US Army Corps of Engineers®

PUBLIC NOTICE

APPLICATION TO REISSUE REGIONAL GENERALPERMIT 62
Bureau of Reclamation
Operations and Maintenance Activities

Public Notice/Application No.: SPL-2000-01901-MB
Comment Period: December 8, 2011 through December 21, 2011

Applicant
Bureau of Reclamation, Yuma Area Office (YAO)
ATTN: Julian DeSantiago
7301 Calle Agua Salida
Yuma, Arizona 85364

Location
In the Colorado River from Davis Dam to the Southerly International Border (SIB) with Mexico; Mohave, La Paz, and Yuma Counties, Arizona and San Bernardino, Riverside, and Imperial Counties, California

Activity
To construct or maintain various structures such as bank stabilization, culverts/permeable structures, rock weirs, inlet/outlet channels, and boat ramps and to conduct specific maintenance activities such dredging, wash fan removal, and vegetation clearing. For more information, see page 3 of this notice and attached drawings.

Interested parties are hereby notified that an application has been received for a Department of the Army permit for the activity described herein and shown on the attached drawing(s). Interested parties are invited to provide their views on the proposed work, which will become a part of the record and will be considered in the decision. This permit application will be issued or denied under Section 10 of the River and Harbor Act of March 3, 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

Comments can be e-mailed to marjorie.e.blaine@usace.army.mil or mailed to:

U. S. Army Corps of Engineers
ATTENTION: Regulatory Branch (SPL-2000-01901-MB)
5205 E. Comanche Street

Tucson, Arizona 85707

Evaluation Factors

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof. Factors that will be considered include conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people. In addition, if the proposal would discharge dredged or fill material, the evaluation of the activity will include application of the EPA Guidelines (40 CFR 230) as required by Section 404 (b)(1) of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Preliminary Review of Selected Factors

EIS Determination- A preliminary determination has been made that an environmental impact statement is not required for the proposed work. The Corps shall write an environmental assessment for this Regional General Permit (RGP) to be maintained in the permanent file and upon which their decision to issue this RGP will be based.

Water Quality- Prior to authorization of each specific activity under Section 404 of the Clean Water Act and this RGP, the Bureau of Reclamation (Bureau) shall be required to obtain a Section 401 water quality certification from the State of Arizona for activities occurring therein, and/or the State of California for activities occurring therein, and/or the U.S. Environmental Protection Agency for activities occurring on tribal lands. Upon receipt, the Bureau shall provide this certification to the Corps for inclusion in the special conditions authorizing the specific activity.

Cultural Resources- As the lead Federal agency, the Bureau is responsible for documenting to the Corps that all consultations in accordance with Section 106 of the National Register of Historic Places have been completed and concurred with by the State Historic Preservation Office. The Corps shall not authorize any specific activity under this RGP until provided with such documentation.

Endangered Species- As the lead Federal agency, the Bureau is responsible for documenting to the Corps that all consultations in accordance with Section 7 of the Endangered Species Act have been completed and concurred with by the U.S. Fish and Wildlife Service (FWS). The Corps shall not authorize any specific activity under this RGP until provided with the appropriate documentation indicating consultations are complete.

Public Hearing- Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearing shall state with particularity the reasons for holding a public hearing.

Proposed Activity for Which a Permit is Required (Reissuance of RGP 62)

The Bureau proposes the following types of activities to be authorized by this RGP:

Bank Stabilization (Sheets 1 and 2 of 7): The Bureau, YAO, is responsible for maintaining both currently protected and unprotected bank lines on the Lower Colorado River (LCR) from Davis Dam to the SIB. Currently protected bank lines have been armored with clean quarry rock (riprap). Due to daily fluctuations in flows, bank lines are subject to erosion which can result in massive loss of armoring and can threaten the integrity of adjoining armored bank lines or river structures. Active erosion can scallop the bank line beyond its armored protection resulting in greater loss of adjacent land and/or riparian vegetation. Bank line stabilization in certain areas would protect critical facilities, sensitive resources, and riparian habitat as well as decrease turbidity of flows and downstream sedimentation of the river channel. Bank line stabilization along the LCR shall be performed on an as-needed basis and will range from a minimum of 25 linear feet for spot repairs to 2,500 linear feet for stabilization of currently unprotected or reinforcement of currently protected bank lines. Armoring of bank lines would require a minimum of 2.5 cubic yards (cy) (4 tons) of clean riprap per linear foot to 10 cy (15 tons) per linear foot. Amounts are dependent upon the vertical height of the slope and the conditions at the slope/river bottom intercept.

Culverts and Permeable Structures (Sheets 3 and 4 of 7): To allow continuous flow of water, culverts and permeable structures are required. Some structures may need to be replaced and/or relocated to allow continuous flow. Replacement requires excavation of an old structure and the placement of a new structure in the same location. In other situations, retaining the old structure is beneficial and the Bureau would establish new structures immediately adjacent to existing structures. Material excavated for installation may be temporarily stockpiled in upland disposal sites above the ordinary high water mark (OHWM) including on levee roads and existing stockpile sites. Some of the excavated material may be used as backfill; any excess material would be hauled to an upland disposal site. To facilitate culvert placement activities in existing permeable structures, a small portion of the existing rock and fill permeable structure will be left in place on the river side to act as a retaining wall. This shall allow the initial placement of culverts by preventing flows from entering the work area. Once the first culvert pipe section is placed on the backwater side, the retaining wall will then be removed and the second pipe section will be placed on the river side The maximum length of a typical new permeable structure would be 100 linear feet along an existing levee with the requirement of approximately 3500 cy of fill for each structure. To prevent scouring and destabilization of the streambed after new culverts have been placed, this RGP will also allow the placement of protective riprap (blanket) aprons placed on the backwater side of the culvert. The aprons would be placed underwater; approximately 50-100 cy of riprap is authorized under this RGP to be discharged per structure dependent on the number of culverts in the structure. This RGP will not authorize training structures, jetties, or any other structures which would extend into the river.

Wash Fan Removal (Sheet 5 of 7): There are numerous washes which drain directly into the Colorado River; flash floods within these washes carry tons of alluvial material into the river channel and then form wash fans which settle adjacent to and/or in the river channel. These depositions cause hydraulic restrictions, navigation hazards, and, indirectly, bank line erosion. Under this RGP, the Bureau proposes to remove these wash fans, typically two per year, during low flows with amphibious or land-based heavy equipment when the area is naturally dewatered. The maximum amount of material allowable to remove under this RGP per wash fan is 16,000 cy. Material would be excavated to provide a minimum depth of 4 feet and a small portion of the fan would be left in place to provide spawning habitat for endangered fish. Some of the excavated material may be reused for bank line stabilization in the wash and the excess would be moved to upland, disturbed areas outside of the OHWM. Dredges would not be authorized for use in wash fan removal unless the wash fan blockage elevates to an emergency level as concurred upon by the Corps.

Dredging (Sheet 6 of 7): Dredging is required in front of dams and in desilting basins. Routine dredging to maintain the efficiency of water delivery is required throughout the Colorado River. Under this RGP, the Bureau would be authorized to dredge up to 2.7 million cy of material per site to promote proper function of the facility and to maintain the hydraulic efficiency of the river. The dredged material would be removed to an approved, bermed upland disposal site. Water from the dredging will not be directly returned to the Colorado River or any of its tributaries, sloughs, backwaters, or historic channels, unless specifically approved by the U.S. Environmental Protection Agency on a case-by-case basis, but will be directed over land or allowed to percolate into groundwater. It should be noted that both of these methods would allow the water to eventually return to the river.

Rock Weirs (Sheet 4 of 7): Rock weirs have been placed at locations along the LCR to promote siltation in a specific area to reduce the downstream sediment load and to measure river elevation and flow. Existing rock weirs extend from bank line to bank line across the horizontal axis of the main river channel and sluiceways at several locations. Under this RGP, maintenance only of existing rock weirs would be permissible; no new rock weirs would be eligible for authorization by this RGP.

Inlet/Outlet Channels (Sheet 6 of 7): Various inlets and outlets to facilities and backwaters along the river need continual sediment removal. Most sediment removals require the use of mechanized equipment including dredge, amphibious excavator, or land-based equipment. Land-based equipment would be used only during low flows to reduce turbidity. The minimum amount of material typically removed is 8,000 cy and the maximum amount permissible by this RGP is 25,000 cy per inlet and/or outlet. Removed materials would be placed at upland sites above the OHWM. If removal of material occurs by dredge, the deposition sites shall be bermed. All water removed with deposited materials would eventually return to the river via over land flow or percolation to groundwater. No return water would occur directly to the river or any of its tributaries, sloughs, backwaters, historic channels, unless specifically approved by the U.S. Environmental Protection Agency on a case-by-case basis, etc.

Vegetation Clearing: There are several structures along the LCR where vegetation may need to be removed on a regular basis as the vegetation may degrade the structural integrity of a facility. Clearing of vegetation may occasionally occur below the OHWM. Two of the scenarios where this would occur include removal of wash fans and removal of material at inlet/outlet areas. In both scenarios, small patches of emergent vegetation would be removed by dredge and/or land-based equipment. Land-based equipment would be used only during low flows. A maximum of one acre of vegetation would be allowable for removal per occurrence and is limited to facilities, inlets/outlets, structures, and roads. No vegetation would be removed

below the OHWM during bank stabilization activities.

Boat Ramps (Sheet 7 of 7): The Bureau may require boat ramps for access to various locations along the river. The maximum width of a ramp permissible under this RGP is 30'; the maximum removal of material permissible for the ramp is 1,000 cy to create the proper slope. Some of this material will be excavated below the OHWM. Up to 500 cy of rock is allowable under this RGP for stabilization of the ramp for vehicular traffic; however, this RGP does not allow the placement of concrete for the ramp.

Additional Project Information

All projects which would be reviewed and approved case-by-case would be on the mainstem of the Colorado River, a navigable water of the U.S. as defined in 33 CFR 329. If, after review of comments to this public notice, the Corps issues this RGP for use by the Bureau, the Corps will review each submitted specific activity as outlined above and determine if it meets the conditions of this RGP. If it does and impacts are deemed to be minimal, the Corps will provide authorization to the Bureau without further public notice or agency coordination. If it does not meet the conditions OR the Corps determines the impacts are more than minimal, the Corps will advise the Bureau an individual permit is necessary for their specific project.

Proposed Special Conditions

a. Should cultural resources or archeological remains be encountered during construction/excavation, work shall immediately cease in the area of discovery. The permittee shall promptly notify the State Historic Preservation Office at (602)542-7137 and the Corps at (520)584-1684.

b. In order to use this RGP for any activity detailed above, the Bureau will be required to notify the Corps, prior to commencement of any activity. The standard individual permit application form (FORM ENG 4345) may be used as notification but must clearly indicate that it is a RGP notification. Work may not commence until the verification of compliance with this RGP is received from the Corps or sixty days have passed since the Corps received a ***complete*** notification package. The notification shall include:

    1. complete written description of the specific activity including all dimensions, area to be impacted, and amounts of excavation and/or fill; detailed description of method of undertaking the work including type of equipment to be used,
    2. vicinity map indicating location of the activity; Section, Township, Range and latitude/longitude in decimal format,
    3. plan view and cross-section of the proposed activity,
    4. location of dredged material deposition sites,
    5. location of any special aquatic sites, including wetlands, within the project area; please note that with the exception of very small stands of cattails/bulrush (less than 100 square feet provided no agency objects on a case-by-case basis), this RGP will not authorize any work in any special aquatic site,
    6. Section 401 water quality certification from the appropriate agency/agencies,
    7. documentation of completed coordination under the Fish and Wildlife Coordination Act with and letters of concurrence from the FWS and the appropriate State and/or Tribal game and fish agency and the completed Section 7 consultation or the permittee's determination of "no effect",
    8. completed Section 106 consultation including consultation with appropriate Native American Tribes regarding traditional cultural properties or the permittee's determination of "no effect",

9. a mitigation plan, in accordance with the Corps' "Habitat Mitigation and Monitoring Plan" format, for any permanent impacts to the aquatic ecosystem,
10. written authorization from any Native American Tribe which owns the project area.

c. The permittee shall comply with all requirements and conditions in the letter of (state) water quality certification that the appropriate agency signed on _____. This certification demonstrates that the permittee has complied with Section 401(a) of the Clean Water Act. A copy of this letter is enclosed.

d. The permittee shall minimize disturbance to native vegetation and is not authorized to conduct any work under this RGP in special aquatic sites, including wetlands, with the exception of small stands of cattail and bulrush. In general, "small stands" is defined 10 square feet or less. In extenuating circumstances and where there is no agency objection, a maximum of 100 square feet of special aquatic sites could be authorized on a case-by-case basis for removal. The Bureau shall provide mitigation for any permanent impacts.

e. The permittee shall not stockpile material below the ordinary high water mark of any water of the U.S.

f. This permit does not authorize training structures, jetties, or any other similar structures which extend into the river.

g. The permittee, when using amphibious or land-based equipment, shall perform work during low water conditions when the area is naturally dewatered and shall suspend all operations when there is water within the project area. The permittee shall not discharge fill or construction debris into the waters of the Colorado River or its tributaries, sloughs, backwaters, or historic channels.

h. The permittee shall immediately remove all excavated/dredged material to an upland disposal site. Upland sites for dredged material shall be bermed.

i. The permittee shall not allow return water to be discharged directly into the Colorado River, its tributaries, sloughs, backwaters, or historic channels unless it is specifically approved by the U.S. Environmental Protection Agency on a case-by-case basis. In general, return water shall be discharged over land or allowed to percolate into groundwater.

j. The permittee shall not divert flows outside of the ordinary high water mark of any water of the U.S.

k. The permittee shall not pour concrete for any ramp.

l. The permittee shall not excavate, fill, or grade in the watercourse outside of the minimum area needed to accomplish the authorized activity.

m. The permittee shall not dredge/excavate sediment below the OHWM specifically for use as a fill source; however, in the case of reconstruction /installation of culverts or where material is excavated from facilities, wash fans, or inlet/outlet channels as authorized under this RGP to improve hydraulic efficiency, the permittee may use the excess material as fill outside of waters of the U.S.

n. The permittee shall remove all excess fill and/or construction debris/equipment from the site immediately upon completion of the authorized project.

o. If any activity occurs on Tribal lands, the permittee shall provide to the Corps written authorization from the appropriate Tribe to perform the work.

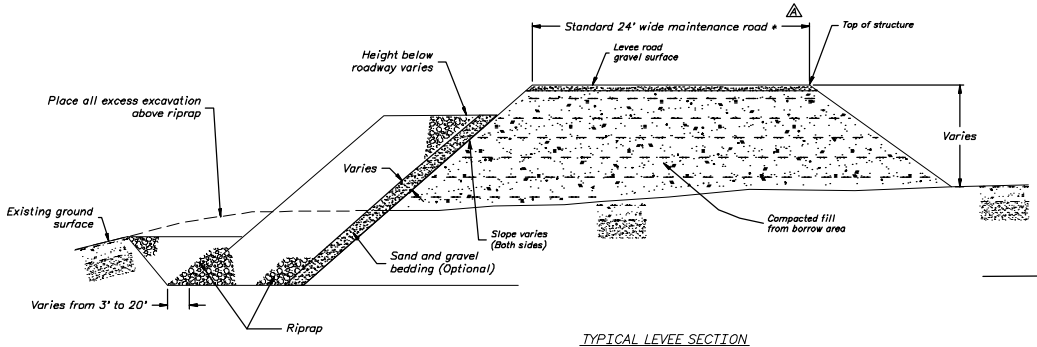
p. Each project which meets all terms and conditions of this RGP shall be verified for a period of three years. If the specific project is not under construction within that timeframe, the project shall be resubmitted for reverification.

q. This RGP shall be effective for five years from the date of issuance after which time it may be reauthorized if Federal, State, and local agencies and the public support its reissuance.

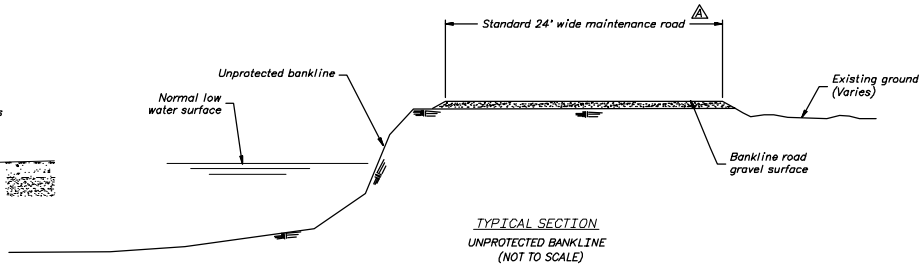
r. This RGP may be modified or revoked in the future if: (1)new species or new critical habitat become Federally listed that could be adversely affected by the permitted activities or (2)additional information indicates that activities permitted under this RGP cause significant environmental impacts.

For additional information please call Marjorie E. Blaine at (520) 584-1684. This public notice is issued by the Chief, Regulatory Branch.

423-303-2903



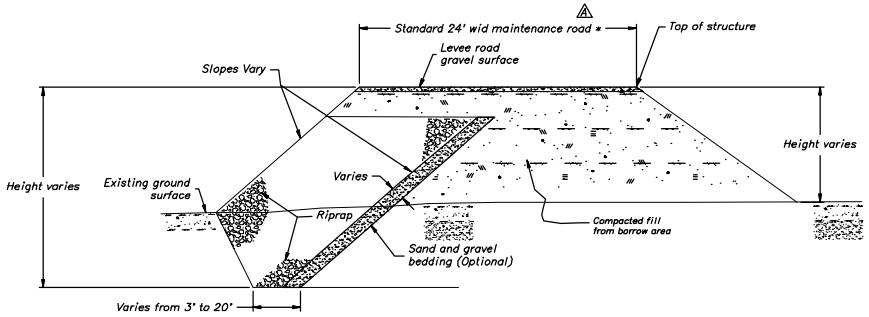
TYPICAL LEVEE SECTION
(NOT TO SCALE)



TYPICAL SECTION
UNPROTECTED BANKLINE
(NOT TO SCALE)

2002 BANKLINE STABILIZATION WORK

BANKLINE STABILIZATION AT R.M. 135.0 BETWEEN 2 AND 7 CUBIC YARDS ON MATERIAL PER LINEAR FOOT WILL BE PLACED ALONG THE 350 FOOT LONG BANK AREA.

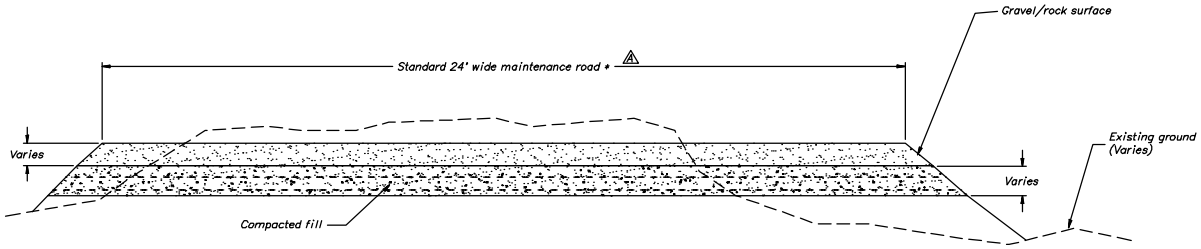


TYPICAL SECTION WITH BURRIED RIPRAP
(NOT TO SCALE)

* EVERY 600' – 1000',

A 50' x 75' TURN AROUND WILL

BE CONSTRUCTED.



TYPICAL SECTION – ACCESS ROAD
(NOT TO SCALE)

NOTES:

1. Drawing is not to scale.
2. Riprap varies from 4 to 15 tons/foot.
3. Gravel and rock surfacing for roads varies from 6 to 18 inches.
4. Depth of fill and cut sections vary depending on existing terrain.
5. Levee and riprap slopes vary for 4:1 to 1 1/2:1 depending on existing topography.
6. Riprap may or may not be covered with earth depending on specific needs of the site.

2-11-2000 J.L.S.-303	CHANGE IN THE WIDTHS OF THE ROADS, AND ADDED NOTES. ADDED TYPICAL SECTION UNPROTECTED BANKLINE.

Design Concurrence J.R. KIRKALDIE

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
COLORADO RIVER FRONT WORK AND LEVEE SYSTEM
YUMA DIVISION – ARIZONA – CALIFORNIA – NEVADA

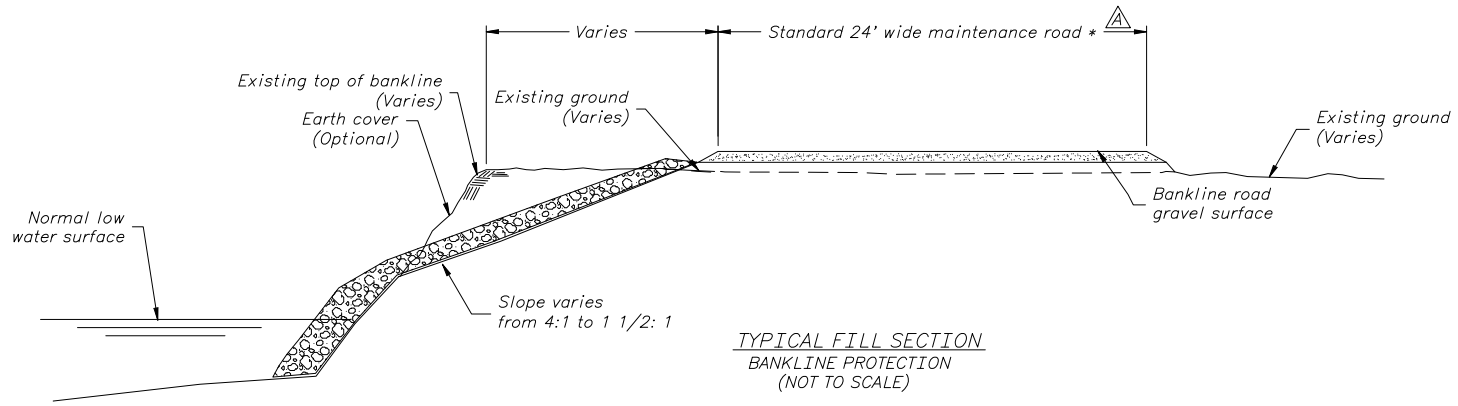
LEVEE AND ACCESS ROAD

BANKLINE STABILIZATION
TYPICAL SECTIONS

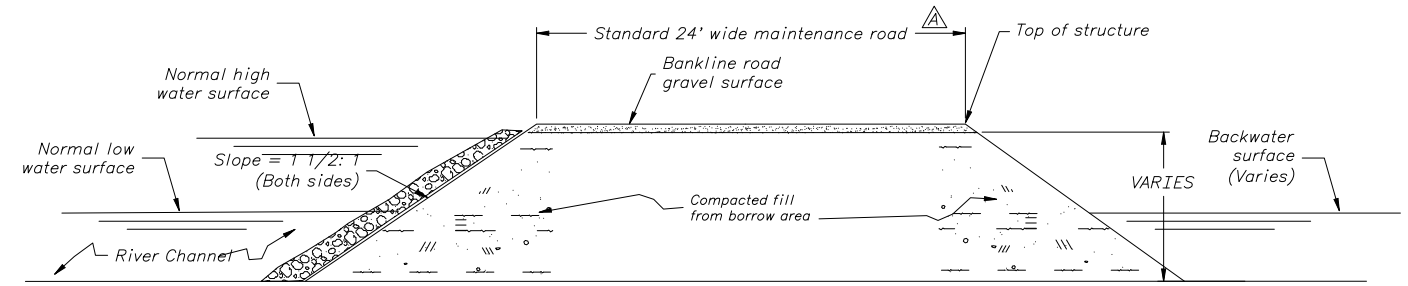
DESIGNED Jeff L. Sanderson C.E.T. TECH. APPR. Mike Igoe P.E.
DRAWN Jeff L. Sanderson C.E.T. SUBMITTED
CHECKED Mike Igoe P.E. APPROVED Mike Vandeveide P.E. CHIEF OF ENGINEERING

CADD SYSTEM	CADD FILENAME	DATE AND TIME PLOTTED
AutoCAD Rel. 17.0a	423-303-2903-1-1.DWG	OCTOBER 20, 2006 08:28
YUMA, ARIZONA	7-15-99	423-303-2903

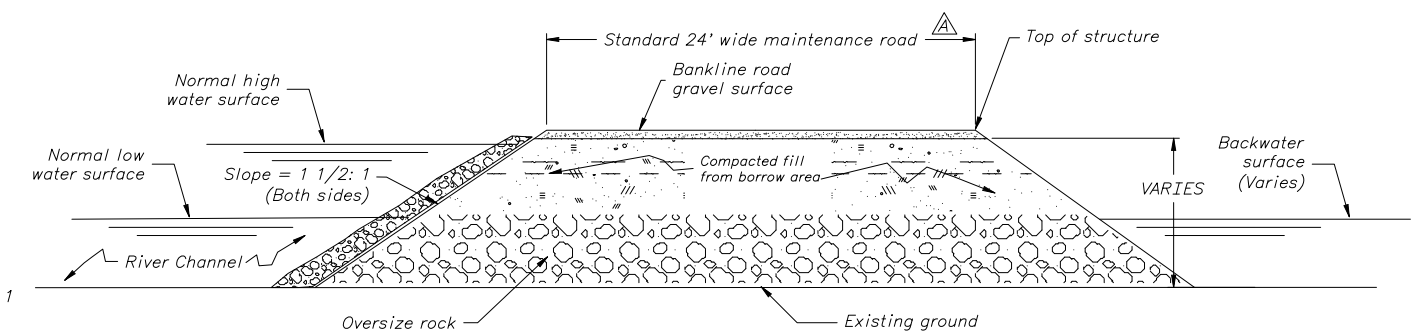
SHEET 1 OF 1



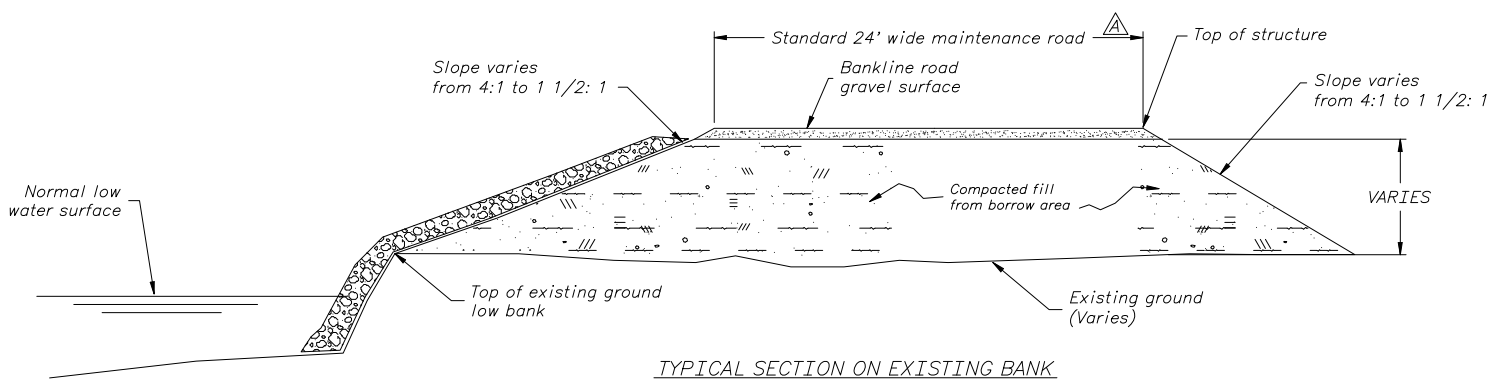
TYPICAL FILL SECTION
BANKLINE PROTECTION
(NOT TO SCALE)



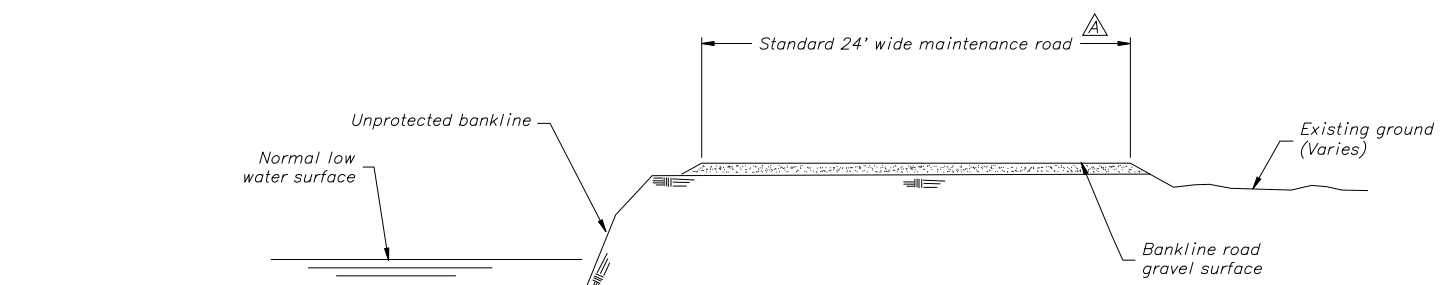
TYPICAL SECTION IN RIVER CHANNEL
TRAINING STRUCTURE
(NOT TO SCALE)



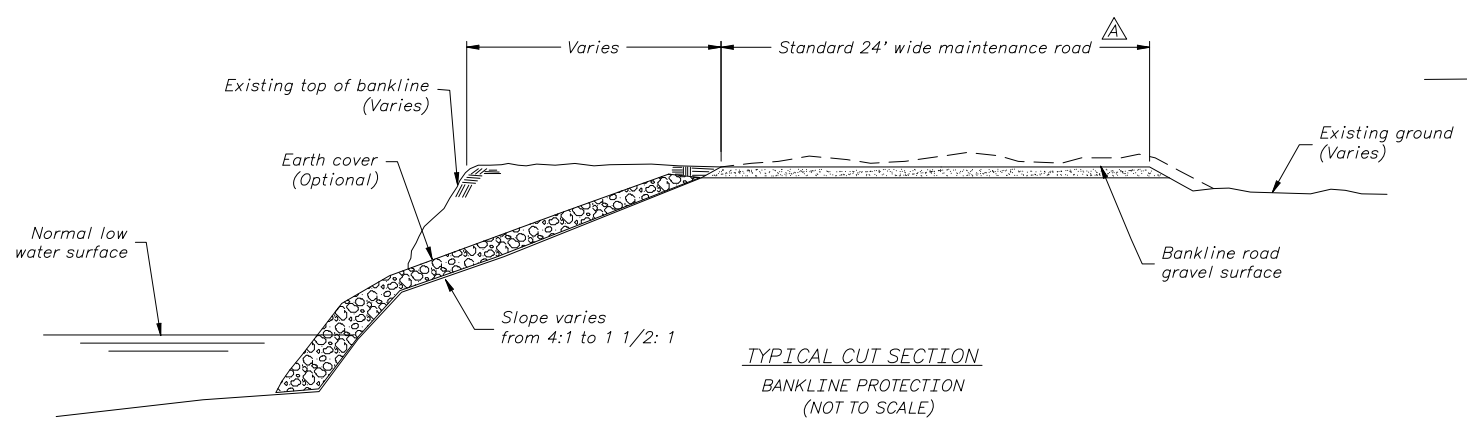
TYPICAL PERMEABLE SECTION IN RIVER CHANNEL
(NOT TO SCALE)



TYPICAL SECTION ON EXISTING BANK
BANKLINE PROTECTION
(NOT TO SCALE)



TYPICAL SECTION
UNPROTECTED BANKLINE
(NOT TO SCALE)



TYPICAL CUT SECTION
BANKLINE PROTECTION
(NOT TO SCALE)

A * EVERY 600' – 1000',
A 50' x 75' TURN AROUND WILL
BE CONSTRUCTED.

NOTES:

1. Drawing is not to scale.
2. Riprap varies from 4 to 15 tons/foot.
3. Gravel and rock surfacing for roads varies from 6 to 18 inches.
4. Depth of fill and cut sections vary depending on existing terrain.
5. B Bankline stabilization varies between 25 linear feet up to 2,500 linear feet.

12-07-2011 JLS-303	B ADDED NOTE 5, AND ADDED BANKLINES IN TITLE BLOCK.
2-11-2000 JLS-303	A CHANGE IN ROAD WIDTHS, AND NOTES, ADDED UNPROTECTED BANKLINE.

Design Concurrence J.R. KIRKALDIE

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
COLORADO RIVER FRONT WORK AND LEVEE SYSTEM
YUMA DIVISION – ARIZONA – CALIFORNIA – NEVADA

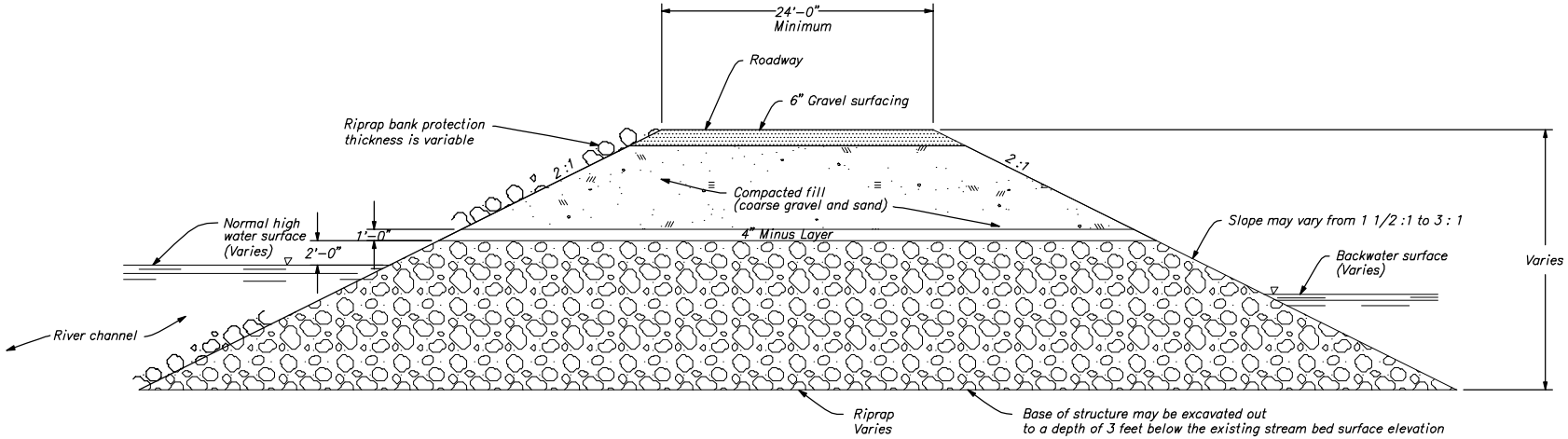
B

BANKLINES, AND RIVER TRAINING AND PERMEABLE STRUCTURES
TYPICAL SECTIONS

DESIGNED Jeff L. Sanderson C.E.T. TECH. APPR. MIKE IGOE P.E.
DRAWN Jeff L. Sanderson C.E.T. SUBMITTED
CHECKED MIKE IGOE P.E. APPROVED MIKE VANDEVELDE P.E. CHIEF OF ENGINEERING

CADD SYSTEM	CADD FILENAME	DATE AND TIME PLOTTED
AutoCAD Rel. 18.1s	423-303-2902-1-1.DWG	DECEMBER 7, 2011 13:30
YUMA, ARIZONA	7-15-99	423-303-2902

SHEET 1 OF 1



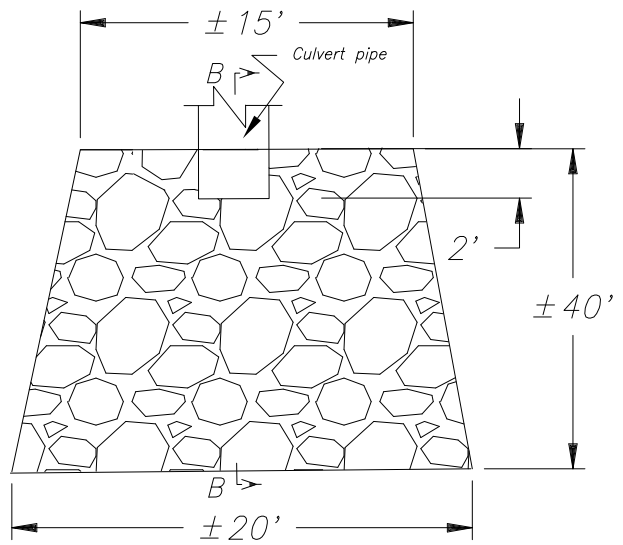
TYPICAL SECTION
PERMEABLE TRAINING STRUCTURE
Scale: 1" = 10'-0"

A NOTES:

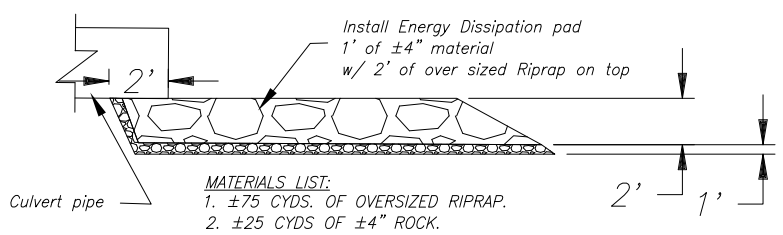
1. Two permeable structures would be constructed in place of the existing levee at the upstream end of the two C-8 backwater channels; each permeable structure would be constructed in two phases.
2. The permeable structures would replace approx. 100 lineal feet of the existing levee (3000 cubic yards) and would be excavated to 3 feet below the existing stream bed surface elevation.
3. The material excavated will be stockpiled on the levee road surface.
4. Approx. 600 cubic yards of oversize rock will be placed into the bottom of the excavated area, and 2,400 cubic yards of stockpiled material would be placed on top of the oversize material to complete the permeable structures.
5. Any remaining stockpiled material will be hauled to an approved stockpile site.
6. The same operation will be followed for the second permeable structure. The total amount of material to be excavated and placed to construct the two permeable structures would be approx. 6,000 cubic yards.

1-25-2000 JLS-303	A CHANGE IN NOTE 2 AND 4.
Design Concurrence	Robert Palmer & Doug Lancaster
ALWAYS THINK SAFETY	
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION YUMA AREA PROJECTS OPERATIONS AND MAINTENANCE-PALO VERDE-CALIFORNIA C-8 BACKWATER PROJECT PERMEABLE STRUCTURES TYPICAL SECTION	
DESIGNED J. SANDERSON C.E.T.	TECH. APPROVAL Mike Igoe P.E.
DRAWN J. SANDERSON C.E.T.	SUBMITTED Mike Igoe P.E.
CHECKED R.A.QUAMEN	APPROVED Steve Messinger P.E. CHIEF OF ENGINEERING
CADD SYSTEM AutoCAD Rel. 17.0s	CADD FILENAME 1163-303-0677-2
DATE AND TIME PLOTTED OCTOBER 20, 2006 11:00	
YUMA, ARIZONA JAN. 19, 2000 SHEET 2 OF 2	1163-303-677

1163-303-685

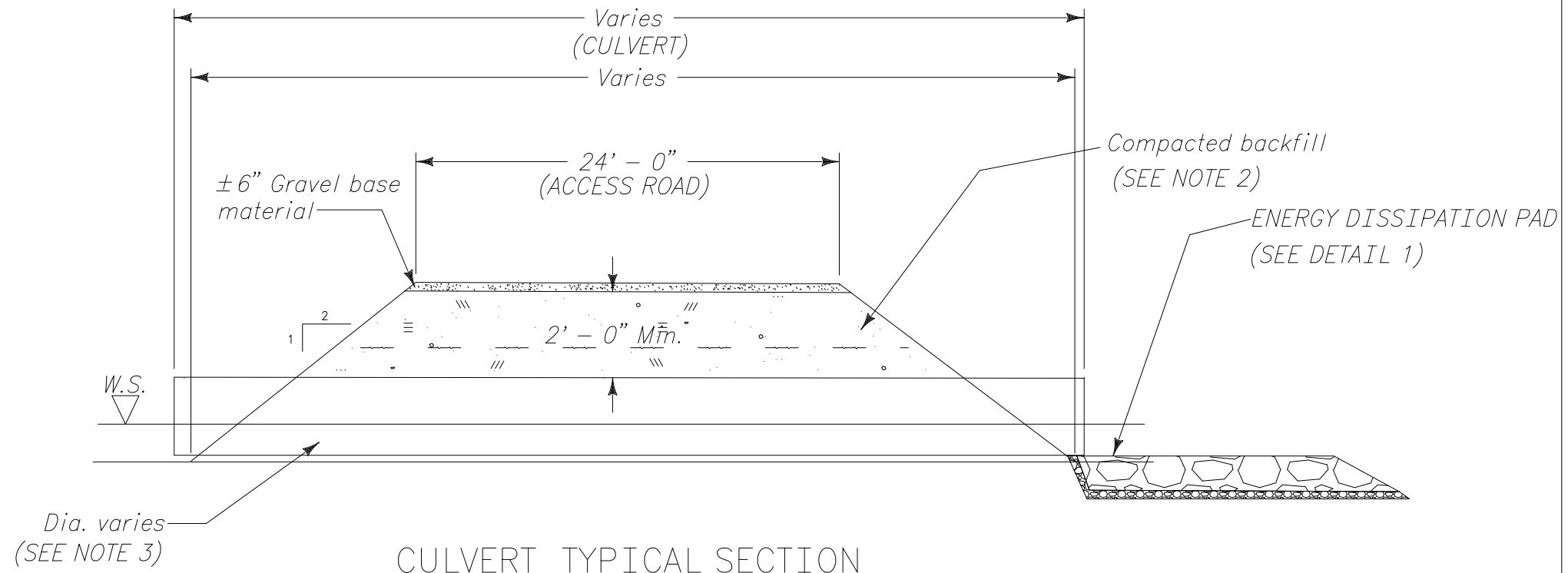


A DETAIL 1
(NOT TO SCALE)



MATERIALS LIST:
1. ±75 CYDS. OF OVERSIZED RIPRAP.
2. ±25 CYDS OF ±4" ROCK.

A SECTION B-B
(NOT TO SCALE)

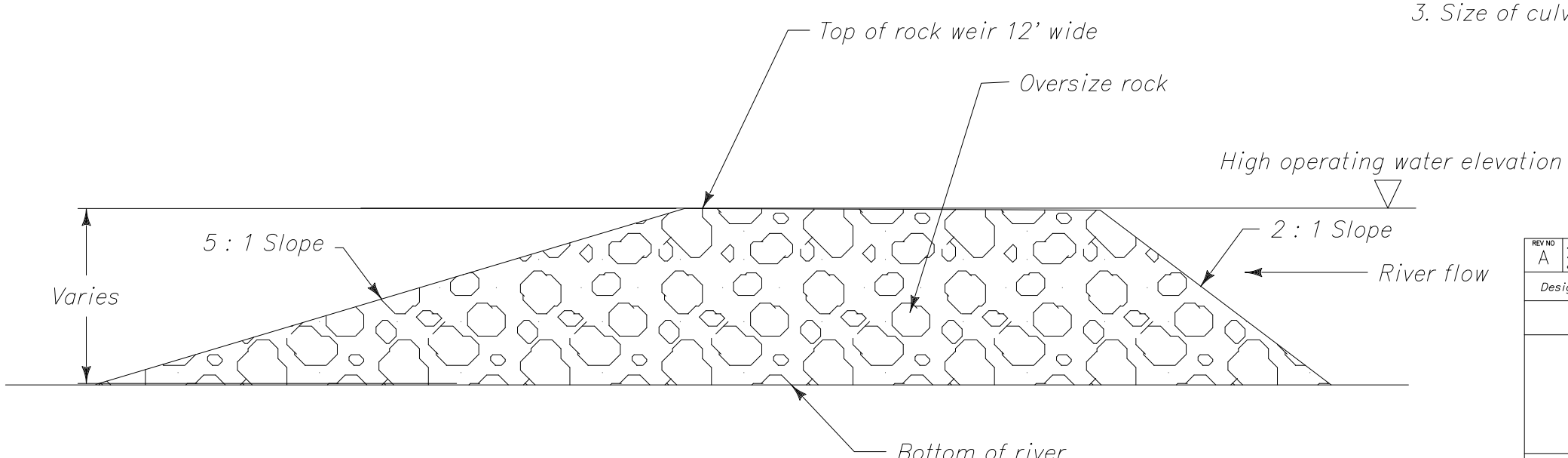


CULVERT TYPICAL SECTION

(NOT TO SCALE)

NOTES:

1. Drawing is not to scale.
2. Compaction shall be obtained by bringing the material to optimum moistures and then wheel rolling with heavy equipment or loaded haul trucks.
3. Size of culvert will depend on location.



ROCK WEIR TYPICAL SECTION

(NOT TO SCALE)

REV NO		
A	2011-12-7 303 J.L.S.	ADDED ENERGY DISSIPATION PAD.

Design Concurrence Enviromental Division: Chris Bates

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CULVERTS, ROCK WEIR AND ENERGY DISSIPATION PAD
TYPICAL SECTIONS

DESIGNED Jeff L. Sanderson C.E.T. TECH. APPROVAL Mike Igoe P.E.
DRAWN Jeff L. Sanderson C.E.T. SUBMITTED Steve Messinger P.E.
CHECKED Mike Igoe P.E. APPROVED Steve Messinger P.E.
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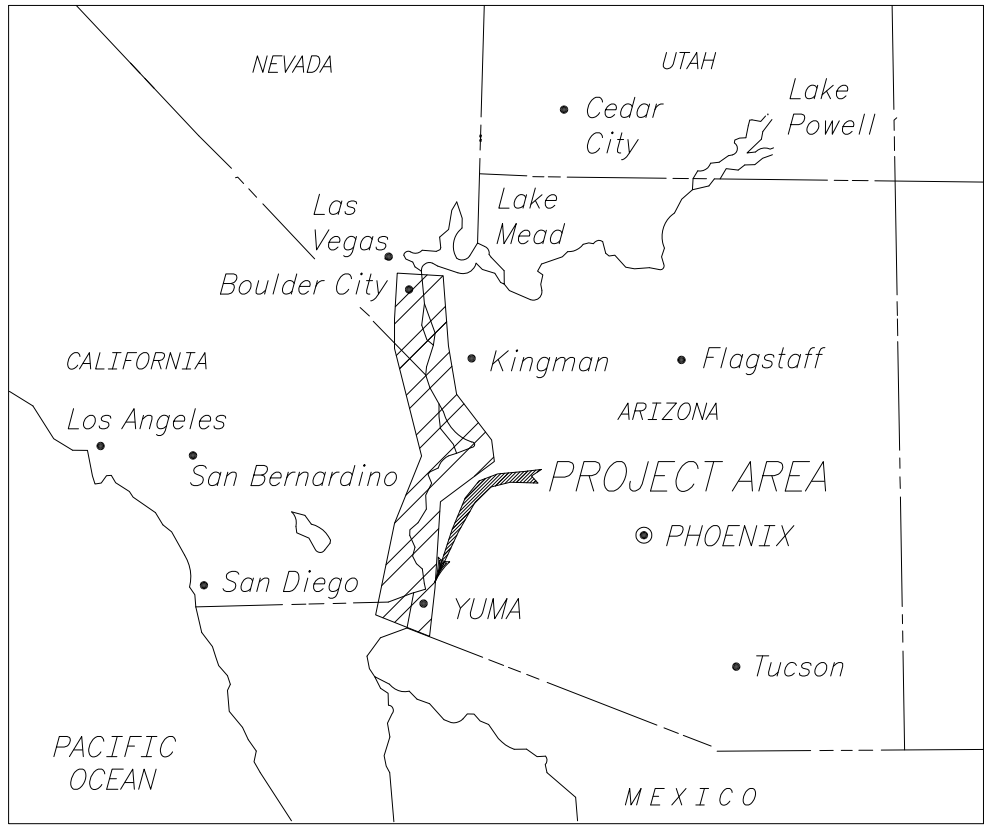
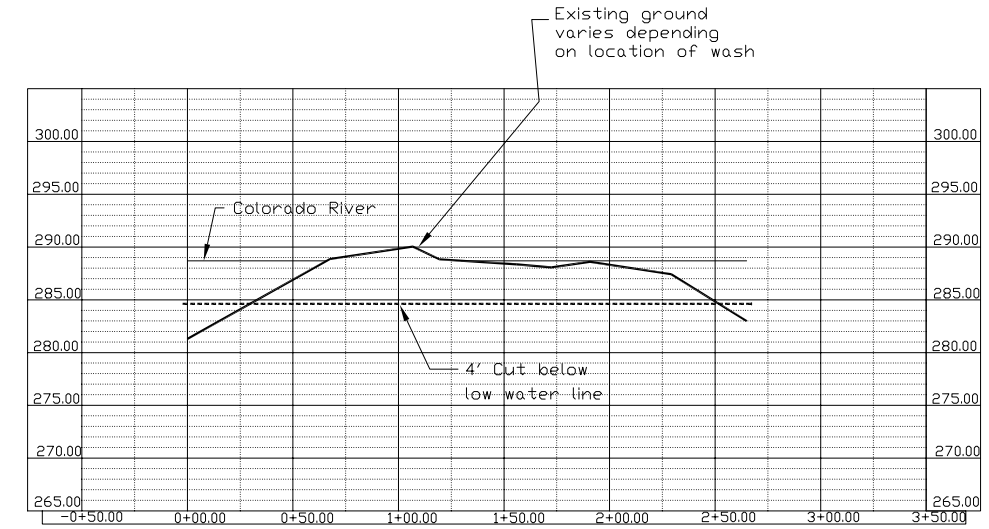
AutoCAD Rel. 18.1s	1163-303-0685-1-01.DWG	DECEMBER 7, 2011 15:20
YUMA, ARIZONA MARCH 23, 2000 SHEET 1 OF 1		1163-303-685

423-303-2908

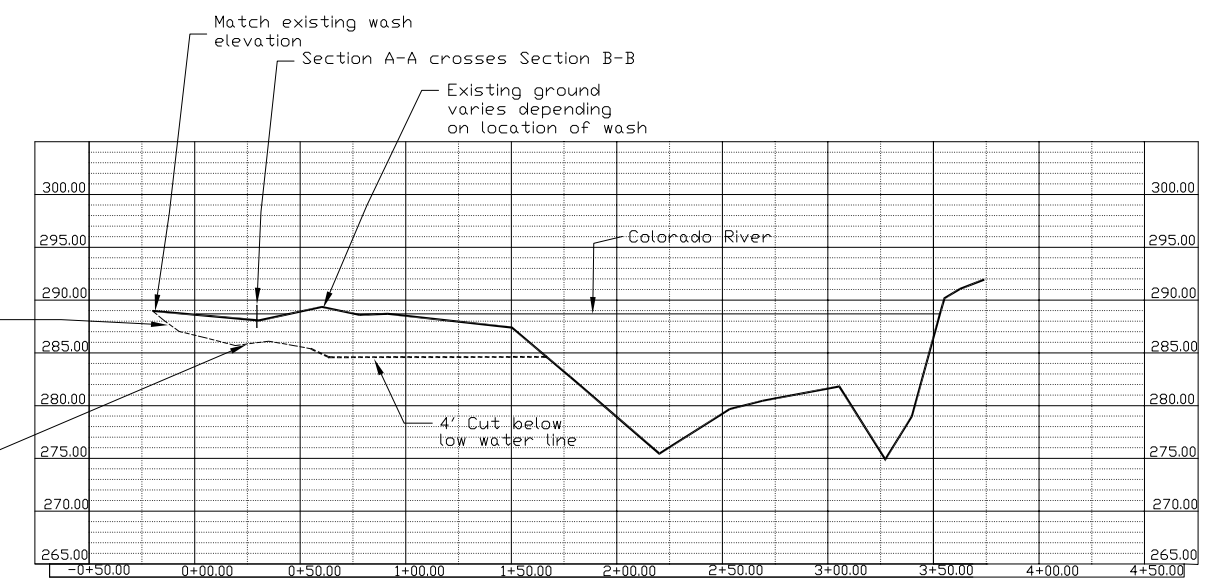


KEY MAP



SECTION A-A

(ELEVATIONS AND STATIONS ARE FOR INFORMATION ONLY
THEY VARY DEPENDING ON THE LOCATION)
(NOT TO SCALE)



SECTION B-B

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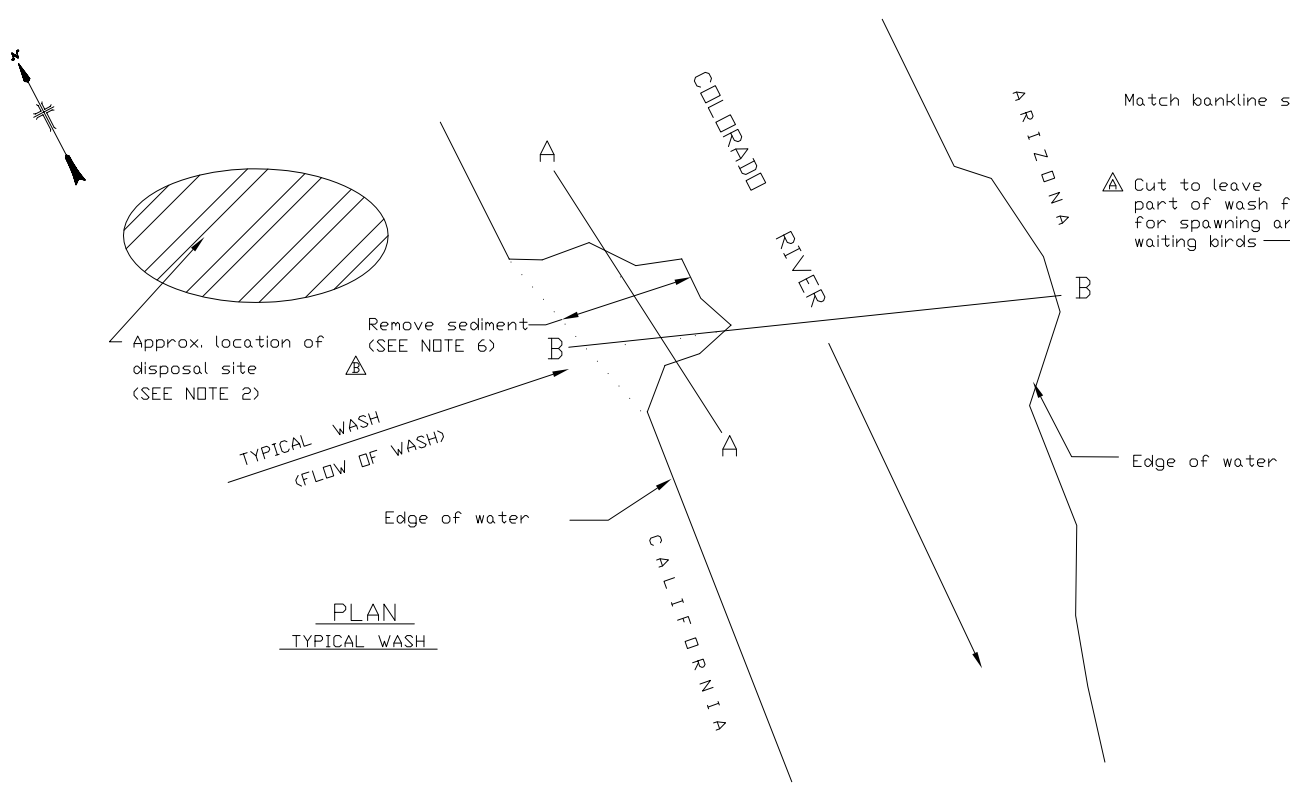
THEY VARY DEPENDING ON THE LOCATION)
(NOT TO SCALE)



PLAN

TYPICAL WASH

NOTES:

1. All dimensions and quantities vary at each wash.
2. Disposal sites vary depending on wash fan locations.
3. Survey's are required before and after construction.
4. Size of wash fans shall vary depending on the flows in typical side washes.
5. Typical wash fans sediment removal is at 4' below low water elevation.
6. Removal of material from wash fans varies from 3,000 CYDS. up to 16,000 CYDS. per wash fan.

2011-12-07 303-J.L.S.	B	ADDED NOTE 6 ON QAUNITYIES.
5-17-01 303-J.L.S.	A	CHANGE IN SECTION B-B.

Design Concurrence ENVIRONMENTAL SUPPORT TEAM: CHRIS BATES

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YUMA DIVISION – ARIZONA – CALIFORNIA – NEVADA

WASH FANS

TYPICAL SECTIONS
PLAN, SECTIONS, AND KEY MAP

DESIGNED J. L. SANDERSON C.E.T. TECH. APPR. MIKE IGOE P.E.
DRAWN J. L. SANDERSON C.E.T. SUBMITTED STEVE MESSTINGER P.E.
CHECKED MIKE IGOE P.E. APPROVED RAYMOND KETTLEWELL P.E. CHIEF OF ENGINEERING

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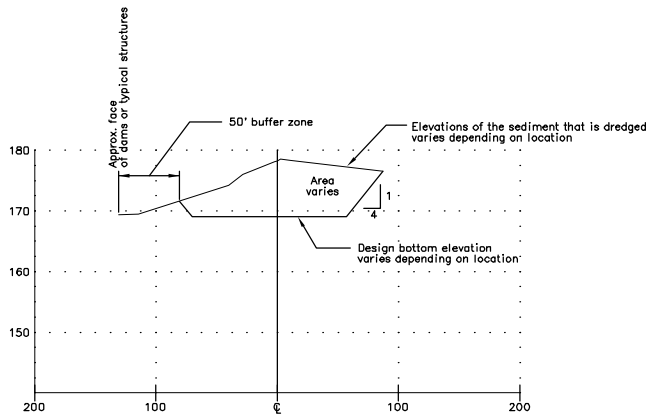
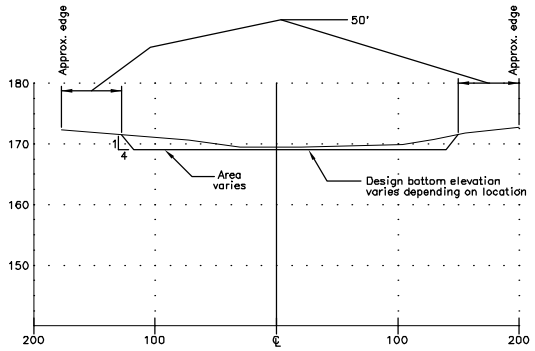
SHEET 1 OF 1

423-303-2909

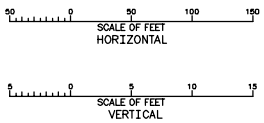


TYPICAL SECTION AT DAMS



TYPICAL SECTION AT INLET AND OUTLET

SCALES:



3-14-00 J.L.S.	2 CHANGE IN TYPICAL SECTIONS.
Design Concurrence	ENVIRONMENTAL SUPPORT TEAM: CHRIS BATES

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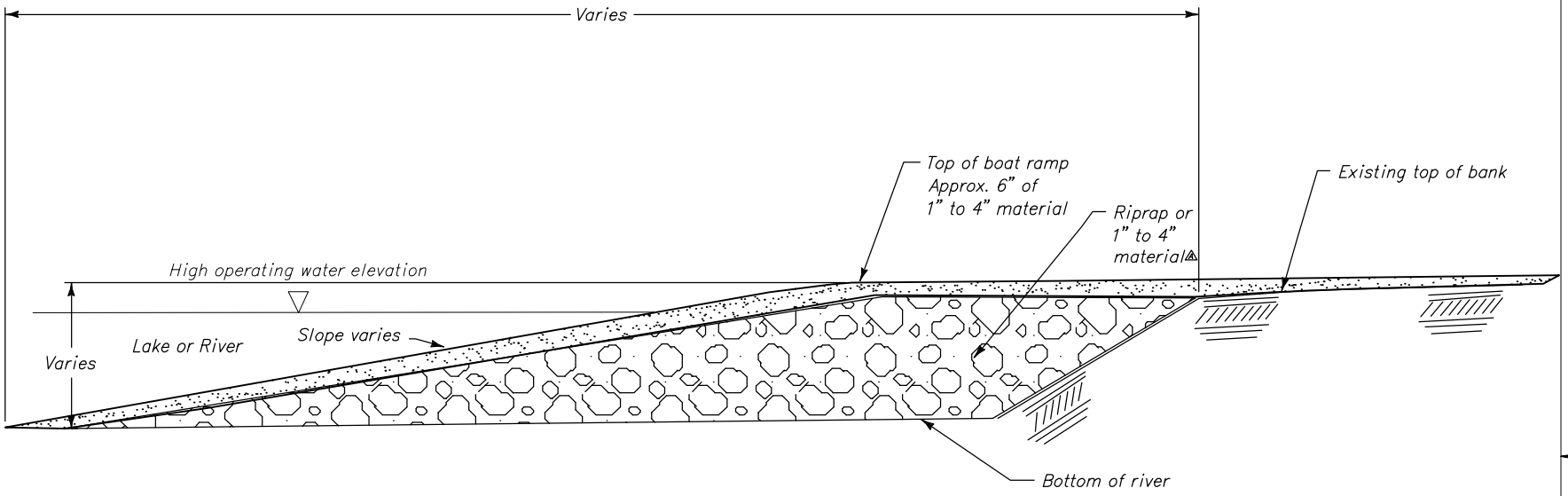
TYPICAL INLET DREDGING

DREDGING IN FRONT OF EXISTING INLET STRUCTURES
TYPICAL SECTIONS

DESIGNED	J. L. SANDERSON C.E.T.	TECH. APPR.	MIKE IGOE P.E.
DRAWN	J. L. SANDERSON C.E.T.	SUBMITTED	STEVE MESSINGER P.E.
CHECKED	MIKE IGOE P.E.	APPROVED	RAYMOND KETTLEWELL P.E. CHIEF OF ENGINEERING SUPPORT BRANCH

CADD SYSTEM AutoCAD Rel. 17.0a	CADD FILENAME 423-303-2908-1-2.DWG	DATE AND TIME PLOTTED OCTOBER 20, 2008 11:07
YUMA, ARIZONA	FEB. 23, 2000 SHEET 1 OF 1	423-303-2909

1163–303–686



BOAT RAMP TYPICAL SECTION

(NOT TO SCALE)

NOTES:

1. Drawing is not to scale.
2. Compaction shall be obtained by bringing the material to optimum moistures and then wheel rolling with heavy equipment or loaded haul trucks.
3. Boat ramps are approx. 30' wide and length will vary.
4. Approx. 1,000 cubic yards of material may need to be removed to shape ramp.
5. Approx. 1,000 cubic yards of clean riprap, and 500 cubic yards of 1" to 4" material will be used for ramp.

303–J.L.S. 4–5–2000	CHANGE IN TEXT.
Design Concurrence Maintenance Division: Doug Lancaster	

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BOAT RAMP
TYPICAL SECTION

DESIGNED Jeff L. Sanderson C.E.T. TECH. APPROVAL Mike Igoe P.E.
DRAWN Jeff L. Sanderson C.E.T. SUBMITTED Steve Messinger P.E.
CHECKED Mike Igoe P.E. APPROVED Steve Messinger P.E.
CHIEF OF ENGINEERING

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AutoCAD Rel. 17.0s	1163–303–0686–1–DWG	OCTOBER 20, 2006 11:10
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