

Wetland Impacts West Essex Highlands

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NJDEP Definition of Wetland

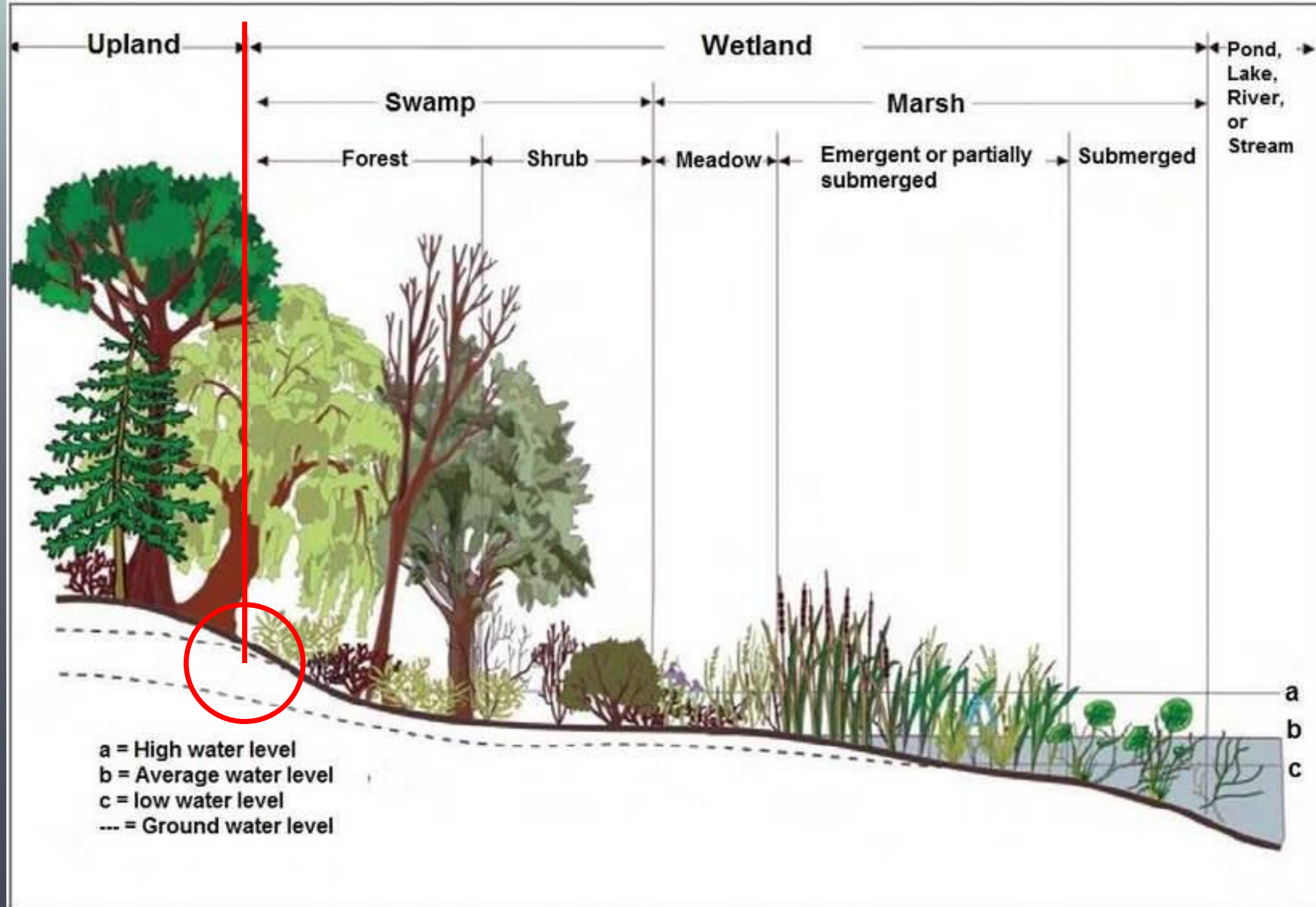
“Freshwater wetland” or “wetland” means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation; provided, however, that the Department, in designating a wetland, shall use the three-parameter approach (that is, hydrology, soils and vegetation) enumerated in the 1989 Federal Manual as defined in this section.

Wetland Hydrology is the Key Element to an Area Being a Wetland

The NJDEP's reliance on the Federal Manual for Identifying or Delineating Jurisdictional Wetlands (1989) requires as little as 1 week of saturation within 12" of the soil surface during the growing season.

Those areas of wetland that are only saturated for 1 to several weeks are at the drier end of wetlands and tend to be forested.

Impacts to wetland hydrology can be indirect and related to changes in surface runoff as well as changes to groundwater flow paths.



Soils

USDA web soil survey is a key resource for any environmental investigation

Soils map from Web Soil Survey



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Soil Series

BouB—Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes

- Well drained
- Fragipan 29-50"

HanBc—Haledon silt loam, 0 to 8 percent slopes, extremely stony

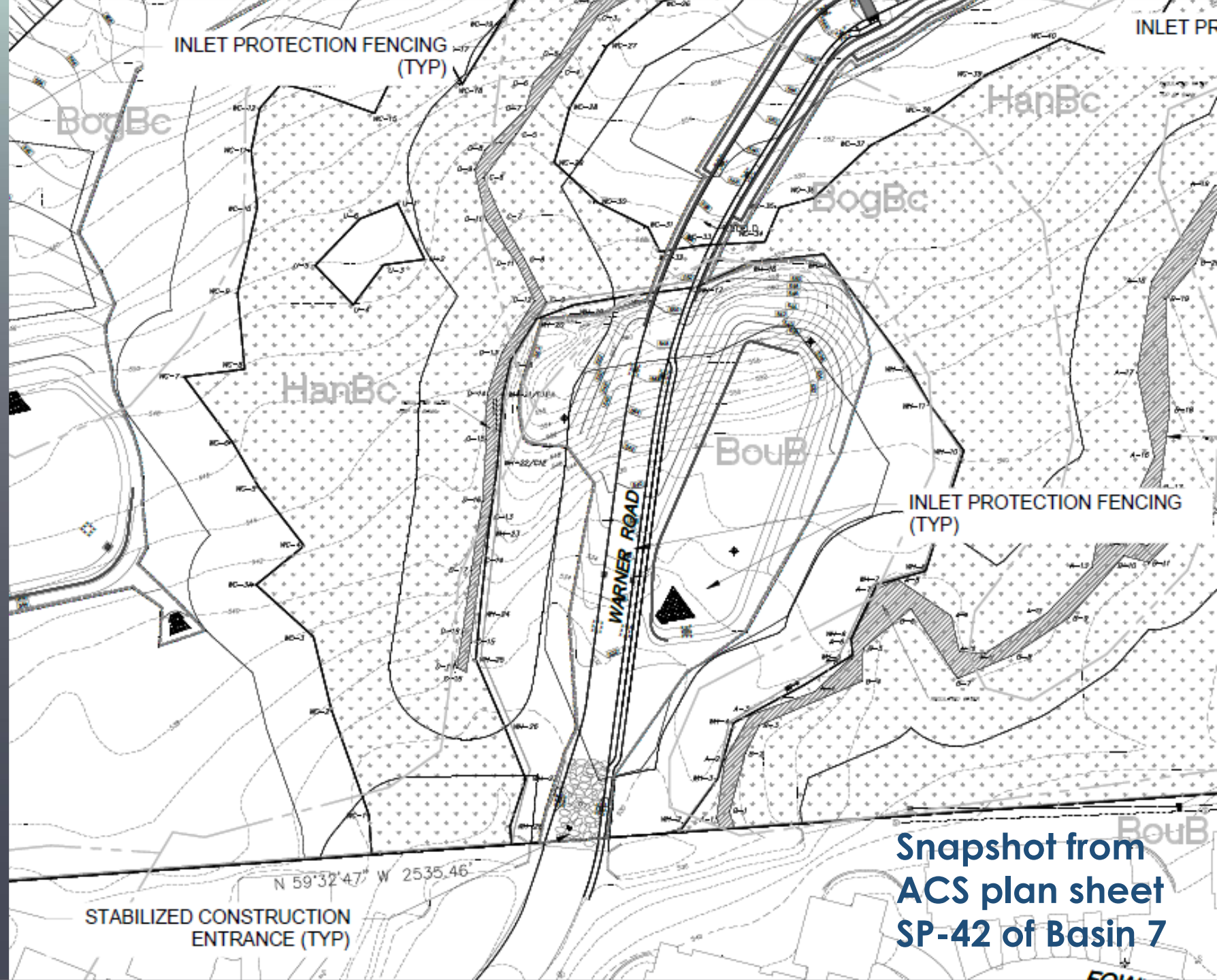
- Somewhat poorly drained
- Fragipan 24-36"

HctBc—Hasbrouck silt loam, 0 to 8 percent slopes, extremely stony

- Poorly drained
- Fragipan 16-34"



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Snapshot from
ACS plan sheet
SP-42 of Basin 7

Site soils

HanBc—Haledon silt loam, 0 to 8 percent slopes, extremely stony - Somewhat poorly drained

Depth to water table: About 7 to 18 inches

Depth to restrictive feature: 24 to 36 inches to fragipan

Perched high water table is within 12 inches of the surface in the late winter and early spring of most years

Depth to redoximorphic features 8 inches

HctBc—Hasbrouck silt loam, 0 to 8 percent slopes, extremely stony

Poorly Drained

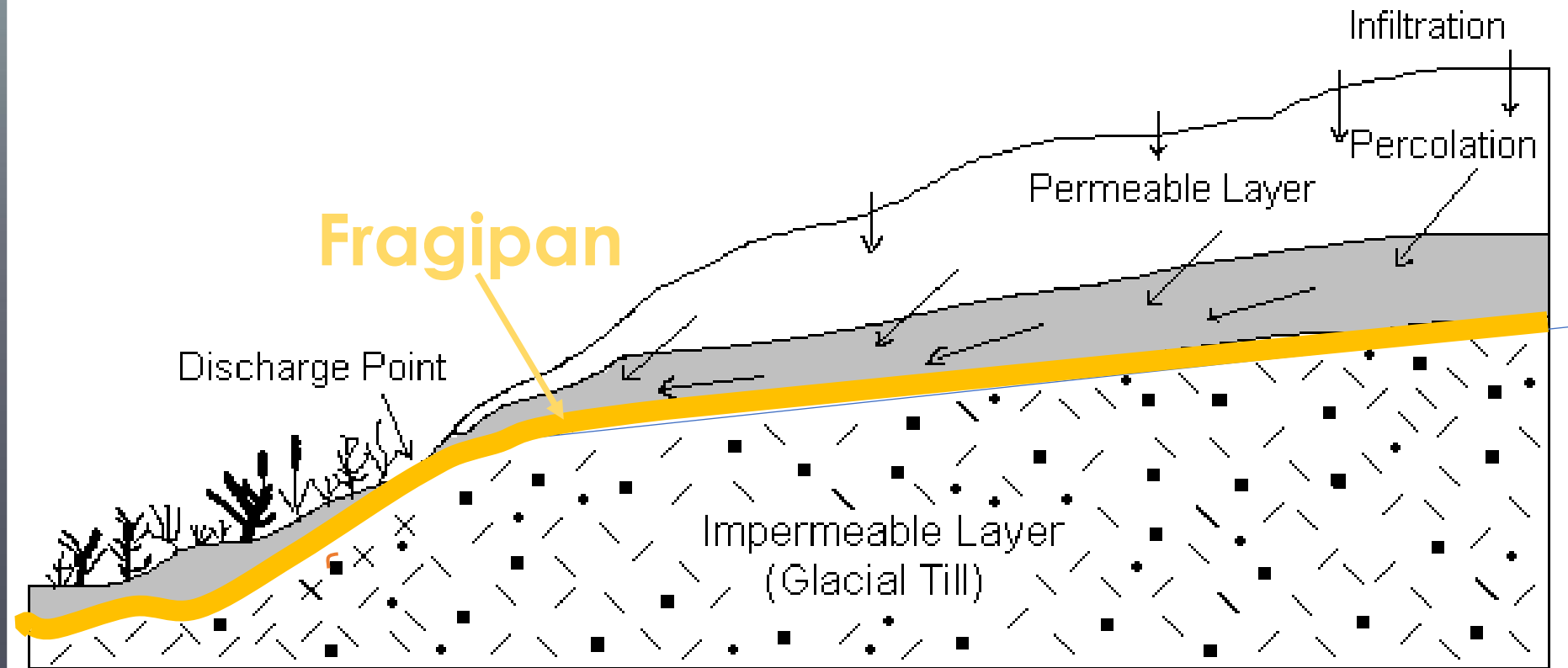
Depth to water table: About 0 to 6 inches

Depth to restrictive feature: 16 to 34 inches to fragipan

Depth to redoximorphic features 3-10 inches

Figure 1. Geomorphology of a Slope Wetland

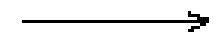
Cross-sectional View



Saturated Zone



Direction of Water Flow

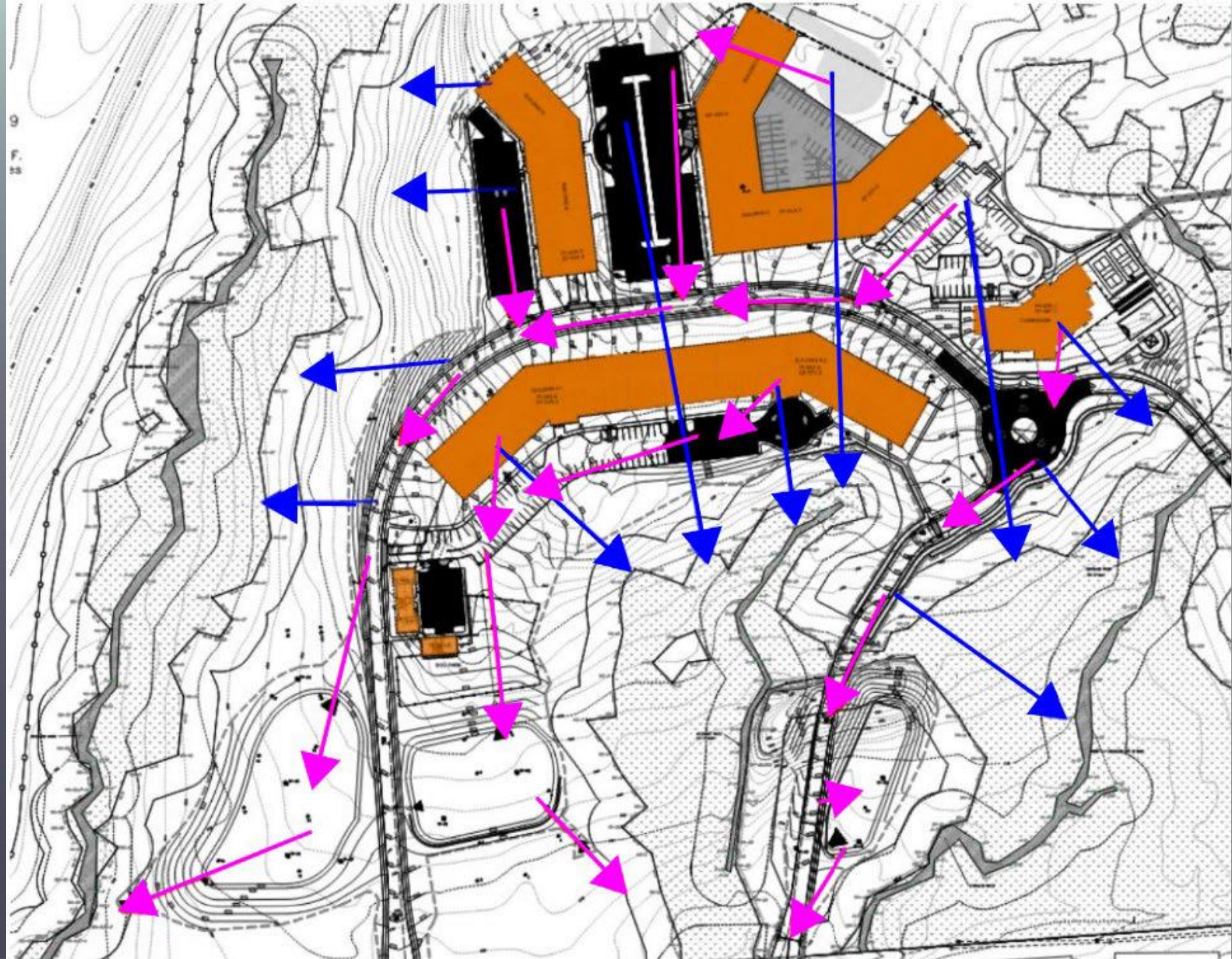




Surface Drainage

Western wetlands drain 32 acres. It will be reduced by 9 acres, or 28% of the total existing drainage area.

Eastern wetlands drain 48.4 acres. It will be reduced by 16 acres, or 33% of the total existing drainage area.





DA-2

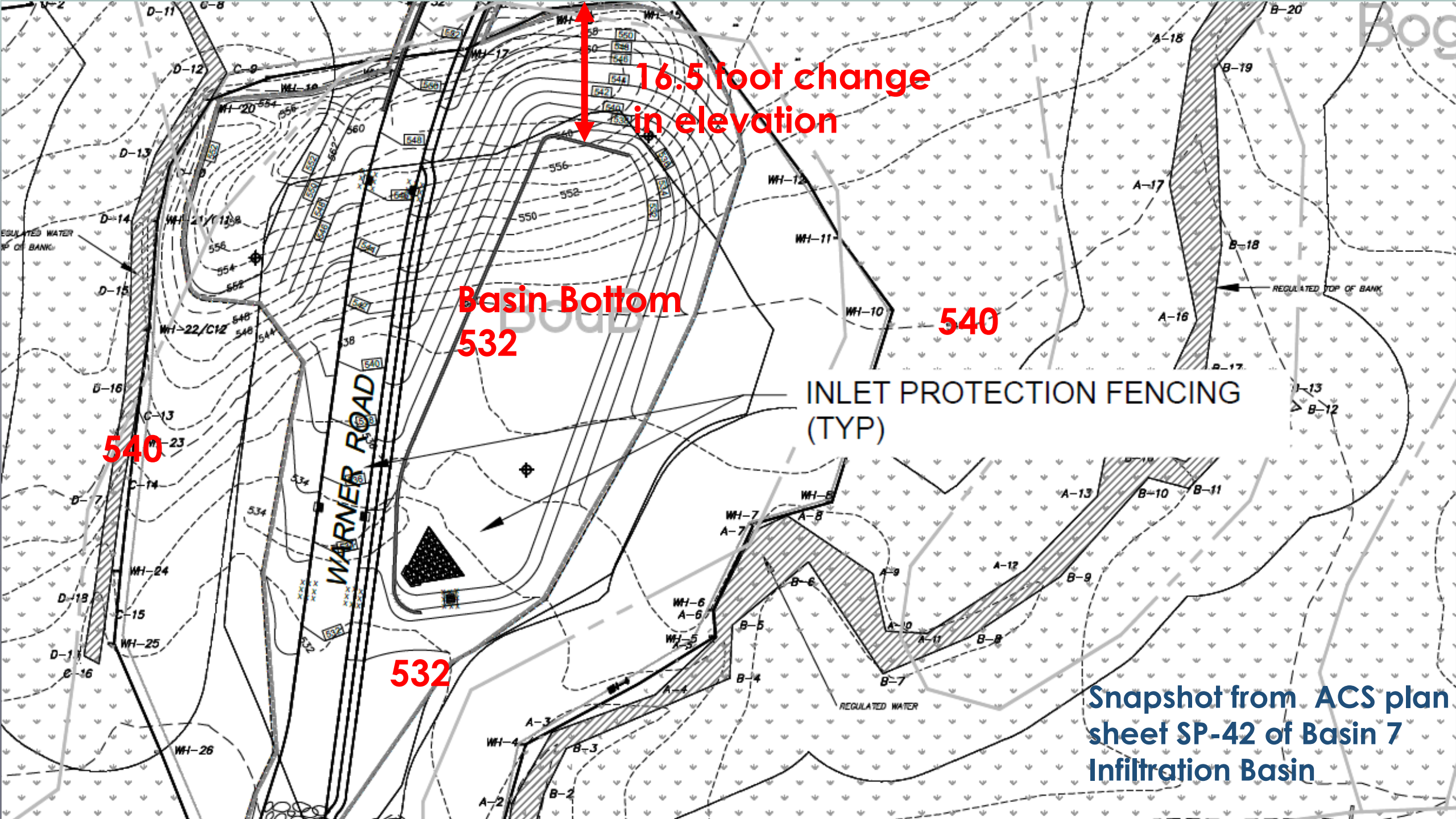
SHEET 2 OF 2

Groundwater Flow Path Impacts

In general, the groundwater component of wetland hydrology follows site topography. Wetland hydrology is expressed when groundwater either discharges to the ground surface or is within 1 foot of the soil surface for 1 week during the growing season.

Groundwater elevations and flow paths tend to follow restrictive layers such as fragipans or bedrock. Based on the USDA Soil Survey the three main soils types on site, Boonton, Haledon and Hasbrouck all have a fragipan that perches water.

This is especially important early in the growing season.



16.5 foot change
in elevation

Basin Bottom
532

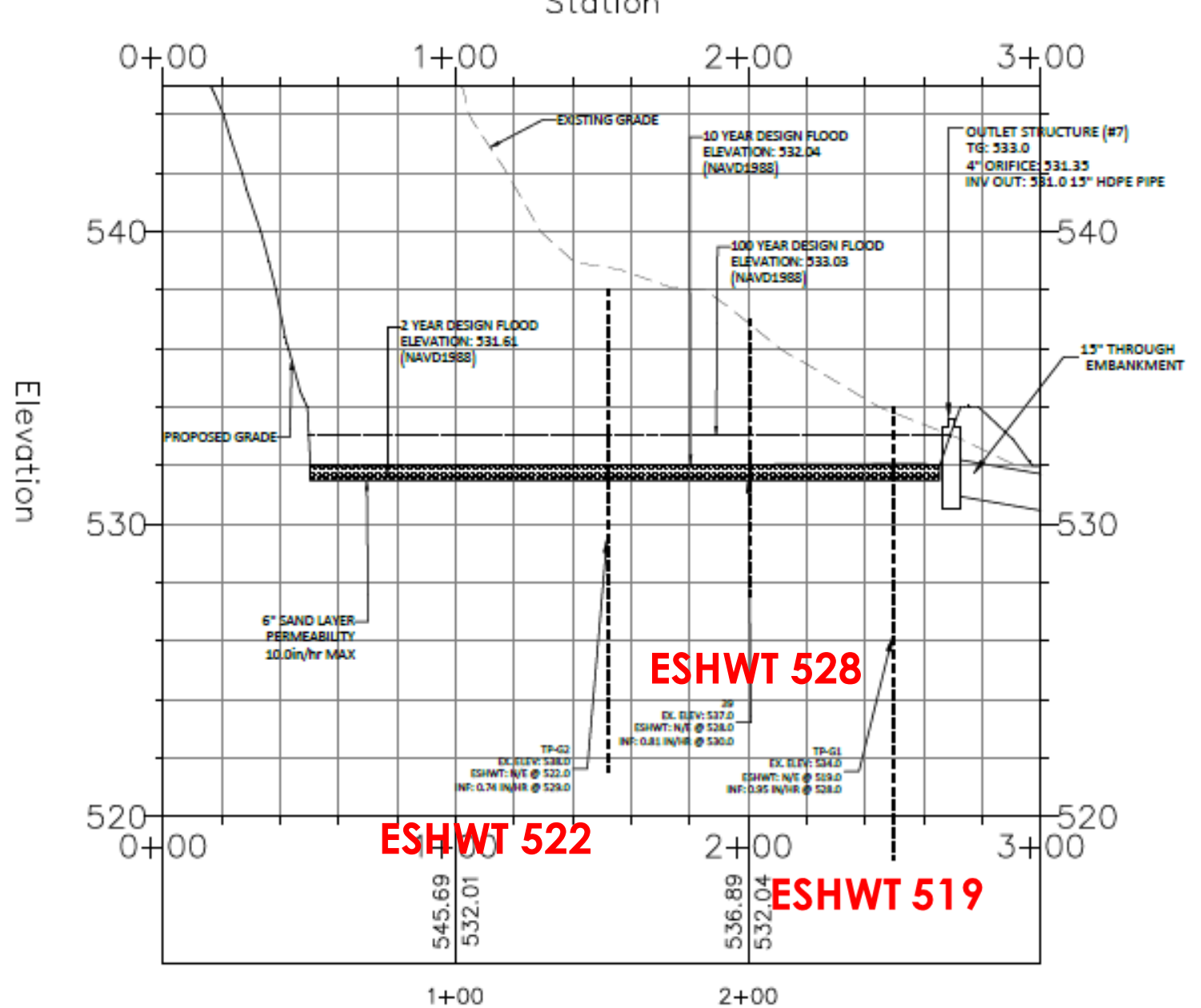
540

INLET PROTECTION FENCING
(TYP)

540

532

Snapshot from ACS plan
sheet SP-42 of Basin 7
Infiltration Basin



BASIN #7 - WARNER ROAD

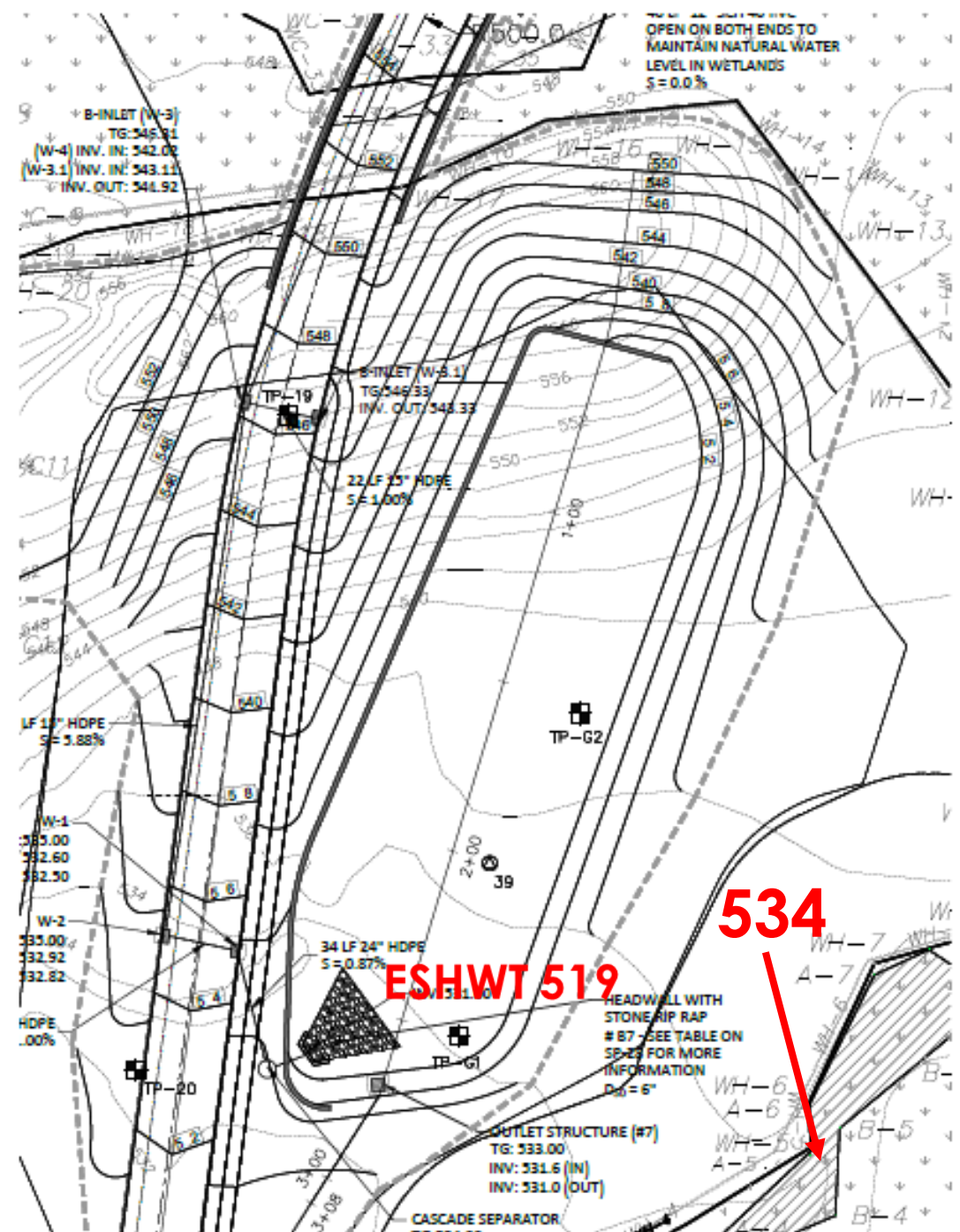


ESHWT Elevations Vs. Elevations of Adjacent Wetland

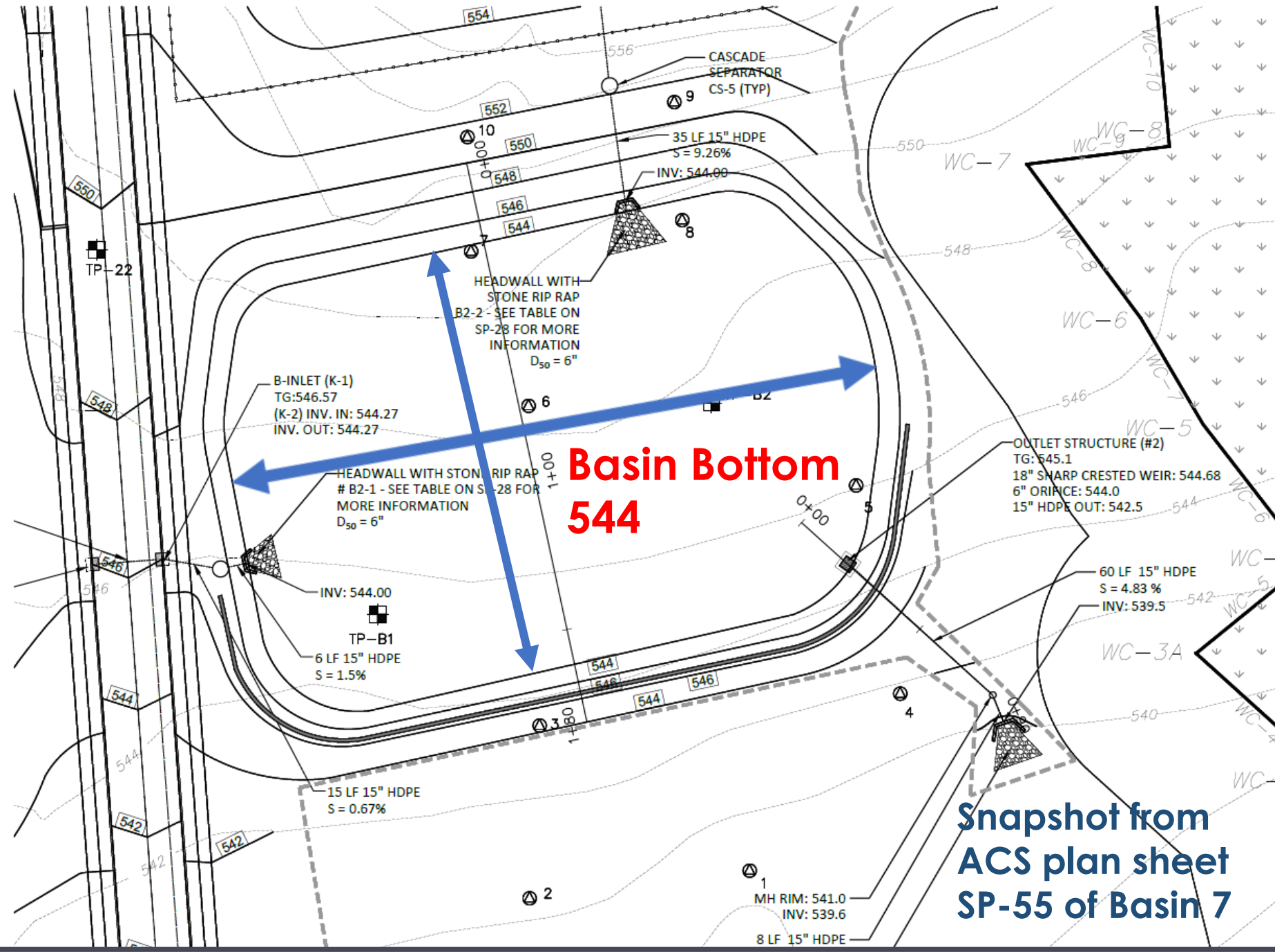
ESHWT 15 feet lower than
the adjacent wetland?



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Basin 2



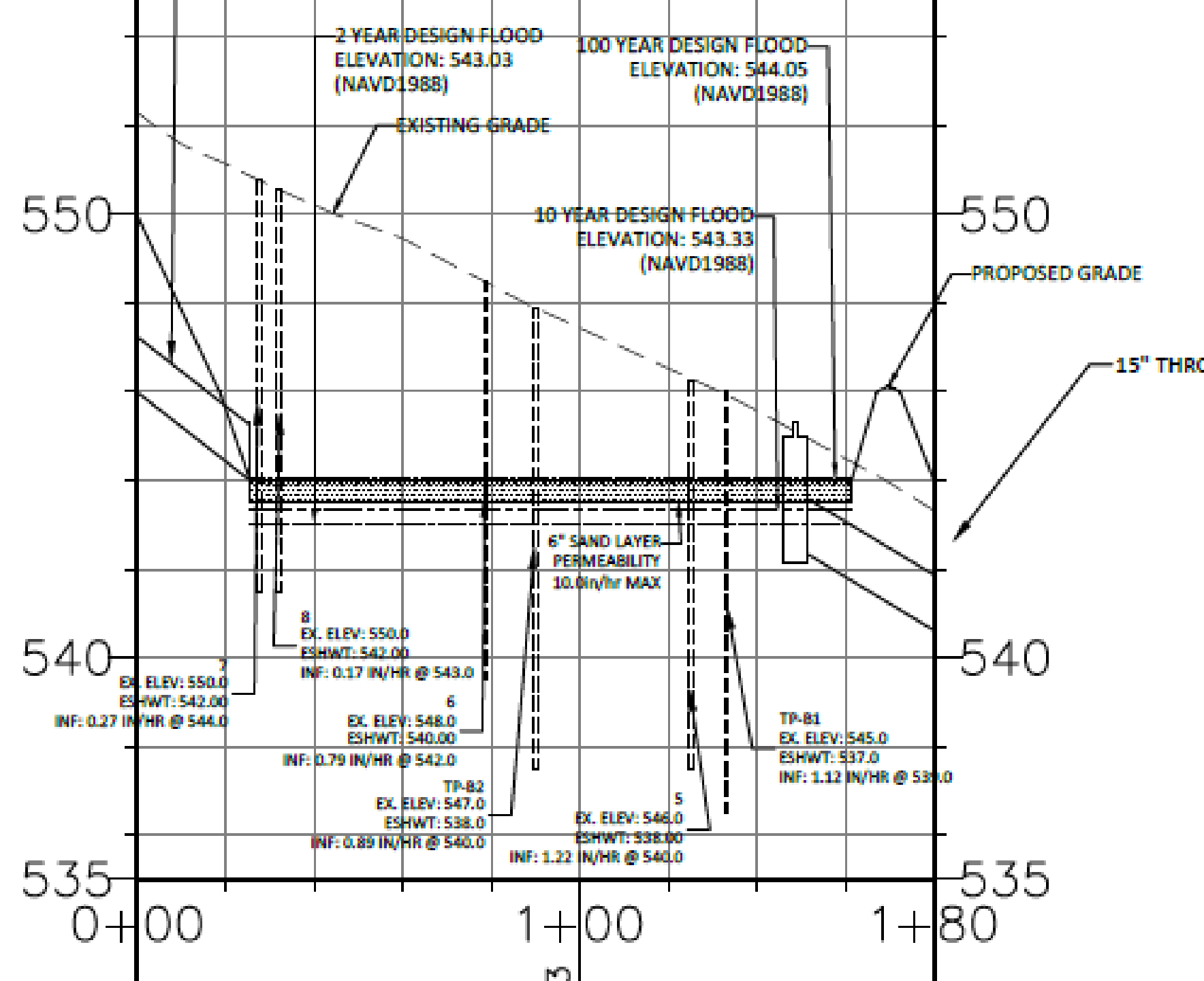
Snapshot from
ACS plan sheet
SP-55 of Basin 7

Basin 2

ESHWTs

542
540
538
537

Elevation



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Questions ?



THANK YOU

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