

5.0 Covered Activities

The Water Authority owns, operates, and maintains pipelines and numerous ancillary facilities along the aqueduct pipeline corridors (Figure 2-1; Table 5-1). Routine maintenance is required to assure a safe and reliable supply of water to its Member Water Agencies whose service areas are generally within western San Diego County. This section discusses the types of Water Authority activities that are covered by this Plan. This Plan addresses only Water Authority projects which are not covered by any other plan or permit. Mitigation for Water Authority Covered Activity impacts pursuant to this Plan will provide species conservation that is complementary to that provided/required by other plans. Additionally, this section provides a basis for the impact assessment of these activities on Covered Species and native habitats.

**TABLE 5-1
OVERVIEW OF EXISTING WATER AUTHORITY FACILITIES**

Facility/Structure	Approximate Number
Flow control facilities (FCF)	120
Aqueduct structures (blow-offs, air vents, etc.)	1,300 plus 12 interconnects and exchange structures
First and Second Aqueduct and other Pipelines	286 miles; 75 service connections
Rights-of-Way	1,900 acres (approx. 1,625 acres held as easement, and 275 acres held as fee owned parcels)
Dam/ Reservoir	1 (24,000 acre-feet capacity)
Flow Regulatory Structure (FRS)	4
Pump Stations	3
Hydroelectric Generating Plants	3
Water Treatment Plants	1

The activities to be covered by this Plan Area are organized into three categories:

1. CIP projects covered for construction and expansion (i.e., Planned or Future Projects that have not already been authorized/permited by Wildlife Agencies);
2. O&M Activities; and
3. Preserve Area management, monitoring, and adaptive management.

The CIP includes Existing Projects (i.e., those projects that have been issued permits by the Wildlife Agencies) as well as Planned and/or Future Projects for which take of Covered Species and loss of habitat are anticipated to occur pursuant to this Plan. This Plan covers the potential take of Covered Species and habitats associated with the construction of Planned and Future Projects, the O&M of those Planned and Future

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Projects constructed pursuant to the Plan, and the O&M of existing CIP projects and Water Authority facilities, where their maintenance, repair, and operation has not already been authorized pursuant to an existing BO (Section 1.1.4).

The Plan includes Future CIP projects for coverage of construction, and associated O&M Activities that are outside the Survey Area but within the Plan Area, if the project conforms to this Plan, as outlined in Sections 6.0 and 8.0.

In addition, where modifications, amendments, clarifications, or other discretionary changes to an Existing Project's individual permit are required and the change to the permit affects a Covered Species, any measures to offset additional impacts to Covered Species will be consistent with this Plan. The Water Authority rights-of-way system spans approximately 1,900 acres within the County, and provides some level of continuity of habitats through limitations placed on the uses which may occur over Water Authority facilities. While lacking certain control over land uses within easements and rights-of-way, the Water Authority will continue its policy to allow compatible joint use of its easements, including the development of natural habitats. The Water Authority cannot require underlying land owners to maintain Covered Species or their habitat on the easements, and third-party activities that impact Covered Species are not covered by this Plan.

This Plan and its associated Permits include O&M Activities that are required to operate and maintain the existing facilities and planned and future CIP projects (Section 5.1) that rely on this Plan for as long as needed. Some existing BOs (BO 1-6-93-F-28, BO 1-6-97-F-13, BO FWS-SD-1373.2, BO 2007-B-14/2007-F-22, and BO 2008B0061-2008F0732) include O&M Activities in the permitted project description, providing a limited amount of take of certain Covered Species for on-going operations and maintenance associated with those previously permitted projects (Section 1.1.4).

Emergency actions that might be required, either by the Water Authority or by public health, safety, homeland security, local law enforcement, or other such entities, cannot be fully anticipated by this Plan. However, where possible, this Plan will define protocols and guidelines for emergency actions to reduce adverse effects on Covered Species and their habitats. A discussion of Emergency Actions is in Section 5.3.

5.1 Capital Improvement Program (CIP) Activities

The Water Authority's CIP, first adopted by the Board in 1989, has been and will continue to be periodically modified and amended, as needed, for the purpose of fulfilling the mission of the Water Authority. The goal of the CIP is to "provide the necessary facilities for a safe, reliable, and operationally flexible water storage, treatment, and

delivery system” (Water Authority 2004a). The facilities necessary to meet this goal include pipelines, pump stations, storage facilities, treatment facilities, flow control facilities, and other equipment related to the aqueduct system.

The CIP includes, but is not limited to, buried pipelines with above ground hydraulic structures and access roads; pump station, flow control, and metering facilities; and water treatment and storage facilities of various sizes. Planned Projects and Existing Projects that may need coverage under this Plan are described in more detail in Appendix C. Construction and/or expansion of Planned and Existing Projects are considered Covered Activities under this Plan. Future Projects that are part of the CIP do not have enough information to allow impacts to Covered Species or habitats to be specifically identified in this Plan, so impacts were projected based on the current trend of facility buildout (see Table 5-3 and Section 5.5.1). Future Projects could involve Covered Activities for existing or new facilities and associated O&M Activities, and any take of Covered Species outside of the Survey Area/PIZ would be approved pursuant to the Minor Amendment process identified in Section 8.0 (with the exception of Major Amendment Species). Standard construction specifications are summarized from the approved Master Plan (Water Authority 2002).

5.1.1 Pipelines

5.1.1.1 New Construction

In order to accommodate the Water Authority’s need to transport water throughout the Plan Area, construction of new pipelines and underground and surface appurtenances is required between existing or new facilities. Construction of new pipelines of any length within the Plan Area and consistent with the Plan, IA, and Permits is a Covered Activity under this Plan.

Whenever possible, facilities will be sited adjacent to or within an approved right-of-way or other publicly owned property. The use of previously disturbed areas will minimize disruptions to native habitat. Generally, facilities will be located adjacent to pipelines or other locations with existing access roads to the site. Therefore, construction of new access roads will not typically be required. Site preparation involves grubbing and brushing of vegetation and grading or excavation, depending on topography. Equipment used for ground clearing and excavation is typical of a construction site. Heavy equipment may be required for excavations and connections to water conveyance systems. Blasting may be required depending on site topography and geology. Construction operations involve pouring concrete footings for tanks, laying pipeline segments and other support equipment (such as control panels), construction of buildings and structures, and fencing the site perimeter. Construction duration would be dependent on the size and type of facility.

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Whenever possible, pipelines are placed in existing improved or future public rights-of-way, such as streets, highways, utility corridors, or other publicly owned lands. Permanent rights-of-way are typically 100 feet wide or greater to allow access for inspection, maintenance, and repairs. Temporary construction for rights-of-way pipeline installation is determined by conditions in the field. Temporary construction staging areas may be leased for material stockpiles and can reach up to two acres in size. Staging areas will generally be located in existing disturbed areas adjacent to roadways. When new pipeline rights of ways are required, right-of-way selection and pipeline construction will be implemented pursuant to Plan Minimization Measures identified in Section 6.4. Pipeline construction in existing rights of way will be implemented pursuant to Plan Minimization Measures; however, the Plan's Narrow Endemic Policy (Section 6.5.1.6) avoidance threshold is not applicable to rights-of-way in existence at the time the IA is executed, because of past use of the rights-of-way and limitations imposed by the pre-existing rights-of-way configuration. However, narrow endemic species populations will be avoided to the extent practicable, and the 80 percent avoidance policy identified in Section 6.5.1.6.1 will be implemented to the extent feasible within pre-existing rights-of-way. Covered Activities that cannot meet the 80 percent avoidance policy due to site and planning constraints will implement a Wildlife Agency-approved biologically equivalent or superior alternative, designed to achieve a no-net-loss of narrow endemic populations, occupied acreage, and/or Covered Species' population status as determined in consultation with the Wildlife Agencies. Mitigation for unavoidable impacts will be designed to minimize adverse effects to species viability and to contribute to the biological objectives of the Plan. Habitat based mitigation consistent with the mitigation ratios in Tables 6-6 and 6-7 and Covered Species specific mitigation consistent with Appendix B will be required to compensate for all impacts. The measures in the Vernal Pool Protection Policy (Section 6.7.3) are applicable in the rights-of-way, regardless on when the right-of-way was acquired.

Pipelines are installed using conventional open trench or tunneling construction. Pipelines are typically constructed of reinforced concrete cylinder pipe, welded steel pipe, polyvinyl chloride, or high-density ethylene. Site preparation and methods for open trench pipeline construction are discussed in detail below.

Where open cut trenching is not feasible, tunneling techniques, such as boring, jacking, microtunneling, or similar methods, are used. Tunneling is used in areas including (but not limited to) major transportation crossings (e.g., interstate and rail corridors), flood control channel crossings, stream crossings, and highly congested utility areas.

Construction corridor width is typically 45 to 65 feet wide, but may need to be wider to accommodate construction on areas that have slopes. Trench installation rates occur at a rate of 200 to 400 feet per day, but are entirely dependent on the actual geologic conditions encountered and topography. All construction activities take place within the rights-of-way or public streets.

Pipeline construction in open lands generally proceeds at a relatively expeditious rate; however, it may be slowed considerably through complex terrain or within areas of exposed hard-rock geology. Pipeline construction may also be slowed by constrained work areas, inclement weather, or as a result of complicated interties or the need to work around existing utilities, structures, or where significant volumes of surface or groundwater complicate construction. Because pipeline construction is fairly rapid, Covered Species impacts associated with construction activity are typically considered to be of short duration and have limited prolonged effects on species in the vicinity. However, if the seasonal timing of work overlaps with periods of breeding, courtship, or other significant behaviors, Covered Species may be more susceptible to impacts than at other periods of the year. Work initiated during these periods may result in reduced recruitment to the population, temporary or permanent site abandonment, and other impacts affecting individual or local population success. Further, prolonged work (several months to a year or more) within a localized area may locally depress the abundance and diversity of Covered Species in the vicinity, as well as introduce exotic plant and animal pest species. The bird breeding seasons are identified in Section 6.4.2.1, and in Appendix B, Avian Breeding Season Policy.

While the Water Authority's aqueducts are primarily based on gravity flow, the system requires a number of ancillary structures to regulate flow, maximize hydraulic efficiency and avoid system damage, and to deliver water to member agencies at acceptable pressures and volumes. Most of these facilities are located immediately on the pipeline alignment and are extremely small (less than 250 square feet). Structures at high elevation points along the right-of-way include air release and vacuum valves. These valves are required to release trapped air that accumulates at high points in the pipeline, and to allow air to enter the pipe to relieve vacuum conditions that develop during certain hydraulic conditions. The regular functioning of these valves produces no noticeable noise or vibration effect outside of the small tower or enclosed structure. At low points in the system are blow-off valves and pumping connections to allow draining of the pipes for interior inspection or repair. These structures are concrete vaults approximately five feet in diameter.

Tunnel portals and shafts differ from pipeline construction because these construction features often are in use over an extended period of construction time. Localized ground disturbance is potentially more severe than with a pipeline because these sites are the staging and temporary storage area for underground construction. Also, construction activities may occur 24 hours a day, and may result in artificial illumination of adjacent habitat areas. Tunnel portals and shafts are unique in that they generally lack substantial surface components once construction is completed. In this respect, tunnel portals and shafts result in long-term conditions which are comparable to those described for cut and cover pipeline projects.

Factors Influencing the Duration and Extent of Construction Impact

The creation of staging areas, grubbing and clearing zones, and the quantity of work area required during pipeline construction would influence the type and duration of impact a project would have on the surrounding habitat. The required work area and the time it takes for a contractor to move through any given area are controlled by many factors, including the following:

- *Trench Depth:* Trench characteristics such as width and depth are dependent on soil characteristics and the cover or depth requirements of the pipe itself. Minimizing the depth of burial reduces the construction area and cost of the pipeline. However, pipe depth must be balanced against the higher incidence of utility interference, greater live loading, flotation concerns, and restriction of future development/land use.
- *Construction Methods:* The method of pipeline construction used by the contractor may be dictated by the amount of construction area available for use. Smaller, more restrictive work zones may increase the cost of the pipeline and the time it takes to install the pipe by requiring the use of special equipment or excavation techniques in order to remain within the construction zone. In addition, constrained work routes also increase the need for staging and contractor storage areas along the routes.
- *Soil Properties:* Soil properties are one factor that may determine which trench cross-section would be excavated. For example, in hard rock areas where blasting is required, very steep-sloped or vertical walls may be used for the trench sidewalls. In sandy or alluvial soils, more shallow side slopes would be required in order to maintain a stable trench excavation.
- *Terrain Steepness:* The steepness of the terrain and the position of the pipe would also affect the type and width of trench excavation.

Additional factors such as stormwater runoff control requirements, presence of groundwater, and equipment and materials storage may also have an impact on the amount of work area needed for pipeline construction.

Construction Operations

Pipe installation operations are typically conducted by three crews varying in number from three to 15 people per crew. The first crew clears the right-of-way, excavates the trench, and removes the resulting material. After excavation is complete, a second crew lays the pipe and constructs the joints. A third crew follows this operation and backfills the pipeline. Work by the second and third crews is typically conducted while the first crew continues excavating for the next pipeline section. Additional manpower and vehicles may be

involved in the trenching operation for hauling bedding material and pipe, or exporting trench spoils in highly constrained areas. Supplemental crews would be necessary to remove unsuitable trenching debris, maintain equipment, and provide inspection/construction administration services. Operations generally commence at 7:00 A.M. and stop at 7:00 P.M. five days per week. At tunnel portals, shafts, and within tunnels, work may continue around the clock.

The maximum length of open trench in undeveloped areas will not normally exceed 4,000 feet per heading. The maximum length of open trench in high traffic volume roads/more urban areas and highway crossings will not normally exceed 500 feet per heading.

The typical, sequential components of pipeline construction are described below.

- *Clearing Operations:* Vegetation would be cleared or crushed and topsoil removed and stockpiled prior to trench excavation. The trench site preparation may take from several days to several weeks depending upon the amount of existing utilities/improvements that need to be removed or relocated. Clearing activities will occur outside of the sensitive upland and riparian avian species nesting season for all CIP projects. Clearing activities may occur during nesting season if an Environmental Surveyor first inspects the impact area and the applicable species-specific buffer areas (Appendix B, Section 7.0), and determines no active nest would be affected by the clearing activity. The Environmental Surveyor will carry out the inspection in conformance with Section 6.4.1.1 and 6.4.1.2.
- *Trench Excavation:* The equipment and methods used during the trench excavation varies with soil conditions, trench depth, terrain, and contractor preference. Under ideal conditions, excavations can be accomplished in one process. If ground conditions are unfavorable, the process may require controlled blasting and the possible use of blast containment mounds or blankets. Common equipment used in the excavation and installation of large diameter pipelines include: backhoes, clamshells, rubber tire or tracked front-end loaders, bulldozers, and draglines. Excavated material is placed along the side of the trench and used later for backfill. It is assumed that most of the excavated trench soil will be used in backfill operations; however, if excavated soil is not suitable for backfilling, it will be trucked off-site or feathered into nearby disturbed or developed right-of-way areas. The total number of truck trips associated with this operation is estimated to be 30-100 per day, depending on the amount of material removed.
- *Pipe Installation:* Pipeline sections may be stored at a staging area and delivered as needed or stored along the pipeline right-of-way when sufficient room is available. Typically, five to ten 40-foot long pipeline sections will be installed per day in open country. Normally, the pipe would be trucked in (from the factory) and stored alongside the trench for installation the following day. A crane, or similar

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equipment, is used to lower the pipe into place. The steel pipe joints are welded and then coated or encased for corrosion protection. The joint construction and pipe delivery schedules typically control the rate of pipe installation.

- *Backfill:* Trench backfill consist of earthen material which meets specified gradation requirements. Imported backfill or suitable on-site material will be used. Material not meeting backfill requirements will be trucked off-site or feathered into nearby disturbed or developed right-of-way areas. Undisturbed and natural areas within the right-of-way will not be used for disposal of trench material.

The size of the pipeline work area is heavily dependent on the localized construction conditions. Pipeline construction contractors will ultimately select appropriate construction techniques to be applied in specific areas within specified construction limits.

Based on prior experience with large pipelines, the Water Authority has prepared estimates for the required work area "footprints," which vary based on differing circumstances. The bottom width of shored and unshored trenches is assumed to be 13 to 15 feet. Sufficient room must be available for at least one vehicle to pass alongside the top of any trench. Average pipeline lay rates, in feet per day, are for those periods when construction is active and do not include delays due to weather or other unanticipated causes.

Excavation, bedding, pipe laying, and backfill operations are normally limited to no more than 4,000 feet of open trench construction in unpaved areas and 1,200 feet in paved areas at any one time. This means that the distance from the excavation heading to final compacted backfill does not normally exceed 4,000 feet. At an average pipe laying operation of approximately 300 feet per day in open terrain, any given area should be completed in ten to twenty days. This schedule does not include construction of pipelines with appurtenances or work delays due to weather.

- Traffic Control: Provisions for limited local access
- Width of Footprint: 80-150 feet
- Length of Footprint: 1,000-4,000 feet
- Average Lay Rate: 200-400 feet per day
- Average Time Open: 10-20 working days

Minor Support Facilities

Appurtenance and manway (access) structures would remain aboveground following construction of the pipeline. These typically would be flat-topped concrete structures approximately 1.5 to three feet in height above the ground surface, and of either cylindrical

or rectangular shape, with dimensions up to eight feet (typically eight-foot diameter). They would be located at all high and low points along the pipeline right-of-way, with additional structures located such that spacing does not exceed 1,500 feet.

Ancillary Facilities

Ancillary facilities such as flow control facilities, pressure control facilities, and pump stations vary in size and typically occupy a permanent footprint of a few hundred to a few thousand square feet. Construction of such facilities is typically completed within a one- to two-acre footprint of disturbance.

Major Ancillary Facilities

Along with the smaller, more regularly distributed structures along the various pipelines, a few much larger hydraulic control structures are necessary. These include Flow Regulatory Structures (FRS) and pressure control structures to maintain delivery pressures. For these structures, the construction footprint may be much more expansive, from two to 20 acres, than for the smaller structures. Similarly, the duration of work, size of construction crews, and level of equipment use would be commensurately higher. Construction methods are similar to open trench pipeline construction, with the exception that initial excavation is for the purpose of preparing the site for a structure's foundation or a concrete slab that will bear the weight of the entire structure and its contents.

Access Roads During Construction

During pipeline construction, new or existing roads are used to provide temporary construction access from public streets to staging areas and the work zone. Preference would be given to utilizing existing roads over developing new roads. Existing roads may include permanent Water Authority access roads along existing pipeline routes, other utility access roads (e.g., SDG&E), and private roads. Where required, new access roads will be selected to avoid or minimize impacts to Covered Species by implementing conservation measures in Appendix B and their habitats by implementing applicable measures in Section 6.0 (e.g., Section 6.4, Plan Minimization Measures, and Section 6.7, Wetland Protection and Mitigation Program). Typical vehicle traffic associated with pipeline construction would consist of the following:

- *Construction Equipment:* Typical equipment includes bulldozers, excavators, loaders, tunneling machines, dump trucks, and other construction equipment. Once delivered, this equipment would tend to remain on-site until work shifts to a new staging area.
- *Work Force Transportation:* In general, a work force of approximately 20 to 40 workers, using their own vehicles, would enter the work zone in the morning and leave in the afternoon. During the work day, personal vehicles are kept to a

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minimum along the construction route.

- *Material Deliveries:* Construction materials would be delivered to the work zone throughout project construction. Material deliveries would consist of periodic deliveries of pipe, rebar, sand, concrete, valves, and other materials. Pipe would be delivered in mostly 40-foot sections. For a 10 mile long pipeline alignment, this would require approximately 1,320 deliveries, or approximately four to five deliveries per work day over a 12-month pipe laying period.
- *Soil Removal:* Any trench and tunnel spoil material that is unusable for backfill, or which cannot be stored on-site due to area restrictions, would be removed by haulers or spread out evenly and feathered into the existing developed or disturbed ground topography on the right-of-way. Where removal is necessary, transport to a staging or disposal area could require 30-100 truck trips per day.
- *Public Roads:* Access to staging areas that are adjacent to public roads would utilize those roads. Access to staging areas not located adjacent to public roads would utilize public roads for as far as practical, and then continue using other access options.
- *Pipeline Right-of-Way:* In all but very steep terrain (longitudinal slopes over 20 percent and cross slopes over 15 percent), the graded pipeline right-of-way would be available for use as construction access for areas of the alignment where use of existing public and private roads is not a practical option.
- *New Roads:* In areas where existing roads are not available and steepness of the right-of-way precludes its use, new roads may need to be graded and easements obtained.

Blasting

Blasting is an operation performed during facility construction to loosen formational rock for excavation or removal from its existing position. Blasting would be accomplished by the controlled discharge of an explosive that has been placed in a hole drilled and prepared especially for this purpose. Typically, drilling holes for a blasting pattern can last from several hours to several days. The drilling time period per blast depends on the number of holes, the depth of the holes, and the effort required to drill through the rock.

The blast itself is generally perceived as a dull thud or rapid series of thuds, rather than a loud explosion. The energy associated with an explosion is the result of the pressure produced by the gases that are formed during the explosion. Construction blasting generates a maximum noise level of approximately 94 decibels (dB) at a distance of 50 feet. Rock drills generate noise levels of approximately 80 to 98 dB at a distance of 50 feet. According to Section 02229 of the Water Authority's General Conditions and

Standard Specifications, blasting would only be permitted Monday through Friday between the hours of 8:00 A.M. and 4:00 P.M. (Appendix D). Blasting outside of those hours for the purpose of maintaining the construction schedule would be allowed with approval in writing by the Water Authority's project engineer and the agency having jurisdiction. Blasting operations would be in conformance with the specifications prepared by the U.S. Bureau of Mines and any required blasting permits. The blasting contractor would be required to limit ground vibration intensities to prevent damage to all existing structures, and in no case would intensities exceed the safety standard of particle velocity recommended by the U.S. Bureau of Mines.

Impacts to Covered Species and their habitats caused by the construction of new pipeline facilities may include the temporary and/or permanent removal of vegetation and floral assemblages, loss of occupied or potential Covered Species habitat, and disruption of dispersal and travel corridors. In addition, potential indirect construction effects from noise, dust, introduction of weedy species, or provisions of new access into previously undisturbed habitats may be factors adversely affecting vegetation communities and Covered Species. In general, the linear nature and limited width of pipeline construction corridors (80 feet to 150 feet), and the limited extent and number of ancillary surface features, minimizes habitat fragmentation or isolation occurring as a result of pipeline construction. While total impact acreage from pipeline construction may be substantial, impacts are typically spread over a long distance, thus resulting in a limited and localized impact.

5.1.1.2 Conversions

Pipeline conversions occur when a treated water service pipeline is converted to an untreated water service pipeline, or vice versa. Construction activities along the existing pipeline would include a reconfiguration and relocation of both valves and piping. Conversions can be either temporary or permanent. Typically, a pipeline and control valves are installed to interconnect two parallel pipelines and the project footprint would be in an area previously disturbed by prior pipeline construction projects. The construction would be open trench construction method described in detail above. However the entire trench length may range from 30 to 100 feet, depending on the proximity of the pipelines to be interconnected. Therefore, the project footprint is relatively minor. Project access would be on existing access roads.

Similar to new pipeline construction, Covered Species may be displaced by the temporary removal of habitat, and indirectly affected by construction related impacts such as noise, fugitive dust, and occasionally night lighting. Construction traffic is adverse if it results in a direct vehicle strike to a Covered Species.

5.1.1.3 Long-Term Replacement/Relining of Pre-stressed Concrete Cylinder Pipes (PCCP)

Relining requires the excavation of several portals to access the pipeline, followed by the insertion of sections of new pipeline within the existing pipeline. This covered activity will re-disturb numerous localized sites along portions of the aqueduct. Depending on location, a relining project may not impact large amounts of native habitat, given that native habitat communities are fragmented throughout the rights-of-way, and there is some limited flexibility in locating portal sites. Pipeline relining projects would include environmental fencing and flagging, clearing and grubbing, dewatering, installation of interior bulkheads, temporary erosion control, excavation, shoring and bracing, cutting and demolishing a segment of the existing PCCP, placing a field-applied cement mortar lining, installing cathodic protection systems, placing reinforcing steel and concrete encasement, backfill, disinfection of piping, hydroseeding, revegetation, and other appurtenant work. Each access portal would consist of a pit that has been excavated over the pipeline, and an opening in the pipeline (typically 40-feet long) that would provide access to the interior of the existing PCCP. On average, each pit would be 60 feet long by 20 feet wide. The sides of the pits would be vertically shored in most locations, and the depth of each pit would vary from 12 to 18 feet deep, depending on the depth to the top of the pipe.

Where replacement of pipeline is required, the damaged pipeline would be removed or a new adjacent pipeline would be installed. This would have similar impacts to those associated with constructing a new pipeline, except that substantial portions of the impact would be restricted to the historically disturbed corridor of the First and/or Second Aqueduct rights-of-way.

The PCCP project contains approximately 82.5 miles of pipeline; to date, approximately 23.5 miles have been relined. Relining disturbances would result from the mandatory portal excavations spaced approximately 2,000 feet apart for liner jacking. Shifting the portal locations slightly along the alignment to avoid high sensitivity resource areas may further reduce impacts to Covered Species and their habitat. The overall PCCP project's goal is to reline, on average, 20,000 linear feet of pipeline a year. Typically, an individual project ranges from 16,000 to 24,000 linear feet of pipeline. The Water Authority anticipates completing the PCCP relining effort in 2027. Direct impacts associated with this project include temporary habitat removal for construction and staging purposes. Direct impacts to gnatcatcher and its habitat were addressed through BO (1-6-93-F-28) issued in 1993 (Section 1.1.4.1). This Biological Opinion does not provide for indirect effect to the species during the breeding season, such as noise, lighting, and increased human intrusion. However, due to water demand and operational constraints, construction for this type of project may extend into the breeding season, where indirect impacts, such as noise, lighting, and increase human intrusion may have a greater effect than at other times of year. If construction activity continues into the gnatcatcher's

breeding season resulting in additional impacts to the species, any conservation measures aimed at minimizing or mitigating the new impacts will be consistent with this Plan.

5.1.2 System Regulatory Storage

A FRS is a large tank that holds water for storage or to control hydrologic functions, and is considered a major ancillary facility to the pipeline system. Depending of the facility's size and site condition (e.g., slope) the impact area could vary from two to 20 acres. The structures can be rectangular or circular in nature, and may store either treated or untreated water depending upon which aqueduct the FRS is supplementing. When possible, the Water Authority's existing and planned FRSs are typically covered facilities completely below or just slightly above ground level. However, due to the engineering hydraulics of the aqueduct system, an FRS may be constructed entirely above ground level. FRSs are commonly constructed of reinforced concrete or steel material, with corrosion protection measures in place. The construction of these facilities is typically localized and generally involves normal daylight work hours. Differing from new pipeline construction described above, these facilities often are constructed over an extended period of time and may include a larger number of differing construction trades. Therefore, localized ground disturbance is more severe than with a pipeline and may be prolonged. The facility may include a small, unstaffed aboveground control building (10 feet to 30 feet on a side, and approximately 10 feet in height) that houses monitoring equipment, access ways, valves, and other appurtenances. The control building would typically be fenced and locked, with external low intensity safety/security lighting, and security surveillance cameras.

During FRS construction, Covered Species may be displaced by the temporary and/or permanent removal of habitat, and indirectly adversely affected by construction related impacts such as noise, fugitive dust, temporary disruption to wildlife movement, and occasionally night lighting. Construction traffic is adverse if it results in a direct vehicle strike to a Covered Species. Safety/security lighting would be directed downward, so that it does not illuminate adjacent habitat areas. Generally, Water Authority staff inspects control structures and FRS sites weekly, using established access roads. To minimize impacts to biological resources and lessen post construction visual affects, the Water Authority has revegetated the tops of buried concrete FRS facilities with grasses and native shrubs that can persist in shallow soils (18 to 24 inches maximum depth). Depending on the pre-impact habitat type, this may result in a habitat type conversion, benefiting one group of Covered Species over another.

5.1.3 Flow Control Structures

Flow Control Structures include facilities and equipment for water flow metering, velocity and pressure reduction, and appurtenant valves. Oftentimes, this equipment is housed

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in a pre-fabricated concrete reinforced building or vault. Vaults may be above, at, or below grade. These pipeline ancillary facilities vary in size and typically occupy a permanent footprint of a few hundred square feet. Construction of such facilities is typically completed within one to two acre footprint of disturbance. The construction methods for these facilities are similar to a FRS, but the disturbance footprint and construction duration may be substantially less. Larger above ground structures (10 feet to 30 feet on a side and approximately 10 feet in height) housing equipment would require fencing and safety/security lighting, and surveillance cameras similar to a control structure at an FRS. For new Flow Control Structures electrical power may need to be brought to the site depending on local availability of ancillary utilities. Expansion in capacity or other upgrades to an existing Flow Control Structure may require an increase in capacity of offsite power lines. If installation of off-site electrical lines is conducted by the Water Authority, its contractors, or by contract with the local utility entity, such lines are considered a project element and will be implemented per the Plan.

During construction, Covered Species may be displaced by the temporary and permanent removal of habitat, and indirectly adversely affected by construction related impacts such as noise, fugitive dust, temporary disruption to wildlife movement, and occasionally night lighting. Construction traffic is adverse if it results in a direct vehicle strike to a Covered Species. Safety/security lighting for permanent aboveground structures would be directed downward, so that it does not illuminate adjacent habitat areas. Generally, Water Authority staff inspects the facilities weekly, using established access roads. Because of the low activity around the ancillary structures, their small size, and their sporadic occurrence along pipeline alignments, long-term biological impacts are typically considered to be limited to direct footprint habitat losses with no substantial secondary effects.

5.1.4 Pump Stations

Pump stations convey water from a lower elevation, or hydraulic head, to a higher elevation or head. The Water Authority's aqueduct operates primarily on gravity flow; however, pumping may be necessary in order to move water due to substantial changes in topography. Pump Stations are also a component of pumped storage hydroelectric generating projects. Typically, pump station equipment consists of pumps, valves, pressure reducing equipment, and meters. The equipment is usually housed in a reinforced concrete building above grade level. Pump station structures can range in size from 1,200 square feet up to 13,000 square feet, depending on capacity and topography. Construction of such facilities is typically completed within a one to five acre footprint of disturbance. Site preparation and construction operation is similar to new pipeline construction method described in Section 5.1.1, but are also similar to FRS facilities because they often are constructed over an extended period of time and include a larger number of differing construction trades. Therefore, localized ground disturbance is

greater than with a pipeline and the construction period in a given area is prolonged. A pump station may require new or upgraded electric lines to be extended to the facility.

During construction, Covered Species may be displaced by the temporary and/or permanent removal of habitat, and indirectly affected by construction related impacts such as noise, fugitive dust, temporary disruption to wildlife movement, and occasionally night lighting. Construction traffic is adverse if it results in a direct vehicle strike to a Covered Species. Safety/security lighting for permanent aboveground structures would be directed downward so that it does not illuminate adjacent habitat areas. Generally, Water Authority staff inspects the facilities weekly, using established access roads.

Expansion of pump station facilities involves the identification of the expansion area, meter modifications, construction of interconnecting pipelines, and the construction of a building addition to house the new equipment. An expanded facility may require an increase in capacity of the off-site electric lines serving the facility. Construction and impacts would be similar to, but less than, those for a new site.

5.1.5 Water Treatment Plants

Water Treatment Plants (WTPs) treat water that is served for potable use that meets all state and federal drinking water standards. WTPs can be used for the treatment of surface water, groundwater, brackish groundwater, recycled water, or seawater. Either conventional processes or membrane technologies can be utilized for the core treatment process, each affecting the type and size of buildings required on-site. Although no new WTPs or expansion of existing WTPs that require coverage under this Plan are currently proposed for construction in the CIP or Master Plan, this Plan is designed to cover construction of new WTPs and expansion of existing WTP facilities when implemented consistent with the Plan. Construction of a new WTP 100 million gallons per day (MGD) capacity facility would require approximately twelve to fifteen acres for the necessary treatment components. Depending on local site conditions, such as slopes and other constraints, more acreage may be necessary for staging and storage of materials, and for constructing utilities and permanent access to a site.

Site preparation and construction operation is similar to new pipeline construction utilizing open trench construction described in Section 5.1.1, with the exception that work activities are fixed at the WTP site until construction is complete. Similar to a pump station, several specialty trades would be involved over an extended construction period, and off-site electrical lines may need to be extended or upgraded to serve a WTP. During construction, Covered Species may be displaced by the temporary and/or permanent removal of habitat, and indirectly adversely affected by construction related impacts such as noise, fugitive dust and, occasionally, night lighting. Due to WTP facility layout, local wildlife movement would not be expected to occur during construction or operation of a WTP. In order to maintain a construction schedule, night lighting may be

necessary during a portion of the construction. Construction traffic is adverse if it results in a direct vehicle strike to a Covered Species. During operations of a WTP, buildings would have exterior safety/security lighting, which would direct downward so that it does not illuminate adjacent habitat areas. The WTP would have permanent staffing at the site to operate and maintain the facility.

5.1.6 Hydroelectric Generating Stations

Water Authority currently operates hydroelectric generating facilities, and may build future hydroelectric generating facilities. Water Authority hydroelectric facilities use either high-pressure water flow in certain pipeline sections, or a pump-storage system that relies on water pressure associated with an elevation difference between two reservoirs to provide the force to turn turbines used to generate electric power.

Typically, high-pressure station equipment consists of generators, water pipelines, valves, pressure reducing/control equipment, electric conduit, lines, control and monitoring equipment; electric transmission lines and interconnect facilities (switch yard) to connect to the electric power grid. The equipment is usually housed in a reinforced concrete building partially below grade level. Hydroelectric station structures can range in size from 1,400 square feet up to 13,000 square feet, depending on capacity and topography. Construction of such facilities is typically completed within a one- to five acre disturbance footprint. Site preparation and construction operation is similar to new pipeline construction method described in Section 5.1.1, but are also similar to FRS facilities because they often are constructed over an extended period of time and include a larger number of differing construction trades. Therefore, localized ground disturbance is greater than with a pipeline and the construction period in a given area is prolonged. A hydroelectric station may require new or upgraded electric lines to be extended to the facility. Because the current pipeline system configuration and operational practices future generating stations sites are not identifiable, and it uncertain that an additional hydroelectric generating facility could be incorporated into the existing pipeline system. However, new pipeline projects, such as Pipeline 6, may be capable of incorporating a hydroelectric generating station's operational parameters into the overall pipeline design parameters, and provide opportunities for a hydroelectric generating station adjacent to the pipeline.

The existing Lake Hodges Pump Storage Project represents another type of hydroelectric generating system. Water is pumped via a pipeline from a lower reservoir (Lake Hodges) to a higher reservoir (Olivenhain Reservoir) during low electric demand periods (night). During peak electric demand periods (day) the water flows via underground pipeline from the higher reservoir to the lower reservoir and turns the electric generators. The Lake Hodges Emergency Storage Pump Station/Lake Hodges-Olivenhain Reservoir Pipeline Project had the necessary elements (sufficient elevation gradient, pumps, storage and conveyance system) to incorporate hydroelectric

generating into the project by modifying the pump house structure and enlarging the switch yard footprint to include two generators and all the internal and external appurtenant infrastructure to maintain and operator the generators.

The construction of future hydroelectric generating stations relying on high pressure in the pipeline system is a Covered Activity when implemented consistent with the Plan. During construction, Covered Species may be displaced by the temporary and/or permanent removal of habitat, and indirectly affected by construction related impacts such as noise, fugitive dust, temporary disruption to wildlife movement, and occasionally night lighting. Construction vehicle traffic could potentially result in a direct strike to a Covered Species. Safety/security lighting for permanent aboveground structures would be directed downward so that it does not illuminate adjacent habitat areas. Generally, Water Authority staff inspects the facilities daily or less frequently, using established access roads.

The construction, permanent footprint, and O&M impacts of a pumping/generating structure and appurtenances impacts to Covered Species and habitats are similar to other described Covered Activities. Therefore, if implemented consistent with the Plan, a pumping/generating project is a Covered Activity. However, a future pump storage project is not a Covered Activity if its implementation specifically requires the construction of a new dam and open storage reservoir, or the expansion of an existing reservoir's surface area. In this case, project permitting would be independent of the Plan, or may be processed as a Major Amendment (Section 8.4). The decision on whether to process a Major Amendment or pursue permits independent of the Plan will be made by the Water Authority based on the individual project conditions.

5.1.7 Access Road Construction, Re-Establishment and Improvements

To the greatest extent feasible, existing maintenance roads within rights-of-way would be used in order to minimize potential impacts associated with new access road construction. In areas where existing roads are not available and steepness of the right-of-way precludes its use, new roads may need to be graded and easements obtained. Certain temporary road improvements would be made to allow passage of construction vehicles for specific projects. When new road construction is required, it will be implemented pursuant to Plan Minimization Measures identified in Section 6.4, particularly Sections 6.4.2.6 (Stormwater Best Management Practices) and 6.4.2.7 (New Access Roads). Following construction, disturbed road sections would be restored to original contours. Some road improvements may be permanent where required by the landowner, land managing agency, or for O&M Activities. Typically, access roads through covered habitats are compacted native soil, but in areas of steep slopes or other site-specific requirements, the road surface is generally paved with concrete. New access roads through drainage channels and streams may be unimproved crossings or

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improved crossings (Arizona crossing or culverts) subject to appropriate state and federal agreements and permits authorizing such activities. Modification to existing and construction of new access roads is a Covered Activity in this Plan.

Road re-establishment may involve abandoning a severely overgrown road and constructing a new access road that will be safer or easier to maintain. Re-establishing roads could include permanent habitat removal at previously disturbed sites, increased access for invasive species, noise, dust and human activity for a limited period of time. When re-establishing access with an altered road alignment, the road segment to be abandoned will be subject to the applicable provisions of the Habitat Restoration Program (Section 6.6), including weed control (Section 6.6.3). If the road segment to be abandoned was previously mitigated off-site, the Water Authority is not responsible to mitigate off-site pursuant to Section 6.5, except when the vegetation impacted by the new road alignment is considered more sensitive (as identified in Table 6-8) than the original impacts associated with the road to be abandoned, or when the vegetation impacts are the same or lesser, but the new road sensitive habitat impacts exceed those of the segment to be abandoned. In the second case, the Water Authority would only be responsible to mitigate the acreage difference between the new alignment minus the area of the abandoned alignment, and if appropriate (e.g., no anticipated future Water Authority impact to the abandoned road segment) may apply on-site restoration (see Section 6.6.1) as mitigation instead of off-site mitigation.

Site preparation and construction operation is similar to open trenching pipeline construction described in Section 5.1.1. Covered species may be permanently or temporarily displaced by new road construction due to the removal of their habitat, and indirectly affected by temporary noise, dust, and human presences.

Permanent roads are to have regular maintenance activities, such as mowing and grading, which will occur annually to properly maintain the road, per Section 5.2.8.

5.1.8 Feasibility Studies and Data Collection

The Water Authority typically conducts feasibility studies for its projects to establish baseline conditions as a precursor to environmental document preparation. Projects requiring feasibility studies include, but are not limited to, CIP projects and groundwater investigations. Typically, these impacts are considered to be temporary unless an actual project is developed. In this case, permanent impacts to Covered Species and sensitive habitats would require mitigation consistent with Section 6.5 and Appendix B of this Plan.

Feasibility study activities may include, but are not limited to:

- Conducting geologic, soil, cultural, and/or biological field surveys;

- Completing test borings and collecting soil samples with hand augers or truck mounted drilling equipment;
- Constructing temporary access roads to test boring sites;
- Testing well construction;
- Testing pumps and aquifers (involves up to 72 hours of continuous generator and pump operation, as well as disposal of water to land surface);
- Constructing and maintaining access roads to monitor and test well sites;
- Conducting periodic visits to monitor or test well sites. Additional activities include well purging or pumping discharge of small volumes of groundwater to land surface, taking water level measurements, and collecting groundwater samples;
- Completing seismic or resistivity land surveys;
- Engineering and/or pre-design analyses; and,
- Land Surveying to establish property and project boundaries.

Field investigations and data collection are Covered Activities in this Plan.

5.1.8.1 Aqueduct Protection Program

The Water Authority's Aqueduct Protection Program (APP) is a covered activity that addresses the structural integrity, maintenance, and protection of the large pipeline facilities of both aqueducts. Its objective is to determine the condition and, if feasible, extend the service lives of these facilities to maintain a safe and reliable water supply to the Member Water Agencies. Data gathered during the internal and external inspections allow the Water Authority to identify, classify, and prioritize reaches of the pipelines that need replacement or relining.

Developed in 1991, the APP is a three-phase program structured as follows:

- Phase 1: development of a database including a corrosion survey, as well as internal and external inspections of pipelines;
- Phase 2: completion of the condition assessment report and rehabilitation design of the subject pipelines; and,
- Phase 3: implementation of preventive maintenance repairs and rehabilitation, which includes pipeline replacements.

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Initial investigative phases of the program do not result in take of species or habitats. Repair activity as a result of APP investigations may result in temporary impacts to habitat, depending on the location and nature of the repair. Current APP relining projects are discussed in Appendix C.

5.1.8.2 Groundwater Storage and Recovery Program Studies

It is anticipated that various groundwater studies may ultimately lead to one or more programs for basin recharge and extraction. Analyses have been conducted on multiple alluvial basins within the county of San Diego to determine storage capacity, extraction potential, and preliminary environmental effects. Several Member Water Agencies currently manage extraction activities, and the Water Authority has conducted groundwater evaluations to assess the feasibility of seasonal and reserved storage in the San Diego Formation Aquifer and the lower San Luis Rey River valley (PSBS 1991a, 1991b).

Local groundwater storage capacity may be used to supplement existing water supplies and offset seasonal or peak-day water demands. A portion of an aquifer can also be reserved for carryover storage that can be utilized during prolonged droughts and when local water supply sources are limited. Before capital and operating expenses for such projects/programs can be determined and projects implemented, some additional field investigations and feasibility studies may need to be conducted in some groundwater basins.

The field investigations and feasibility studies conducted by the Water Authority involve the following activities: data collection, vegetation clearing, and grading and fill activities for access and drilling pads. If monitoring wells are required for a feasibility study, impacts could result from drilling operations, installation and testing of monitoring wells, and closing/abandonment of monitoring wells. For monitoring wells with a larger diameter, there could be a discharge of water. Depending on site conditions and the amount of discharge, this could include water discharged into a sewer system, water discharged into surface water subject to Regional Water Quality Control Board (RWQCB) regulations, or water percolating into the ground. Impacts from surface facilities will be minimized to the maximum extent practicable during the design process.

Temporary alterations to vegetation and hydrology necessary to gain vehicle access to and construct a pad to operate a drilling rig may result in impacts to Covered Species or their habitat. Vehicle (drill-rig) access routes would use existing roads when available. When existing roads are not available, either a vehicle access route would be established by cutting and crushing vegetation, leaving the roots systems and seed bank intact, or a temporary access road would be graded. Depending on the well's diameter and depth, installation typically requires two to 10 days of work, resulting in wildlife avoidance due to increased human presence and noise. During the study period, a well

is periodically monitored and tested, resulting in potential wildlife avoidance when personnel are present. At end of the study period, the well is closed (filled), typically requiring less than one day to two days of work depending on the well's diameter and depth. The well pad and any created access route is then restored per the Plan (Section 6.6). Well closing impacts to Covered Species are similar to installation, as wildlife avoidance is expected due to increased human presence and noise. Field investigations required for determining the feasibility of implementing a groundwater storage and recovery program are Covered Activities in this Plan. Construction and operation of permanent groundwater extraction and injection wells, recharge basins, and associated pipeline systems may be added to this Plan through the Amendment process. Nothing in this Plan prevents a Member Water Agency that also has an approved NCCP/HCP from implementing such a project pursuant to the provisions of their own NCCP/HCP.

5.1.9 Wetland and Riparian Mitigation Site Implementation and Interim Management

The Water Authority anticipates that implementing some Covered Activities will result in unavoidable permanent loss of wetlands. The Wetland Protection and Mitigation Program (Section 6.7) commits the Water Authority to a “no net loss of wetlands” standard. To achieve this standard and provide conservation for Covered Species, the Water Authority has proposed to initially create three wetland habitat management areas as part of the Plan. The Manchester Wetland HMA (Section 6.8.2.3) has already been installed, and has completed its fourth year of interim management and monitoring. Wetland creation and restoration requires professional engineering design expertise to predict and address any change to localized hydrology. Therefore, although not a routine Water Authority construction activity, wetland and riparian creation and restoration activities are included as a subset of CIP Covered Activities. Specifically, the Tijuana River Valley HMA (Section 6.8.2.1) and San Luis Rey River HMA (Section 6.8.2.2) are two wetland habitat management creation areas to be authorized for implementation per the Plan. These two projects are described in Appendix C and Sections 7.1 and 7.2.

Because wetland mitigation projects require the use of earth moving equipment, initial site preparation activities are similar to other CIP Covered Activities discussed above. Earth moving equipment is used to remove soil or structures to achieve the desired elevation and flow gradient needed to sustain the desired wetland and/or riparian communities. During wetland creation project planning, an adjacent non-sensitive habitat area is typically identified as a placement area for the soil that is excavated from the creation area. The excess soil removal area is typically vegetated with a site appropriate upland habitat type. Because local river and stream flows are dependent on the region's variable and relatively short winter rainy season, a temporary irrigation system is typically installed and used to more quickly establish the shrub and tree canopy, rather than to rely only on natural rainfall.

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Tasks associated with wetland creation can be divided into two phases, the first phase covers construction of the project, and the second phase covers interim habitat management activities. Construction phase includes site preparation (delineating limits of work, removal of debris, structures and vegetation), earthwork (grading, and placement of soil), and installation (temporary irrigation system, container plants, cuttings and seeding).

The time required to implement this first phase is dependent on site specific conditions, for an example the Tijuana River Valley HMA is anticipated to require three-months to complete preparation and earthwork tasks, and two months to complete the installation task. Impacts to Covered Species are temporary, and include a temporary reduction in habitat, construction noise and fugitive dust, and increased human presence.

The interim management phase is the period anticipated for the newly installed site to achieve its site-specific success objectives, and is typically a five-year period for riparian habitat types. Management activities include maintenance (routine weeding and invasive species control, replacement of plants and cuttings and re-seeding, as needed), monitoring (qualitative and quantitative vegetation assessments, wildlife observation), and report preparation. Sites generally have more maintenance and monitoring needs during the first few years. As the site matures and approaches its success objectives, the numbers of visits for maintenance and monitoring trips decrease. Impacts to Covered Species are identified as increased human presence.

Once interim management is deemed complete, ongoing wetland HMA management, monitoring and adaptive management would continue as an O&M Activity (Section 5.4).

5.2 O&M Activities

This section describes general O&M Activities associated with various Water Authority existing and/or planned facilities. The Water Authority's maintenance and scheduled repairs include, but are not limited to: re-grading of access roads; fire clearance around surface structures; pipeline inspections; valve and pipeline section replacements; pipeline, tank, and reservoir drainage into natural waterways to allow for interior inspection and work; and cathode/anode renewal. The majority of O&M Activities occur in developed and disturbed areas, or other non-sensitive habitat areas. Table 5-3 provides an impact summary for O&M Activities and vegetation communities over a 55-year period. The following O&M Activities are Covered Activities in this Plan.

5.2.1 Aqueduct Security and Surveillance

Several methods of securing the aqueduct system were evaluated as a result of a Hazards Assessment and Vulnerability Analysis conducted by the Water Authority in

2002. As part of that project, the analysis addressed general security and surveillance issues along the system through the design and installation of security camera systems, security lighting, fencing, alarm systems, and real-time water quality monitoring stations. Security cameras and lighting are associated with structures, and are typically mounted on the actual structure; therefore, routine inspections and maintenance is expected to have no effect on Covered Species. Vegetation is managed on each side of security fencing, as needed, to maintain visibility and the effectiveness of the fence as a barrier. Impacts could include temporary habitat modification or removal at previously disturbed sites, and increased noise and human activity for a limited period of time.

5.2.2 Pipelines and Minor Support Facilities

O&M Activities specific to pipelines include, but are not limited to: (1) weekly visual inspections; (2) mowing within pipeline alignments; (3) access road grading; (4) testing and servicing of valves as needed; (5) yearly walking of pipeline alignment and inspection of the cathodic protection system; (6) draining for internal inspection; (7) replacement of pipeline and pipeline appurtenances, such as air-release valves, vents, and blow-off structures; and (8) pressure testing pipeline, painting pipeline appurtenances, repairing tunnel entrances, and repairing minor leaks in buried pipeline joints or segments as needed. Impacts could include temporary habitat removal at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.2.1 Repairs

When pipeline repair requires excavation to access the effected infrastructure the types of construction related work activities associated with new pipeline construction and the resulting impacts to Covered Species are generally the same as described in Section 5.1.1. The actual disturbance footprint would be based on the area that needs to be excavated to conduct the repair, together with an adjacent temporary soil storage area, work zone, and staging area. There is a higher probability that all or portions of the repair work would occur within a developed area (e.g. existing access roads) or in disturbed habitat within the existing rights of way, when compared to new pipeline construction. After the repair work is complete the impacted area would be restored per the Plan (Section 6.6).

Many repairs are conducted within the existing pipeline. Access is gained to the pipelines' interior through inline surface structures referred to as manways. Prior to entering the pipeline, the particular pipeline section must be drained (Section 5.2.2.2). Vegetation around manway structures is maintained per Sections 5.2.9 and 5.2.11. Staging is typically conducted within the existing access road, road shoulder, and other disturbed areas within the rights of way. Impacts associated with interior repairs would be limited to increased human presence during the duration of repair (typically ten days

or less from pipeline shutdown to start-up), noise from an air-compressor needed to maintain a safe working environment inside the pipeline, vehicle trips required to transport personnel and deliver supplies.

5.2.2.2 Draindowns

This maintenance activity involves stopping water flow within a pipe and the complete drainage of water from a section of pipeline to allow for an internal inspection. Water is released through the low-lying portions of the pipeline through existing surface structures and into natural and artificial drainages. A valve housed in the draindown structure controls the water's velocity as it exits from an outlet-pipe into a natural drainage or storm water system. Controlling the water velocity prevents scour and subsequent down gradient sedimentation. Draindowns can occur anytime of the year, and are typically performed in a 10-day work period, three to five times per year, at different locations throughout the aqueduct system.

For many riparian associated Covered Species the release of water during any season would be beneficial or neutral. However, for a limited number of riparian Covered Species, out of season water release at a velocity that would dislodge egg masses or larvae would be detrimental. For vernal pool associated Covered Species, the introduction of water out of the normal wet season could be detrimental. The Water Authority has identified one area in the water conveyance system where this could occur, and currently avoids the impact by pumping the discharged water into the neighboring drainage where vernal pool resources are not affected.

There is also the potential of introducing Quagga and Zebra Mussels into perennial surface waters. The Water Authority implements its Quagga and Zebra Mussel Response and Control Action Plan during draindowns to prevent mussel larva, if present in the water, from entering surface waters (see Section 6.7.4).

The Plan includes draindown protection measures in Section 6.4.3.4.

5.2.3 System Regulatory Storage

O&M Activities typically associated with system-wide storage facilities include, but are not limited to: (1) routinely visiting and inspecting the site; (2) performing routine maintenance and cleaning of equipment on-site; and (3) responding to outages or other emergency situations. Impacts are limited to weekly use of access roads by patrol vehicles and the less frequent need to access the structure through existing hatches for maintenance or repair. Impacts could include temporary habitat removal or trimming of vegetation at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.4 Pump Stations

O&M Activities typically associated with pump stations include, but are not limited to: (1) routine operation checks; (2) routine general pump station cleaning and maintenance; (3) routine maintenance of pump station exteriors; (4) routine testing and replacement of pumps and other equipment during non-emergency periods and verification of operational readiness; (5) annual major maintenance and clean-up; and (6) as-needed service to motor cooling system (emergency pumps), replacement of pump seals, painting pump station and equipment, and disassembling pumps to inspect bearings and impeller (recirculation pumps and emergency pumps). Activities are limited to existing structures and will not appreciably affect native species or habitat. Impacts could include temporary habitat removal at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.5 Water Treatment Plants

O&M Activities generally associated with WTP facilities include, but are not limited to: (1) visiting and inspecting the site on a routine basis; (2) performing periodic routine maintenance and cleaning of equipment at the site; (3) taking delivery and/or hook-up of disinfection chemicals on an as-needed basis; (4) performing major maintenance or replacement of pumps and other equipment on an as-needed basis; and, (5) responding to outages or other similar situations. Other than the normal operations, activities that could affect Covered Species at a WTP generally are limited to temporary habitat removal at previously disturbed sites, increased noise, light, and human activity at the WTP perimeter for a limited period of time.

5.2.6 Hydroelectric Generating Stations

O&M Activities typically associated with hydroelectric stations include, but are not limited to: (1) routine operation checks; (2) routine general generation station cleaning and maintenance; (3) routine maintenance of station exteriors; (4) routine testing and replacement of generators, electric control systems and other equipment; (5) annual major maintenance and clean-up; and (6) as-needed service to electric generation system. Activities are limited to existing structures and will not appreciably affect Covered Species or habitat. Impacts could include temporary habitat removal at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.7 Reservoir Drawdown and Refilling

Water levels in a reservoir are expected to fluctuate for a variety of operational reasons. Maximum operational capacity refers to the spillway elevation; however, actual operational elevation is typically several feet below spillway height. Drawdown, the

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controlled lowering of the surface water level, may occur due to seasonal demand, or to conduct maintenance on some reservoir feature. Under normal operational circumstances, routine drawdown results in no discharge of water into waterways; drawdown occurs by controlled inflow relative to outflow, until the desired water level is achieved.

It may be necessary to conduct rapid drawdown of the reservoir through controlled releases to accommodate flood protection from local watershed rainfall. Likewise, it may be necessary to utilize stored water to meet water demands resulting from facility damage elsewhere or prolonged drought. These drawdowns may differ from flood control releases in terms of season of the year, magnitude, frequency, and duration. In addition, the reservoir may be utilized as part of a pumped storage operation, resulting in daily fluctuations in surface elevations as water is pumped and recovered for energy production.

Prolonged emergency conditions and lowered water levels due to other operations could allow riparian vegetation to establish on the reservoir bottom and along the stream channels entering the site. Typically, riparian vegetation is allowed to establish and persist in the empty reservoir bed to provide interim habitat value during drawdown periods provided that no additional mitigation is required for refilling the reservoir to its maximum operational level. These habitats would be lost as the reservoir is refilled. The process of refilling reservoirs is distinguished between natural filling with native run-off, which the Water Authority does not control, and manual filling with imported water, which is regulated by the Water Authority. However, it is important that the full operational capacity of the reservoir be retained for water supply purposes. Manual refilling occurs typically between November 1 and May 31, when excess water is more likely to be available. However, manual refilling could occur whenever water is available for storage.

The primary purpose of the management of the reservoirs is for efficient operation of the San Diego region's water supply system. While there are recognized habitat values and wildlife benefits associated with reservoir features, the primary purpose of the proposed facilities is water storage. As such, significant habitat loss and species take will be mitigated consistent with Section 6.0 and Appendix B of this Plan without the consideration of any compensatory value provided by the reservoir.

Covered Species are not expected to be adversely affected by routine seasonal drawdown, or by maintenance actions on a particular reservoir feature that requires the water surface to be lowered. Generally, the drawdown period does not provide sufficient time for a Covered Species' habitat community to develop.

Prolonged drawdown periods, for example three years or greater, could provide sufficient time for Covered Species' habitat to colonize an exposed reservoir bed. The subsequent refilling of the reservoir would inundate any opportunistic habitat, and any

burrows, dens or nest sites, resulting in the loss of habitat and any eggs and nestlings. The rise in water level is relatively slow (i.e., less than one foot per day), therefore it is expected that adult and juvenile wildlife would evacuate the area in advance of the rising water level. A prolonged drawdown could occur because of the reconstruction or raising of on an existing dam, or from a prolonged disruption (over several seasons) of imported water due to an extended drought in California or the Colorado River Basin, or a catastrophic disruption to the statewide water conveyance system requiring multiple seasons to return to historical water delivery amounts. The Plan includes drawdown protection measures in Section 6.4.3.4.

5.2.8 Access Road Maintenance and Repair

The Water Authority owns and operates facilities that require regular access on established roads. These access roads are typically 12-feet wide with an additional four feet of mow strips on each side and must be maintained and repaired on an annual basis. Access road maintenance includes filling, grading, paving, and spot-repair of areas subject to scouring and erosion. Road repairs are performed as necessary to access facilities, usually following seasonal rains. Impacts could include increased noise, light, dust, and human activity for a limited period of time.

Several areas of access roads are severely overgrown from years of limited maintenance activities. These areas will require more intensive one-time activities for road re-establishment, which include vegetation removal, tree trimming, and grading. Re-establishing roads could include permanent habitat removal at previously disturbed sites, increased access for invasive species, noise, and human activity for a limited period of time.

5.2.8.1 Access Road Grading

Access roads are graded in most areas as conditions require. Grading is done with construction equipment, such as motorgraders and earth-raking attachments. Impacts could include increased noise, dust, and human activity for a limited period of time.

5.2.8.2 Access Road Upgrades and Stream-crossing Improvements

Upgrade activities for access roads may involve stream-crossing improvements (i.e., (Arizona Crossings) and installation of culverts at waterways, erosion control measures, additional grading activities, re-paving, and application of surface materials, such as decomposed granite, gravel, or pavement.

Construction and patrol vehicle access through shallow creeks or streams is allowed year-round. Access roads may cross a variety of shallow waterways ranging from

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perennial and intermittent streams designated on U.S. Geological Survey (USGS) maps to agricultural irrigation ditches. When the integrity of the access road is threatened, some road repair may be necessary. Activities may include, but are not limited to, installation of Arizona Crossings, bank stabilization, and repair of subsidence damage. These activities may be accomplished through the placement of riprap and through the use of earth-moving equipment within the access road area. Crossings would be implemented pursuant to Section 6.7.

Access road maintenance may require the placement of Arizona Crossings where Water Authority roads currently traverse streams, rivers, or drainages. Locations where Arizona Crossings could be required include, but are not limited to:

- San Luis Rey River (First and Second Aqueduct crossings);
- Salt Creek (Second Aqueduct crossings);
- Escondido Creek (Second Aqueduct crossing);
- Sweetwater River (below dam; Second Aqueduct crossing); and,
- Lakeside (La Mesa–Sweetwater Crossing).

Impacts could include permanent or temporary habitat removal at previously disturbed sites, increased noise, dust, light, and human activity for a limited period of time.

5.2.8.3 Culvert Cleaning

Road repair activities could include replacement or cleaning culverts of vegetation, sediment, and debris. Sediment deposited in or around culverts will be removed by hand or through the use of earth-moving equipment. Mechanized equipment would be staged on existing roadbeds and outside of flowing or ponded water, if conditions permit. Impacts could include permanent or temporary habitat removal at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.9 Mowing

In addition to maintaining the road surface and facilities, adjacent vegetation must be controlled so that it does not expand into the roadway or encroach onto facilities. Mowing and/or trimming of vegetation around facilities is needed to maintain access and comply with fire regulations. In general, the Water Authority clears approximately 15 feet from facilities and four feet on each side of roads, with the exception of urban and developed areas where the Water Authority also clears all vegetation inside fenced areas and up to four feet outside the fences with permission from the landowner. Where pipelines cross rivers and streams, the Water Authority needs to prevent direct and indirect damage to the pipelines from root systems. Mowing is one technique used to

prevent the establishment of trees, large shrubs, and other large woody species. Vegetation management activities generally require a mower, mechanical brusher, a weed-whacker, or hand clipping. Because of the length of the right-of-way and number of facilities, only a portion of the mowing activity occurs in any given year. Mowing reduces or eliminates habitat suitability for many species because of change in native vegetation structure, density, and diversity. However, mowing also provides a successional vegetation edge effect that can be exploited by some species. If a Covered Species cannot move away from a mower, mortality could occur. Other impacts could include increased noise, dust and human activity for a limited period of time.

5.2.10 Protection of Underground Facilities in Waterways

Protection of underground facilities is required wherever facilities cross a waterway within the Plan Area. When scouring threatens a facility, measures to protect the facility and to minimize future erosion must be taken. Maintenance activities to protect underground facilities include grading, addition of fill material to repair erosion damage, repair of adjacent slopes with placement of riprap or concrete, installation of sheet pile, compaction of soil, control of species with invasive root structures, and other activities as necessary. These measures may involve the use of heavy equipment and other machinery. Vegetation generally less than 36 inches tall will be allowed to grow over the underground facilities to reduce erosion by wind and water and stabilize the soil. Impacts could include permanent or temporary habitat removal at previously disturbed sites, increased noise, light, and human activity for a limited period of time.

5.2.11 Fire Protection

A clearing of a minimum 15 feet around facilities and mowing four feet adjacent to roadways is needed for fire protection after construction. The local Fire Marshall typically identifies areas requiring fire maintenance. The Water Authority will also follow the San Diego County Fire Chief's Association (1997 or more recent versions) Wildland/Urban Interface Development Standards. Vegetation and brush that may fuel fire are removed. Vegetation clearing may involve mowing, weed abatement, or removal of dead or dying trees or foliage, or the dead, diseased, or dying limbs of trees or foliage. Approved herbicides will be applied in conformance with applicable federal, state, and local regulations (in a manner that avoids or minimizes harm to native plants or animals) to prevent vegetation from reoccurring, typically after mechanical clearing and outside of the avian breeding season. See Appendix B for avian breeding dates and species specific mitigation measures. Impacts could include permanent or temporary habitat removal at previously disturbed sites, increased noise, and human activity for a limited period of time.

5.2.12 Weed Abatement in the Preserve Area

Weed control may be necessary in the Water Authority's Preserve Area, and during Covered Activity post-construction revegetation efforts. Weed abatement would be used in order to improve the habitat for Covered Species or for fire protection and may involve mechanical or chemical (herbicides) methods. Abatement measures are described in Section 6.0. Impacts could include increased noise and human activity for a limited period of time.

5.2.13 Tree Trimming and Removal

Tree trimming for routine maintenance or entire tree removal can be required to protect facilities and to keep areas around facilities and access roads clear. Tree trimming is done generally with lift trucks and a chipper trailer. In most cases, the crew will have vehicle access. If vehicle access is not available, then hand trimming is done. Tree trimming and removal activities will conform to the measures outlined in Section 6.4.3.7 and Appendix B. Impacts could include increased noise and human activity for a limited period of time.

5.2.14 Pest Control

Use of pesticides (herbicide, insecticide, fungicide, etc.) is a Covered Activity when employed to implement projects, O&M Activities, and reserve management, and performed in conformance with the label requirements and all federal, state, and local regulations. Pesticides will not be used intentionally on any Covered Species (unless that is a legitimate use to control a pest species that has infected or may affect a Covered Species), and any take of a Covered Species would be incidental to the use of a pesticide. Pesticides would only be used when all other control options/Covered Activities were determined not to be feasible and effective.

Facilities require pest control, usually to control problems with non-native rats, mice, and other rodents. Pest control is more common to facilities located adjacent to urbanized areas where food is more plentiful. When necessary, pest control measures will be used in accordance with the written recommendation of a licensed, registered Pest Control Advisor and in conformance with label precautions and federal, state, and local regulations in a manner that avoids or minimizes harm to native plants or animals. Impacts could include increased noise and human activity for a limited period of time.

5.2.15 Urgent Repairs

Urgent repairs are required when a facility or structure is compromised and requires repairs to remain functional. Urgent repairs are those that do not pose an immediate threat to life or property, but are among the top priorities of the Water Authority to ensure

continued service, as they have the potential to jeopardize the integrity of the water treatment, delivery, and storage system. They may also become emergency repairs if not addressed in a timely manner. Construction activities and impacts to Covered Species and habitats for an urgent repair would be similar to constructing the corresponding Covered Activity type described above, i.e., new pipeline construction.

Standard procedures for addressing an urgent repair need are as follows:

- Once an urgent repair situation is discovered and verified, notification of the situation and activities necessary for repair are sent by the O&M staff to the Rights-of-Way and Water Resources Departments (per the Water Authority Urgent Repair Manual). Individual habitat impacts due to Urgent Repairs will be calculated as they occur and documented in accordance with the Plan's monitoring program (see Section 6.0).
- Photographs will be taken to document the existing urgent repair conditions.
- If the facility is located in a natural area (i.e., native or sensitive habitats), an Environmental Surveyor, as determined by the Water Authority and possessing the qualification identified in Section 6.4.1.1, would conduct a survey of the area (discussed in detail in Section 6.0) prior to repair activities if possible.
- The Environmental Surveyor will recommend measures to minimize impacts to the habitat or Covered Species if avoidance is not possible, and will monitor repair activities.
- As required by this Plan or applicable regulations, the Water Authority will notify the Wildlife Agencies, USACE, RWQCB, and other agencies as appropriate.
- After the repair is complete, a follow-up survey will be conducted to quantify actual impacts to Covered Species or habitat affected, and to develop recommendations for on-site revegetation. Temporary impacts will be revegetated per the Plan (Section 6.5.1.4), and any permanent or residual temporary impact will be mitigated per the Plan.
- Urgent repairs, and any resulting revegetation and off-site mitigation will be documented in the annual report.

Urgent repairs will be made as soon as possible. As a result, in considering potential take of Covered Species or their habitat, adjustments for time of day or seasonal constraints may not be possible in the interest of system integrity and reducing the potential risk to public health and safety. An Environmental Surveyor will be consulted for measures to minimize impacts to Covered Species should they be present in the vicinity of the repair.

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Nighttime activities may be necessary in order to expedite the repair work on the system. Due to the urgent nature of these repairs, normal construction activities (i.e. not all minimization or mitigating measures implemented) may take place, resulting in typical daylight levels of construction traffic, dust, and noise during nighttime hours. As identified above, the Wildlife Agencies will be notified and provided information for the implementation of the urgent repair as soon as possible.

The types of impacts to Covered Species associated with Urgent Repairs are the same as identified under the Section 5.1.1 and Sections 5.2.1 through 5.2.7. However, Urgent Repairs differ in one important aspect that is an Urgent Repair may require extended work hours or an extended workweek. Therefore, there is a higher probability that urgent repair work would include construction lighting for night-time work, the work day would be longer, and work week could include Saturday, resulting in longer daily duration that adjacent Covered Species would be subject to potential lighting, noise, fugitive dust and human presence.

5.2.16 Rights-of-Way Activities

Approximately 85 percent of Water Authority rights-of-way land is held as easements, with the remaining 15 percent as fee-owned parcels. Fee-owned lands held by the Water Authority are limited to approximately 80 parcels and make up approximately 275 acres scattered along various alignments. The Water Authority maintains full control of fee-owned parcels and can grant encroachment permits to public and private individuals. Encroachment into fee-owned parcels that support native habitat requires a CEQA determination from the appropriate land use jurisdiction and an encroachment permit from the Water Authority. The Water Authority does not limit activities in easements under private ownership that do not jeopardize facilities or block access. The activities of underlying private landowners where the Water Authority has an easement are not covered under this Plan.

The Water Authority holds exclusive use easements over the majority of its rights-of-way and facility properties. In some situations, the Water Authority holds restricted licenses (e.g., pipelines on MCAS Miramar). The Water Authority's standard easement provisions for private properties, and most public properties, provide extensive rights for any necessary actions related to installation and O&M Activities of Water Authority facilities. The Water Authority easements allow the underlying landowner to undertake any and all surface uses which do not conflict with the rights of the Water Authority.

5.2.16.1 Water Authority Easements/Fee Ownership

An example of a standard grant of easement to the Water Authority is in Appendix E. This Plan is not intended to be used as coverage for activities undertaken by underlying fee owners of land.

Water Authority Use of Easements and Fee Ownership

1. Easements provide the Water Authority the right to engage in activities required to construct, install, repair, relocate, replace, remove, maintain, drain, and inspect facilities, including, but not limited to, pipelines that run through easements. The Water Authority may also construct, repair, and maintain related facilities, including, but not limited to, manholes, vaults, flow control and measuring devices, alarms, erosion control facilities, pumping wells, blow-offs, antennas, cables, and power transmission and communication conduits within these easements.
2. The Water Authority has the right to remove any buildings, structures, and vegetation within the easement, as necessary.
3. The Water Authority will continue to revegetate the aqueduct easements with local native seed mix after each construction event, where adjacent to native habitat and not conflicting with approved O&M activities (see Appendix D).

Activities of Underlying Fee Owner

1. Most Water Authority rights-of-ways are within an existing easement. The activities of underlying fee owners are not covered by this Plan.
2. The underlying fee owner may not increase or decrease the surface elevation of an easement area (by grading or filling), may not drill any wells or plant any trees, and may not construct fences, gates, posts, chains, walls, or other objects that obstruct the easement without written approval from the Water Authority.
3. The underlying fee owner has the ability to use the surface of the easement area in a way that does not interfere or conflict with Water Authority structures and activities. The underlying fee owner must receive an Encroachment Permit from the Water Authority for all uses within the rights-of-way.
4. This Plan does not cover impacts to habitat and species that result from separate agreements between a Water Authority contractor and a private property owner that are not specifically authorized by the Water Authority. The private property owner or contractor is responsible for obtaining any necessary approvals/permits from appropriate jurisdictions, as well as implementing any required mitigation measures.

5.2.16.2 Rights-of-Way Management

Access roads are driven once per week to inspect fencing, pipeline appurtenances, and facilities, as well as potential encroachment to the rights of ways. Maintenance and repair activities that are unlikely to impact habitat or cause take of a Covered Species,

5.0 Authorized and Covered Activities

such as the repair of gates, vent structures, Flow Control Facilities, replacement of surface structures, and lubricating equipment, are conducted year-round.

For dam and reservoir facilities, access roads are patrolled daily to inspect and maintain facilities. Instrumentation at dam sites is monitored monthly or as required to check integrity.

Aqueduct and pipeline inspections are conducted routinely by truck or on foot. Operating personnel check and record rights-of-way conditions, replace missing or damaged pipeline markers and patrol signs, ensure that pipeline markers are clearly visible, perform minor maintenance activities, and record any conditions that may affect pipeline operations. These activities are generally limited to access roads, road shoulders, and other maintained or disturbed areas within the rights-of-way. Impacts to Covered Species could be due to human presence for a limited duration.

5.2.16.3 Land Surveying for Rights-of-Way Expansion

The purpose of rights-of-way expansion projects would be to acquire additional property rights to widen the rights-of-way in order to provide an adequate width to maintain pipelines and protect facilities from conflicting land-use encroachments. Water Authority staff is evaluating the need for additional rights-of-way width for the entire aqueduct system. Fieldwork associated with this Covered Activity is land surveying, which may require off-road hiking, staking and/or installation of boundary markers, and trimming vegetation as needed to establish lines-of-sight. Impacts to Covered Species by this activity could occur due to human presence for a limited duration, or from modifying vegetation to establish a line of sight, or to place temporary boundary stakes or set property corners.

5.2.16.4 Land Surveying for Aqueduct Alignment Corrections

There are locations in the Water Authority system where the legal description for the rights-of-way does not match the actual location of the pipeline. The aqueduct alignment corrections project will correct the known inaccuracies by acquiring the necessary property rights and will identify other locations where the right-of-way and Water Authority facilities do not coincide. Fieldwork associated with this Covered Activity is land surveying, which may require off-road hiking, staking and/or installation of boundary markers, and trimming vegetation as needed to establish lines-of-sight. Impacts to Covered Species by this activity could occur due to human presence for a limited duration, or from trimming vegetation to establish a line of sight, or to place temporary boundary stakes or set property corners.

5.3 Preserve Area Management, Monitoring and Adaptive Management

This Plan establishes practices to manage the Preserve Area (Section 6.11). Unlike most other NCCP/HCP plans, this Plan does not authorize agriculture, general development, mineral extractions or other activities that could affect areas adjacent to or within its Preserve Area or other plans' preserve lands.

Covered Species protection and conservation are primary goals of the Preserve Area, and all management activities, including monitoring, maintenance, and adaptive management, will comply with state and federal endangered species regulations as well as this Plan. The contributions of the Preserve Area to the regional conservation of Covered Species are discussed in detail in Section 6.8. With the exception of the San Miguel HMA, which is managed as a National Wildlife Refuge and in accordance with the conservation banking agreement for this area, Preserve Area management plans will identify and provide detailed descriptions of the land management activities, restrictions and practices that will be undertaken to maintain or enhance Covered Species habitat. Individual Preserve Area Management Plans (PAMP) are subject to Wildlife Agencies review and approval (Section 6.11). The following management activities would be implemented as site specific measures, where applicable, with the intent to result in a net benefit to Covered Species in the Preserve Areas: active and passive habitat restoration, stream stabilization measures, fire management practices, compatible public uses/outreach, fencing, signage, removal of trash and debris, light and noise, feral and domestic animal control, cowbird trapping, invasive exotic species control, and guidelines for species introduction and reintroduction.

The San Miguel HMA is a FWS-approved bank and the purchase price for credits at the bank includes a per-acre fee provided to an endowment dedicated to funding monitoring and management activities for species and habitats within the bank. With the purchase of credits, the Water Authority is entitled to rely on the monitoring and management assurances provided in banking agreement.

The primary goal of the Preserve Area is to protect and conserve Covered Species. Although management and monitoring activities may cause temporary impacts, there will be a net benefit to Covered Species.

5.4 Incidental Take

The ESA defines take as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct.” In regards to this Plan, estimates of potential take of Covered Species were based on the definition above and the predicted impacts from Covered Activities, as outlined in this section and

5.0 Authorized and Covered Activities

Appendix C. Take was assumed to result from the disturbance of habitat known or with potential to support the Covered Species. Disturbance was estimated by overlaying rights-of-way, facilities, and known project areas on the potential habitat for the species, as defined by appropriate vegetation communities (see Appendix B).

Based on a review of Covered Activities, this Plan provides a habitat-based impact summary (Table 5-3) of the anticipated permanent impacts from Covered Activities. Estimates of habitat impacts are provided for Planned and Future Projects and O&M Activities. Preserve Area Management impacts to Covered Species are presumed to be temporary, and overall will provide a net benefit to the species; therefore, these impacts are not summarized Table 5-3.

Impacts for Planned Projects (i.e., expected to occur over the next 20 years) that require compensatory mitigation are estimated at 71.4 acres, based on either specific project planning documents, or GIS analysis of a construction footprint. For Future Projects, the estimated impacts were assumed to be similar in scope/extent on a per year basis to the Planned Projects. Future Project impacts for the 35 years after the Planned Project time frame resulted in a multiplier of 1.75 (35 years vs. 20 years). Additionally, a 20 percent “contingency” has been added to the estimated impacts from Future Projects (totaling 149.8 acres) and O&M Activities (totaling 33 acres) to account for uncertainties regarding those impacts. Based on preliminary information regarding a potential realignment of Pipeline 6’s central and southern segments (an Existing Project described in Appendix C, Section 3.1.2), a different set of impacts may occur to an estimated 118.9 acres of vegetation communities that are addressed by this Plan. This Plan includes the alternative Pipeline 6 alignment as a Covered Activity. The level of project detail available for Pipeline 6 precludes separating permanent and temporary impacts, so all impacts to habitat types are treated as permanent (Table 5-3) for the purposes of assessing take under the Plan.

Appendix B summarizes the potential habitat within the Survey Area, PIZ, Preserve Area, and MMAs that may support the Covered Species as well as the reported occurrences of Covered Species in the Survey Area and PIZ (see Table B-1 in Appendix B). For each Covered Species, Appendix B provides an assessment of the potential take by the Planned Projects and the documented or potential conservation provided by the Preserve Area and MMAs. The habitat and occurrence-specific impacts from Future Projects cannot be determined, but the Preserve Area, as noted in Section 6.5.1.1, has substantially more available habitat credits than the projected habitat acreage impacts to many vegetation types from planned and future projects. If the Preserve Area does not contain the appropriate Covered Species habitat or Covered Species, then additional suitable habitat will be added to the Preserve Area, or appropriate credits from existing banks will be obtained (Section 6.5.1.2). Species-specific conditions for coverage required for these impacts are provided in Appendix B.

Take of the Covered Species typically quantified in terms of acres of actual or potential habitat impacted by Covered Activities, is described below. To ensure that incidental take was not underestimated, any displacement of Covered Species was treated as harm and thus considered as take. It was assumed that no direct take of nesting birds, active nests, eggs, or young would occur, except during urgent repairs and in association with the infrequent drawdown and refilling of reservoirs. Plan measures to avoid, minimize, mitigate, and monitor incidental take are presented in Section 6.0.

Water Authority actions within the Plan Area have the potential to contribute both individually and cumulatively to the reduction of native habitats and associated Covered Species' populations. These impacts arise both from construction of new project facilities and regular O&M Activities. The extent of impacts to Covered Species and native habitats varies based on several factors, including the location, duration, and magnitude of the projects. Although impacts may differ, the Water Authority's principal construction activities rarely deviate from projects directly related to water delivery and support facilities.

Because many of the pipelines and minor support facilities parallel each other along north-south trending alignments, there is a substantial amount of overlap between construction impacts associated with new facilities and rights-of-way management activities supporting existing pipelines. Also, in some cases, take for a particular Covered Species is already authorized per an existing BO (e.g., gnatcatcher by BO 1-6-93-F-28). When examining the composition of non-developed habitats present within the existing rights-of-way and within the areas of work under the CIP projects, the distribution of impacts from Future Projects across habitat types is expected to be similar to those for the Planned Projects.

5.4.1 CIP Project Impacts

Estimated impacts from the construction and expansion of CIP projects were drawn from available project-specific assessments, i.e., CEQA documents. Where project-specific information was not available, impact assessments were based on recent construction of similar facilities, regional vegetation, and resource mapping combined with Water Authority rights-of-way information (SANDAG 1997; Water Authority and PSBS 2003b). Actual impact acreage and species impacts caused by CIP projects will be determined during preparation of individual projects' CEQA documents and verified through the Pre-activity Survey program described in Section 6.4.1.2.

A summary of the types of CIP projects (i.e., Covered Activities) that are covered by this Plan are described in Section 5.1, and a summary of Existing and Planned Projects with either planning or Master Plan level of specificity are included in Appendix C. The CIP projects identified in Appendix C result in comparatively minor native habitat impacts (190.3 acres) and are discussed as a group. Section 6.0 and Appendix B provide an

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assessment of the potential take by the Planned Projects and the documented or potential conservation provided by the Preserve Area and MMAs.

The CIP Covered Activities not identified in Appendix C are Future Projects in the CIP. The CIP Covered Activities types described in Section 5.1 maybe be constructed individually, for example a future pipeline project, or implemented together as a more complex project, for example a water treatment plant, together with a pump station and pipeline. As discussed in Section 5.5, take of Covered Species habitat associated with Future Projects is estimated at 149.8 acres. General estimates of impacts resulting from construction of each type of facility are described in Table 5-2. Impacts by habitat types are summarized for Proposed and Future Projects in Table 5-3.

With relatively few exceptions, impacts from existing CIP projects are not included in the take estimate. As discussed in Section 1.1.2.2, existing CIP projects are already permitted for construction and operation, and impacts have been previously accounted for and mitigated accordingly (see Table 1-1 and Appendix C). While the Planned Projects have greater specificity of habitat impacts, habitat impacts are projected for all Planned and Future Projects and associated O&M Activities to programmatically address the project needs of the Water Authority. Recognizing that the CIP is regularly updated and projects are added, deleted, or modified to meet existing and future needs, the final (actual) impacts and the take from each implemented Water Authority project will be confirmed at the conclusion of construction. Projects that are added or modified through the CIP are to be reviewed for conformance with the conditions of this Plan. If found to be compatible, these projects may be considered Covered Activities provided that they are adequately mitigated in accordance with measures outlined in Section 6.0 of this document and the amendment process is properly implemented (see Section 8.0), when applicable. The final impacts due to each Water Authority project will be calculated as they occur and documented in accordance with the reporting and monitoring program requirements in Section 6.0 of this Plan.

5.4.2 O&M Impacts

In prior environmental documents and ESA section 7 consultations, efforts have been made to estimate the maximum extent of annualized O&M impacts that are anticipated to occur within the Water Authority's existing rights-of-way. This Plan acknowledges that most impacts from O&M Activities will occur to disturbed habitat areas that do not support Covered Species. The Plan estimates that approximately 0.5 acre annually of permanent take of Covered Species habitat will occur due to O&M Activities, including Urgent Repairs. As described in Section 5.5, impacts from O&M Activities to Covered Species habitat are estimated to be 33 acres over the 55 year term of the Plan. Sections 6.4 and 6.5 provide measures that the Water Authority will follow to minimize and mitigate impacts that cannot be avoided.

**TABLE 5-2
GENERAL IMPACT ESTIMATES BY FACILITY TYPE**

Facility Type	General Area or Extent of Impact	Basis for Estimate
Cut & Cover Pipelines, Ancillary Structures	80–150-foot width; 100-foot average; approximately 12 acres/mile.	Past project experience. Geology and slope plays significant role in width of impacts.
Tunnel Portals	One to two acres for small tunneling needs (freeways, railroads, short reaches of environmentally constrained lands). Relining portals are typically 0.2 acre. Up to five or more acres for large tunnels where the portal site is also a materials handling facility.	Past project experience and engineering estimates for larger tunnel projects. Material handling and tunnel lining needs play significant roles in portal staging area impacts.
FCF, Meter Vaults, Pump Stations, Pressure Control Facilities (PCF)	Less than one acre and contained in the 100-foot-wide footprint of pipeline construction corridors. Can be as large as two acres on slopes, or in areas with multiple facility components.	Past project experience.
Hydroelectric Generating Facilities	Less than one acre of permanent developed surface; facilities typically installed contiguous to the pipeline right of way. Depending on slopes, site preparation could range from one acre to five acres.	Past project experience
Flow Regulatory Structures (FRS), Diversion Structures, Tank or Vault Water Storage	These facilities can occupy as much as 15 to 20 acres during construction, and are typically restored to a substantially smaller permanent footprint following construction.	Past project experience.
Treatment Plants	Only project-specific estimates should be used. Impacts may range from 10 to 20 acres depending upon the specific treatment process being employed. Expansion of existing facilities may have lesser impacts.	Past project experience and by reviewing member agency treatment facilities.

**TABLE 5-3
IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)**

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment ¹	Estimated Impacts from Planned CIP Projects ²	Estimated Impacts from Future CIP ¹ Projects ³	Estimated Impacts from O&M ⁴	Total Impacts Requiring Mitigation
Upland Habitats					
Agricultural	185.0	139.8	293.5	--	--
General Agriculture/Extensive Agriculture (Row Crops, Pastures)/Intensive Agriculture (Dairies, Nurseries, Chicken Ranches)	23.6	99.6	209.1	--	--
Orchards and Vineyards	161.4	40.2	84.4	--	--
Chaparral, Coastal	30.1	16.3	34.3	7.6	88.3
Chamise Chaparral (Granitic Chamise Chaparral)	0.0	0.1	0.1	--	--
Chaparral	0.0	0.0	0.0	--	--
Ceanothus Crassifolius Chaparral	0.0	0.0	0.0	--	--
Interior Live Oak Chaparral	0.0	0.0	0.0	--	--
Northern Mixed Chaparral	0.0	0.0	0.0	--	--
Northern Mixed Chaparral (Granitic)	0.0	0.0	0.0	--	--
Northern Mixed Chaparral (Mafic)	0.0	0.0	0.0	--	--
Scrub Oak Chaparral	0.0	0.0	0.0	--	--
Southern Maritime Chaparral	0.0	0.0	0.0	--	--
Southern Mixed Chaparral	30.1	16.2	34.2	--	--
Southern Mixed Chaparral (Granitic)	0.0	0.0	0.0	--	--
Southern Mixed Chaparral (Mafic)	0.0	0.0	0.0	--	--
Chaparral, Montane/Trans-montane	0.0	0.0	0.0	0.0	0.0
Montane Chaparral	0.0	0.0	0.0	--	--
Redshank Chaparral	0.0	0.0	0.0	--	--
Coastal	0.0	0.0	0.0	0.0	0.0
Open Beach	0.0	0.0	0.0	--	--
Southern Foredunes	0.0	0.0	0.0	--	--
Coniferous Forest	0.0	0.0	0.0	0.0	0.0
Big Cone Spruce-Canyon Oak Forest	0.0	0.0	0.0	--	--
Mixed Coniferous Forest	0.0	0.0	0.0	--	--
Southern Interior Cypress Forest, Tecate Cypress Forest	0.0	0.0	0.0	--	--
Torrey Pine Forest	0.0	0.0	0.0	--	--
Disturbed/Developed	103.2	71.8	150.8	--	--
Bare Ground	0.0	0.0	0.0	--	--
Disturbed	0.0	10.1	21.3	--	--
Urban/Developed Land	103.2	61.7	129.5	--	--
Exotic Landscapes	0.0	0.7	1.4	--	--
Eucalyptus/Non-native vegetation	0.0	0.7	1.4	--	--
Ornamental	0.0	0.0	0.0	--	--
Grasslands	28.3	7.9	16.5	3.6	56.3
Native Grassland (Valley Needle Grassland, Valley, and Foothill Grassland)	0.0	0.0	0.0	--	--
Non-Native Grassland (Grassland)	28.3	7.9	16.5	--	--
Oak Woodland and Forest	11.5	3.9	8.2	1.7	25.3
Black Oak Forest	0.0	0.0	0.0	--	--
Black Oak Woodland	0.0	0.0	0.0	--	--
Coast Live Oak Forest (Dense Coast Live Oak Woodland)	0.0	0.0	0.0	--	--
Coast Live Oak Woodland (Open Coast Live Oak Woodland)	11.5	3.9	8.2	--	--

TABLE 5-3
IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)
(continued)

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment ¹	Estimated Impacts from Planned CIP Projects ²	Estimated Impacts from Future CIP ¹ Projects ³	Estimated Impacts from O&M ⁴	Total Impacts Requiring Mitigation
Engelmann Oak Forest (Dense Engelmann Oak Woodland)	0.0	0.0	0.0	--	--
Engelmann Oak Woodland (Open Engelmann Oak Woodland)	0.0	0.0	0.0	--	--
Mixed Oak Woodland (Oak Woodland)	0.0	0.0	0.0	--	--
Sage-Scrub, Coastal	42.2	30.4	63.8	14.1	150.5
Alluvial Fan Scrub	0.0	0.0	0.0	--	--
Cactus Scrub	0.0	0.0	0.0	--	--
Coastal Sage-Chaparral Scrub	0.0	8.6	18.1	--	--
Coastal Sage Scrub (Diegan)	42.2	21.8	45.7	--	--
Coastal Sage Scrub (Inland)	0.0	0.0	0.0	--	--
Flat-topped Buckwheat Scrub	0.0	0.0	0.0	--	--
Maritime Succulent Scrub	0.0	0.0	0.0	--	--
Riversidean Alluvial Fan Scrub	0.0	0.0	0.0	--	--
Riversidean Sage Scrub	0.0	0.0	0.0	--	--
Southern Coastal Bluff Scrub	0.0	0.0	0.0	--	--
Sage-Scrub, Montane/Trans-montane	0.0	0.0	0.0	0.0	0.0
Big Sagebrush Scrub (Great Valley)	0.0	0.0	0.0	--	--
Wetland Habitats					
Aquatic, Freshwater	0.0	0.5	1.0	0.0	1.5
Non-vegetated Floodplain, Channel, Lakeshore Fringe	0.0	0.0	0.0	--	--
Open Freshwater (Freshwater, Open Water, Water)	0.0	0.5	1.0	--	--
Aquatic, Marine	0.0	0.0	0.0	0.0	0.0
Open Saltwater (Brackish Water, Deep Bay, Estuarine, Intertidal, Shallow Bay, Subtidal)	0.0	0.0	0.0	--	--
Saltpan/Mudflats	0.0	0.0	0.0	--	--
Riparian	6.80	11.9	25.0	6.0	49.7
Arrowweed Scrub	0.0	0.0	0.0	--	--
Mule Fat Scrub	1.84	0.1	0.2	--	--
Southern Arroyo Willow Riparian Forest	0.0	0.0	0.0	--	--
Southern Coast Live Oak Riparian Forest	0.0	7.4	15.4	--	--
Southern Cottonwood-Willow Riparian Forest	3.61	0.0	0.0	--	--
Southern Sycamore Woodland	0.0	0.0	0.0	--	--
Southern Sycamore-Alder Riparian Woodland	0.0	1.0	2.2	--	--
Southern Willow Scrub	1.35	3.4	7.2	--	--
White Alder Riparian Forest	0.0	0.0	0.0	--	--
Riparian (Disturbed)	0.0	0.0	0.0	0.0	0.0
Arundo Scrub	0.0	0.0	0.0	--	--
Tamarisk Scrub	0.0	0.0	0.0	--	--
Wetland	0.0	0.5	1.0	0.0	1.5
Alkali Wetlands (Alkali Seep, Alkali Marsh, Cismontane Alkali Marsh)	0.0	0.0	0.0	--	--
Freshwater Meadow or Seep	0.0	0.0	0.0	--	--
Freshwater Marsh (Coastal and Valley Freshwater Marsh, Emergent Wetland)	0.0	0.5	1.0	--	--
Montane Meadow	0.0	0.0	0.0	--	--
Southern Coastal Salt Marsh	0.0	0.0	0.0	--	--
Wetland (Disturbed)	0.0	0.0	0.0	--	--
Alkali Vernal Pools	0.0	0.0	0.0	--	--

**TABLE 5-3
IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)
(continued)**

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment ¹	Estimated Impacts from Planned CIP Projects ²	Estimated Impacts from Future CIP ¹ Projects ³	Estimated Impacts from O&M ⁴	Total Impacts Requiring Mitigation
San Diego Mesa Claypan Vernal Pools	0.0	0.0	0.0	--	--
San Diego Mesa Hardpan Vernal Pools	0.0	0.0	0.0	--	--
Vernal Lake	0.0	0.0	0.0	--	--
Subtotal -- Communities/Land Covers not subject to mitigation	288.2	212.3	445.7	N/A	--
Subtotal -- Communities subject to mitigation	118.9	71.4	149.8	33.0	373.1
Total	407.1	283.7	595.5	33.0	--

¹ Possible Pipeline 6 alternative alignment impacts to mitigatable vegetation communities addressed by this Plan. Current Pipeline 6 alignment impacts are treated as an Existing Project, are covered under that project's individual permit, and are not addressed by this Plan.

² Permanent impacts to mitigatable vegetation communities from Planned Projects included in the CIP project list, as fully described in Appendix C.

³ Permanent impacts to mitigatable vegetation communities from Future Projects were estimated assuming the same rate of project build-out (on an acres/year basis) in the remaining 35 years of the full Permit term as during the 20-year period of the CIP projects, and increased by 20 percent to account for future project planning uncertainties. Impacts were assigned to the same individual vegetation community types as for the Planned Projects.

⁴ Permanent Impacts to mitigatable vegetation communities from O&M Activities were calculated assuming 0.5 acres/year for the full 55-year Permit term, and increased by 20 percent to account for future project uncertainties.

Disturbance generally occurs at specific locations which are regularly inspected or serviced, such as anode beds or valve structures along existing access roads, mainly within previously cleared and mitigated areas. Individual habitat impacts due to O&M Activities will be calculated as they occur and documented in accordance with the monitoring program in Section 6.0 of this Plan.

Activities related to Rights-of-Way management, expansion, and the aqueduct alignment involve acquiring access rights and property, correcting legal descriptions of properties, establishing agreements, patrolling access roads, and conducting minor repairs. Impact estimates from rights-of-way activities are based on past Water Authority experience with established facilities and completed projects. Rights-of-way activities are included in the two percent calculated for O&M Activities. Actual individual habitat impacts due to rights-of-way activities will be calculated as they occur and documented in accordance with the reporting and monitoring program requirements in Section 6.12 of this Plan.

5.4.3 Preserve Area Management, Monitoring, and Adaptive Management

The Preserve Area identified in the Plan (Section 6.8) totals approximately 1,920 acres, of which 1,220 acres represent the baseline preserve (areas set aside to compensate for previously permitted projects), and approximately 700 acres, including approximately 51 acres of wetland and riparian habitat types still to be installed by the Water Authority (see Sections 6.8.2.1 and 6.8.2.2), are available as compensation to off-site future Covered Activities impacts to Covered Species. Although Preserve Area management activities, including monitoring, research, maintenance, and adaptive management activities provide a net benefit to Covered Species there is potential for direct and indirect take when carrying out those activities. However, no Existing, Planned, or Future CIP projects or O&M Activities are expected to impact the Preserve Area. This plan covers incidental take for management activities conducted within the Preserve Area, but does not cover incidental take associated with MMA (Section 6.9) management, because existing permits already cover the MMAs.

The Preserve Area Manager will assess all proposed management and research activities to insure that their implementation will avoid or minimize direct and indirect impacts to Covered Species. The Preserve Area Manager will assess the qualifications of the staff or contractors conducting the management or research activities to assure they have the qualification for the particular management activity. Most management activities' impacts to Covered Species are anticipated to be temporary (e.g., increased human presence, noise, temporary reduction in vegetation associated with prescribed burns or grazing), and provide a net benefit to the Covered Species. To the extent feasible, all future management activities will incorporate appropriate avoidance measures, such as temporary fencing to protect riparian areas from grazers, prescribed burn protocols, and appropriate use of herbicides and pesticides, into the design of the

5.0 Authorized and Covered Activities

management activity. These impact avoidance measures will minimize the potential for Covered Species impacts. However, some impacts to Covered Species may be unavoidable, particularly in circumstances where a species is difficult to detect.

Implementation of the following measures may avoid or reduce impacts to Covered Species:

- Surveys and monitoring will be performed by a qualified biologist.
- Surveys and monitoring will follow protocols established by the CDFG and USFWS.
- Best management practices (BMPs) will be implemented whenever erosion or sedimentation could result from management activities. Over the term of the Plan, improvements to BMPs may occur, including materials, design, installation/implementation, and monitoring procedures. To take advantage of any such improvements, the Preserve Area manager is to implement current and effective BMPs at the time of the management action. Several public agencies maintain and update BMPs manuals and handbooks, such as the California Department of Transportation, Storm Water Quality Handbooks (March 2003), and the County of San Diego Low Impact Development Handbook Stormwater Management Strategies, January 31, 2007.
- Any habitat impact resulting of the use of heavy equipment will be restored to its original condition.
- Activities that would directly or indirectly affect habitat occupied by Covered Species shall be conducted during the non-breeding season of the species in the project area.
- New facilities will be placed in disturbed habitat whenever possible.
- Temporary staging areas will be revegetated following the completion of construction.
- Hand tools rather than mechanized equipment will be used whenever feasible.

Potential direct and indirect impacts may also result from the public's use allowed in PAMPs. The uses that may result in impacts include: (1) the overuse of trails, open areas, or parking lots; (2) unauthorized use of closed areas; (3) conflicts among users; and (4) accidents involving wildlife (e.g., road kill). These impacts may be avoided or reduced by implementation of the following or similar measures:

- Managing visitation to an appropriate level.
- Preventing unauthorized activities through daily observation of visitor activities.
- Promptly repairing damaged trails, parking areas, etc.
- Installing educational signs and/or display cases to educate and inform the public regarding rules and regulations governing the use of a Preserve Area and access restrictions.
- Regularly monitoring public use effects on existing ecosystems.
- Closing trails where use is determined to have, or potentially have, an adverse effect on sensitive biological and cultural resources.

5.4.4 Assessment of Incidental Take

Of the 992,000-acre Plan Area, a total of 373 acres of Covered Species habitat are estimated to be directly impacted as a result of the Covered Activities identified within this Plan over a 55-year period. Because project information is primarily master planning level detail with projections of future build-out, the incidental take assessment treats all of the impacts as permanent and does not subdivide direct habitat impact acres into permanent and temporary impacts. Therefore, Future and Planned Projects' impacts to covered wildlife species' habitats are potentially overstated because temporary construction staging and storage areas, and construction haul routes will be restored per Section 6.6. Additional impacts will occur to disturbed habitats, agricultural lands, or non-native vegetation communities (e.g., eucalyptus woodlands) that do not require mitigation pursuant to this Plan. Incidental take estimates are summarized in Table 5-3 based on the habitat types within the generalized vegetation communities. To address uncertainty associated with Future Projects and O&M Activities in the later years of Plan, these two covered activity types' take impacts have been increased by twenty percent and summarized in Table 5-3. As discussed above, impacts from construction of CIP projects are calculated as a one-time occurrence, while impacts from O&M Activities are calculated as 0.5 acre-per-year of permanent sensitive habitat impacts. Generally, O&M Activities will occur in the same general areas, such as road shoulders, and around inline structures, such as blow offs and air-release valves, but the same area may not be impacted every year by these activities. Many of these areas are classified as developed or disturbed, or otherwise occur in non-sensitive land covers or vegetation communities that do not require mitigation pursuant to the Plan, and therefore, these impacts are not summarized in the Plan. Covered Activities conducted within the access road is not expected to result direct impact to Covered Species, but there may be indirect temporary impacts to Covered Species such as noise, dust, and increased human presence which may adversely affect a Covered Species behavior during the activity. Due to the varying

levels of project definition and designs, impact acreage estimates vary with respect to source and precision. The estimates of impacts resulting from planned CIP projects are more precise because CIP projects have a specific location. For projects that are sited and have preliminary designs, the Water Authority is able to estimate acres, not only for the generalized vegetation community, but also for specific habitat and landscape types within the Plan Area.

5.5 Emergency Actions and Accidental Discharges and Spills

5.5.1 Emergency Response Actions

Emergency response actions are required when a facility or structure has failed or is about to fail and requires immediate action to minimize or avoid catastrophic failure of all or part of the water treatment, storage, or delivery system. Emergency actions are necessary to mitigate or prevent loss of, or damage to, life, health, property, or essential public services and include, but are not limited to, emergency release of reservoir water in a storm or earthquake event, reservoir or groundwater drawdown during severe drought, repair of broken pipelines, and search and rescue operations on Water Authority lands. Suggested protocols to reduce impacts to sensitive resources would be immediately available to emergency crews. These may include signage, maps, or fact sheets that clearly indicate preferred access routes, communications protocols, and areas to be avoided, if possible, during emergency operations.

The Water Authority General Manager declares emergency situations requiring immediate repairs. Immediate repairs may be required as a result of natural disaster or other damage to facilities. Immediate repairs may also be required to prevent the imminent failure of a facility. Conditions in this category are those that immediately threaten the integrity of the aqueduct and water distribution system, which includes, but are not limited to, landslides, surface fault ruptures, erosion, major subsidence, or other man-induced or natural disasters.

In an emergency situation, the Water Authority will immediately conduct the necessary activities to alleviate the situation. Typically, biological assessments cannot be conducted prior to the repair activity. If the facility is in a natural area, the Environmental Surveyor, as described in Section 6.4.1.1, will conduct an assessment during the event, if possible, or after the event is complete. Once the emergency situation is stabilized, incidental take of Covered Species or habitat affected will be assessed and recommendations for revegetation activities proposed. If resulting impacts are permanent, Preserve Area credit deductions or other mitigation acceptable to the Wildlife Agencies will be made. All appropriate parties and agencies will be notified as soon as

possible regarding any emergency actions and repairs, but no later than required by any applicable regulations governing such notifications.

For dam facilities, emergency actions could result in a need to clear vegetation around abutments, install additional drainage features, inject additional grouting into bedrock foundations to reduce seepage, fill cracks in the dam, stabilize abutments, rapidly drain the reservoir, or restore flow to a reservoir following a shut down.

Nighttime activities may be necessary in order to expedite the repair work on the system. Due to the emergency nature of these repairs, typical levels (i.e. no avoidance or mitigating measures implemented) of construction-related traffic, dust, artificial lighting, and noise during nighttime hours may result.

Emergency actions will be treated as an authorized use that is compatible with the species conservation goals and conservation objectives outlined in the Conservation Analysis (Appendix B). Local, State, and federal law enforcement entities will be allowed access to areas as necessary to enforce the law. Medical, rescue, fire fighting operations, and other emergency service providers will be allowed access to carry out operations necessary for the health, safety, and welfare of the public. Local law enforcement agencies and other entities, such as the National Guard or U.S. Department of Homeland Security, operating on Water Authority lands are subject to existing State and federal laws. The Water Authority will not create additional permit requirements for these entities beyond those of existing State and federal laws. However, this Plan does not cover actions conducted by law enforcement agencies or emergency responders, if their actions require compliance with either ESA or CESA.

5.5.2 Responses to Accidental Discharges and Spills

During the construction or O&M periods, a discharge of treated or untreated water may occur due to rapid changes in hydraulic conditions or unforeseen flow changes. In addition, an accidental spill of a substance or chemical used for the treatment of water or disinfection of the aqueduct may occur within regular O&M Activities. Immediate response to any spill or discharge would be prudent and necessary, without a biological assessment prior to the cleanup activity. If the affected facility is in a natural area, the Environmental Surveyor will conduct an assessment during the remediation activities if possible, or after the cleanup is complete. After the activity is complete, incidental take of Covered Species or affected habitat will be assessed, and recommendations for revegetation activities and mitigation credit deductions, if necessary, will be made. All appropriate parties and agencies will be notified as required by any governing statute appurtenant to a specific discharge or accidental spills. The Water Authority will report discharges and accidental spills in the annual report, and sooner where there are impacts to Covered Species.

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