

**DEPARTMENT OF THE ARMY SECTION 404 REGIONAL GENERAL PERMIT
CHANNEL AND BANK PROTECTION STRUCTURES ON THE SOUTH PLATTE RIVER**

Permittee: Urban Drainage and Flood Control District

Permit Expires: December 31, 2017

Regional General Permit No. 87-01

Issuing Office: Omaha District, Corps of Engineers

Location: South Platte River through the Denver, Colorado metro area under jurisdiction of Urban Drainage and Flood Control District, from downstream of Chatfield Reservoir to Baseline Road near Brighton, Colorado in Denver, Arapahoe, Adam and Douglas Counties, Colorado. Fig. 1 shows the permit jurisdictional area.

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

DESCRIPTION OF AUTHORIZED WORK

With this Regional General Permit (GP), the District Commander for the US Army Corps of Engineers, Omaha District (Corps) authorizes certain channel and bank protection and repair projects on the South Platte River under jurisdiction of the Urban Drainage and Flood Control District (District) in Colorado.

1. Five Categories of Structures

- Bank protection structures
- Bottom degradation checks
- Rock groins
- Scour protection for existing river crossings
- Anchoring of fallen trees in the channel.

1.1. **Bank protection structures.** Bank protection structures will be used to control bank degradation where necessary while preserving the meandering quality of the South Platte River consistent with the South Platte River Master Plan. The bank protection structures to be used in the restorative maintenance project are shown on Figs. 2-4. The specific option used to control bank degradation at a location will depend on the nature and severity of bank degradation, project location and relation to other structures, available materials, available funding, and other factors. Bank protection structures will include:

1.1.1. excavation of the river bank and bottom to the extent required for placement of riprap and protective material,

1.1.2. a minimum 12-inch thick riprap layer; all riprap above the ordinary high water level buried with native in-situ soils,

- 1.1.3. use of clean concrete rubble (free of protruding steel) mixed with clean soil material beneath riprap at a sufficient depth, where concrete rubble may be available, with every effort made to fill in void spaces in the rubble with the soil material; concrete rubble will not protrude from overlying riprap layer,
- 1.1.4. construction of the bank protection structure to a depth of at least five feet below the channel invert or the use of a "sacrificial" riprap/rubble toe with mass equal to or greater than the amount of riprap/rubble required to extend the protection to the minimum five-foot depth and
- 1.1.5. flattening of eroded, degraded, or previously trashed banks to provide a channel side slope above the riprapped portion of the stabilized bank to a slope no steeper than 3 to 1, placement of topsoil material, and then revegetation with suitable species as specified in the subsequent section on revegetation in this block.

Construction of bank protection may be accomplished from the channel bank when practicable and with the use of diversion dams and berms for machinery access when necessary to minimize water quality impacts.

- 1.2. **Bottom degradation checks.** Bottom degradation checks will be used to control degradation of the South Platte River channel in reaches where the thalweg crosses over from one bank to the other as shown in Fig. 5. The four options of bottom degradation checks shown on Figs. 6-8 vary in length and size of riprap. The option used at a specific location will depend upon the length of channel required for flow to cross over to the other bank, the river gradient, and other factors. All options include a low flow channel to concentrate the flow and permit boating during low-flow periods. Bottom degradation checks will include:

- 1.2.1. A riprap layer at least 1.5 feet thick,
- 1.2.2. Use of rock bedding beneath riprap when riprap diameter is greater than 1.5 feet,
- 1.2.3. A maximum 3-foot drop in invert through the bottom degradation check.

It is expected that bottom degradation checks will be constructed during periods of low flow.

- 1.3. **Rock groins.** Rock groins will be used where necessary to control bank and habitat loss as shown on Figs. 9 and 10. Groins will be constructed from concrete rubble and/or riprap and project into the active channel, not to exceed 20% of the channel width. They will be tied at least 5 feet into the bank and be at an angle of 45 degrees to 90 degrees in relation to the bank, depending on specific site and flow conditions. Clean (steel-free) concrete rubble may be used, where available, at a sufficient depth beneath riprap so that it will not protrude from the riprap. Soil will be mixed with the riprap and rubble to fill void spaces as much as possible.
- 1.4. **Scour protection for existing utility crossings, grade control structures and diversion structures.** Riprap will be used to protect existing river crossings, grade control structures and diversion structures from degradation and scour of the South Platte River channel bottom. Riprap will be placed as needed at utility crossings to buttress them and to provide a control drop which will restrain on-going scour of these structures, as shown on Fig. 11. Riprap may or may not be grouted.
- 1.5. **Anchoring of fallen trees in the channel.** Whenever feasible and practicable, when a newly fallen tree is discovered near a channel bank, it may be positioned adjacent to the bank and weighed down with sufficient rock and soil mass to keep it from floating downstream. The options are shown in Figs. 12 and 13. This practice will be used whenever it will help reduce bank erosion and provide aquatic habitat without introducing safety hazards to public rafting or boating in the river.

2. General Construction Methods

Construction of structures in all five categories will be by conventional earth-working procedures with dozers, backhoes, graders, and loaders. Unsuitable materials will be hauled from the site by dump truck and disposed of at an acceptable location. Cutbacks will be no further than necessary to install the structure so that disturbance of existing vegetation and channel bank conditions will be minimized. It is expected that construction activities will occur during periods of low flow, except in emergency situations.

Bank protection structures, rock groins, and anchoring of fallen trees in river will be constructed by machinery stationed on the channel bank as much as is practical. Use of machinery in the channel bottom will be minimized. Temporary diversion dams and berms for machinery access will be constructed where necessary to minimize water quality impacts.

3. Revegetation

All construction activities will be conducted in a manner to minimize disturbance to existing riparian and wetland vegetation. Riparian or wetland vegetation disturbed or destroyed by the activities included in this permit will be restored or replaced by regrading and restoring soil conditions and using plant types and composition similar to those existing prior to impacts. Use of native plant species for revegetation will be required. Figs. 2 and 14-16 show typical revegetation detail.

Restoration and revegetation will be done in a manner so as to result in a natural riparian landscape to the extent possible. Structures constructed under this permit will not impede or alter existing flows into riparian or wetland areas adjacent to the South Platte River.

Revegetation success will be based on vegetation existing prior to any disturbance from construction activities authorized by this permit. Revegetation will be considered successful when at least 100 percent of original vegetative cover is restored after three years. Follow-up measures will be taken if 100 percent is not achieved.

4. Temporary Diversion Dams and Berms

Temporary diversion dams and structures may be used where necessary to facilitate construction and minimize impacts of construction on water quality. All temporary dams and structures will be constructed so as to leave a minimum of 30 percent of the channel unobstructed.

Temporary diversion dams will be constructed of clean material obtained on site where possible. Otherwise, clean material will be obtained from off-site. All diversion dams and structures will be removed following completion of project construction and all areas will be restored to pre-existing contours. Non-river materials will be removed from the channel and properly disposed of. Riverbed materials may be disposed of in the riverbed where possible.

5. Permit Accounting and Review

An updated list of all projects constructed under GP 87-01 will be kept by the District and made available upon request to the Corps.

6. Types of Structural Materials

The following materials can be placed in the South Platte River in conjunction with this permit:

- 6.1. Dumped Riprap - Durable angular rock with a specific gravity of 2.5 or greater.
- 6.2. Granular Bedding - Sand and gravel material of adequate gradation to prevent movement of native materials through riprap layer.
- 6.3. Rock Bedding - Rock material of adequate gradation to prevent movement of native materials through riprap layer.
- 6.4. Concrete rubble - Broken concrete material free of reinforcing steel or other unsuitable substances. Concrete rubble found at site not meeting these specifications will be removed and properly disposed of at an acceptable location.
- 6.5. Clean fill material - Inert fill material either obtained from excavations at the site or obtained locally.

7. Quantities of Structural Materials

The quantities of construction materials will vary depending on the type of structure and location. Minimum and maximum specifications shown in the figures will be adhered to. The specific amounts for a structure will be included in the notification to the Corps. The range for quantities for construction materials per structure are shown below:

1.1. Bank Protection Structure	Quantity Placed Below Ordinary High Water Mark (cy)
Riprap (including concrete rubble)	150 - 3,000
Granular bedding	90 - 1,000
Clean, inert fill	100 - 5,000
Excavation	50 - 4,000

1.2. Bottom Degradation Check	Quantity Placed Below Ordinary High Water Mark (cy)
Riprap	300 - 15,000
Rock bedding (if required)	250 - 2,500
Clean, inert fill	100 - 5,000
Excavation	200 - 10,000

1.3. Rock Groins	Quantity Placed Below Ordinary High Water
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	Mark (cy)
Riprap	250 - 3,000
Clean, inert fill	100 - 2,000
Excavation	200 - 2,000

1.4. Scour Protection for Crossings	Quantity Placed Below Ordinary High Water Mark (cy)
Riprap	350 - 5,000
Clean, inert fill	125 - 3,000
Excavation	150 - 2,000

1.5. Anchor Fallen Trees in the River	Quantity Placed Below Ordinary High Water Mark (cy)
Riprap	20 - 300
Clean, inert fill	10 - 100
Excavation	10 - 100

Whenever needed, clean fill material or excavated trenches will be used for any temporary water diversion during construction.

APPLICATION PROCEDURES

1. To receive consideration under this GP, the applicant will be required to submit a Notice of Intent to construct a particular project, at least thirty (30) days prior to any anticipated construction, to:

U.S. Army Corps of Engineers
 Denver Regulatory Office
 9307 South Wadsworth Blvd
 Littleton, Co. 80128-6901

No construction on any proposed project shall take place prior to receipt of written notification from the District Commander confirming with the criteria and provision of this GP.

2. The Notice of Intent must clearly describe the proposed work so that the District Commander or his designee can clearly determine whether or not the proposed work complies with the conditions, criteria, and limitations of this GP, and must contain the following information:
 - 2.1. A complete permit application form (ENG Form 4345).
 - 2.2. A cover letter describing the proposed work and indicating how the anticipated work will be accomplished.
 - 2.3. Figures on 8½ by 11-inch paper including a location map with Section, Township and Range, a plan view and an elevation view.

2.4. Photographs of the project site.

2.5. If applicable, a compensatory mitigation plan for proposed wetland fill or drainage activities.

SPECIAL CONDITIONS

1. The time limit for completing the work authorized ends on **December 31, 2017**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with Special Condition 3 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If ownership of the structure and associated property associated with this permit is transferred, to validate the transfer you must obtain the signature of the new owner, forward a copy of the permit authorization to this office and receive acknowledgment of the transfer from this office.
4. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.
5. No activity is authorized under this permit which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. When appropriate, the Corps will consult with the U.S. Fish and Wildlife Service on specific requests to perform work under this GP when a project may affect a threatened or endangered species.
6. An activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is not authorized by this GP until the Corps has complied with the provisions of Title 33, code of Federal Regulations, Part 325, appendix C. The applicant must notify the Corps if the activity may affect any historic properties listed, determined to be eligible for listing, or which the applicant has reason to believe may be eligible for listing in the National Register of Historic Places, and will not begin the activity until notified by the Corps that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. In the event that any previously unknown historic or archeological remains or resources are encountered during ground disturbing activities, the work will be halted until such resources can be evaluated in consultation with the State Historic Preservation Officer.
7. This permit does not authorize projects which would relocate or realign the South Platte River channel.
8. This permit does not authorize projects directed by or under contract with any party other than the District.
9. Temporary levees, temporary access roads, and other temporary fills must involve the least damaging alternative and have minimum impact to waters of the United States. Appropriate measures must be taken to maintain near normal downstream flows to minimize additional flooding. Construction of permanent levees or access roads is not authorized by this GP.

10. All areas disturbed by construction, which will not be ripped, will be seeded/planted for protection against subsequent erosion and to minimize adverse impacts to fish and wildlife resources (this includes both herbaceous and woody species that are indigenous to the area).
11. The clearing of vegetation, including trees located in or immediately adjacent to waters of the United States, will be limited to that which is absolutely necessary for construction of the project.
12. Equipment for handling and conveying materials during construction will be operated to prevent dumping or spilling the materials into the water except as approved herein. Construction equipment will not be operated in flowing water to the maximum extent practicable.
13. All dredged or excavated materials, with the exception of that authorized herein, will be placed on an upland site above the ordinary high water line in a confined area, not classified as a wetland, to prevent the return of such materials to the waterway.
14. Concrete trucks will be washed at a site and in such a manner that washwater cannot enter a waterway or wetland.
15. During construction, petroleum products, chemicals, or other deleterious materials will not be allowed to enter or be deposited, in waters of the United States. Precautions will be taken to prevent entry of these materials into waters of the United States.
16. All work in the waterway will be performed in such a manner so as to minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.
17. All earthwork operations on the bank will be carried out in such a manner that sediment runoff and soil erosion to the waterbody are controlled.
18. If heavy equipment is used for the subject project that was previously working in another stream, river, lake, pond or wetland within 10 days of initiating work, one of the following procedures is necessary to prevent the spread of New Zealand Mud Snails and other aquatic hitchhikers:
 - (1) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and keep the equipment dry for 10 days; or
 - (2) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with either a 1:1 solution of Formula 409 Household Cleaner and water, or a solution of Sparquat 256 (5 ounces Sparquat per gallon of water). Treated equipment must be kept moist for at least 10 minutes; or
 - (3) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with water greater than 120 degrees F for at least 10 minutes.
19. If and when the District Commander has been notified that the activity is adversely affecting fish or wildlife resources or the harvest thereof and the District Commander subsequently directs remedial measures, the permittee will comply with such directions to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.
20. This permit does not obviate the need to obtain other federal, state, or local authorizations as required by law, does not grant any property rights or exclusive rights to others, and does not authorize interference with any existing or proposed federal project.

21. In issuing this permit and giving approval to perform work under this permit, the Federal Government does not assume any liability for damages to the permitted project, or uses thereof, as a result of current or future activities undertaken by or on behalf of the United States in the public interest; damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit; design or construction deficiencies associated with the permitted work; or damage claims associated with any future modification, suspension, or revocation of this permit.
22. Under Section 25-8-302(1)(f) of the Colorado Revised Statutes, the State of Colorado has certified the activities authorized by this permit under Section 401 of the Clean Water Act without the imposition of any additional state conditions.
23. Should the District update either its South Platte River Master Plan or Urban Storm Drainage Criteria Manual while GP 87-01 is current, the District will apply to amend GP 87-01 to reflect appropriate changes.
24. The Corps may reevaluate its decision on any authorization given in accordance with this permit at any time that circumstances may warrant, and has the discretion to require an individual permit on a case-by-case basis for any of the activities authorized herein. Circumstances that could require a reevaluation include, but are not limited to the following:
 - failure to comply with the terms and conditions of the permit;
 - the information provided in support of the application proves to be false, incomplete, or inaccurate; and
 - significant new information surfaces which the Corps did not consider in reaching a decision.

Such reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in Title 33, CFR Parts 326.4 and 326.5. These enforcement procedures provide for the issuance of an administrative order requiring compliance with the terms and conditions of this permit and for the initiation of legal action where appropriate. The permittee may be required to pay for any corrective measures ordered by the Corps and failure to comply with such directives in certain situations may result in the Corps accomplishing the corrective measures by contract or otherwise and billing the permittee for the cost.

FURTHER INFORMATION

1. **Congressional Authorities:** You have been authorized to undertake the activity described above pursuant to:
 - () Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
 - (**X**) Section 404 of the Clean Water Act (33 U.S.C. 1344).
 - () Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. **Limits of this authorization.**
 - 2.1. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
 - 2.2. This permit does not grant any property rights or exclusive privileges.
 - 2.3. This permit does not authorize any injury to the property or rights of others.
 - 2.4. This permit does not authorize interference with any existing or proposed Federal project.

3. **Limits of Federal Liability.** In issuing this permit, the Federal Government does not assume any liability for the following:
 - 3.1. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - 3.2. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - 3.3. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - 3.4. Design or construction deficiencies associated with the permitted work.
 - 3.5. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. **Reliance on Applicant's Data:** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
 - 5.1. You fail to comply with the terms and conditions of this permit.
 - 5.2. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - 5.3. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. **Extensions.** Special Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Issued for and in behalf of Colonel Joel R. Cross, Omaha District Commander



Chief, Regulatory Branch
Operations Division
Omaha District