# Method 6: Bank Stabilization

# 6C: *Construct Cast-in-place Concrete Bulkhead*

**Project Title:**

**Project CIP Number:**

*See Section 3 of the SBE, Method 6 for a description of the activity and conservation measures for this method. You need this information to fill out this form.*

Construct Cast-in-place Concrete Bulkhead

1. Will shoreline be graded?  No  Yes (if yes, fill out form for **Method 2**).

2. How many linear feet of cast-in-place concrete bulkhead will be constructed?

3. Is the new bulkhead landward of the previous bulkhead (if there was one)?   
 No  Yes

4. In tidal waters, will concrete be poured into forms when tide is out?

Yes  No If no, explain:

5. Are measures in place to make sure wet concrete does not come in contact with marine or fresh water?  No  Yes

6. Will aggregate backfill be installed behind bulkhead.  No  Yes If yes, identify size       ft2 and quantity       yd3

7. Will drainage piping be installed?  Yes  No

Where will drainage piping drain to?

8. Will armoring be installed at the toe?  No  Yes (if yes, fill out **Method 7D**).

9. Describe the amount of clean gravel (habitat mix) that will be placed at the toe:

      yd3;       inches in depth

10. Are riparian plantings going to be added to the project?  No  Yes (if yes, fill out form for **Method 13**)

11. Provide additional information (if any) on this construction method:

Conservation Measures

The following table contains the conservation measures identified for Method 6C. The table only provides a brief summary of the conservation measures. Please see Section 4 of the SBE for a complete description of each conservation measure. To get programmatic coverage by the Corps and Services for projects using this method, all conservation measures identified below must be included with the project (see Section 10 of the SBE). If, for some reason, a conservation measure is not applicable, or will not be used, you MUST provide a reason the conservation measure is not applicable or will not be used in the “Provide additional information” section below. Provide any additional conservation measures that may be implemented but are not listed. These may be found in Section 4: Conservation Measures of the SBE or in the City Standard Specifications.

| **Conservation Measures** | **Description** | **Included in**  **Project?** |
| --- | --- | --- |
| 1 | Approved work windows |  |
| 2 | Onsite Temporary Erosion and Sediment Control Plan |  |
| 3 | Onsite Spill Prevention and Control Plan |  |
| 4 | Maintain a spill kit onsite |  |
| 9 | Implement BMPs to prevent erosion of excavated material |  |
| 15 | Clean equipment that will work below the OHW or MHHW lines or in riparian or shoreline areas |  |
| 16 | Fuel equipment in staging areas |  |
| 17 | Onsite oil absorbing floating booms |  |
| 18 | Use vegetable-based hydraulic fluid when equipment operates in sensitive areas |  |
| 27 | Place erosion and water quality control devices prior to beginning of work |  |
| 28 | If mechanized equipment is used within the OHW or MHHW, only an extension arm with bucket or similar attachment shall enter the water. Conduct debris removal and work below OHW or MHHW during low water levels (fresh waters) or at low tide (marine waters) |  |
| 29 | Confine use of equipment operating below OHW or MHHW to designated access corridors |  |
| 45 | Use plastic, cement or timber piles over steel piles |  |
| 46 | Use containment boom |  |
| 47 | Cap holes from pulling or cutting treated pilings |  |
| 48 | Do not use piling treated with creosote, pentachloraphenol, or coal tar. |  |
| 49 | Do not use hydraulic water jets to remove or place piling |  |
| 50 | Replace piling in same general location (see CM# 34) |  |
| 51 | All treated wood removed will be contained on land or barge to preclude sediments and contaminated material from entering water. |  |
| 52 | Use vibratory driver for installing piles |  |
| 53 | Use bubble curtain or other noise attenuation method |  |
| 54 | Conduct hydroacoustic monitoring during installation of large piles |  |
| 55 | Reduce noise from work operation |  |
| 57 | Perform all work in the dry when possible |  |
| 58 | Conduct work during minus tides or low water levels |  |
| 59 | Use clean, washed material |  |
| 62 | Do not ground or rest construction barge on substrate or on vegetation |  |
| 63 | Take care to prevent spread of invasive plant species during their removal |  |
| 64 | Plant with native vegetation |  |
| 65 | Retrieve and remove debris that enters waterbody |  |
| 67 | Use clean grave (less than 3% fines) |  |
| 69 | No wet concrete or epoxy shall come in contact with water |  |
| 70 | Move bulkhead above the OHW or MHHW |  |
| 71 | Construct bulkhead to contain habitat complexity (i.e. coves) |  |
| 72 | Plant bulkhead with native riparian vegetation |  |
| 73 | Include rootwads and LWD with riprap |  |
| 74 | Cover riprap with habitat mix to fill voids |  |

Please provide any additional information on Conservation Measures used or not used for this Method: