

Copy to S. WEISBERG



THE DAY

in question

MATTHEW SMITH

Acknowledgments

*Best wishes
Matthew Smith*

We are indebted to a lot of people who have contributed in one way or another to the success of our work. Wayne January, for his measuring activities in the Dealey Plaza, earned our gratitude, as did Colin McSween, for his excellent data on the Presidential Lincoln. RB Cutler deserves praise for the basic content of his map and details of the Stemmons road sign, all of which was very helpful, and we are grateful to Dr Walt Brown for contributing two excellent prints of autopsy photographs.

It was Canova Hunt, at the Sixth Floor Centre, who led us to Jeff Flasch, a member of the Oliver Stone team. In turn, Jeff found us the source of the Stemmons road sign dimensions and we record our thanks to them both.

Dr Cyril Wecht offered encouragement during the final year of our study, as the results were being finalised, and we appreciate this. Dr Charles Crenshaw expressed interest in our work and was kind enough to allow us to consult him on an important medical point. Ian Griggs helped with some excellent data relating to the scope on Lee Harvey Oswald's rifle and produced useful photographs, also.

Landmark Surveys of Dallas carried out a comprehensive survey of all the relevant parts of the Dealey Plaza to our detailed instructions and were both extremely competent and obliging. We owe them, also, our thanks.

In an enterprise of this kind, the work for which has been spread over four years, it is almost inevitable that some kind person goes unacknowledged by name. If this is the case we apologise and stress our gratitude to all who contributed towards the success of our work whether in a major or a minor way. It can be seen from the above appreciations that the work was truly of an international nature. Apart from Matthew Smith and Joachim Markus, representing the United Kingdom and

Germany, America and Canada and England were all represented in the supportive contributions which were so vital to the success of the Smith-Vidit Study.

Introduction

This is an account of the Smith-Vidit Study carried out in Sheffield, England, and Herdecke, Germany, between 1993 and 1997. The early pages in this book will describe the aims and objectives of the study and reveal how and why this particular study was taken up.

In general terms, Matthew Smith provided the Kennedy background and all the data for the study, while Joachim Markus, owner of the company Vidit, provided the computer know-how. The relationship between Smith and Markus, at first purely professional, has become a strong, personal one. The bond was the desire to push back the boundaries in the investigation into the death of John F Kennedy.

The advanced photogrammetric techniques used by Joachim Markus permitted us, effectively, to go back to 1963 and re-run the assassination over again. The prospect of doing such a thing was at least fascinating, though perhaps more accurately described as mind-boggling.

There is a fairly full account of what resulted from our study here. Those wishing to learn more may like to know that we have made up a program from the Study which and this is on CD Rom. Due to excessive marketing costs, this is not available to buy in the normal way, however. We will, nevertheless, try to work out a means by which those who would like to have them can have them.

The charge made for this book will pay for its production and contribute something towards to the expenses of the Study.

The print out featured in this small book has been taken from the actual computer study. In some cases they show measurements. Other illustrations will be found which will indicate the mathematical basis for the work undertaken in the Smith-Vidit Study. It is hoped this book gives a complete account of the four year study.

Chapter One

Beginnings

It was in November 1993 that German Television, ZDF, screened 'John F Kennedy: Der Jahrhundertmord,' their riveting feature program to mark the thirtieth anniversary of the assassination of President Kennedy. Having read my book, 'JFK: The Second Plot,' the year before, the producer, Ralf Piechowiak, had approached me to act as a consultant to the program. By means of periodic meetings, lengthy telephone calls and fax messages, we slowly pieced together the program which would create something of a storm in Germany when it was transmitted there simultaneous to transmissions in France and the former USSR countries.

There was no doubt the brilliant Piechowiak had produced a landmark documentary which, moving and meaningful, reached the very heart of the mystery surrounding the President's murder, and applauded the progress so far made in unravelling it.

It was in 'John F Kennedy: Der Jahrhundertmord' that Joachim Markus first saw me, answering a series of searching questions posed by Piechowiak. Joachim Markus wanted to discuss with me prospects for a collaboration in which he would combine his expertise in three-dimensional computer work with my knowledge of President Kennedy's assassination. He had considerable difficulty reaching me, but eventually he made contact with the secretary of a British company with which he did business, and gave her the task of finding me. By persuading my publisher to give her my telephone - not normally done - she finally tracked me down and made

arrangements for me to meet Joachim when he next visited the UK. This was actually only a few days afterwards.

At our first meeting Joachim demonstrated photogrammetry for my benefit and I was astounded at what amazing data could be deduced and then constructed from a single photograph using the technique. In the demonstration he worked with a photograph of a small church. It showed front, one side and part of the roof. From this he produced, in three dimensions, details of the 'hidden' side and rear of the church, the interior and full details of the roof structure. It was quite staggering and very exciting.

We met once or twice getting to know one another. I discovered that Vidit, Joachim's company, was a rising star on the international scene. Vidit provides software for companies in many parts of Europe and the Far East, and more recently, Scandinavia, having expanded apace during the years of our collaboration.

Vidit has provided special facilities for police forces in sophisticated traffic control programs, but these are not all. One German police force had been involved in a shoot-out with a gang of criminals at a railway station. The criminals later accused the police of unnecessary brutality and the use of excessive force. Joachim Markus was asked to reconstruct the scene and re-run the action of the shoot-out in three dimensions using photogrammetry. The action, which partly took place in a tunnel, was carefully and accurately re-enacted, demonstrating that the police were not guilty of the charges levelled against them.

Chapter Two

New Horizons

Joachim and I discussed how to set about our new work and what our targets would be. We decided we had one basic aim: to reconstruct the Dealey Plaza in a three dimensional model, with a view to re-running the assassination with the facility of being able to stop at any moment to view, measure, find trajectories and ask questions of the computer. *We did not set out to prove anything or, for that matter, disprove anything.*

I began at once to put together a collection of photographs, transparencies and film sequences. To begin with they included every photograph I had featured in my book, 'JFK: The Second Plot' - and illustrations were a feature of the book - the Willis photographs and the Zapruder footage. Further data and footage was added as required. The specific demands of the study soon led to a series of major undertakings to track down particular data. The Stemmons Freeway road sign was a typical example.

Joachim had noticed how many photographs featured the sign, and he wanted to make use of its frequent presence. This was only possible if he had the actual dimensions of the sign, however, and the sign itself was dismantled and removed very promptly after the day of the assassination, (leading to much suspicion on the part of researchers that it was taken down in order to remove evidence). Over a period of weeks, a series of transatlantic telephone calls produced no results at all. The breakthrough came when I was given the tip that Oliver Stone had trodden this path before me when restoring the Dealey Plaza for the making of the film, 'JFK.' I now found myself negotiating with a man who was a member of Stone's staff, Jeff

Flasch, and the spotlight had changed to Los Angeles. It was another few weeks before Jeff located his source for the road sign dimensions which he kindly passed on to me.

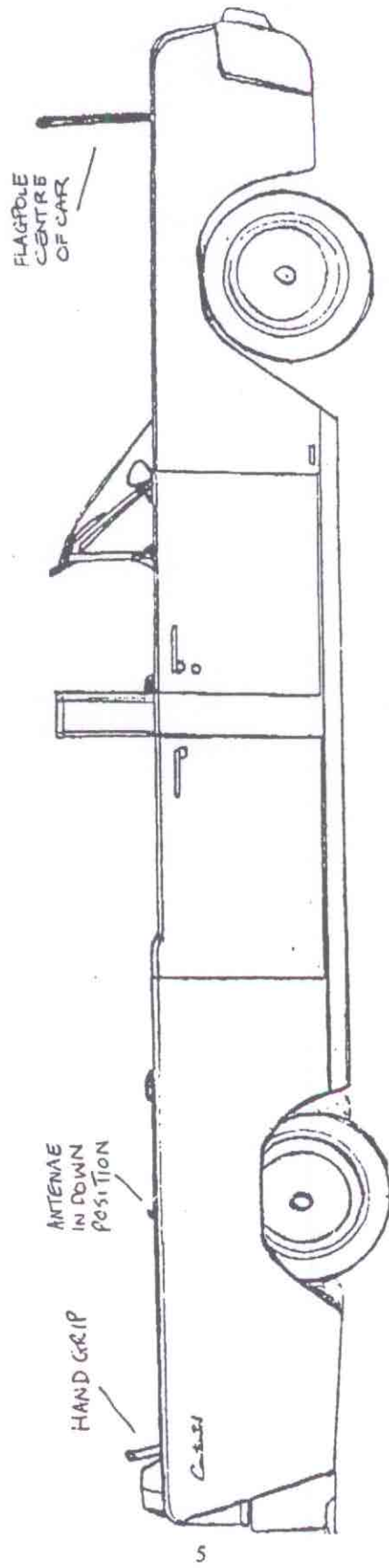
The President's Lincoln provided another first class headache. It seemed to me that it did not matter how much data relating to the car was passed on to Joachim it was not sufficient. The trouble was that in so many cases the data was unreliable. To begin with there were too many references to Lincolns similar to the Presidential model where, in fact, this car was unique. Again, specific measurements were required for every aspect of the entire car. Some, or even most of the dimensions, was not good enough. After receiving assistance from sources whose help was greatly appreciated, I found myself - after some months had passed - talking to Colin McSween in Canada. Colin is the undoubted senior researcher when it comes to the Lincoln. He provided me with a whole dossier on the specific Lincoln used by the President, preserving my sanity and greatly earning my gratitude. He has, I understand, reconstructed a model of this car to the exact specifications and, clearly, he was the man with all the answers as far as I was concerned.

The foregoing will serve to illustrate that the study absorbed a vast amount of highly specific data and was very demanding of time. It is stressed that no data was drawn from the Warren Report or the 1979 House Committee Report* as these sources were considered biased. The Smith-Vidit Study avoided 'tainted' data from any source. Material from sources with 'axes to grind' was unacceptable.

At one point the study required physical measurements from the Dealey Plaza and Wayne January,** with whom I have become good friends, was kind enough to carry out a measuring exercise extending across the relevant area of the Plaza. Later on it was decided to have a full survey carried out and Landmark Surveys of Dallas,

* Failure Analysis, for instance, in their three-dimensional model, drew data from both The Warren Report and the House Committee Report.

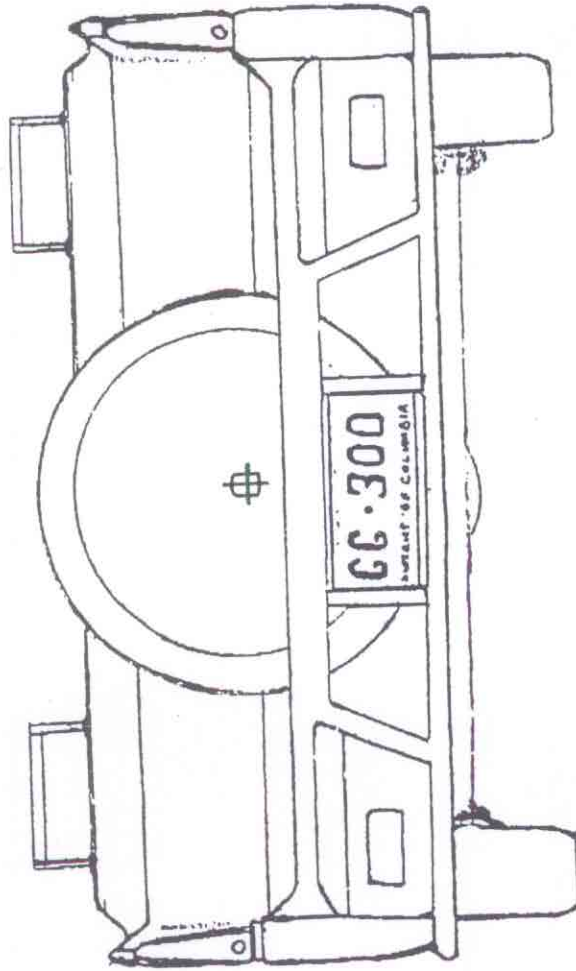
** Wayne January worked at Red Bird airfield at the time of the assassination and I interviewed him at length for my book, 'JFK: The Second Plot.'



SS 100 X 1961 Lincoln Continental
R. Side View

Scale: $\frac{1}{2}'' = 1'$

Drawn By: Colin McSween



Scale: 1" = 1'

Drawn By: Colin McSween

SS 100 X 1961 Lincoln Continental

Rear View / Back End of Vehicle

the company Wayne January recommended, was commissioned to carry out the work. This had the effect of 'locking' together all the data which had been fed into the computer and the benefits included complete accuracy of all the measurements taken within the model.

It is always nice to be able to pass on a compliment and Joachim and I compliment RB Cutler on the accuracy of the basics of his map of the Dealey Plaza, which we checked with the survey results. We had obtained his map some two years before the survey was carried out and it was of considerable value.

During the period in which the work of the Study was carried out I paid visits to Joachim's company in Herdecke, and was his guest at his home. Herdecke is absolutely charming and I must say that seeing this beautiful small town when I went to work with Joachim was a huge bonus. Obviously, the work we did together on these occasions was of the greatest value. For the most part we used the telephone and fax and postal facilities. This may have slowed us down but I cannot help feeling it had special benefits for us.

By the time the basic model was 'assembled', we were ready to identify a task to which it could be put. We decided to check out the claims the Warren Commission made in respect of the shooting of the President. We were now in a position where we could, effectively, replay the assassination, taking measurements, establishing trajectories and studying in depth the effects of that terrifying six seconds. Many researchers had rendered their opinions and estimations of what had really happened. We were now in a position where we could scientifically probe the claims and render completely reliable data to support our findings. Our four year study was most fruitful: it allowed us to set straight the foundation, so to speak, on which so much valuable research has already been done. It would not be an overstatement to say the results, to us, were quite electrifying, and ongoing work has shed further light on, in particular, the fatal head shot.

The findings of the Smith-Vidit Study are being presented for the first time in Dallas at the JFK - LANCER Conference. This takes into account the 'sampling' the BBC

took of our work for a BBC 'Assignment' program. It was no more than that. The work we had expected to be dealt with in depth was no more than scratched. It was very disappointing to us at the time, but it has proved to be to JFK - LANCER's advantage, for the fullest details of the study in its entirety will be presented in Dallas. Those who could not be at Dallas for this event will, no doubt, be satisfied with the account rendered in this booklet. It may also be possible for us to offer copies of the program rendered on the computer at Dallas. It is hoped that a CD Rom will be available for purchase soon. Enquiries should be made to JFK - LANCER who will supply details when they are known.

Chapter Three

First Hit

The Warren Report claimed that the first bullet to hit the President was a shot from behind which exited his throat, struck Governor Connally, sitting in front of him, in the back, exited his chest and struck his right wrist, finally to exit his wrist and come to rest in his left thigh. All this activity from one bullet became known as the single bullet theory. The bullet, which was claimed to have been recovered from a stretcher at Parkland Hospital in pristine condition, became known as the 'magic bullet.'

Researchers have challenged the single bullet theory since the Warren Report first appeared in 1964, arguing that the trajectory of the bullet would have had to have changed both horizontally and vertically for such a feat to have been accomplished. They also challenged the wounds received by Governor Connally having been made by one bullet on the grounds that the metal recovered from the Governor's wounds would have rendered 'Exhibit 399', the tag given to the 'magic bullet,' heavier than the weight quoted for the missile by the manufacturers.

The findings of the Warren Commission still hold sway in respect of the fact they continue to be the Government of the United States' official version of events. The objections of the researchers were dismissed as no more than opinions. There was no way the single bullet theory could be disproved short of re-running the assassination with special facilities for 'freezing' the action so that scientific observation could be made. In effect this is exactly what the Smith-Vidit Study has achieved. The use of photogrammetry within the three-dimensional model has given

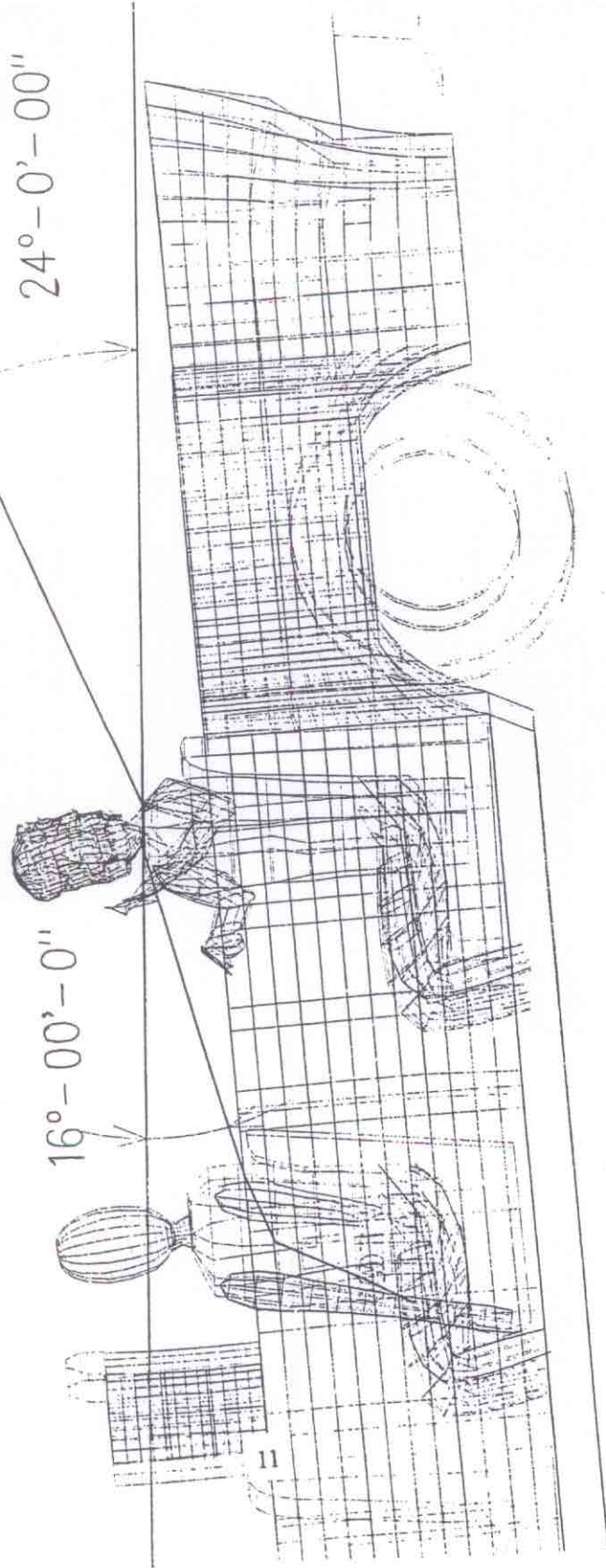
us the required facilities to stop the action and scientifically take measurements throughout the proceedings.

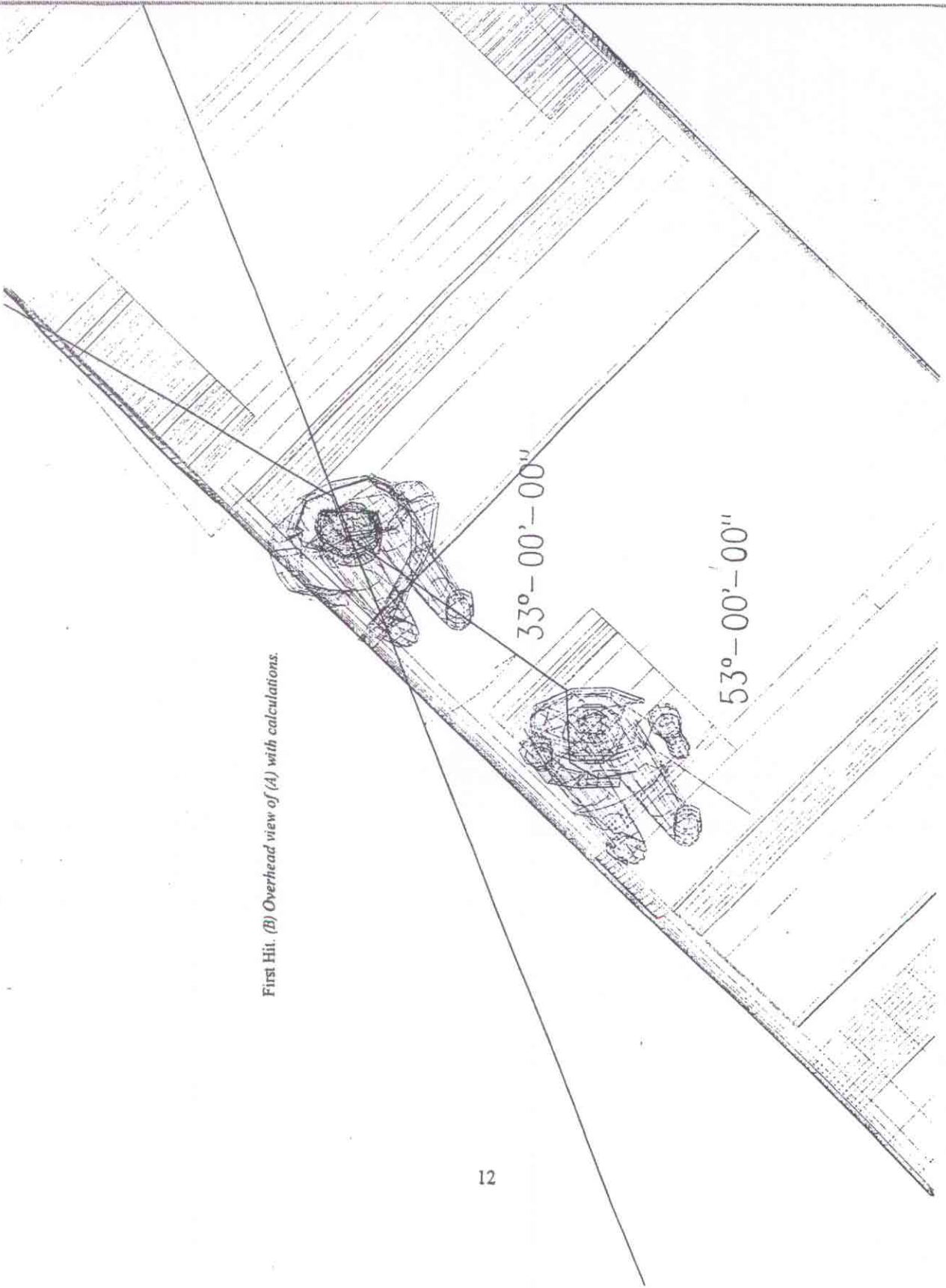
Our first task was to establish the precise moment the President was hit by the first bullet. We established that, in Zapruder film terms, this occurred at frame 196, the moment the President began to disappear behind the Stemmons Freeway road sign. We then carefully examined frame 193, which showed the position of the President as he disappeared behind the sign. He was distinctly turned towards his right, waving to the people with his right hand. Immediately before this both he and Governor Connally had swung around to look behind them, no doubt responding to a rifle shot which missed. Governor Connally had not completely turned to the front when the President was hit for the first time.

The trajectory between the upper back wound and the throat wound was now calculated. This was achieved by using two autopsy photographs. One was a front view showing the President's head, including the throat. The other showed the President's back, including the upper back wound. Measurements were now calculated between the throat wound and the tip of the President's right ear, and the upper back wound and the tip of the President's right ear. The trajectory of the bullet which passed between these two wounds was, therefore, securely established. In layman's terms, the trajectory indicated a slight, but definite, upward direction for the pathway of the bullet between rear and front.

A trajectory between the sixth floor 'sniper's' window and the wound in the President's back was now calculated, and this, at once, indicated a change of direction for the bullet to have exited the President's throat. (*See print out in following pages*). Another change of direction was indicated for the bullet to proceed to Governor Connally's back wound, remembering he was still partly turned in his seat, with his right arm nearest the President. Distinct changes of direction were observed for the bullet to have exited the Governor's chest, entered and exited his wrist and reached his left thigh. In short, we now have scientific evidence that the single bullet theory is an impossibility.

First Hit. (A) Close side view showing the flight path of the bullet the Warren Report claimed came from the sixth floor window and the changes of direction which would have been necessary for it to have achieved all the wounds attributed to it. The trajectory of the bullet the computer attributes to a sniper on the knoll is also shown. Divergences are calculated.





First Hit. (B) Overhead view of (A) with calculations.

We now sought to establish the true origin of a bullet which struck the President in the upper back and exited his throat. An extension to the rear of the 'neck' trajectory already established, showed the sniper would have occupied a position in the road, approximately in the pathway of the outriders to the President' left. This, of course, is quite absurd. It was clear the bullet causing the President's wounds could not have been caused by a shot from the rear.

We now reversed the proceedings and extended the 'neck' trajectory to the front. The trajectory travelled exactly to the corner of the picket fence on the grassy knoll. This shot had come from the front: the neck wound was one of entry* and the back wound one of exit. We traced the path of the bullet to the point in the road, from which a rear-located sniper would have had to have fired. This, in turn, matched an indication on the RB Cutler map of a bullet mark in the road.

Considerable work was done in regard to the actual position of the sniper. We accepted a degree of latitude of a few inches - up to a foot - to the left or to the right of a central position. We also accepted that a sniper might have been standing upright or alternatively have been crouching when he fired. Six shooting positions, therefore, were explored in what resembled a grid. A shot from any position in this strictly limited grid was accommodated within the mathematics of the shot to the President's throat. There were, however, strict limits to the viability of the shot. The sniper had constraints which gave him a 'window' for operation of which he took advantage and found his mark.

* At a press conference held at Parkland Hospital in Dallas after the death of the President, Dr Malcolm Perry spoke of a wound to the throat which he identified as a wound of entry.

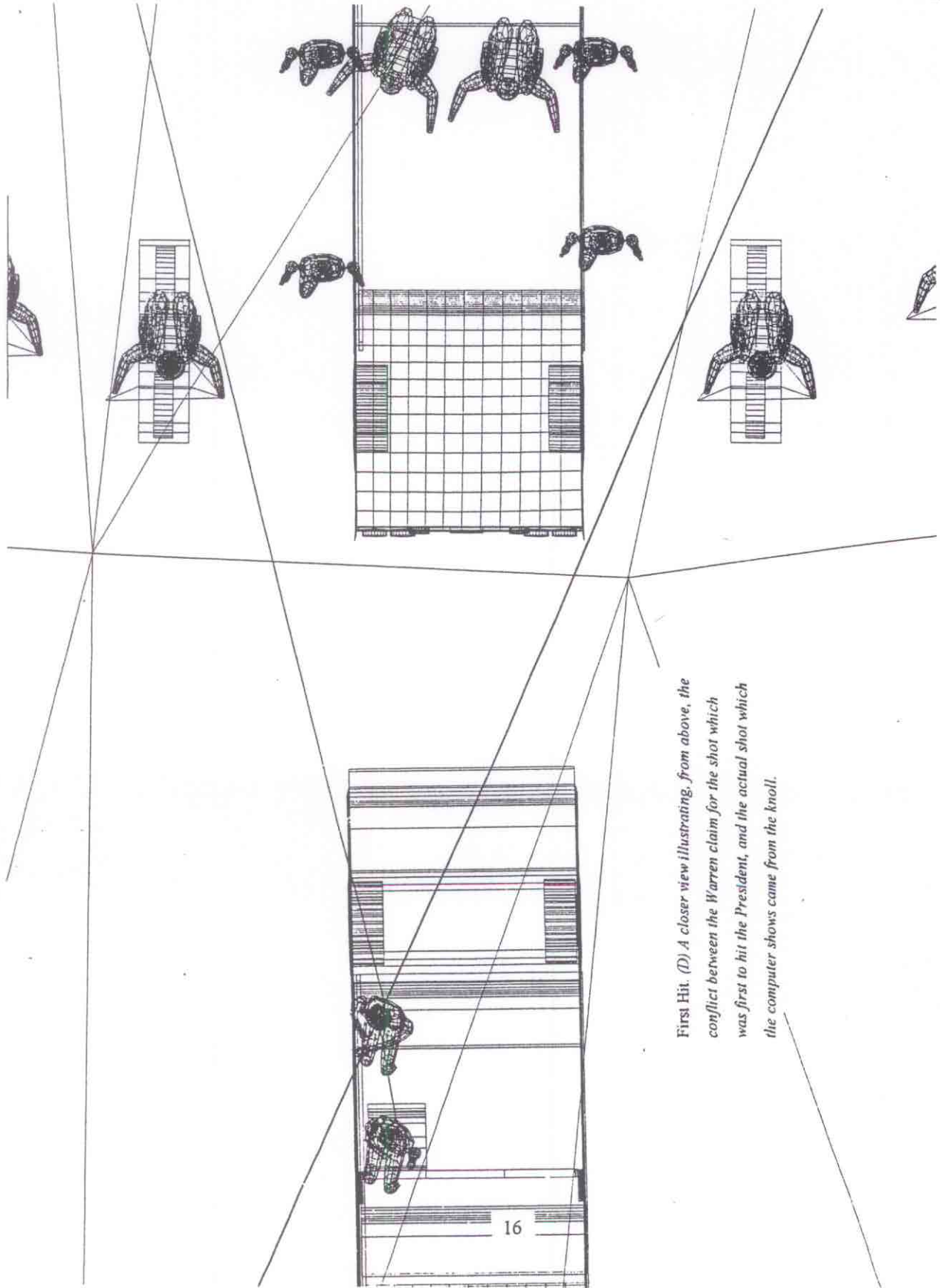
QUESTION: Doctor, describe the entrance wound. You think from the front in the throat?

DR MALCOLM PERRY: The wound appeared to be an entrance wound in the front of the throat; yes, that is correct...

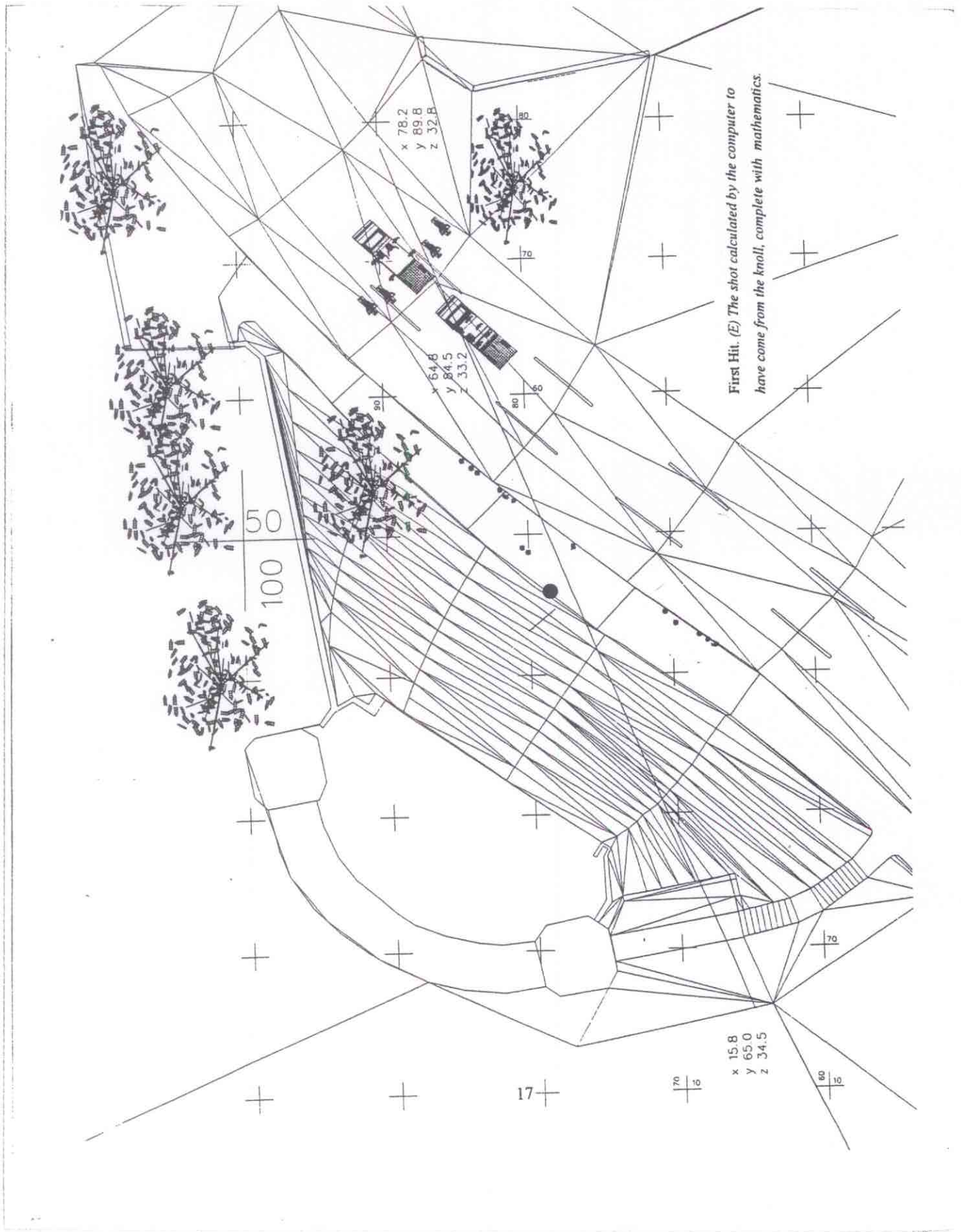
When it was first established that the first shot emanated from the grassy knoll, I confess I argued for a shot from further down the picket fence, towards the underpass. Joachim put to the test a shot from various positions along the picket fence, all of which were quite impossible. The trouble was that any sniper further down the fence would have had to shoot along the top of the fence, and there is impedence from trees and other growth all the way. The only shot possible was from the place Joachim had earmarked. The actual position of the sniper was at the pergola end of the fence, a foot or so down from the corner and running alongside the path (parallel to the concrete wall). It was the only place a 'window' occurred, a moment of opportunity. (See print out). And via this 'window', everything slotted exactly into place.

First Hit. (C) This long view shows the trajectory of the bullet from the knoll which struck the President in the throat and exited his back. It also shows the hugely conflicting trajectory which would have represented a bullet from the sixth floor window.

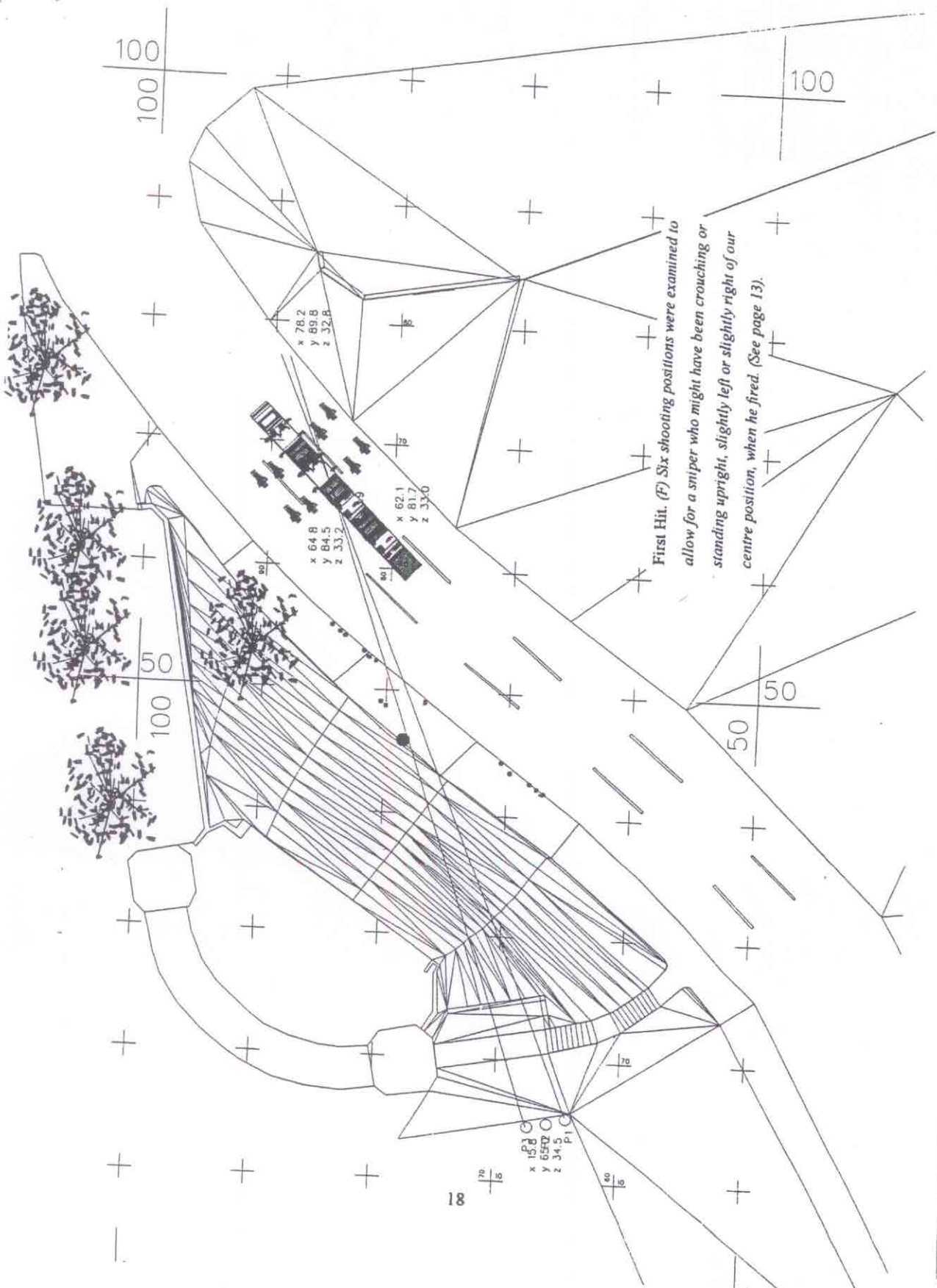




First Hit. (D) A closer view illustrating, from above, the conflict between the Warren claim for the shot which was first to hit the President, and the actual shot which the computer shows came from the knoll.



First Hit. (E) The shot calculated by the computer to have come from the knoll, complete with mathematics.



x 78.2
y 89.8
z 32.8

x 64.8
y 84.5
z 33.2

x 62.1
y 81.7
z 33.0

x 15.8
y 65.0
z 34.5

First Hit. (F) Six shooting positions were examined to allow for a sniper who might have been crouching or standing upright, slightly left or slightly right of our centre position, when he fired. (See page 13).

Chapter Four

Second Hit

President Kennedy was hit by a second bullet from a shot from behind. This was observed by Secret Service agent, Glen Bennet, who rode in the follow-up car. Before the autopsy was conducted at Bethesda Hospital only a few hours after the assassination, Bennet reported that he, 'saw the shot hit the President about four inches down from the right shoulder.' Careful scrutiny of the Zapruder film also confirms this. The hit took place almost immediately after the bullet had hit the President's throat, at Zapruder frame 228.

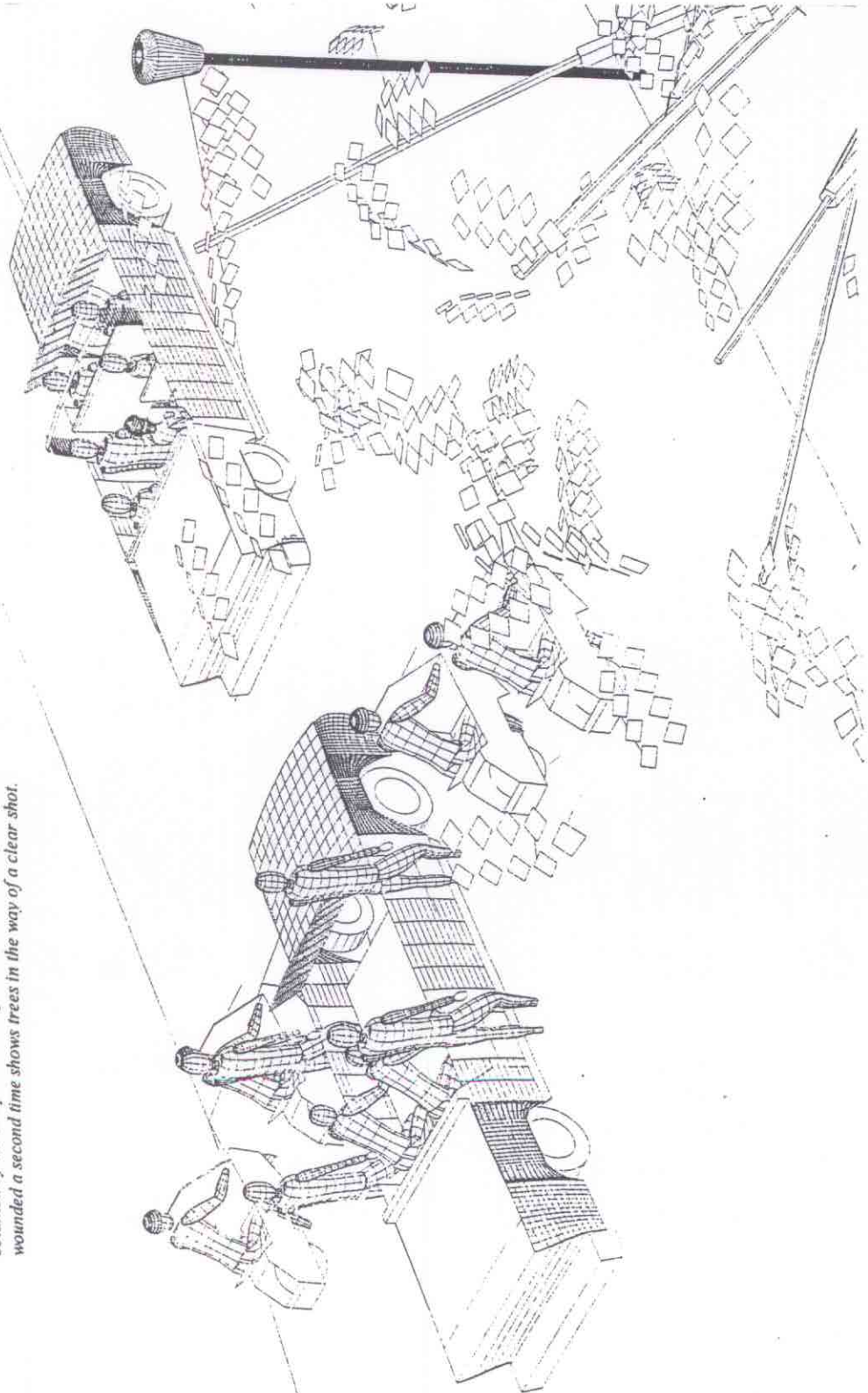
The Warren Commission did not acknowledge this hit. To have done so would have introduced a fourth bullet into the reckoning and a fourth bullet would have wrecked their argument that Lee Harvey Oswald, alone and unaided, shot and killed President Kennedy. We examined this hit in the light of the Warren claim that all bullets were fired from the Texas School Book Depository sixth floor 'sniper's nest,' however.

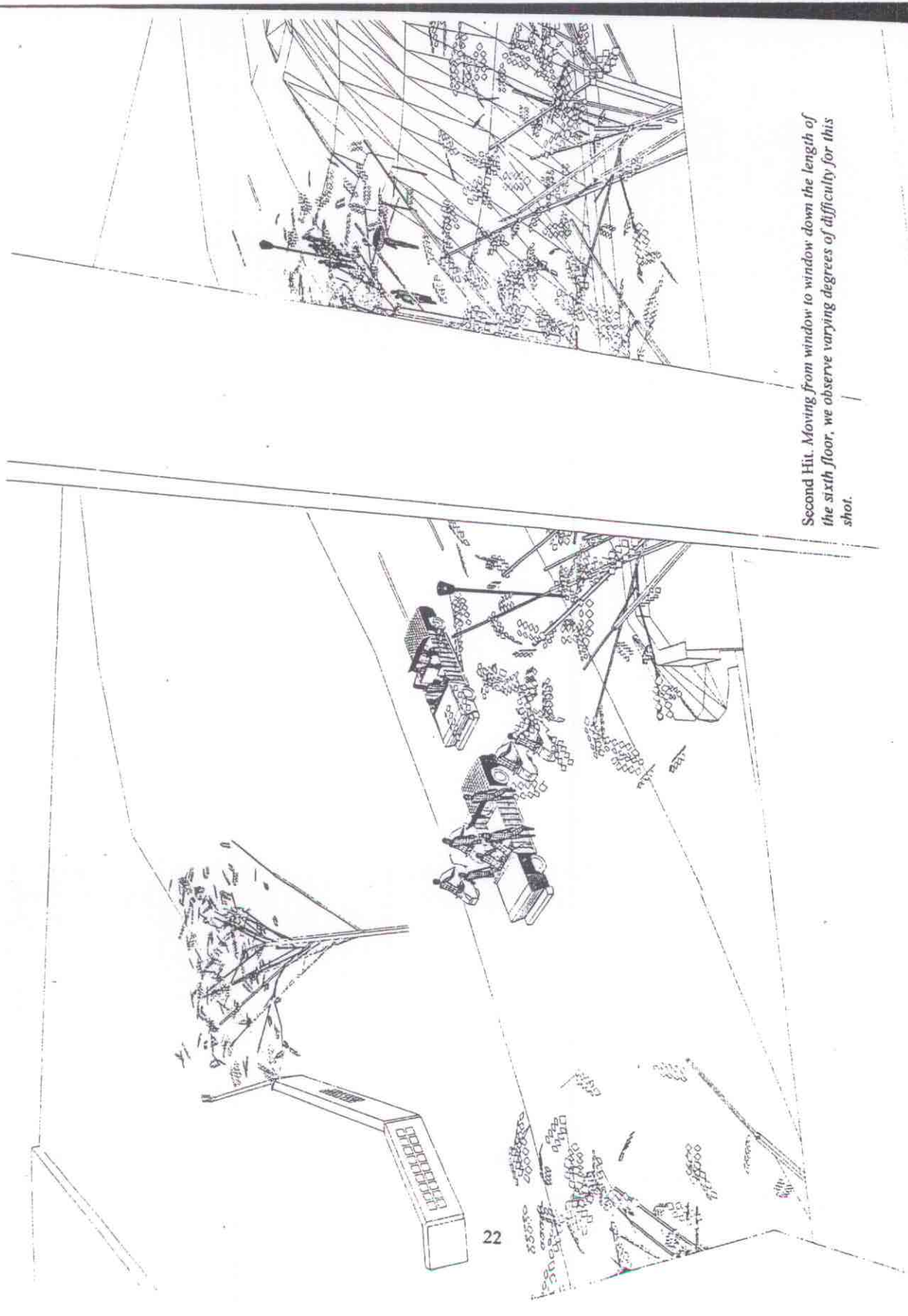
There is no doubt this shot came from behind. Whether it came from the sniper's nest is a different matter altogether, and one which provokes much speculation, to say the least. The 'sniper's nest' was not at all a suitable location for the shooter of this bullet: there was a tree obscuring the view in part, and this would have been extremely offputting to any skilled shooter. It would have been with considerable difficulty that any kind of shot was lined up from this window and the results would, very much, have been 'hit and miss.'

We decided to explore whether any of the sixth floor windows might have been used for this shot and we, therefore, produced an animation in which we moved from one window to the next for all seven windows on the floor, seeking to find a more realistic position from which to shoot. We saw that better vision was available at some of the other windows, with the furthest away corner window providing the best opportunity for a sniper. (*See print out in following pages*). It should be noted, however, that we are not making an argument for the opposite corner window having been used for the shot: we are saying it would have been a much better place to shoot from than the so called 'sniper's nest.' It would be correct to assume that, in the light of our work, we would consider an argument for the second hit to have been achieved from a shot from the 'sniper's nest' a weak one.

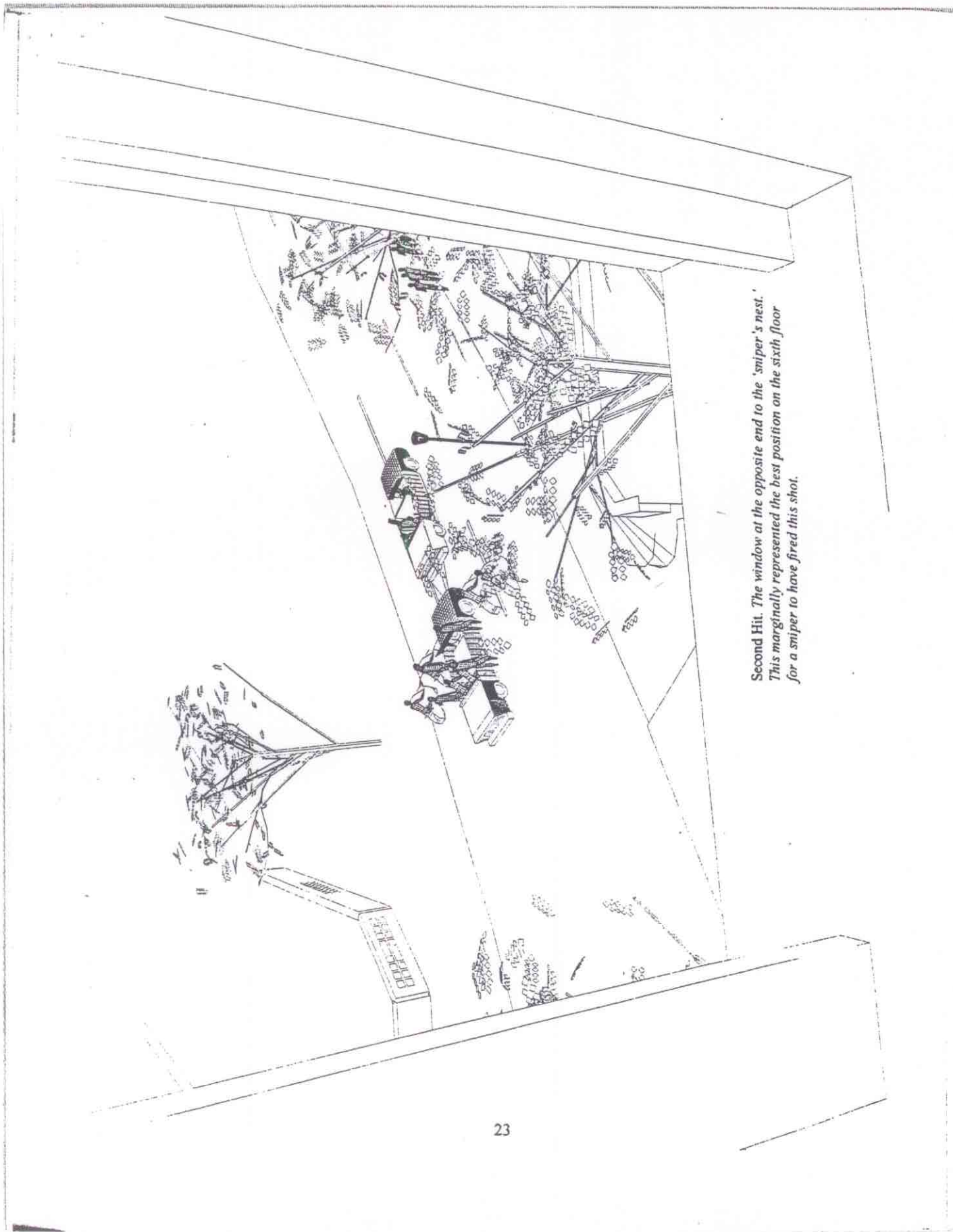
Many consider snipers to have been placed at locations in other buildings in the vicinity, the Dal-Tex Building, for instance. In the light of this study we could not, in any sense, rule out the second hit having come from a building other than the Texas School Book Depository.

Second Hit. The view from the sixth floor 'sniper's nest' window obtained by the computer at the point where the President was wounded a second time shows trees in the way of a clear shot.





Second Hit. Moving from window to window down the length of the sixth floor, we observe varying degrees of difficulty for this shot.



Second Hit. The window at the opposite end to the 'sniper's nest.'
This marginally represented the best position on the sixth floor
for a sniper to have fired this shot.

Chapter Five

Third Hit

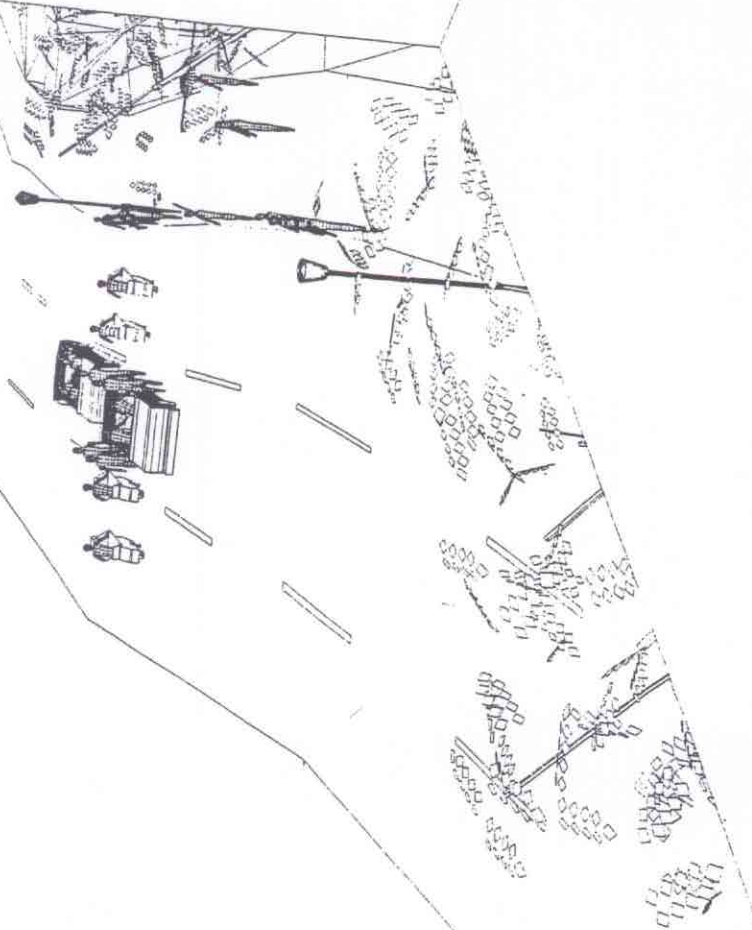
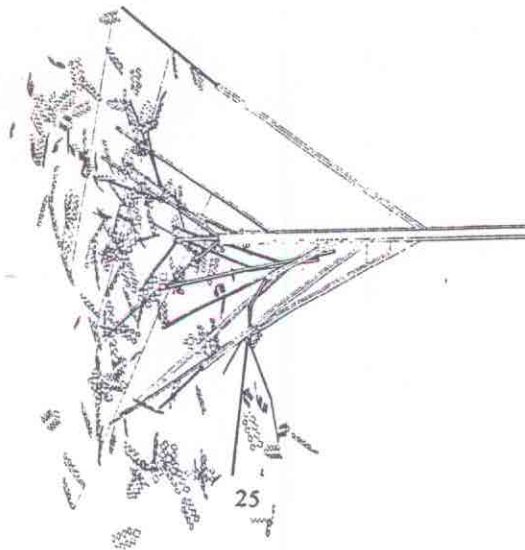
True to the task we had set ourselves, we examined the claim that the fatal head wound had been made from a shot from the sixth floor window.

When Failure Analysis produced animations involving the Presidential Lincoln, they showed the Lincoln by itself, so that it was impossible to study the influence on the situation of the Secret Service vehicle, which followed very close behind. This happened also with the Warren Commission's re-enactment of the assassination: the Lincoln was shown in isolation. We resolved to show the Secret Service car wherever it might be pertinent, and in the consideration of the third hit we have an excellent example of how pertinent it, in fact, was.

We made an animation showing the flight path which would have applied to a bullet fired from the sixth floor window to the President's head at the point of the third hit. If such a bullet had been fired, it might well have been described as whistling through a sea of heads to reach its target. The heads were those of the Secret Service personnel standing erect at the sides of their vehicle. Here the print out which is shown in this booklet (*see next page*) does not illustrate the point we have to make half as well as the program animation does. This would have represented a classic shot of great proportions, to have found a mark through the heads, a mark which at this point was not even an erect head. It was a head collapsed on the shoulder of Jackie Kennedy.

It must be said at once that, unless we are prepared to accept the hit and miss of random shooting, this shot was one of great complexity. It would have taken a

Third Hit. Our animation followed the slight path of a bullet from the sixth floor window, had such a shot been made from there. This is a modified print out from the animation. We show that the President, far from being in an upright position, had collapsed on Mrs Kennedy's shoulder. Note the difficulty in achieving such a hit in view of the heads of the Secret Service men.



superb marksman time to set it up. It must be said here that if this bullet was fired from behind, it was not Lee Harvey Oswald shooting it. Quite apart from the skill required for the feat and the questions which surrounded his ability as a shooter, Oswald simply did not have the time. The time scale would not have permitted Oswald to have set up such a shot.

At this point it is worth noting that since the Smith-Vidit Study ruled out the first hit having come from behind and found the second hit to be unrealistic fired from the 'sniper's nest,' the third hit not having been made by Oswald would completely exonerate him from any part in the assassination of President Kennedy.

The fatal head shot clearly came from the front and side, from the area of the grassy knoll. We have further evidence to support this. An examination of the position of the President's head when the fatal shot was fired revealed that Jackie's head was, generally, in front of his. Their heads were more or less in alignment. Any shot from behind, if it did not also strike Jackie, would at least have greatly spattered her with blood and tissue. That her face and hat were not severely spattered with blood and tissue indicates she was not facing the oncoming bullet. In fact the bullet, fired from the front, must have closely missed her in hitting - and killing - her husband.

Chapter Six

Summary

The Smith-Vidit Study revealed that the Warren Report was inaccurate in describing the first shot to hit the President as a shot from the sixth floor window. The bullet did not perform as described in the Report: it did not strike the President's back and exit his throat, it did not enter Governor Connally's back, exit his chest, enter his right wrist, exit again and come to rest in the Governor's left thigh.

In fact the first bullet to hit President Kennedy came from the corner of the picket fence on the grassy knoll. It struck the President in the throat and exited his upper back. It was then traced via an opening between the Secret Service vehicle and an outrider to the road. Had the bullet been fired from behind it would have emanated from this position in the road.

When the results of this part of the Study were apparent, we had no hesitation in accepting a front entry wound to the throat. This was supported by the initial opinion expressed by the medical staff at Dallas Parkland Hospital. Enquiries were, however, made about the viability of our claim that the upper back wound was an exit wound. The advice we received from those we approached on the subject, one of whom was one of the doctors who had treated President Kennedy at Parkland Hospital and the other a distinguished pathologist, amounted to a confirmation that wounds of entry and exit were frequently confused.

The second wound the President received was not acknowledged by the Warren Commission. We carefully checked the possibility of this shot having come from the sixth floor window and though results were inconclusive, we showed that this would have provided a limited opportunity for a shot. There were better opportunities from some of the other windows on the sixth floor with the best being from the window furthest away from the 'sniper's nest.' There were, no doubt, better opportunities from other nearby buildings, also.

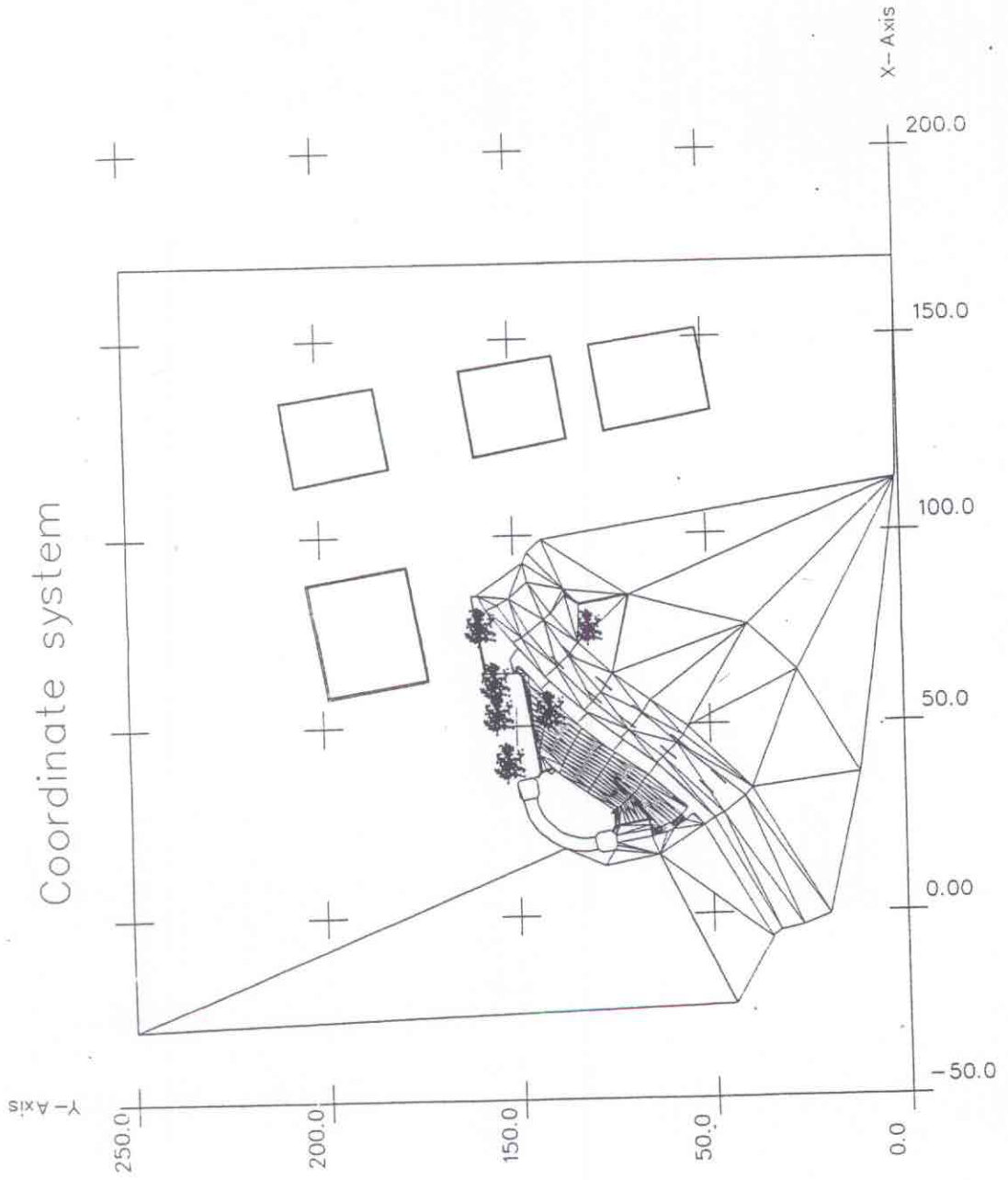
It is worth noting here that a photograph which has puzzled many is fully explained by the second hit. The picture taken by press photographer James Altgens shows the Presidential Lincoln followed by the Secret Service car, and a feature of this photo is that the Secret Service personnel are turned round, looking behind, no doubt in response to a shot having been fired. The question arose over whether the heads were turned in response to the first bullet to hit the President. This would have supported a shot from the rear. In fact they were turned in response to the *second* hit, confirming that the second hit came from behind.

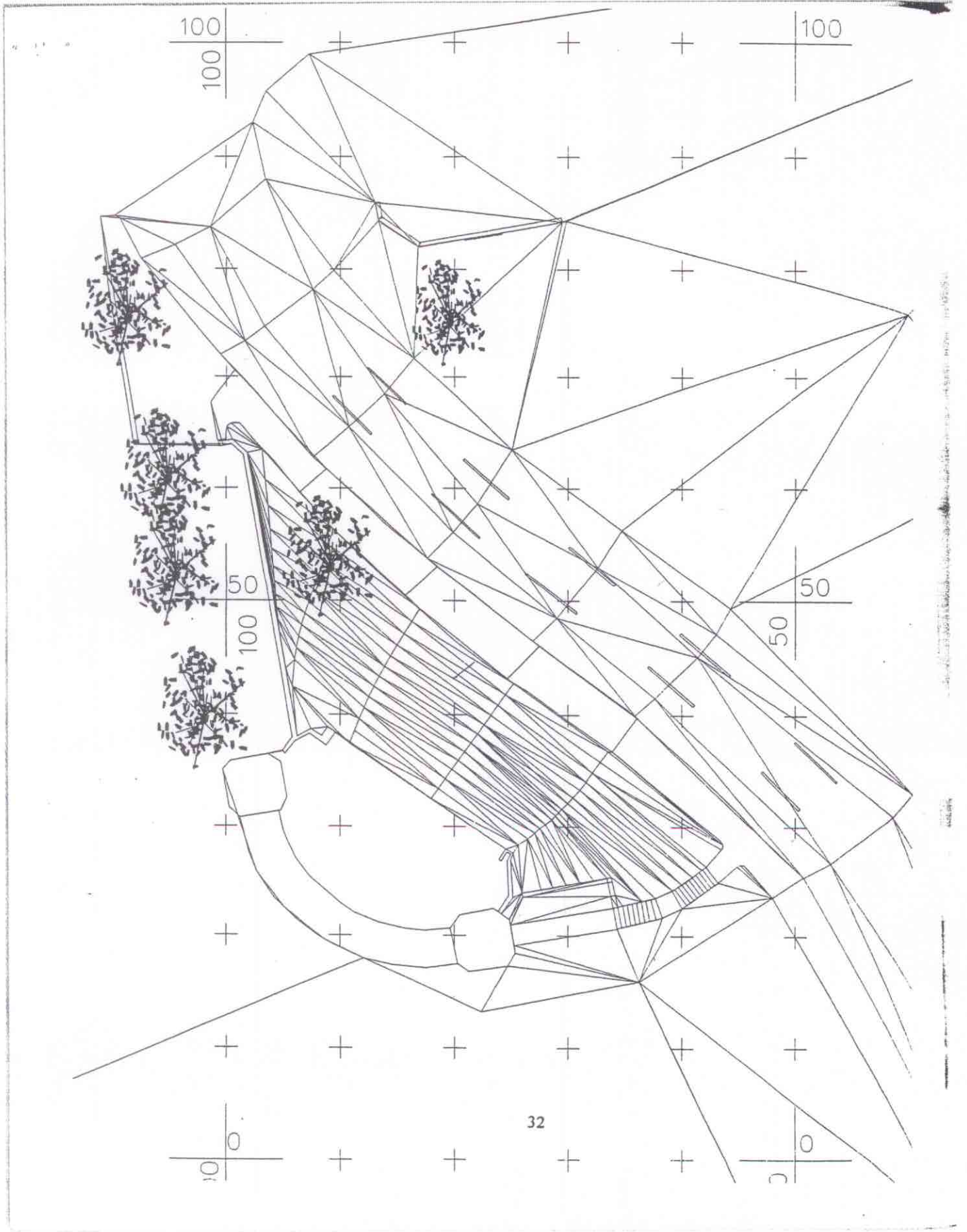
The third and fatal shot which struck the President in the head clearly came from the front and right side. In our work we explored the possibility of the shot having come from behind. The difficulty of such a shot would have demanded the sniper took time to set it up which, effectively, rules out Lee Harvey Oswald as the shooter. Further, it was a 'hit and miss' shot even for a sniper with the time to set it up.

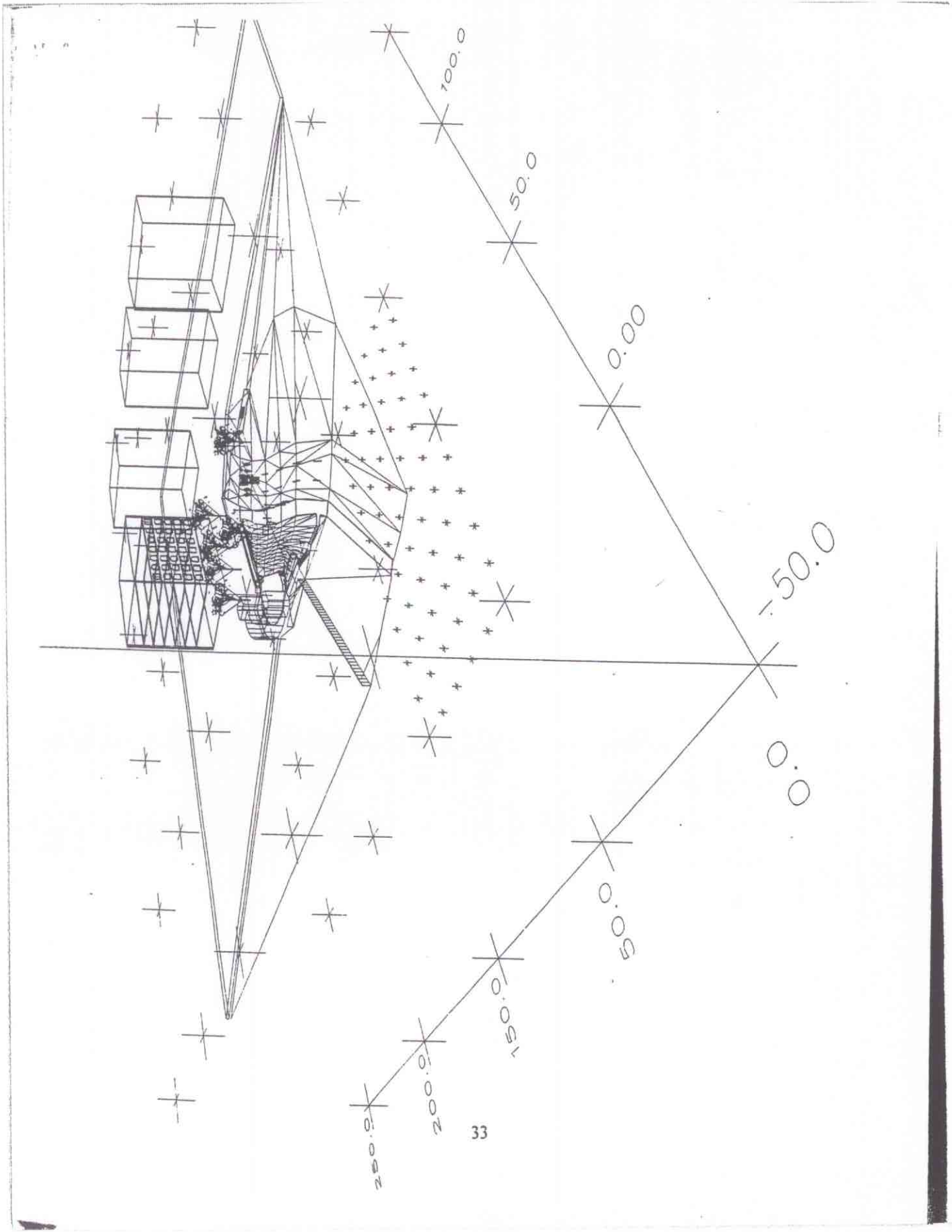
The work we did involving placing the President's wife in the position she occupied during this part of the shooting indicated the shot came from the front and grassy knoll side of the Plaza. It did not come from directly in front of the President, since Mrs Kennedy would have been in the line of fire. Had it come from the rear Mrs Kennedy would certainly have been spattered with blood and tissue in a manner which would have been seen at once.

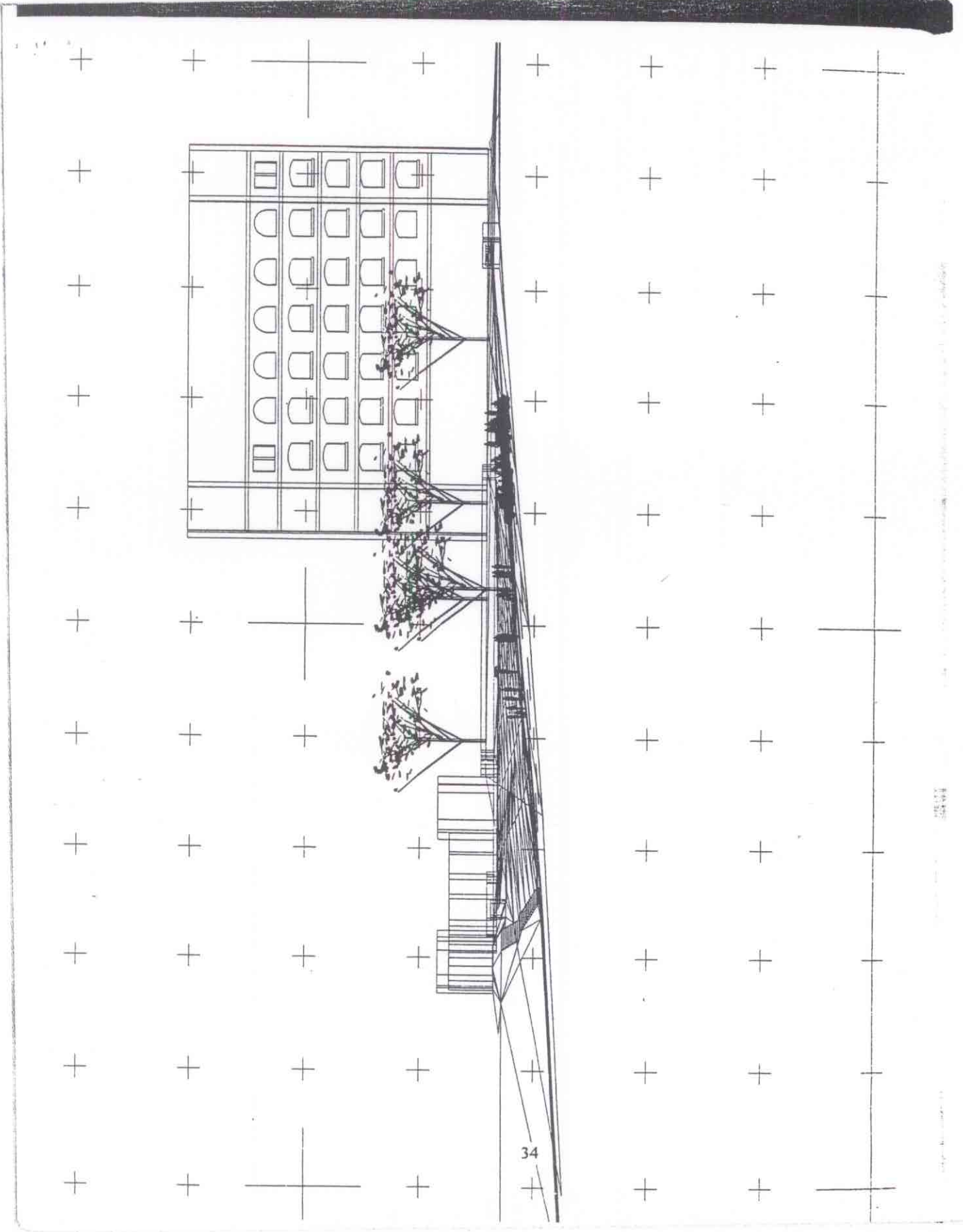
The print out featured in this small book has been taken from the actual computer study. In some cases they show measurements. Other illustrations will be found which will indicate the mathematical basis for the work undertaken in the Smith-Vidit Study. It is hoped this book gives a complete account of the four year study.

The following pages will assist in the understanding of the means of calculating coordinates and the general underlying mathematics.

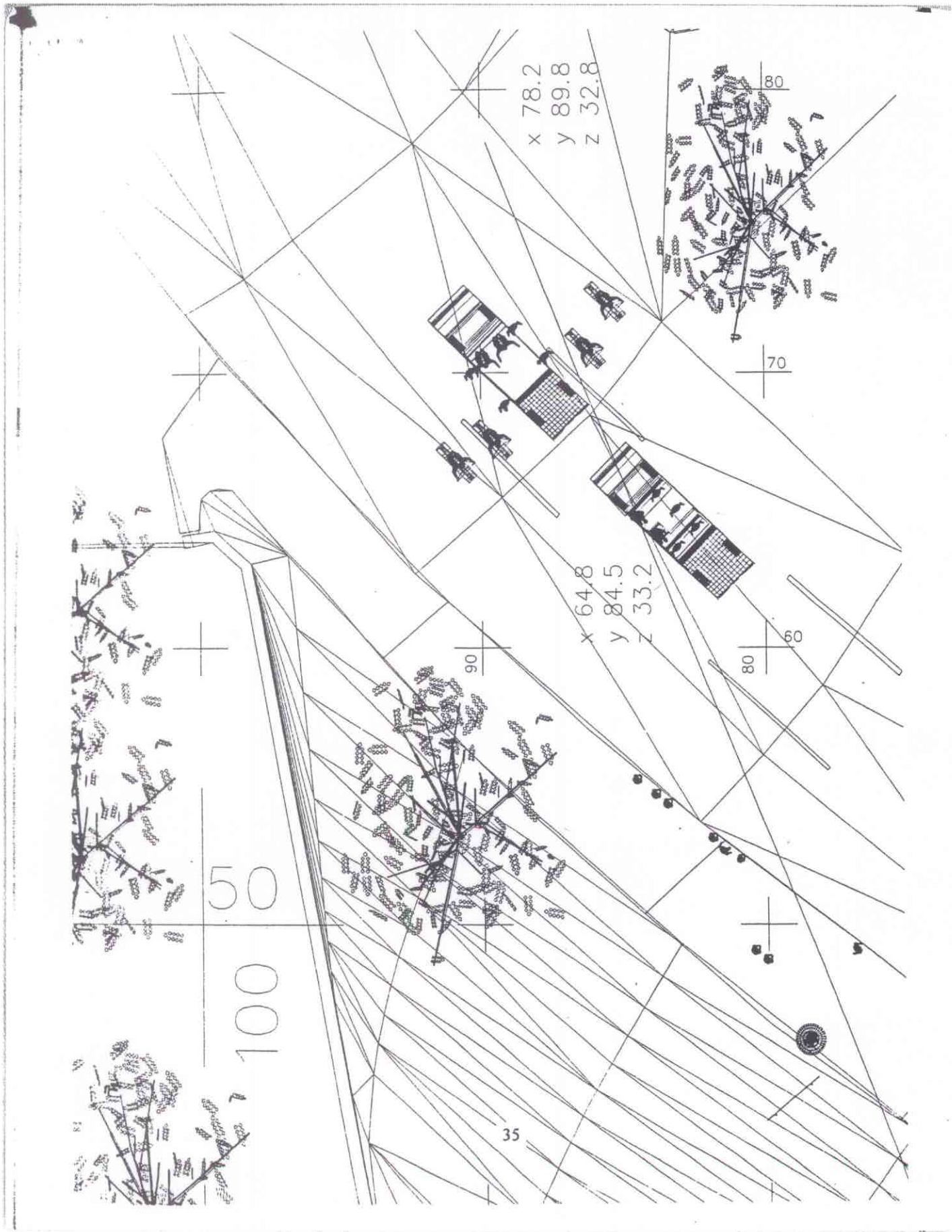








Architectural drawing of a building facade, oriented vertically on the page. The drawing is overlaid with a grid of horizontal and vertical lines, marked with small crosses at the intersections. The building features a central section with a series of arched windows and a flat roof. To the right of this central section, there is a taller, more complex structure with a sloped roof and a series of vertical elements. The drawing is a technical line drawing, showing structural details and proportions. The grid lines are spaced evenly across the drawing, providing a scale and alignment reference.



x 78.2
y 89.8
z 32.8

x 64.8
y 84.5
z 33.2

50

100

90

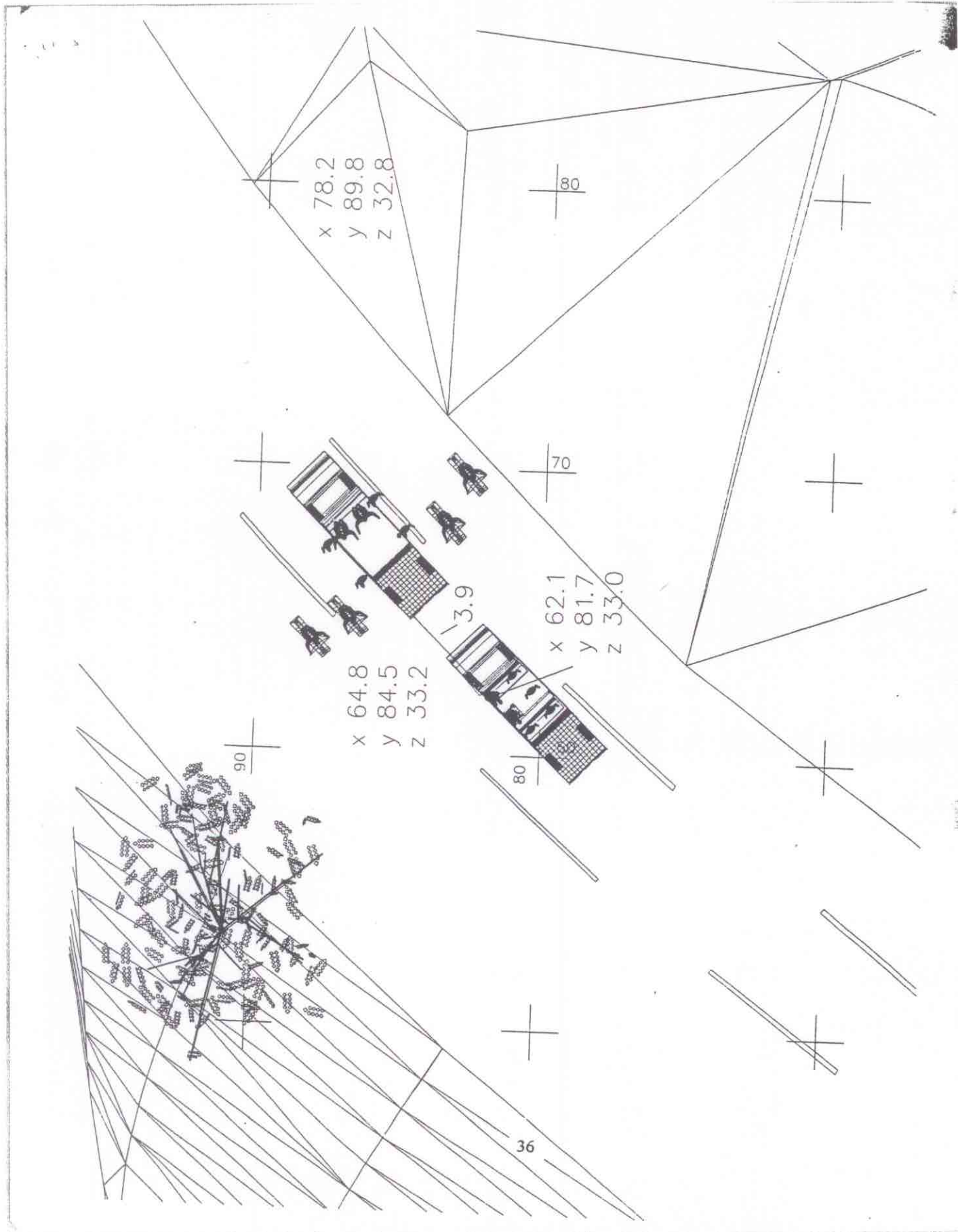
70

80

60

35





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