JURISDICTIONAL WATERS DETERMINATION SUPPLEMENT FOR THE MARRCO ANALYSIS AREA, PINAL COUNTY, ARIZONA CORPS FILE NOS. SPL-2013-00050-MWL AND SPL-2014-00064-MWL

Prepared for: U.S. Army Corps of Engineers

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FIGURES

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ATTACHMENTS

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INTRODUCTION

WestLand Resources, Inc. (WestLand), was retained by Resolution Copper Mining, L.L.C. (RCM; the Applicant) to evaluate an approximately 539-acre area (the Analysis Area), for the presence of potential waters of the U.S. (Waters). This formal Jurisdictional Determination (JD) request is intended as a supplement to two previous formal JD requests submitted by WestLand on behalf of the Applicant, those for the Parcel 210 and Near West Analysis Areas (Corps File Nos. SPL-2013-00050-MWL and SPL-2014-00064-MWL, respectively). The Applicant understands that approval received from the U.S. Army Corps of Engineers (Corps) for the delineation of the current Analysis Area will be provided in conjunction with those for the previous submittals. The Agent Designation and Authorization for Federal Access documentation for the Applicant's private lands and State Land rights of way is included as ***Attachment 1***. Directions to the Analysis Area are provided as ***Attachment 2***.

This evaluation was conducted in accordance with the June 5, 2007 *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (the Guidebook) and its attachments (revised December 2008). The format of this memorandum has been developed to facilitate the completion of the *Approved Jurisdictional Determination Form* (the Form; Appendix B of the Guidebook). We have prepared an electronic database capable of producing a separate JD Form for each individual drainage reach identified within the Analysis Area. This technical memorandum provides supporting documentation for the information included on each JD Form. An electronic copy of the JD Forms is included for Corps use.

SECTION I. PROJECT LOCATION AND BACKGROUND INFORMATION

The current Analysis Area is the Magma Arizona Railroad Company (MARRCO) railroad corridor, a 28-mile shortline railroad, consisting of approximately 14 miles of patented fee property owned by the Applicant's subsidiary (MARRCO), approximately 9 miles of U.S. Forest Service right of way, and 5 miles of Arizona State right of way granted to the Applicant. The MARRCO shortline connects the Applicant's West Plant Site in the Town of Superior, Pinal County, Arizona to the junction of the MARRCO alignment and the Union Pacific Railroad at Magma Junction in the San Tan Valley, Pinal County, Arizona (***Figure 1***). The Applicant had previously provided formal JD requests (***Figure 2***) to the Corps for the West and East Plant Sites (Corps File No. SPL-2009-00315-MB), the Near West Analysis Area (Corps File No. SPL-2014-00064-MWL), and the Parcel 210 Analysis Area (Corps File No. SPL-2013-00050-MWL). The Applicant has prepared this supplemental analysis so that the Corps may include formal approval for the delineation of the MARRCO Analysis Area together with that for the Near West and Parcel 210 Analysis Areas.

The current MARRCO Analysis Area is approximately 22.1 miles in length and excludes a 5.5-mile portion of the railroad alignment otherwise located in the Near West Analysis Area (see ***Figure 2***) and analyzed in the previous submittal *Jurisdictional Waters Determination for the Near West Analysis Area, Pinal County, Arizona* (WestLand 2014). The MARRCO Analysis Area is located in portions of Sections 32-35, Township 1 South, Range 11 East; portions of Section 36, Township 2 South, Range 9 East; portions of Sections 1, 11, 12, 14, 15, 20-22, and 29-31, Township 2 South, Range 10 East; portions of

Sections 3, 5, and 6, Township 2 South, Range 11 East; portions of Sections 24-26, and 35, Township 3 South, Range 8 East; and portions of Sections 1-3, 9, 10, 16, 17, 19, and 20, Township 3 South, Range 9 East (see ***Figure 1***). The nearest designated downstream traditionally navigable water (TNW) to the Analysis Area is the 6.9-mile reach of the Gila River between Powers Butte and Gillespie Dam. An aerial overview of the intervening landscape between the Analysis Area and the TNW reach of the Gila River is provided in ***Figure 3***. Hydrologically, the Analysis Area occurs entirely within the Middle Gila River sub-basin, specifically the Upper Queen Creek, Lower Queen Creek, and Paisano Wash-Gila River watersheds (***Figure 3***).

It should be noted that the potential flowpath from the Analysis Area to the designated TNW reach of the Gila River at Powers Butte shares many segments and characteristics with three previously completed JD requests: 1) the Lost Dutchman Heights/Portalis Project (Corps File No. SPL-2008-00674-SDM; hereafter Lost Dutchman); 2) the RCM West Plant and East Plant Analysis Areas near Superior (Corps File No. SPL-2009-00315-MB; hereafter West and East Plant); and 3) the Powerline, Vineyard Road, and Rittenhouse Flood Retarding Structures Rehabilitation or Replacement Project (Corps File No. SPL-2012-00406-MWL; hereafter FRS Project). These approved JD requests each indicated findings of "no significant nexus" between the evaluated drainage features and the TNW reach of the Gila River between Powers Butte and Gillespie Dam, and each of the three has bearing on the current analysis.

In the Lost Dutchman significant nexus analysis (SNA), the most significant drainage feature was Siphon Draw, with a watershed of over 45 square miles. The individual drainage watersheds within the current Analysis Area are generally much smaller than those in the Lost Dutchman SNA and are located at a greater distance from the TNW. Drainages within the Lost Dutchman Project Area lay approximately 91 river miles from the TNW, while those within the MARRCO Analysis Area lay between 106 and 110 river miles from the TNW. Stormwater flows in the drainage features of the Upper Queen Creek and Lower Queen Creek watersheds (see ***Figure 3***) include most of the downgradient flowpath of Lost Dutchman (i.e. diverted to the East Maricopa Floodway (EMF), discharge to an ephemeral reach of the Gila River at the floodway outfall, and then the Gila River to Powers Butte), while being further from the TNW (see ***Figure 3***).

All of the drainages within the Upper Queen Creek watershed (see ***Figure 3***; see *Section III.B.1.*) share the same downgradient flowpath to the TNW as those in the West and East Plant JD. All drainages within this watershed face a significant impediment to downgradient transmission, the Whitlow Ranch Dam on Queen Creek. The outflow structure of the Whitlow Ranch Dam limits the discharge capacity of flows to Queen Creek downgradient of the dam, effectively limiting the potential for these flows to be transmitted downstream. Information on the Whitlow Ranch Dam, published by the Corps, acknowledges that outflow from the dam "usually percolates into the alluvial plain below the dam and rarely travels more than a few miles downstream" (Corps 2014). Even assuming transmission of flows could occur through the relic channel of Queen Creek between the Whitlow Ranch Dam outfall and the Central Arizona Project (CAP) Canal, the remaining flowpath to the TNW would be the same as that described above for Lost Dutchman. Drainages in the West and East Plant JD (Corps File No. SPL-2009-00315-MB) were determined to lack a hydrologic connection to the TNW reach of the Gila River between Powers Butte and Gillespie Dam.

The SNA for the FRS Project JD has bearing on the consideration of significant nexus for those drainages within the Paisano Wash-Gila River watershed (see ***Figure 3***) of the MARRCO Analysis Area. These drainages are all impounded behind the Magma Flood Retarding Structure, as those drainages in the FRS Project were impounded behind the similar Powerline, Vineyard Road, and Rittenhouse Flood Retarding Structures (see ***Figure 3***). The drainage area of the Powerline, Vineyard Road, and Rittenhouse Flood Retarding Structures is approximately 146.8 square miles, all of which would potentially discharge to the Powerline Floodway downgradient of the Powerline Flood Retarding Structure. The Powerline Floodway (and consequently the drainages reporting to this feature) was determined by the Corps (Corps File No. SPL-2012-00406-MWL) not to have a significant nexus to the downgradient TNW based on the distance to the TNW, low frequency and amount of flow, the effects of intervening impoundments, and the lack of aquatic lifecycle support functions for aquatic species in the TNW. The drainage area for the Magma Flood Retarding Structure is 64.7 square miles and shares a similar, but longer, flowpath through ephemeral and effluent-dependent reaches of the Gila River than that considered for drainages in the FRS Project JD.

Given the above, it would appear that the SNAs completed for the Lost Dutchman property, the West and East Plant, and the FRS Project would greatly inform this SNA for the current MARRCO Analysis Area.

SECTION II. SUMMARY OF FINDINGS

All of the potential surface water features within the MARRCO Analysis Area are ephemeral drainages, flowing only briefly in direct response to storm events. The MARRCO Analysis Area excludes Queen Creek, designated as intermittent from Potts Canyon to the Whitlow Ranch Dam in Arizona's surface water quality standards (A.A.C. Title 18, Chapter 11, Appendix B). Some of the drainages within the MARRCO Analysis Area are tributary to this designated reach of Queen Creek, approximately 1.3 river miles (1.1 aerial miles) downgradient of the confluence of Queen Creek and Potts Canyon. Although Queen Creek possesses wetted areas that are not ephemeral, this drainage reach does not exhibit the year-round or seasonally continuous flow necessary to be considered a Relatively Permanent Water (RPW) under current Corps guidance. Recent studies of Queen Creek through this reach find that much of Queen Creek is ephemeral except for small perennial or intermittent reaches near Picket Post Mountain and Boyce Thompson Arboretum (Montgomery 2013).

Construction of the Magma Arizona Railroad in 1914 and 1915, and the subsequent realignment of portions of the line in 1922 and 1923, historically altered some of the drainage patterns of the features crossed by the railroad and created small ponding features. Historic ranching activities have also created impoundments (cattle tanks) adjacent to the MARRCO Analysis Area. These ponding areas and cattle tanks do sometimes hold water for short periods following storm events. However, none of the drainage features or impoundments qualify as either TNWs (they have not been used, and are not susceptible for use, in interstate commerce) or RPWs (they do not flow continuously on a year-round or seasonal basis). No wetlands or other special aquatic sites were identified within the Analysis Area.

Per the December 2008 Corps/Environmental Protection Agency (EPA) guidance entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States and Carabell*

v. United States (the Guidance), the onsite ephemeral drainages were evaluated to determine whether or not they constitute non-navigable, non-RPW tributaries possessing a significant nexus with a TNW. The significant nexus evaluation found that none of the drainage features within the Analysis Area has more than an insubstantial or speculative effect on the physical, chemical, or biological integrity of the downgradient TNW reach of the Gila River between Powers Butte and Gillespie Dam. Accordingly, none of these drainage features within the Analysis Area possesses a significant nexus with a downgradient TNW. Therefore, all of the drainage features considered in this analysis are non-jurisdictional.

Mapped drainages within the Analysis Area have been provided digitally to the Corps, and will be included as ***Attachment 3*** of this document once final. For the purposes of determination of significant nexus, a JD Form for each individual relevant drainage reach will be provided once the Corps has completed its review. Representative ground photographs of the characteristics of the evaluated drainages have also been provided digitally and will be included as ***Attachment 4*** of this document once final. Locations of these representative ground photographs are shown in the maps to be provided as ***Attachment 3***.

SECTION III. CLEAN WATER ACT ANALYSIS

A. TNWs and Wetlands Adjacent to TNWs

There are no TNWs or wetlands adjacent to TNWs in the Analysis Area. The nearest downgradient confirmed TNW is the 6.9-mile reach of the Gila River between Powers Butte and Gillespie Dam, located over 106 river miles from the southwest end of the Analysis Area and 110 river miles from the northeast end of the Analysis Area.

B. Characteristics of Tributary and its Adjacent Wetlands

1. Characteristics of Non-TNWs That Flow Directly or Indirectly into TNW

Prior to conducting a field visit, WestLand interpreted regional and site-specific available aerial photography (ArcGIS Online Microsoft 2010) and USGS topographical maps for the Analysis Area (Florence Junction, Florence NE, Magma and Picketpost Mountain 7.5-minute Quadrangles) to identify drainages and other points of interest.

WestLand personnel visited the Analysis Area between March 18 and March 21, 2014 to assess site conditions and to document the physical characteristics of potentially jurisdictional features. WestLand collected data for drainage features at field-determined intervals. Drainage characteristics were measured at selected points where appropriate, and photographs were taken at each data point, generally alternating between upgradient and downgradient views. Based upon the data collected during the field reconnaissance and review of aerial photographs and site topography, the selected data points and photo locations were digitally transferred onto a recent aerial photograph using ArcGIS.

Analysis of the physical characteristics of the evaluated drainages was informed by the August 2008 delineation manual *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the*

Arid West Region of the Western United States, the July 2010 update to the same, and the 2007 *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* and its attachments. Although wetlands were not identified within the Analysis Area, any wetland evaluations would have been conducted following the procedures described in the 1987 *Corps of Engineers Wetlands Delineation Manual* and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* to that document.

In WestLand's judgment, using the practices typically utilized by the Corps in assessing ephemeral channels in the arid southwest, an OHWM is present in approximately 35,750 linear feet of channel within the Analysis Area. OHWM characteristics consisted mainly of evidence of sediment sorting, destruction of terrestrial vegetation, and a change in substrate in the drainage as compared to the surrounding upland area. A clear, definable bed and bank was visible within many of the drainages in the eastern, higher gradient portions of the Analysis Area, and was consistently present in the larger, mainstem drainages. In the lower gradient western portion of the Analysis Area, which is dominated by sheetflow conditions, clear, definable bed and banks were less apparent. Based on the observed width of the drainages, the estimated total area of potential non-wetland Waters is approximately 9.66 acres in the Analysis Area. No wetlands or other special aquatic sites were identified in the Analysis Area. The photos, provided digitally and to be included as ***Attachment 4*** (which reference photo point locations reflected on ***Attachment 3***), document the drainage characteristics at the data point locations.

Lengths of each analyzed drainage feature were calculated using ArcGIS and included drainage meanders. The area of the identified drainages (in acres) was calculated in ArcGIS using a combination of measured feature OHWM widths at known locations and aerial photography. Average widths were calculated by dividing calculated feature areas by total feature lengths. All delineated drainage features containing characteristics of an OHWM within the Analysis Area have been provided digitally and will be included as the final ***Attachment 3***. Consistent with the Guidance, the following sections analyze the factors relating to the potential for a hydrological, chemical or biological nexus between the drainages in the Analysis Area and the downgradient TNW.

Hydrological Nexus Factors

Hydrology

The natural topography of the Analysis Area has been largely altered by historic human activity, specifically the construction of the railroad alignment itself. The original construction of the narrow-gauge Magma Arizona Railroad alignment occurred in 1914 and 1915. The narrow-gage alignment was upgraded to standard-gauge line in 1922 and 1923, and some portions of the narrow-gauge alignment were realigned during the upgrade. This historic construction altered some of the drainage patterns of the features crossed by the railroad and created small ponding features. Historic ranching activities have also created impoundments (cattle tanks) adjacent to the MARRCO Analysis Area. Numerous paved and unpaved roads also cross portions of the Analysis Area.

Although the Analysis Area is entirely located within the Middle Gila River sub-basin (Hydrologic Unit Code [HUC] 15050100), it occurs within portions of three watersheds of the larger sub-basin: the Upper

Queen Creek (HUC 1505010004), Lower Queen Creek (HUC 1505010009), and Paisano Wash-Gila River (HUC 1505010007) watersheds. The location of the Analysis Area within the three watersheds is depicted in ***Figure 3***.

Upper Queen Creek (HUC 1505010004) Watershed

Seven drainages (Features 15 through 22) are located in the portion of the Analysis Area within the Upper Queen Creek watershed (see ***Figure 3***). All of the drainages (Features 15 - 18 and 20 - 22) are direct tributaries to the reach of Queen Creek between Potts Canyon and Whitlow Ranch Dam.

Although several man-made impoundments and diversions are located between the Analysis Area and the downgradient TNW, a general flowpath between the Upper Queen Creek drainages and the TNW can be discerned via a review of topographic maps and recent aerial photography (see ***Figure 3***). The potential flowpath from the Analysis Area to the TNW includes reaches of Queen Creek, the EMF (also sometimes identified as the Roosevelt Canal), and the Gila River (see ***Figure 3***). Potential flows originating from the Upper Queen Creek watershed portion of the Analysis Area would discharge to the reach of Queen Creek designated by the Arizona Department of Environmental Quality (ADEQ) as intermittent. In Arizona's surface water quality standards, Queen Creek is designated as intermittent from Potts Canyon to the Whitlow Ranch Dam and the Queen Valley golf course, and ephemeral until it enters the Gila River at S. Arizona Avenue immediately south of Phoenix (A.A.C. Title 18, Chapter 11, Appendix B).

The ephemeral reach of Queen Creek downgradient of the Whitlow Ranch Dam includes an approximately 11-mile stretch of the EMF, a flood control channel that alternates between earthen and concrete-lined reaches. The Gila River downstream of the confluence with the EMF is classified as ephemeral to the confluence with the Salt River, a total reach length of more than 30 river miles. Beginning at the confluence of the Gila and Salt Rivers, the Gila River is an effluent-dependent water for the remainder of the 40 river miles to the TNW reach at Powers Butte (A.A.C. Title 18, Chapter 11, Appendix B). Effluent-dependent waters are defined in Arizona's water quality standards regulations "as surface water that, without the…discharge of wastewater, would be an ephemeral water" (A.A.C. Title 18, Chapter 11, Article 1). There are no perennial reaches between the Analysis Area and the downstream TNW.

Lower Queen Creek (HUC 1505010009) Watershed

Thirteen drainages (Features 5, 5a, 5a-1, Features 6 through 13, 13a, and 14) are located in the portion of the Analysis Area within the Lower Queen Creek watershed (see ***Figure 3***).The ephemeral drainages in the Lower Queen Creek watershed trend generally northeast to southwest across the Analysis Area (see ***Figure 3***). All of these features come to a confluence with a larger, unnamed ephemeral drainage running immediately northwest of the Analysis Area to the junction of the Analysis Area and the CAP Canal. The drainages considered within the Parcel 210 Analysis Area (Corps File No. SPL-2013-00050-MWL) also come to a confluence with this unnamed drainage, approximately 0.8 aerial miles downgradient of the Parcel 210 Analysis Area (see ***Figure 2***).

Topographic and stream data maintained by the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) indicates that stormwater flow through this larger, unnamed

ephemeral drainage is impeded before reaching the CAP Canal by a constructed earthen pond and further altered by rural residential development (USDA 2012). A distinct, channelized downgradient flowpath is difficult to discern between this point and the CAP Canal. The CAP Canal functions as a second impounding feature, detaining stormwater flows at the intersection of the canal and the raised bed of the MARRCO railroad (see ***Figure 2***). The inlet and outlet of a siphon passing beneath the CAP Canal are visible on aerial photography near this intersection. Given the numerous impoundments of and alterations to the unnamed ephemeral drainage, it is unclear what magnitude of storm event would be required to transmit stormwater flows from the upgradient side to the downgradient side of the CAP Canal.

Residential development, active agriculture, and linear transportation features obscure or remove the path of any channelized flow downgradient of the CAP Canal. Although a distinct flowpath cannot be distinguished as a result of these intervening constructed disturbances, analysis of the topography in the area immediately west (downgradient) of the CAP Canal and east of the San Tan Mountains suggests that downgradient stormwater flow would be generally towards the ephemeral reach of Queen Creek in the vicinity of Rittenhouse Road (USDA 2012). This reach of Queen Creek is approximately 9 aerial miles from the siphon beneath the CAP Canal. Downgradient flows from this point would be as those for drainages in the Upper Queen Creek watershed: to the EMF, to an ephemeral reach of the Gila River, to the confluence of the Gila and Salt Rivers, to the TNW between Powers Butte and Gillespie Dam (see ***Figure 3***).

All intervening drainages in the possible downgradient flowpath from the Analysis Area to the TNW are classified as ephemeral in Arizona's surface water quality standards (A.A.C. Title 18, Chapter 11, Appendix B) except for one: the Gila River itself upgradient of and including the TNW, beginning at the confluence of the Gila and Salt Rivers, which is classified as effluent-dependent. There are no perennial reaches between the Analysis Area and the downgradient TNW.

Paisano Wash-Gila River (HUC 1505010007) Watershed

Four drainages (Features 1 through 4) are located in the portion of the Analysis Area within the Paisano Wash-Gila River watershed (see ***Figure 3***).The ephemeral drainages in the Paisano Wash-Gila River watershed trend generally northeast to southwest, paralleling the MARRCO Analysis Area (see ***Figure 3***). Three of these drainages (Features 2, 3, and 4) are intercepted by the Magma Flood Retarding Structure, approximately 2.3 aerial miles upgradient of the CAP Canal (see ***Figure 2***).

An outfall in the Magma Flood Retarding Structure directs potential flows into a constructed channel bordering agricultural fields at the southern end of the San Tan Valley. Although the channel and floodplain downgradient of this point are interrupted numerous times by residential development, active agriculture, and linear transportation features, a probable flowpath is discernable on aerial photography. The flowpath from the Magma outfall to the Gila River is approximately 11.2 river miles, including a 2.8-river-mile-strech of the Hunt Canal, to the canal's confluence with the Gila River. The one drainage not intercepted by the Magma Flood Retarding Structure, Feature 1, appears to impound against the CAP Canal with a general flowpath that would be toward the same Hunt Canal outfall at the Gila River (see ***Figure 2***). From the Hunt Canal, the flowpath consists of approximately 25.2 river miles of the ephemeral

Gila River to the EMF outfall, with large sand and gravel pits that intercept the low flow channel at the 1.7-river-mile and 23.7-river-mile marks (see ***Figure 3***).

Downgradient flows from this point would be as those for drainages in the Upper and Lower Queen Creek watersheds: the ephemeral reach of the Gila River downgradient of the EMF outfall, to the confluence of the Gila and Salt Rivers, to the TNW between Powers Butte and Gillespie Dam (see ***Figure 3***). All intervening drainages in the possible downgradient flowpath from the Analysis Area to the TNW are classified as ephemeral in Arizona's surface water quality standards (A.A.C. Title 18, Chapter 11, Appendix B) except for the Gila River downstream of the confluence with the Salt River to the TNW, which is classified as effluent dependent. There are no perennial reaches between the Analysis Area and the downgradient TNW.

Distance to TNW

As described above, the nearest designated downstream TNW to the Analysis Area is the reach of the Gila River between Powers Butte and Gillespie Dam. Assuming the flow routes described in ***Section I***, above, the drainages within the Analysis Area lie between 106 river miles (72.5 aerial miles) and 110 river miles (88.7 aerial miles) from this TNW.

Watershed Comparison to TNW

The watershed of the TNW reach of the Gila River, as measured at the Gillespie Dam, is 49,650 square miles. The largest system of drainages within the Analysis Area is Feature 5. The watershed of Feature 5 (which includes the watersheds of Features 5a and 5a-1) is approximately 8.53 square miles. This watershed represents approximately 0.0172 percent, or less than one hundredth of a percent, of the watershed of the downgradient TNW.

Mean Annual Precipitation

No gages for the measurement of precipitation are located within the Analysis Area. Measures of the mean annual precipitation in the vicinity of the Analysis Area were obtained from the Western Regional Climate Center (WRCC). Measures of precipitation for the Upper Queen Creek watershed (northeast) portion of the Analysis Area are based on data collected at the National Climate Data Center (NCDC) station located in Superior (Station ID 028348), roughly 5 miles east of the northeastern end of the Analysis Area (WRCC 2013). The records from this station show a mean annual precipitation of 18.32 inches between the years 1920 and 2006. For the purposes of this evaluation, mean annual precipitation for the Upper Queen Creek watershed portion of the Analysis Area is conservatively assumed to be 18 inches. The vast majority of this precipitation comes in the form of rain, although light snow is possible. The mean annual snowfall recorded by the Superior Station was 1.4 inches. The snowfall in the vicinity of the Analysis Area generally functions in the same capacity as rainfall, usually melting and running off in the course of a single day. Snowfall in the area never forms a "snow pack" in the traditional sense of that term.

Measures of the precipitation for the Lower Queen Creek and Paisano Wash (southwest) portions of the Analysis Area are based on data collected at the NCDC station located in at the Ashurst Hayden Dam

(Station ID 020498), northeast of Florence (WRCC 2012). This station shows a mean annual precipitation of 10.31 inches.

Flow Event Data

No gages for the measurement of stream flow are located within the Analysis Area. The nearest downstream gages that provide stream flow data are located on Queen Creek at the Whitlow Ranch Dam, on Queen Creek at Rittenhouse Road, and at the outfall of the Magma Flood Retarding Structure. No coincident flow analysis was performed specifically for purposes of this evaluation. However, a 2011 JE Fuller Hydrology & Geomorphology, Inc. (JEF) analysis completed for the West and East Plant JD (Corps File No. SPL-2009-00315-MB) and included as supporting evidence in the Near West (Corps File No. SPL-2014-00064-MWL) and the Parcel 210 (Corps File No. SPL-2013-00050-MWL) SNAs is also relevant to this analysis. The coincident flow analysis contained in the JEF (2011) memorandum is relevant to the potential downgradient flowpaths from portions of the current Analysis Area and is discussed in the *Potential Hydrologic Connectivity to TNW* section below.

Estimated Onsite Peak Flows

WestLand did not estimate the peak discharge values for the 2-year return interval (Q_2) storm event and the 100-year return interval (Q_{100}) storm event within any of the drainage watersheds considered under this evaluation. Drainages similar in size, morphology, and downgradient flowpath to those within the current Analysis Area have been repeatedly evaluated by WestLand, the Corps, and others for previous formal JD requests. These evaluations have demonstrated that the effects of great distances, transportation losses, and intervening man-made impoundments have much more bearing on the determination of significant nexus than the peak discharge volumes of ephemeral drainage systems. These factors are described in the *Potential Hydrologic Connectivity to TNW* section below.

Potential Hydrologic Connectivity to TNW

Given the flow characteristics of the onsite drainages, the incidence of transportation losses through percolation, and the presence of several man-made impoundment features (e.g. the Whitlow Ranch Dam, the Sonoqui Dike, the Magma Flood Retarding Structure, and gravel pit operations) along the route of potential flow, it is unlikely that potential flows in the Analysis Area reach the TNW stretch of the Gila River in anything less than a series of the most significant storm events (i.e., greater than the 100-year storm). The potential flowpaths from the Analysis Area to the TNW also include lengthy, ephemeral reaches of Queen Creek, the EMF, and the Gila River (see ***Figure 3***). The presence of the constructed impoundments and disturbances, coupled with the great distance to the downgradient TNW (between 116 and 110 river miles), vastly reduces, if not entirely eliminates, the possibility for a more than insubstantial hydrologic connection to exist between the Analysis Area and the downgradient TNW.

For the portion of the Analysis Area within the Upper Queen Creek watershed, the most significant of the impoundments between the Analysis Area and the TNW is the Whitlow Ranch Dam. The Whitlow Ranch Dam is an earthfill dam constructed by the Corps in 1960 to provide flood protection to farmland and developed areas in the eastern portion of the Phoenix Basin. The dam detains stormwater flood flows and

slowly meters out water impounded in the reservoir of the dam, limiting peak discharge while increasing flow duration. The Corps' reservoir regulations website acknowledges that outflow from the dam "usually percolates into the alluvial plain below the dam and rarely travels more than a few miles downstream" (Corps 2014). The reservoir behind the dam has a total volume of 30,000 acre-feet with a peak outflow at this volume of approximately 1,004 cfs (Corps 2014). Two sand and gravel quarries are also located within the reach of Queen Creek below the dam.

A second impoundment, the Sonoqui Dike, is located on Queen Creek immediately upgradient of the CAP Canal, and approximately 15 miles downstream of the Whitlow Ranch Dam. This dike is part of series of flood protection structures built by the Bureau of Reclamation to protect the CAP Canal from floods. The dike, like the Whitlow Ranch Dam, is designed to detain stormwater flood flows and slowly release these potential flows downstream. The detention of flows allows sediments conveyed by stormwater to settle out of the flow and be retained behind the dike. A Public Notice for a Corps Section 404 Permit for discharge related to the proposed Queen Creek Channel Improvements Project (Corps File No. SPL-2010-00916-WHM) illustrates the effectiveness of sediment trapping behind the Sonoqui Dike. The loss of sediment supply and increased flow duration were identified in the Public Notice as contributing to the severe erosion and lateral migration of 2,400 feet of the Queen Creek channel downgradient of the dike, threatening a Pinal County-maintained bridge crossing.

In addition to the impoundments described above, potential flows within the reach of Queen Creek between the CAP Canal and the Gila River at the outfall of the EMF are further impounded by the presence of in-stream sand-and-gravel mining operations. The entirety of the channel of Queen Creek at North Schnepf Road in Queen Creek, Arizona, already restricted by housing developments and agricultural operations, is disturbed by a sand-and-gravel mining operation. Flows within this reach of the creek are impounded by existing gravel pits within the operation. A second sand-and-gravel mining operation is located in the channel of the Gila River, approximately 7 miles downstream of the outfall of the EMF into the river. A direct fluvial connection of low flow channels is visible in aerial photography between the EMF outfall and the existing gravel pits of this operation. Again, given the man-made impediments to flow and the channel disturbances described above, it is extremely unlikely that potential flows in the Upper Queen Creek watershed portion of the Analysis Area reach the TNW stretch of the Gila River in anything less than a series of the most significant storm events.

The drainages within the Lower Queen Creek watershed portion of the Analysis Area all reach a confluence with a single unnamed drainage to the northwest of the Analysis Area. The downgradient portion of this drainage is impeded and altered by a constructed earthen pond and residential development, prior to reaching the first significant impoundment upgradient of the CAP Canal (see ***Figure 3***). Any path of channelized flow downgradient of the CAP Canal has been obscured or removed by residential development, active agriculture, and linear transportation features. However, should potential flows reach the downgradient portion of Queen Creek, the remaining flowpath would be as that of the Upper Queen Creek watershed drainages as described above. Previous evaluation performed by WestLand, the Corps, and others have indicated that the flood control and conveyance structures of the Phoenix Valley are efficient attenuators of flow through the valley.

The 2011 JEF coincident flow analysis completed for the West and East Plant JD (Corps File No. SPL-2009-00315-MB) and included as supporting evidence in the Near West (Corps File No. SPL-2014-00064-MWL) and the Parcel 210 (Corps File No. SPL-2013-00050-MWL) SNAs is relevant to the flowpath of both the Upper Queen Creek and Lower Queen Creek portion of the current Analysis Area. JEF identified ten gaged locations along a path of interest from the Whitlow Ranch Dam to the Gila River at the Gillespie Dam and identified an overlapping period of concurrent operation of slightly more than 10 years, between the years 2000 and 2011 (JEF 2011). Mean daily flow rate data from the gages for these 10 years, a period from 2000 to 2010, was then analyzed for instances of non-zero flow at each gage, and these instances correlated to identify potential concurrent flow in the path of interest between Whitlow Ranch Dam and the Gila River at Gillespie Dam. For the purposes of this analysis, potential concurrent flow was defined as recorded flow at all gages in the reach of interest in the same day. Based on the gage data, no flow was present at the Whitlow Ranch Dam for approximately 98 percent of the 10-year period of record, and analysis of the 10-year period of record identified no instances of potential concurrent flow within the reach of interest (JEF 2011).

Analysis of instances of coincident flow from the Whitlow Ranch Dam on Queen Creek to the Gila River at the EMF outfall suggest large transmission losses, likely due to percolation, along Queen Creek to the Sonoqui Dike and the EMF, and within the EMF itself upstream of the outfall into the Gila River. The data also suggest that those stormwater flows which do discharge to the Gila River from the EMF are lost through percolation into the alluvium of the Gila River and are not transmitted downstream (JEF 2011). This analysis indicated that the flood control and conveyance structures of the Phoenix Valley are efficient attenuators of potential flow through the valley, and would be anticipated to act as such for potential flows from the Upper Queen Creek and Lower Queen Creek portions of the Analysis Area. Further, flows that could make it through to the Gila River at the EMF outfall would not be transmitted downstream.

Three of the four drainages located in the Paisano Wash-Gila River watershed portion of the Analysis Area are intercepted by the Magma Flood Retarding Structure, approximately 2.3 aerial miles upgradient of the CAP Canal. The final drainage is intercepted by the CAP Canal itself. The SNA completed for the FRS Project JD has bearing on the consideration of significant nexus for those drainages within the Paisano Wash-Gila River watershed that are impounded behind the Magma Flood Retarding Structure. The drainages in the FRS Project were impounded behind the similar Powerline, Vineyard Road, and Rittenhouse Flood Retarding Structures, all of which would potentially discharge to the Powerline Floodway downgradient of the Powerline Flood Retarding Structure. The drainage area of the Powerline, Vineyard Road, and Rittenhouse Flood Retarding Structures is approximately 146.8 square miles, while the drainage area for the Magma Flood Retarding Structure is 64.7 square miles, and shares a similar, but longer, flowpath through ephemeral and effluent-dependent reaches of the Gila River to that considered for drainages in the FRS Project JD. The Powerline Floodway (and consequently the drainages reporting to this feature) was determined by the Corps (Corps File No. SPL-2012-00406-MWL) to not have a significant nexus to the downgradient TNW based on the distance to the TNW, low frequency and amount of flow, the effects of intervening impoundments, and the lack of aquatic lifecycle support functions for aquatic species in the TNW. The final drainage in the Paisano Wash-Gila River watershed portion of the Analysis Area, impounded by the CAP Canal, would likely share the same downgradient

flowpath from the Hunt Canal outfall, through the ephemeral and effluent-dependent reaches of the Gila River, to the distant TNW. The flowpath from the Hunt Canal outfall through these reaches of the Gila River to the TNW at Powers Butte is more than 70 river miles.

Given the flow characteristics of the onsite drainages, the incidence of transportation losses through percolation, and the presence of several man-made impoundment features (e.g. the Whitlow Ranch Dam, the Sonoqui Dike, the Magma Flood Retarding Structure, and several gravel pit operations) along the route of potential flow, it is highly unlikely that potential flows in any portion of the Analysis Area reach the TNW stretch of the Gila River in anything less than a series of the most significant storm events (i.e., greater than the 100-year storm). As such, very little potential exists for hydrologic connectivity between the drainages within the current Analysis Area and the downstream TNW.

Physical/Chemical Nexus Factors

The significant distance between the Analysis Area and the downgradient TNW, as well as the presence of several constructed impediments to flow, suggests that there is no potential for the drainages within the Analysis Area to have more than an insubstantial or speculative effect on the physical or chemical integrity of the TNW. Within the Analysis Area, potential pollutant sources consist mainly of unconsolidated sediment from unpaved roads is another potential pollutant source.

The reach of Queen Creek downgradient from the northeastern portion of the Analysis Area to the Whitlow Ranch Dam is currently listed as impaired for copper in the 2010 Arizona Department of Environmental Quality (ADEQ) 303(d) Impaired Waters List (ADEQ 2012). Considering the proximity of the impaired segment of Queen Creek, it is possible that the historic mining activities upgradient of the Analysis Area over the last century have contributed to the impairment status of this reach.

Of particular concern for the Gila River (including the designated TNW stretch) are the effects of nitrogen and phosphorous contamination from agricultural fertilizers and residues of agricultural pesticides. Of note, most of the TNW reach of the Gila River is listed as impaired (ADEQ 2012) for waterborne concentrations of the elements boron and selenium, as well as concentrations of DDT metabolites, toxaphene, and chlordane found in fish tissue, all a result of current and historic agricultural activities. Although agricultural activities occur surrounding the extreme southwestern end of the Analysis Area, none of these activities occurs within the Analysis Area. Therefore, even if there were regular hydrologic connectivity between the ephemeral drainages of the Analysis Area and the TNW, the Analysis Area itself would not be expected to contribute the pollutants causing current impairment in the TNW.

As evidenced in the previous section, there is little to no hydrological connection between the Analysis Area drainages and the Gila River, even in the 100-year runoff event. Additionally, transport of sediment from the Analysis Area would be significantly impeded, if not completely precluded, by the presence of the Whitlow Ranch Dam, the Sonoqui Dike, the Magma Flood Retarding Structure, and other man-made impoundments and disturbances along the downstream flowpath. Whitlow Ranch Dam is known to function as an effective sediment trap, as is the Sonoqui Dike, evidenced by the Section 404 Permit Public Notice for the Queen Creek Channel Improvements Project (Corps File No. SPL-2010-00916-WHM). Additionally, the ephemeral drainages within the Analysis Area do not possess the required surface flow

and hyporheic zone identified by Alexander et al. (2007) as important in the removal of upstream pollutant inputs, particularly nitrogen compounds. Therefore, the drainages in the Analysis Area are not expected to either contribute or filter pollutants, or contribute sediments at an amount or frequency that would affect the chemical or physical integrity of the downstream TNW.

Based on the above analysis, the drainages within the Analysis Area do not have more than an insubstantial or speculative effect on the physical or chemical integrity of the TNW. No potential sources of those pollutants causing the impairment of the downstream TNW reach of the Gila River (which are tied to agricultural runoff) have been identified in the Analysis Area. Potential sediment transport from the Analysis Area is precluded or at least significantly impeded by the presence of numerous impoundments along the downstream flowpath.

Biological/Ecological Nexus Factors

In discussing biological considerations, the Guidance notes that ephemeral tributaries in the arid west may provide habitat for wildlife and aquatic organisms in downstream TNWs. The drainages within the Analysis Area are ephemeral and do not provide habitat or life cycle support functions for aquatic species. Winter (2007) notes that "nearly all streams need to have some contribution from ground water in order to provide reliable habitat for aquatic organisms." Moreover, the significant distance (106 to 110 river miles and 72 to 88 aerial miles) between the drainages in the Analysis Area and the TNW effectively limits the ability of these drainages to provide habitat for species that also use the TNW.

Native vegetation along the ephemeral drainages in the northeastern portion of the Analysis Area is characteristic of the Arizona Upland subdivision of Sonoran Desertscrub as described by Brown (1994). Native vegetation in the southwestern portion of the Analysis Area, and between the Analysis Area and the Gila River, is generally xeroriparian in nature and characteristic of the Arizona Upland and Lower Colorado River subdivisions of the Sonoran Desertscrub biotic community (Brown 1994). These xeroriparian habitats support a variety of common plant species, most of which also occur within adjacent upland habitats. The xeroriparian habitats subject to this analysis are interrupted downstream from the Analysis Area by man-made impoundments (described above), active agriculture, and residential and commercial development in the East Phoenix Valley. The drainages within the Analysis Area do not provide significant habitat or life cycle support functions for any species population found within the TNW reach of the Gila River beginning at Powers Butte. Given the distance to the TNW and the man-made impoundments, this lack of life cycle support can be extended to include potential contributions of nutrients and organic carbon to species within the TNW. Given these conditions, the drainages within the Analysis Area do not significantly affect the integrity of the aquatic habitat or the amount of nutrient transport to the TNW reach of the Gila River.

Although a biological evaluation has not been completed for this significant nexus analysis, the current Analysis Area is similar enough to those previous analyzed as the Parcel 210 and Near West Analysis Areas (Corps File Nos. SPL-2013-00050-MWL and SPL-2014-00064-MWL, respectively) to inform a preliminary finding of potential to occur for those species protected under the Endangered Species Act (ESA). The screening for the Near West Analysis Area, applicable to the northeastern portion of the current Analysis Area, showed that one federally listed and two candidate species have some potential to

occur on or within the vicinity of the Analysis Area: Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*), Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*), and the Sonoran desert tortoise (*Gopherus agassizii*). The screening for the Parcel 210 Analysis Area, applicable to the southwestern portion of the Analysis Area, showed that two species listed as endangered have limited potential to occur on or within the vicinity of the Analysis Area: lesser long-nosed bat (*Leptonycteris yerbabuenae*) and the ocelot (*Leopardus [Felis] pardalis)*.

None of these species are aquatic or riparian, and there is no designated critical habitat within the Analysis Area or along the downgradient flowpath to the nearest TNW. Based on the above, the Analysis Area drainages do not have more than an insubstantial or speculative effect on the ecological or biological integrity of the TNW.

2. Characteristics of Wetlands Adjacent to Non-TNW That Flow Directly or Indirectly into TNW

As described above, no wetlands were identified within the Analysis Area.

C. Significant Nexus Determination

Based on the information provided in Section III.B, above, none of the drainage features within the Analysis Area possess a significant nexus with a designated TNW. The drainage features within the Analysis Area constitute non-navigable, non-RPW tributaries, which do not possess a significant nexus with a downgradient TNW. Therefore, none of the subject drainages are jurisdictional Waters.

D. Determinations of Jurisdictional Findings

As described above, none of the drainages within the Analysis Area has a more than insubstantial or speculative effect on the physical, chemical, or biological integrity of the downgradient TNW reach of the Gila River between Powers Butte and Gillespie Dam.

E. Isolated Waters, the Use, Degradation, or Destruction of Which Could Affect Interstate Commerce Connection

WestLand and the Applicant have analyzed the drainages in the Analysis Area using a significant nexus analysis under the Rapanos Guidance. None of the drainage features within the Analysis Area were considered as isolated Waters.

F. Non-Jurisdictional Waters

A summary of drainage features possessing the physical characteristics of an OHWM will be provided as ***Attachment 5***. All surface water features identified within the Analysis Area are delineated on recent aerial photography to be submitted as ***Attachment 3*** of the final document.

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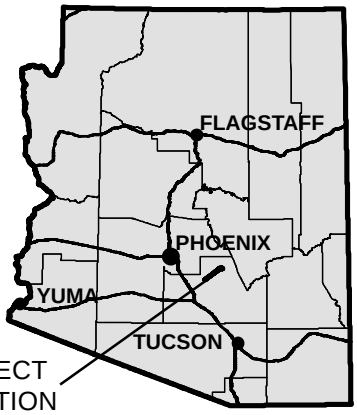
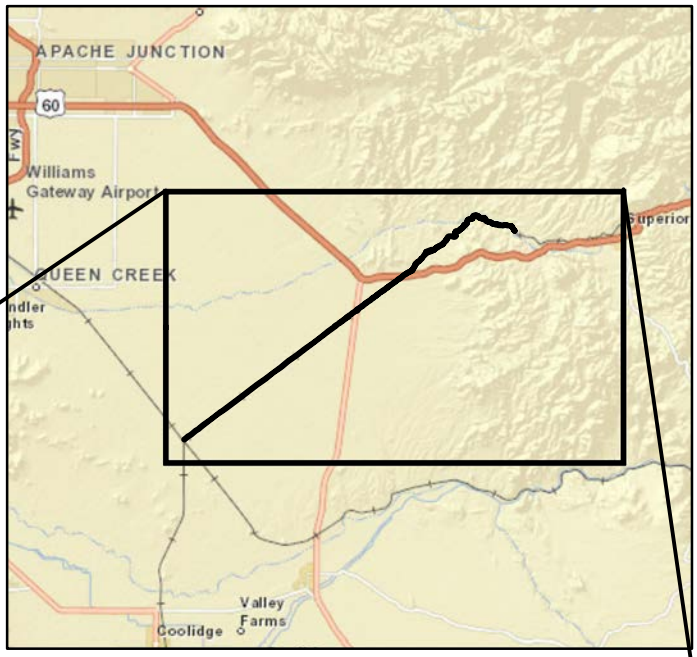
FIGURES

ARIZONA



PROJECT LOCATION

PROJECT VICINITY



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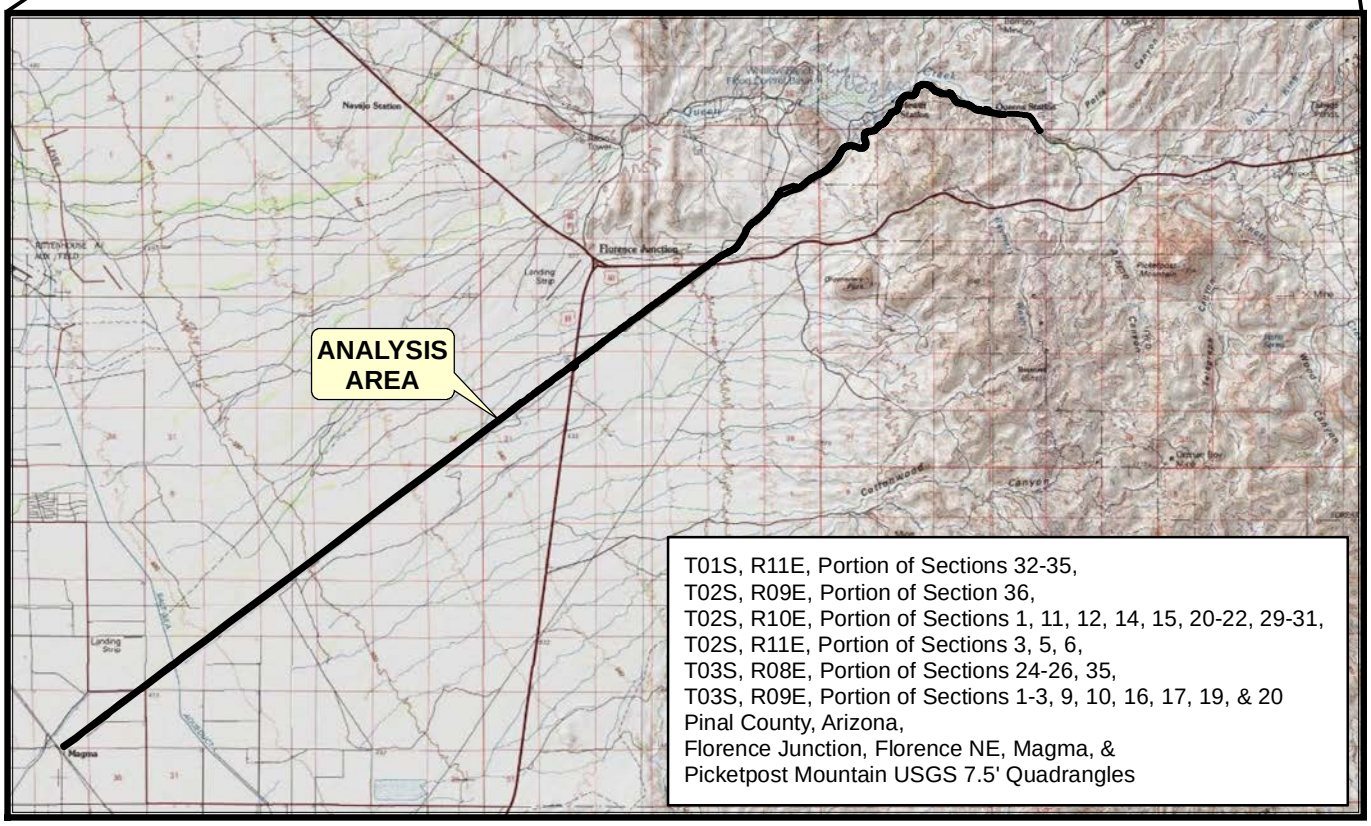

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T02S, R11E, Portion of Sections 3, 5, 6,
T03S, R08E, Portion of Sections 24-26, 35,
T03S, R09E, Portion of Sections 1-3, 9, 10, 16, 17, 19, & 20
Pinal County, Arizona,
Florence Junction, Florence NE, Magma, &
Picketpost Mountain USGS 7.5' Quadrangles

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

VICINITY MAP
Figure 1

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1750 S. Woodlands Village Blvd., Suite 150
Flagstaff, Arizona 86001 (928) 225-2218

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0 2 4 Kilometers

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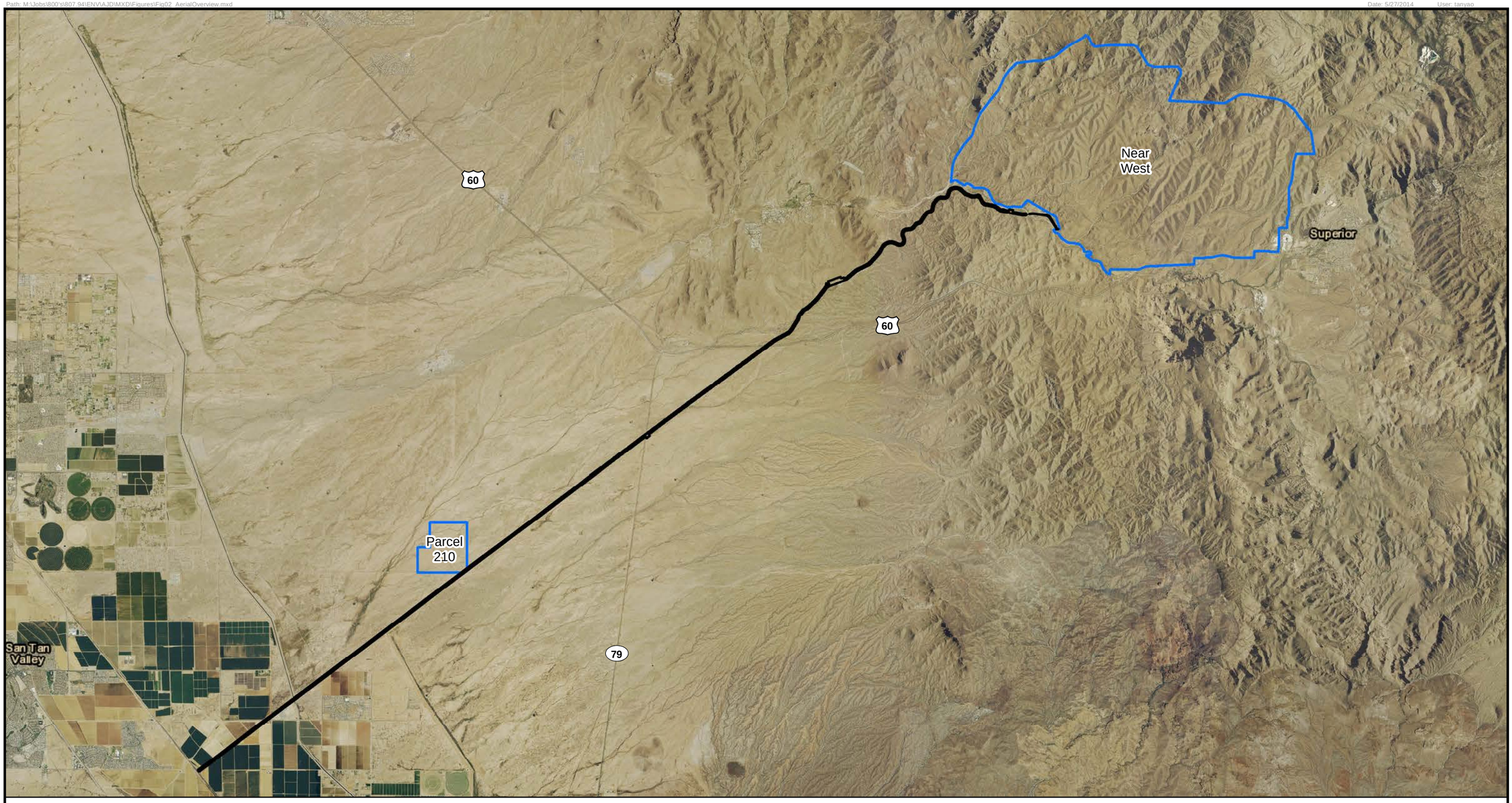

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T03S, R08E, Portion of Sections 24-26, 35,
T03S, R09E, Portion of Sections 1-3, 9, 10, 16, 17, 19, & 20
Pinal County, Arizona,
Florence Junction, Florence NE, Magma, &
Picketpost Mountain USGS 7.5' Quadrangles
Image Source: NAIP 2013

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0 1 2 Miles
0 2 4 Kilometers

N

Legend

- Existing Analysis Areas
- Supplemental Analysis Area

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

AERIAL OVERVIEW
Figure 2

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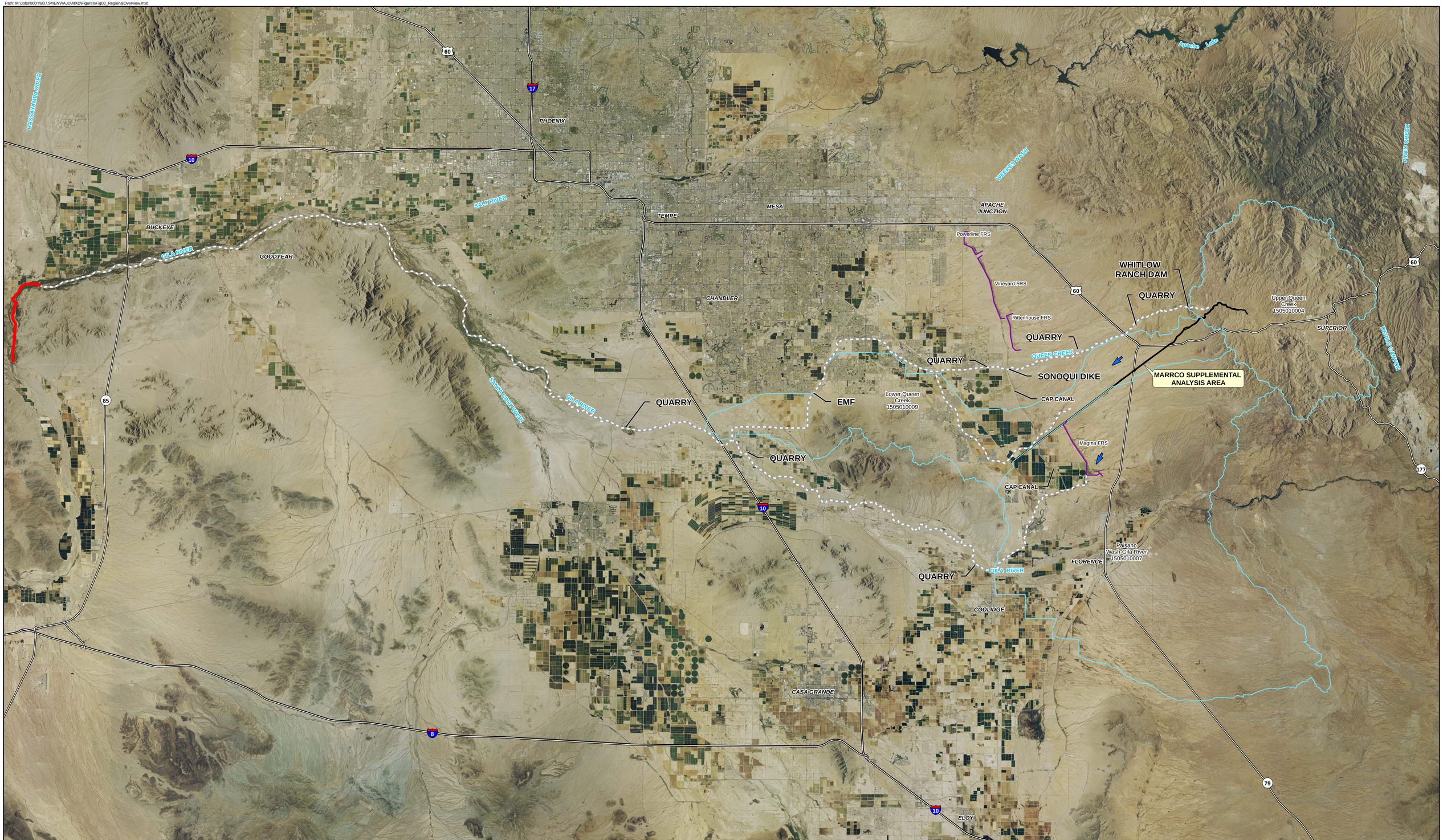

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T02S, R11E, Portion of Sections 3, 5, 6,
T03S, R08E, Portion of Sections 24-26, 35,
T03S, R09E, Portion of Sections 1-3, 9, 10, 16, 17, 19, & 20
Pinal County, Arizona,
Florence Junction, Florence NE, Magma, &
Picketpost Mountain USGS 7.5' Quadrangles
Image Source: NAIP 2013

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0 1.5 3 Miles
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LEGEND

- Flow Direction
- Flood Retarding Structure
- Potential Downgradient Flow Path
- Traditional Navigable Waters (TNW)
- HUC 10 Subwatersheds
- Supplemental Analysis Area

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

REGIONAL OVERVIEW

Figure 3

ATTACHMENT 1

PREVIOUS AGENT DESIGNATION AND AUTHORIZATION FOR FEDERAL ACCESS

Resolution Copper Mining

102 Magma Heights – P.O. Box 1944
Superior, AZ 85273
Tel.: (520) 689-9374 - Fax: (520) 689-9304

May 29, 2014

Ms. Sallie Diebolt
US ARMY CORPS OF ENGINEERS
3636 North Central Avenue
Suite 900
Phoenix, Arizona 85012

RE: JURISDICTIONAL WATERS DETERMINATION FOR THE MARRCO ANALYSIS AREA, PINAL COUNTY, ARIZONA
AGENT DESIGNATION AND ACCESS AUTHORIZATION

Dear Ms. Diebolt:

I am sending this letter to designate WestLand Resources, Inc. as my agent for the purposes of any necessary Clean Water Act Section 404 permitting at the above project. The agent contact information is:

Mr. Brian Lindenlaub
WestLand Resources, Inc.
4001 E. Paradise Falls Drive
Tucson, Arizona 85712
(520) 206-9585

The Analysis Area subject to this jurisdictional determination represents a mix of privately and publically held lands. Privately held lands, including approximately 5 miles of right of way granted by the State, are managed by the Applicant. Publically held lands within the Analysis Area are managed by the Tonto National Forest. The Owner of Record of the privately held lands within the Analysis Area is:

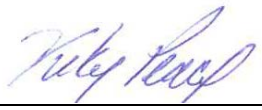
Name: Resolution Copper Company
Mailing Address: 102 Magma Heights
City/State/Zip Code: Superior, Arizona 85273
Telephone Number: 520-689-3313

ACCESS AUTHORIZATION:

I hereby authorize the Army Corps of Engineers and other federal employees the right to access the private property to conduct field investigations for the jurisdictional delineation and for Clean Water Act Section 404 permitting purposes.

If you have any questions or require additional information, please do not hesitate to contact me.

Respectfully,



Signature of Owner Representative | Date

Ms. Vicky Peacey | (520) 689-3313
Typed/Printed Name of Representative | Phone Number

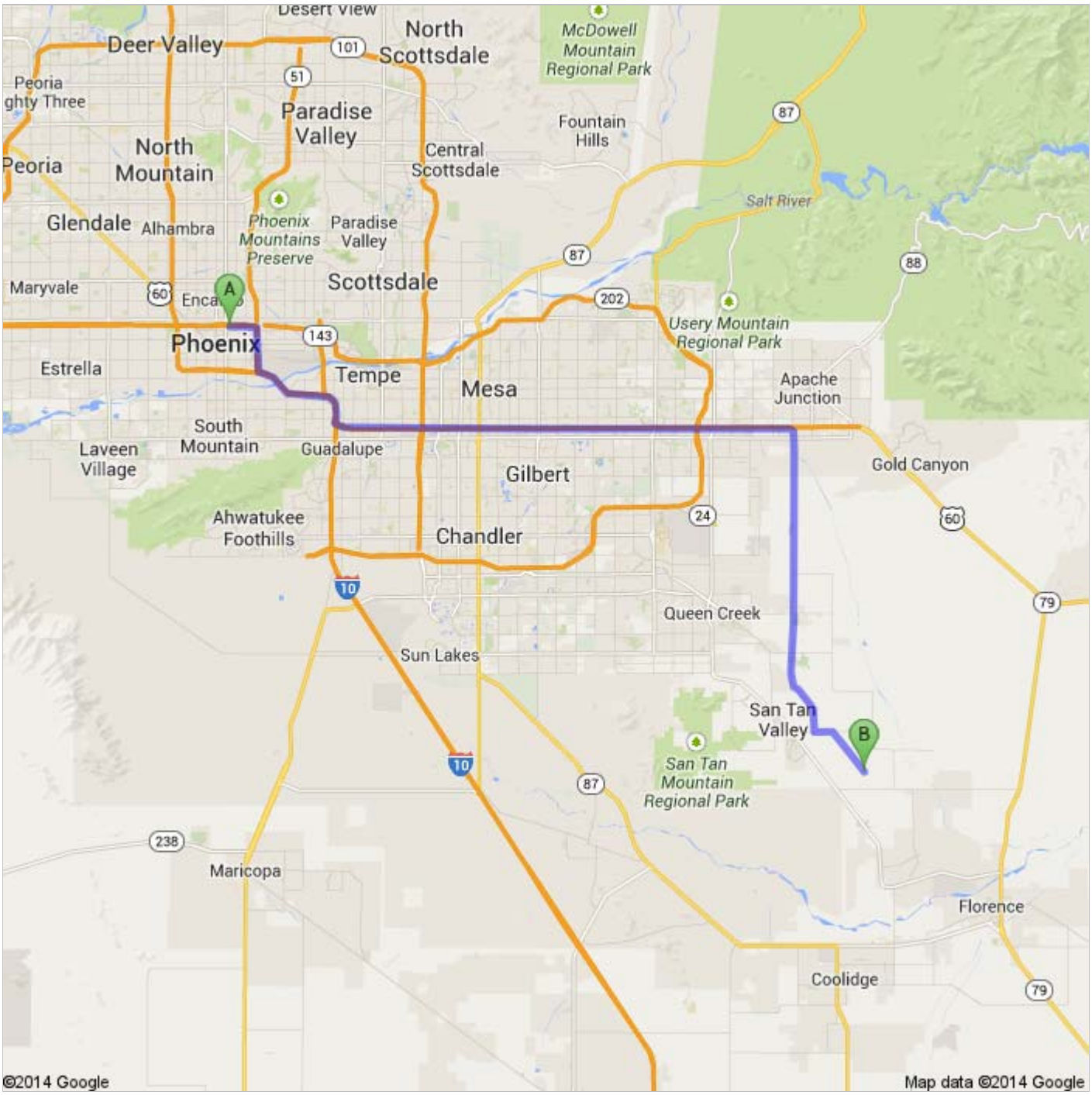
Senior Manager – Environment and External Affairs
Title of Representative

ATTACHMENT 2

DIRECTIONS TO SITE

Google

Directions to N Drifter Pass Rd
52.3 mi – about **1 hour 1 min**



A I-10 E

1.	Head **east** on **I-10 E** toward **Exit 146** About 9 mins	go 8.9 mi total 8.9 mi
2.	Slight right onto **US-60 E** (signs for **Mesa - Globe**) About 21 mins	go 23.6 mi total 32.4 mi
3.	Take exit **195** for **Ironwood Dr**	go 0.4 mi total 32.8 mi
4.	Turn right onto **S Ironwood Dr** About 11 mins	go 9.5 mi total 42.3 mi
5.	Continue onto **N Gantzel Rd** About 8 mins	go 6.5 mi total 48.8 mi
6.	Turn left onto **E Bella Vista Rd** About 1 min	go 0.9 mi total 49.7 mi
7.	Take the 3rd right onto **N Drifter Pass Rd** About 10 mins	go 2.6 mi total 52.3 mi

B N Drifter Pass Rd

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

ATTACHMENT 3

CWA SECTION 404 JURISDICTIONAL DETERMINATION

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Date: 5/27/2014 User: tanyao

DP M1
N/A

DP M2
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DP M3
N/A

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

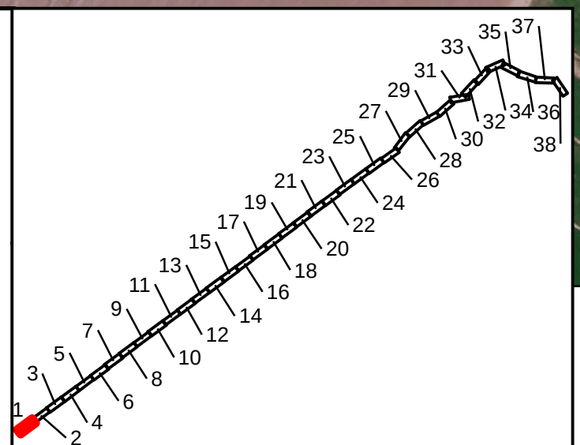
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___1___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R8E Sec. 26 & 35
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 1 of 38

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DP M4
N/A

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

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_____Date Delineation issued by Corps
_____Corps Project Manager
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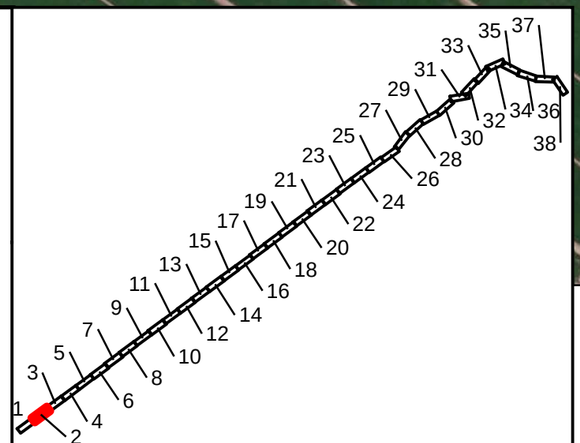

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T3S, R8E Sec. 25 & 26
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 2 of 38

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DP-M5
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
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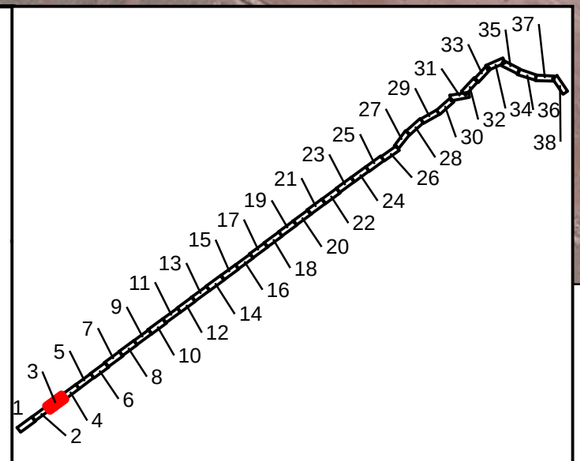
_____Corps Project Manager
Sheet ___3___ of ___38___



T3S, R8E Sec. 25
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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Flagstaff, Arizona 86001 (928) 225-2218

0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 3 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___4___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R8E Sec. 24 & 25; T3S, R9E Sec. 19
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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Flagstaff, Arizona 86001 (928) 225-2218

0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 4 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M8
N/A

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

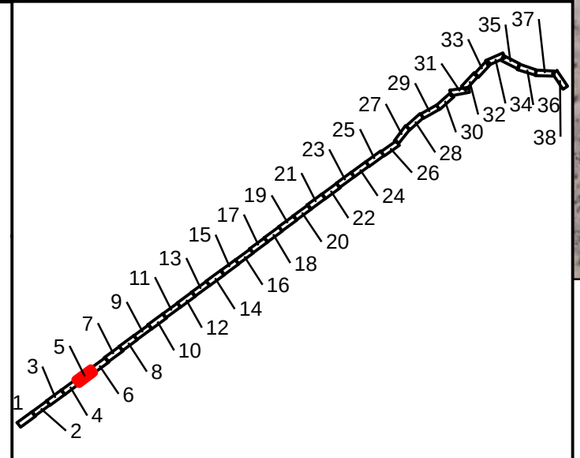
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale ____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___5___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 19
Pinal County, Arizona,
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 5 of 38

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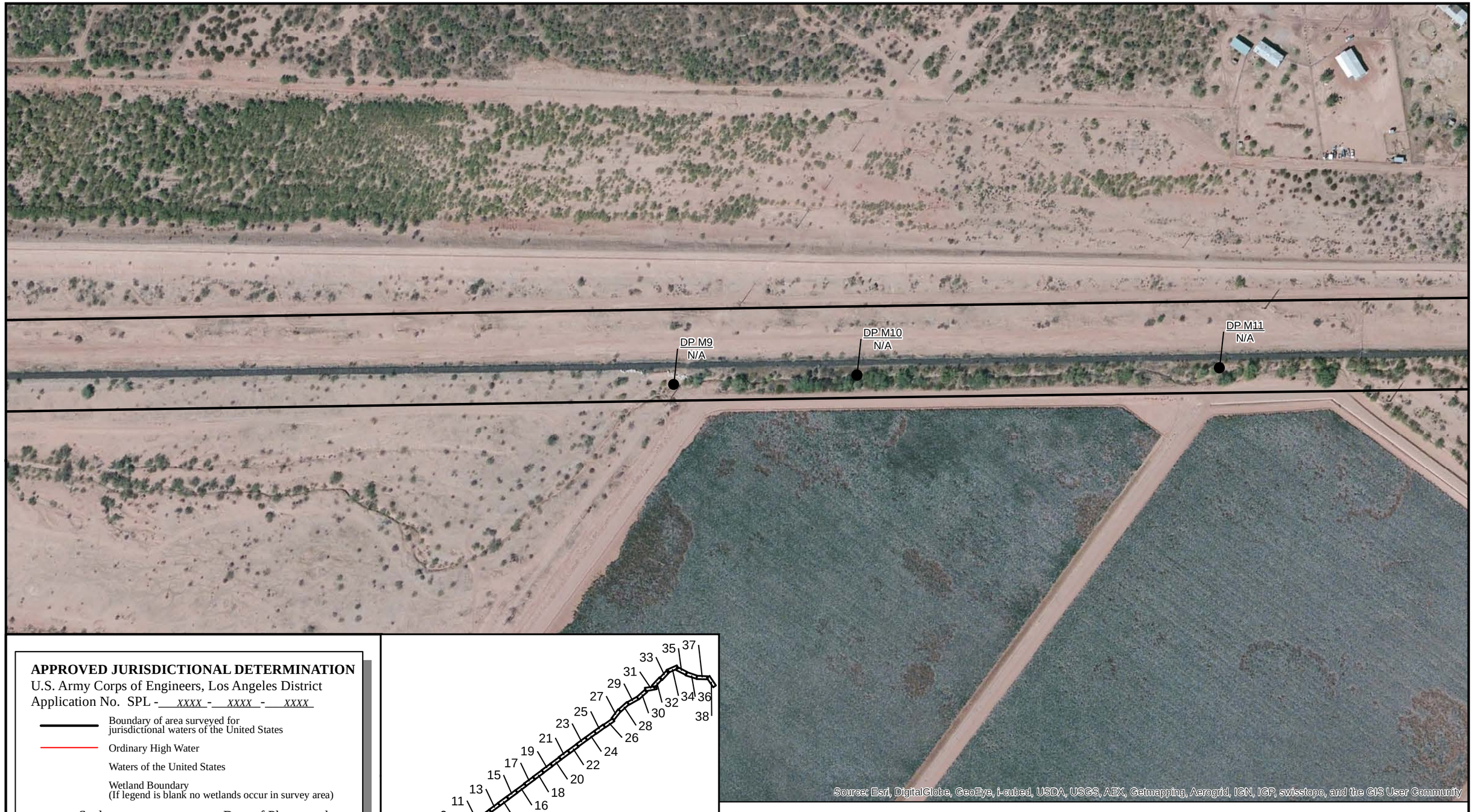
Date: 5/27/2014 User: tanyao



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___6___ of ___38___

T3S, R9E Sec. 17, 19, & 20
Pinal County, Arizona,
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 6 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M12
6 ft

DP M13
6 ft

1

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

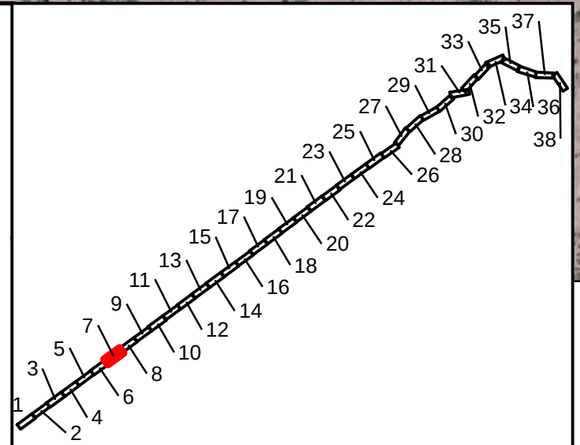
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___7___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 17
Pinal County, Arizona,
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 7 of 38

DP M14
N/A

DP M15
N/A

1

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

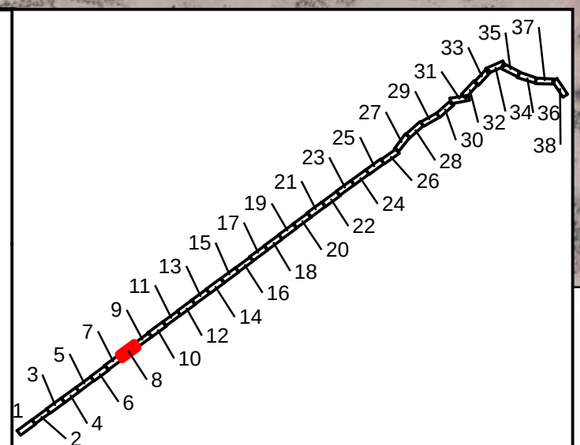
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___8___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 16 & 17
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N

0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
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APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___9___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 9 & 16
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Photo Source: ArcGIS Online, Microsoft 2010

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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 9 of 38

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Date: 5/27/2014 User: tanyao

DP M19
8 ft

DP M20
11 ft

2

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

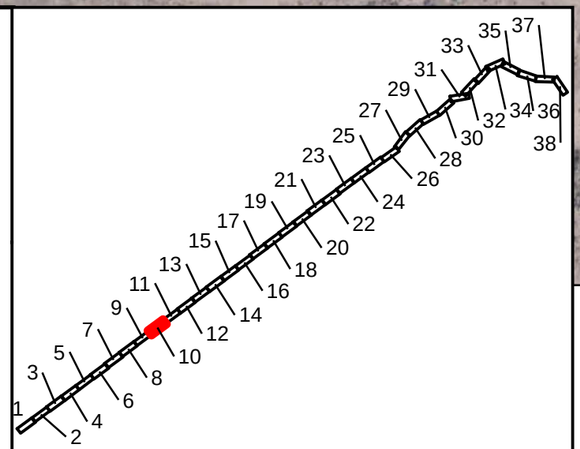
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___10___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 9 & 10
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0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
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APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___11___ of ___38___

T3S, R9E Sec. 10
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0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 11 of 38

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Date: 5/27/2014 User: tanyao

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-__XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___12___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 2, 3, & 10
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N

0 100 200 Feet

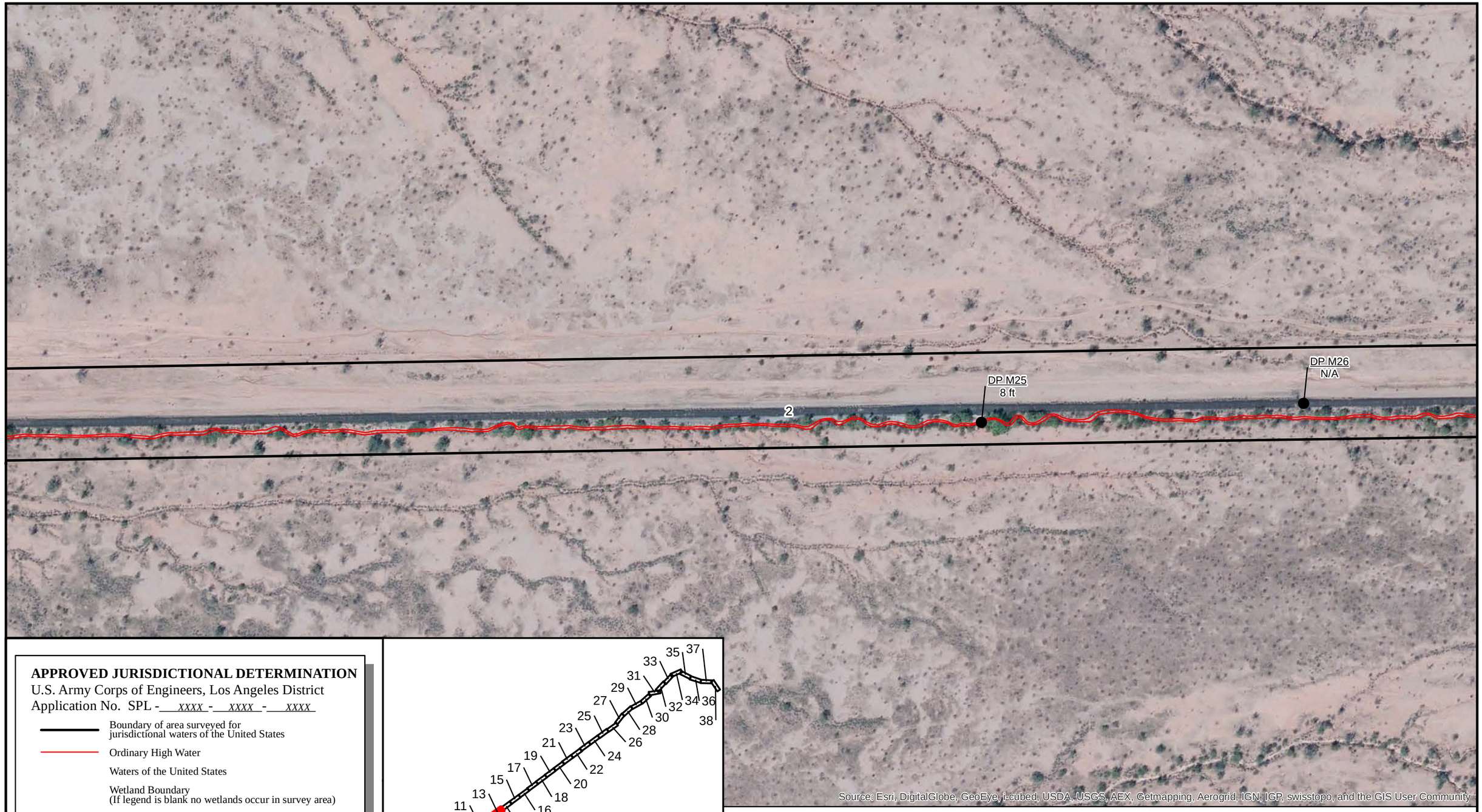
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3

Sheet 12 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___13___ of ___38___

T3S, R9E Sec. 2
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 13 of 38

DP M27
N/A

DP M28
5 ft

DP M29
N/A

DP M30
2 ft

2

3

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

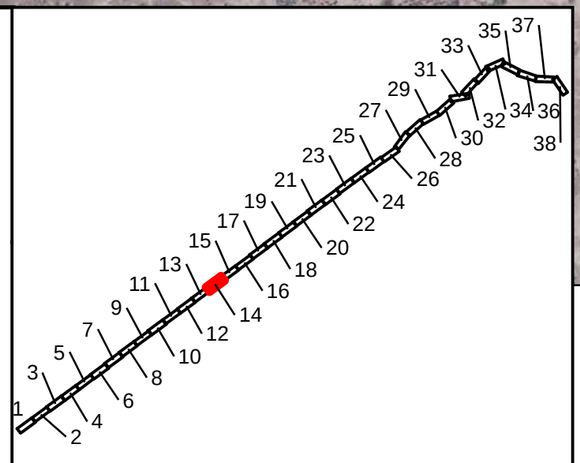
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___14___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T3S, R9E Sec. 1 & 2
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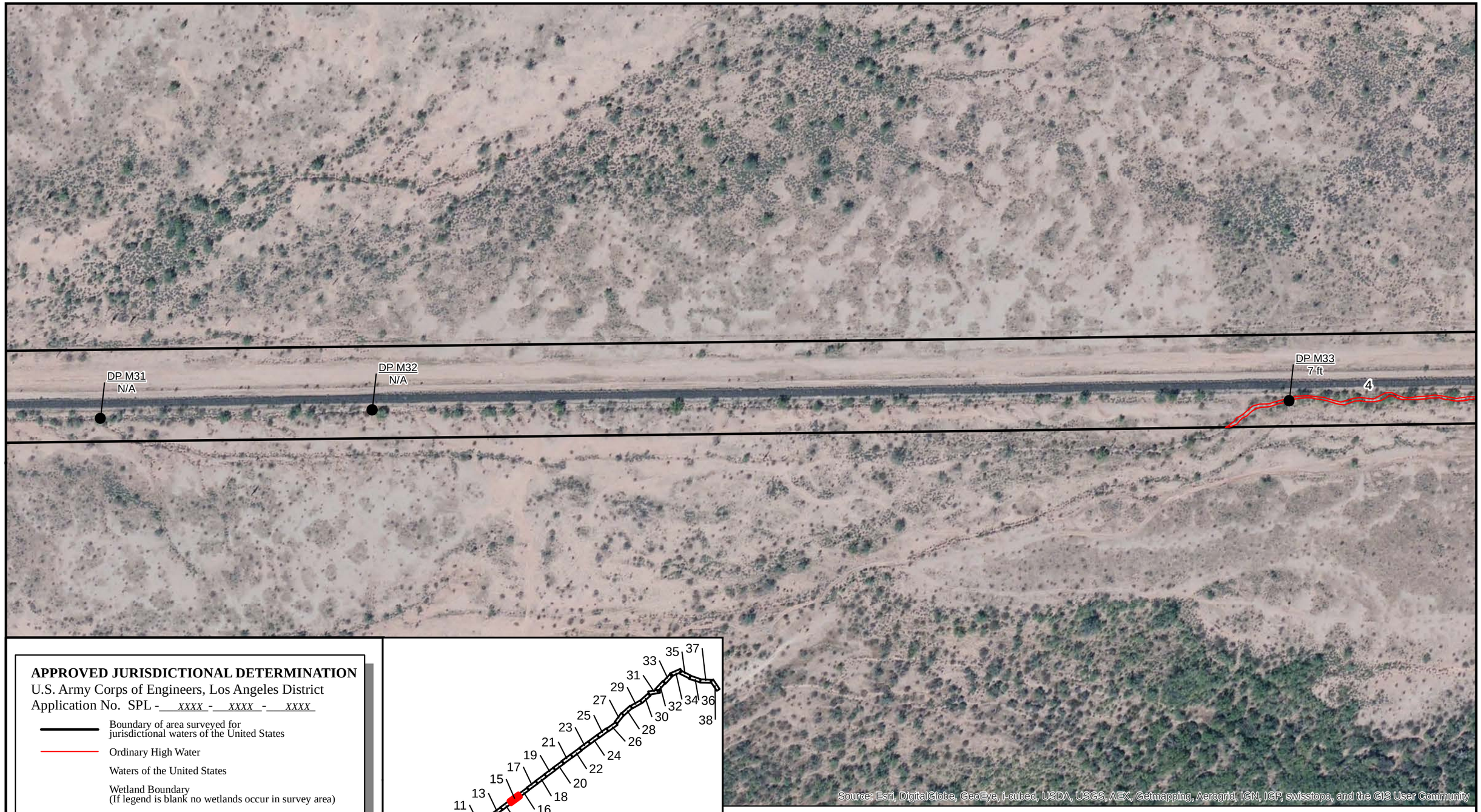
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 14 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___15___ of ___38___

T2S, R9E Sec. 36; T3S, R9E Sec. 1
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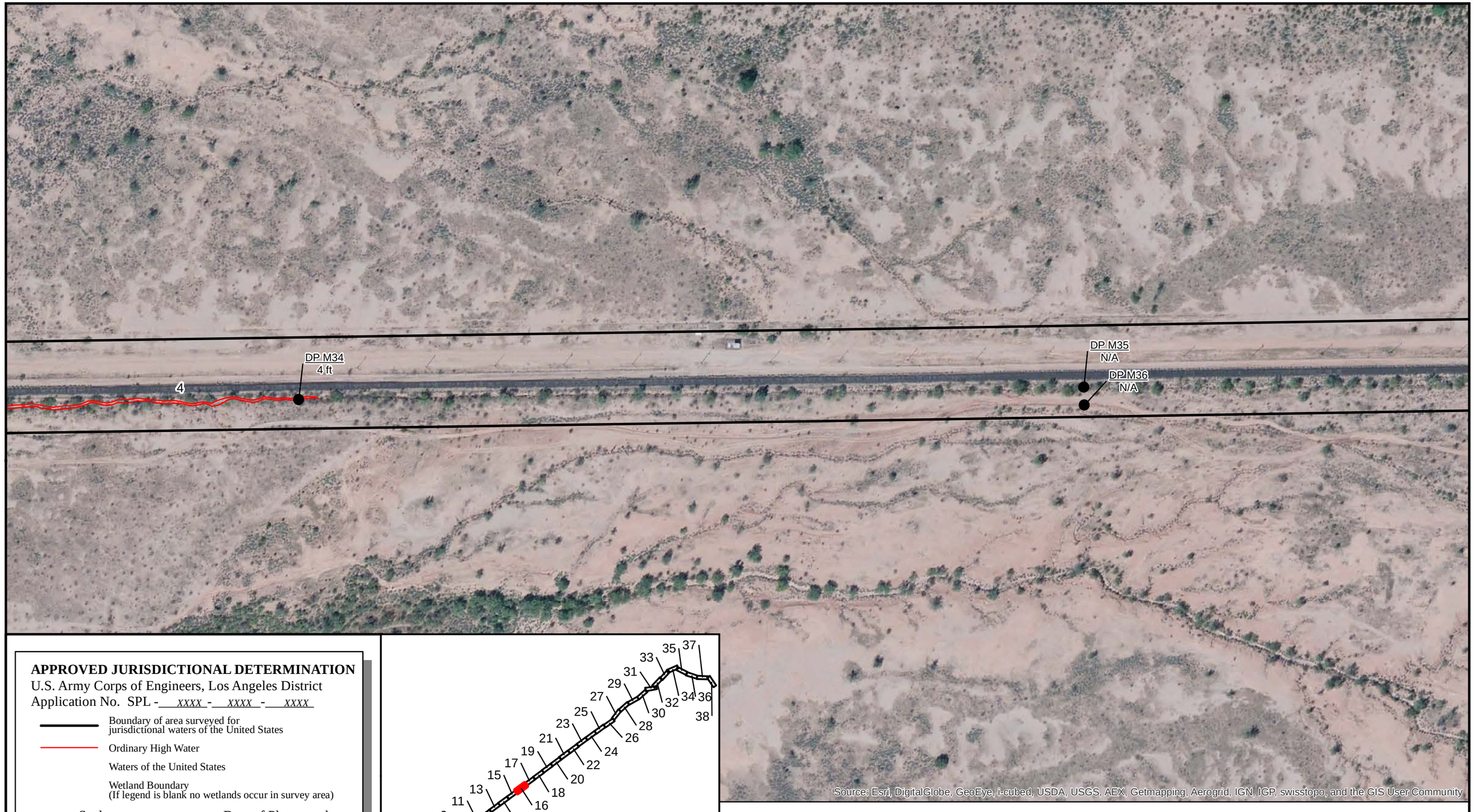
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 15 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___16___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R9E Sec. 36
Pinal County, Arizona,
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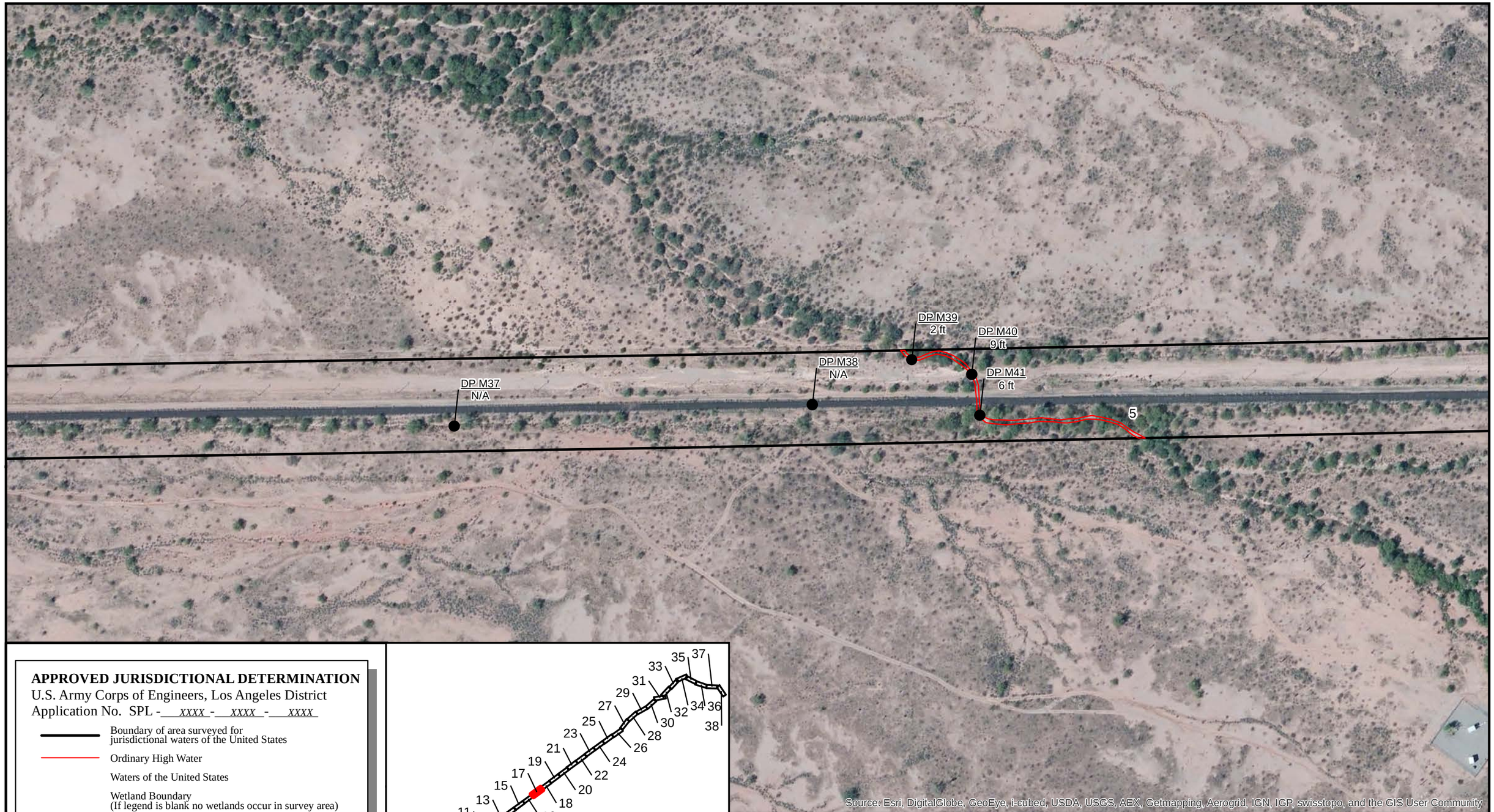
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 16 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___17___ of ___38___

T2S, R9E Sec. 36; T2S, R10E Sec. 31
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 17 of 38

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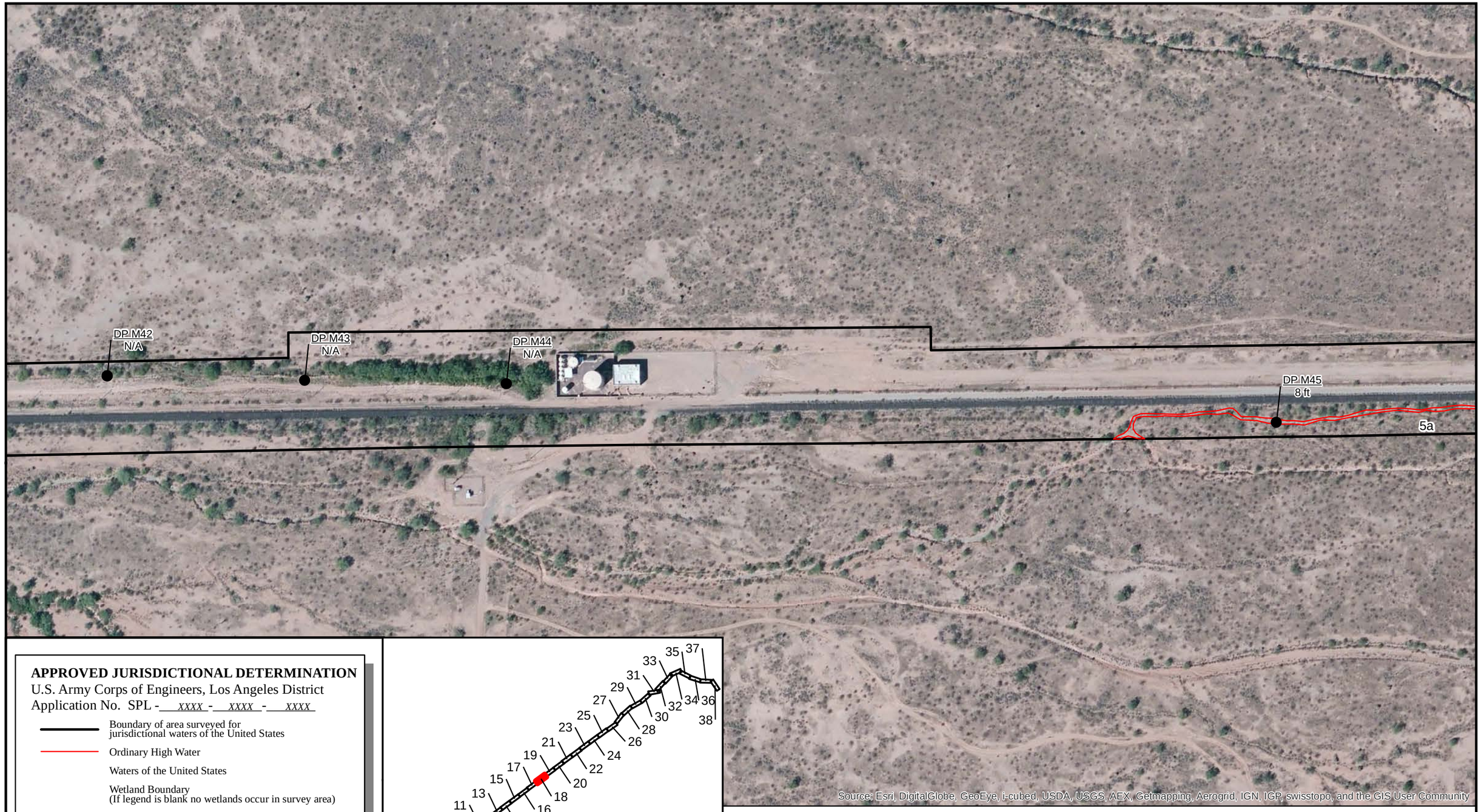
Date: 5/27/2014 User: tanyao



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___18___ of ___38___

T2S, R10E Sec. 30 & 31
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Photo Source: ArcGIS Online, Microsoft 2010

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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 18 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M46
10 ft

DP M47
7 ft

DP M48
9 ft

DP M49
13 ft

5a

5a

5a

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

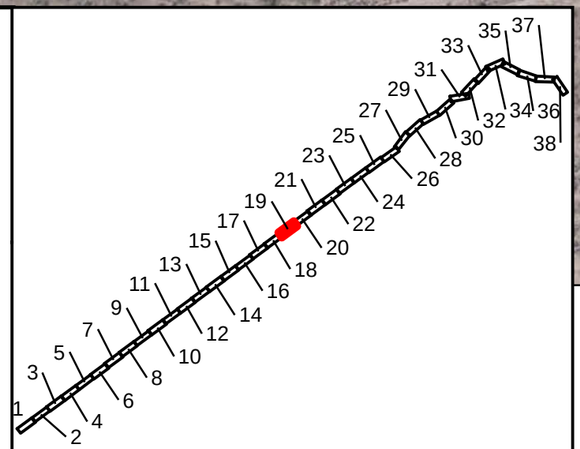
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale ____11-1-2010____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___19___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 29 & 30
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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N

0 100 200 Feet

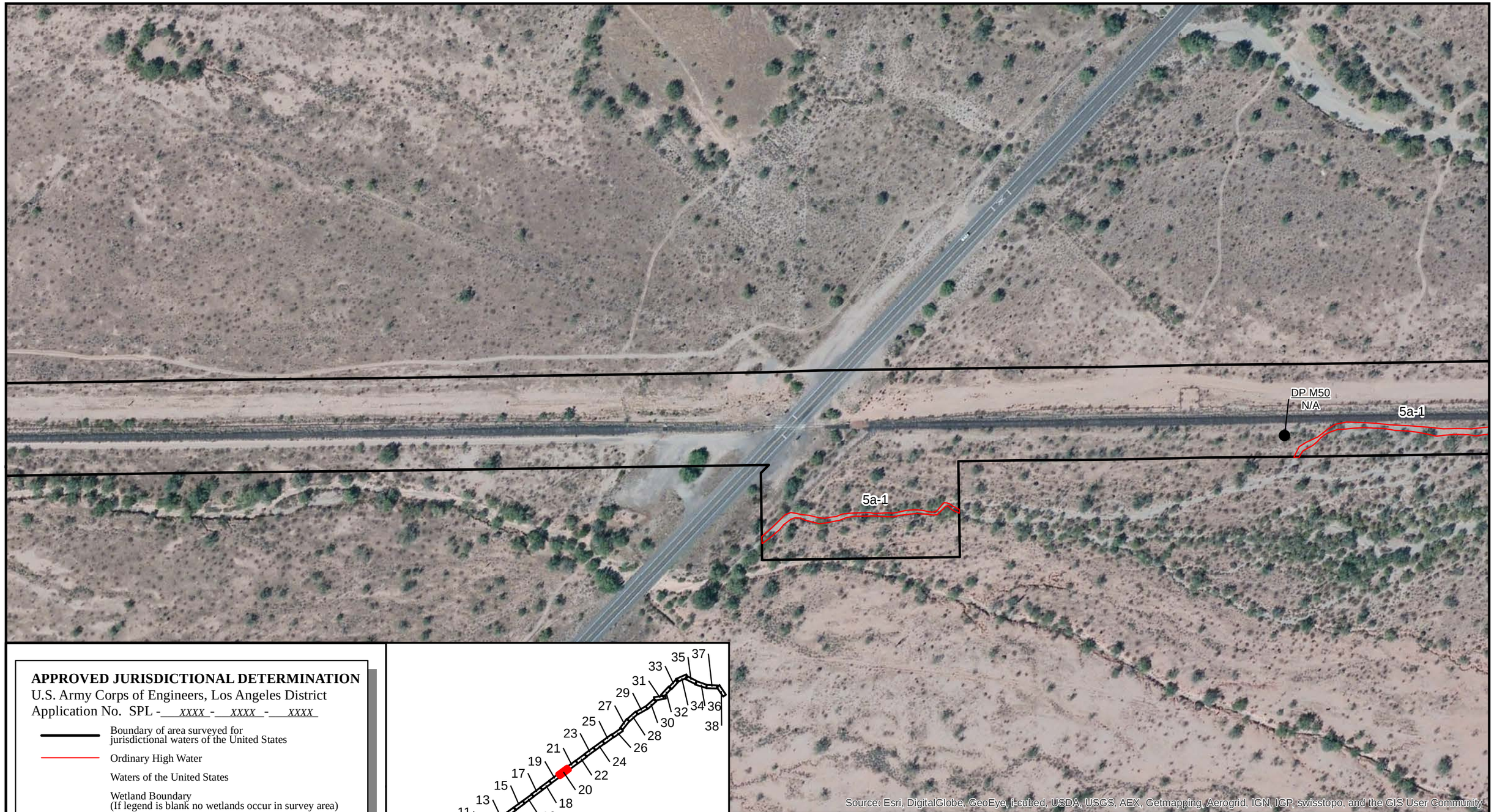
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3

Sheet 19 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___20___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 29
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Photo Source: ArcGIS Online, Microsoft 2010

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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 20 of 38

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Date: 5/27/2014 User: tanyao

DP M51
14 ft

DP M52
25 ft

5a-1

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -__XXXX__-__XXXX__-__XXXX__

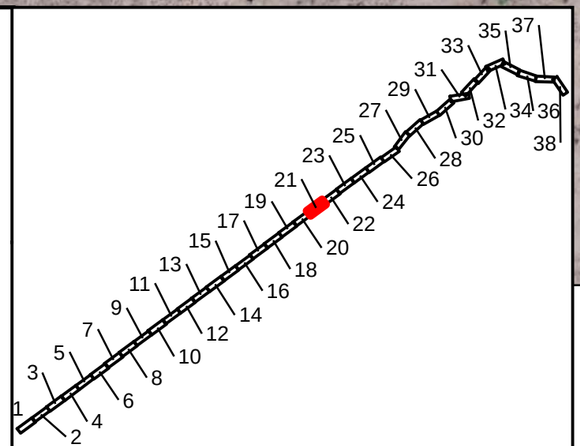
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

__200'__Scale __11-1-2010__Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet __21__ of __38__



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 20, 21, & 29
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 21 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

5a-1

DP M53
28 ft

DP M54
130 ft

6

7

DP M55
10 ft

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -__XXXX__-__XXXX__-__XXXX__

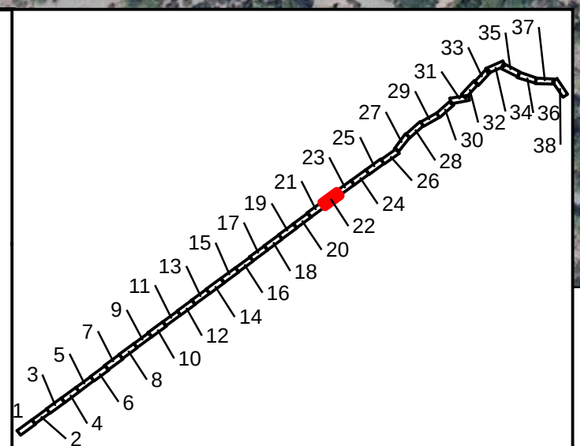
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

__200'__Scale __11-1-2010__Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet __22__ of __38__



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 21
Pinal County, Arizona,
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 22 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M57
N/A

DP M56
6 ft

7

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

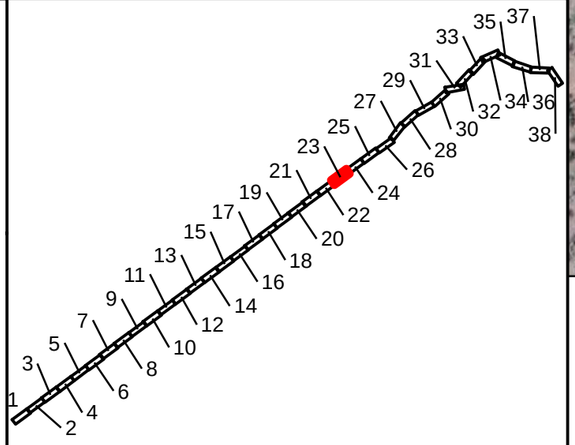
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___23___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 21 & 22
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 23 of 38

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

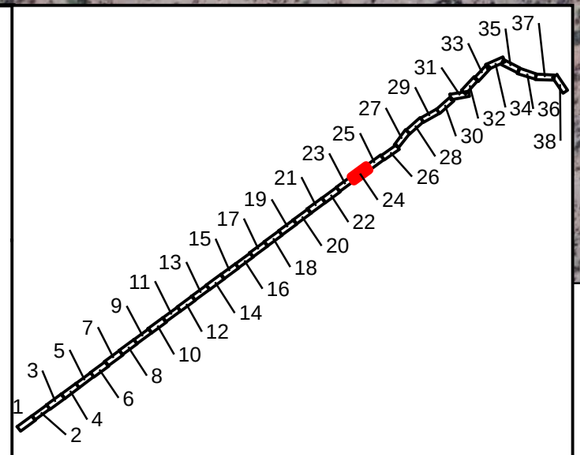
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___24___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 15 & 22
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 24 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M58
N/A

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -__XXXX_-__XXXX_-__XXXX_

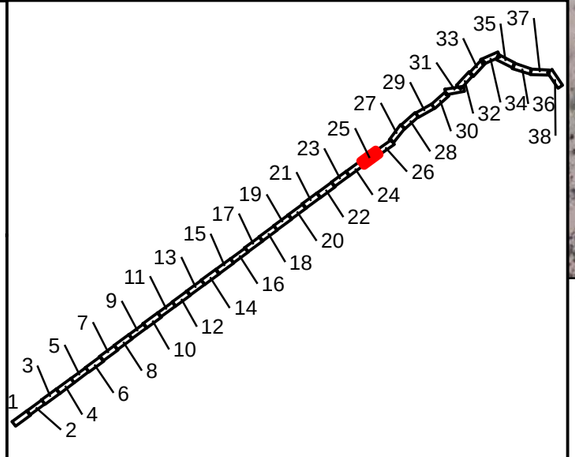
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

__200'__ Scale __11-1-2010__ Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____ Date Delineation issued by Corps
_____ Corps Project Manager
Sheet __25__ of __38__



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 14 & 15
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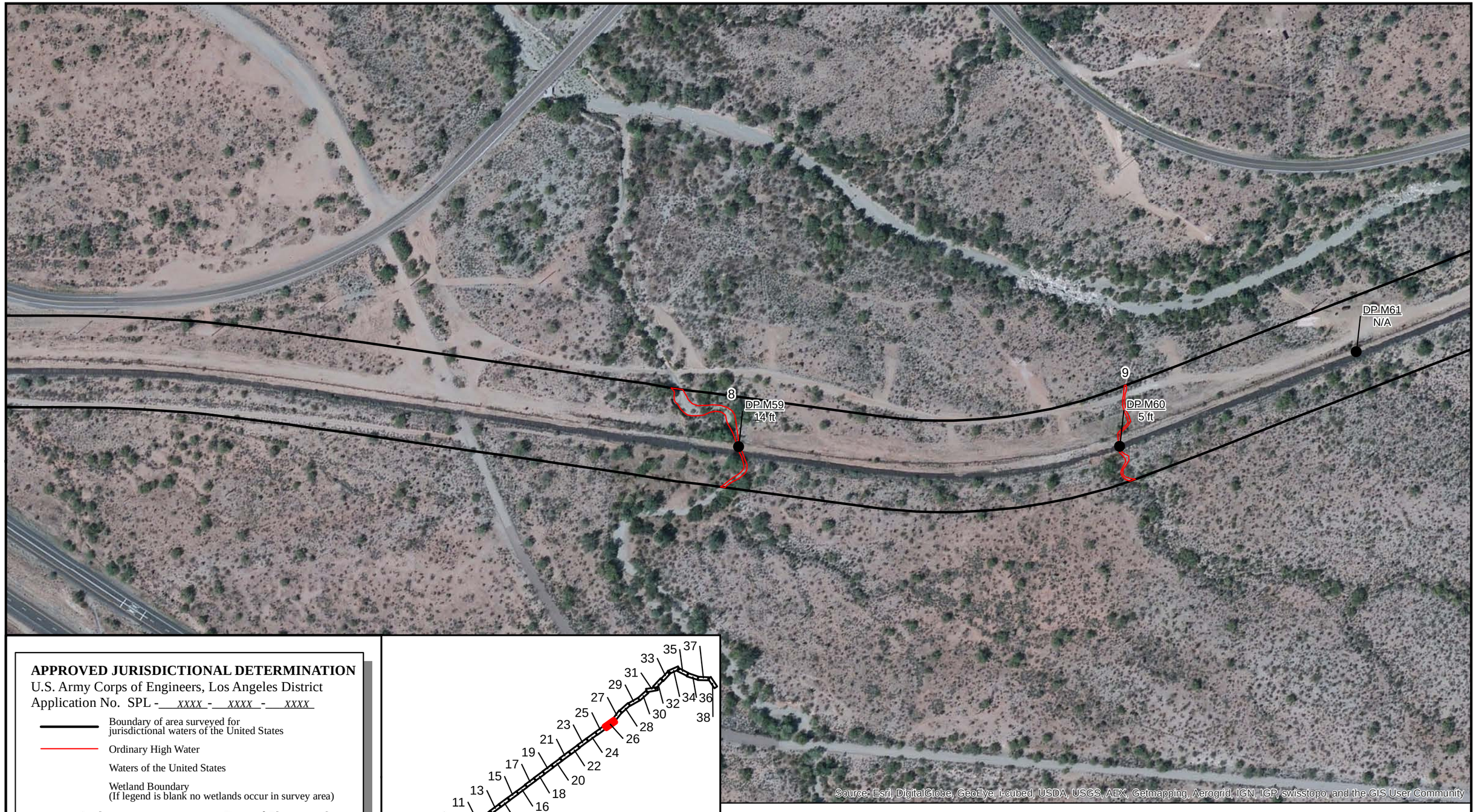
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 25 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___26___ of ___38___

T2S, R10E Sec. 14
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 26 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M62
14 ft

DP M63
N/A

DP M64
5 ft

DP M65
29 ft

DP M66
N/A

DP M67
40 ft

DP M68
23 ft

10

11

12

12

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

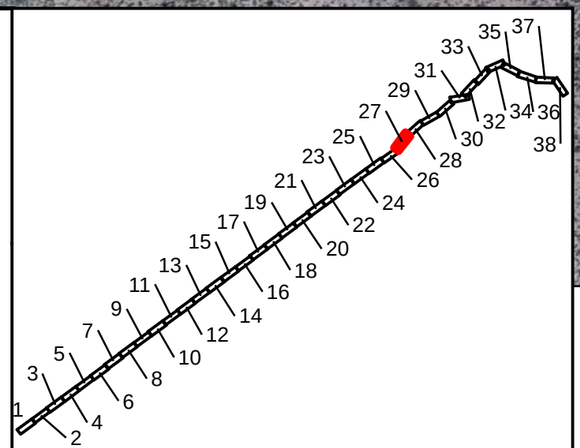
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___27___ of ___38___



T2S, R10E Sec. 11, 12, & 14
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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N

0 100 200 Feet

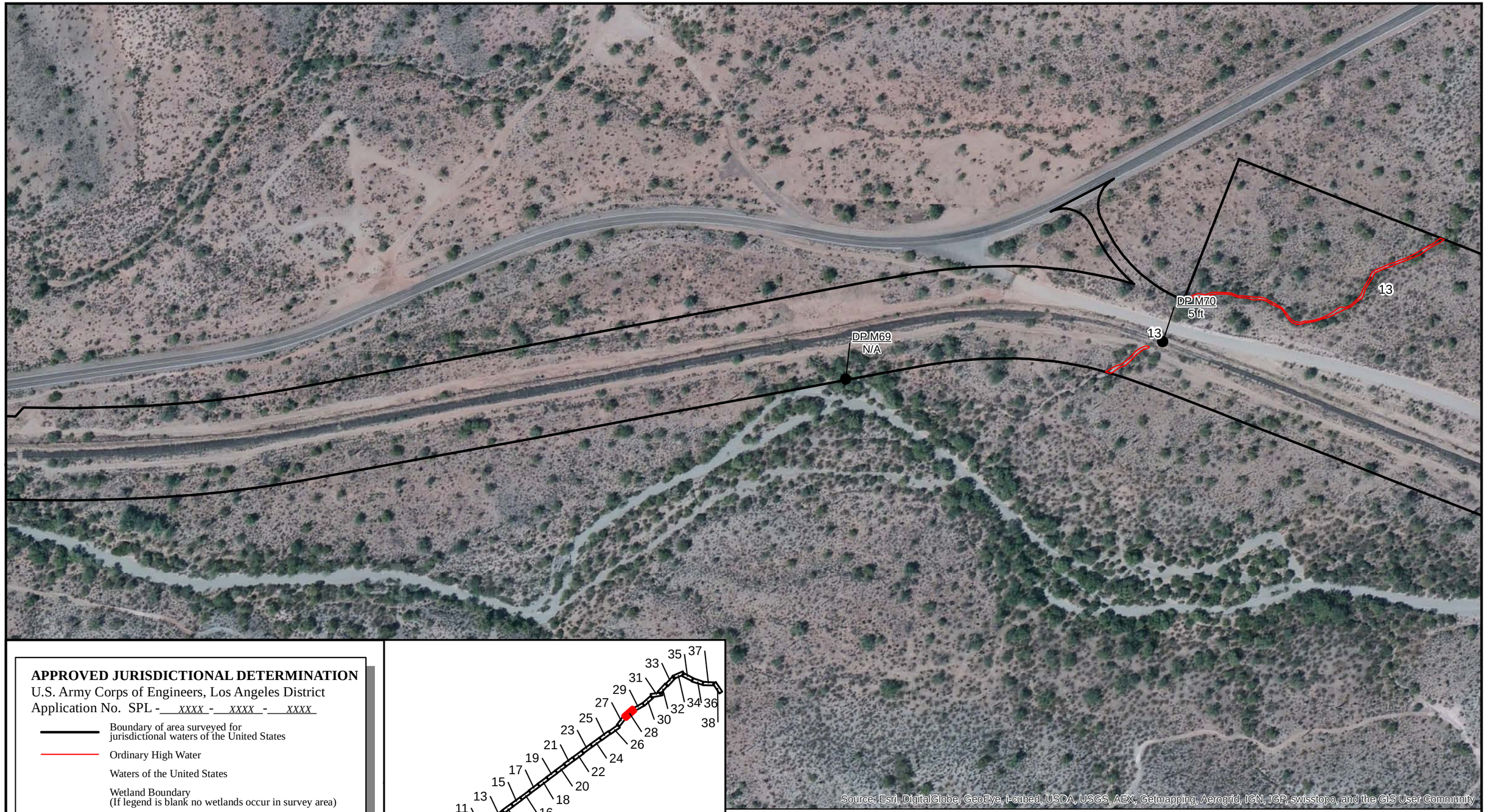
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3

Sheet 27 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___28___ of ___38___

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T2S, R10E Sec. 12
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 28 of 38

13a

12

DP M73
N/A

DP M72
45 ft

DP M71
43 ft

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

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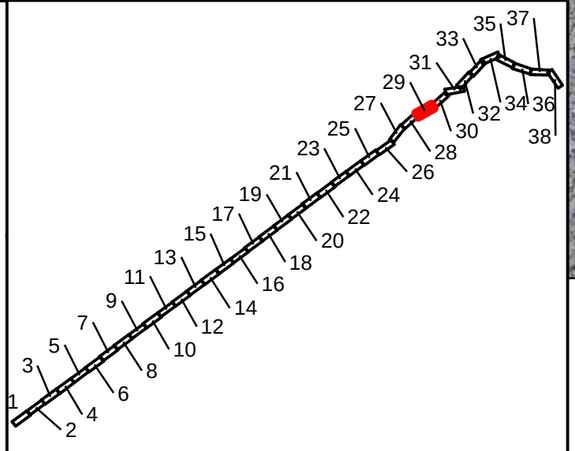
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___29___ of ___38___



T2S, R10E Sec. 1 & 12
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 29 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M73
N/A

DP M74
19 ft

DP M76
N/A

DP M77
N/A

DP M75
14 ft

14

14

14

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

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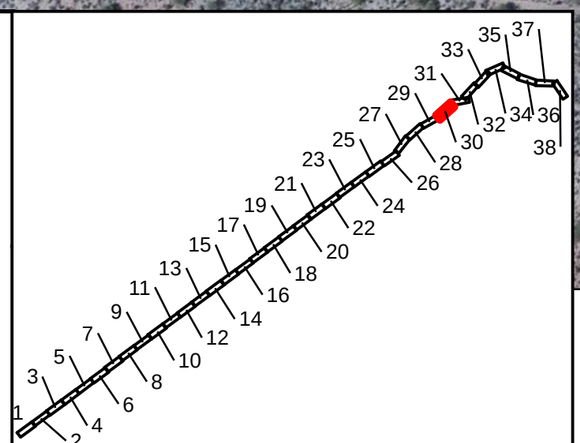
___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___30___ of ___38___



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R10E Sec. 1; T2S, R11E Sec. 6
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Photo Source: ArcGIS Online, Microsoft 2010

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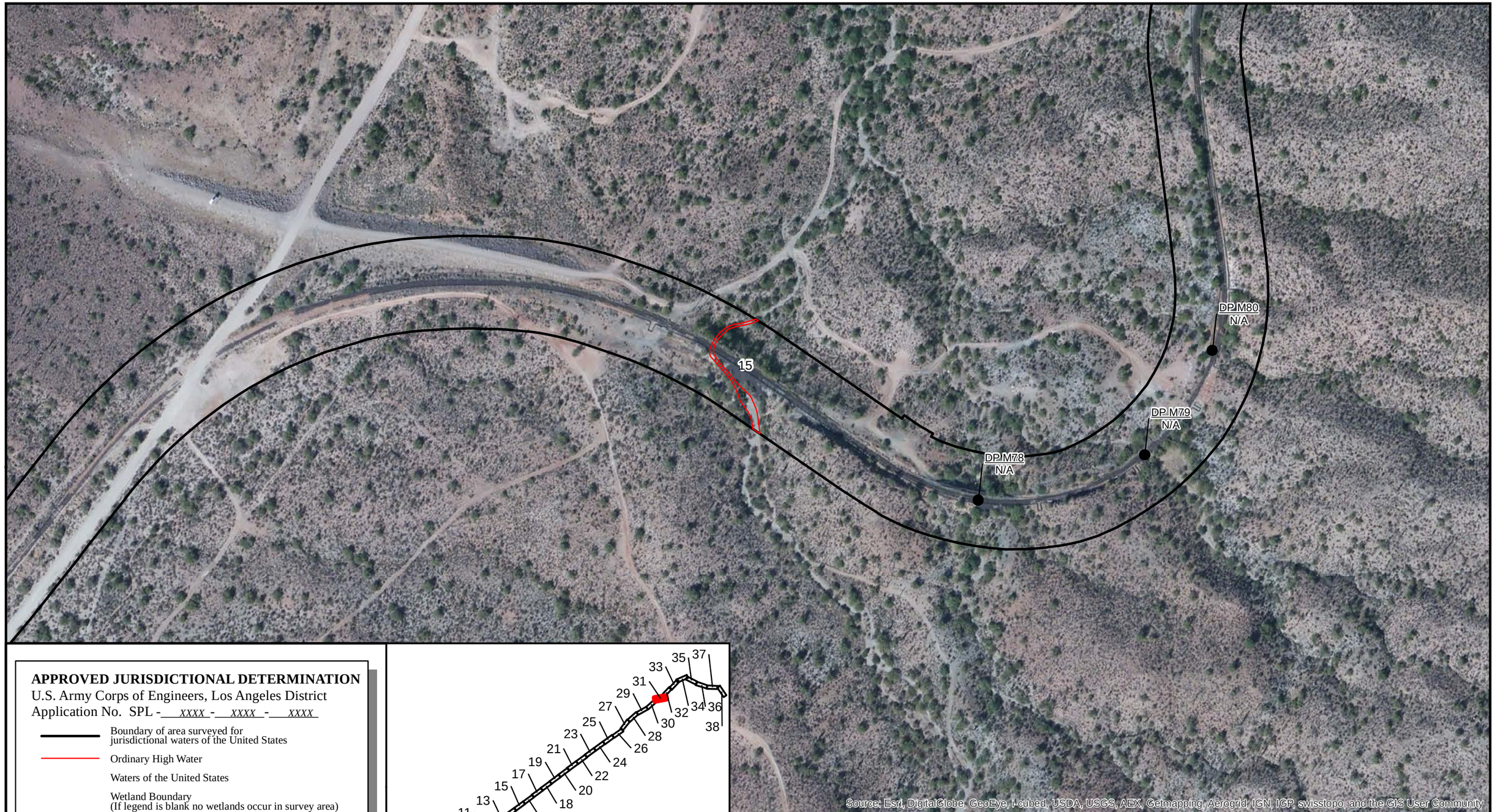
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 30 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___31___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T2S, R11E Sec. 6
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N

0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 31 of 38

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___32___ of ___38___

T1S, R11E Sec. 32 & 33; T2S, R11E Sec. 5 & 6
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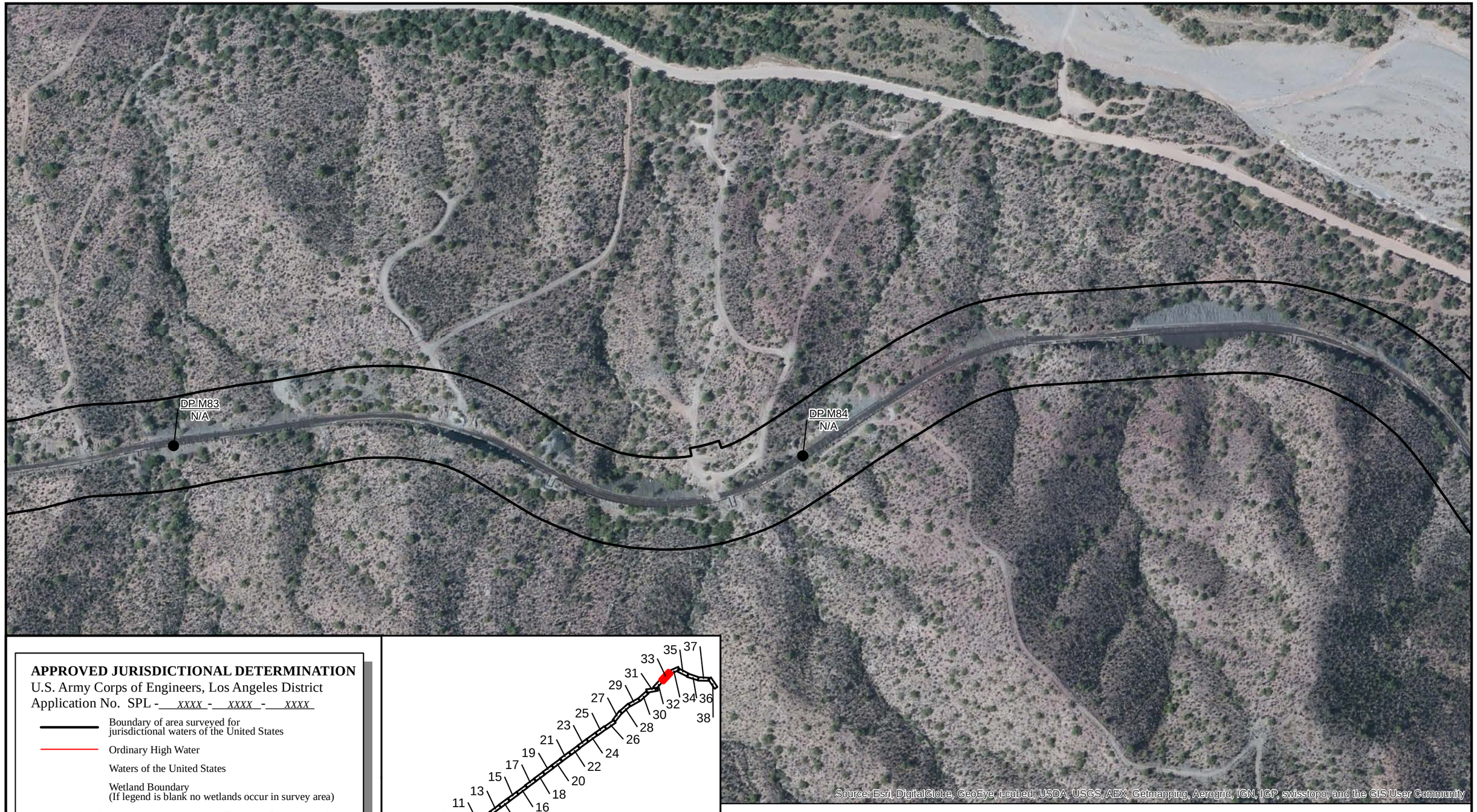
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination
ATTACHMENT 3
Sheet 32 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale ____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___33___ of ___38___

T1S, R11E Sec. 33
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0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 33 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao

DP M86
N/A

17

DP M85
6 ft

DP M87
N/A

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

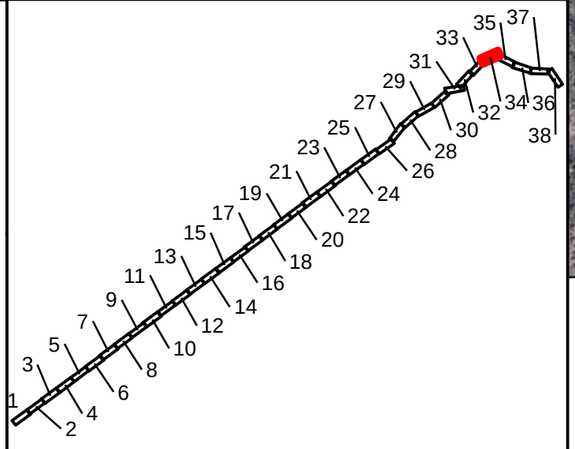
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale ____11-1-2010____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___34___ of ___38___



T1S, R11E Sec. 33
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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N

0 100 200 Feet

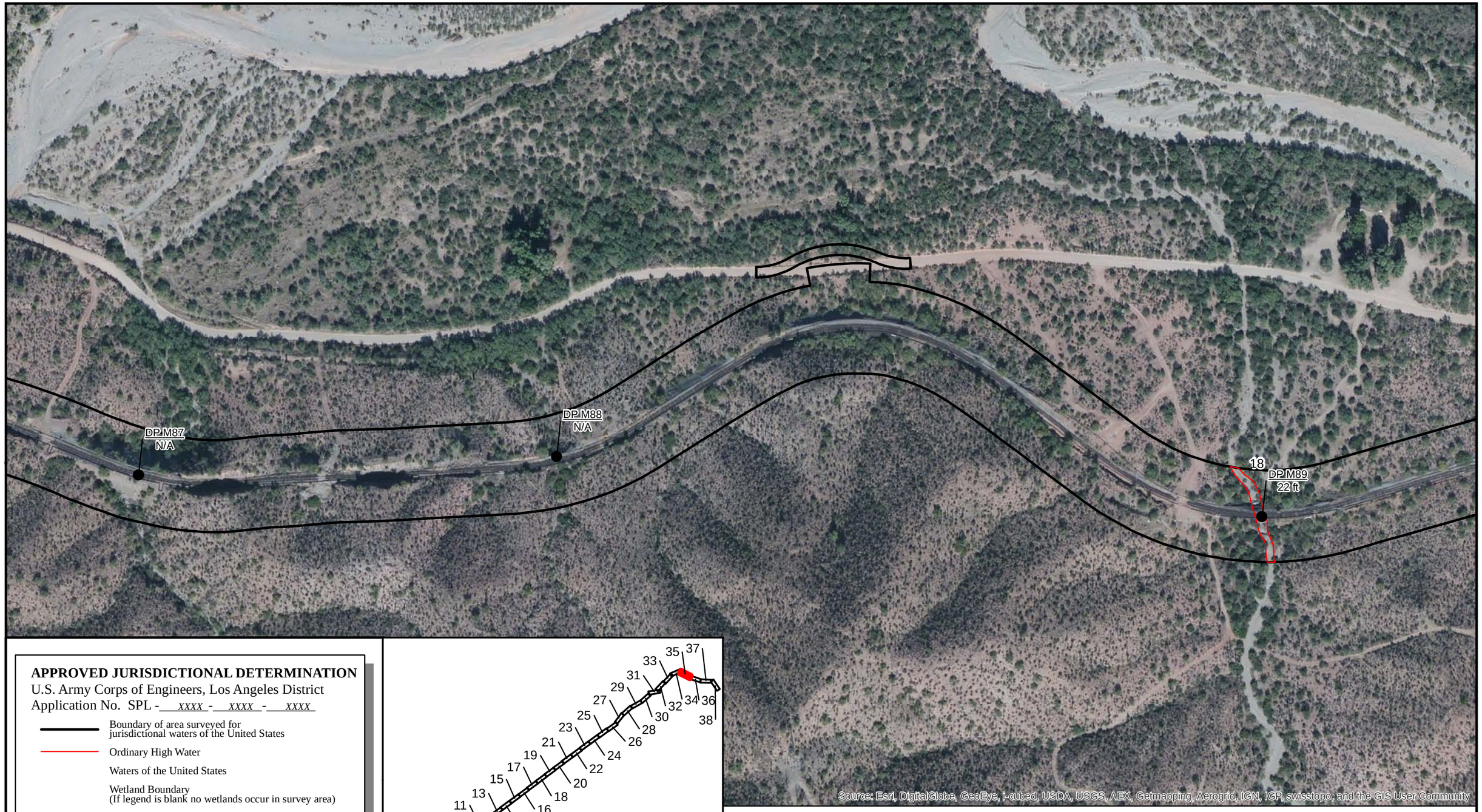
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3

Sheet 34 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___35___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T1S, R11E Sec. 33 & 34
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N

0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 35 of 38

DP M90
N/A

DP M91
23 ft

DP M92
N/A

20
DP M93
30 ft

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

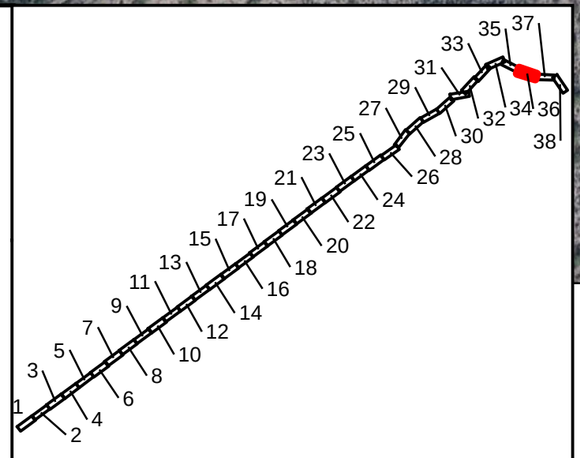
Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale _____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___36___ of ___38___



T1S, R11E Sec. 34
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N

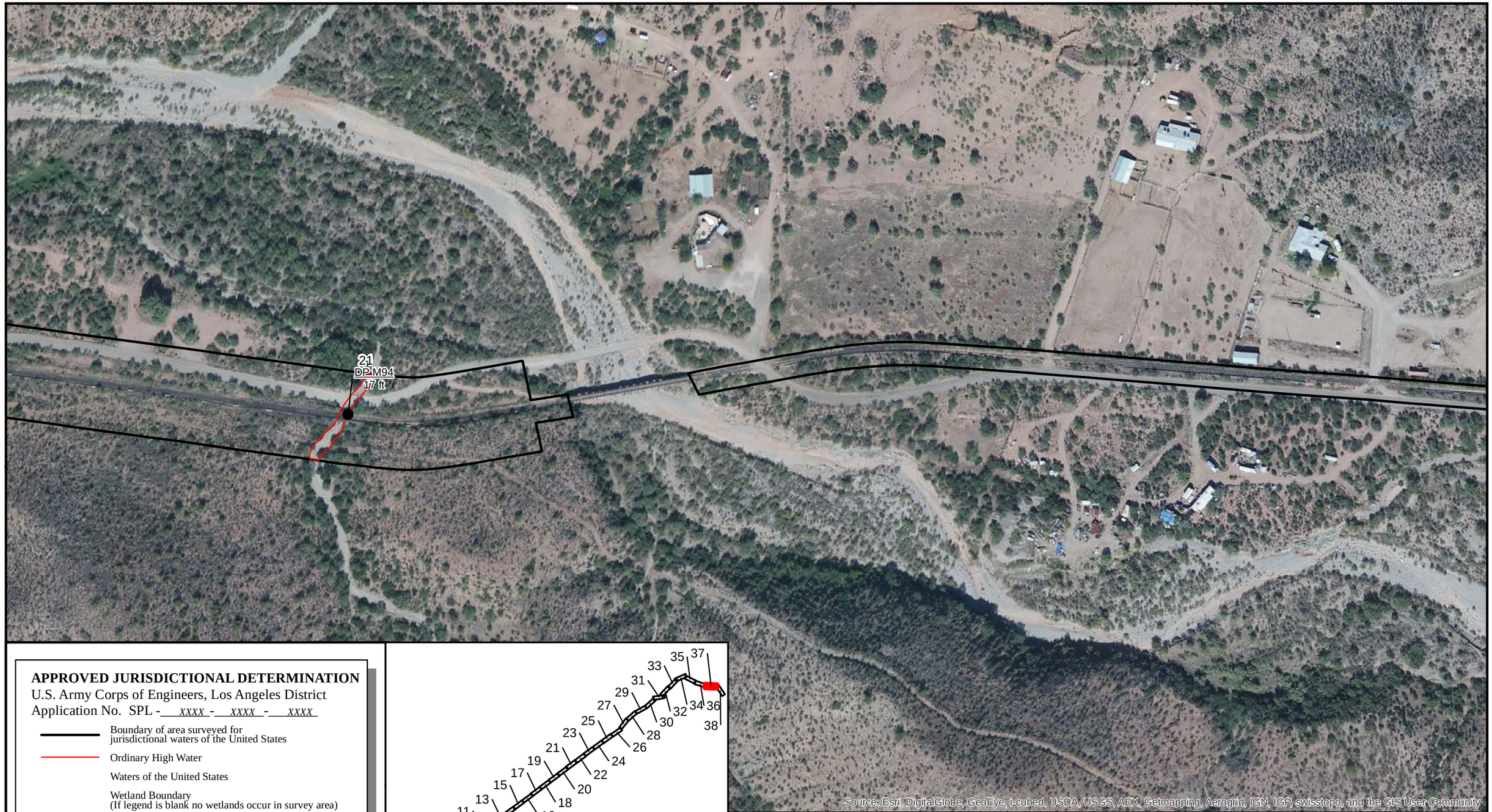
0 100 200 Feet

0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA

Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 36 of 38



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

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Wetland Boundary
(If legend is blank no wetlands occur in survey area)

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_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___37___ of ___38___

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

T1S, R11E Sec. 34 & 35
Pinal County, Arizona,
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1750 S. Woodlands Village Blvd., Suite 150
Flagstaff, Arizona 86001 (928) 225-2218

N

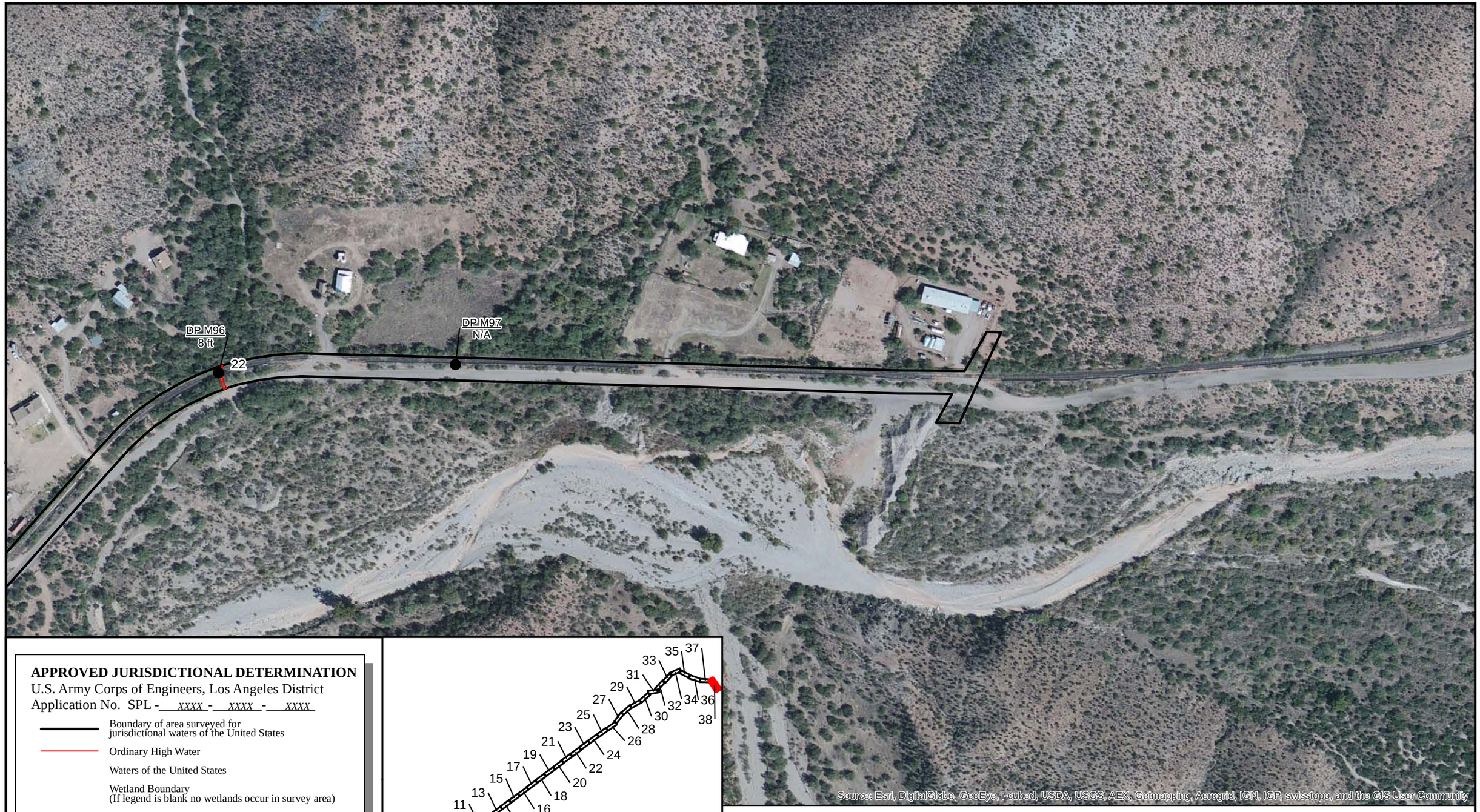
0 100 200 Feet
0 25 50 Meters

MARRCO SUPPLEMENTAL ANALYSIS AREA
Jurisdictional Waters Determination

ATTACHMENT 3
Sheet 37 of 38

Path: M:\Jobs\800's\807.94\ENV\AJD\MXD\Figures\Attachment_JD_11x17_DataDriven.mxd

Date: 5/27/2014 User: tanyao



APPROVED JURISDICTIONAL DETERMINATION
U.S. Army Corps of Engineers, Los Angeles District
Application No. SPL -___XXXX_-___XXXX_-___XXXX_

Boundary of area surveyed for jurisdictional waters of the United States

Ordinary High Water

Waters of the United States

Wetland Boundary
(If legend is blank no wetlands occur in survey area)

___200'___Scale ____11-1-2010_____Date of Photograph
_____ Site Visit by Corps (Y/N) Date:_____
_____Date Delineation issued by Corps
_____Corps Project Manager
Sheet ___38___ of ___38___

T1S, R11E Sec. 35; T2S, R11E Sec. 3
Pinal County, Arizona,
Photo Source: ArcGIS Online, Microsoft 2010

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Sheet 38 of 38

ATTACHMENT 4

REPRESENTATIVE GROUND PHOTOGRAPHS

ATTACHMENT 5

SUMMARY OF DRAINAGE FEATURES EVALUATED

(CURRENTLY BEING DEVELOPED)