in the Crown. The Minister for the Department Land and Water Conservation is responsible for the administration of these titles and the authority for approving Mean High Water Mark re-determinations lies with the Surveyor General or his delegate.*
>
> *The Maritime Service Board is the authority responsible for the control of all land below Mean High Water Mark in Sydney Harbour, Botany Bay, Port Hunter and Port Kembla Harbour.*

This reinforces the Survey Practice Regulation, but boldly suggests that *the beds of all tidal waters* is Crown Land unless it were subject to a grant. There is very limited latitude for an alternative freehold ownership below MHW. It also announces other control authorities in designated areas. The same argument that applied to the Survey Practice Regulation will also apply here. Unless the MHW abuts Crown Land, the Surveyor General would have no authority.

The course of the river may also have changed significantly enough to be entirely on freehold land. The individual land owners, if they are still around, would be the most likely people to deal with when redetermining a boundary.

The case of the fishing wharves would indicate that it is possible to have a number of owners below MHW. If Department policy were also followed then there would be no Crown ownership landward of the original right line boundaries irrespective of whatever change in MHW had occurred. Also the MHW line may not classed as a water boundary. All these areas are where it would seem that the Surveyor General may have no powers to adjudicate.

It would appear that the Surveyor General may only have jurisdiction over re-determinations of MHW boundaries that abut Crown Land.

Now introduce again the Commonwealth Native Titles Act 1993. As pointed out this could mean that the land that was vested in the Crown below MHW may belong to the original native inhabitants. This however has yet to be determined. In the mean time there are rules which govern the dealing in possible native title lands. If my understanding is correct then what is classed as impermissible future acts are essentially prohibited. That is any act that could adversely affect the native title rights cannot be carried out. Sectioning off part of the "Crown" land to freehold would constitute and impermissible act.

This either brings into place another player in the "approval" of MHW definitions or pushes aside the Surveyor General. The possible Native Title Owner may be the person to deal with.

Until such time as native title has been proven or not the land is being dealt with in terms of the Crown Lands Act 1989, providing the Commonwealth Native Titles Act 1993 is not impinged upon.

Is it Really A MHW Boundary?

Sorry to keep going back to the fishing wharves, but a lot came out of that case. The legal opinion said that what was shown as a MHW boundary was really not a water boundary and therefore not an ambulatory boundary. What does this imply.

A MHW boundary may not be really a MHW boundary. Someone should try telling that to the water. An extrapolation of this could be that there can only be a MHW boundary when that boundary abuts Crown Land. There cannot be a MHW boundary between two freehold owners.

The physical MHW is ambulatory in nature. It moves about depending upon the conditions. Ownership of the land would be of no consequence to nature. But it would seem that the legal profession would deem otherwise, placing a definition of a MHW boundary dependent upon the ownership of the land. Whether or not it can ambulate would also be dependent upon the ownership of the land.

Confused? So am I, and I wrote this.

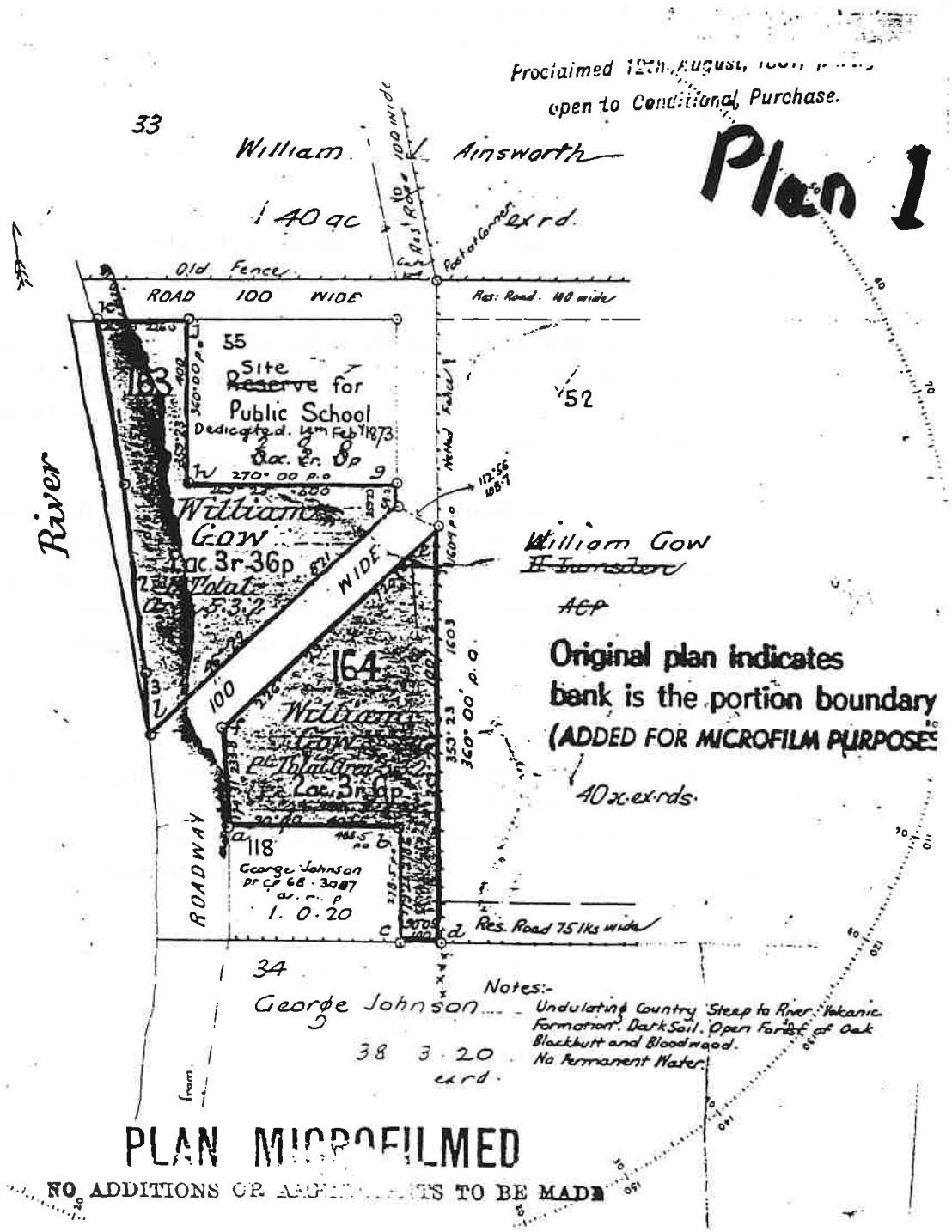
Conclusion

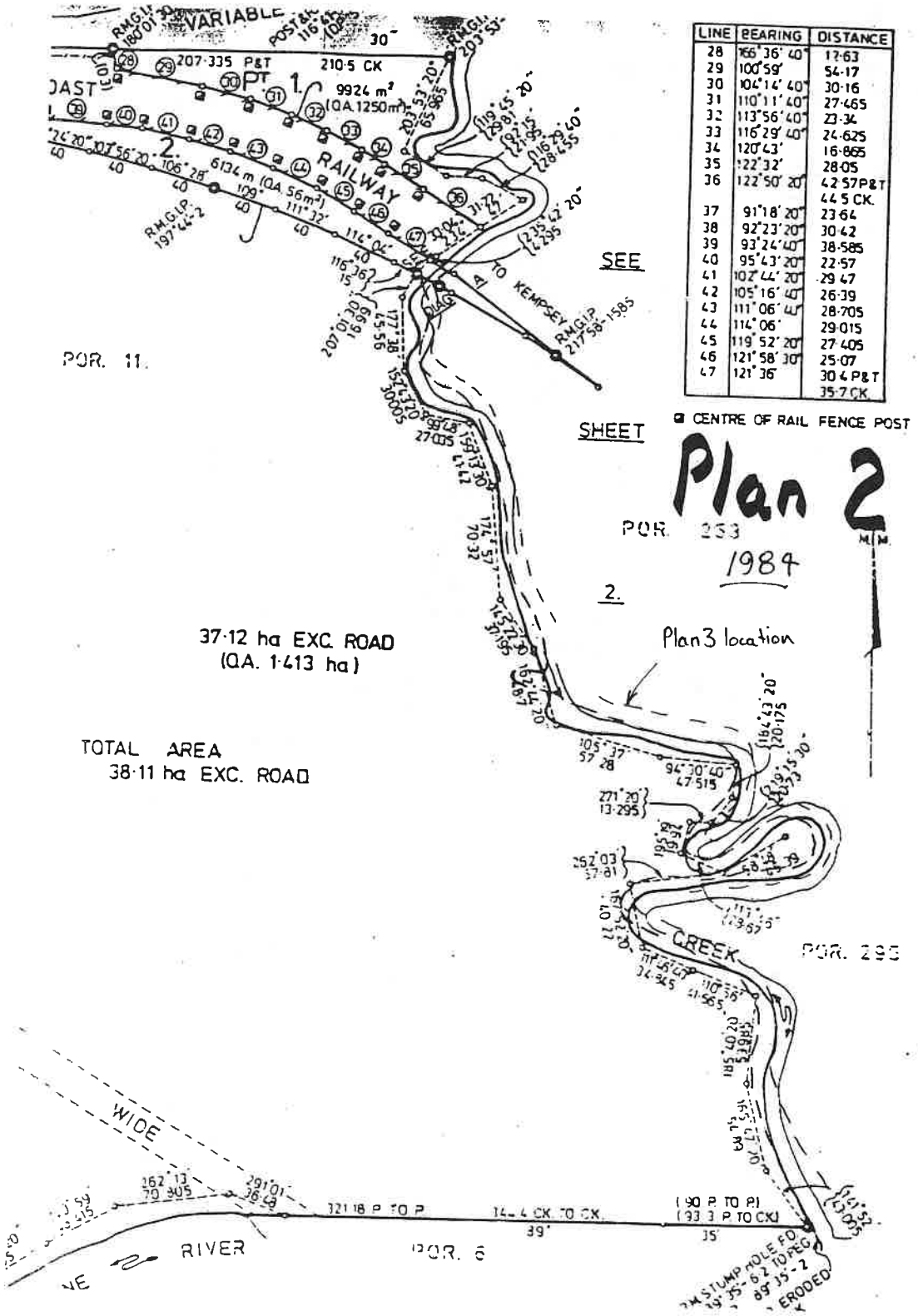
Where does all this leave us other than in a state of confusion? I really do not know. Just as the definition of MHW in ambiguous, so to is the process by which the MHW boundary is determined. Not only are the rules conflicting but they do not cover all eventualities. At times it seems that events have taken things into its own hands and bypassed all the mess and made their own rules. It would appear that in a significant number of cases, the doctrine of accretion and erosion, upon which redetermined MHW definitions are based, has been bypassed.

One thing that has surfaced is that essentially a MHW boundary redefinition has come down to an agreement between parties, irrespective of how the changes came about or the ownership. If the parties, whoever they may be, can agree then well and good. But if they cannot then the courts will decide. The Surveyor General may not necessarily be part of that agreement. Or maybe the Surveyor General should be the arbiter in all cases.

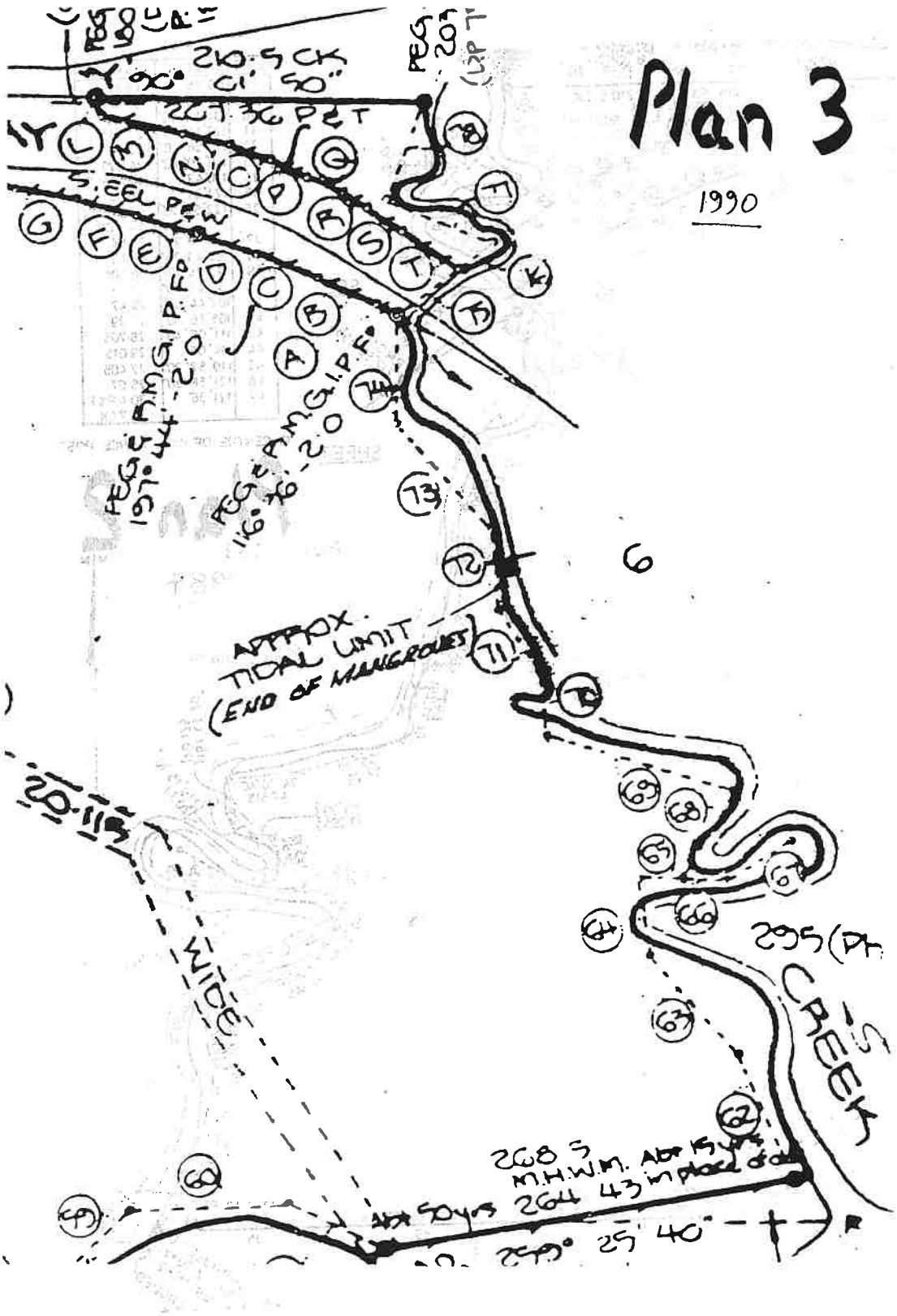
Where do we go to from here? That is certain. The whole process needs to be closely looked at and perhaps a new set of rules and guidelines drawn up. Something that is not only legislatively possible but practically achievable as well. It also has to be consistent, with all the ambiguities and uncertainties permanently removed. If the survey profession does not sort it out then it may be taken out of our hands for someone else to make a decision.

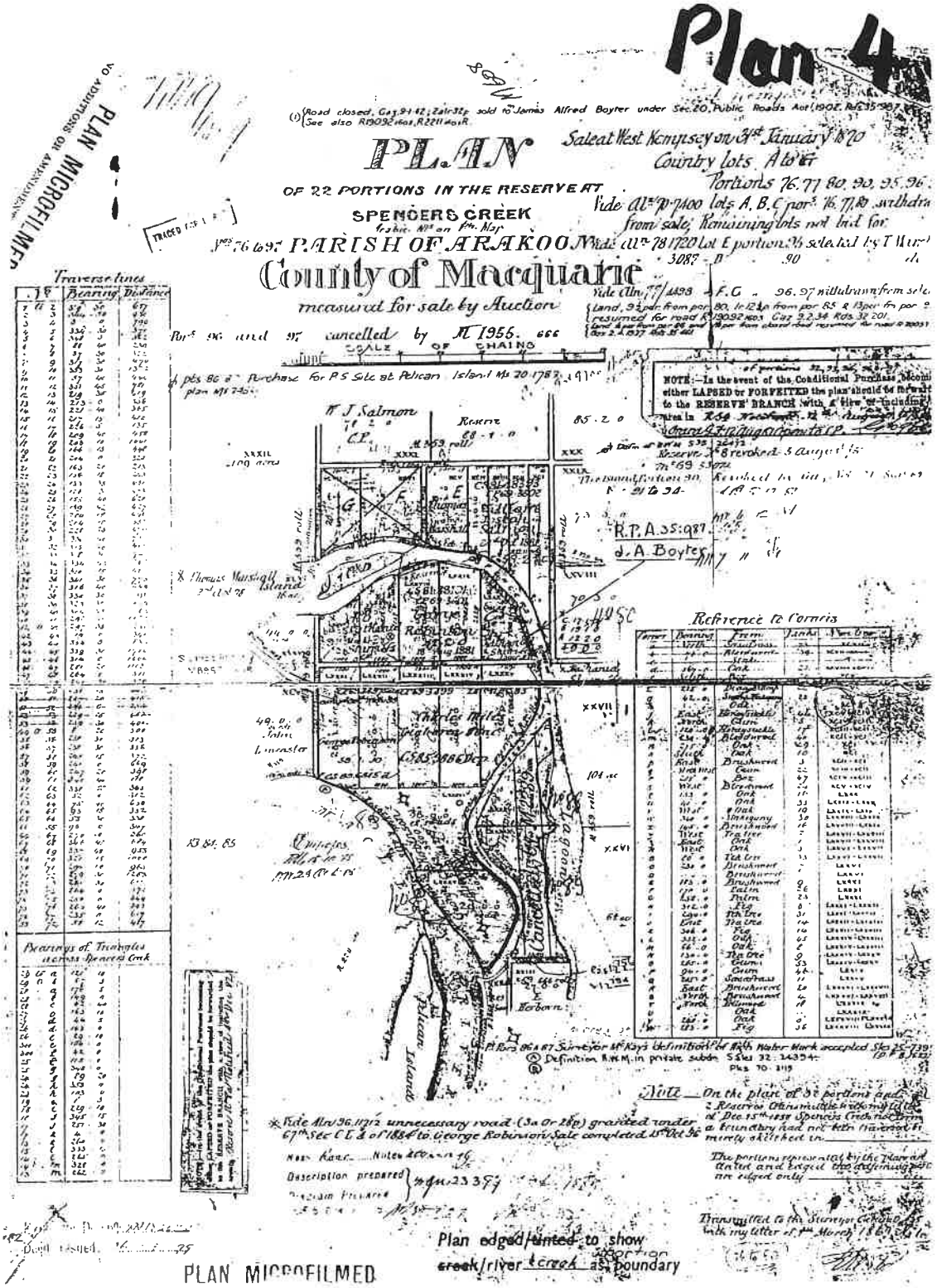
Those attending this conference, form in NSW a significant proportion of practical field Surveyors and experienced examiners of Surveys dealing with high water mark as a boundary. *(Thank you Peter Blume)* This is possibly the most logical place to start.


Proclaimed 12th August, 1881
open to Conditional Purchase.
Plan 1
33
William Ainsworth
140 ac
Old Fence
ROAD 100 WIDE
Res: Road 100 wide
55
Site
Reserve for
Public School
Dedicated 14th Feb 1873
2 ac. 2r. 0p
270·00 p.o
52
River
William Gow
1 ac. 3r. 36p
Total 5.3.2
WIDE
William Gow
ACP
Original plan indicates
bank is the portion boundary
(ADDED FOR MICROFILM PURPOSES
40x.ex.rds.
164
William Gow
Pt Portion 2
2ac. 3r. 0p
118
George Johnson
pr CP 68·3087
1. 0. 20
ROADWAY
Res. Road 75 lks wide
34
George Johnson
38 3. 20
ex.rd.
Notes:-
Undulating Country Steep to River. Volcanic Formation. Dark Soil. Open Forest of Oak Blackbutt and Bloodwood.
No Permanent Water.
PLAN MICROFILMED
NO ADDITIONS OR ALTERATIONS TO BE MADE

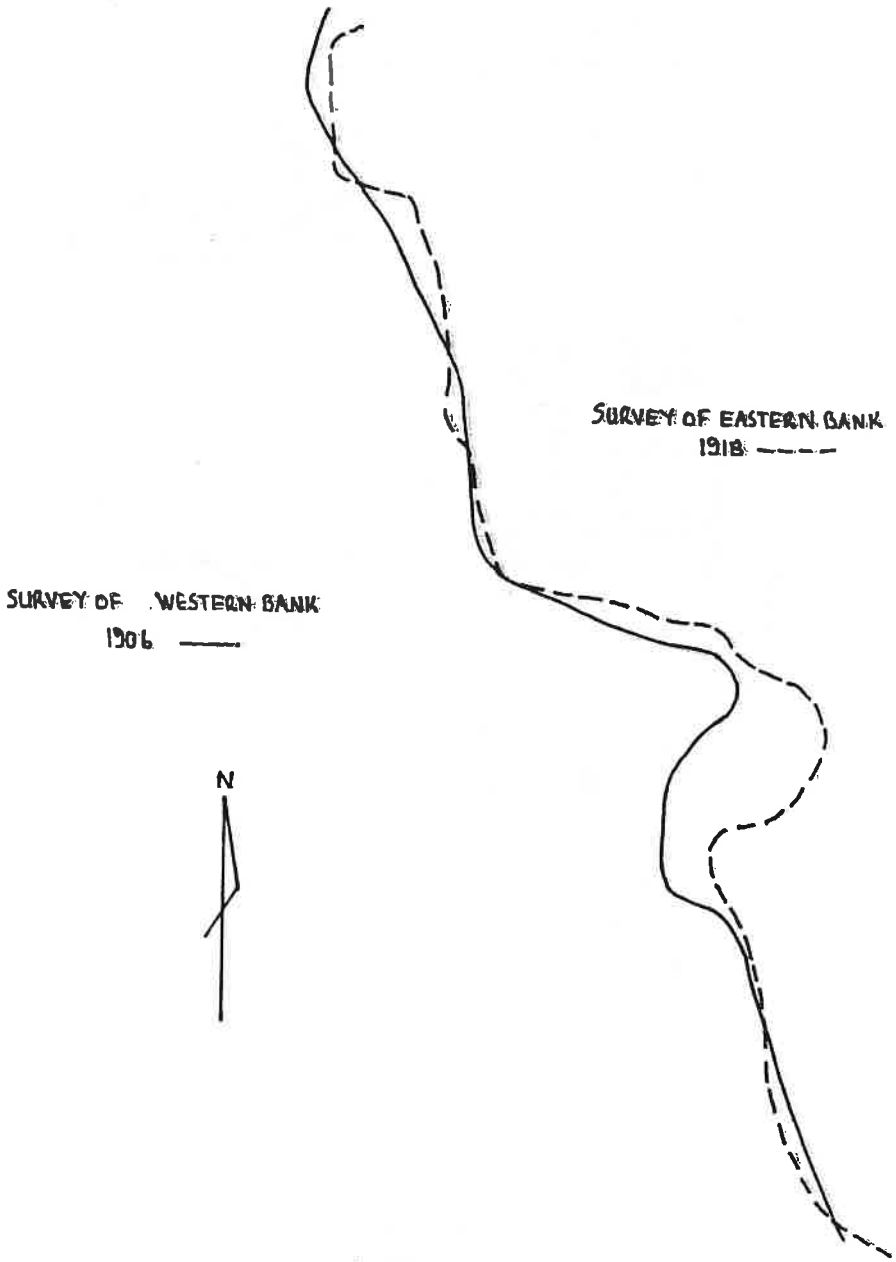


LINE	BEARING	DISTANCE
28	166° 36' 40"	17·63
29	100° 59'	54·17
30	104° 14' 40"	30·16
31	110° 11' 40"	27·465
32	113° 56' 40"	23·34
33	116° 29' 40"	24·625
34	120° 43'	16·865
35	122° 32'	28·05
36	122° 50' 20"	42·57 P&T 44·5 CK.
37	91° 18' 20"	23·64
38	92° 23' 20"	30·42
39	93° 24' 40"	38·585
40	95° 43' 20"	22·57
41	102° 44' 20"	29·47
42	105° 16' 40"	26·39
43	111° 06' 40"	28·705
44	114° 06'	29·015
45	119° 52' 20"	27·405
46	121° 58' 30"	25·07
47	121° 36'	30·4 P&T 35·7 CK.

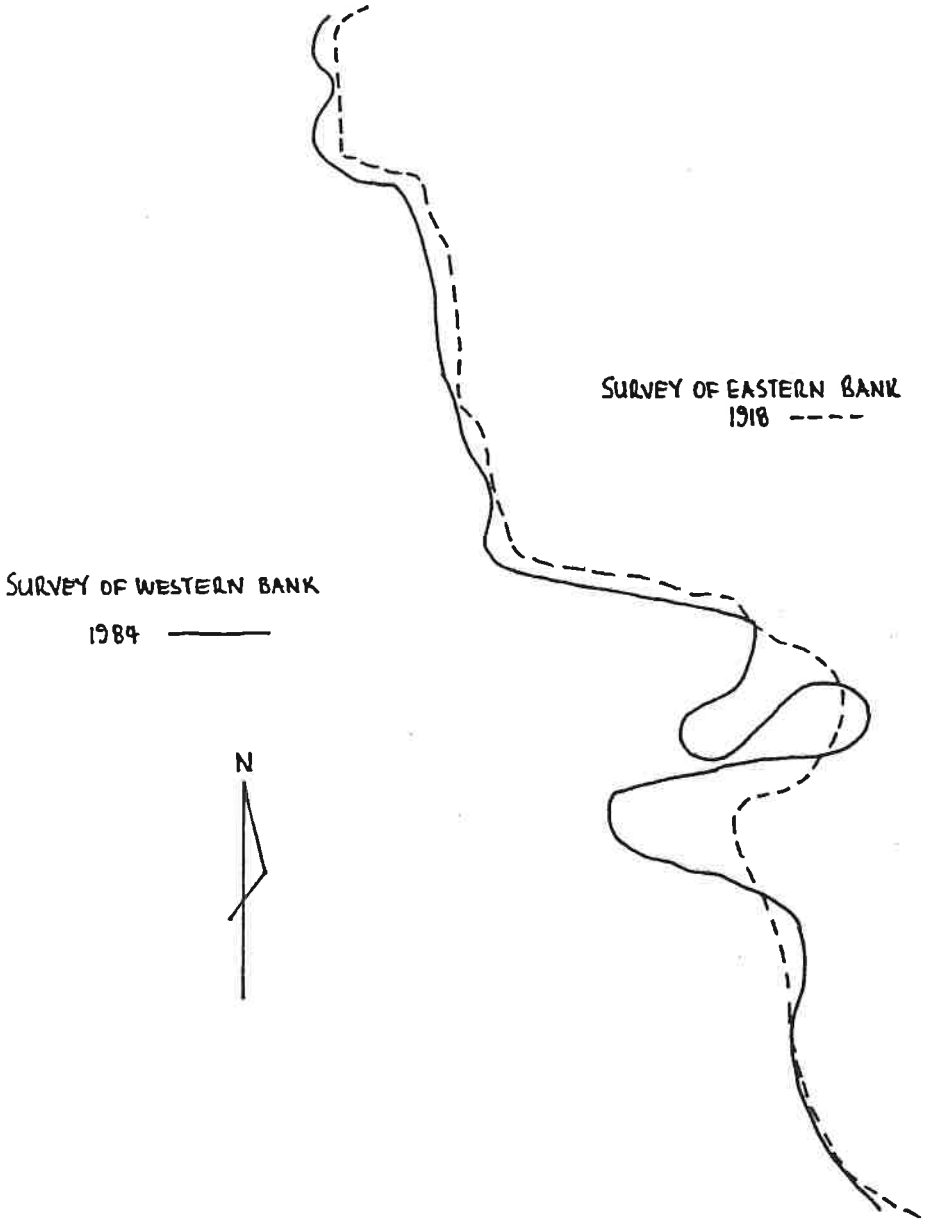

Plan 3
1990
APPROX.
TIDAL LIMIT
(END OF MANGROVES)
WIDE
CREEK


Plan 4
PLAN
OF 22 PORTIONS IN THE RESERVE AT
SPENCERS CREEK
PARISH OF ARAKOO
County of Macquarie
measured for sale by Auction
Sale at West Kempsey on 31st January 1870
Country lots A to G
Portions 76. 77. 80. 90. 95. 96.
SCALE OF CHAINS
PLAN MICROFILMED
Traverse lines
Bearings of Triangles across Spencers Creek
Reference to Corners
Pelican Island
Plan edged/tinted to show creek/river/creek as boundary
PLAN MICROFILMED

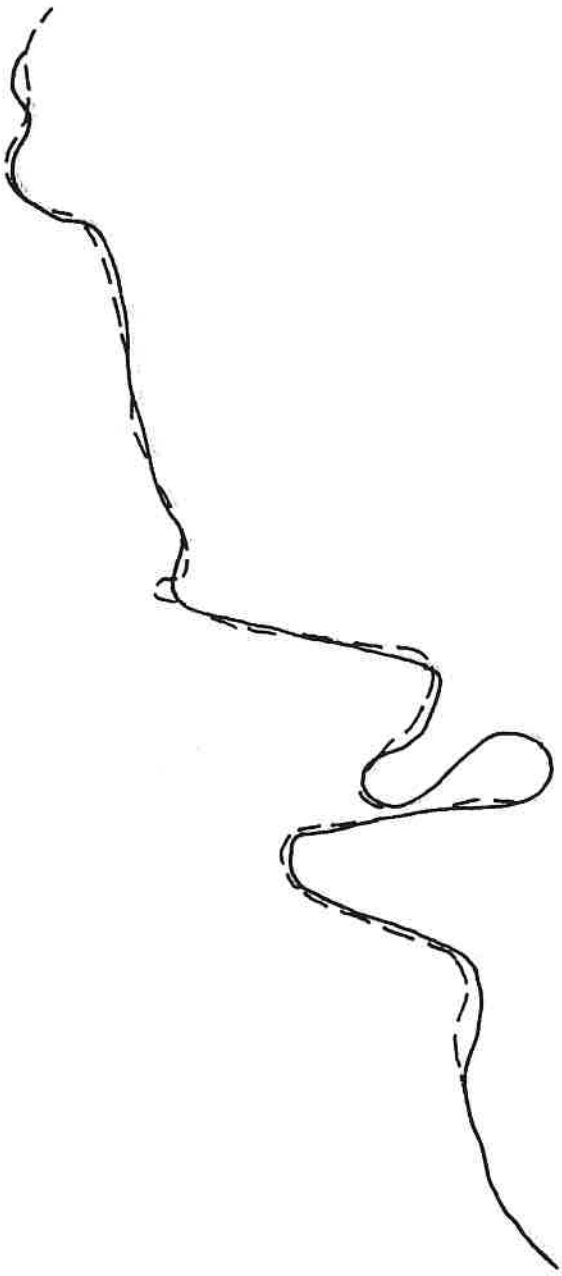
Plan 5



Plan 5a



Plan 6

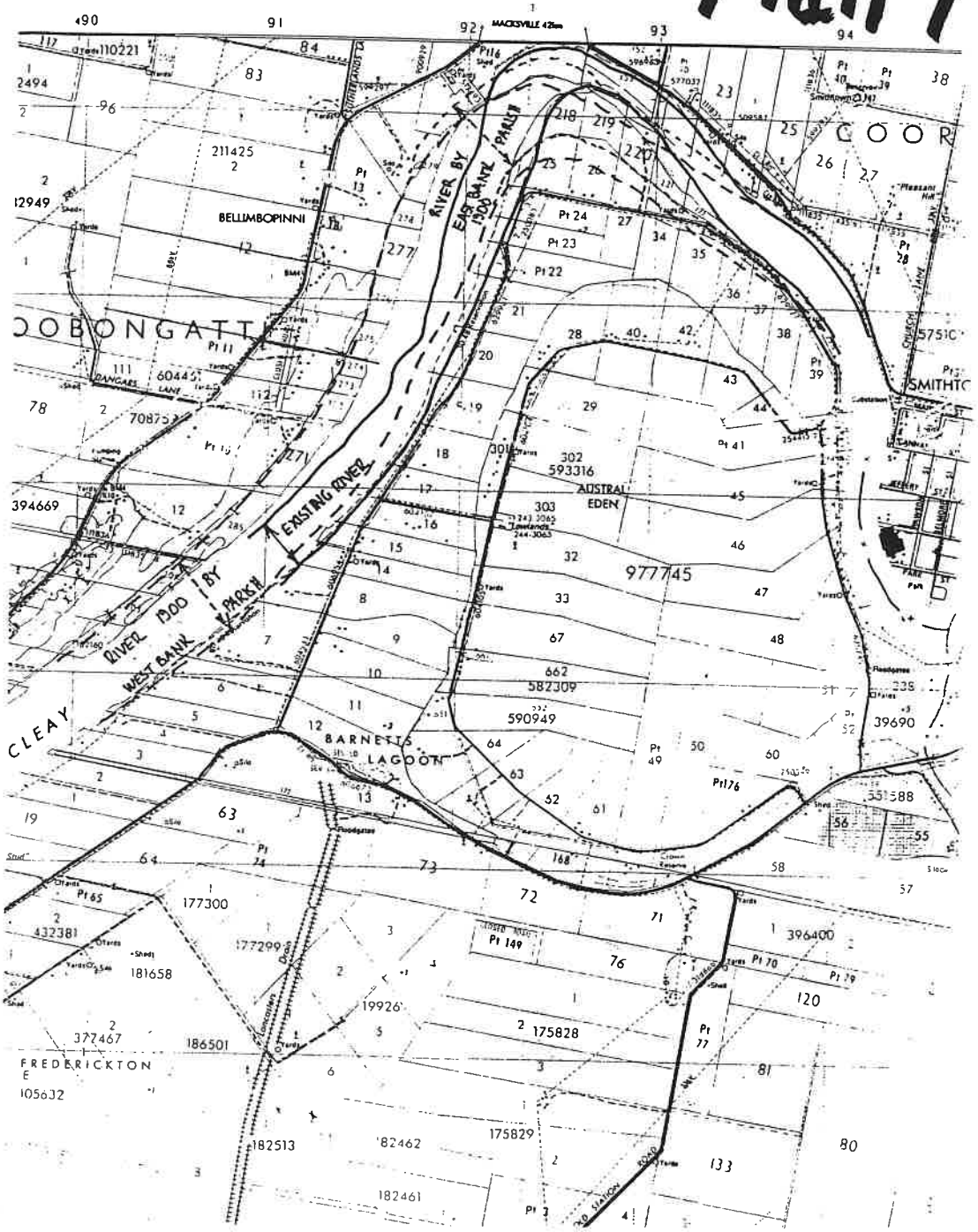


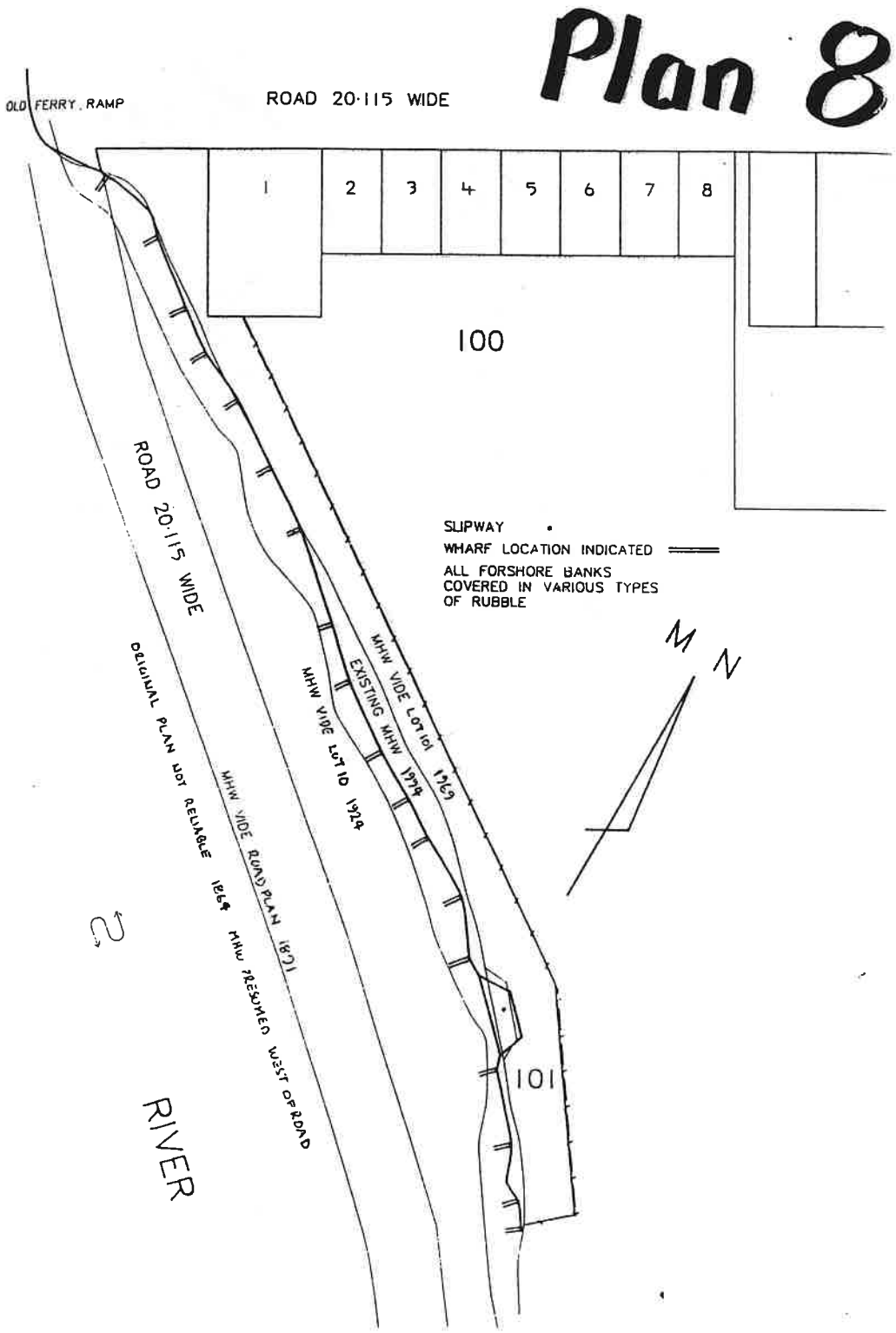
Plan 2 ——

Plan 3 - - - - -

KEMPSEY 9435-1-N
1:25.000 TOPOGRAPHIC MAP

Plan 7




Plan 8
OLD FERRY RAMP
ROAD 20·115 WIDE
1
2
3
4
5
6
7
8
100
101
ROAD 20·115 WIDE
SLIPWAY
WHARF LOCATION INDICATED
ALL FORSHORE BANKS COVERED IN VARIOUS TYPES OF RUBBLE
MHW VIDE LOT 101 1969
EXISTING MHW 1979
MHW VIDE LOT 10 1929
MHW VIDE RUNDLE PLAN 1821
ORIGINAL PLAN NOT RELIABLE 1869 MHW PRESUMED WEST OF ROAD
RIVER
N