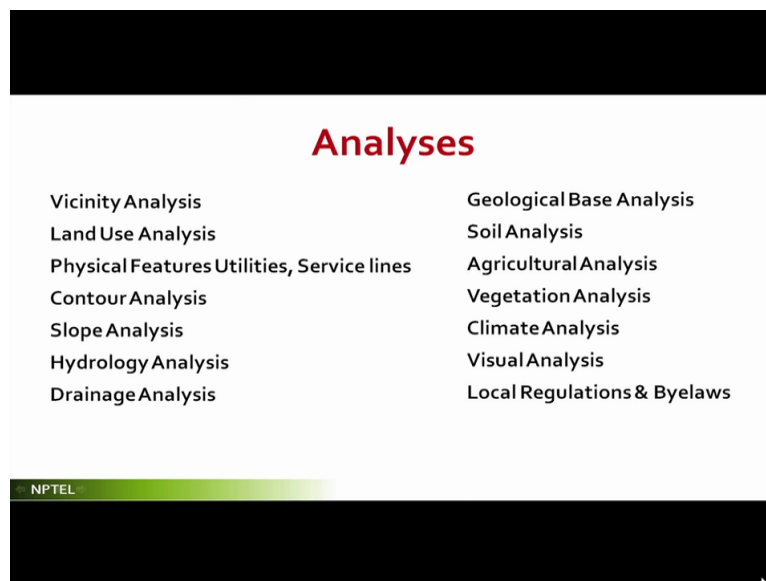


**Course on Landscape Architecture and Site Planning-Basic Fundamentals**  
**Professor Uttam Banerjee**  
**Department of Architecture and Regional Planning**  
**Indian Institute of Technology Kharagpur**  
**Lecture 29**  
**Module 6**  
**Site Investigation, Analysis & Appraisal (Continued)**

Good Morning, so in the last lecture when I concluded I was discussing about the Appraisal Template in which the team work is going to assist in getting the final results as required.

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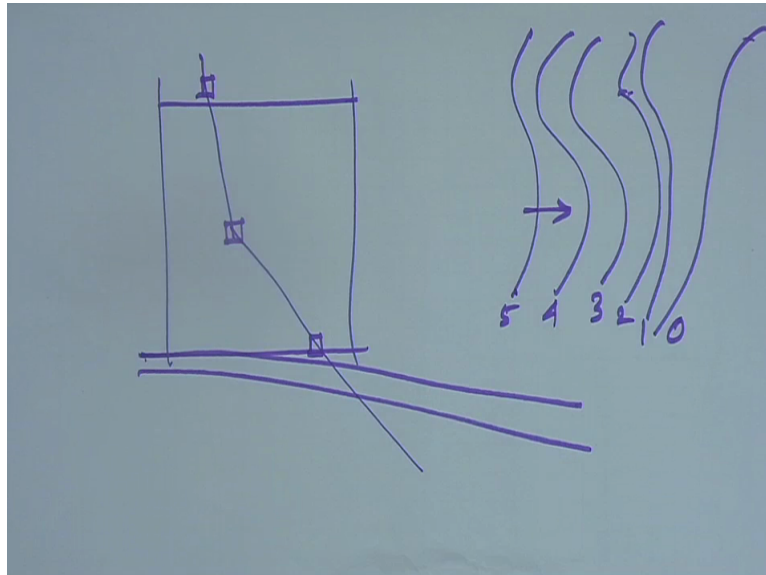
So now I have come back to the set of analyses I will give a brief description of each of the analyses and why it is to be done, then I will go into the detail of each not necessarily for the same grade detail for each one of them, I will just try to find out that wherever I will have to focus a little more, ok. The Vicinity Analysis which I have already discussed in detail, in my last lecture.

Land Use Analysis in which you are trying to find out that in that particular given site what are the what is the existing Land Use over there, it may be residential common Land Use parameters are whether it is Residential Land Use or Commercial Land Use, or Industrial Land Use, or there is analyses water body, or there is some Services Land Use, or is it open field, or is it a structured open field, or it is unorganized open field, is it a forest.

So such Land Use items you will be also the category of lands what kind of category first kind of category of land, second category of land, so that is going to come within it. Then

another analysis is the Physical Features like Utilities, Services lines. This is very critical yes I am sure whoever amongst you are practically working on this project you must have seen that the utilities and Services lines becomes a very strong factor for your many of your decisions.

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Example a site a landscape site with an access road from here and then you have found that there is a high-tension line passing through, you have got all the information but additionally this information is required for you and you have found that there is a pylon here, there is a pylon here, and there is a pylon just outside your property, you are analyzing this when you analyzing this in terms of Physical Features you will find that these Services lines which are running for a kind of general landscape project that we are discussing about they have these lines which are of trunk in nature, trunk means this is the grid for electrical lines if it is it is a grid, which is serving many other regional adjoining areas. But only thing is eventually there is a passing through your site, so you have to take information on this and analyze its potential threads, limitations all these, ok.

And next analysis is Contour Analysis in that basically what we are trying to find out is the levels, Contour level 1, next, next, and next and the profile. So it is a plan profile of the Contour drawing I am just drawing on this part of the drawing, say it is these Contour lines, these Contour lines and the levels. If suppose this level say 5, 4, 3, 2, 1 and 0 this is the lowest level, then higher 1 meter, 2 meter above 0, so 1 meter, the next 1 meter, next 1 meter, next 1 meter, next 1 meter will give you a very clear idea that this is moving in this direction, ok.

So the Contour analysis has some reasons for doing that analysis, this is a Contour drawing but why you should do it I will come to that when I will discuss about each of them. Then the Slope Analysis, Contour Analysis you are trying to find out the levels corresponding levels. And in the Slope Analysis basically what you are doing is you are trying to find out you are trying to find out that what is a slope what is a gradient, ok that also has reasons why should I do that analysis I will discuss individually.

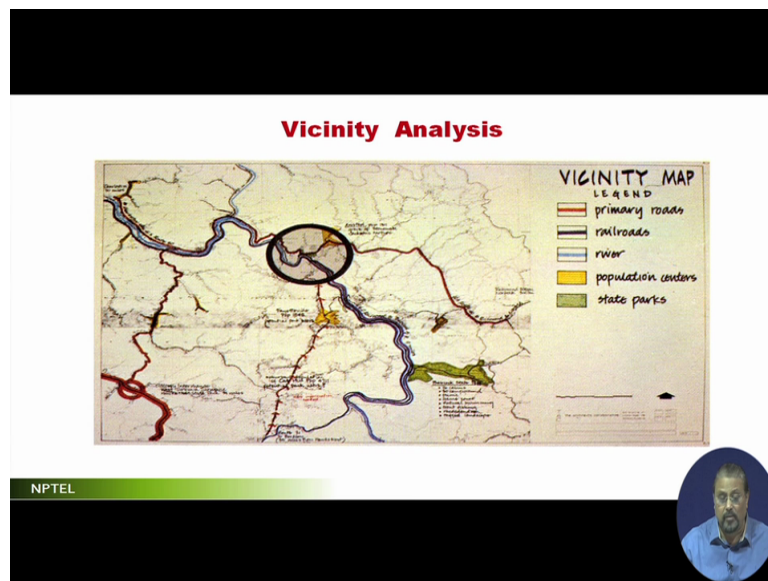
Hydrology Analysis you are trying to find out the sub sufficient water conditions and in the Drainage Analysis you are trying to find out the (4:36) Hydrological conditions over the surface. In Geological Base Analysis you are trying to find out sub soil quality characteristics in the soil analysis you are trying to find out the top soil characteristics.

In the Agricultural Analysis you are trying to find out the agriculture potential of that particular land and in the vegetation analysis you are trying to find out the vegetative potential of that particular land. Climate Analysis is that how it is (5:03) to the climatic variations or exposure.

In the Visual Analysis you are trying to find out what good Visual quality it has and then in Local Regulations and Byelaws you are trying to find out that what are the restrictions that you do within this ok that is how it is.

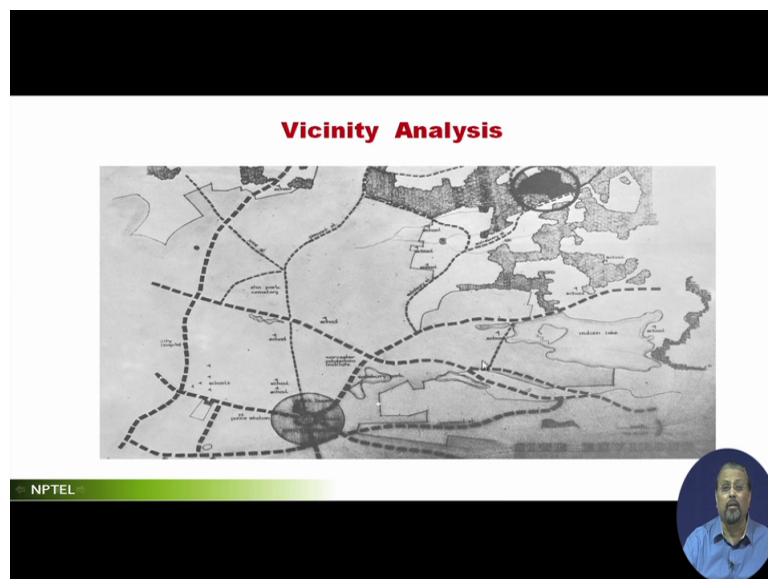
If I go a little further, it is not necessary that they will be appearing in my list in the same order because they are not in order they are not in order of importance. So they may be appearing the way it is arranged, ok.

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The Vicinity Analysis this look at this, suppose this is your site then with respect to this all other aspects that is around, it is a river which is passing by then the weather is coming from where it is entering and where it is going to and then what is the fate of this particular river at the edge, at the end that is how it has to be seen. It is a road and how it is connected, is it connected through a populated area and then ultimately connected to this your site. So in the Vicinity basically you are trying to see the whole thing with respect to the surrounding areas, ok.

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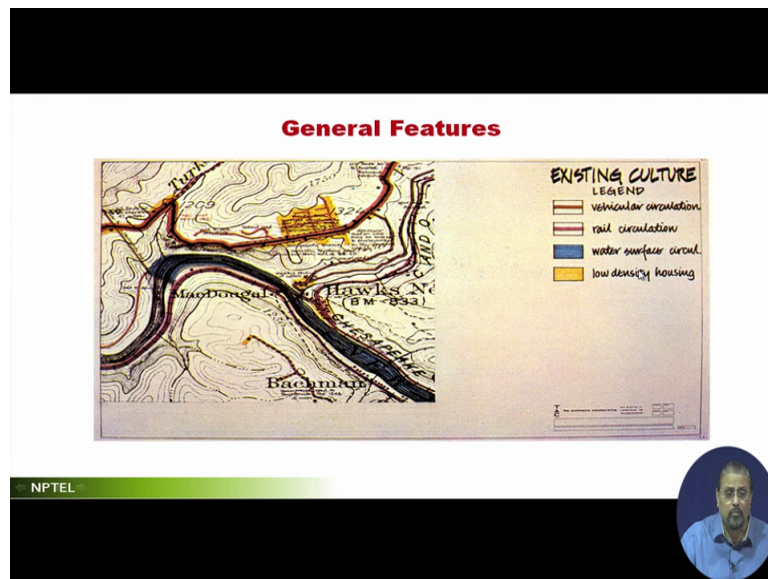
And this is another example, see basically what I have done is different references and books they have different small small examples which can be best in your represented or sited here

as a fairly good example. I have only picked up that from different books, in my reference list finally when it is going to come all these are going to be listed but atleast what I remember over here is the landscape design and site analysis by ( ) (6:45) style it has many of the pictures are taken from sited from there.

And also there is another book called hand book of urban landscape by Cliff Tandy some of the illustrations are borrowed from there because they have very categorically illustrated it, not that the illustration is fully complete with respect to the way I am discussing with you but I have picked up those essentially you know so that I can correlate with respect to what I am discussing.

So in the Vicinity Analysis if I go to the earlier one this is the spots that you are trying to solve and you are trying to take the information for the rest. In this this is the site which is yours and the rest of the areas you are trying to find out what is where, where, what and where, ok.

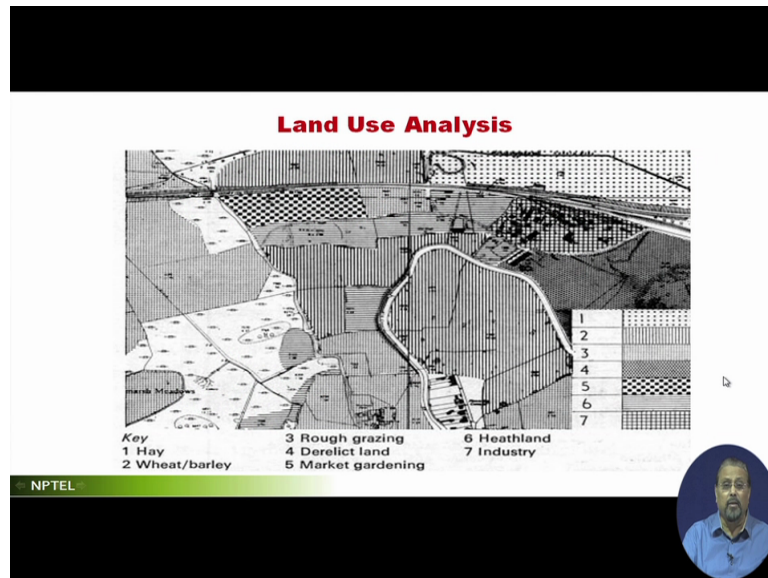
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Then you are likely to find out the General Features, see all these illustrations of different site only thing that is corresponding to what we are trying to do, ok. In this what you are trying to say is the way to the circulation, you are trying to find out the railway circulation, you are trying to find out the water ways by which it can be linked, you are trying to find out whether there is any low density housing, high density housing, slums or whatever, you are trying to find out that whether it has the water surfaces.

So basically all the features general features whatever features you make a list of whatever different features and try to find out what features are existing (8:18) and they are the things which have to be listed here and to be represented. So this particular legend is not complete not exhausted in your Appraisal template that I have shown in which all those have to be shown, ok.

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Then comes the Land Use Analysis in this Land Use Analysis see this particular Land Use Analysis is essentially for you know different kind of mode agricultural as well as industrial. I am just drawing your attention to one particular part, let us say whatever is marked as 7, whatever is this particular legend or this kind of representation, I am trying to see where is it in my picture, this part see this legend mark 7, this part where my cursor is running now, this particular part is industry, ok.

Let us see Derelict land 4, 4 is this cross where is this cross, 4 I am trying to find out will be a very small zone somewhere not much, may be a small area which is rarely planned, ok. Then see here Wheat or barley that means this is the area which is you know cultivated with Wheats and barley what is its number 2, is this so large area. Now if I try to see residential area what is sorry Land Use of this particular area, this is a cultivated land and suppose this is your site then all these you have to take into consideration.

Land Use you take into consideration to judge whether the Land Use can be changed, see prime focus of your this particular activity is when client has come to you he has come with the request that I have to develop a landscape design for him and he knows that the particular

area is having some other Land Use which is beyond landscape but the thing is he is going to check it with respect to the law and regulations that which I have listed at the end, that whether this is convertible, whether the Land Use which is existing can be changed to another landscape kind of Land Use.

So the thing is you must thoroughly inspect or review and examine the Land Use characteristic then check with the local regulations, that whether you would be permitted to go for changing this Land Use. You know this exercise should be done much before you start any other analysis because if you find that the site which has been brought to you by a client and which you are likely to develop for him is subjected to some kind of sub judice with respect to non non convertibility of that particular land to other Land Use which you are thinking. In such case all your exercise and time spend, money spend everything will be lost.

So the point is this you take care check with the Land Use now do you do it get the Land Use plan check with the local authorities whether the Land Use planned which water is existing is convertible to the kind of Land Use that you are now thinking. Because basically by landscaping is not the pattern making game I said you are changing the Land Use an area which was.

An example let me give you, suppose suppose you know Derelict land what is a Derelict land Derelict land is that particular percent of land which has become unusable now. But the land remains unusable now unusable because of many reasons either it has lost its fertility or it has lost its you know the depth or top soil quality because of the extraction you know quarrying from there, whatever reason it has become Derelict less usable or unusable land.

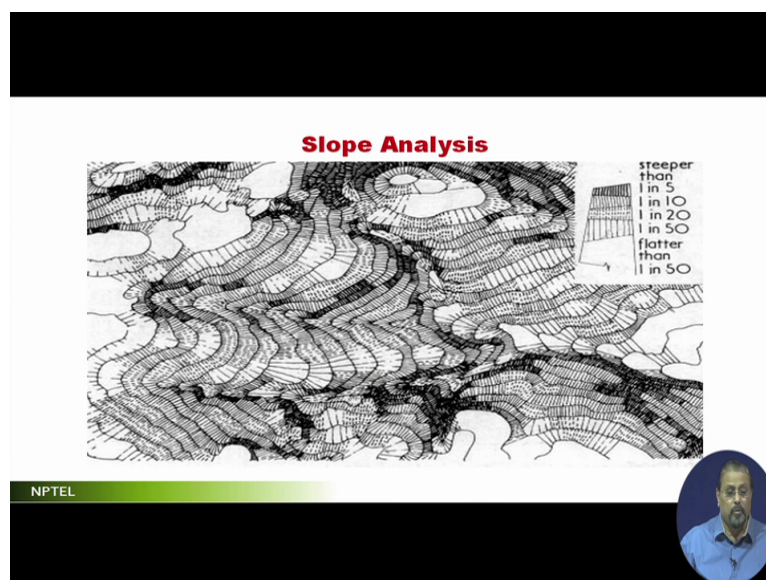
The client comes to you with the plea that please design a landscape for me even if it has become Derelict. The first thing that you have to check whether that Derelict Land is subjected to any kind of legal restrictions, can you convert that Derelict land to a landscape project site. So the Land Use Analysis is going to give you that idea.

You know in the whole design process when you are going to take these decisions for each one of them, one suggestion you keep my suggestion you take it very seriously. If you are checking with respect to or if you are analyzing with respect to Land Use then you must shut your all analysis for the rest at this point you are focusing only on the Land Use Analysis, you are not checking the slope, you are not checking the contour, you are checking the Hydrology or checking anything else, you are checking only Land Use.

So the idea of this analysis is that you should shut up from all other all other analysis, focus on this analysis and whatever transpires from this analysis write it down in inference, you might find that that inference may be a conflicting with another analysis inference, but that will be resolved later do not get guided or biased because of the conflicting nature of influences between two different analysis.

If you do not do this then what will happen is you will never going to take a decision, because finally the decision will be whichever offers me the maximum possible opportunities I will select that ok, so the Land Use Analysis that you do, in this Land Use Analysis when you are doing find out all these and check with the law (one second), ok.

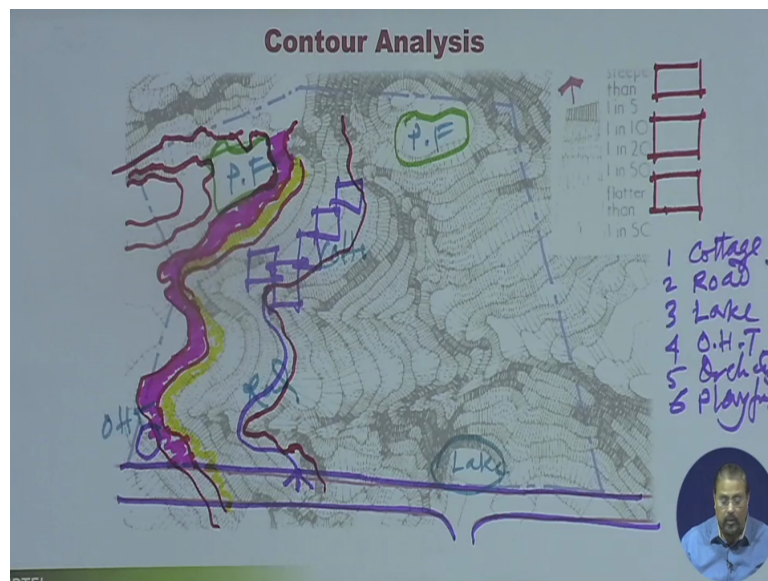
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Slope Analysis before that I will suggest that you do Contour Analysis, what is the Contour Analysis let me explain for which I will take help of one of my predetermined drawing, ok.



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You will see that this particular drawing is what you have seen in the screen before, follow the line that I am drawing here Contour Analysis drawing see your base drawing has provided with you the entire Contour extrapolated, interpolated. So I am just drawing few of the lines to give you analysis idea.

Say this particular line which I have picked up, these are the Contour lines I am not drawing any many more much, ok just to give an idea now you if you follow the drawing you will definitely can make out where the Contour lines are going to but I will focus your attention to something else, ok.

If you take a screenshot of this and draw all the lines you can always see what is the Contour, in this drawing if you see that there is no levels given here, the levels deliberately has not been put in this particular drawing to make you aware of the Contours interpretation. I will draw one more line for your clarity of thoughts, if suppose if this drawing take these two lines, if this is lower than it is sloping in this direction, if this is lower than sloping in this direction, I think that is very clear.

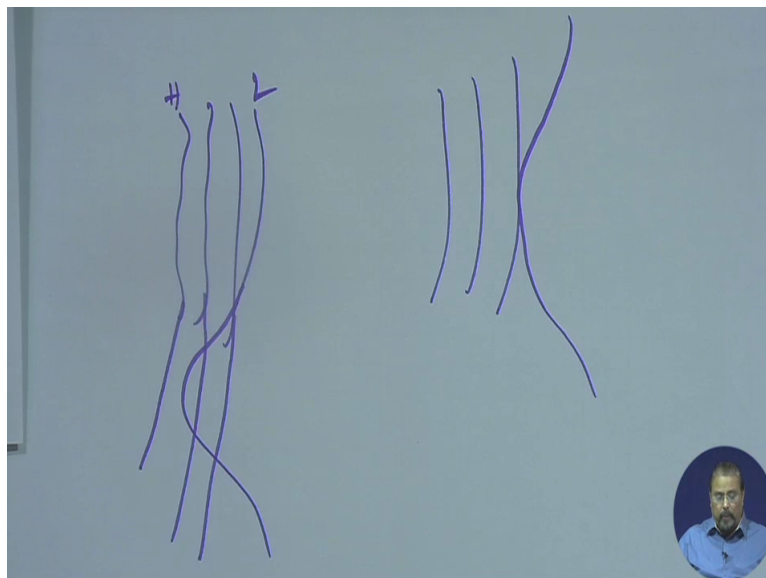
But if it is sloping in this direction the curve is outward, if it is sloping in this direction then the curve is inward this is important to be noted. Now how do you go for this Contour Analysis and what it will give you, Contour Analysis if suppose in which you make a legend specific legend for this where every level is drawn on this particular box and each level each of this Contour plates as different color.

An example let me show you on this say this one is yellow color, this plate wherever it is going to is the yellow color and the other plate is a pink color with whatever available colors I do have, ok. Now the moment you look at the whole drawing where if suppose this level which is supposed to go like this and here and also came here then as soon as you see pink entering into your site again somewhere here then you know that this elevation and this elevation is same, that is the idea.

So the Contour Analysis gives you an idea of plate and its relative level across the entire site, when you know this then you know understand that if I have to think about putting something at this level and then corresponding level is somewhere here than in that case if I have to do connect then I have to negotiate so much of differences from change from here to here.

Few things which you have to keep in mind technically Contour lines generally do not cross each other one another, Contour lines generally do not cross. When I am saying generally there must be some expressions, Contour lines generally do not cross each other if they do cross then either it is corresponding to the levels changing and entering into the others or else there is a mistake in the drawing.

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I will just clarify that particular point a little more it is important to be understood. We say the Contour lines do not merge, Contour lines do not cross but if suppose I will draw two situations, there is a Contour line going, this is high to low, ok. Look at this if suppose this Contour line has gone in and came out like this, then it is contrive to what we are saying in general, the Contour lines do not cross, do not merge, Contour lines has crossed I am drawing

another example. Contour line is merged actually unless there is a mistake this thing should not happen but if it happens then first you if you see it is not wrong, it is not mistake then there must be some reason from which it has happen.

When this thing will happen, when this thing will merge if suppose one Contour level then the next Contour, the next Contour, the next Contour and the one Contour comes here and then merges with this that means there is a verticality. So there is a drop from this particular level from this particular level to the lower level, so there is a vertical phase keep that in mind in the Contour analysis.

And if it is entering into this then there must be a cave that this is overhanging the lower level Contour has entered into it as a cave, so this is cave situation this if you understand then your Contour interpretation will be very very affective. I I will tell you very frankly Contour interpretation is one of the you know common errors I have found amongst many of the designers, see it is not that they are not educated about it, only thing is they have less of exposure or practice or analysis on this.

So once you do this Contour analysis in that what you are trying to find out is this. Now the process in the Contour analysis what you have done is, you have tried to find out the differential elevation levels and now you have a set of functions which you have already listed, the set of functions which the client has requested or you jointly have walked out that I have these these these functions.

Let me just site few functions here for your understanding. In this particular site landscape site I am trying to create it as a tourist resort. So tourist resort will have some functions like cottages, functions like road, functions like steps, pathways, water lines, (())(21:39) lines and such.

Now based on the Contour analysis what you are doing is you are trying to decide that where what should be best fitting in terms of elevation, if it is water line let us say in the water line the line comes from the municipal road, here in this particular drawing you will find that this is a municipal road, mind it this is a hypothetical drawing municipal road and if I say without writing the levels that this is the higher altitude that means this road is going down the slope, so it is slope like this, ok going down the slope like like this, ok.

So if it is sloping coming to this particular level now this is a high point, this is a low point, I will not say whether it is a lowest point, but if I do see in this particular the drawing where if

this is the higher point and this is a lower point then many of the lower levels are ultimately concentrating at this particular point. Then I might say that if the levels are changing and ultimately coming to a one particular area where it is almost concentrating around the particular domain then probably this is the lowest point, if this is a lowest point then I would say if there is a lowest point then probably all the water is likely to go there and if I want that in my tourist resort I should have a small boating lake then probably this is a best possible area which I will select.

So my first selection that I do is for boating a small lake which has (23:19) you added, then the next another example let me take in this particular site you need to have water supply which will come from the municipal supply and then which will be stored in a overhead tank and the overhead tank which should be located in your site at the highest elevation so that once it reaches that particular point then after that by gravity will be distributing to the entire areas.

So what is the best possible location for the overhead tank, see the criteria for selection of the site for overhead tank is nearest to the entry point of the municipal connection from the municipal limit to your site number 1, number 2 is it should be at the highest elevation so if I take this in to consideration then I do find that this is the particular area which is nearest to the road as well as highest altitude and if I follow the same Contours over here I do see that this is quite at the lower level.

So if I take this particular position nearest to the road and municipal water supply is coming to this particular point and keep it in the overhead tank then I have to probably pump the water to the higher elevation to the other functional areas. So my best possible location is this now it must so happen that in this case ok overhead tank the best location is this, then comes if this is the overhead tank location and where should be my position of the cottages.

Now cottages how do you locate, cottages you locate with the best accessibility, here if I find that on this particular from this particular edge every part of this particular edge is equally potential for accessibility but since this is the lowest point, if I have the access to the site from this particular point then one has to go all along. Suppose I have decided that this is the best location for my cottages and this is the best location for my entry point because of the accessibility and all these things then the accessibility has to maintain in such a way that this has to up the hill to reach this particular spot, why I have selected this particular spot for

cottages probably that this is the best location from where I have a best look to the something some water body or hill which is far away from my site and this is probably the best location.

So my positioning of the cottages are fairly done but all these you are doing only at the analytical level you are not taking decisions because this is one option mind it in the whole analysis you may have two three alternative options in the same site for the same function. An example in this particular diagram it is not but if suppose the overhead tank this is the highest point there could have been also the highest point here.

If suppose the Contour was going like this that this particular Contour line was going like this and so all these Contour lines gradually rising at this point so at may be at this particular point level would have been achieved almost attain with respect to the same level. So in that case probably this was the best location also an alternative location was overhead tank.

So once you do this do not bother about anything else only the Contour. So the Contour connectivity when you are seeing with respect to this you will find that there would be alternate locations for various functions now if suppose you have say example 1, 2, 3, 4, 5, 6 functions I am just trying to draw cottage, road, lake, overhead tank, orchids and the play field I have deliberately done it. See these are the 6 functions which I find to be the prime in this particular site.

Then in this cottage location will be done depending on few factors, in terms of Contours which is the best elevation point from where I can see the other surrounding vicinity other visual potential thing in the vicinity. So accordingly this is location, this may not be good for others other analysis but this is the location at this moment for the Contour analysis so this is done.

Then the road, I have to connect the best possible connectivity to this particular cottage is from the same level. So what happens is if this is true and then this is the particular level, this Contour which runs in this direction and ultimately matches with this cottage if this is true then this is the best possible position by which I can have my access road.

Then lake, here the lowest point in the whole site, this is the lake. Then overhead tank the highest point in the whole site, this is the point. The orchids can be anywhere it does not become very critical in terms of its Contours, it may be critical in terms of slope but may not be from Contour so it can be anywhere where you think can be done.

The play field, play filed when you are placing you will try to find out which area has the maximum amount of the same plane. So in this particular drawing I have found with respect to the scale say this is the area which is having a same plane, or this is the area which is having the same plane. So now I have a problem the problem is that I have two options of play fields, one is this area for play field another is this area of a play field my suggestion is do not get disturbed keep both keep both at the time being that this could be a solution alternately this could be a place, this is the lake.

So now let me write it down in terms of tis 6 functions that I have thought this is lake, this is cottage, this is play field, play filed, overhead tank and the road this is how you have done.

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**Appraisal Template**

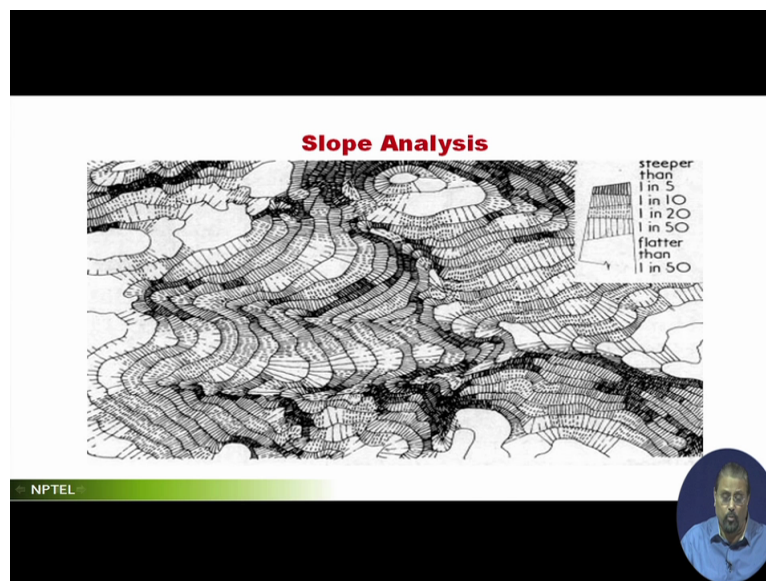
Common Legend	Inference	Design Criteria	Check List	Compliance Level
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Specific Legend				

Once you have done this if you want to take any decision in terms of design criteria then list them in that same template of the Contour analysis, the template I am going back again to show you that in this particular template what happens is that I the Appraisal template here it will be replaced Contour analysis and after that you will decide that what are the common legend are there already in the drawing and what specific legends like say levels, Contours and all these things that will write here and then you will infer the inferences that overhead tank has to be placed at the highest level, the water body has to be placed at the lowest level these are all inferences.

And as soon as we do this then the design criteria for the overhead tank is overhead tank should be placed at the highest level is here in the inference but it has to be nearest to the entry point from the municipal water supply. And once you do this then you will check in the

Check List check the entry point and then when you plan you check whether you have check the entry point has it confirmed to the highest elevation, has it confirmed to the highest elevation, has it confirmed to the easy connectivity, has it confirmed to the highest elevation for which the distribution is almost trouble free, these things you have to compliance level this is how you do it, ok. I hope this idea is now clear to you that how really we work it out, ok.

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Now once the Contour analysis is over then now I am coming to the Slope analysis Slope analysis basically has nothing to do with the Contour elevations, it is the relative Slope between two Contour lines. I will explain this in my next discussion with respect to differentiating between Contours and this, thank you.