

SCWA Easements

- █ Owned In Fee-Engineered Channel
- █ Easement Engineered Channel
- █ Easement Modified Channel
- █ Easement Natural Channel

Elevation, ft.

- | | |
|--|--|
| █ Below Sea level | █ 500 - 1,000 |
| █ 0 - 25 | █ 1,000 - 1,500 |
| █ 25 - 50 | █ 1,500 - 2,000 |
| █ 50 - 75 | █ 2,000 - 2,500 |
| █ 75 - 100 | █ Above 2,500 |
| █ 100 - 250 | |
| █ 250 - 500 | |

- SCWA Flood Control Zone Boundary
- █ Water Bodies
- ~ Streams
- City Limits
- Reach Maps Index

Figure 4-6

Mark West Subbasin



Sources:
Sonoma County Water Agency
County of Sonoma
California Spatial Information Library





Vegetation Type

- | | | |
|--------------------------------------|-----------------|-------------------------|
| Blackberry Scrub | Riparian Forest | SMP Maintenance Reaches |
| Mixed Riparian Scrub | Ruderal | |
| Riparian Woodland (full canopy) | Willow Scrub | |
| Riparian Woodland (up to 75% canopy) | Developed | |
| Riparian Woodland (up to 25% canopy) | | |

Sources:
 Sonoma County Water Agency
 County of Sonoma
 AirPhotoUSA, 2005

FIGURE 4-7
Reaches and Vegetation
 Mark West (1 of 2)



1 inch equals 1,000 feet

Wikiup Creek – Reach 1

JURISDICTION: SCWA owned and SCWA easement; SCWA maintained

LOCATION: 300 ft upstream of Candlelight Drive to Wikiup Drive

ADJACENT LAND USE: Single and multi-family residential

UPSTREAM: No reaches upstream

LENGTH: 1,204 ft

CHANNEL EASEMENT CORRIDOR WIDTH: 14 ft unpaved from Wikiup Road to Candlelight Drive. Private 4ft gravel trail north of Candlelight Dr.

AVERAGE TOP-OF-BANK WIDTH: 64 ft



(b) Looking downstream from Candlelight Road crossing. Note exposed roots and bank erosion along right bank (September 25, 2008).

MAINTENANCE HISTORY



(a) Pool upstream of Candlelight Road crossing. (December 16, 2008).

PHYSICAL CONDITIONS

Reach setting: intermittent stream located at the transition point from headwaters to alluvial fan. Sediment transport, as opposed to deposition, occurs in this reach. Natural channel form; banks not very modified.

Active channel: channel bed is 4-5 ft wide with no flow obstructions.

Bed sediments/texture: cobbles, pebbles, and coarse sands; sediments become smaller progressively downstream.

Bank structure: banks are earthen and nearly vertical in some locations. Bank slopes generally range from 2:1 to 1:1, and are approximately 10 ft high from the channel bed. High flows in 2006 heavily eroded banks mid-reach and landowner placed gabion baskets around meander bend.

Water quality: no water present on 9/25/08. Pools present on 12/16/08 after 2 days of rain.

Channel processes: channel meanders eroding around bends and gravel bars forming on opposite banks (photos b and c). Meandering may be influenced by culvert at Wikiup Drive which is set at a 45-degree angle to the creek channel.

Wikiup Creek – Reach 1

BIOLOGICAL CONDITIONS

Vegetation composition: limited ruderal vegetation is found along the banks, and predominantly includes invasive ivy and blackberry. Vegetation in channel is sparse; approximately 3% emergent wetland vegetation observed (Photos a and c).

Riparian corridor and canopy closure: mature riparian vegetation provides 75% canopy cover along the reach. Various oak, bay, willow, and alder trees are established along the top of banks (Photo b).

Instream habitat: High quality habitat provided by pools, riffles, and glides within in channel and well developed riparian corridor.

Listed species with potential to occur: supports potential habitat for Foothill yellow-legged frog and western pond turtle



(c) Looking downstream in upper portion of reach. Note cobbles in streambed (September 25, 2008).

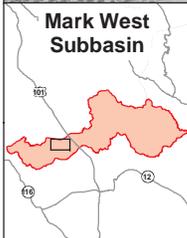


(d) Looking to Wikiup Drive culvert. Culvert too small to allow LWD to pass. Sediment accumulating upstream of culvert, especially on left bank (December 16, 2008).

MANAGEMENT CONSIDERATIONS AND OPPORTUNITIES

The 6 ft corrugated metal culvert at the Candlelight Drive crossing is functioning and in good condition. Flow and debris passing freely from upstream to downstream. A few locations of unstable banks are present between Candlelight Drive and Wikiup Drive. Landowners have resolved issues themselves, but construction should be monitored for impacts upstream or downstream. Erosion noted in photo (b) should be monitored closely because the root mass of the large oak is almost halfway exposed and the tree may fall into the channel soon. The creek appears to be cutting through the meander bend and the tree is in this pathway.

The culvert at Wikiup Drive is undersized. Neighbor mentioned that winter flows often rise higher than the top of the culvert, and flow over Wikiup Drive in large storm events. The culvert is not designed to provide the best flow and sediment management transport for the stream. However, in the immediate future, sediment and debris should be cleared from the upstream end of the culvert. Consider encouraging the creek to bend slightly to the south to better align with the angle of the culvert. Also a downed willow was observed spanning the channel just upstream of the Wikiup Road crossing. This willow could impede high flows if left unattended.



Vegetation Type

- Blackberry Scrub
- Mixed Riparian Scrub
- Riparian Woodland (full canopy)
- Riparian Woodland (up to 75% canopy)
- Riparian Woodland (up to 25% canopy)
- Riparian Forest
- Ruderal
- Willow Scrub
- Developed
- SMP Maintenance Reaches

Sources:
 Sonoma County Water Agency
 County of Sonoma
 AirPhotoUSA, 2005

FIGURE 4-8
Reaches and Vegetation
 Mark West (2 of 2)



1 inch equals 1,000 feet

Fulton Creek – Reach 1

JURISDICTION: Owned and maintained by SCWA

LOCATION: Laughlin Road, north of River Road

ADJACENT LAND USE: Agriculture (vineyards) and rural residential

UPSTREAM: No SCWA maintained reaches upstream

LENGTH: 564 ft

CHANNEL EASEMENT CORRIDOR WIDTH: 64 ft

AVERAGE TOP-OF-BANK WIDTH: 48 ft



(b) Looking upstream from Laughlin Road. Note vineyards on both sides of the creek and lack of riparian vegetation, other than grasses, within and around the channel (Dec. 16, 2008).

MAINTENANCE HISTORY



(a) Standing upstream of Reach 1, looking downstream to Laughlin Road and culverts. Trapezoidal channel upstream of culverts shows up to 2 ft of deposited sediment in front of culverts. (Dec. 16, 2008).

PHYSICAL CONDITIONS

Reach setting: Fulton Cr. is a small tributary running parallel and south of Mark West Cr. It is a local drainage, west of Hwy 101 that collects runoff from the Santa Rosa Plain. Reach 1 is the only SCWA maintained reach along Fulton Cr. and is primarily focused on the Laughlin Rd. culvert crossing.

Active channel: channel bed is 6-8 ft. wide, with a 2 ft. wide low flow channel downstream of Laughlin crossing. Channel bed is 4-6 ft. beneath top of banks.

Bed sediments/texture: fine silts, clays, and sands with some cobbles

Bank structure: trapezoidal channel has 4 ft. high earthen banks, generally sloped at 2:1 (photo d)

Water quality: no water present on 12/16/08 after 2 days of rain

Channel processes: runoff and fine sediment are transported directly from adjacent agricultural lands into the channel. Lack of crowned bank top above adjacent lands leads runoff directly to channel (photo b). Some bank sloughing observed upstream of photo b.

Fulton Creek – Reach 1

BIOLOGICAL CONDITIONS

Instream habitat: poor instream habitat, as ephemeral/intermittent tributary carries little flow from adjacent agricultural lands. Channel is small, with much fine sediment and lacks instream forms or complexity.

Vegetation composition: emergent and riparian vegetation fills the channel from bank to bank. As shown in photos c and d, blackberry and harding grass dominates the channel and likely slows flow velocity.

Riparian corridor and canopy closure: mature riparian vegetation of oaks and alders provides 50% canopy cover along the reach, downstream of photo d (not shown in photos).

Listed species with potential to occur: supports habitat for western pond turtle



(c) Downstream end of the culverts under Laughlin Road. Culverts were clear of sediment inside (Dec. 16, 2008).



(d) Looking downstream from Laughlin Rd. Note the variety of emergent and riparian vegetation downstream versus upstream of the Laughlin Rd. crossing. Oaks and alders in the background extend throughout the reach (Dec. 16, 2008).

MANAGEMENT CONSIDERATIONS AND OPPORTUNITIES

Management considerations at Fulton Creek, Reach 1 are limited. Over time, deposition upstream of Laughlin Rd. should be monitored. Downstream of Laughlin, reach should be monitored for potential thinning of emergent vegetation, especially blackberry, but this is not critical at this time. There may be potential to work with upstream landowner to undertake erosion controls actions and opportunities to detain/retain vineyard runoff onsite.