

*LOS ANGELES DISTRICT
U.S. ARMY CORPS OF ENGINEERS*

DEPARTMENT OF THE ARMY PERMIT

Permittee: City of Escondido, Utilities Department; Dennis Sperino

Permit Number: Regional General Permit No. 87 (File No. SPL-2004-00507-LLC); Escondido Case File ER2004-43

Issuance Date: April 6, 2012

Issuing Office: U.S. Army Corps of Engineers, Los Angeles District

Note: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

After you received written approval that your project complies with the terms and conditions of this Regional General Permit from this office, you are authorized to perform work in accordance with the General Conditions and any project specific conditions specified below.

Project Description: The District Engineer, Los Angeles District U.S. Army Corps of Engineers hereby issues Regional General Permit No. 87 (RGP 87).

This RGP authorizes the City of Escondido (City) to perform ongoing sewer outfall operation and maintenance (O&M) activities to the 14.2-mile City of Escondido sewer outfall alignment. The Escondido Sewer Outfall alignment consists of approximately 95 manhole access locations, 16 test stations, 4 rectifier stations, and access roads for vehicles and pedestrians. Typical activities include, but are not limited to:

- Protection and maintenance of the sewer outfall where it crosses Escondido Creek
- Repair of channel banks or bottoms where the pipeline is exposed
- Repair of broken culverts
- Removal of debris clogs from the riparian corridor, including fallen trees
- Periodic vegetation clearing to maintain pedestrian or vehicle access at key locations
- Protection or repair of cathodic protection facilities
- Maintenance of existing access roads

The activities identified above and detailed in Enclosure 2 are needed to ensure the integrity of the system. The primary maintenance activity that must occur outside of the Escondido Sewer

Outfall easement is the maintenance of access roads. Routine maintenance of the access roads, several of which traverse jurisdictional waters, allows for access to all segments of the outfall when emergency repairs are needed, and for ongoing maintenance of the alignment. This RGP 87 does not allow the capacity of the Escondido Sewer outfall to be altered or expanded beyond the existing condition.

This RGP 87 authorizes the total permanent impact of 0.36 acre of wetlands and waters of the U.S. with the recurrent disturbance anticipated to occur for proper O&M of the sewer alignment as dictated by Enclosure 2.

Project Location: This project is located in northern San Diego County, originating at the City's Hale Avenue Resource Recovery Facility (HARRF; 1521 Hale Ave.), within the City of Escondido, and following the treated sewage line easement along Escondido Creek for approximately 14.2 miles, and terminating at the connection with the San Elijo Ocean Outfall, at San Elijo Lagoon, within the City of Encinitas, San Diego County, California (Enclosure 1).

(Begins at: 33° 06' 21"N/117° 06' 60"W; ends at: 33° 00' 48"N/117° 16' 23"W)

Permit Conditions:

General Conditions:

1. RGP 87 expires on April 6, 2017. Requests to renew this RGP 87 should be received at least six months prior to the above expiration date.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit.
3. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.
4. You must comply with the conditions specified in the 401 Water Quality Certification, San Diego Regional Water Quality Control Board (SDRWQCB) Number 05C-118 dated August 24, 2007, as a special condition to this permit.
5. The activities authorized under this RGP 87 has been exempted for a Coastal Development Permit from the California Coastal Commission, therefore activities authorized under this RGP 87 within the coastal zone are in compliance with Coastal Development Act.

Special Conditions:

Pre-Construction:

1. The City of Escondido (Permittee) must notify the U.S. Army Corps of Engineers (Corps) and SDRWQCB at a minimum of **15 working days** prior to conducting an activity that may result in impacts to aquatic resources and/or species. No work shall begin until a Notice to

Proceed verification of compliance with RGP 87 is received from the Corps or thirty days have passed since the Corps received a complete notification package. The Corps maintains discretion to add Special Conditions to RGP 87 to ensure that the proposed project would have only minimal individual and cumulative impacts to the environment. The notification must be in writing (Standard permit application form may be used, ENG 4345) and include the following information for each project:

- a. Location of the activities including latitude and longitude or UTM coordinates;
 - b. Brief description of the work to be performed, including methods and equipment, in waters of the U.S., including jurisdictional wetlands;
 - c. Type of facility that will be maintained;
 - d. Total and type of Corps jurisdictional area that will be impacted;
 - e. Description of the adjacent habitats likely to be affected;
 - f. Description of species to be affected;
 - g. A Vicinity Map, Plan View, and Cross-section view (as requested by the Corps), showing all work (permanent and temporary) and structures in waters of the U.S. All figures submitted should be in compliance with the "Map and Drawing Standard for the Los Angeles District Regulatory Division" dated September 15, 2010.
 - h. Amount of mitigation required for the activity, as described in the approved "Conceptual Wetland/Riparian Mitigation and Monitoring Plan" for the City of Escondido Sewer outfall Project Operation and Maintenance Activities Project," dated July 2009, and prepared by EDAW, Inc.
 - i. A Notice to Proceed will not be issued until compliance with Section 106 for Historic Preservation Act is demonstrated.
2. The District Engineer (DE) reserves the right to invoke discretionary authority on a case-by-case basis, as defined in 33 CFR Part 330.4(e), in instances where a project could have more than minimal individual or cumulative impacts.
3. Protection placed on channel banks and/or channel bottoms shall be the minimal amount necessary to protect the integrity of the utility line. Protection material used shall be natural earthen material with minimal use of hardscape material, such as riprap. The DE will evaluate the need for hardscape material for channel stabilization on a project by project basis.

Endangered Species Act:

4. This Corps permit does not authorize you to take any threatened or endangered species, in particular the light-footed clapper rail (*Rallus longirostris levipes*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and coastal California gnatcatcher (*Polioptila californica californica*) or adversely modify the gnatcatcher's designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The FWS BO (FWS-SDG-08B0511-08F0564) contains conservation measures for each species listed above and gnatcatcher's designated critical habitat that are required to be implemented as part of the authorized project to avoid and minimize potential impacts. Your authorization under this Corps permit is conditional upon your compliance with all of the conservation measures as agreed to by the City, which are incorporated by reference in this permit. The BO does not authorize take of any of the species listed above, if incidental take does occur during an activity

authorized under this RGP, all work shall cease until formal consultation and take is authorized through by the USFWS.

Cultural Resources:

5. Pursuant to 36 C.F.R. section 800.13, in the event of any discoveries during construction of either human remains, archeological deposits, or any other type of historic property, the Permittee shall notify the Corps' Archeology Staff within 24 hours (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861). The Permittee shall immediately suspend all work in any area(s) where potential cultural resources are discovered. The Permittee shall not resume construction in the area surrounding the potential cultural resources until the Corps Regulatory Division re-authorizes project construction, per 36 C.F.R. section 800.13.

Construction:

6. Any work performed under RGP 87 must be the minimum necessary as identified in Table 1-1 "Escondido Sewer Outfall Operations and Maintenance Activities" (Enclosure 2) to maintain and repair the sewer alignment. The Permittee shall clearly mark the limits of the authorized workspace with flagging or similar means. Adverse impacts to water of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.

7. The Permittee shall implement appropriate best management practices (BMPs) to preclude increase turbidity. Appropriate BMPs may include installation of silt fences and fiber rolls to prevent additional impacts to waters of the U.S. and the spread of silt from the approved project footprint into adjacent and downstream waters of the U.S.

8. No mechanized equipment, rubber-tired vehicles, track vehicles, or other equipment shall be stored or fueled in waters of the U.S., including wetlands. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to avoid and minimize impacts to wetlands and non-wetland waters of the U.S.

9. No discharge of dredged or fill material may consist of unsuitable material (e.g. trash, debris, car bodies, asphalt, etc.) and material discharge must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

10. All excavated material and vegetation shall not be stockpiled in waters of the U.S. and will be disposed of at a suitable upland site.

11. To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water.

Post-Construction:

12. Within 45 calendar days of completion of authorized work in waters of the U.S., the Permittee shall submit to the Corps Regulatory Division a post-project implementation memo indicating the date authorized impacts to waters of the U.S. ceased.

13. The Permittee shall submit to the Corp (cc: USFWS and SDRWQCB) by **March 1st** of each year annual reports (including summary tables, scaled maps, and photographs of the impact areas) that summarized activities performed under RGP 87, and documents that impacts at each site were not exceeded and compliance with all special conditions of this permit. This report shall also include a table with all impacts authorized by this RGP 87 and all mitigation credited to the Kit Carson Park Mitigation site.

Mitigation Requirements:

14. The Permittee has proposed to mitigate for impacts to waters of the U. S., through implementation of the draft conceptual mitigation plan: "Wetland/Riparian Mitigation and Monitoring Plan for the City of Escondido Sewer outfall Project Operation and Maintenance Activities Project " (dated March 2011 and prepared by EDAW, Inc). According to the draft mitigation plan, responsible parties would be as follows: a) Implementation: City of Escondido, Utilities Department; b) Performance: City of Escondido, Utilities Department; c) Long-term management: City of Escondido, Parks and Landscape Maintenance Department. The Permittee retains ultimate legal responsibility for meeting the requirements of the final mitigation plan. Detailed mitigation objectives, performance standards, and monitoring requirements are described in the above draft mitigation plan. Any requirements for financial assurances and/or long-term management provisions are also described in the above draft mitigation plan, as well as in special condition 17.

15. **Prior to initiating construction in waters of the U.S.,** the Permittee shall submit to the Corps a final mitigation plan prepared in accordance with the Corps' Los Angeles District Mitigation Guidelines and Monitoring Requirements, dated April 19, 2004 and the Mitigation Rule (33 C.F.R. Part 332; 73 FR 19670-19687 (April 10, 2008)). The final mitigation plan shall address the **0.36 acre** of permanent impacts to waters of the U.S. through restoration and enhancement of **1.09 acres** of waters of the U.S. All maps and drawings shall be in compliance with the Final Map and Drawing Standards for the Los Angeles District Regulatory Division dated September 21, 2009 (http://www.spl.usace.army.mil/regulatory/pn/SPL-RG_map-drawing-standard_final_w-fig.pdf). **No work in waters of the U.S. is authorized until the Permittee receives, in writing (by letter or e-mail), Corps approval of the final mitigation plan.** Once approved this final plan will supersede the conceptual mitigation plan. The Final Mitigation plan shall include:

- a. California Rapid Assessment Method (CRAM) scores for the reference site/sites;
- b. Success criteria for CRAM scores at Year 1, 3, and 5 (Table 5 of conceptual plan);
- c. A detailed site plan with cross sections showing the low flow channels and how they will be placed throughout the site. The figure should also include the 2-5 year flood zones associated with the planned restored vegetation areas.
- d. A detailed long-term management plan describing how Kit Carson Park will be managed after performance standards have been achieved to ensure long-term sustainability of the resource, including long-term financing mechanism(s) and annual maintenance schedule.
- e. Grading, planting/seeding, and irrigation plans (channels should reflect natural channels with a variety of elevations);
- f. GIS DATA: Within 60 days following written Corps approval of the final mitigation plan, the Permittee shall provide GIS data (polygons only) depicting the boundaries of all compensatory mitigation sites, as authorized in the final mitigation plan referenced

above. All GIS data and associated metadata shall be provided on a digital medium (CD or DVD) or via file transfer protocol (FTP), preferably using the Environmental Systems Research Institute (ESRI) shapefile format. GIS data for mitigation sites shall conform to the data dictionary, as specified in the current Map and Drawing Standards for the Los Angeles District Regulatory Division (dated September 15, 2010), and shall include a text file of metadata, including datum, projection, and mapper contact information. Within 60 days following completion of compensatory mitigation construction activities, if any deviations have occurred, you shall submit as-built GIS data (polygons only) accompanied by a narrative description listing and explaining each deviation.

16. The mitigation shall be prepared and installed prior to or concurrent with project impacts. Delays in mitigation shall be compensated for by additional mitigation requirements for each month of delay, the type and amount of additional mitigation will be determined by the Corps.

17. The Permittee shall record a Restrictive Covenant (RC), in a form approved by the Corps Regulatory Division, which shall run with the land, obligating the Permittee, its successor and assigns to protect and maintain the **1.09 acre** mitigation area (as shown in attached Figure 3) as natural open space in perpetuity. The RC shall preclude establishment of fuel modification zones, paved public trails, drainage facilities, walls, maintenance access roads and/or future easements. Further, to the extent practicable, any such facilities outside the RC shall be sited to minimize indirect impacts to the restored and enhanced wetland and non-wetland waters of the U.S. Prior to its execution, the Permittee shall submit a draft RC to the Corps Regulatory Division for review. The Permittee shall receive written approval (by letter or e-mail) from the Corps Regulatory Division of this RC prior to it being executed and recorded. No later than 90 calendar days after receiving Corps Regulatory Division approval of the final draft RC, the RC shall be executed and recorded, and a recorded copy furnished to the Corps Regulatory Division. **The Permittee is responsible for the financing of the long-term management in perpetuity.** The Permittee shall provide monies in the form of an endowment or other approved long-term financing mechanisms, as described in 33 CFR Part 332.7(d)(3).

a. GIS DATA: Within 60 days following recordation, you shall provide to this office GIS data (polygons only) depicting the RC boundaries, as authorized by the Corps. All GIS data and associated metadata shall be provided on a digital medium (CD or DVD) or via file transfer protocol (FTP), preferably using the Environmental Systems Research Institute (ESRI) shapefile format. GIS data for RC sites shall conform to the data dictionary, as specified in the current Map and Drawing Standards for the Los Angeles District Regulatory Division, and shall include a text file of metadata, including datum, projection, and mapper contact information.

18. Within **45 calendar days** of complete installation of all mitigation, the Permittee shall submit to the Corps Regulatory Division an implementation memo indicating the following:

- a. Date(s) all mitigation was installed and monitoring was initiated;
- b. Schedule for future mitigation monitoring, implementation and reporting pursuant to final, Corps-approved Mitigation plan;
- c. CRAM scores for Year 0 of mitigation site;
- d. Color photographs* taken at the mitigation site before and after implementation at

- selected photo locations; and
- e. As built drawings* for all mitigation sites (all sheets must be signed, dated, to-scale, and no larger than 11 x 17 inches).
(*All drawings must be in accordance with the Corps Final Map and Drawing Standards for the Los Angeles District Regulatory Division dated September 15, 2010)

19. The Permittee shall submit annual mitigation monitoring reports to the Corps on or before January 1st for the duration of the five year monitoring program. The monitoring shall include at a minimum:

- g. All figures in accordance with the "Final Map and Drawing Standards for the Los Angeles District Regulatory Division" dated September 15, 2010;
- h. Results of monitoring program compared to the success criteria outlined in the Approved Final Mitigation Plan;
- i. Outlining of any potential problem areas within the proposed mitigation site;
- j. All maintenance and/or remedial activities taken such as additional plantings, etc;
- k. Photos taken from permanent viewpoints including a map illustrating photo locations and orientation;
- l. All data sheets and field notes for all Qualitative and CRAM measurements taken and reported in the Monitoring reports must be included as an appendix;

20. The Permittee shall conduct a minimum of 5 (five) years of maintenance and monitoring of wetland mitigation areas. In order to qualify for sign off and cease maintenance and monitoring you must demonstrate that the compensatory mitigation has met its success criteria as outlined in Section 6.8 of your conceptual plan, and as amended in the approved final mitigation plan, completed a minimum of 5 years of maintenance and monitoring, AND have received written verification of that success from the Corps. If artificial water supplies are used, all water supplies must be off for a minimum of 2 years in order to qualify for sign off. A written verification will not be made by the Corps until a formal wetland delineation is completed in accordance with both the *1987 Corps Wetland Delineation Manual* and *2008a Regional Supplement to the Corps of Engineers Wetland Delineation manual: Arid West Region* prior to sign off demonstrating that wetlands were re-established.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

() Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

2. Limits of this authorization under RGP 87.

- a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

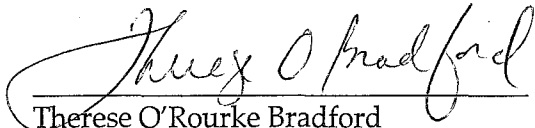
5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:


- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corp will normally give you favorable consideration to a request for an extension of this time limit.

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.


Therese O'Rourke Bradford
Chief, South Coast Section
Los Angeles District


DATE

Enclosures 1: Project and Mitigation Location Figures

Enclosure 2: Table 1-1 Escondido Sewer Outfall O&M Activities with Figures

Enclosure 1

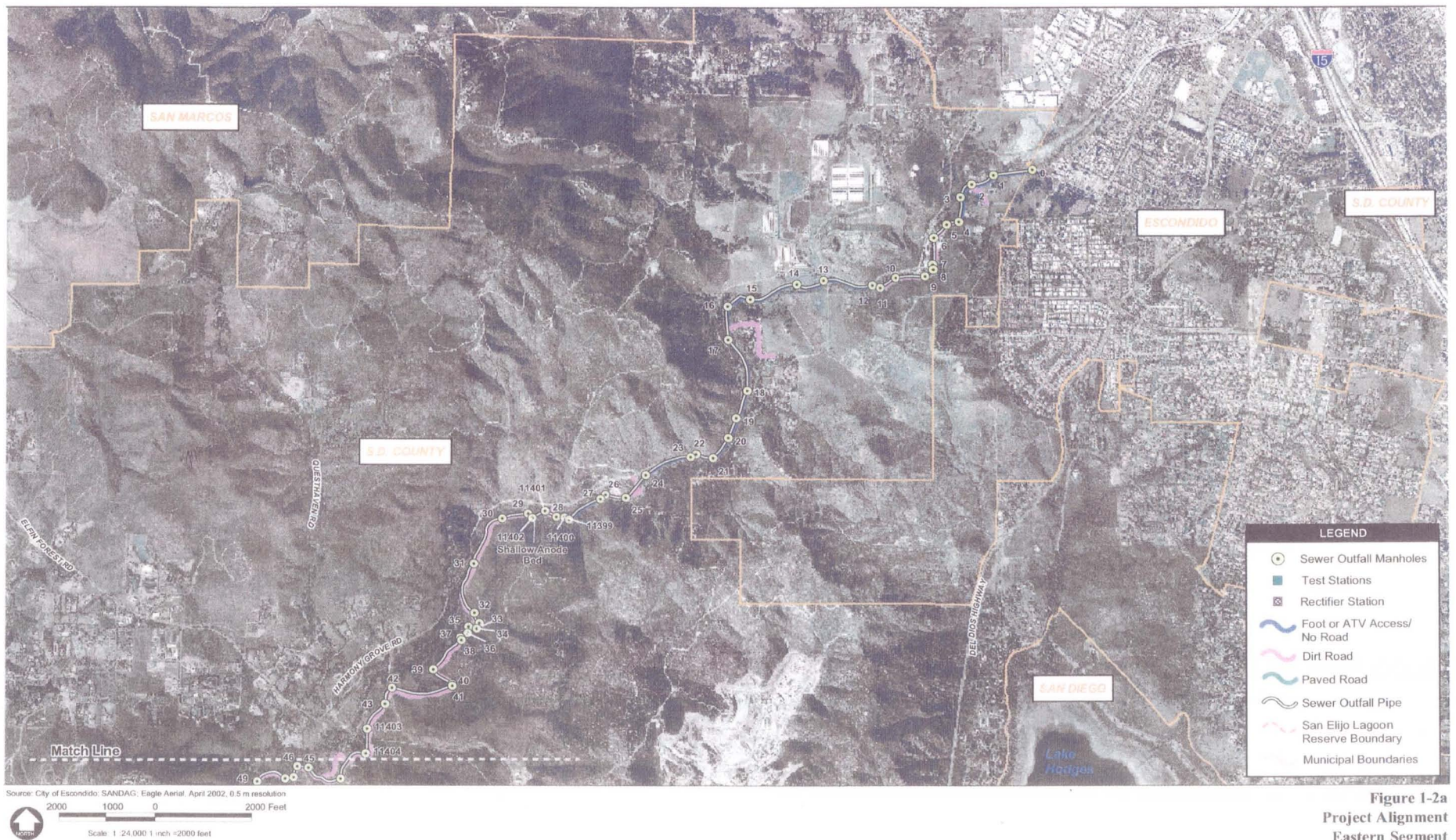
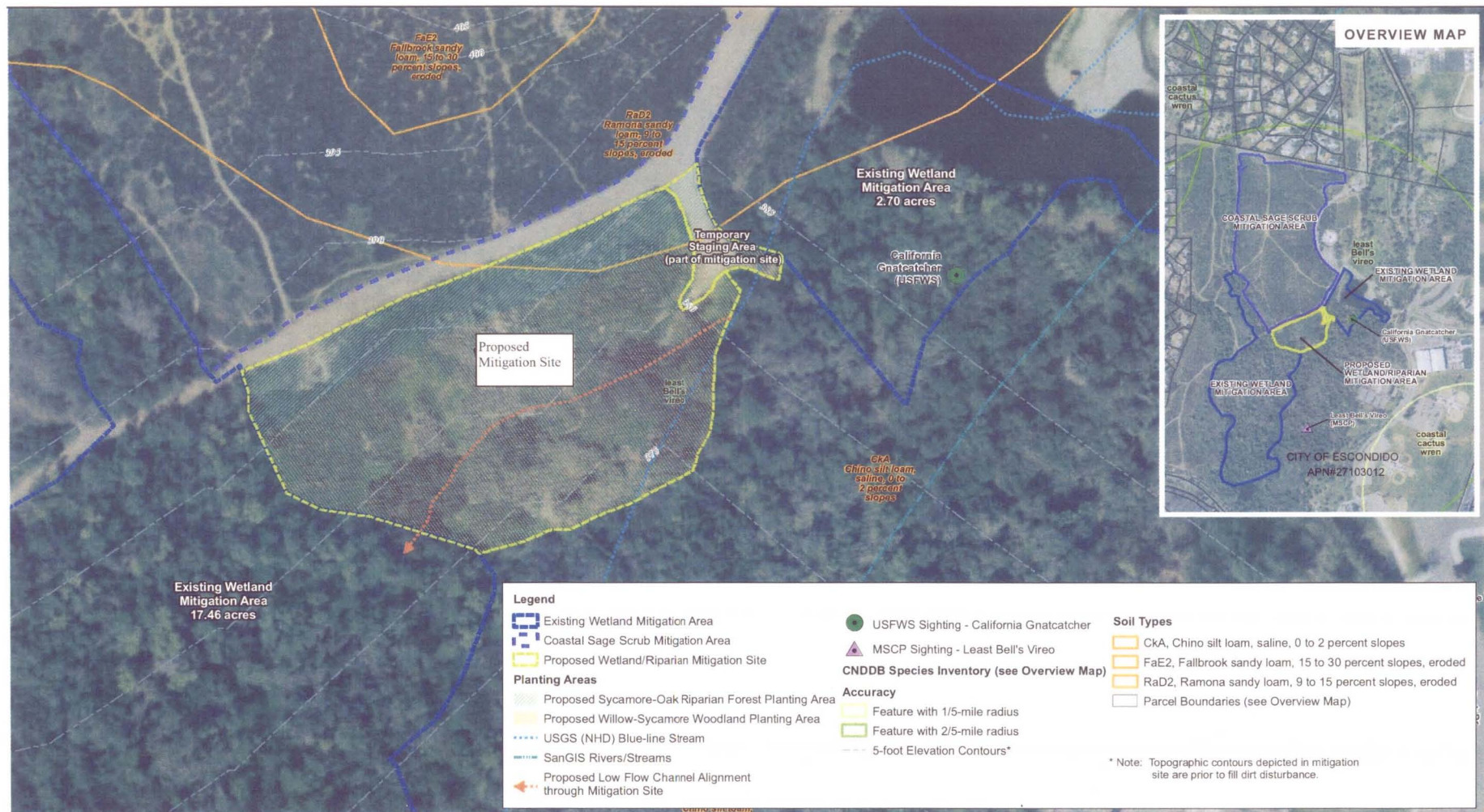


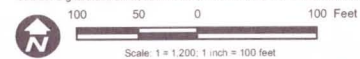
Figure 1-2a
Project Alignment
Eastern Segment



Figure 1-2b
Project Alignment
Middle Segment



Source: DigitalGlobe 2008; EDAW 2009; USFWS 2008; DFG 1989, 2000; SSURGO 2006; MSCP 2007; National Hydrology Dataset 2006; SanGIS 2009



Escondido Sewer Outfall Project Wetland/Riparian Mitigation Plan

Path: P:\2003\3K103 Escondido RGP\GIS\mxd\fig3_mitigation_map.mxd, 07/13/09, lcy

Figure 3
Escondido Sewer Outfall Project
Proposed Wetland/Riparian Mitigation Site

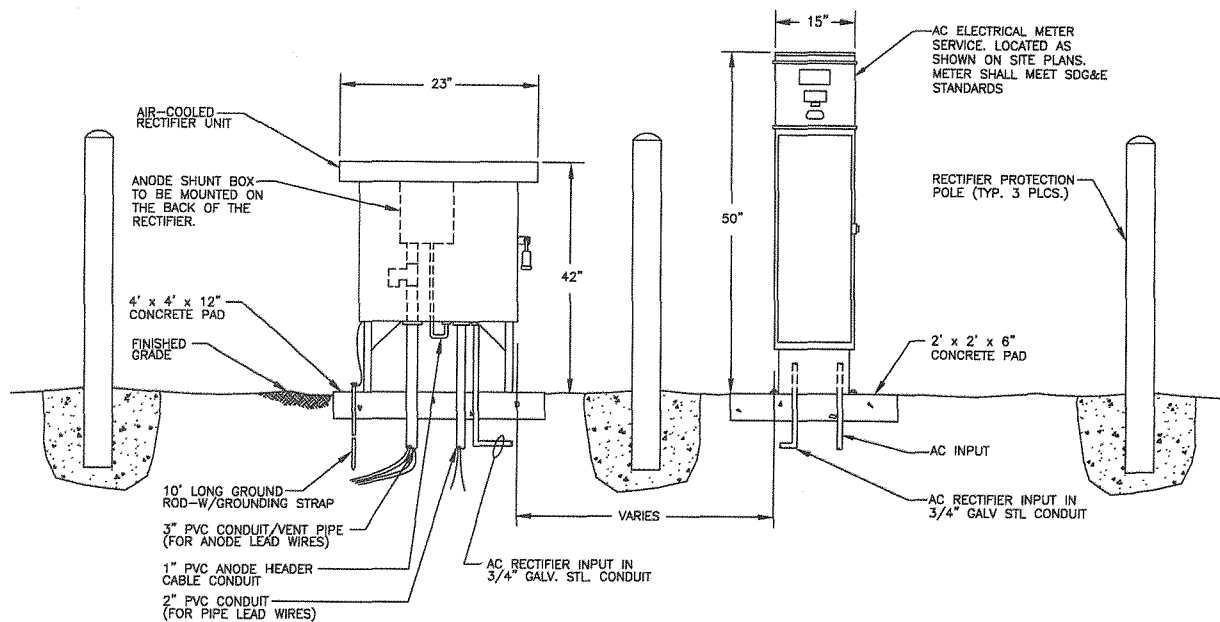
Enclosure 2

Table 1-1
Escondido Sewer Outfall Operations and Maintenance Activities

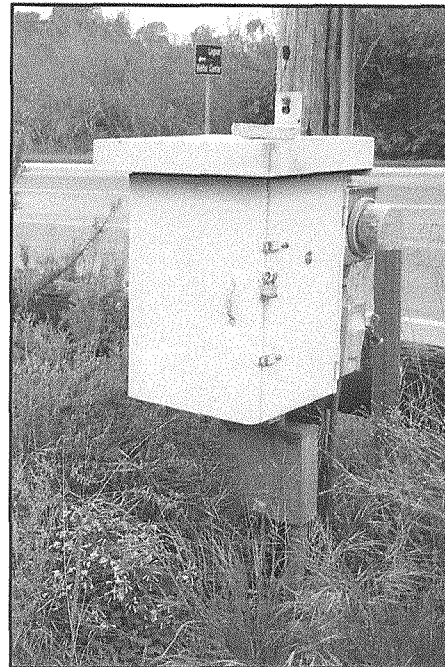
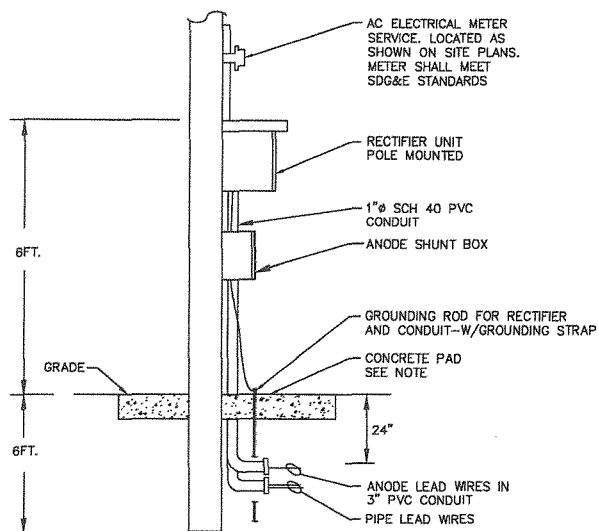
Activity	Type 1	Frequency	Equipment Used	Description
1a. Weed Whip Manholes	OM	biannually	3/4 ton pick up truck, Polaris 6x6, standard size utility trailer and 3/4 ton 4x4 pickup truck.	Removal of vegetation along easement roads. Clear a 10' diameter access path around all manholes, air vacs, rectifiers and cathodic test points.
1b. Weed Whip Roads	OM	annually	3/4 ton pick up truck and hand-tools.	
2a. Existing Road Maintenance	OM	once in 3 yrs	Grader and 3/4 ton pickup truck.	Smooth out roads within existing easement to a width of 15' to 20' by removing debris. When necessary, road ruts are filled with dirt to allow passage of 4x4 vehicles.
2b. Road Mowing	OM	biannually	Tractor with mower attachment.	Vegetation clearing within existing roadways and surrounding manholes through the use of hand-operated brush mower.
3. Manhole Repairs	OM/RR	≤ once in 3 yrs	3/4 ton truck and 1 ton line truck with utility crane. Use of all-wheel drive (Polaris) vehicle.	Repair concrete collars around manhole lid assembly. No excavation necessary.
4. Manhole Raising	OM	> once in 3 yrs	3/4 ton truck, 1 ton line truck with utility crane, backhoe and dump truck.	Raise existing manhole to or above grade as conditions dictate. This will require excavating around the manhole approximately 3' in diameter.
5. Confined Space Operations	OM	biannually	3/4 ton pick up truck, confined space van, line truck with crane and dump truck.	Confined space entry to repair the inside of manholes, inspect the inside of manholes, remove roots and fix I&I problems.
6. Excavations/Repairs to Outfall Line	RR	emergency	Grader(s), excavator(s), loader(s), backhoe(s), trash pump(s), pickup truck(s), welding truck(s) crane truck(s), dump truck(s) and other unknowns.	Outfall line repair including creek crossings (up to 9 locations).
7. Television Inspection	OM	once every 5 yrs	Televising van, 3/4 ton pickup truck, line truck with crane, outfall fall protection device and possibly the confined space van if needed.	Televising and inspect the inside of the sewer outfall pipe.
8. Manhole Inspection	OM	annually	3/4 ton pick up truck, standard utility trailer, Polaris 6x6 and Outfall fall protection device.	Inspect manholes for vandalism, root intrusion, broken concrete collars and any other visible problems.

Activity	Type 1	Frequency	Equipment Used	Description
				includes a 136-foot active anode column and an inactive column of 120' or 164', which includes a concrete yard box. A concrete yard box encloses the top of the well with a traffic-rated steel cover installed flush with the finished grade. The concrete yard box is set in concrete and measures 18 inches wide by 27.5 inches long by 12 inches deep.
11. Cathodic Protection Testing	OM	biannually	Handheld meter; no ground disturbance is necessary.	A handheld meter is used at test stations to test for proper function of the cathodic protection system.
12. Tree Removal	OM	annually	Line truck, pickup truck, utility trailer, Polaris 6X6, crane truck, backhoe, dump truck and chipper.	Remove fallen trees from sewer easement, Escondido Creek as needed.
13. Air Vac Maintenance	OM	biannually	3/4 ton pick up truck and small hydraulic pumps,	Remove air vac and replace with re-built air vac.
14. Air Vac Replacement	R/R	≤ once in 3 yrs	Backhoe, 3/4 ton pickup truck(s), welding truck, line truck with crane and hydraulic pumps.	Install new valves on outfall line for air vacs. May require placement in new locations within 20 foot easement.
15. Dig Alert Utility Locates	OM	as needed	3/4 ton pick up truck.	Locate sewer outfall line, manholes, cathodic protection test points, anode beds and rectifiers.
16. GPS or Survey Sewer Outfall Line	OM	as needed	3/4 ton pick up truck and survey crew truck.	GPS or survey outfall line as needed.
17. Mitigation and Mitigation Maintenance	NC/OM	as needed	Varies based on type of mitigation activity (e.g., hand tools for replacement/enhancement activities).	Mitigation varies from plant salvaging/replacement activities to reseeding and exotic species removal
18. Vacuum/Cleaning Truck Operations	OM	≤ once in 3 yrs	Vactor	Vacuum or clean various sections of line, excavating and spill recovery using existing access roads.

1 New Construction (NC)
Ongoing Maintenance (OM)
Repair/Replacement (RR)

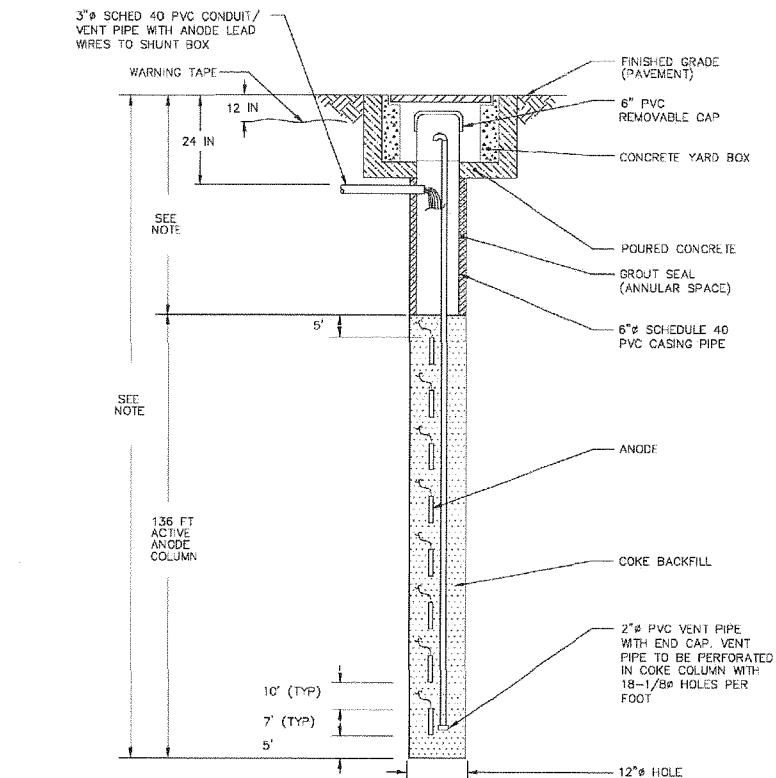


Typical plan drawing of pad mounted rectifier.



Typical plan drawing and photograph of pole mounted rectifier.

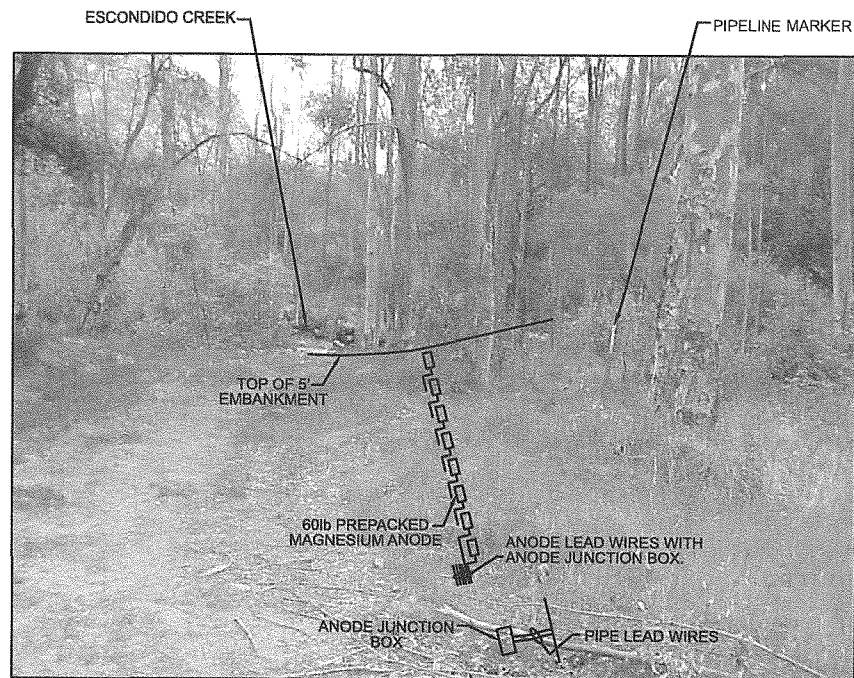
Figure 1-3
Typical Rectifier Designs



NOTE:

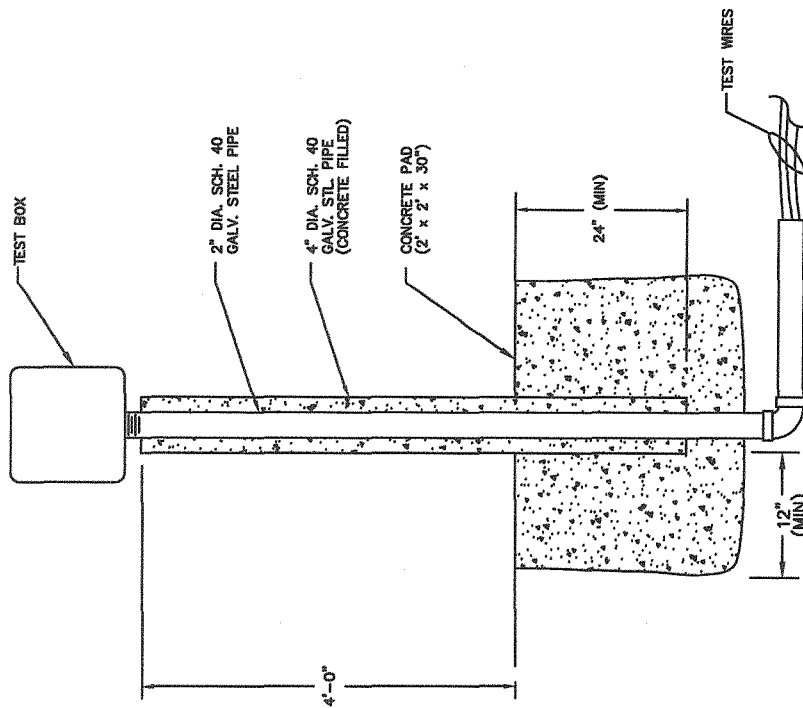
1. TOTAL COLUMN DEPTH OF SITE 1 AND SITE 2 IS 256 FT. WITH AN INACTIVE COLUMN OF 120 FT.
2. TOTAL COLUMN DEPTH OF SITE 3 AND SITE 4 IS 300 FT. WITH AN INACTIVE COLUMN OF 164 FT.

Typical plan drawing of deep anode bed.



Stylized drawing of shallow anode bed at proposed location. (Not to Scale)

**Figure 1-4
Typical Anode Beds**



Typical plan drawing of new and repaired test stations.



Photograph of existing test station.

Figure 1-5
Typical Test Station Design