SALTON SEA MANAGEMENT PROGRAM
NORTH LAKE/WHITEWATER AREA PLANNING ISSUES

Concept Discussions
Internal Review Draft

June 12, 2018

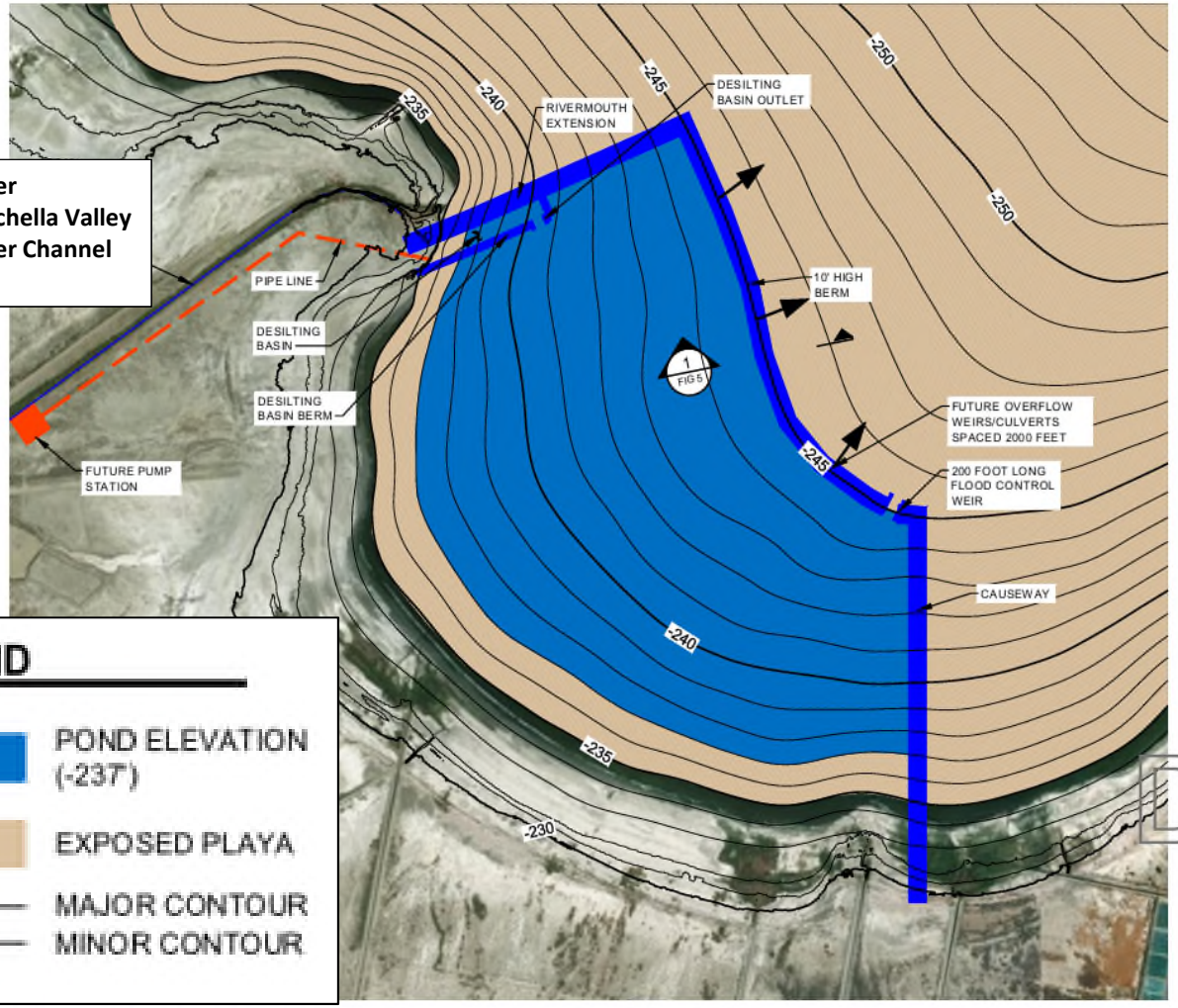
GOALS AND OBJECTIVES

- **Habitat for key species**
  - Multi-species fish habitat
  - Food source for birds
- **Water supply pond for future habitat and dust mitigation projects**

PRELIMINARY

CONCEPTUAL LAYOUT

Whitewater River/Coachella Valley Stormwater Channel (CVSWC)



LEGEND

- POND ELEVATION (-237')
- EXPOSED PLAYA
- MAJOR CONTOUR
- MINOR CONTOUR

0 750 1500

SCALE: 1" = 1500'

LEGEND

- POND ELEVATION (-237')
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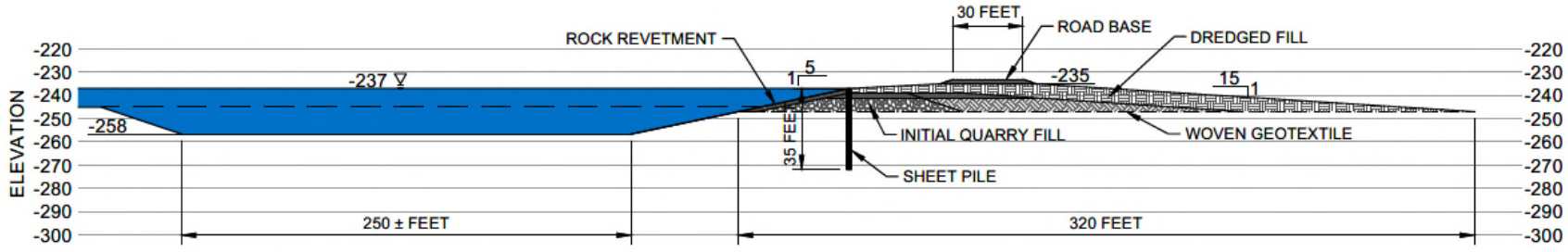
- MAJOR CONTOUR
- MINOR CONTOUR

8' DEEP LAKE
TOTAL LAKE AREA = 883 ACRES
TOTAL LEVEE LENGTH = 6500 FEET
TOTAL CAUSEWAY LENGTH = 5200 FEET
RIVERMOUTH EXTENSION LENGTH = 4200 FEET
DESILTING BASIN BERM LENGTH = 2000 FEET

PRELIMINARY CROSS-SECTION



TOP OF BERM ELEV: -235.00
SEALEVEL ELEV: -237.00
SEAFLOOR ELEV: -245.00

1 - BERM SECTION
SCALE: 1"=50'

DRAFT

NORTH LAKE PLANNING – KEY ISSUES

- Water quality
- Salinity
- Inflow sources & quantities
- Storm flow routing
- Gravity vs pumping
- Pond elevation

WATER QUALITY DATA: SELENIUM

- **Inflows (5 yr avg)**
  - Whitewater River (CVSWC): 1.8 ppb
  - Other Drains: 3-8 ppb
- **New USEPA draft criteria (2016) for Se**
  - 1.5 ppb in ponded water
  - 3.1 ppb in flowing waters
  - Previous (1987) chronic criterion: 5 ppb
- **New criteria recognize fish tissue data supersede water column values (8.5 mg/kg, whole body)**

Note: ppb = parts per billion

WATER QUALITY DATA: OTHER PARAMETERS

- **Nutrient levels typical of highly eutrophic waters**
  - Nitrogen: ~15 ppm,
  - Phosphorus: ~2 ppm
  - Nitrogen limited, i.e., there is excess phosphorus
- **Total suspended solids moderately high: ~100 ppm**

Note: ppm = parts per million

WATER QUALITY DECISIONS

- **Are selenium levels acceptable for creating habitat?**
- **Treatment options:**
  - Sediment basins
  - Treatment wetlands
  - Mixing in ponds
- **Inflow options**
  - Whitewater River vs Drains

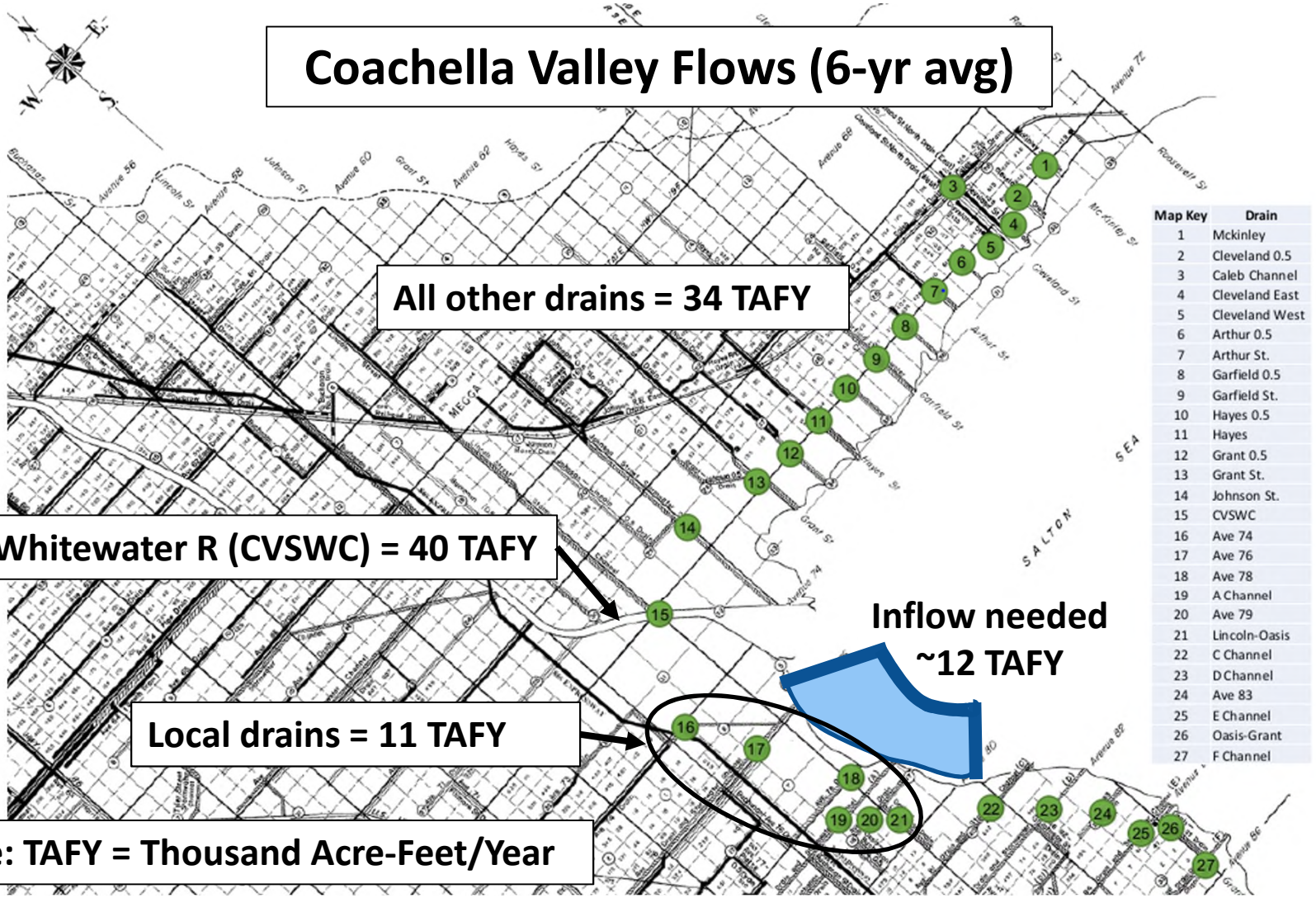
SALINITY

- **Salinity in the Whitewater River**
  - Typically <1 ppt (parts per thousand)
- **In other drains**
  - Typically 1-4 ppt

SALINITY OPTIONS

- **Possible targets**
  - Nearly fresh: No pumping of Salton Sea water, vs
  - 15-20 ppt: Pumping Salton Sea water
    - Capital, O&M, energy costs, or
  - Greater than 20 ppt: More pumping
    - More costs

Coachella Valley Flows (6-yr avg)



Map Key	Drain
1	Mckinley
2	Cleveland 0.5
3	Caleb Channel
4	Cleveland East
5	Cleveland West
6	Arthur 0.5
7	Arthur St.
8	Garfield 0.5
9	Garfield St.
10	Hayes 0.5
11	Hayes
12	Grant 0.5
13	Grant St.
14	Johnson St.
15	CVSWC
16	Ave 74
17	Ave 76
18	Ave 78
19	A Channel
20	Ave 79
21	Lincoln-Oasis
22	C Channel
23	D Channel
24	Ave 83
25	E Channel
26	Oasis-Grant
27	F Channel

INFLOW SOURCES & QUANTITIES

- **Whitewater River only**
  - Limits pond sizes
  - Whitewater flows are seasonal
- **Whitewater plus drains**
  - Increases pond sizes but lowers water quality
- **Include groundwater?**
  - Shallow or deep

STORM FLOW ROUTING OPTIONS

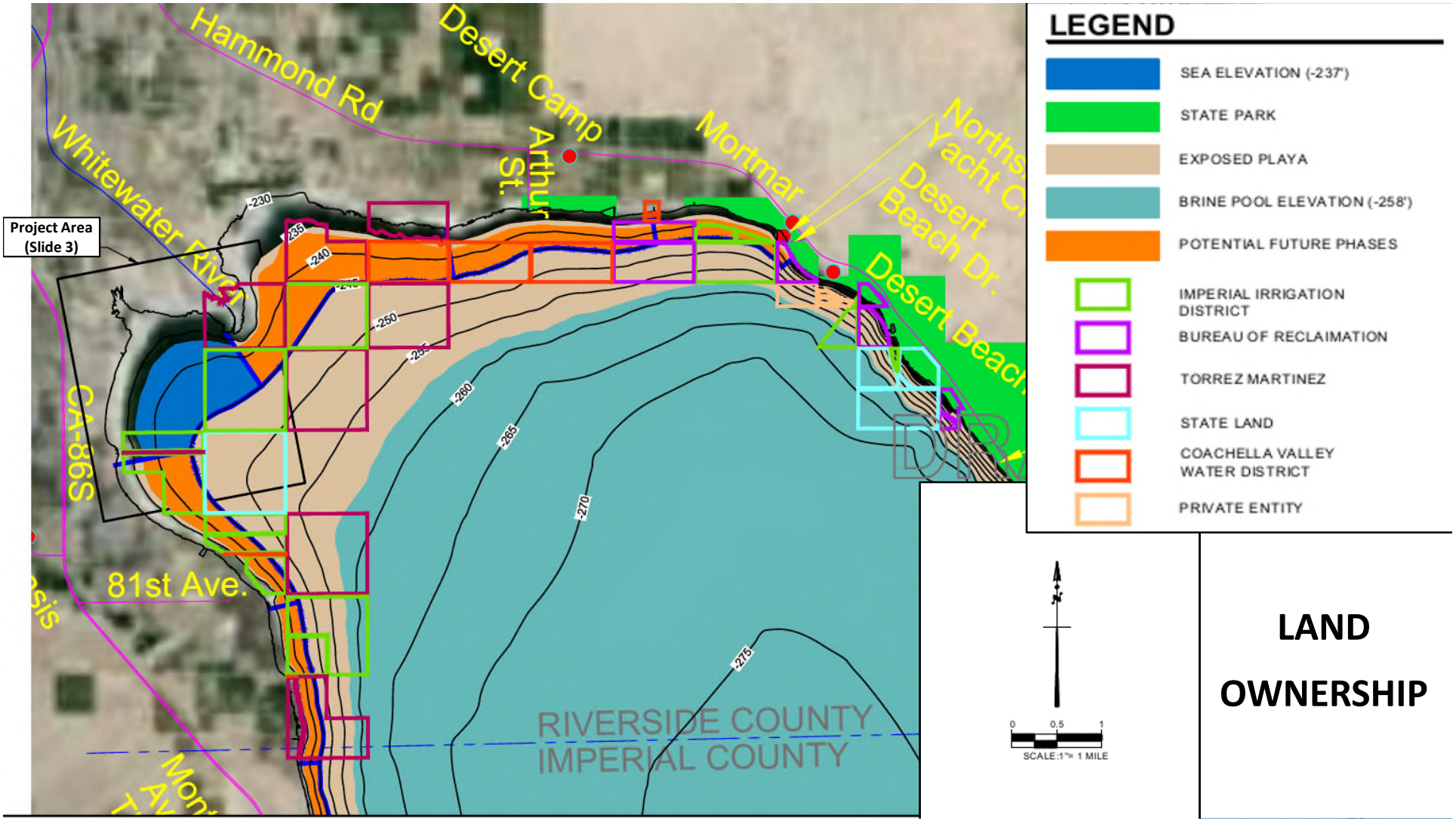
- **Flow through ponds**
  - Requires means to pass through floods
  - Examples: inflatable dam or large spillway needed
- **Diversion around ponds**
  - Requires diversion system or pumping plant
  - Breaks interconnectivity of ponds east and west of the Whitewater mouth

GRAVITY VS PUMPING

- **Gravity feed**
  - Avoid pumping costs
  - Complicated plumbing
- **Pumping**
  - Added cost, but may be only practical inflow method

POND ELEVATION OPTIONS

- **Within historic Salton Sea footprint (-228’ NGVD 1928)**
  - Easier connectivity with other planned improvements
- **Above Salton Sea footprint**



LAND OWNERSHIP

FOLLOWUP

- **Comments, questions & information welcome**
- **Email to:**
  - SaltonSea@tetratech.com