

User's Manual

A Field Guide for Operators and Participants for
Pre-maintenance, Maintenance and Post-maintenance Activities*

Salinas River Stream Maintenance Program RMUs 1 - 7



Monterey County Water Resources Agency
Updated: September 29, 2016

*the California Department of Fish & Wildlife Lake and Streambed Alteration Agreement was not issued to the Resource Conservation District of Monterey County prior to preparation of this Manual and therefore additional requirements may be necessary for compliance.

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1. Overview of the Salinas River Stream Maintenance Program:

The Monterey County Water Resources Agency (MCWRA), in cooperation with Project Partners, has developed a Stream Maintenance Program (SMP). The SMP is a coordinated approach to vegetation and sediment management that is conducted voluntarily by individual property owners, growers, and municipalities (Participants) along the main stem of the Salinas River (River miles 2 to 94) and three select tributaries: Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek. The SMP is a collaborative and science-based approach that allows participants to manage vegetation and sediment to maximize flood flow capacity, minimize bank erosion, enhance wildlife habitat, and protect against flooding during major storm events.

2. Purpose of This Manual:

To provide information to Participants to help guide their planning, preparation, and decision-making for stream maintenance activities.

The SMP is a year-round effort with various milestones:

1. March to June: MCWRA monitors river conditions and determine adaptive management needs with assistance by Participants
2. April to May: Participant Work Plans due to MCWRA and RCD
3. May to June: Annual Work Plans submitted for regulatory approval
4. May to July: Operators/Owners training
5. May to August : Agreement to work, new Participants only
6. May to August: pre-maintenance site preparations by Participants
7. May to September: biological surveys conducted by RCD
8. May to September: authorization to work by MCWRA
9. June 1st to Nov. 15th: Participants conduct maintenance activities, MCWRA performs inspections and RCD performs biological monitoring
10. Nov. 15th to January 15th: RCD performs site inspections and activity reporting
11. January 15th to March 15th: MCWRA and RCD analyzes specific activities, effectiveness and determines permit compliance
12. March 15th: Program reporting to regulatory agencies

3. Contacts:

Program/Permits (MCWRA):		Biological Monitors/1600 permits (RCD):	
John Roitz	831-755-4819	Emily Zefferman	850-443-3103 cell
Shaunna Juarez	831-755-4865 office		831-424-1036 x 129 office
	831-521-4509 cell	Paul Robins	831-424-1036 x 124
Program Coordinator Contact:		On-Call Biologists (schedule through RCD):	
Donna Meyers	831-535-3979	Dawn Reis	831-588-7550
RMU Association (GSA):		Nikki Nedeff	831-320-9463
Abby Taylor Silva	831-422-8844		

4. Normal Operating Hours:

Monday through Saturday 7am to 6pm. Nighttime work will not be allowed.

5. Paperwork Required On-site*:

- Copies of the Program's up-to-date regulatory permits (available for regulatory agency review, if requested)
- Copies of this Stream Maintenance Program User's Manual

* Additional information is included in the Program Guidelines and the Permits.

6. Pre-Maintenance Site Preparation: Must be completed PRIOR to work authorization issued.

Responsible Party: Participant or Designated Operator

Review maps of maintenance areas: these maps outline the basic work area for native vegetation and sediment management activities within the RMUs. Locate Arundo areas that you would like to remove. Locate access points from the adjacent area to minimize impact to the river corridor. Locate both temporary and permanent sediment stockpile locations. Paper or electronic maps are available through the MCWRA website.

Operators will undergo training on biological species and program guidelines prior to commencing work.

Staking:

All areas proposed for maintenance during the current season must be staked using the following techniques:

Site Access	Mark with Yellow Ribbon
Existing	Stake the farm-side entrance, maintenance area entrance, and any intersections in between.
New	Locate as close to work areas as possible, avoid 15% riverbank slopes (except for tie-in locations) and large mature native vegetation or other significant habitat features.
	Stake the farm-side entrance and every 25 to 300 ft in order to maintain clear line-of-site all the way to the maintenance area entrance.
River Crossings (low flow channel):	Mark with Yellow Ribbon
Dry	One crossing per site, a minimum of least three stakes (each bank, and center of channel)
Wet	No water crossings are permitted
Maintenance Areas:	Mark with Blue Ribbon

Boundary	Ground truth the mapped areas and determine the appropriate perimeter based on existing topography and vegetation. Bio Monitors or MCWRA can assist with the final placement.
	Width of maintenance area should be approximately 70 to 200 ft depending on site conditions and previous mapping. Exceptions are for adjacent large Arundo stands that can be incorporated into the work area.
	Stake the perimeter every 25 to 300 ft in order to maintain clear line-of-site all the way around.
Tie-ins	This refers to the last 10 ft of either end of the maintenance area when it connects with the low flow channel. (See diagram below)
	Can be modified to focus vegetation removal to areas dominated by Arundo or sparsely vegetated areas. All Arundo within the tie-in area can be removed.
	If the location will impact native tree species, maintenance must be limited to smaller “punctures” with a maximum of 4 punctures each tie in up to 15 feet wide. The rest of the tie-in is considered an avoidance area and the staking is described below.
Avoidance Areas:	Mark with Red Ribbon
	Avoid, if possible, large clumps or individual native trees (cottonwood, alders, sycamores 2” or greater and willows 6” or greater in diameter at breast height) within all work areas.
	Avoid key habitat elements (nests, wetlands, etc.).
	Avoid native tree or wetland species in the tie-ins (10 ft wide buffer adjacent to the low flow channel), except for the approved punctures described above.
	Stake the perimeter to have clear line-of-site all the way around or just within the work area as applicable. (e.g. tie-ins, on the edge of the work area)
Smoothing/Sediment Removal:	Mark with White Ribbon
	Secondary channels must be sloped downstream.
	Secondary channels must be at least 3 ft above the low flow channel.
	Set reference stakes of the proposed elevation at both upstream and downstream ends of the secondary channel.
	Sediment removal may not exceed 2 ft of excavation over the length of the channel.
	Determine slope of channel and set necessary grade stakes throughout the length of the channel.

Diagram showing tie-in locations (yellow oval), secondary channel (pink polygon) and direction of flow within secondary channel (going downstream).

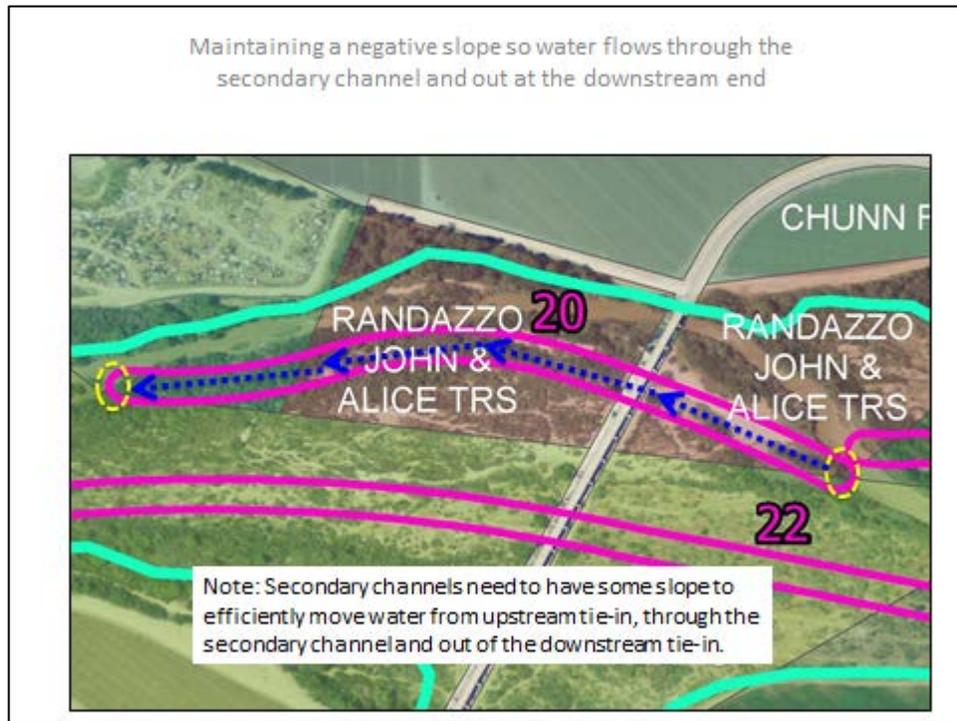
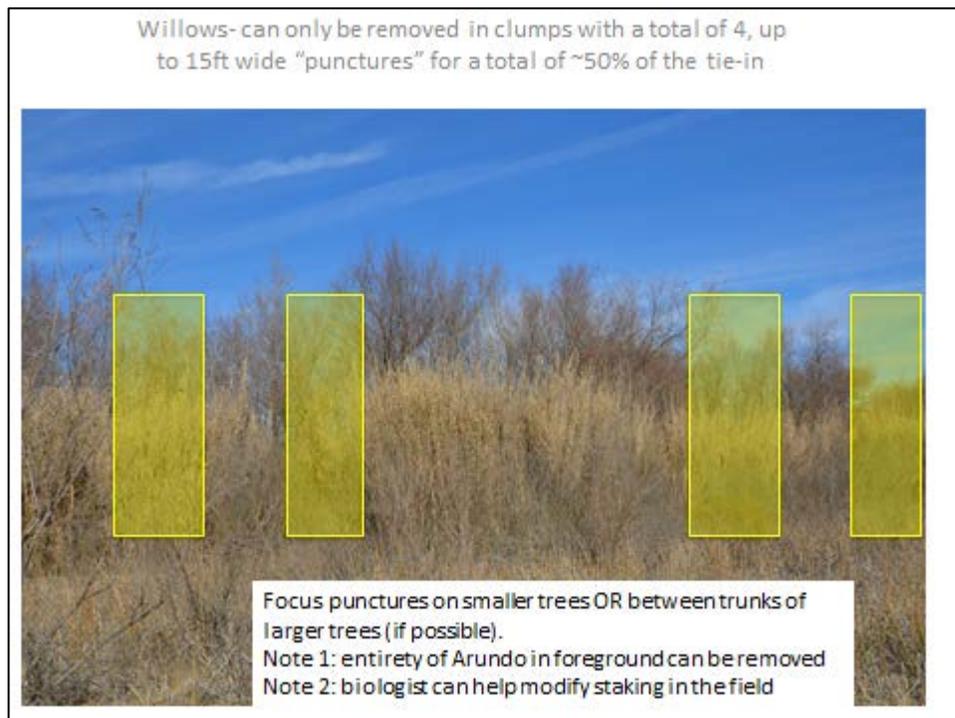


Diagram showing “puncture” locations in a tie-in.



7. Pre-Maintenance Biological/Mapping Surveys: Must be completed AFTER staking has been completed.

Responsible Party: RCD Biologist or Biological Monitor

- Biologists will conduct habitat assessments of maintenance areas proposed for work that season and appropriate surrounding areas in accordance with U.S. Fish & Wildlife Biological Opinion and CA Dept. of Fish & Wildlife Routine Maintenance Agreement Requirements.
- Biologists will look for key habitat elements (nests, wetlands, etc.) that need to be avoided and flag any areas that need to be avoided with RED flagging tape.
- If Biologist determines that impacts to listed species are unavoidable, maintenance activities will be redesigned to avoid direct and indirect impacts to listed species.
- Biologists may flag any CRITICAL trees or clumps of trees within the secondary channels that should be avoided (larger cottonwoods, clumps of cottonwoods, sycamores, etc.) with RED flagging tape. We expect this to be a rare occurrence and operators will have the opportunity to review avoidance areas and discuss with biologists, if concerns arise.
- Biologists will map all vegetation to be removed and create a database for calculating impacts and mitigation.
- Biologists will use GPS to "groundtruth" location of maintenance area boundaries via staking and modify the maps to reflect actual staked area.
- Qualified professional will perform longitudinal profiles of ground surface elevation of specified secondary channels (approximately 10% of the total channels). Data collection must be reproducible and should be tied to a Temporary Benchmark (TBM). See Program Guidelines for accuracy and resolution information.

8. Scheduling of Maintenance Work

Responsible Party: Participant or Designated Operator

Maintenance work will be scheduled through the RCD of Monterey County. Contact Emily Zefferman at the numbers listed on page 2. Work activities may occur during the following time periods:

- June 1st to November 15th – Herbicide Application of Invasive Species
- August 15th to November 15th - Mechanical Treatment of Arundo
- September 1st to November 15th - Sediment & Native Vegetation Management
within Maintenance Areas
- Year round - Tree Planting for Mitigation

9. During Maintenance – Best Management Practices

Responsible Party: Participant or Designated Operator

A. General Practices

1. If human remains are discovered, the operator shall halt all work immediately within 50 feet of the discovery, and notify the MCWRA, 831-755-4860, and the County Coroner, 831-755-3792.
2. If any paleontological resources (fossils) are discovered, the operator shall halt all work immediately within 50 feet of the discovery and notify the MCWRA, 831-755-4860.
3. No washing of vehicles will occur at job sites.
4. No fueling, repair, maintenance, or washing of vehicles or equipment will occur in waterways, the adjacent floodplain, or top-of-bank areas that may flow into a creek channel. A hazardous materials spill prevention and response plan will be in place before work begins.
5. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151.
6. The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials. Upon completion of maintenance work, all debris, unused materials, and other maintenance-related materials will be removed from the work site.
7. All food-related trash items will be disposed of in secure, closed containers and removed at least once per week to reduce the potential to attract predators of listed species. After construction, all trash and construction debris will be removed from work areas.
8. The limits of access and staging areas, locations designated for placement of removed sediment, and work areas adjacent to sensitive habitats to be avoided will be clearly marked.
9. Existing access ramps and roads will be utilized to the fullest extent feasible to access stream areas.
10. Vehicles will observe a daytime speed limit of 20 mph on all roads in the Project area except county roads and State and Federal highways.
11. No pets of any kind will be permitted in the project area.
12. The Declining Amphibian Populations Task Force's Fieldwork Code of Practice (Appendix A) will be followed to minimize the possible spread of chytrid fungus and other amphibian pathogens and parasites. This measure is applicable to all construction personnel and equipment as well as to biologists. Decontamination procedures and stations will be established at all work areas near aquatic habitat.
13. MCWRA staff will perform site inspections during each weekday to ensure compliance with permits.

B. Rainfall Protocols

Work may not occur during rain events. The following list outlines necessary site preparations and when work can be scheduled or cancelled due to rainfall forecasts.

1. At **2:00 p.m. on the day before** planned activities, if the National Weather Service forecast for the nearest municipality predicts a 25% or more chance of 0.25 inch of rain within 24 hours, Participant shall install effective erosion control, sediment control, and other protective measures and shall smooth active sediment removal and/or movement sites in anticipation of potential rain events. Participant may plan to conduct maintenance, mitigation, or restoration activities the following day subject to the other conditions.
2. At **2:00 p.m. on the day before** planned activities, MCWRA shall cancel the following day's work, and Participant shall smooth active sediment removal and/or movement areas and remove arundo debris piles (not including chipped arundo) outside the outer banks/levees, if flow conditions at any of the locations listed below indicate the possibility that standing or flowing water may occur in areas where maintenance is proposed the following day:
 - a. Salinas River at the USGS flow gauge near Bradley;
 - b. Salinas River at the USGS flow gauge at the Highway 101 bridge near Soledad; or
 - c. Arroyo Seco River at the USGS flow gauge at the Arroyo Seco Road bridge near Soledad.
3. At **7:00 a.m. on the day** of planned activities, MCRWA shall cancel that day's work at any maintenance site if any of the following applies at the site:
 - a. Rainfall is occurring. Includes rain, showers, or drizzle, but not fog or mist; or
 - b. Standing or flowing water is present in work areas.
4. At **7:00 a.m. on the day** of planned activities, if the National Weather Service forecast for the nearest municipality predicts a 25% or more chance of rain that day (regardless of amount) but rainfall is not presently occurring, Participant may conduct scheduled work activities subject to the following:
 - a. Participant shall keep equipment, trash, and non-plant-matter debris within the levees to a minimum.
 - b. Participant shall chip cut arundo debris in place.
 - c. Participant shall not drive equipment across the low- flow river channel or work in any location that requires access across the low - flow river channel.
 - d. Participant shall not conduct any sediment removal or movement activities beyond what is incidental to vegetation removal activities.
5. Participant shall cease work; install effective erosion control, sediment control, and other protective measures; and remove equipment, trash, and non-plant-matter debris outside the outer banks/levees at any time rainfall begins. Participant may resume work when rainfall ceases, provided that rainfall appears to be over for the day and subject to item 4 above and 6 below.

6. Prior to work commencing after a large rain event as defined above; work may resume after precipitation ceases, a drying-out period of 24 hours is observed, and a Service-approved biologist inspects all work areas to verify absence of listed species.
7. Immediate work area is defined as an area where work will be performed within 24 hours of start-up.
8. No herbicides will be applied within 24 hours of forecasted rain or within 24 hours following a rainfall event of 0.25 inches or greater. Best management practices will be followed to prevent unintended transport of herbicides by air or water into native habitats.

C. Smoothing/Sediment Removal

1. Grading activities prohibited during periods of high wind (over 15 miles per hour.)
2. Soil disturbance shall not exceed the minimum area necessary to complete the operations as described in application.
3. Excavation will not go deeper than three feet above the river's thalweg or less than nine inches above any standing water.
4. Sediment removal may not exceed 2 feet of excavation over the channel or exceed the annually approved extraction amount.
5. Sediment removal sites will be graded so that the transition between the existing channel both upstream and downstream of the maintenance area is smooth and continuous between the maintained and non-maintained areas and does not present a sudden vertical transition (wall of sediment) or other blockage that could erode once flows are restored to the channel.
6. Cover all trucks hauling dirt, sand, and other loose materials and maintain at least 2'0" of freeboard.
7. Stockpiled material must be placed outside of the greater river channel by November 15th as approved in the Annual Work Plan.
8. Sediment and spoils piles shall be deposited at least 100 feet away from any water wells to prevent potential bacterial contamination.
9. Water draining from stockpiles will not be allowed to flow back into the creek or into local storm drains that enter the creek or channel, unless water quality protections measures recommended by the CCRWQCB are implemented.
10. Soil stockpile areas will be covered at night or surrounded by exclusion fencing to discourage habitation by animals, and inspected in the morning for California red-legged frogs prior to disturbance.

D. Arundo Protocols

1. Invasive species, including *Arundo*, will be disposed of in a manner that will not contribute to further spread of the species. All *Arundo* debris piles will be removed from the work area before the end of the work day. *Arundo*

canes will be prevented from floating downstream or otherwise entering the Salinas River or other creeks.

2. Invasive vegetation removal must comply with proper techniques as outlined in the SMP Guidelines, so that the removal is effective.
3. Only herbicides approved for use in aquatic and wetland environments that have no impacts on wildlife species will be used for non-native vegetation removal (formulation of glyphosate, imazapyr, or tricolpyr). All mixing of herbicides will only occur in areas without native vegetation, adjacent to existing roads, that have compacted disturbed soils.
4. Herbicide spraying may occur from June 1st to November 15th. Mechanical reduction may occur August 15 to November 15th.
5. Invasive species including Arundo canes will be prevented from entering watercourses and be disposed of in a manner that will not contribute to further spread of the species.
6. Herbicides will not be used in areas where listed species have been identified by a Service-approved biologist, and will be utilized in such a manner as to prevent poisoning of listed species or their habitat. Herbicide use may only occur after the biologist has relocated the species out of harm's way or has confirmed the species to no longer be at risk from direct or indirect impacts.
7. Arundo treatment will not be conducted in the wetted low flow channel.

E. Native Vegetation Removal

1. Native Vegetation can only be removed in approved Maintenance Areas and their related Access Ways.
2. Maintenance activities will be minimized to the extent practicable in the root zone of existing woody vegetation to promote soil and bank stability.
3. Certain native vegetation types that are removed will need to be mitigated for in accordance with the table below:

Vegetation Type	Required Mitigation
Arundo-dominated Removal	none
Sparse Herbaceous with or without Arundo	none
Early Successional Perennial Riparian	1:1 Arundo Removal within secondary channel 0.5:1 Arundo removal outside secondary channel
Mid-Successional Willow (less than 6")	3:1 Arundo Removal outside secondary channel
Early and Mid-Successional Cottonwood (2" or greater of cottonwood, sycamore and alder)	3:1 Planting of cottonwood, sycamore or alder (based on individual trees)
Large Stature Willows (6" or greater)	2:1 Planting of cottonwood, sycamore or alder (based on individual trees)

4. Biological Monitors will determine whether or not a tree is dead. No mitigation is required for dead trees.
5. Limited limbing and removal of cottonwood trees in secondary channels would follow a decision protocol weighing flow conveyance benefits and

safety considerations. No more than 25% of the canopy cover of a tree would be removed in a given year.

6. Work is not permitted in water.
7. No permanent impact to federal wetlands is permitted. Accidental impacts must be mitigated through full restoration.

F. Selective Treatment Areas

1. A modified treatment approach will be used in maintenance areas 6.12 and 7.01.
2. Tree removal of up to 50 willows 6 inches dbh and greater would be allowed in 6.12, only 1/3 (i.e., seventeen) may be removed in the thalweg or within the 10-foot buffer around the thalweg, over the permit term.
3. Tree removal of up to 12 willows 6 inches dbh and greater would be allowed in 7.01, only 1/3 (i.e., four) may be removed in the thalweg or within the 10-foot buffer around the thalweg, over the permit term.
4. Limbing of trees with a 4 inch and greater main stem dbh, up to 10 feet from the base of the trunk, using hand tools is allowed.
5. Cut material should be left in lengths no longer than 3 feet or chipped on site.
6. Up to 50 percent of the area may be mowed or disked in areas of sparse herbaceous (with and without arundo) and early successional willow in the thalweg and within the 10-foot buffer around the thalweg.
7. Sediment bar ripping would occur on up to 10 bars in 6.12 and 8 bars in 7.01.
8. Sediment bar ripping includes the use of heavy equipment to make three to five cuts perpendicular to the low flow channel in order to loosen existing sediment once vegetation is removed. The width of each cut will be approximately 8 feet, depending on equipment size.

G. Tree Planting

1. Tree planting for mitigation purposes may be conducted year-round.
2. Tree planting from November 16th through May 31st shall be conducted with hand tools only.
3. Trees cannot be planted during rain events, in standing or flowing water or on a bank above standing or flowing water.
4. Planted trees should be native alder, sycamore, cottonwoods, or box elder.
5. Plantings should be watered and managed to the point of establishment and creation of larger patches of vegetation is encouraged.

H. Biological Monitoring:

1. Biological Monitors will be available when stream maintenance activities are occurring to ensure no impact to listed species and to document significant habitat features.
2. Biological Monitors will halt work if species of concern are found (seen or heard) in work area.

3. A Service-approved biologist will provide mandatory worker awareness training for all project personnel before work begins and which includes, at a minimum, the biology, identification, and habitat needs of the least Bell's vireo, tidewater goby, and California red-legged frog and the project conservation measures being taken to protect them.
4. A Service-approved biologist will be on-site or on-call to visit maintenance areas at any time during work in the event a special-status species is encountered. A biological monitor trained by the approved biologist will be the contact for any employee or contractor who inadvertently kills or injures a listed species or who finds a dead, injured, or entrapped individual if the approved biologist is not present. The biologist or biological monitor will report the incident to the Service via electronic mail and telephone within one working day.
5. A Service-approved biologist will be present throughout all work in areas located near aquatic or riparian habitats where California red-legged frogs have been observed or are likely to be present. The Service-approved biologist will have the authority to stop work if there is a threat of harm to California red-legged frogs, and will notify the Service within one working day of any work stoppage.
6. Each morning before work begins a Service-approved biologist or biological monitor trained by the biologist to identify California red-legged frogs will inspect all vehicles and heavy equipment for the presence of California red-legged frogs.

10. Post Maintenance Activity Reporting:

Responsible Party: Participant through the RCD and MCWRA

The data shall be collected by a qualified professional after the maintenance is completed and prior to winter flows.

- A. **Annual Site Report (Data collected by Biological Monitors, RCD):**
 - Brief evaluation to make sure maintenance was in designated work areas and that avoidance was implemented.
 - Quantify any changes from pre-maintenance surveys.
 - Map the locations and extent of the work completed (e.g. vegetation types, sediment quantities, stockpile locations, and mitigation areas)
 - Mitigation planting areas, tree types, quantity of trees, and condition
 - Document delineated wetlands
 - Photographs
- B. **Longitudinal Profiles (MCWRA):**
 - The same secondary channels that were surveyed during pre-maintenance activities that year will be surveyed again.
 - Data collection must be reproducible and should be tied to a TBM.
 - See Program Guidelines for accuracy and resolution information.