Photo Monitoring and Reporting Protocol
Established by the Executive Officer

Michael Thomas

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***for* Kenneth Harris, Jr., Interim Acting Executive Officer**
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Requirement for Photo Monitoring and Reporting

The Agricultural Order, No. R3-2012-0011 (Part E, ¶ 69, Page 28), and the associated Monitoring and Reporting Program (MRP), Orders No. R3-2012-0011-02 (Part 4A, ¶ 1- 2, Page 14) and R3-2012-0011-03 (Part 4A, ¶ 1-2, Page 14 and Part 7A, ¶ 1-2, Page 20-21), require dischargers to conduct Photo Monitoring and Reporting. The requirement to conduct Photo Monitoring and Reporting applies to Tier 2 and Tier 3 dischargers whose properties contain or are adjacent to a waterbody identified on the 2010 Clean Water Act section 303(d) List of Impaired Waterbodies for temperature, turbidity or sediment.

The Order requires Tier 2 and Tier 3 dischargers to 1) document the condition of perennial, intermittent, or ephemeral streams and riparian wetland area habitat, 2) conduct Photo Monitoring consistent with these protocols established by the Executive Officer, and 3) demonstrate how practices in the photos meet the Basin Plan requirements for Erosion and Sedimentation (Chapter 5, p. V-13, Section V.G.4), including relevant management practices and/or treatment and control measures implemented to prevent conditions, erosion, or sediment discharges that may or do cause or contribute to impairments for temperature, turbidity, or sediment. The Executive Officer may request additional photographs if needed.

The Order requires Tier 2 dischargers to conduct Photo Monitoring and Reporting every four years, at the same photo monitoring point locations, and to submit the photos and associated reports in a format specified by the Executive Officer.

The Order further requires Tier 3 dischargers to implement the same requirements as Tier 2. The MRP Order R3-2012-0011-03 (Part 7A, ¶ 1-2, Page 20-21) further requires Tier 3 dischargers to conduct Photo Monitoring and Reporting annually to document progress on their Water Quality Buffer Plan which is due 2016 (Agricultural Order R3-2012-0011, Part F, ¶ 80-81, Page 30-31).

This protocol describes how to conduct Photo Monitoring and Reporting to meet these requirements.

Methodology for Photo Monitoring

1. Establish Photo Monitoring Points

Place a permanent marker in view of the photo monitoring point if a natural marker (i.e. fencepost or large tree) does not exist. A permanent marker is necessary for a) property owners to ensure that the same location is used for the photo point every four years and b) Water Board Staff to compare the view in subsequent photos taken from the same location.

2. Document Monitoring Points.

Label each photo monitoring point with a unique site code (Ranch Form ID # & Photo Point #). Identify the exact location of each photo monitoring point on a ranch map, identified with the unique site code. See additional detailed description below in **Methodology for Documentation and Reporting**.

3. Establish In-stream Condition Photo Monitoring Points

Establish photo monitoring points to document in-stream riparian condition at the upstream and downstream boundaries of the stream, wetland or other waterbody. Include banks of the stream, wetland or waterbody that are adjacent to the ranch property (Diagram 1). If one photo point is not visible from the other (due to a significant bend in the waterbody) or there is more than ½ mile of stream length between photo points, additional photo points must be established (Diagram 2).

In-stream photo monitoring point 001

Establish a permanent photo monitoring point at the downstream most edge of the waterbody on the ranch property. Mark the location with a permanent marker that will be visible in the photo if one does not already exist (such as a large tree or fence post). Position the monitoring point on the top of the bank of the waterbody. Take a minimum of one photo from this monitoring point looking upstream. In this photo, the following should be visible: permanent marker, center of riparian area, waterbody bank, top of bank and vegetation on adjacent non-cropped areas such as a road (Figure 1). Multiple photos may be taken so that they can be overlaid and show all of the above from photo point 001. If multiple photos must be taken at a given photo monitoring point, they shall be labeled with the site point number and letters a-z (i.e.001a, 001b, 001c etc).

In-stream photo monitoring point 002

Establish a permanent photo monitoring point at the upstream most edge of the waterbody on the ranch property. This monitoring location should also be marked with a permanent marker. Position the monitoring point on the top of the bank of the waterbody. Take a minimum of one photo from this monitoring point, looking downstream. Again the following should be visible in the photo: permanent marker, center of riparian area, waterbody bank, top of bank and vegetation on non-cropped areas such as unpaved roads (Figure 1).

Figure 1. Example of in-stream photo 001. This photo shows the permanent marker (orange post), center of waterway, waterbody bank, top of bank and vegetation on non-cropped areas.

Diagram 1. Location of In-stream Condition Photo Monitoring Points.

If there is a significant bend in the waterbody or the ranch has more than ½ mile of stream length, additional photo monitoring points must be established (as shown in Diagram 2). From each of the points, two photos must be taken. The first photo must be taken facing upstream and the second facing downstream. Again, the following should be visible in each photo: center of riparian area, waterbody bank, top of bank and vegetation on non-cropped areas such as unpaved roads. For a ranch like the one shown in Diagram 2, five in-stream photo monitoring points must be established to adequately document the conditions and riparian habitat on the stream banks and in the stream.

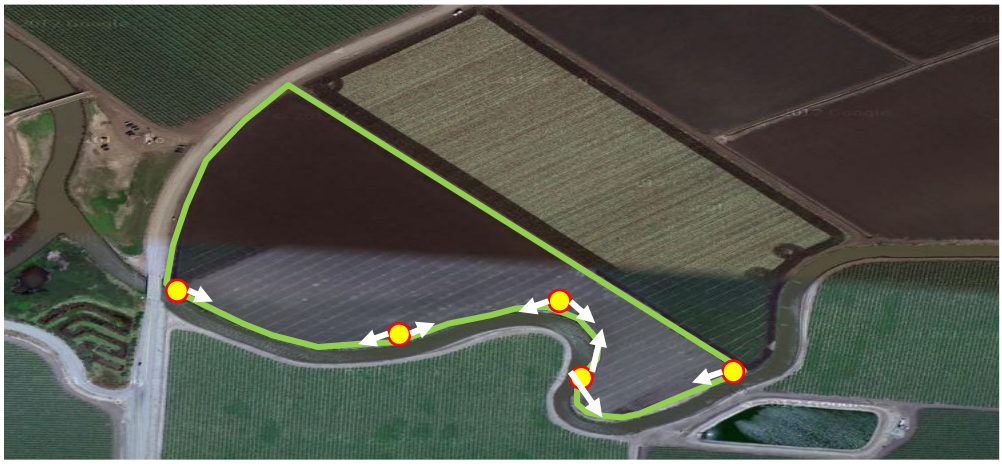

Diagram 2. Additional in-stream condition monitoring points (if needed).

4. Riparian Vegetation Condition Photo Monitoring Points

Establish photo monitoring points to document riparian vegetation condition at a minimum of three locations on the ranch property, positioned 100 feet back from the riparian vegetation edge (and into the fields). Establish the first photo monitoring point at the downstream edge of the waterbody and ranch property. Establish the second point mid-ranch (mid-way between the up and downstream edges). Establish the final photo monitoring point at the upstream most edge of the ranch property. If one edge of the ranch is not visible from the other edge (due to a significant bend in the waterbody), or the ranch has more than ½ mile of stream length, additional photo points must be established.

Riparian vegetation condition photo monitoring point 003 (NOTE: start numbering with three if only two photo points were established for in-stream condition as shown in Diagram 1; otherwise, start numbering consecutively from last in-stream condition photo monitoring point number.)
Establish the photo monitoring point at the upstream edge of the ranch/waterbody and 100 feet away from the top of the waterbody bank (into the field). Face downstream but at a 45-degree angle to the riparian area and take one picture. In this photo, the following should be visible: the upstream edge of the property/waterbody, midpoint of the property/waterbody, the ground adjacent to the riparian vegetation and the riparian vegetation looking downstream. Diagram 3 illustrates the photos needed for each riparian vegetation photo monitoring point.

Riparian vegetation condition photo monitoring point 004 (See NOTE above re: number)
Establish the photo monitoring point at a midpoint between the upstream and downstream edges of the ranch/waterbody. Again, this photo monitoring point must be on the field and 100 feet away from the top of the waterbody bank. From this point take three photos: 1) facing downstream, at a 45-degree angle (photo 004dn), 2) facing directly toward the riparian vegetation (photo 004), and 3) facing upstream, at a 45 degree angle (photo 004up). If there is a significant bend in the waterbody and the edge of the ranch is not visible from this point, establish additional photo points moving downstream and repeat this procedure (Diagram 4). Establish the monitoring points so that the view in one picture slightly overlaps with the next point.

Riparian vegetation condition photo monitoring point 005 (See NOTE above re number) Establish the photo monitoring point at the downstream edge of the ranch/waterbody and on the field, 100 feet away from the top of the waterbody bank. Face upstream but at a 45 degree angle to the riparian area and take one picture. In this photo, the following should be visible: downstream edge of the property/waterbody, midpoint of the property/waterbody, ground adjacent to the riparian vegetation and riparian vegetation looking upstream.

Diagram 3. Top of diagram is upstream from bottom of diagram. Photographer is positioned 100 feet back from the water's edge, standing in the field.

Diagram 4. Additional riparian vegetation condition monitoring points (if needed).

5. Photos Documenting Management Practices

Additional photos must be submitted to document any management practices and/or treatment and control measures used to prevent conditions, erosion or sediment discharges that may or do cause or contribute to impairments for temperature, turbidity, or sediment. There is no specific photo monitoring protocol for photos documenting additional management practices or measures that are not located at established photo monitoring points. However, any photos taken to document management practices or measures must be reported with a brief form to identify the location and type of practice or measure. Label photos documenting additional management as described below in the Methodology and Documentation for Reporting section.

Methodology for Documentation and Reporting

Dischargers will maintain photo monitoring point data, including a map showing exact locations of each photo monitoring point, photos and completed photo reporting forms, in their Farm Plan. Discharges will submit photo monitoring point data upon request of the Executive Officer. Dischargers must maintain the following information in the format specified below.

1. Ranch map showing exact location of each photo monitoring point and including:
   - Points showing the location of each photo monitoring point
   - Labels for each photo monitoring point (unique site code)
   - Map scale
   - North marker
   - Landmarks such as labeled road crossings and waterways.

2. Photos- Labeling, Mapping and Describing
   - In-stream and riparian vegetation condition photos must be labeled to include the following information:
     - Unique site code (Ranch Form ID # & Photo Point #)
     - Photo Date (Formatted: DayMonthYear or 05May2012)
   - Each in-stream or riparian condition photo must be labeled with this format: Ranch Form ID #_Site#_Date.jpg. For example, a photo taken at site 003 on Ranch Form ID # 1234 on May 5th 2012 would have the following label: 1234_003_5May2012.jpg
   - Additional management practice photos must be labeled as follows: Ranch Form ID #_MP_###_Date.jpg. For example, If two practices are documented with photos, on Ranch Form ID # 1234 taken on May 5th 2012, Photos must have the following labels:
     1234_MP001_5May2012.jpg and 1234_MP002_5May2012.jpg
   - All photos must be one of the following formats (JPEG, GIF, TIFF or BMP)
   - If possible, use a camera with a GPS feature (such as smart phones or tablets) so that the coordinates of the photo locations are automatically associated with the picture file.

3. Photo Documentation Reporting Forms
   - Each photo must be delivered with a photo documentation form (Attachment 1, available in word format at:
     http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/inde

x.shtml, See link under "Grower Workshops and Resources."). Each form records the following data and information about a single photo: Photo monitoring point data including Ranch Form ID #, waterbody name, purpose of the photo, photo monitoring point #, coordinates and date.

- Explanations and descriptions of the management practices demonstrated in the photos (if applicable)
- Estimated widths of buffer and riparian areas from top of bank (top edge of water holding capacity for the waterbody) to the edge of either cropped area or non-cropped areas like roads, whichever is closer. This should be an estimate of the average width for the view in the photo.

4. Reporting:
   - Dischargers are NOT required to submit the map, photos or photo documentation forms to the Central Coast Water Board.
   - All photos and photo documentation forms must be *maintained in the farm plan* as of October 1, 2012.
   - Dischargers must conduct the same photomonitoring procedures and documentation, and add the items in 1-3 above to the farm plan again in four years, by October 1, 2016.
   - Photomonitoring documentation must be submitted to the Water Board upon request of the Executive Officer.
   - Dischargers must indicate on the Annual Compliance Form Section K, if and when they have completed the documentation required as in 1-3 above and added it to the farm plan as required.

Definitions

Riparian vegetation or vegetated cover- the naturally occurring vegetation found along creek channels, typically willows and other trees, shrubs, and grasses.

Width of vegetated cover- the width measured or estimated for each bank from top of bank to edge of vegetation.

Right bank- bank on the right while the observer is facing downstream.

Left bank- bank on the left while the observer is facing downstream.

References

Hall. F.C. March 2002. Photo Point Monitoring Handbook: Part A-Field Procedures. U.S. Department of Agriculture, Forest Service. Portland, OR.

Photo Monitoring and Reporting Protocol

ATTACHMENT 1

Photo Documentation Reporting Form
(Use one form for each photo taken.)

This Form is available in word format at:
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/ag_waivers/index.shtml,
See link under "Grower Workshops and Resources."

Ranch Form ID #: _____ Photo Monitoring Point #:_____

Photo Point Coordinates (NAD 83): Latitude:_____Longitude:_____

Waterbody Name: _____ Photo Date: _____

Description of the photo monitoring point purpose and view in each photo (Choose one)

In-stream condition(photo on bank)
Riparian vegetation condition (photo 100 ft back from bank)

1. Identify Management Practice(s) Demonstrated in Photo (Choose One or more of the following).

Maintain vegetative cover (Herbaceous plants)
Maintain vegetative cover (small woody plants, < 15 ft tall)
Maintain vegetative cover (large woody plants , >15 ft tall)
Plant vegetative cover, filter or buffer strip (Herbaceous plants)
Plant vegetative cover, filter or buffer strip (small woody plants, < 15 ft tall)
Plant vegetative cover, filter or buffer strip (large woody plants , >15 ft tall)
Vegetative treatment system
Seeding (hydro seed or hydraulic planting)
Rolled Erosion Control Products (Biodegradable netting, mats or blankets)
Biodegradable mulches (straw or fiber), netting or mats
Gravel or rock to stabilize soil
Impervious covers (plastic or woven sheeting)
Sediment control basin or traps
Silt fences
Imperious covers (plastic or woven sheeting)
Tracking Control (rumbles strips or rock)
Other _____
None

2. Identify the dominate type of cover on the right bank (Choose one of the following).

   Trees
   Shrubs
   Grasses
   Bare Soil
   Other

3. Estimate average width of riparian vegetated cover on the right bank (top of bank to edge of farm or non-cropped areas such as a road). Choose one of the following:

   Not applicable, not my property
   0 ft (bare soil)
   1-5 ft
   6-10 ft
   11-15 ft
   15-20 ft
   21-25 ft
   26-30 ft
   > 30 ft

4. Identify the dominate type of cover on the left bank (Choose one of the following).

   Trees
   Shrubs
   Grasses
   Bare Soil
   Other

5. Estimate average width of riparian vegetated cover on the left bank (top of bank to edge of farm or non-cropped areas such as a road). Choose one of the following:

   Not applicable, not my property
   0 ft (bare soil)
   1-5 ft
   6-10 ft
   11-15 ft
   15-20 ft
   21-25 ft
   26-30 ft
   > 30 ft