DRAFT WORK PRODUCT

Borrego Valley Groundwater Basin
Borrego Springs Subbasin

Groundwater Dependent Ecosystems (GDEs) Approach in GSP

Advisory Committee Meeting

January 31, 2019

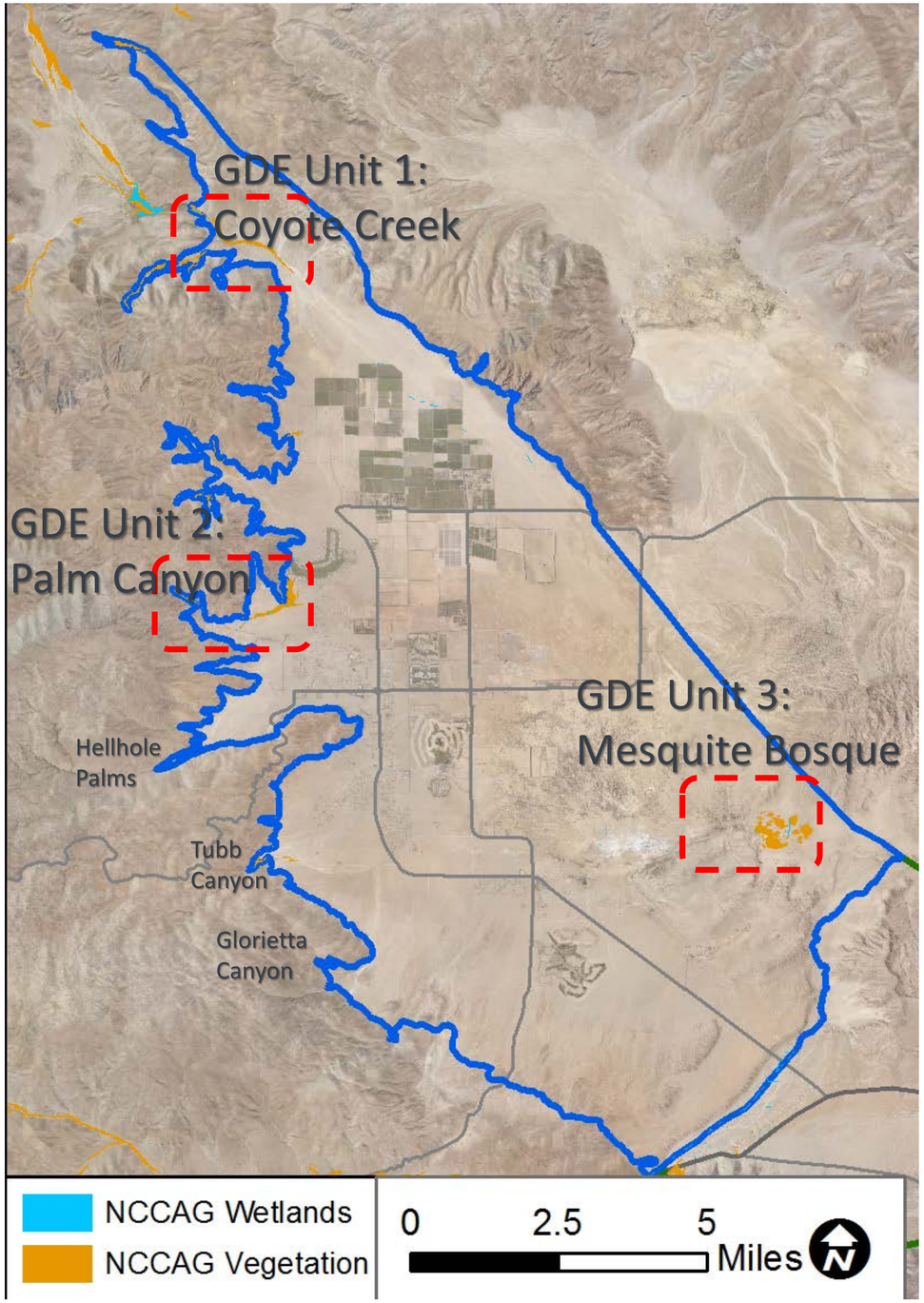
Geosyntec consultants

DUDEK

Groundwater Dependent Ecosystems (GDEs)

GSP Chapter 2 Evaluates GDEs

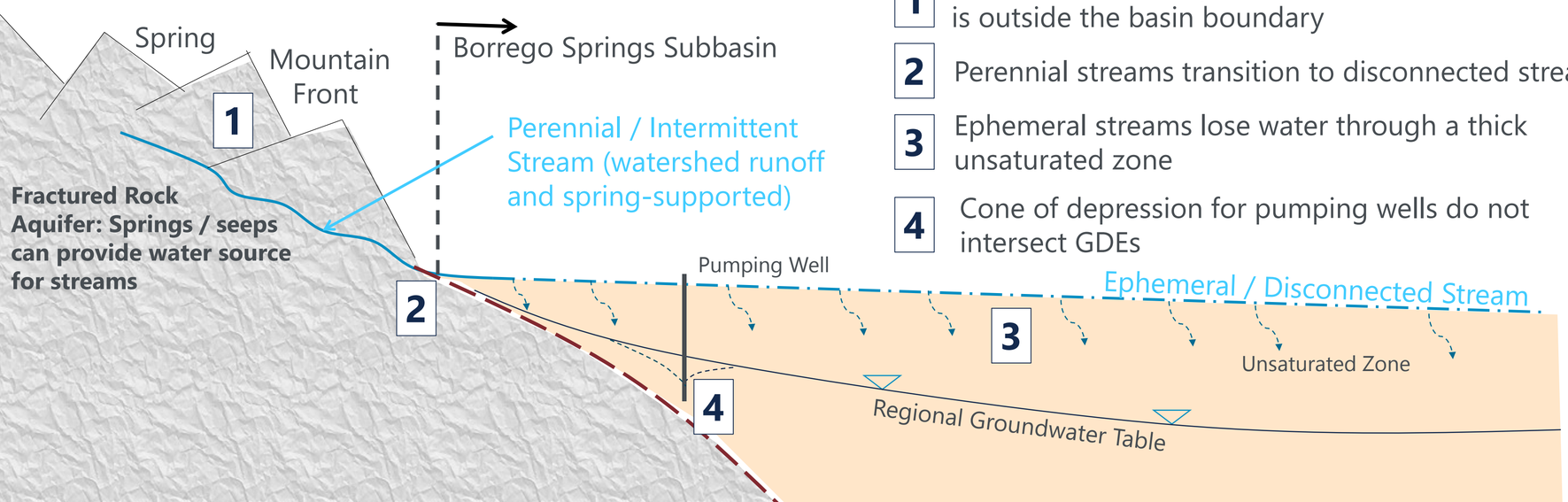
- GDEs are defined under SGMA as "ecological communities of species that depend on groundwater *emerging* from aquifers or on groundwater *occurring near the ground surface*" (23 CCR § 351(m)).
- Identification of potential GDEs is based on DWR's Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset and USGS surface water data.
- GSP Chapter 2 examines potential GDEs based on:
  - Adjacent watersheds and surface water flow records
  - Distance between mapped community and static groundwater level



Groundwater Dependent Ecosystems (GDEs)

GSP Finds No Substantial Nexus between Potential GDEs and Basin Pumping

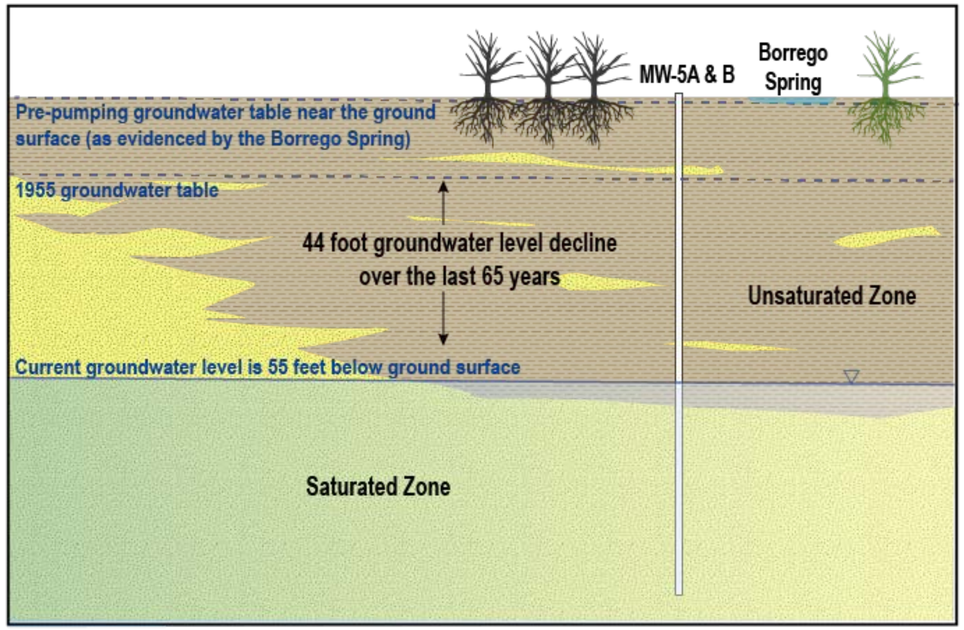
- Pumping wells currently do not take water that would otherwise be available to potential GDE's
  - GDE's are supported by storm flows and flowing springs outside the subbasin's boundaries
  - Water accessed by GDE's exists in the unsaturated zone:
    - Percolating surface water
    - Localized zones of perched water



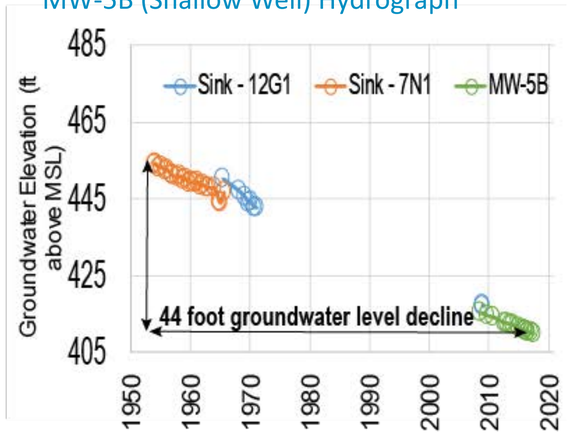
1. Source of water for perennial streams and NCCAGs is outside the basin boundary
2. Perennial streams transition to disconnected streams
3. Ephemeral streams lose water through a thick unsaturated zone
4. Cone of depression for pumping wells do not intersect GDEs

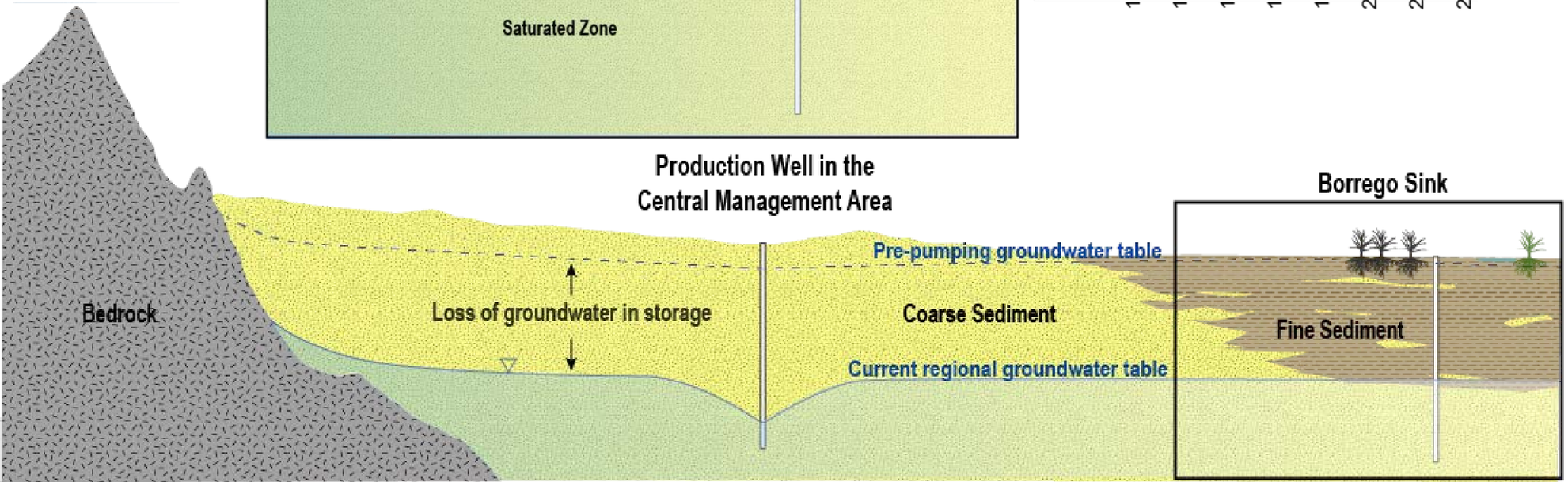
Groundwater Dependent Ecosystems (GDEs)

GSP Finds No Substantial Nexus between Potential GDEs and Basin Pumping



MW-5B (Shallow Well) Hydrograph



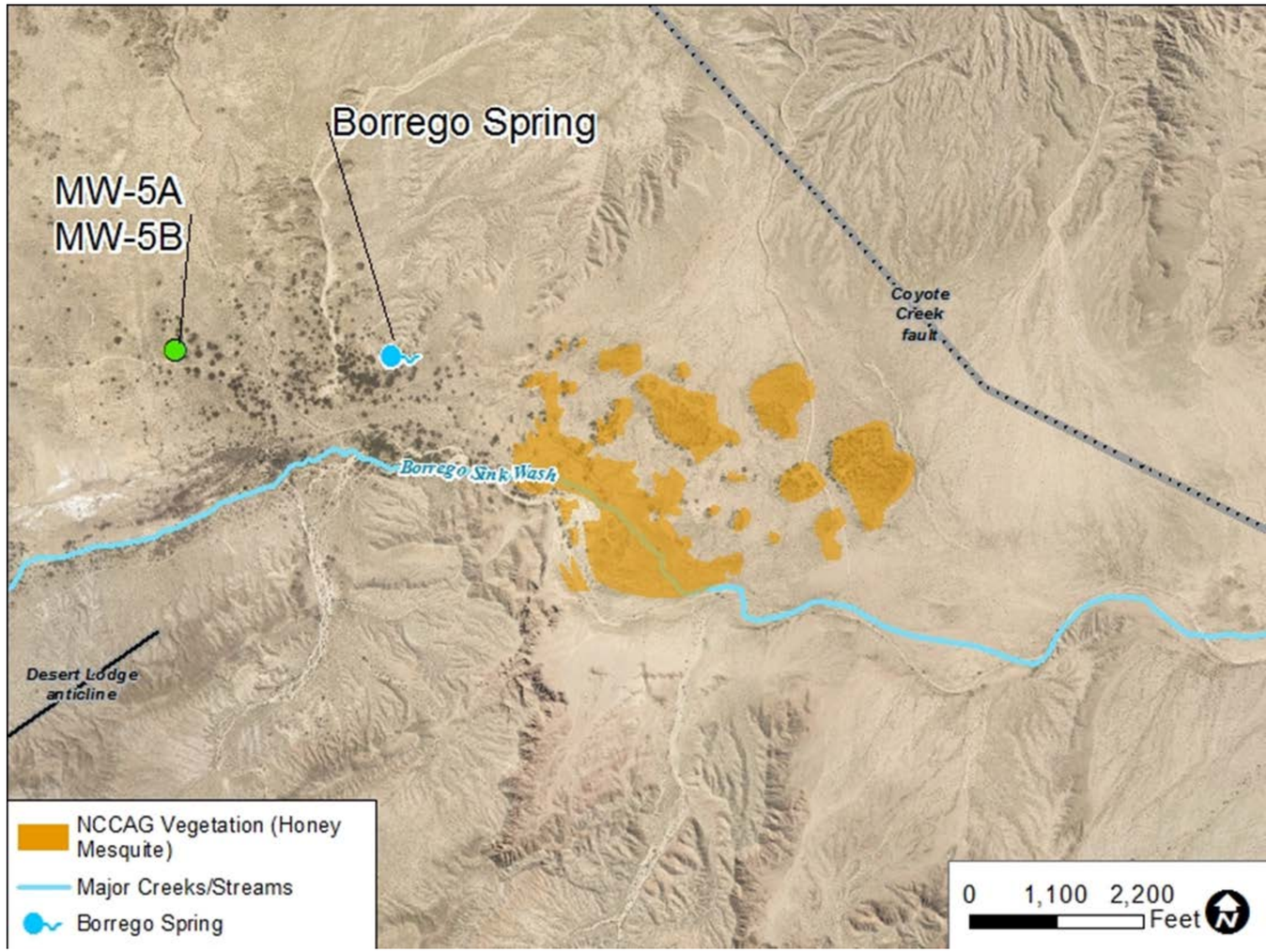


Source of Photographs: Anza-Borrego Desert Natural History Association, 2018

Groundwater Dependent Ecosystems (GDEs)

GSP Finds No Substantial Nexus between Potential GDEs and Basin Pumping

- Depth to static groundwater near each potential GDE:
  - Borrego Sink: 55 feet below land surface
- Old Borrego Spring
  - Documented to have dried prior to 1963
- NCCAG Mapped Vegetation
  - Located east of fold axes such as Desert Lodge Anticline



Groundwater Dependent Ecosystems (GDEs)

GSP Finds No Substantial Nexus between Potential GDEs and Basin Pumping

- Depth to static groundwater in wells near each GDE:
  - Coyote Creek: 288 feet (Horse Camp Well)
  - Palm Canyon: 348 feet btoc (State Park Well No. 3)
  - Borrego Sink: 55 feet btoc (MW 5)
- The GSP evaluated DWR mapped NCCAG wetlands and vegetation and determined that they are not dependent on the regional groundwater table (rely on surface water, soil moisture and/or perched groundwater)
- The GSP does not define minimum thresholds, measurable objectives, or interim milestones for GDEs
  - GSP describes undesirable results that historically occurred to phreatophytes in and around the Borrego Sink; however,
  - SGMA does not require correction of undesirable results that occurred prior to 2015
  - Remaining areas mapped as potential GDEs are dependent on percolating storm flows and water sources originating outside the basin (i.e., climate-driven rather than depending on static groundwater level).