1 INTRODUCTION

One of the goals in developing Baseline 6 was to update the dataprotocol and remove most double-stored data as were present in Baseline 5. In addition, several Feature Classes for morphological models were added. These changes are not presented in this memo.

Because of the update of the dataprotocol some concepts – present in Baseline 5 - were removed. The most important ones concern the roughnesses and bridges.

First the process concerning these roughnesses in Baseline 5 will be described, followed by a description of the process in Baseline 6 with a focus on the main differences. Finally, some remarks are made.

Second, changes regarding bridges are described in the same manner.

The change in other concepts of the Baseline dataprotocol are much smaller. These are not described in this memo.

2 ROUGHNESSES

2.1 ROUGHNESS IN BASELINE 5

When using Baseline 5 all roughness ingredients are stored in the following Feature Classes:

- Bomen
- Ecotopen
- Ecotopen_ruwheid
- Heggen
- Hoogwatervrije vlakken
- Lanen
- Plassen

After mixing measure(s) it was necessary to create roughness elements by using the Baseline Toolbar. By using the toolbar the following Feature Classes were created:

- Ruwheid_lijnen
- Ruwheid_punten
- Ruwheid_vlakken

The features “Bomen” and “Lanen” are added to “Ruwheids_punten”. Therefore “Lanen” are converted first to points. To do so the field “Afstand” in the Feature Class “Lanen” is used.

The Feature Class “heggen” is converted to “Ruwheids_lijnen”.

“Ruwheids_vlakken” are created based on the remaining Feature Classes (except for “Ecotopen”, cause these are used to create “Ecotopen_ruwheid”) are stacked with the following order:

1. Ecotopen_ruwheid
2. Zomerbed
3. Plassen
4. Hoogwatervrije_vlakken

2.2 ROUGHNESS IN BASELINE 6

All the Feature Classes for roughness are transferred to Baseline 6 in the following manner:

Baseline 5		Baseline 6	
FDS	**FC**	**FDS**	**FC**
Ruwheid	Bomen	roughness	land_use_points
Ruwheid	Ecotopen	roughness	land_use_polygons
Ruwheid	Ecotopen_ruwheid	roughness	land_use_polygons
Ruwheid	Heggen	roughness	land_use_lines
Ruwheid	Hoogwatervrije lijnen	models	flow_blocking_lines
Ruwheid	Hoogwatervrije vlakken (RUWCODE = 1)	roughness	land_use_polygons
Ruwheid	Hoogwatervrije vlakken [RUWCODE =2)	models	flow_blocking_polygons
Ruwheid	Hoogwatervrije vlakken (RUWCODE = 3)	locations	bridge_events
Ruwheid	Lanen	roughness	land_use_points
Ruwheid	Plassen	roughness	land_use_polygons
Ruwheid	Ruwheid_lijnen		
Ruwheid	Ruwheid_punten		
Ruwheid	Ruwheid_vlakken		
Ruwheid	Zomerbed	models	calibration_section_input_polygons

Due to this change in the dataprotocol stacking multiple Feature Classes is not necessary anymore.

The following remarks can be made on editing the roughness.

- In Baseline 5 it was okay to have some features in “Ecotopen_ruwheid” that overlapped with “Zomerbed” or “Plassen” because of the stacking the resulting “Ruwheid_vlakken were as expected. However, this can result in unexpected results when a Baseline 5 measure is converted to Baseline 6 while not paying attention to this case.
- Therefore, the user should check for each measure which is converted of the resulting “land_use_polygons” of the measure does not overlap with features which shouldn’t be edited. This is something that isn’t carried out by the software, and thus the responsibility of the user.

Besides that also “Hoogwatervrije_vlakken” with roughess_code = 2 were removed from Roughness. These are mostly used for permits for instance. Therefore, it isn’t logical to incorporate these in “roughness”.

“Hoogwatervrije_vlakken” with roughness_code = 3 represent “Pijlers” in Baseline 5. It was found that in this way the influence of these objects were strongly underestimated. Therefore, a separate Feature Class was introduced. In this way more parameters can be incorporated. These will be described in the following chapter. The conclusion is that permits and “Pijlers” shouldn’t be included in “Land_use_polygons”.

3 BRIDGES

As mentioned above, pillars aren't included in roughness anymore in Baseline 6. These are included in a separate feature (routes and events).

When using the Baseline 5 to Baseline 6 Convertor only the events (converted to a point feature class) are created. Therefore, it is mandatory for the user to create "Bridge_lines" and to convert to routes and events. How this can be done is explained in the Help.
Each feature in "Bridge_routes" should contain a number (comparable with terrain_jumps) and a name. The corresponding "Bridge_events" should contain the same number (comparable with terrain_jumps) and some parameters which are used in the calculations.

The first parameter is a diameter in meters. For this value the largest possible value (which is blocking the flow) should be used.

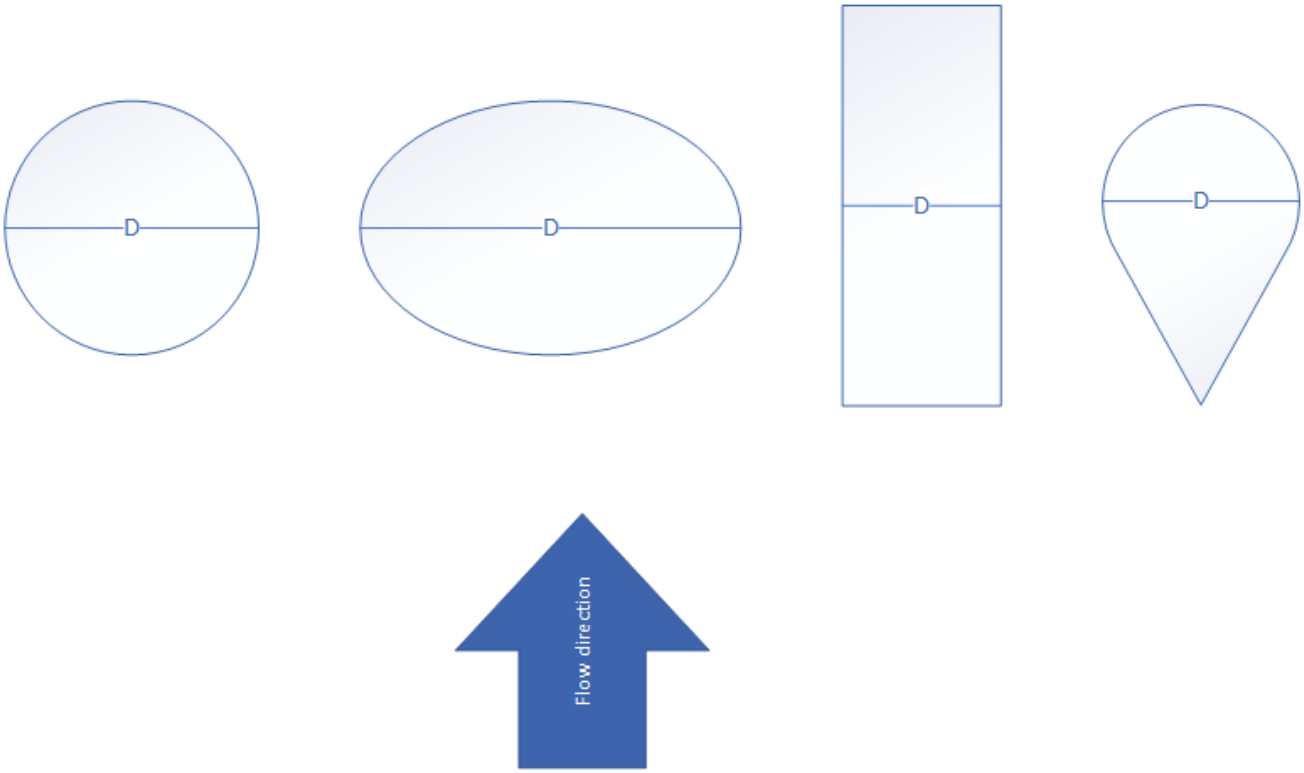

Figure 1: Determination of the diameter of bridge pillars

The second parameter is CP, the so called resistance coefficient. A value of 1,0 (default) corresponds with a smooth cylinder. For other coefficient values, see the article "Simplified applications of the Rehboch backwater formula for bridges"((Reh, 1957-1958)). However, the use of other coefficient values is explicitly NOT permitted without contact with Rijkswaterstaat. At this moment it is not fully clear which pillar shape corresponds with the various CP values D-HYDRO Suite.

Sometimes it is necessary to use dummy pillars. This can be the case if a bridge has a curve without pillars supporting the bridge. In this case vertices are introduced in Baseline which should contain "Bridge_events" (due to the Dataprotocol). In such a case dummy-pillars can be used. A pillar is identified as a dummy when a diameter of -999 is found.