PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

BUILDING STRONG®

APPLICATION FOR PERMIT
Virgin River Bridge No. 1

Public Notice/Application No.: SPL-2015-00154-JMR
Project: Virgin River Bridge No. 1 (015 MO 009 H8760 01L)
Comment Period: October 15, 2020 through November 14, 2020
Project Manager: Jesse Rice; (602) 230-6854; Jesse.M.Rice@usace.army.mil

Applicant
Audra Merrick
Arizona Department of Transportation
1959 S. Woodlands Village Blvd.
Flagstaff, Arizona 86001

Contact
Israel Garcia
Arizona Department of Transportation
1611 West Jackson Street
Phoenix, Arizona 85007

Location

Interstate 15 (I-15) at the Virgin River, within the community of Littlefield, Mohave County, AZ (Latitude: 36.89385, Longitude: -113.91912).

Activity

The Arizona Department of Transportation (ADOT) is proposing to replace the Virgin River Bridge No. 1, which is located within the Community of Littlefield, Arizona. The project would consist of the following activities within waters of the U.S.: construct access routes and work areas needed to replace a five-span concrete bridge with a three-span concrete bridge; remove sandbags and mortar from the Little Jamaica Pool and place boulders to prevent illegal access and reduce safety hazards; and enhance and restore 8.575 acres of riparian habitat in waters of the U.S (see attached drawings). The proposed project would result in 0.293 acre of permanent impacts and 5.424 acres of extended temporary impacts (lasting approximately 24 months) to waters of the U.S. For more information, see the Additional Project Information section below.

Submittal of Public Comments

Interested parties are hereby notified an application has been received for a Department of the Army permit for the activity described herein and shown on the attached drawings. We invite you to review today's public notice and provide views on the proposed work. By providing substantive, site-specific comments to the Corps Regulatory Division, you provide information that supports the Corps' decision-making process. All comments received during the comment period become part of the record and will be considered in the decision. This permit will be issued, issued with special conditions, or denied under Section 404 of the Clean Water Act.

During the Coronavirus Health Emergency, Regulatory Program staff are teleworking. Please do not mail hard copy documents, including comments to any Regulatory staff. Instead, your comments should be submitted electronically to: Jesse.M.Rice@usace.army.mil. Should you have any questions or concerns about the Corps' proposed action or our comment period, you may contact Jesse Rice directly at (602) 230-6854.

The mission of the U.S. Army Corps of Engineers Regulatory Program is to protect the Nation's aquatic resources, while allowing reasonable development through fair, flexible and balanced permit decisions. The Corps evaluates permit applications for essentially all construction activities that occur in the Nation's waters, including wetlands. The Regulatory Program in the Los Angeles District is executed to protect aquatic resources by developing and implementing short- and long-term initiatives to improve regulatory products, processes, program transparency, and customer feedback considering current staffing levels and historical funding trends.

Corps permits are necessary for any work, including construction and dredging, in the Nation's navigable water and their tributary waters. The Corps balances the reasonably foreseeable benefits and detriments of proposed projects, and makes permit decisions that recognize the essential values of the Nation's aquatic ecosystems to the general public, as well as the property rights of private citizens who want to use their land. The Corps strives to make its permit decisions in a timely manner that minimizes impacts to the regulated public.

During the permit process, the Corps considers the views of other Federal, state and local agencies, interest groups, and the general public. The results of this careful public interest review are fair and equitable decisions that allow reasonable use of private property, infrastructure development, and growth of the economy, while offsetting the authorized impacts to the waters of the United States. The permit review process serves to first avoid and then minimize adverse effects of projects on aquatic resources to the maximum practicable extent. Any remaining unavoidable adverse impacts to the aquatic environment are offset by compensatory mitigation requirements, which may include restoration, enhancement, establishment, and/or preservation of aquatic ecosystem system functions and services.

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 Part 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 an environmental impact statement is not required for the proposed work.

Water Quality- The applicant is required to obtain water quality certification, under Section 401 of the Clean Water Act, from the Arizona Department of Environmental Quality. Section 401 requires any applicant for an individual Section 404 permit provide proof of water quality certification to the Corps of Engineers prior to permit issuance.

Coastal Zone Management- Not applicable within the State of Arizona.

Essential Fish Habitat- No Essential Fish Habitat (EFH), as defined by the Magnuson-Stevens Fishery Conservation and Management Act, occurs within the project area and no EFH is affected by the proposed project.

Cultural Resources- The latest version of the National Register of Historic Places has been consulted and this site is not listed. This review constitutes the extent of cultural resources investigations by the District Engineer, and he is otherwise unaware of the presence of such resources.

Endangered Species- Preliminary determinations indicate the proposed activity may affect federally listed endangered or threatened species, or their critical habitat. Formal consultation under Section 7 of the Endangered Species Act is required for this project.

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

Basic Project Purpose- The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed project, and is used by the Corps to determine whether the applicant's project is water dependent (i.e., requires access or proximity to or siting within the special aquatic site to fulfill its basic purpose). Establishment of the basic project purpose is necessary only when the proposed activity would discharge dredged or fill material into a special aquatic site (e.g., wetlands, pool and riffle complex, mudflats, coral reefs). The basic project purpose for the proposed project is transportation. The project is not water dependent.

Overall Project Purpose- The overall project purpose serves as the basis for the Corps' 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the project, and which allows a reasonable range of alternatives to be analyzed. The overall project purpose for the proposed project is to repair

structural deficiencies and safety concerns at Virgin River Bridge No. 1 and maintain I-15 as a commercial and transportation corridor by better accommodating truck traffic and volumes.

Additional Project Information

Baseline information- I-15 spans 29 miles across the northwest corner of Arizona and provides a vital link between the states of California, Nevada, Arizona, Utah, and beyond. The Arizona portion of I-15 includes seven bridges over the Virgin River, all of which were constructed in the 1960s and 1970s; Bridge No. 1 was constructed in 1964. This stretch of interstate carries a high percentage of truck traffic (as high as 38 percent) and is the only road in Arizona permitted to carry triple tractor trailers. As I-15 ages, truck traffic can increase the rate at which the roadway pavement and bridge infrastructure deteriorate. In addition, the shoulders within the project limits are as narrow as 2 feet wide and do not allow room for trucks or other vehicles to pull off the road.

The Virgin River's origin is in southwestern Utah north of Zion National Park. It runs generally southwest through the Virgin River Gorge in Arizona, to the Colorado River, and empties into Lake Mead, Nevada. Water in the Virgin River is derived from rainfall, snowmelt, and from groundwater entering via seeps and springs. Snowmelt makes up the largest part of annual flows and usually causes the highest monthly flows each year from March to May. Low flows usually occur from June to October. Within the project limits the Virgin River is considered perennial but flows are variable. Flows at a U.S. Geological Survey gaging station 0.4 mile downstream of Bridge No. 1 ranged from 2,000 to 30,000 cubic feet per second. Segments of the Virgin River can dry up on rare occasions. Beaver Dam Wash is the largest tributary in the Virgin River Basin and enters the Virgin River about 0.25 mile upstream (northwest) of Bridge No. 1 outside the project limits. Beaver Dam Wash is intermittent and ephemeral in upstream reaches but tends to be perennial at its confluence with the Virgin River.

The project is in the Virgin Valley within the Mojave Desert scrub biotic community. The elevation is approximately 1,784 to 1,905 feet. A variety of land uses occur in the project vicinity including agriculture, grazing, recreation, and rural residential. Agriculture and grazing are found south of the project area, and rural residences are present near the project area. An unauthorized recreational feature has been developed at the project location by damming discharge from a spring to create a pool area in the river channel within the ADOT right-of-way (ROW): Little Jamaica Pool.

The landscape adjacent to the floodplain is largely composed of rolling hills incised by deep arroyos and erosional rills. The wide, and at times incised, Virgin River floodplain is the primary physical feature in the local terrain. The Virgin River has been disturbed at this location through construction of the transportation corridor. The unauthorized modification adjacent to the riverbed to create the Little Jamaica Pool has also resulted in disturbed conditions. The river is generally constrained to a low-flow channel between 25 to 75 feet wide and 2 to 4 feet deep, except during periods of high flow when it can expand to a width of up to 400 feet wide. The river forms an S-curve and meanders through the project limits, resulting in the deposition of sandy soils across the floodplain. The stream bed is primarily soft with areas of small-to-medium cobbles, creating short sections of rapids north and south of the bridge.

Project description- Virgin River Bridge No. 1:
ADOT is proposing to remove the existing I-15 bridge and its piers and replace it with a new structure. The current five-span bridge would be replaced with a three-span bridge in the same general footprint. In order to complete the replacement, temporary access for cranes and other large equipment is required at the base of the bridge within waters of the U.S. To reach the work area, ADOT would construct a temporary access road from lands to the northeast and down into the canyon. This access road would then split, with one branch crossing the river to the main work area and the other

staying along the eastern side of the river to access a bridge pier for removal. Fill to construct the access road into the canyon would be sourced from a borrow area adjacent to the canyon on the northeast side. In order to cross the low-flow channel and access the west side of the river, a temporary bridge would be constructed. The temporary bridge's abutments and/or piers would be sufficiently reinforced to prevent them from washing out during high flows, and the deck would be picked up and removed by crane when flows in the river are forecasted to exceed the two-year flow event.

The work area on the western side of the river would consist of a level area clear of vegetation with temporary crane pads beneath the bridge. Temporary fill needed for the crane pads and to level the work area would be armored using concrete L-paneling along the low-flow channel. Cofferdams would be used remove the existing piers, drill new pier shafts, and construct the new piers. Bridge replacement is anticipated to last approximately 24 months.

Little Jamaica:
Little Jamaica is a man-made pool built on a rock shelf adjacent to the river on the southeast side of the bridge. A low wall built of sandbags and natural mineral deposits captures water cascading from a spring located at the top of the canyon adjacent to I-15. Both the spring and the pool are located within ADOT ROW and the feature was constructed without ADOT authorization. Furthermore, an adjacent landowner has excavated an unauthorized ditch within ADOT ROW and in waters of the U.S. to divert the water to private property. Since these features are resulting in trespassing, resource damage, and public health and safety hazards, ADOT is proposing to remove the pool and prevent further disturbance of the spring.

ADOT would deconstruct the pool by removing the sandbags and mortar from the rock platform. To prevent the pool from being rebuilt on the platform, 18-inch rock material would be placed at the base of the canyon wall. To prevent redirection of the spring flow, ADOT would restore the unauthorized ditch and construct a four-foot high concrete barrier adjacent the water's original flow path in non-jurisdictional uplands.

Riparian Habitat Restoration and Enhancement:
Habitat restoration activities would be conducted within the ADOT ROW (reestablishment/enhancement) and on adjacent Bureau of Land Management (BLM) land (enhancement). Based on the plan submitted with the application, proposed activities would include vegetation salvage, grading and recontouring of the channel and adjacent floodplain to pre-project elevations, invasive species removal/control, boulder placement for hydrologic and off-road vehicle protection, and planting with native woody species. Plantings will include live willow stakes and cottonwood poles and various mixes of hydroseed. Plantings would be monitored for up to 5 years and would need to meet performance measures established in the plan. While much of this work would be completed to reestablish vegetation in areas impacted by the bridge replacement, a portion of the proposed work (4.77 acres) would be completed to enhance existing riparian habitat adjacent to the project area.

Proposed Mitigation– The proposed mitigation may change as a result of comments received in response to this public notice, the applicant's response to those comments, and/or the need for the project to comply with the 404(b)(1) Guidelines. In consideration of the above, the proposed mitigation sequence (avoidance/minimization/compensation), as applied to the proposed project is summarized below:

Avoidance: Waters of the U.S. cannot be avoided while replacing the bridge structure. Access is needed to the river bottom to remove and replace the bridge piers and girders, and the work cannot

be completed from the existing bridge deck or canyon walls. However, waters of the U.S. have been avoided to the maximum extent possible.

Minimization: The applicant has minimized impacts to waters of the U.S. in several ways. For example, access to the bridge would be constructed along the most direct route available and the work area minimized. Flows from the spring that supplies Little Jamaica would be left in a natural state and avoided except for a temporary access road needed to construct the barrier. Additionally, clean fill would be used from upland source instead of sources available within waters of the U.S., reducing potential adverse impacts to endangered species and stream morphology.

Other minimization efforts would include:

(a) Clean fill will be located and confined within cement retaining L walls on temporary work pads to minimize the introduction of sediment and the smothering of organisms.

(b) The temporary access bridge is designed to maintain flow and reduce disruption of the Virgin River low-flow channel. No work would occur within open water.

(c) The construction site uses areas that have been previously disturbed during original VRB1 construction (1960s).

(d) Fill substrate is composed of clean material similar in texture to that of work area substrate. Fill material will be obtained from within the project boundaries.

(e) A debris containment plan would be implemented to ensure that no debris enters waters of the U.S. during removal of the existing bridge.

(f) Fill material will not create any standing bodies of water or drain any bodies of water.

(g) The contractor will design and install a containment system that contains all cement sludge/slurry created during pier construction. No cement or cement slurry will be allowed to discharge into the Virgin River 100-year floodplain or low-flow channel. Cement work activity will be contained on the dry cofferdam temporary construction pad away from the Virgin River low-flow channel.

(h) A stormwater pollution prevention plan would be developed and implemented.

(i) All work would cease, and all equipment would be removed from the site when a 2-year flow event or greater is forecasted to occur. The temporary bridge would be removed to bridge damage or loss of the bridge.

(j) Once work is complete, all temporary fills and structures would be removed and the area restored back to its original conditions and contours. The applicant would conduct reestablishment and enhancement activities on 8.575 acres of waters of the U.S. once construction is complete. Rock sills consisting of boulder material would be installed to prevent off-road vehicle use within the reestablishment areas and provide protection to newly established vegetation from high flows.

Compensation: The proposed project would result in 0.293 acre of permanent impacts and 5.424 acres of extended temporary impacts (lasting approximately 24 months) to waters of the U.S. Of the permanent impacts, 0.186 acre would occur as a result of two new bridge piers. Since these piers would replace two existing piers which are of similar size, the net permanent impact to waters of the U.S. is lower (0.107 acres). The remaining impacts are associated with the removal of Little Jamaica (0.011 acre) and the boulders that would be placed as part of the habitat restoration (0.96 acre).

Reestablishment and enhancement activities would occur in 8.575 acres of waters of the U.S., including 4.77 acres that are located outside the bridge construction footprint. By incorporating habitat restoration into the project design, aquatic resource functions and values are expected to increase as a result of the project. Therefore, no compensatory mitigation has been proposed.

Proposed Special Conditions

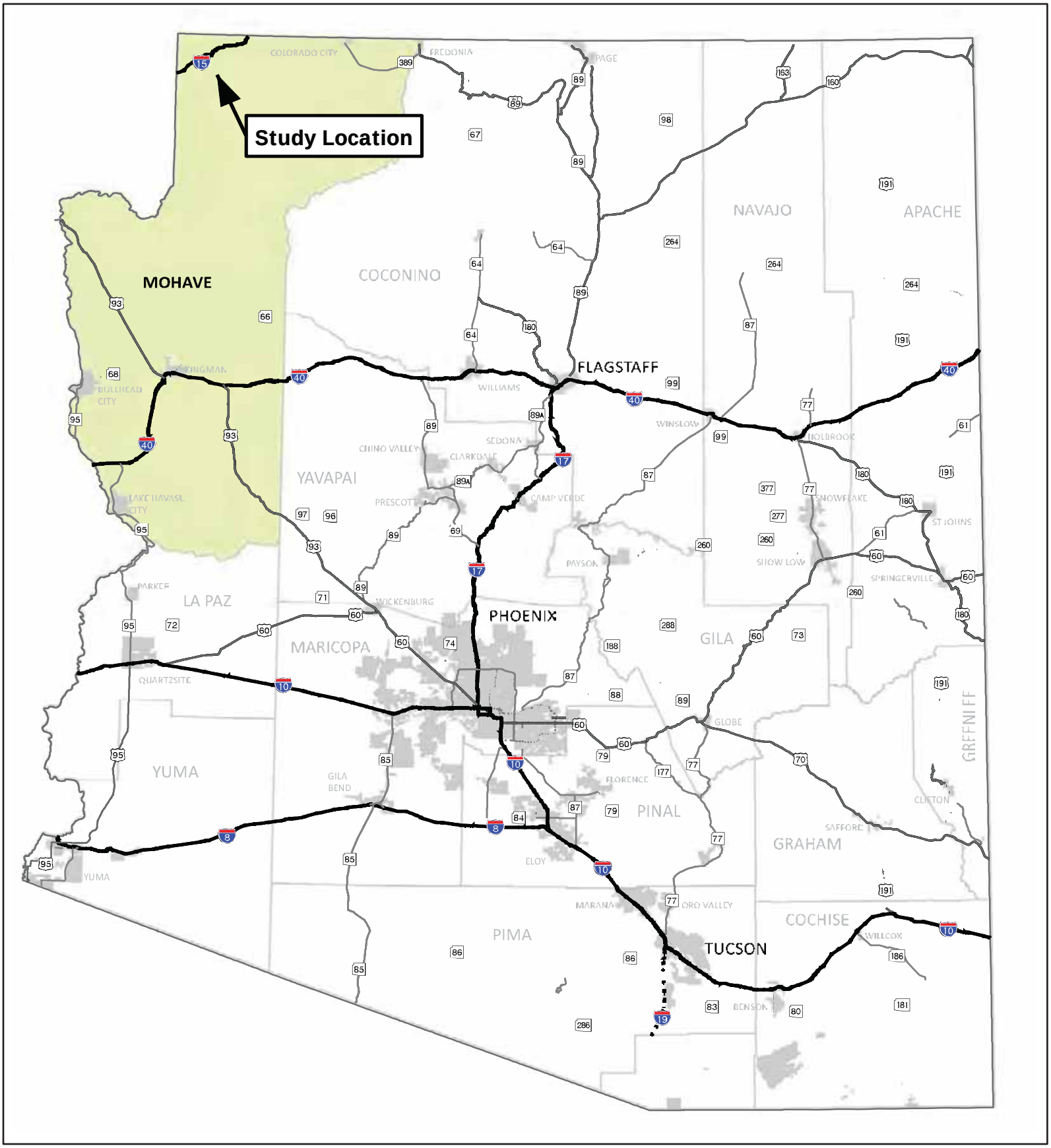
Special conditions are still being developed for the proposed project.

For additional information please call Jesse Rice of my staff at (602) 230-6854 or via e-mail at Jesse.M.Rice@usace.army.mil. This public notice is issued by the Chief, Regulatory Division.

Regulatory Program Goals:

- To provide strong protection of the nation's aquatic environment, including wetlands.
- To ensure the Corps provides the regulated public with fair and reasonable decisions.
- To enhance the efficiency of the Corps' administration of its regulatory program.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, U.S. ARMY CORPS OF ENGINEERS
WWW.SPL.USACE.ARMY.MIL/MISSIONS/REGULATORY

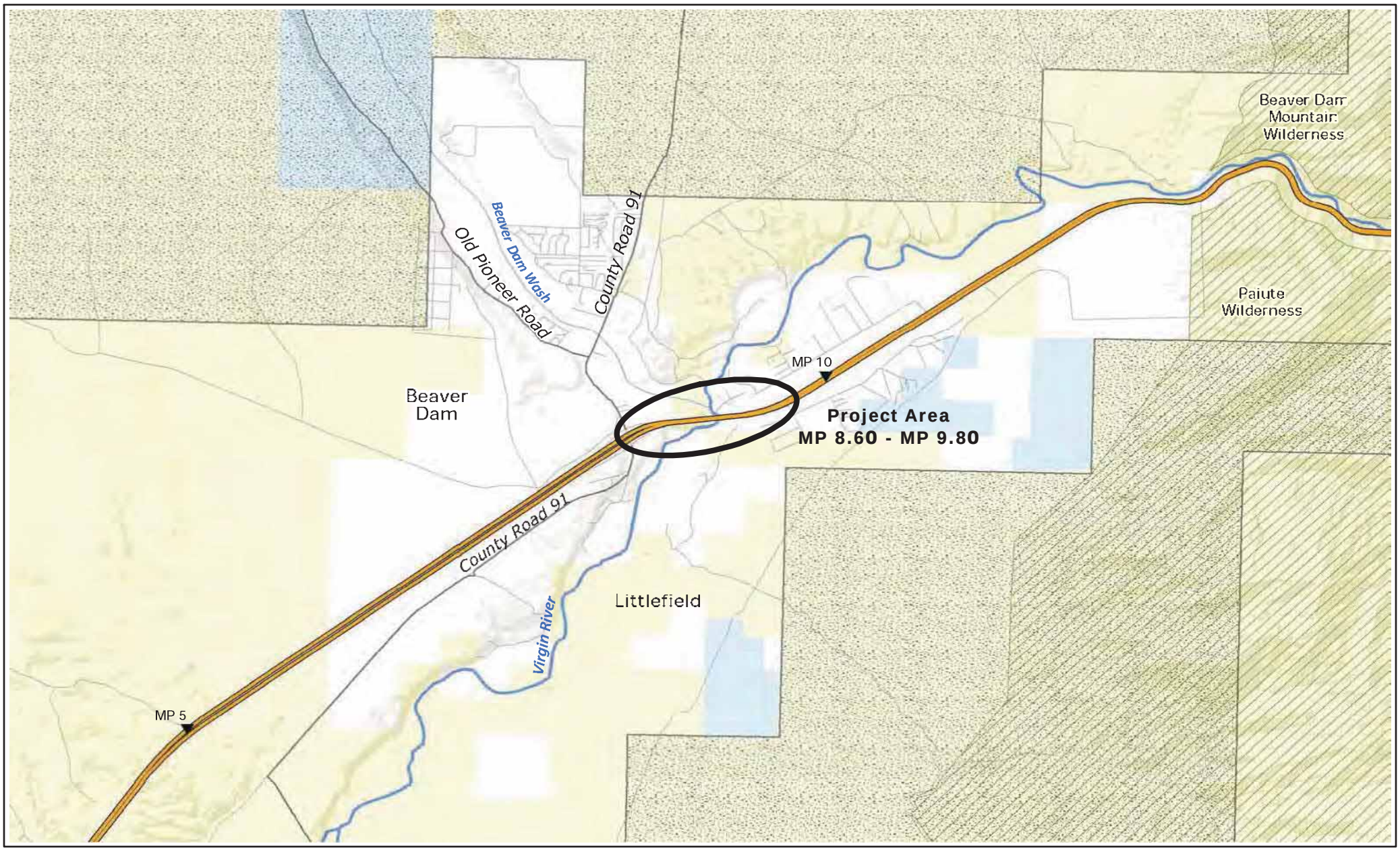


INTERSTATE HIGHWAYS
US HIGHWAYS
STATE HIGHWAYS
COUNTY BOUNDARY
CITY BOUNDARY
MOHAVE COUNTY

0 50 100 Miles

Source: Arizona Land Resource Information System 2013
Arizona Department of Transportation 2013

Figure 1 Site Location Map
Virgin River Bridge 1
Arizona Department of Transportation
Mohave County, Arizona

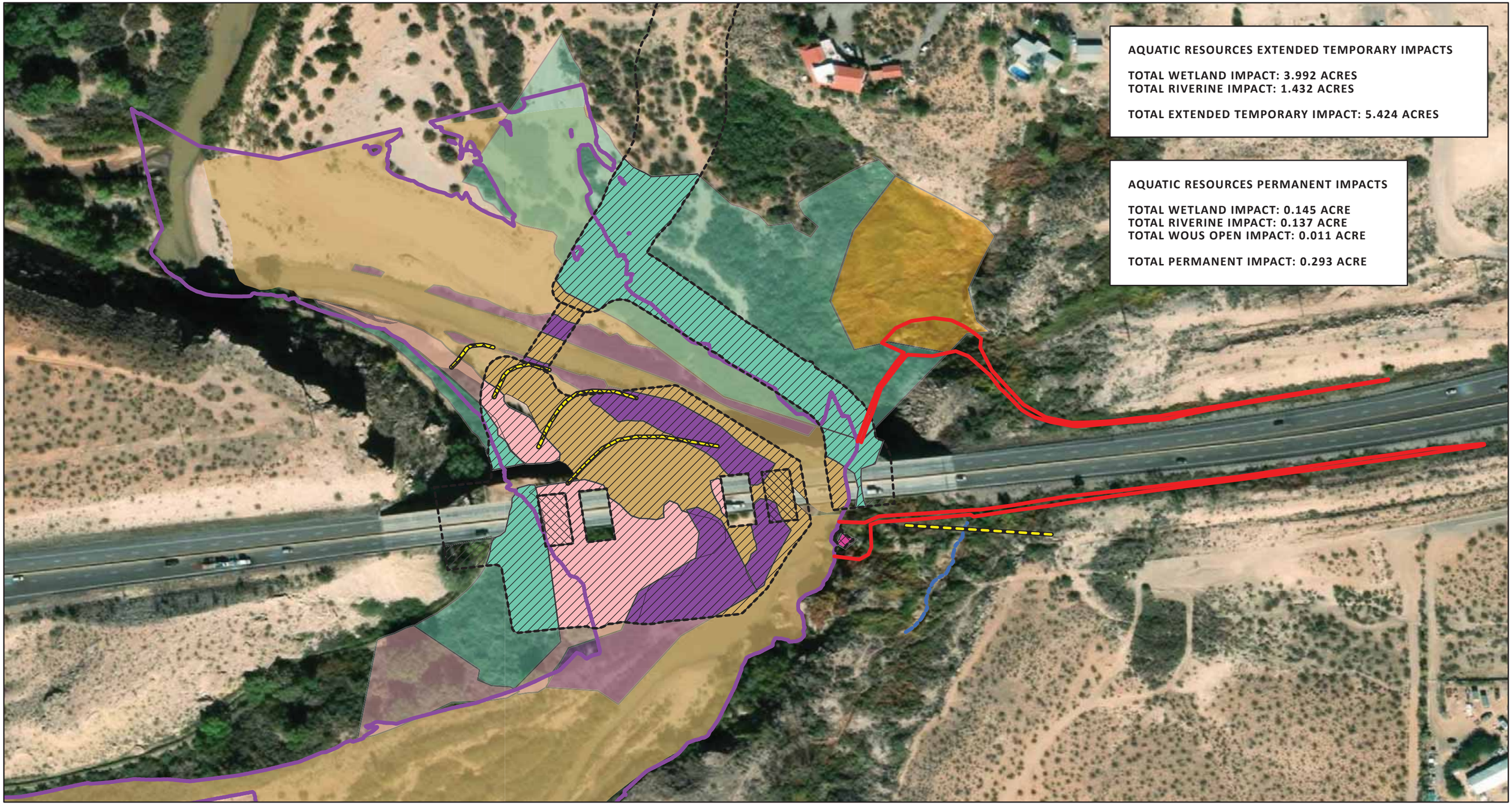


VIRGIN RIVER
INTERSTATE
LOCAL ROAD
MOJAVE DESERT TORTOISE CRITICAL HABITAT
WILDERNESS AREA
STATE BOUNDARY
BUREAU OF LAND MANAGEMENT
PRIVATELY OWNED
ARIZONA STATE LAND DEPARTMENT

0 0.5 1 Miles

Source: Esri 2013; Arizona Land Resource Information System 2013; Arizona Department of Transportation 2013, Bureau of Land Management 2014

Figure 2 Project Vicinity
Virgin River Bridge 1
Arizona Department of Transportation
Mohave County, Arizona



Legend

- CONSTRUCTION LIMITS
- EXTENDED TEMPORARY IMPACT
- PERMANENT IMPACT
- ROCK SILL
- OHWM
- OHWM 2015
- EXCAVATED CHANNEL
- LITTLE JAMAICA EXCLUSION WALL

2020 WETLAND COMMUNITY TYPES

- LITTLE JAMAICA POOL
- PHRAGMITES, PEM
- POPULUS-PLUCHEA-SALIX, PFO
- SALIX-TAMARIX-POPULUS-BACCHARIS, PSS
- TAMARIX - PLUCHEA, PFO

WETLAND DELINEATION 2015

- WOUS, RIVERINE

NOTE:
(WOUS) Waters of the United States

0 200 400 Feet

DATA Source: 2020 Vegetation survey Jacobs; Brian Boyd and Morgan King.
IMAGERY Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 4 Aquatic Resources Impact Map
Virgin River Bridge 1
Arizona Department of Transportation
Mohave County, Arizona

Legend

- REESTABLISHMENT ACTIVITY
- OHWM
- ADOT ROW
- ENVIRONMENTAL ASSESSMENT AREA OF POTENTIAL EFFECTS BOUNDARY
- BLM PARCEL BOUNDARY
- BLM ENHANCEMENT AREA
- ZONE 1: TAMARIX REMOVAL, OVER-SEEDING (APROX 6.30 ACRES)
- ZONE 2: TAMARIX REMOVAL, INSTALL COTTONWOOD POLES, OVER-SEEDING (APROX 1.94 ACRES)
- ZONE 3: TAMARIX REMOVAL, INSTALL WILLOW CANE, OVER-SEEDING (APROX 2.20 ACRES)

NOTE:
All hatched areas that fall outside of the reestablishment footprint are enhancement.

0 175 350 Feet

DATA Source: 2020 Vegetation survey Jacobs; Brian Boyd and Morgan King.
IMAGERY Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 6 VRB1 Planting Zones
Virgin River Bridge 1
Arizona Department of Transportation
Mohave County, Arizona

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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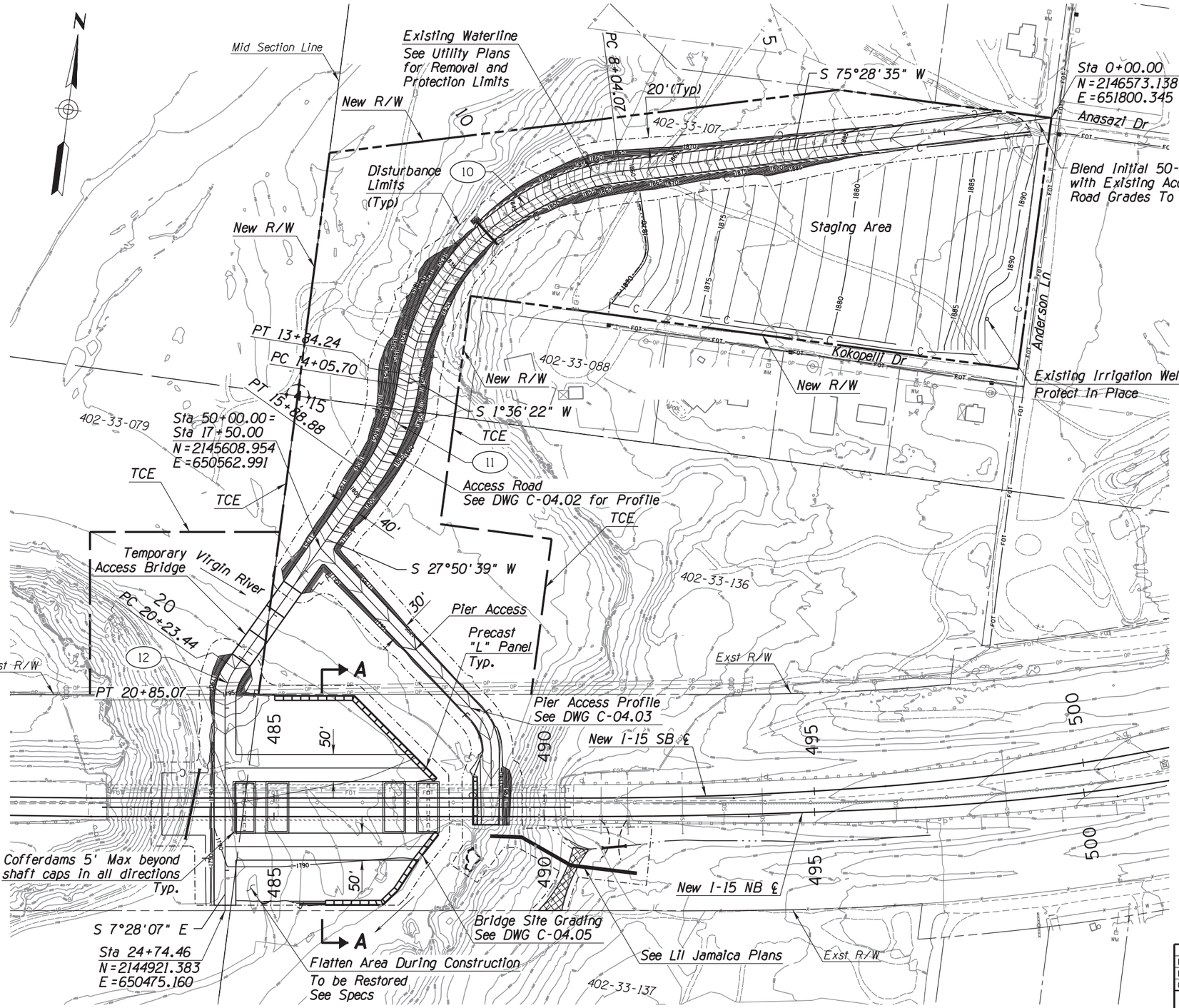
		015 MO 008			



10

CURVE DATA

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E=650694.4815
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R= 450.00'
L= 580.18'
T= 338.30'
Ext= 112.98'

11

CURVE DATA

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T= 93.22'
Ext= 10.72'

12

CURVE DATA

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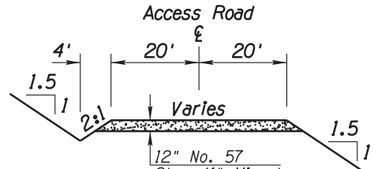


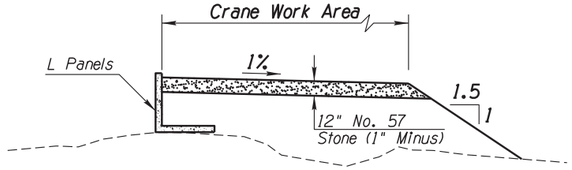
ACCESS ROAD TYPICAL SECTION

N.T.S.

NOTES:
Typical cuts are shown on the left, typical fills on the right. They apply to both sides of the roadway section.

Grade cross-slope of access road to drain away from cut.

Maximum vertical grade of access road to be 6.5%.



SECTION A-A

N.T.S.

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

Jacobs
101 N. 1st AVENUE #2600
PHOENIX, AZ 85003
T 602.253.1200
F 602.253.1202
WWW.JACOBS.COM

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD
ROAD LAYOUT

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE: I-15
LOCATION: VIRGIN RIVER BRIDGE NO. 1
TRACS NO. H8760 01C
015-A(216)S
DWG NO. C-04.01
___ OF ___

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

PLOT DATE: 6/4/2020 TIME:1:25:56 PM PLOT SCALE: 1:200 PLOT BY: srivera-HDR
SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-

1:25:56 PM c:\pwworking\west01\d0765806\h8760p05.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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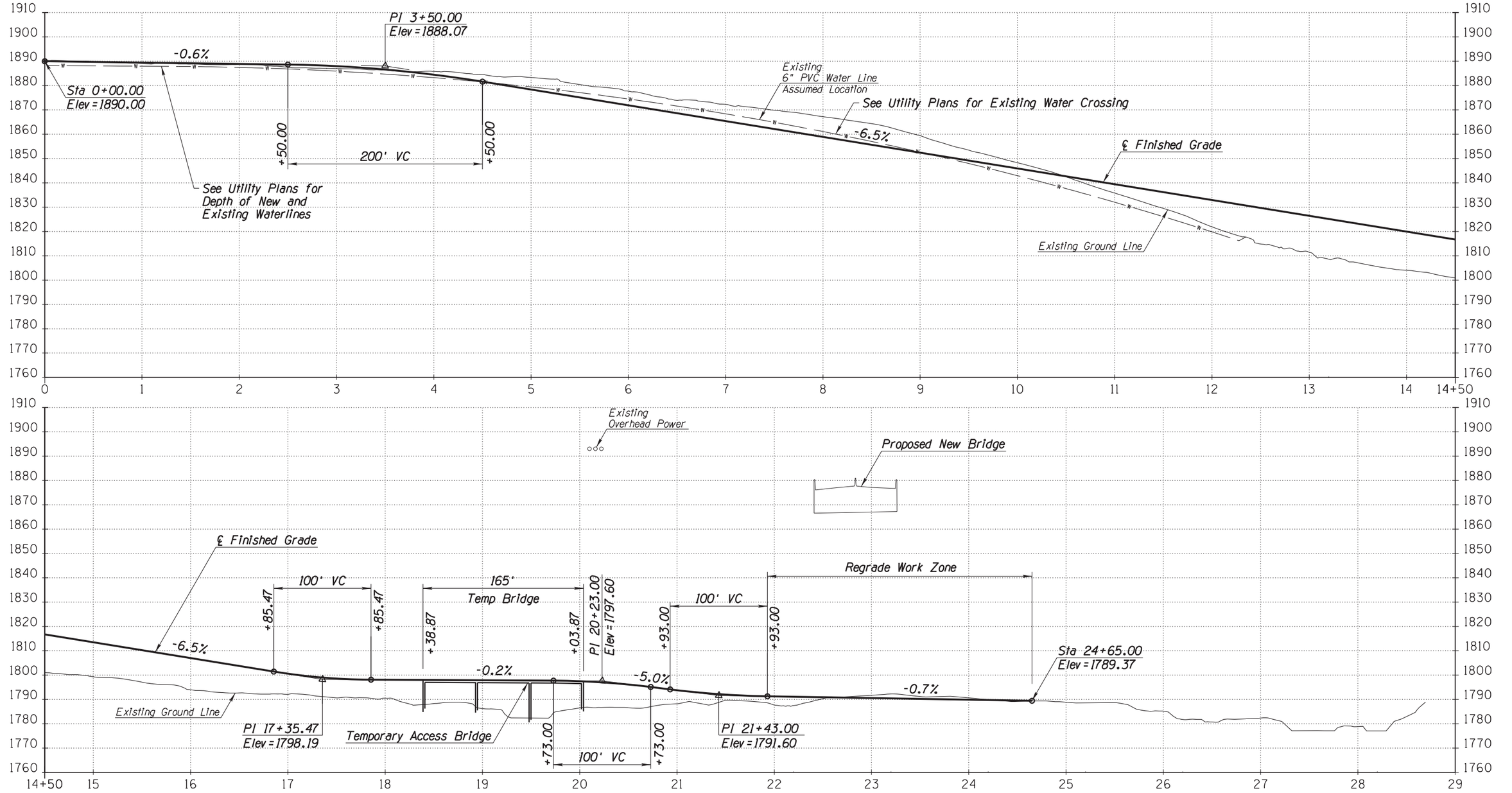

	NAME	DATE
DESIGN	MKO	06-20
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ARIZONA DEPARTMENT OF TRANSPORTATION
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ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD
ROAD PROFILE

PRELIMINARY
STAGE IV
Review
NOT FOR
CONSTRUCTION
OR RECORDING

ROUTE	LOCATION	DWG NO. C-04.02
I-15	VIRGIN RIVER BRIDGE NO. 1	
TRACS NO. H8760 01C	015-A(216)S	___ OF ___

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

PLOT DATE: 6/2/2020 TIME: 3:52:26 PM PLOT SCALE: 1:100 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

3:52:26 PM c:\pwworking\west01\d0765806\h8760p06.dgn

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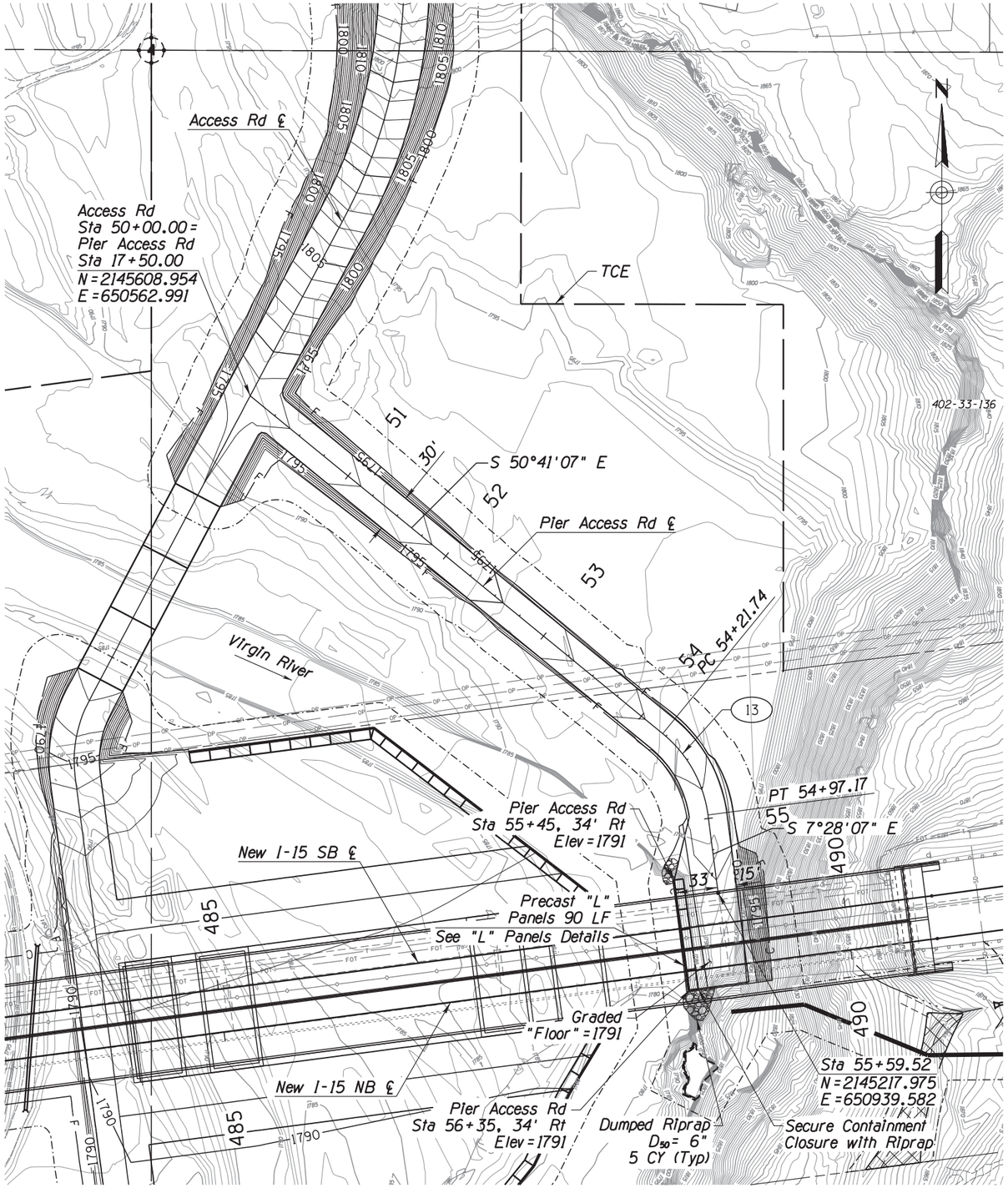
		015 MO 008			



(13) **CURVE DATA**

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D = 43°13'00"
R = 100.00'
L = 75.43'
T = 39.61'
Ext = 7.56'

Work Road Quantities
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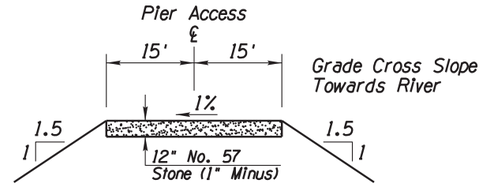
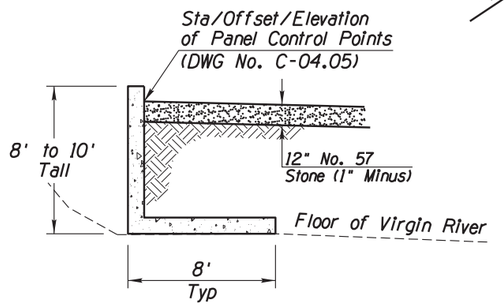
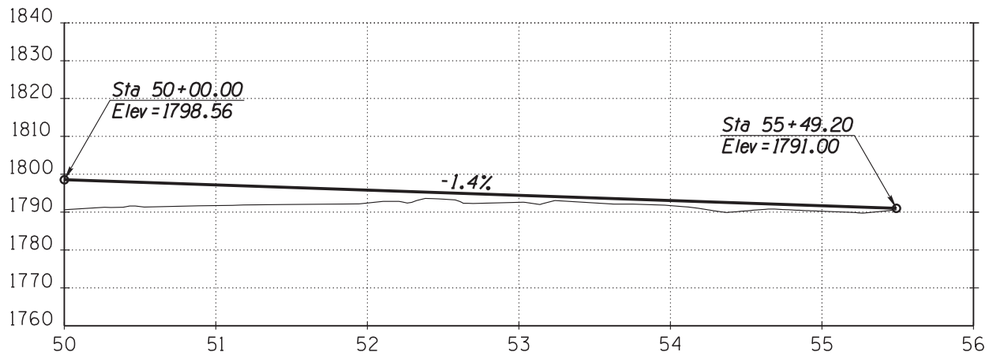
90 LF Precast L Panels



ACCESS ROAD TYPICAL SECTION
N.T.S.



L-PANEL WALL DETAIL
N.T.S.



PIER ACCESS ROAD ℄ PROFILE

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD
PIER ACCESS

ROUTE	LOCATION
I-15	VIRGIN RIVER BRIDGE NO. 1

TRACS NO. H8760 01C | 015-A(216)S | ___ OF ___

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING
DWG NO. C-04.03

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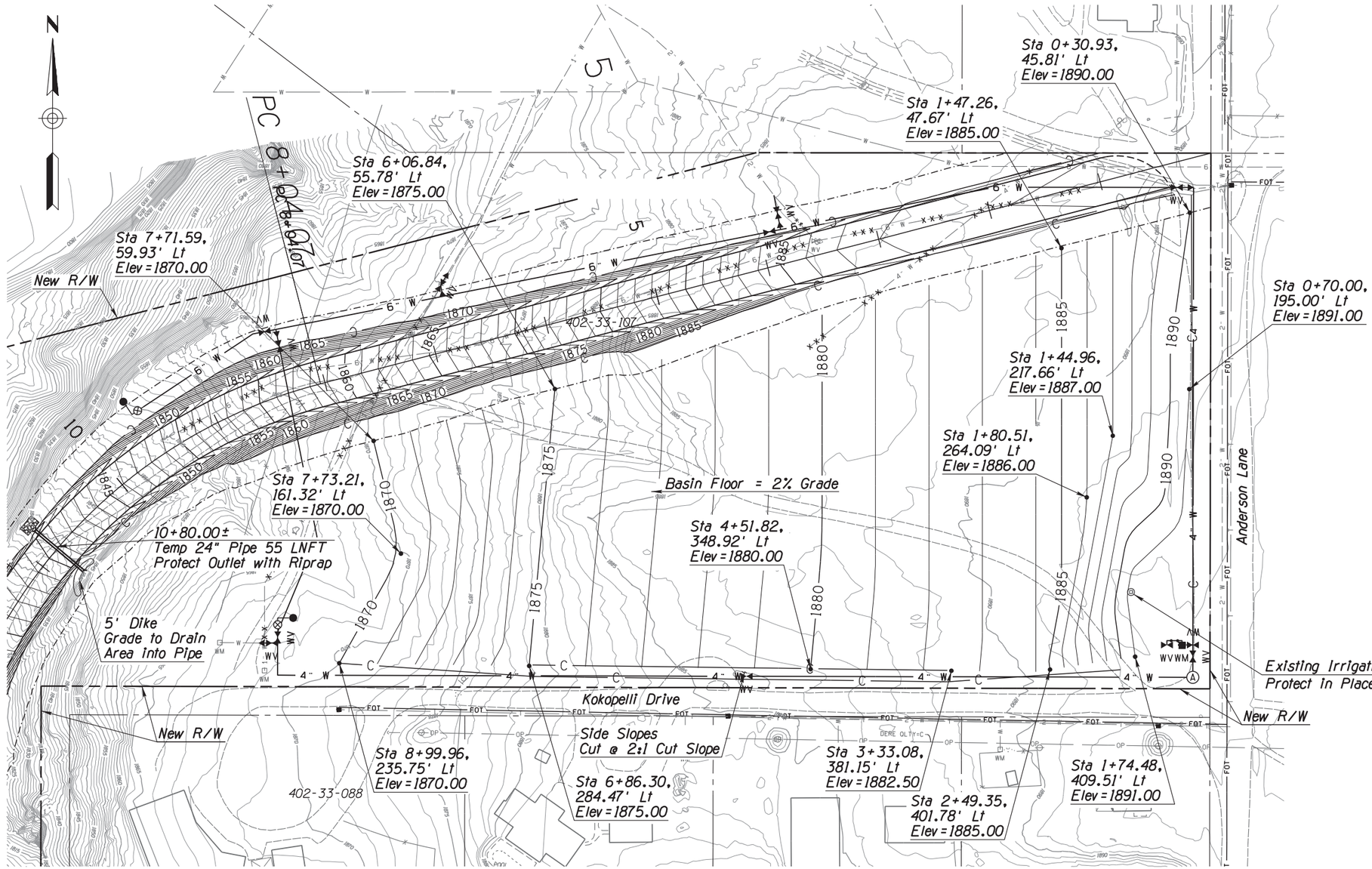
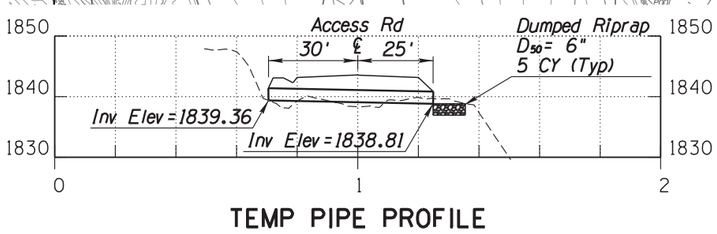
PLOT DATE: 6/4/2020 TIME: 1:28:02 PM PLOT SCALE: 1:100 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

1:28:02 PM c:\pwworking\west01\d0765806\h8760p07.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	33	192	
		015 MO 008			





TEMP PIPE PROFILE

PLOT DATE: 6/4/2020 TIME:1:52:59 PM PLOT SCALE: 1:100 PLOT BY: srivera-HDR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD
BORROW PIT EXCAVATION PLAN

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	
I-15	VIRGIN RIVER BRIDGE NO. 1	
TRACS NO. H8760 01C		015-A(216)S

DWG NO. C-04.04

____ OF ____

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1:52:59 PM c:\pwworking\west01\d0765806\h8760p08.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	34	192	
		015 M0 008			

Note:

All Elevations provided to Top of Site pad/Grading Limits.

L-Panel Control Point
Sta 20+22. 89.3' Lt
Elev = 1791.60

L-Panel Control Point
Sta 19+37. 209.4' Lt
Elev = 1791.60

A

360 LF L-Panel

L-Panel Control Point
Sta 22+30. 391.0' Lt
Elev = 1790.80

4% Berm

Temporary
24" CMP

Cofferdam
Typ.

0.5% Slope

Construction Access Road ℄

Secure Containment Closure
with Riprap (Dumped) (6-Inch)
5 CY Each Connection (Typ)

L-Panel Control Point
Sta 23+33. 394.5' Lt
Elev = 1790.30

277 LF L-Panel

L-Panel Control Point
Sta 24+37. 319.3' Lt
Elev = 1789.65

L-Panel Control Point
Sta 24+63.5. 185.8' Lt
Elev = 1789.40

L-Panel Control Point
Sta 24+63.5. 291.8' Lt
Elev = 1789.40

Irrigation Ditch
See Utility Sheets

Sta 24+65
Finish Elevation = 1789.37

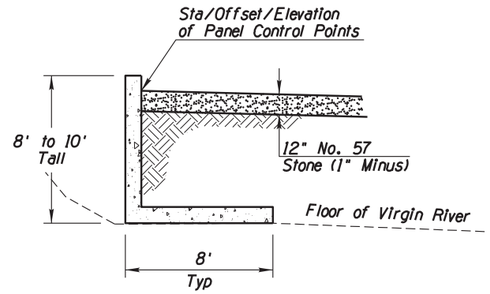
10'

1795
1790
1790
1790
1790
1790

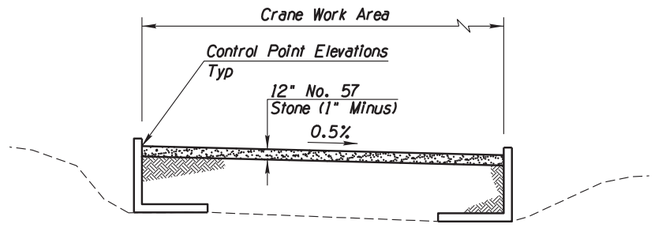
21
22
23
24

N

Work Pad Quantities
5,750 CY No. 57 Stone
637 LF Precast L Panels



L-PANEL WALL DETAIL
N.T.S.



SECTION A-A
N.T.S.

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	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD
BRIDGE SITE GRADING
WATER PROTECTION

ROUTE	LOCATION
I-15	VIRGIN RIVER BRIDGE NO. 1

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-04.05

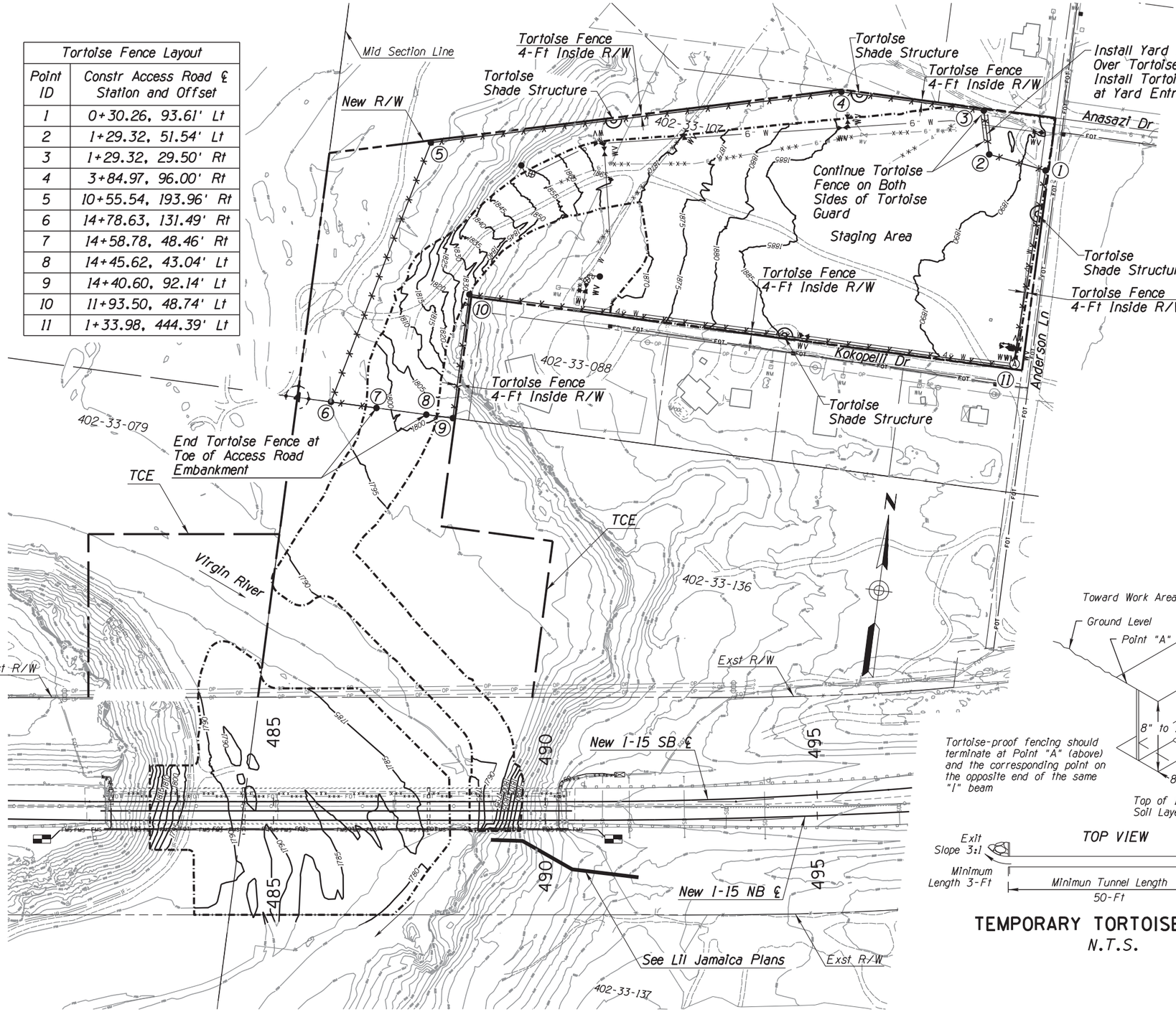
TRACS NO. H8760 01C | 015-A(216)S | ___ OF ___

PLOT DATE: 6/4/2020 TIME:1:56:07 PM PLOT SCALE: 1:50 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE- | SURVEY NO.

1:56:07 PM c:\pwworking\west01\d0765806\h8760p09.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	35	192	
		015 MO 008			

Tortoise Fence Layout	
Point ID	Constr Access Road ℄ Station and Offset
1	0+30.26, 93.61' Lt
2	1+29.32, 51.54' Lt
3	1+29.32, 29.50' Rt
4	3+84.97, 96.00' Rt
5	10+55.54, 193.96' Rt
6	14+78.63, 131.49' Rt
7	14+58.78, 48.46' Rt
8	14+45.62, 43.04' Lt
9	14+40.60, 92.14' Lt
10	11+93.50, 48.74' Lt
11	1+33.98, 444.39' Lt



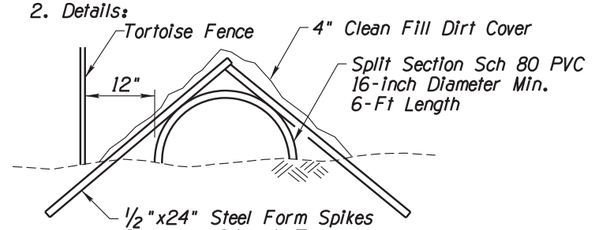
LEGEND

- Disturbance Limits
- Restoration (Original) Contours
- Tortoise Fence See DWG No. C-04.07

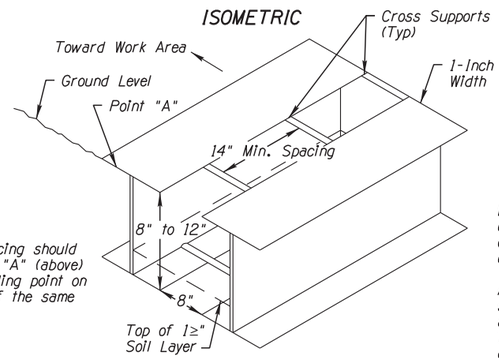
Restore Final, Compacted Grades to Original Ground Elevations.

TORTOISE FENCE NOTES:

1. Install Fence Per DWG No. C-04.07 (3,412 Lin Ft)
2. Details:



TORTOISE SHADE STRUCTURE
N.T.S.



Parallel "I" beam are welded, using cross supports to maintain 8" spacing, to create the tortoise guard.

Upper cross supports shall be spaced at a minimum of 14-inches apart. Bars shall be sized to accommodate contractor's anticipated construction vehicles.

Tortoise-proof fencing should terminate at Point "A" (above) and the corresponding point on the opposite end of the same "I" beam

TEMPORARY TORTOISE GUARD
N.T.S.

Escape ramps with a slope no steeper than 3:1, each at least 3-Ft in length and located outside the work area, will be provided at each end of the tortoise guard.

A ≥1" later of loss soil that is free of rock shall be placed in the trench bottom to cover any metal that may cause injury to a tortoise. The soil layer needs to be maintained at least quarterly and after rain event to prevent compaction or loss of soil. General maintenance of the guard and the escape ramps should also be conducted on similar schedule.

A minimum 8" vertical clearance (12" max) must be maintained between the soil in the bottom of the guard and the upper cross supports.

Temporary installation: Set "I" beams in compacted earth.

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

CONSTRUCTION ACCESS ROAD RESTORATION PLAN

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION		DWG NO. C-04.06
I-15	VIRGIN RIVER BRIDGE NO. 1		
TRACS NO. H8760 01C		015-A(216)S	___ OF ___

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PLOT DATE: 6/4/2020 TIME:4:24:30 PM PLOT SCALE: 1:200 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

4:24:30 PM c:\pwworking\west01\d0765806\h8760p10.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	36	192	
		015 MO 008			

TORTOISE EXCLUSION FENCE GENERAL NOTES:

Ensure that the height above ground level is no less than 18 inches and no higher than 24 inches.

Ensure that the depth of fence material below ground level is about 12 inches but no less than 6 inches. (See Section A-A)

Install additional steel posts when span between existing fence posts exceed 10 feet.

Attach fence material to existing fence or wire using hog rings at 12 inch intervals.

Fasten fence material to posts with 3 tie wires with a wire near the top, bottom and center of the fence material.

Backfill trenches with excavated material and compact the material.

Attach fence material to all gates. Ensure that clearance at base of gate achieves zero ground clearance.

Substitute smooth wire for barbed wire if additional support wires are necessary.

The number and placement of support wires may be modified to allow sheep and deer to pass safely.

Erosion at the edge of the fence material where the fence crosses washesmay occur and requires appropriate and timely monitoring and repair.

Tie the fence into existing culverts and cattleguards when determined necessary to allow desert tortoise passage underneath roadways.

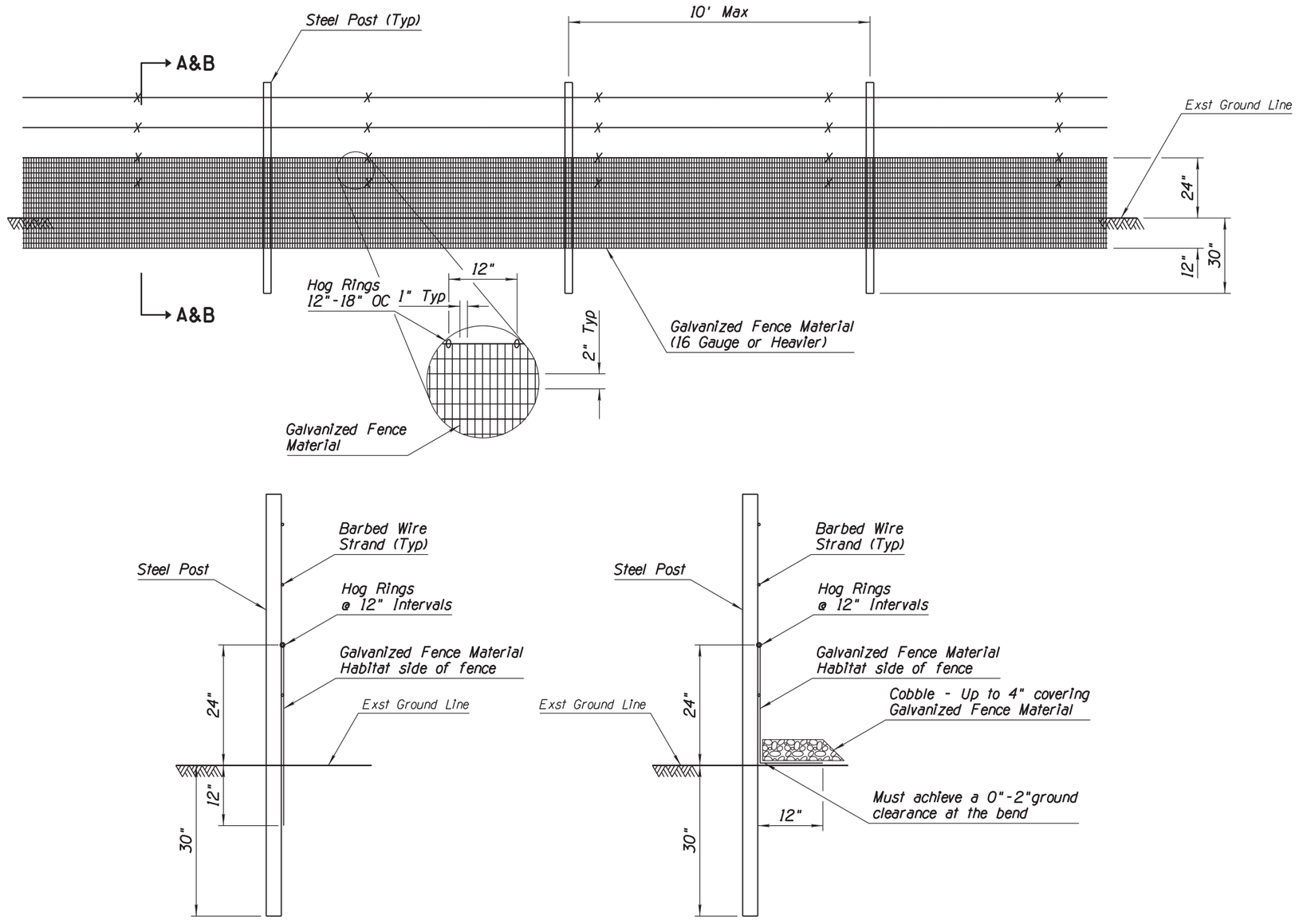
Where fence cannot be placed 6 inches below existing ground level, due to presence of bedrock, large rocks or caliche substrate, use alternate design. (See Section B-B)

Ensure that fence height above ground is no less than 22 inches when in bedrock or caliche substrate. (See Section B-B)

Ensure that there is a zero to 2 inch ground clearance at the bend. (See Section B-B)

Ensure that the bent portion of the fence is lying on the ground and pointed in the direction of desert tortoise habitat. (See Section B-B)

Cover the portion of the fence that is flush with the ground with cobble (rocks placed on top of the fence material to a vertical thickness of up to 4 inches). (See Section B-B)



SECTION A-A

SECTION B-B

DETAIL
DESERT TORTOISE EXCLUSION FENCE

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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DETAIL
DESERT TORTOISE
EXCLUSION FENCE

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG NO. C-04.07
I-15	VIRGIN RIVER BRIDGE NO. 1	
TRACS NO. H8760 01C	015-A(216)S	____ OF ____

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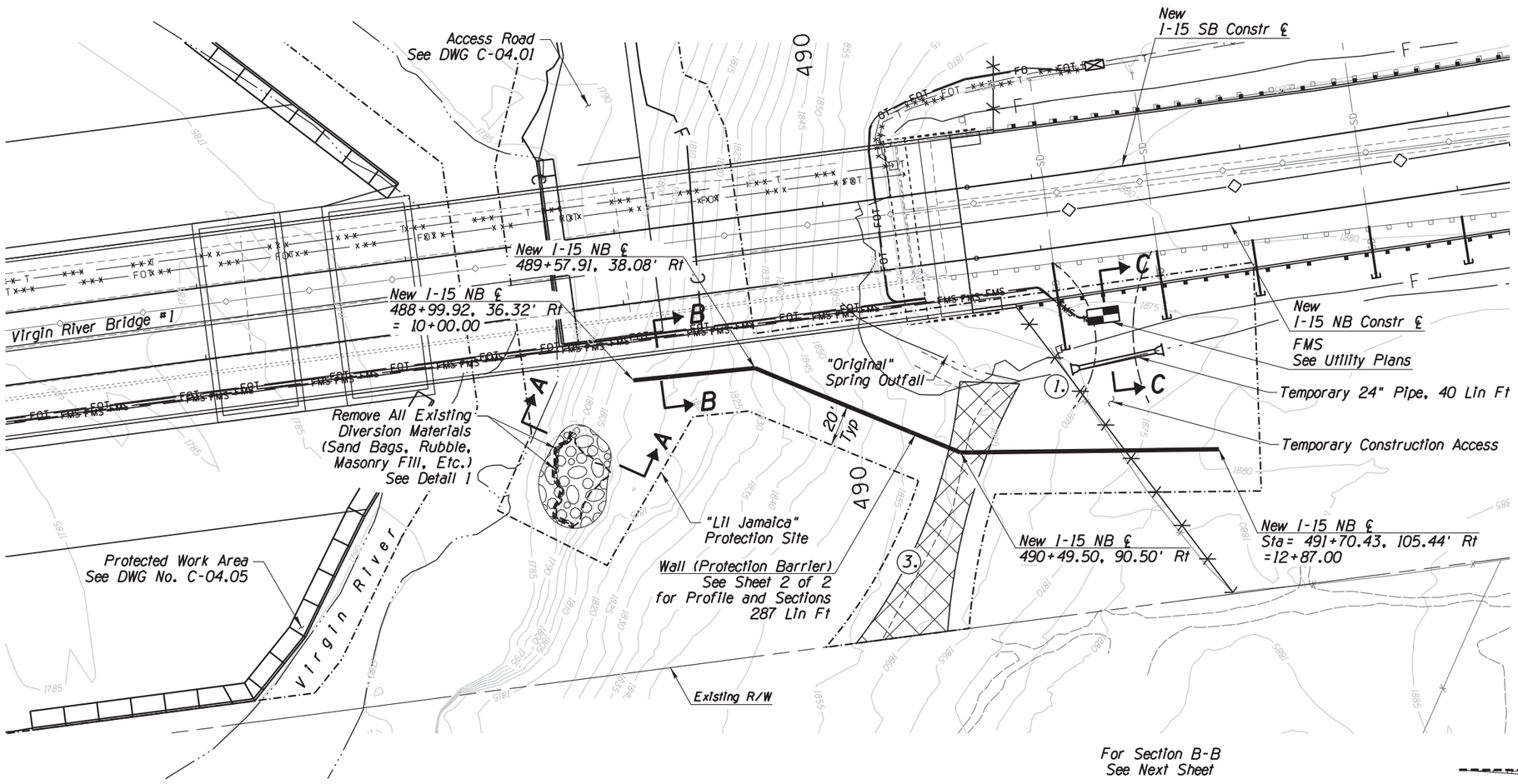
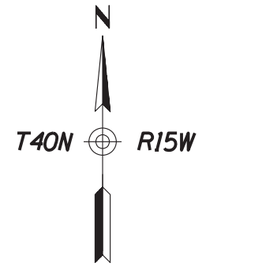
PLOT DATE: 6/2/2020 TIME:3:56:49 PM PLOT SCALE: 1:400 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

3:56:49 PM c:\pwworking\west01\d0765806\h8760p11.dgn

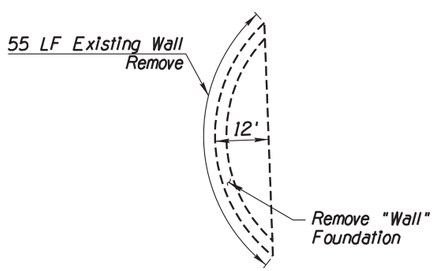
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	13	192	
		015 MO 008			





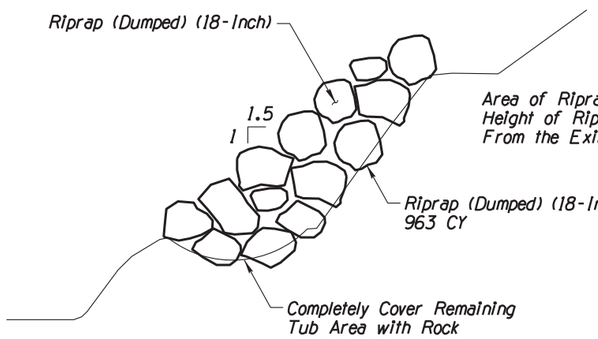
Notes:

1. Trench & Restore spring outfall to original ditch.
2. Sequence FMS work after "Lil Jamaica" is Restored.
3. Back fill excavated ditch w/previous trenching spoils. Grade to match adjacent contours.

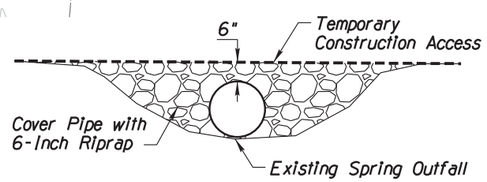


Remove (Lil Jamaica Facilities)

DETAIL 1



SECTION A-A



SECTION C-C

DETAIL D

LIL JAMAICA PROTECTION

SHEET 1 OF 2

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

DETAIL SHEET
DETAIL D1
LIL JAMAICA PROTECTION

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG NO. C-01.04
I-15	VIRGIN RIVER BRIDGE NO. 1	
TRACS NO. H8760 01C	015-A(216)S	___ OF ___

PLOT DATE: 6/2/2020 TIME: 3:38:25 PM PLOT SCALE: 1:60 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

3:38:25 PM c:\pwworking\west01\d0765806\h8760dtd1.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	14	192	
		015 MO 008			

GENERAL NOTES:

All Concrete shall be Class "S" (f'c = 3000 psi).

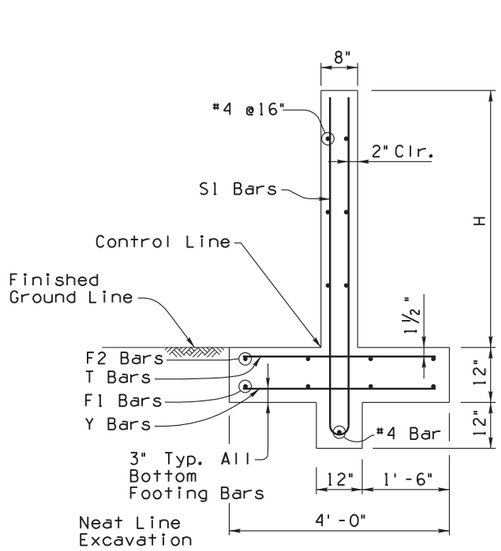
Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

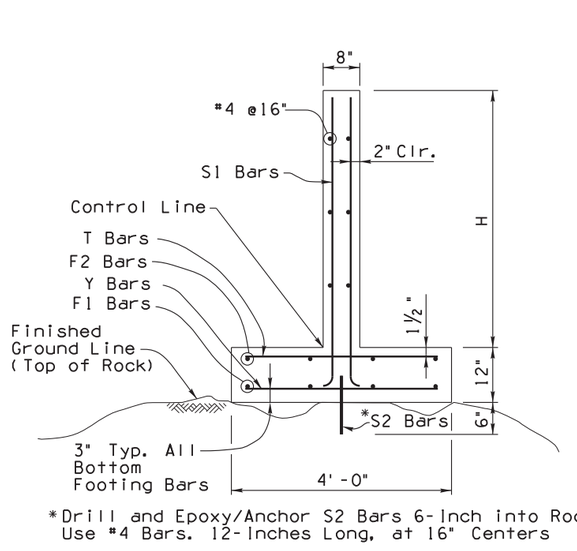
Dimensions shall not be scaled from drawings.

WALL SCHEDULE								
Wall Height H	Wall Type	Ftg. Width W	Reinforcing Steel					
			Wall, Vertical		Footing			
			S1	S2	F2	T	F1	Y
4'-0"	A	4'-0"	#4@16"	#4@16"	4-#4	#4@16"	4-#4	#4@16"



SECTION B-B

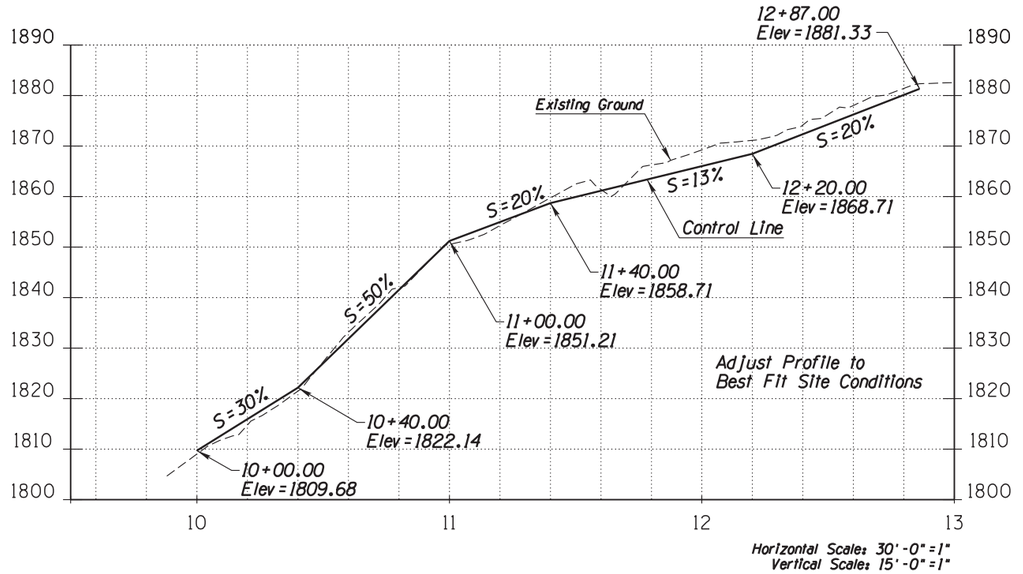
EARTH FOOTING



*Drill and Epoxy/Anchor S2 Bars 6-Inch into Rock Use #4 Bars, 12-Inches Long, at 16" Centers

SECTION B-B

ROCK FOOTING



Horizontal Scale: 30'-0" = 1"
Vertical Scale: 15'-0" = 1"

ROCK PROTECTION WALL PROFILE (CONTROL LINE PROFILE)

Adjust Control Line Profile w/Engineer to Maintain Smooth Transition Between Earth and Rock Surface Materials.

DETAIL D

LIL JAMAICA PROTECTION

SHEET 2 OF 2

	NAME	DATE
DESIGN	MKO	06-20
DRAWN	SR	06-20
CHECKED	BSW	06-20

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ROADWAY DESIGN SERVICES

DETAIL SHEET
DETAIL D2
LIL JAMAICA PROTECTION

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

ROUTE	LOCATION	DWG NO. C-01.05
I-15	VIRGIN RIVER BRIDGE NO. 1	
TRACS NO. H8760 01C		015-A(216)S ____ OF ____

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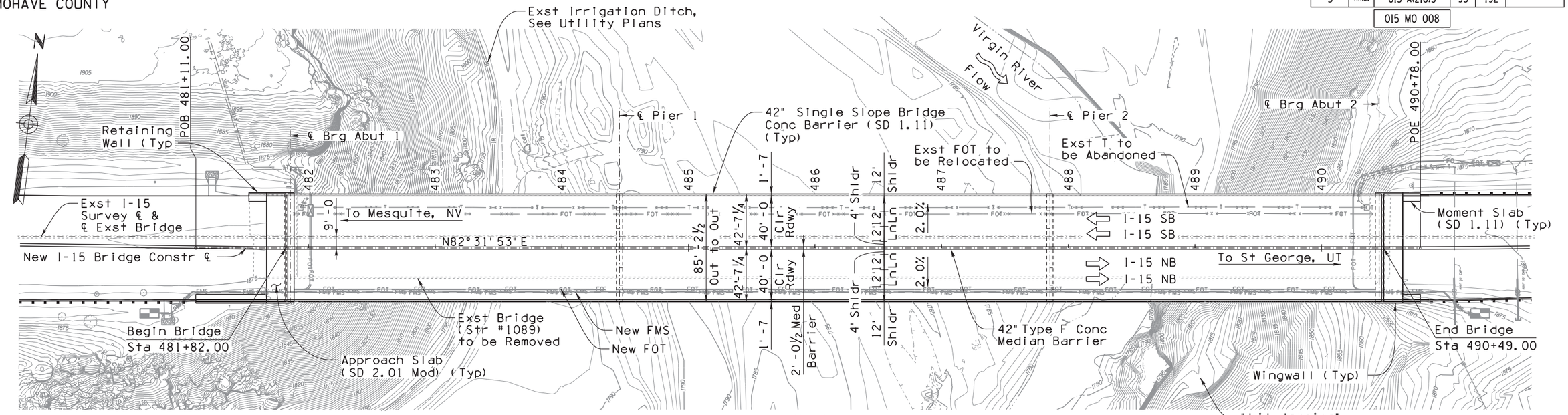
MESQUITE - LITTLEFIELD - NORTH HWY (I-15)
I-15, VIRGIN RIVER BRIDGE #1
MOHAVE COUNTY

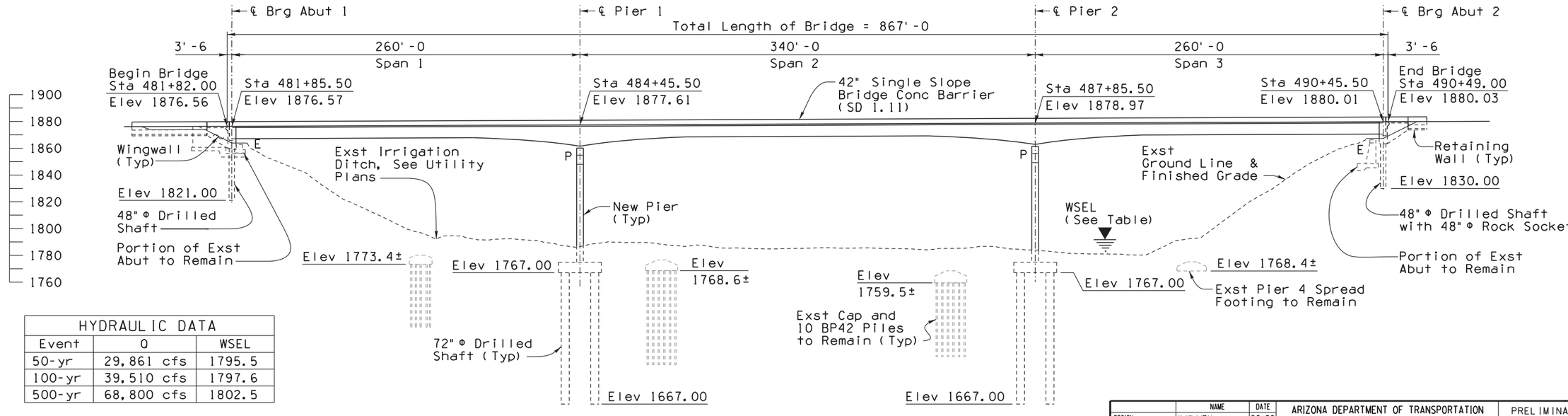
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	95	192	

015 MO 008



PLAN

New 3-Span Continuous, Composite, Haunched, Steel Plate Girder Bridge
Skew 00°00'00"
1' Contour Interval
Scale: 1"=40'-0



HYDRAULIC DATA		
Event	Q	WSEL
50-yr	29,861 cfs	1795.5
100-yr	39,510 cfs	1797.6
500-yr	68,800 cfs	1802.5

ELEVATION
Scale: 1"=40'-0

NOTES:

1. Stations, Elevations and Span Dimensions are measured along New I-15 Bridge Constr ℄.
2. All elevations are based on NAVD 88. Elevations shown for existing bridge foundations are based on record drawings and have been adjusted +2.41 feet to convert from NVGD 29 to NAVD 88.

	NAME	DATE
DESIGN	KJW/JPH	06-20
DRAWN	JMC	06-20
CHECKED	JCN	06-20

HDR
HDR, INC.
20 E. THOMAS ROAD
SUITE 2000
PHOENIX, AZ 85012-2078
TEL (602) 522-7750

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP

STA 481+
VIRGIN RIVER BRIDGE #1
GENERAL PLAN & ELEVATION

ROUTE	MILEPOST	STRUCTURE NO.
I-15	9.13	20196

LOCATION: VIRGIN RIVER BRIDGE NO. 1

TRACS NO. H8760 01D | 015-A(216)S

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. S-1.01

___ OF ___

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PLOT DATE: Jun, 04, 2020 TIME: 8:22:16 PM PLOT SCALE: 1:80 PLOT BY: JCARLILE-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

8:22:16 PM c:\pwworking\west01\d0813089\s20196gp.dgn

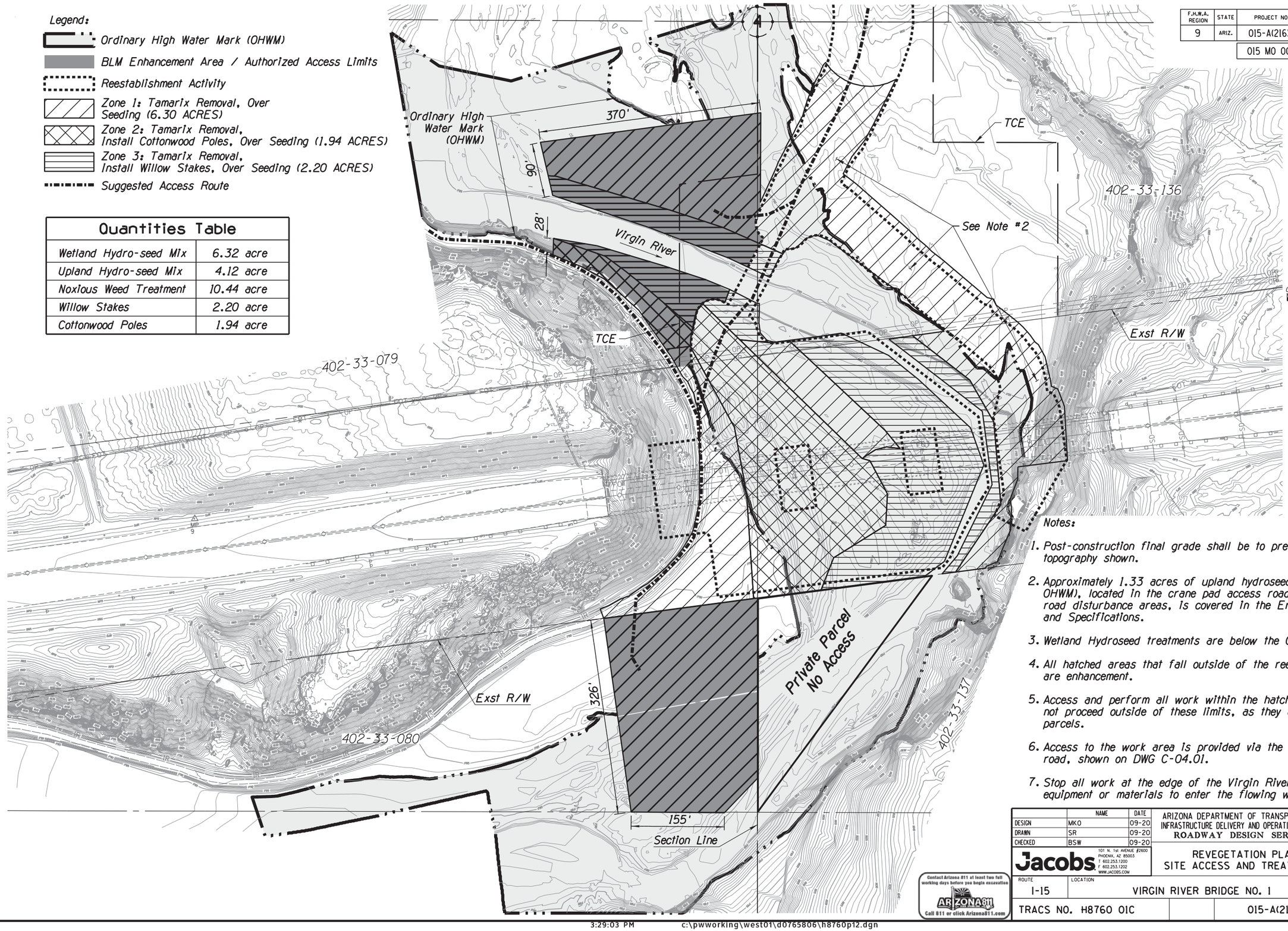
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	179	205	
		015 MO 008			

Legend:

- Ordinary High Water Mark (OHWM)
- BLM Enhancement Area / Authorized Access Limits
- Reestablishment Activity
- Zone 1: Tamarix Removal, Over Seeding (6.30 ACRES)
- Zone 2: Tamarix Removal, Install Cottonwood Poles, Over Seeding (1.94 ACRES)
- Zone 3: Tamarix Removal, Install Willow Stakes, Over Seeding (2.20 ACRES)
- Suggested Access Route

Quantities Table

Wetland Hydro-seed Mix	6.32 acre
Upland Hydro-seed Mix	4.12 acre
Noxious Weed Treatment	10.44 acre
Willow Stakes	2.20 acre
Cottonwood Poles	1.94 acre



Notes:

1. Post-construction final grade shall be to pre-construction topography shown.
2. Approximately 1.33 acres of upland hydroseed treatment (above the OHWM), located in the crane pad access road and east pier access road disturbance areas, is covered in the Erosion Control Plans and Specifications.
3. Wetland Hydroseed treatments are below the OHWM.
4. All hatched areas that fall outside of the reestablishment footprint are enhancement.
5. Access and perform all work within the hatched limits shown. Do not proceed outside of these limits, as they are private property parcels.
6. Access to the work area is provided via the construction access road, shown on DWG C-04.01.
7. Stop all work at the edge of the Virgin River. Do not allow equipment or materials to enter the flowing water of the River.

	NAME	DATE
DESIGN	MKO	09-20
DRAWN	SR	09-20
CHECKED	BSW	09-20

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

REVEGETATION PLAN
SITE ACCESS AND TREATMENTS

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

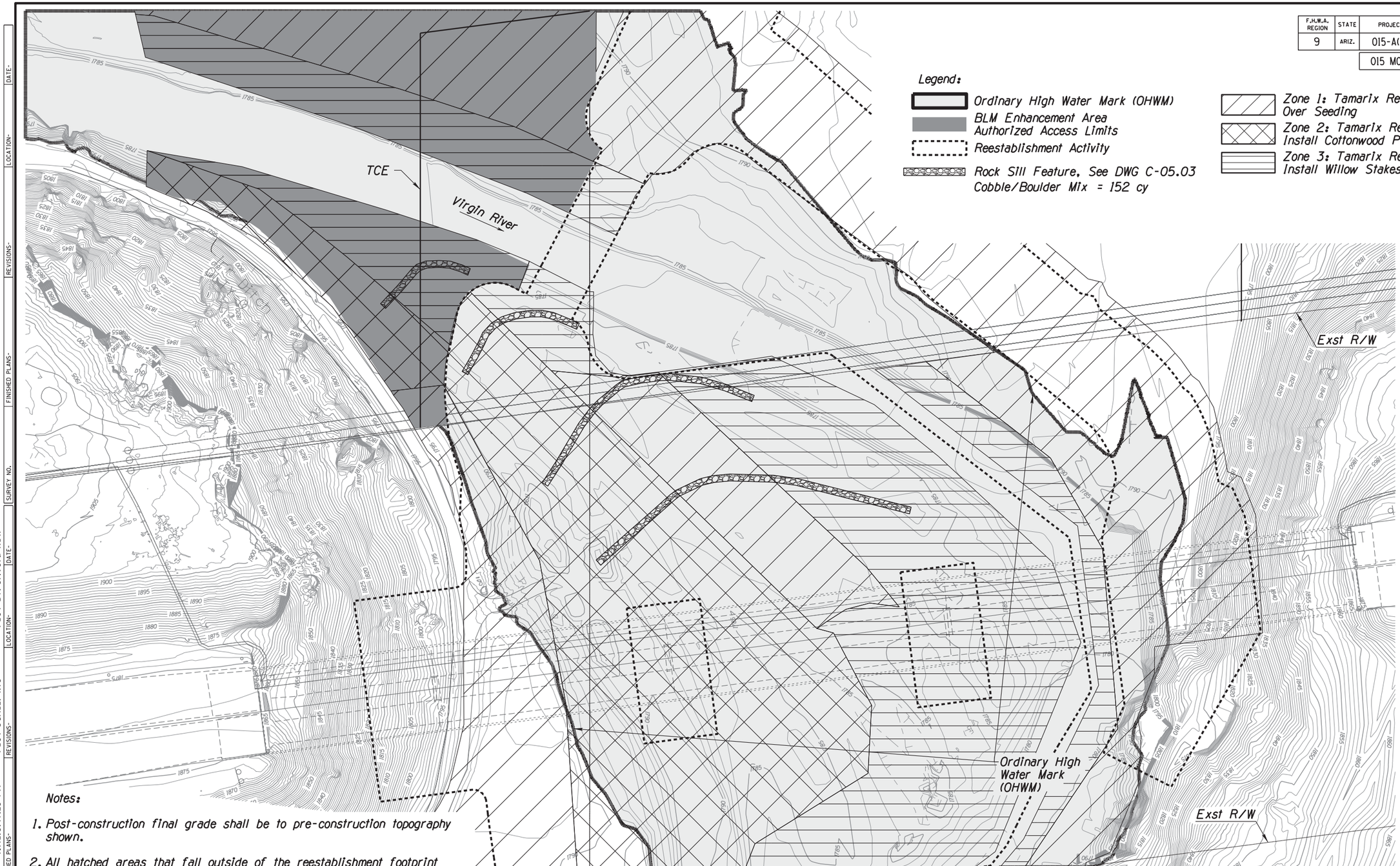
ROUTE	LOCATION	DWG NO.
I-15	VIRGIN RIVER BRIDGE NO. 1	C-05.01
TRACS NO. H8760 01C	015-A(216)S	___ OF ___

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811 Call 811 or click Arizona811.com

PLOT DATE: 9/17/2020 TIME:3:29:03 PM PLOT SCALE: 1:150 PLOT BY: srivera-HDR
SURVEY NO. FINISHED PLANS- REVISIONS- LOCATION- DATE-

3:29:03 PM c:\pwworking\west01\d0765806\h8760p12.dgn

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	015-A(216)S	180	205	
		015 MO 008			



Notes:

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2. All hatched areas that fall outside of the reestablishment footprint are enhancement.
3. Access and perform all work within the hatched limits shown. Do not proceed outside of these limits, as they are private property parcels.
4. Access to the work area is provided via the construction access road, shown on DWG C-04.01.
5. Stop all work at the edge of the Virgin River. Do not allow equipment or materials to enter the flowing water of the River.

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DRAWN	SR	09-20
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SERVICES

REVEGETATION PLAN
ROCK SILL FEATURES

ROUTE	LOCATION
I-15	VIRGIN RIVER BRIDGE NO. 1

TRACS NO.		
H8760 01C		015-A(216)S

PRELIMINARY
STAGE IV
Review
NOT FOR CONSTRUCTION OR RECORDING

DWG NO. C-05.02

____ OF ____

PLOT DATE: 9/17/2020 TIME:3:47:25 PM PLOT SCALE: 1:75 PLOT BY: srivera-HDR
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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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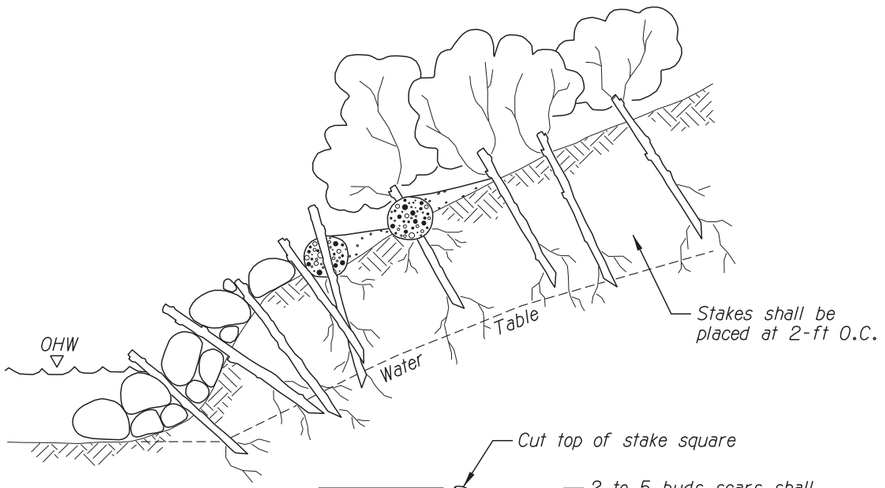
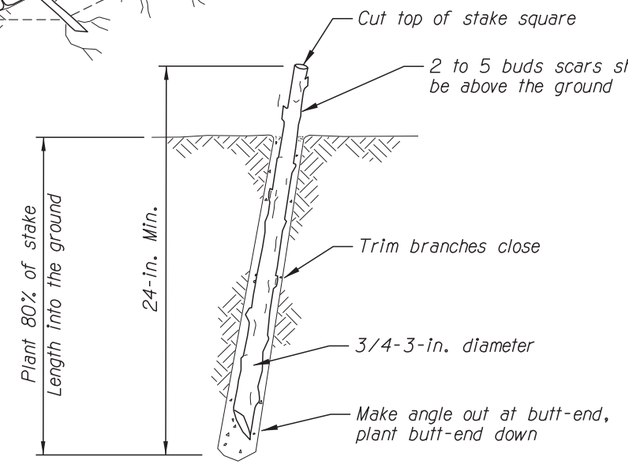
		015 MO 008			

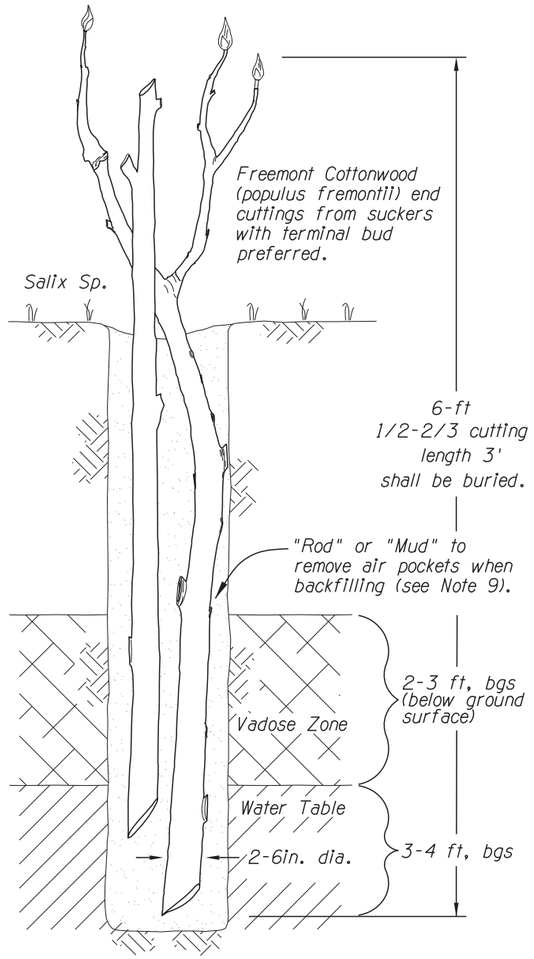




Notes:

1. Harvest and planting shall occur in early spring (February or March) while plants are still dormant and before leaf buds begin to break.
2. Use healthy, straight and live wood at least 1 year old.
3. Make clean cut and do not damage stakes or split ends during installation; use an iron bar and pilot hole in firm soils.
4. Soak cuttings for a minimum of 24 hours, and as specified, prior to installation.
5. Tamp the soil around the stake.
6. Plant willow stakes at 2-ft. O.C.
7. No more than 50 percent of plant material in a particular stand should be harvested.
8. Approximate ground water levels are available in the project 404 permit Revegetation and Monitoring Plan.

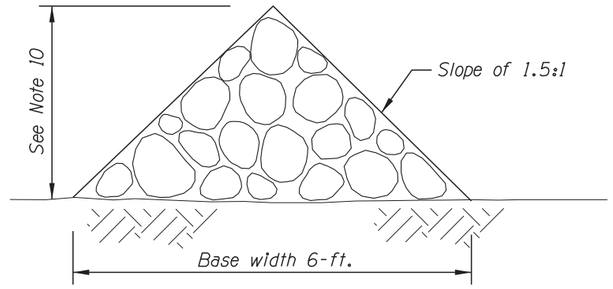
WILLOW STAKE DETAIL



Notes:

1. Harvest and planting shall occur in early spring (February or March) while plants are still dormant and before leaf buds begin to break.
2. Use healthy, straight and live wood at least 1 year old.
3. Cottonwood pole cuttings shall be a minimum of 6 feet in length.
4. Cottonwood pole cuttings shall be a minimum of 2 inches and maximum of 6 inches in diameter.
5. Make clean cut and do not damage stakes or split ends during installation.
6. Soak cuttings for a minimum of 24 hours, and as specified, prior to installation.
7. Plant cottonwood pole at 10-ft. O.C.
8. The pole cuttings shall extend through the vadose zone and into the permanent water table. At least $\frac{1}{2}$ to 2/3 of the pole shall be below the ground, at least 3-ft, and long enough to emerge above adjacent vegetation.
9. "Muddying" - filling the hole with water and then soil to make a mud slurry can remove air pockets.
10. No more than 50 percent of plant material in a particular stand should be harvested.
11. Approximate ground water levels are available in the project 404 permit Revegetation and Monitoring Plan.

COTTONWOOD POLE DETAIL



Sill Feature Notes:

1. Place rock sills as indicated on design sheets perpendicular to flow paths during 2-year recurrence interval overbank flow events, and Key into adjacent hill slope where indicated on design sheet.
2. Median rock sizes shall vary between large cobbles (5-10 inches diameter across the median axis) to small - medium boulders (20-40 inches diameter across the median axis). Larger boulders may be included in the rock mix if locally available.
3. Rock shall be sourced from on-site during construction activities, or a local quarry if not available on-site.
4. Place rock on top of native sediments found on the terrace, forming a continuous sill that extends across the surface of the floodplain, tying into the low flow channel or higher terrace formations as appropriate.
5. It is anticipated that the crest height of the rock sill feature will vary according to the size of rock material placed. Rock sill height shall be no less than 2 feet above the adjacent floodplain, and no more than 3 feet higher than the adjacent floodplain. Side slopes shall be a minimum of 1.5:1.
6. No planting or seeding will occur directly on the rock sill.
7. Color of the rock provided shall match that of existing rock color as closely as possible.
8. The contractor shall provide the Engineer with a representative sample (minimum of five rocks) of the proposed rock sill material for approval.

ROCK SILLS FEATURES

	NAME	DATE
DESIGN	MKO	09-20
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CHECKED	BSW	09-20

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ROADWAY DESIGN SERVICES

REVEGETATION PLAN DETAILS

PRELIMINARY
STAGE IV
Review
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ROUTE	LOCATION		
I-15	VIRGIN RIVER BRIDGE NO. 1		DWG NO. C-05.03
TRACS NO. H8760 01C		015-A(216)S	___ OF ___

PLOT DATE: 9/17/2020 TIME:4:02:29 PM PLOT SCALE: 1:100 PLOT BY: srivera-HDR
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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