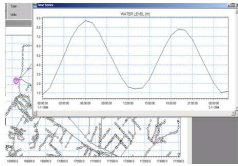
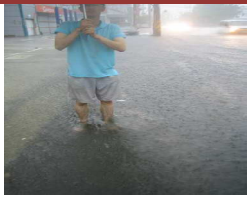


2009

HYDROASIA BLUE TEAM

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No	Node ID	X (m)	Y (m)	Type	Flow	Flow	Flow
1	708.18	348.00	2.00	0.00	0.00	0.00	0.00
2	893.18	348.00	2.00	0.00	0.00	0.00	0.00
3	893.18	347.00	2.00	0.00	0.00	0.00	0.00
4	893.18	347.00	2.00	0.00	0.00	0.00	0.00
5	893.18	347.00	2.00	0.00	0.00	0.00	0.00

[MOUSE REPORT]

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Introduction

Our team conducted the flood simulation on MOUSE in several cases and obtained the some various results.

The following steps were done during the online and face to face meetings periods.

1. Constructing the model
2. checking the model
3. adding boundary conditions
4. applying new pipe network
5. inspecting the result

1. CONSTRUCTING THE MODEL

Before conducting the calculation, MOUSE requires several input data as follows.

->Nodes (Manholes)

No.	Node ID	X-coord.	Y-coord.	Type	Diam.	Invert	Grnd
1	1-1	761.59	3509.86	Manhole	2.00	-0.47	0.58
2	1-2	789.70	3498.59	Manhole	2.00	-0.53	0.63
3	1-3	816.39	3485.21	Manhole	2.00	-0.48	0.65
4	1-4	845.20	3473.94	Manhole	2.00	-0.58	0.63
5	2-1	869.79	3461.97	Manhole	2.00	-0.67	0.61

->Linkes (Pipes)

Links - Pipes and Canals

Fast Query
 Link ID: From: To: Type:

Link ID: Slope: [m/m]
 From: Upstr. Inv.: [m]
 To: Dnstr. Inv.: [m]
 Type: Diameter: [m] Length: [m]
 Material:
 Infiltration: [m3/s/m]
 Pressure Main:

No.	Link ID	From	To	Type	Material	Diameter
1	1-11	1-1	1-2	Circular	Smooth Concr.	0.500
2	1-21	1-2	1-3	Circular	Smooth Concr.	0.500
3	1-31	1-3	1-4	Circular	Smooth Concr.	0.500
4	1-41	1-4	2-1	Circular	Smooth Concr.	0.500
5	2-11	2-1	4-1	Circular	Smooth Concr.	0.450

Buttons: Close, Help, Insert, Compute, Errors, <- Selected, Show ->, Select List ->

->cathments

Catchments

Fast Query
 Catch. ID: Location:

Catch. ID:
 Location:
 Area: [ha]
 Inhabitants: [PE] X coord.: [m]
 Add Flow: [m3/s] Y coord.: [m]

Model A | **Model B** | Model C | UHM

Length: [m]
 Slope: [o/oo]

Area %	Impervious		Pervious		
	Steep	Flat	Small	Medium	Large
26.87	12.89	60.24	0.00	0.00	

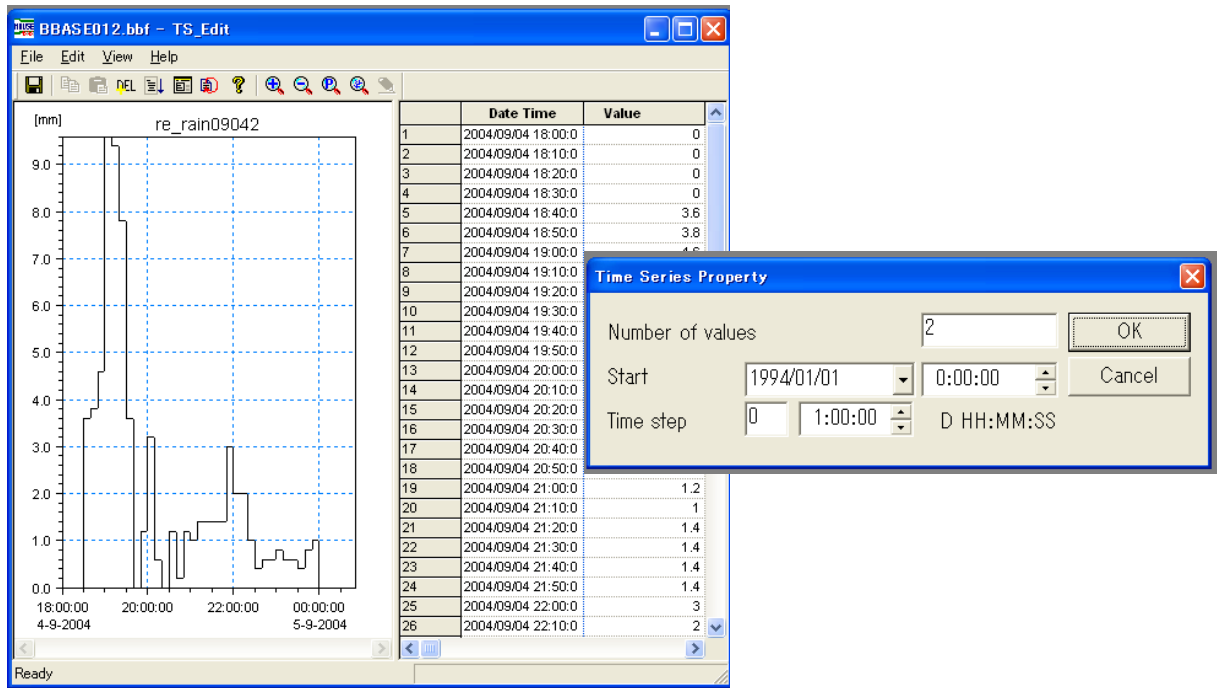
Parameter set: Use individual data:
 Manning Number: [m1/3/s]

RDI
 RDI set: Area: [%]

No.	Catch. ID	Location	Area	Inhab.	Ad. Flow
1	1-1c1	1-1	0.54		
2	1-2c1	1-2	0.39		
3	1-3c1	1-3	0.22		
4	1-4c1	1-4	0.06		
5	2-1c1	2-1	1.80		

Buttons: Close, Help, Insert, Selection (*cse), Load ..., Save As ..., Errors, <- Selected, Show ->, Select List ->

->Time series (Rainfall)



We obtained all files for preparing those data from Hydro Asia website.

And our ArcGIS part members prepared simplified DEM files by using some CAD data to obtain catchments data.

Finally we convert all these data to input data files as MOUSE can accept through simple operation by programs.

The 'Links - Pipes and Canals' dialog box is shown with the following fields: Link ID (B4.1520I1), From (B4.1520), To (B4.1510), Type (Circular), Material (Smooth Concr.), Diameter (0.5000 m), and Infiltration (0.000000 m3/s/m). The table below lists the link data.

No.	Link ID	From	To	Type	Material	Diameter
1	B4.1520I1	B4.1520	B4.1510	Circular	Smooth Concr.	0.500
2	B4.1502I1	B4.1502	B4.1501	Circular	Plastic	0.250
3	B4.1501I1	B4.1501	B4.1500	Circular	Plastic	0.300
4	B4.1501I2	B4.1501	B4.1491	Circular	Smooth Concr.	0.300
5	B4.1491I1	B4.1491	B4.1490	Circular	Plastic	0.350

The 'Nodes - Manholes, Basins and Outlets' dialog box is shown with the following fields: Node ID (B4.1520), Type (Manhole), Ground Level (19.10 m), Invert Level (16.50 m), X-coord (945.00 m), Y-coord (594.00 m), Diameter (2.00 m), and Outlet Shape (Round Edged). The table below lists the node data.

No.	Node ID	X-coord.	Y-coord.	Type	Diam.	Invert	Gnd
1	B4.1520	945.00	594.00	Manhole	2.00	16.50	19.10
2	B4.1500	630.00	594.00	Manhole	2.00	16.70	19.20
3	B4.1501	330.00	564.00	Manhole	2.00	17.60	20.47
4	B4.1502	120.00	564.00	Manhole	2.00	17.86	21.32
5	B4.1490	630.00	330.00	Manhole	2.50	16.39	19.80

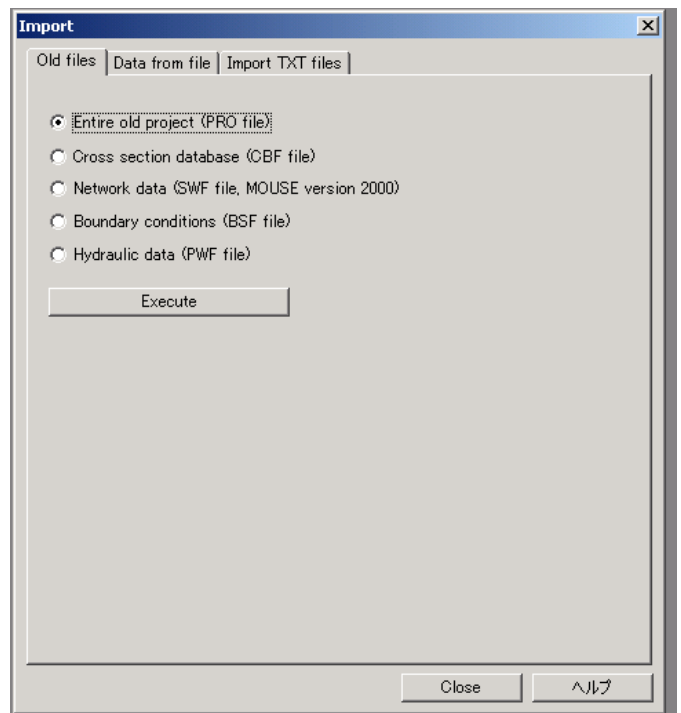
Excel -> Nodes (Manholes)

Excel -> Linkes (Pipes)

Excel -> catchments

DEM -> bathymetry

Excel ->Time series (rainfall)



We took up the rainfall that occurred in July 20th 2008.

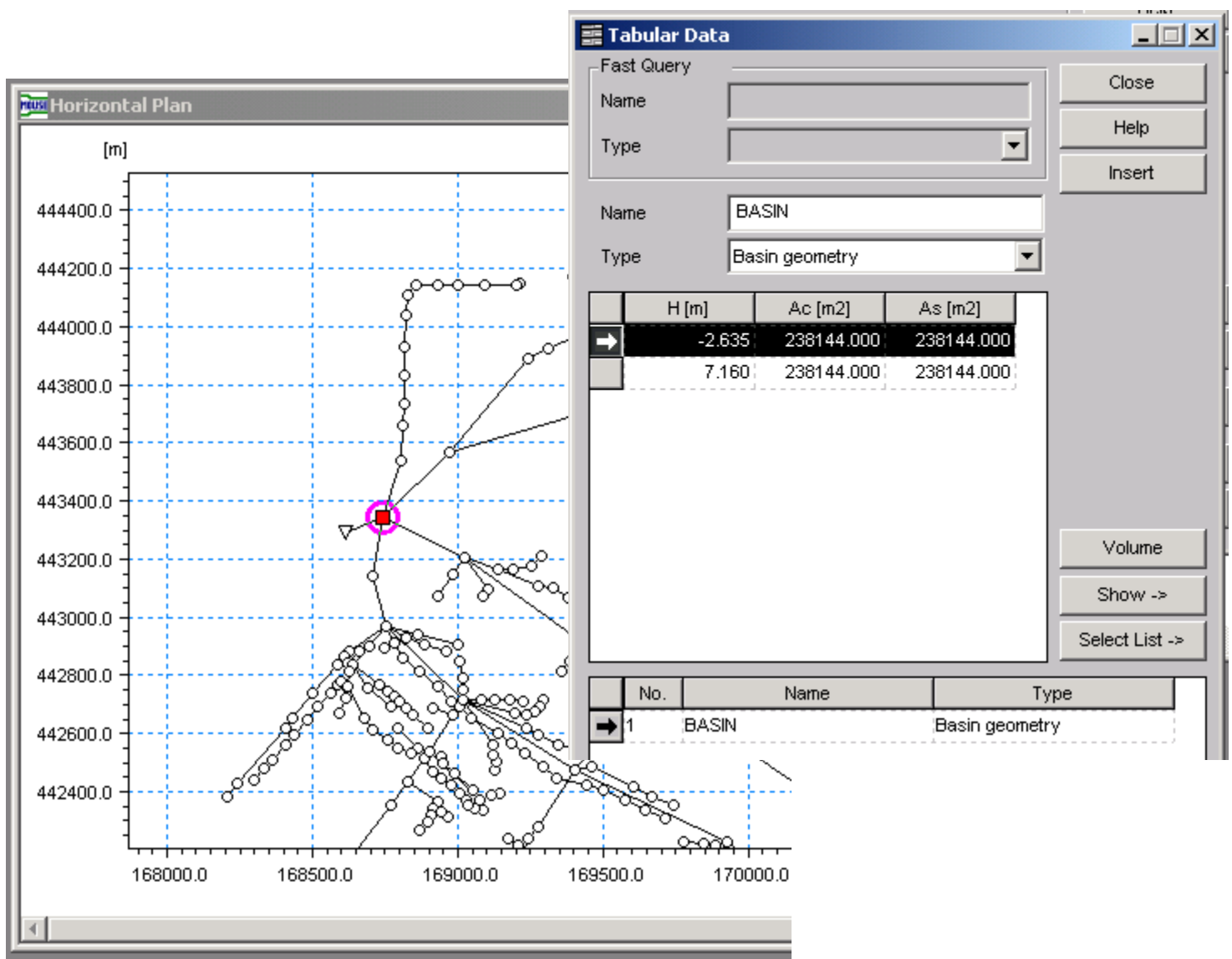
MOUSE has 4 models to implement runoff calculation. Because our team's goals is to compare MOUSE with SWMM, we adopted the model B that is also used in SWMM.

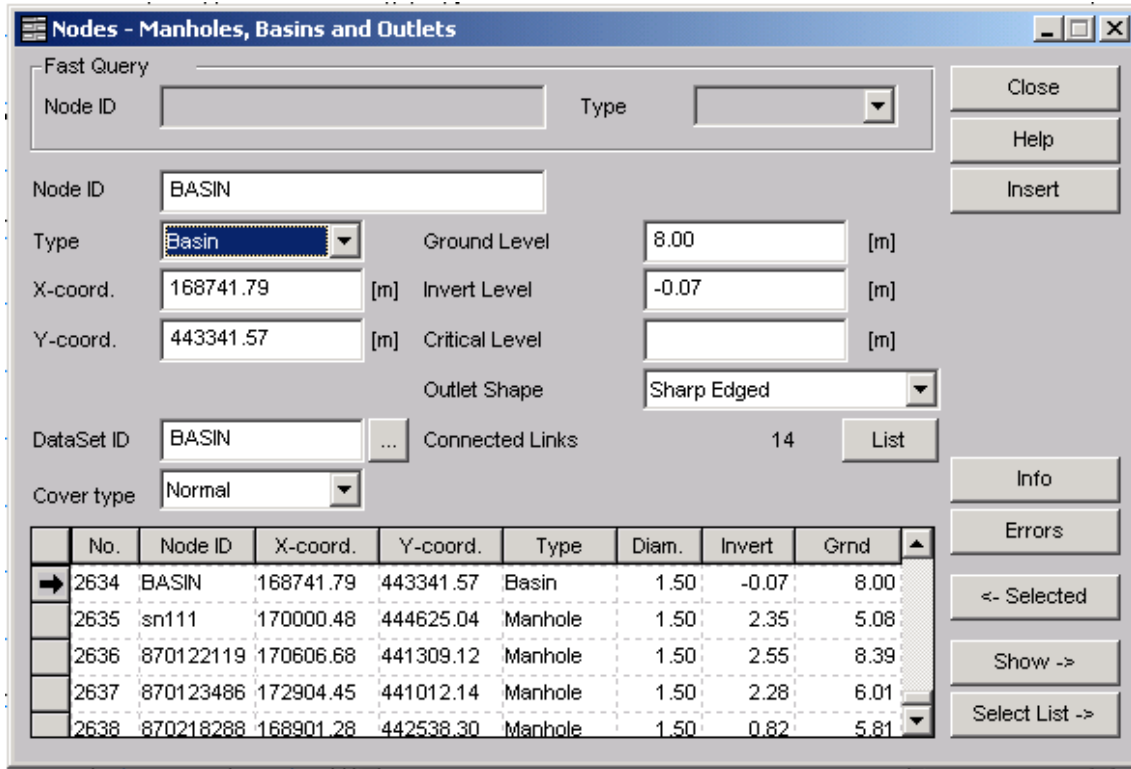
2. CHECKING THE MODEL

First of all we ran the model in the simplest condition to make sure whether the model works normally or not. Although we found the mistakes in import procedures that made too much flood, we finally succeeded to run the model properly after correcting the problems.

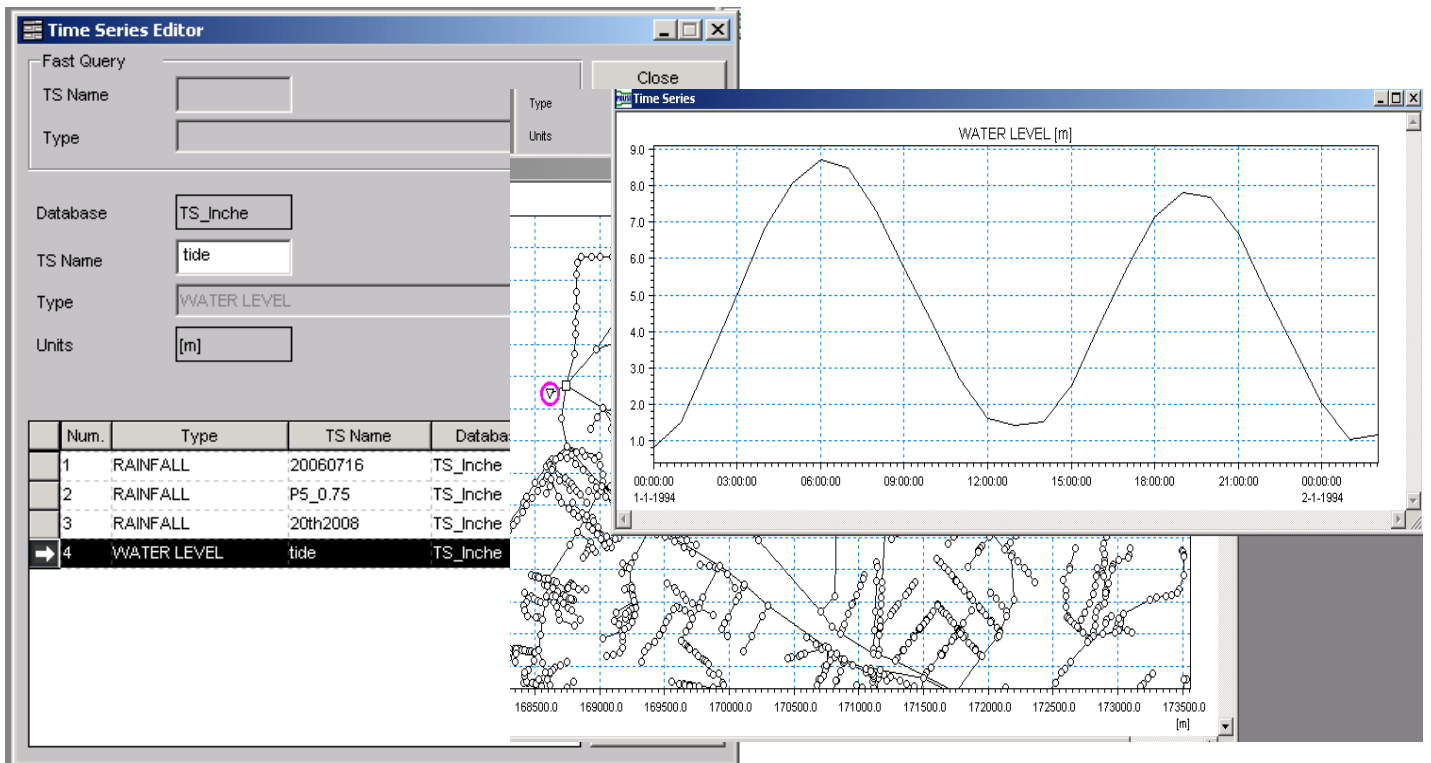
3. BOUNDARY CONDITIONS

As boundary conditions, firstly, we added retention pond according to the existence data and field trips. And we decided to add assumption that one reservoir represents 2 real reservoirs on the model. Following figures show the reservoir that we put. As you can see, in MOUSE, reservoir is called basin. Because it is expressed as Nodes, we can put it by editing the values of objective node on Nodes windows and Tabular Data windows.

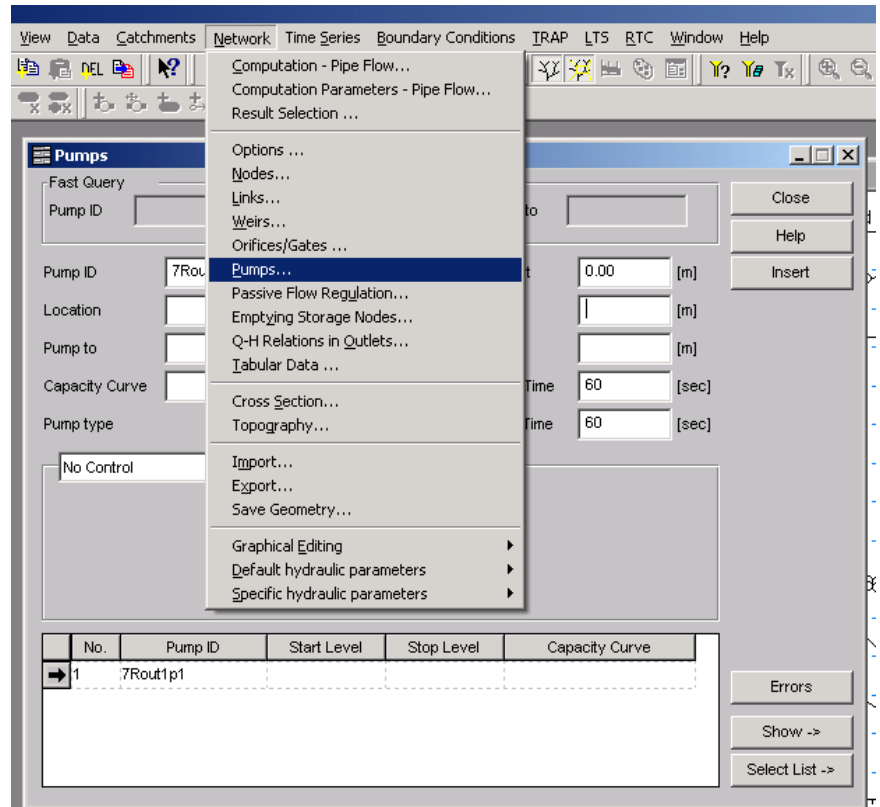




Besides, we added the downstream conditions that express variation of sea level due to tide. Those data can be obtained by HydroAsia Website and applied to model as Time Series.



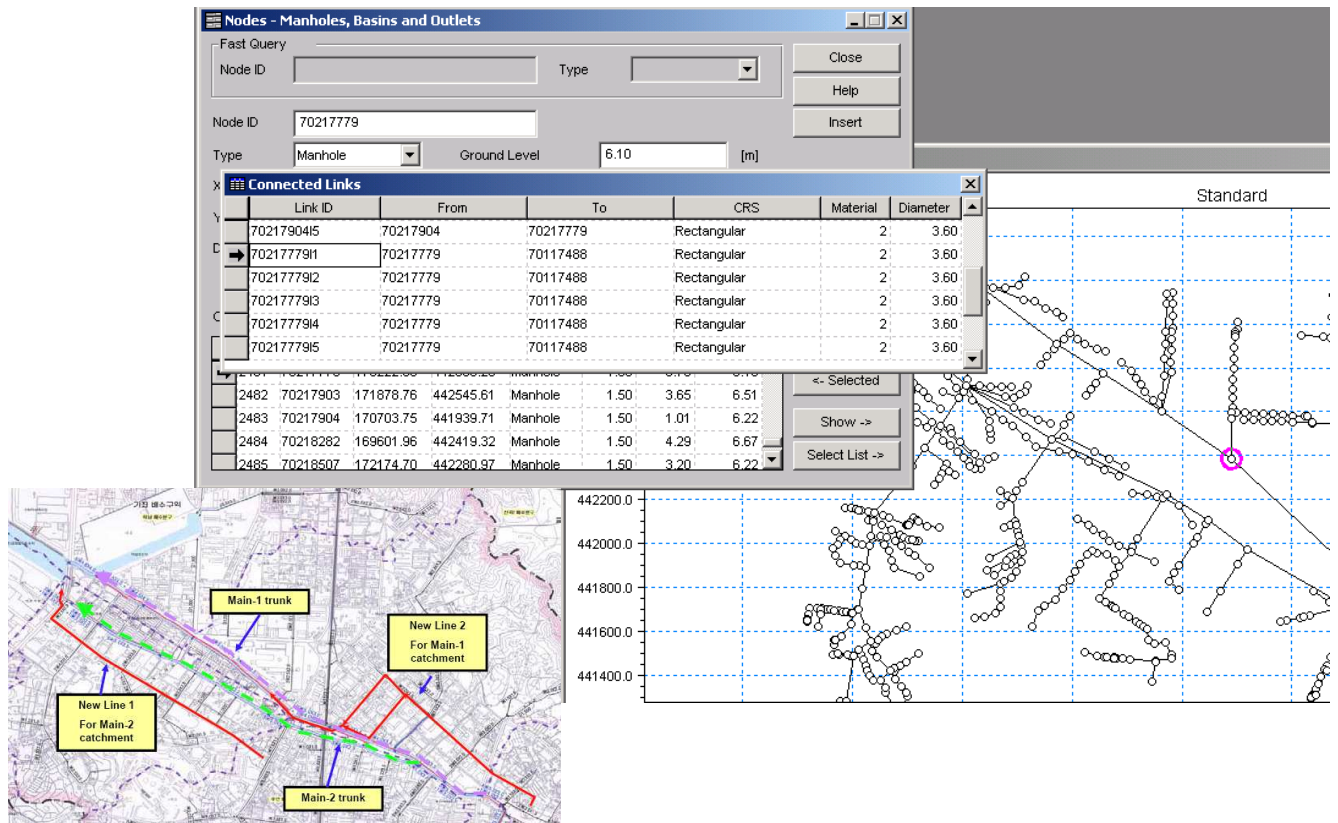
Moreover we put the pump that work according to the water level. If the water level reaches limit level pump starts to work and pump up water to sea directly. This process is expressed by pumping to outlets. And if the water level becomes lower and reaches specific level, it stops its working.



After that, we ran the model in each condition. The results will be showed in later chapter.

4. APPLYING NEW & REAL NETWORK

In study area there are various cross section types in culverts and pipes. And we had applied only simplified links in our model. Moreover, new sewer network is installed in study area recently. To apply these real situations, we added the new pipes according to GIS files. Figures below show the part of procedures of this part.



After that, we ran the model in this new condition.

The result will be shown in next chapter with other result we discussed in previous chapters.

5. RESULT

As we discussed, we calculated in several scenarios showed in the list below.

NO.	Elements(Facilities)	B.Cs.	Pipes	Rainfall
1	Just flow out from downstream (Free B.C.)		Simplified	2008/7/20
2	Just flow out from downstream (Free B.C.)		Added new	2008/7/20
3	1 Reservoir(Ponder)	Free B.C.	Added new	2008/7/20
4	1 Reservoir(Ponder)	Tide B.C.	Added new	2008/7/20
5	1 Reservoir and 1 Pumps	Free B.C.	Added new	2008/7/20
6	1 Reservoir and 1 Pumps	Tide B.C.	Added new	2008/7/20

And we obtained following results.

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-
-

The detailed results and inspection are showed in other reports.