Wastewater Service Alternative Analysis for Meadowood

Prepared For:

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WASTEWATER SERVICE ALTERNATIVE ANALYSIS FOR MEADOWOOD

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SECTION 1
WASTEWATER SERVICE OPTIONS

There are no existing wastewater collection or treatment facilities available on-site or immediately available to serve the proposed Meadowood development (Project). This section evaluates the options available to Meadowood for obtaining wastewater service. The southern portion of Meadowood is within the San Luis Rey Municipal Water District (MWD) and the remaining portion is not within any water and sewer provider's jurisdiction. LAFCO has initiated a Sphere of Influence (SOI)/Municipal Services Review (MSR) Update for the Bonsall and Pala Hydrological Sub Area. As part of the review, LAFCO is evaluating San Luis Rey MWD, Rainbow MWD and Valley Center MWD as water and sewer providers to Meadowood and other developments in the vicinity. LAFCO will make the final determination regarding which water district will provide water and wastewater service to the proposed Project. Figure 1 presents a vicinity map which identifies the location of the proposed Project in relation to each of the three water districts. The following discussion provides a summary of each wastewater service option as it relates to Meadowood.

1.1 Rainbow MWD

Rainbow MWD currently provides wastewater service to approximately 3,500 customers within unincorporated communities of Rainbow, Bonsall, and portions of Fallbrook and Pala. Wastewater generated within Rainbow MWD is currently collected and subsequently transferred to the City of Oceanside through a trunk sewer main extending west along Pala Road (State Route 76). This approximate 11-mile conveyance system consists of gravity pipelines, two lift stations, and forcemains to transfer wastewater to the point of connection with the City of Oceanside's collection system at the intersection of Stallion Drive and North River Road. The wastewater is treated at the San Luis Rey Wastewater Treatment Plant (WWTP) and discharged through an ocean outfall. Rainbow MWD currently has an agreement with the City of Oceanside to provide wastewater treatment and disposal services up to a capacity of 1 million gallons per day (MGD). The City of Oceanside is currently expanding its treatment facilities and may provide Rainbow MWD an additional 0.5 MGD of capacity.

The Rainbow MWD wastewater service boundary abuts the Meadowood property to the west, but extension of service to Meadowood would require annexation into the district.

1.2 San Luis Rey MWD

The majority of the Meadowood development is located within the San Luis Rey MWD boundary. San Luis Rey MWD does not currently provide wastewater service to its customers. San Luis Rey MWD previously embarked upon a program to apply to LAFCO to expand the boundaries of its jurisdiction and activate its latent powers to provide wastewater service and provide imported water service. Several property owners, funded preparation of a Master Plan to evaluate wastewater

service options. San Luis Rey MWD is no longer pursuing activation of its latent powers; however, it has not been ruled out as a possible service provider to Meadowood under the LAFCO review.

San Luis Rey MWD has no existing wastewater infrastructure to serve the proposed project. Approximately 143 acres within the northern portion of the Meadowood development would require annexation into the district. San Luis Rey MWD currently does not have staff to provide water or wastewater service.

1.3 Valley Center MWD

The Meadowood project is located approximately one-half mile north of the existing northern boundary of Valley Center MWD. Valley Center MWD recently adopted Policy Perspectives on the Potential Consolidation of Lands Currently In and Adjacent to the San Luis Rey MWD. Valley Center MWD currently provides wastewater service to approximately 2,400 customers through operation of a system of gravity mains, lift stations, and forcemains, four wastewater treatment plants, and effluent percolation ponds. While LAFCO will make the final determination regarding the water and sewer provider to the proposed project, this is the preferred service provider for Meadowood.

Valley Center MWD has no existing wastewater facilities in the immediate vicinity of the Meadowood development. Annexation into the district would be required if Valley Center MWD were to provide wastewater service to the proposed project.

SECTION 2
WASTEWATER FACILITIES

The required wastewater facilities for the proposed Meadowood development include collection infrastructure, a new wastewater treatment plant, and wet weather ponds as well as recycled water infrastructure. The applicant would construct the WWTP and all appropriate facilities, which would be transferred to the chosen water district upon completion. The wastewater system will be sized to handle flow from the Meadowood development only. Any future development would be responsible for planning, designing, permitting and constructing wastewater treatment and disposal facilities to supply wastewater services for its proposed project. Depending upon the timing of construction of such future project(s), a wastewater treatment plant could be sized and sited to accommodate Meadowood and any such future project(s). At the present, however, it remains speculative as to which Municipal Water District ("MWD") will be identified to supply wastewater treatment and disposal facilities for future projects. The MWD will be identified through LAFCO proceedings that will occur only after such development project is approved by the Board of Supervisors. If a more region-wide-serving wastewater facility is identified in the future after LAFCO proceedings are conducted and such facility could supply wastewater and disposal services to Meadowood, the proposed future development project would be responsible for preparing adequate environmental documentation for such a wastewater facility. The following sections provide a summary of the wastewater facilities considered for Meadowood.

2.1 Collection Infrastructure

Wastewater generated by the Meadowood development will be collected through on-site gravity mains and transferred via 10-inch and 12-inch gravity trunk lines to a sewage lift station. The belowground lift station will consist of a 12-foot diameter concrete wet well with two submersible pumps operating in duty/standby mode. The pumps will transfer wastewater through an 8-inch forcemain to the preliminary treatment building at the WWTP. All gravity pipe and forcemains will be polyvinyl chloride (PVC). Each pump will be capable of pumping the peak wastewater flow generated by Meadowood, or approximately 400 gallons per minute (gpm).

Two alternatives were considered for locating the lift station, as presented in Figure 2. One alternative, near the intersection of Pankey Road and Shearer Crossing, was to be the location if the WWTP were sited south of the Meadowood property. This would allow wastewater to flow by gravity to the WWTP. This alternative is no longer being considered, as the WWTP is planned within the limits of the Meadowood property. As such, the lift station would be located within the footprint of the WWTP.

2.2 Wastewater Treatment Plant

Regardless of which water district is designated by LAFCO to provide wastewater service to the proposed project, a newly constructed WWTP will be needed to treat wastewater generated by the development. Approximately 0.225 MGD of wastewater will be generated by the potential 886 equivalent dwelling units (EDUs) proposed for the Meadowood development. This flow is based on a wastewater generation estimate of 250 gallons per day per EDU as used by Rainbow MWD, Valley Center MWD and San Luis Rey MWD.

Five WWTP site options, listed below and represented on Figure 3, were considered and evaluated within this report: Grove Site, Pankey East, Quarry Site, Pankey West and Meadowood.

1. ***Grove Site*** – This potential site is located south of the proposed project on the parcel of land east of Shearer Crossing between the realignment of Pala Road and the San Luis Rey River. The surface elevation at the Grove Site is approximately 265 feet and the land is currently being used for citrus agriculture. The site is partially open to the view of traffic on Shearer Crossing. The WWTP would be set back from Shearer Crossing and existing citrus groves would be maintained for screening. The inlet pump station would likely be located on this site.

2. ***Pankey East*** – This option is located south of the San Luis Rey River. The surface elevation at the Pankey East Site is approximately 274 feet and the land is currently being used for citrus agriculture. This site is at the foot of a steep slope and is blocked from the view of most of the surrounding community and traffic. A forcemain would be required from the inlet pump station across the Shearer Crossing Bridge or underneath the San Luis Rey River.

3. ***Quarry Site*** – This option is located east of the proposed project and north of the San Luis Rey River. The surface elevation at the Quarry Site is approximately 280 feet and the land is currently being used for citrus agriculture. This site is open to the view of traffic along Pala Road. A forcemain would be constructed within Pala Road to pump wastewater to the WWTP.

4. ***Pankey West*** – This option is located north of the San Luis Rey River and along the eastern boundary of the Interstate 15 right-of-way. The surface elevation at the Pankey West Site is approximately 250 feet and the land is currently being used for citrus agriculture. The site is open to the view of Lake Rancho Viejo residents and traffic along Interstate 15. An 8" forcemain would be constructed within Pala Road to pump wastewater to the WWTP.

5. ***Meadowood Site –*** This site is located on the north side of realigned SR-76 in the southernmost portion of the Meadowood development. The surface elevation is approximately 266 feet. The inlet lift station would be located on this site if this option were selected.

Several of the alternative WWTP sites lie either within or near the 100-year floodplain of the San Luis Rey River. Other locations within the nearby area were considered but excluded because they were unavailable, cost prohibitive, or otherwise unattractive due to environmental, aesthetic, or engineering constraints.

Influent wastewater pumped from the inlet lift station to the preliminary treatment building will pass through screens specifically designed for compatibility with the secondary treatment system to remove coarse materials and debris. A backup manually cleaned bar screen will be installed to provide redundancy and reliability. Equalization basins will be constructed to reduce diurnal peaking of wastewater flows into the WWTP and provide limited storage volume in case of emergency.

Biological, or secondary, treatment of wastewater will be accomplished within partially belowground concrete aeration basins. In this process, aeration will be utilized to facilitate oxidation of pollutants and reduce biochemical oxygen demand (BOD) and total suspended solids (TSS) concentrations. This is the most common type of wastewater treatment. Anoxic basins will be provided ahead of the aeration basins to reduce nitrogen levels in the wastewater.

The aeration basins will be followed by clarification and subsequent tertiary filtration, or membrane bioreactors (MBRs), to separate solids from the treated water. In either case, the WWTP will treat wastewater to Title 22 standards of the California Code of Regulations for reclaimed water. The treated water will be disinfected prior to reuse in the contact chamber. The quality of the reclaimed, or recycled, water produced would be suitable for irrigation and full-body contact recreation. If necessary, dechlorination will be provided prior to discharge.

Solids generated from the WWTP will be stabilized, dewatered, and trucked to nearby landfills for disposal. Solids will be temporarily stored within an enclosed building or container prior to disposal. Odor and noise control will be provided to reduce any potential impacts to the surrounding areas. The preliminary treatment building, equalization basins, and solids dewatering facilities are common places where odors can be generated. These structures will be enclosed and the interior air will be conveyed to either wet scrubbers or activated carbon odor control units. Objectionable levels of odors are not expected within the other treatment structures. Equipment which generates significant levels of noise will be enclosed. Setbacks and screening of the WWTP would be designed to reduce visual impacts for the surrounding community and traffic.

The five WWTP siting alternatives were evaluated for availability, environmental compatibility, sitework cost, operational accessibility and other elements of engineering. The need for an intermediate wastewater lift station and lack of availability made the Pankey East, Quarry and Pankey West sites undesirable. The Grove and Meadowood sites are in close proximity to the development and meet the evaluation constraints. Currently, the Meadowood on-site option is the only alternative being pursued.

2.3 Recycled Water

The quality of treated water produced by the WWTP will satisfy the standards for reclaimed water as set forth in Title 22 of the California Code of Regulations promulgated by California Department of Public Health. The proposed project plans to use recycled water from the WWTP to meet several irrigation demands of the development, including avocado and citrus groves, park and school areas, and common area landscaped slopes and parkways.

The avocado and citrus groves proposed for conservation as the agricultural open space easement are currently irrigated with groundwater pumped from the Bonsall Groundwater Basin. The San Luis Rey Municipal Water District completed groundwater sampling and laboratory analysis of the irrigation water in May and September 2007. Results of both sampling events identified TDS concentrations of approximately 1,300 mg/l. According to the Groundwater Resource Assessment completed in November 2006 for the San Luis Rey Municipal Water District by ENSR Corporation, historic levels of TDS in the Bonsall Groundwater Basin have been 574 to 944 mg/l in 1985; 1,200 mg/l in 1993; and 1,300 to 1,500 mg/l in 2004. TDS concentrations within the proposed WWTP effluent are expected to be between 900 and 1,050 mg/l, which are well below the groundwater objective of 1,500 mg/l for the Bonsall Groundwater Basin. Therefore, recycled water used to irrigate the retained avocado and citrus groves, will actually have improved water quality over existing groundwater use that has sustained the groves for more than 25 years. Consistent with current irrigation methods, additional water will be used as necessary to leach the soils and prevent accumulation of salts. Irrigation rates for the avocado and citrus groves will be similar to current and historic rates. The remaining avocado and citrus groves are expected to be adequately conserved based on improved irrigation water quality and the continuation of current irrigation methods.

Other proposed recycled water uses include park and school areas as well as common area landscaped slopes and parkways. The type of vegetation selected for these areas will be compatible with anticipated recycled water quality and local irrigation guidelines and/or restrictions.

During the dry, summer months of the year, a large majority of the treated water will be used to meet these recycled water irrigation demands. However, during any wet winter months of the year, the amount of treated water produced may, at times, exceed the corresponding Meadowood irrigation demand. Excess treated water will be diverted to wet weather ponds, as described in Section 2.4.

The recycled water pump station will be constructed at the WWTP site to convey recycled water to the recycled water reservoir located on the eastern portion of the Meadowood development. The pump station will be housed in an underground concrete structure. Dual pumps will be designed to operate in the duty/standby mode so that the duty pump is capable of transferring the entire peak season recycled water flow to the recycled water reservoir. Specific recycled water demands and transmission system details are further discussed in the Meadowood Water Study.

2.4 Wet Weather Ponds

Since there will be periods of the year when treated water will be produced by the WWTP in excess of the recycled water irrigation demand, the surplus will be diverted to unlined wet weather ponds. A treated water flow design flow of 0.225 MGD from Meadowood only was used to estimate pond size requirements. Under extreme wet weather conditions, the ponds will be capable of handling treated water until recycled water irrigation resumes or the ponds are able to empty.

Potential wet weather pond locations are presented on Figure 4. Seven sites were evaluated for the ponds. Preliminary subsurface soil investigations were performed by EarthTech of San Diego at four of these sites to determine hydraulic conductivity. Soil data for the other three sites was estimated based on geographic location, surface characteristics, and information provided in the US Department of Agriculture, Natural Resources Conservation Service, and Soil Survey of San Diego County Area. Further subsurface investigation will be necessary in any of these locations prior to pond design to verify soil conditions. Table 1 presents the soil data and available acreages for each potential pond site.

Table 1 – Wet Weather Pond Soil Data

Site Name	Vertical Hydraulic Conductivity (ft/day)	Horizontal Hydraulic Conductivity (ft/day)	Available Acreage for Ponds (Ac)
Pankey East	2.5	150	37
Grove Site	1	100	15
Pankey West*	2	150	20
Quarry Site*	2	150	15
Rainbow Site*	1	200	12
Meadowood Site	3	80	1
Park Site	0.03	1	5

* Soil data for these sites were estimated.

The Park Site was eliminated from further consideration because the extremely low soil permeability makes it unfeasible. The Rainbow site would be a consideration only if Rainbow MWD is the selected wastewater service provider. The Quarry and Pankey West sites were unavailable at the time of this report, while the Grove, Pankey East and Meadowood sites meet all engineering and other regulatory constraints. Currently, the on-site option (Meadowood Site) is the only location being considered.

The Pankey East Site would require a pump station at the plant site and treated water forcemain to be installed across the San Luis Rey River. The 8-inch diameter forcemain may be installed within the existing utility ducts on the Shearer Crossing Bridge, attached to side of the Bridge, or directionally drilled underneath the San Luis Rey River.

Each of the identified pond sites and recycled water irrigation areas are within the Bonsall Hydrological Sub Area (HSS) 3.12. The quality of treated water, specifically nitrogen and total dissolved solids (TDS) levels, will comply with groundwater quality objectives for this basin as provided in the San Diego Regional Water Quality Control Board (RWQCB) Basin Plan. The TDS concentration of the treated water is expected to be between 900 and 1050 parts per million (ppm), which is lower than the Basin Plan requirement of 1500 ppm. Nitrogen will be reduced at the WWTP to below the basin objective of 45 mg/L.

Alternate locations in the adjacent Pala HSA were considered but were determined to be unfeasible because the expected TDS concentration of recycled water will not consistently meet the Basin Plan minimum of 900 ppm for the Pala HSA without blending with potable water. Other locations inside the Bonsall HSA were briefly discussed but excluded because they were unavailable, cost prohibitive, or unacceptable due to other environmental or engineering constraints.

The wet weather ponds will be designed and constructed in accordance with guidelines provided by the RWQCB. Half of the total pond area will be used at any given time in the fill mode while the others are emptying. The bottom of the ponds will be raised as necessary to optimize capacity. The ponds will be surrounded by earthen berms designed to withstand significant erosion and seismic activity. However, the ponds will be designed to continually empty the entire 0.225 MGD flow of treated water from Meadowood during the maximum expected periods of no recycled water use, historic high ground water elevation, and 100-year flood scenario.

SECTION 3
WASTEWATER SYSTEM ALTERNATIVES

Regardless of which municipal water district is designated by LAFCO to provide wastewater service to the proposed project, a new WWTP will need to be constructed to treat wastewater generated by the development. The total area of the proposed 0.225 MGD WWTP site will be approximately 0.5 to 1 acre. The WWTP will be sized to handle flow from the Meadowood development only. Any future development would be responsible for planning, designing, obtaining County approval, and constructing its own wastewater treatment and disposal facilities. All facilities outside of a residential lot will be public facilities including the collection system (pipelines, pump stations, etc.), wastewater treatment facilities (including treatment plant, wet weather ponds, etc.), and recycled water distribution system (including pipelines, pump stations, storage tanks, etc.)

Water and wastewater facilities would be phased as the off-site and internal road systems are constructed. A temporary package plant will be utilized until enough wastewater is generated in the development to operate the permanent WWTP.

Based on the analysis of siting options in Section 2, there are three possible wastewater system alternatives for Meadowood. While the on-site facilities (Alternative B) are the only alternative currently being considered, each potential option is further presented in this section. Any selected site would include visual screening and noise/odor controls to mitigate potential impacts to the surrounding community.

3.1 Alternative A – Off-site Facilities

The first siting alternative for collection, treatment, and disposal of wastewater from Meadowood is presented in Figure 5A. The WWTP would be located on approximately 1 acre at the Grove Site. The ground surface of the site would be raised approximately 3 feet above the 100-year floodplain elevation of the San Luis Rey River.

A preliminary WWTP layout for this site is presented as Figure 6A. This layout is conceptual. The inlet pump station would be situated on the WWTP site and would pump wastewater east to the preliminary treatment building. The recycled water pump station would convey recycled water from the WWTP site to the recycled water reservoir during periods of irrigation demand. During the low demand winter months, treated water would be diverted to the treated water pump station and transferred to wet weather ponds.

The preferred method of handling excess treated water would be approximately 1 acre of wet weather ponds located south of the San Luis Rey River at the Pankey East Site as shown on Figure 5A. The size estimate is based on preliminary soil investigation data presented in Section 2. Further investigations would be necessary to confirm the area estimate. A treated water forcemain would have to be installed across the San Luis Rey River near or on an existing bridge structure. Based on initial discussions with the County of San Diego, the forcemain would likely be placed within existing utility ducts on the Shearer Crossing Bridge.

Because the facilities for this Alternative A would be located off-site from Meadowood requiring additional property acquisition, possible floodplain protection, and construction of a treated water

forcemain across the San Luis Rey River, this Alternative A has not been selected as the preferred WWTP site for Meadowood.

3.2 Alternative B – On-site Facilities

The preferred WWTP site for collection, treatment, and disposal of wastewater from Meadowood is Alternative B presented in Figure 5B. The WWTP would be located with the wet weather ponds on an approximate 1-acre site in Meadowood. The inlet pump station will be situated at the WWTP site and will pump wastewater to the preliminary treatment building. The recycled water pump station located on-site will convey treated water from the WWTP site to the recycled water reservoir to meet irrigation demands. During the low demand winter months, treated water will be diverted by gravity to wet weather ponds.

Approximately 1 acre of wet weather ponds would be located on the Meadowood site adjacent to the treatment plant. The bottom of the ponds would be raised to an elevation of approximately 276 ft to accommodate proper hydraulic and grading conditions. This estimate is based on soil investigation data presented in Section 2.3 and the results of preliminary hydraulic modeling. Further investigation will be necessary to complete final design. The advantages of this site are that it is readily available to Meadowood, it will be outside the 100-year floodplain, and it is less environmentally sensitive than other sites considered.

The conceptual WWTP and wet weather pond layout for this site, as presented in Figure 6B, would be carefully designed to mitigate visual effects for Meadowood residents and traffic along SR-76. This alternative treats wastewater flows from Meadowood only, as expansion would not be possible due to size limitations of the site.

3.3 Alternative C – On-site WWTP & Off-site Ponds

Alternative C, presented as Figure 5C, includes a WWTP located at the Meadowood site capable of treating wastewater flows from Meadowood only. The WWTP would be situated on approximately 0.5 acres and have a similar layout as Alternative B.

However, the wet weather ponds would be located at either the Grove Site or Pankey East Site. Based on preliminary soil investigation data, approximately 1 acre would be required at either site for wet weather ponds. Further investigation would be necessary prior to final design.

Because the wet weather ponds for this Alternative C would be located off-site from Meadowood, this Alternative C has not been selected as a preferred WWTP site.

SECTION 4
PERMITTING REQUIREMENTS

The wastewater treatment and disposal system must comply with applicable federal, State of California, and local regulatory requirements. This section describes the regulatory framework for the Project, the criteria it must satisfy, and the process for obtaining approvals.

4.1 Regional Water Quality Control Board

The San Diego Regional Water Quality Control Board (Board) is responsible for water quality management for the San Diego region. The proposed WWTP, recycled water distribution, and treated water disposal system will be submitted to the Board for approval.

As proposed, the project will not have any discharge to surface waters since the effluent will be used for recycled water irrigation or disposed of within wet weather ponds. Since there will not be any surface discharge, the project will not require an NPDES (National Pollutant Discharge Elimination System) permit. However, it will require a Waste Discharge Permit that is issued by the State of California. This permit is required under California Water Code (Section 13260) for all discharges that could potentially affect the quality of the waters of the state.

In discussions with the Board, it is important that the quality of this recycled water (and therefore the effluent quality of the water reclamation plant) comply with the standards included in the Basin Plan. The Board emphasized the nitrate limit of 45 mg/l and the TDS limit of 1,500 ppm for wet weather within the Bonsall HSA.

4.2 California Department of Public Health

The California Department of Public Health has promulgated Title 22, which sets the standards for reclamation of wastewater in California in order to protect public health and the environment. This imposes specific treatment requirements in addition to those contained in the Basin Plan. Therefore, the project will need to include tertiary treatment consisting of at least filtration and disinfection following the secondary treatment process. For unrestricted contact, the fecal coliform bacteria must be reduced to 2.2 MPN (most probable number) per 100 ml (milliliters).

Proponents of reclaimed water projects must submit an Engineering Report to the California Department of Public Health for any proposed project. The engineering design must be approved by the Department of Public Health.

4.3 San Diego County

San Diego County is the permitting agency for development in unincorporated County areas. Plans and specifications for the proposed wastewater and reclamation project will need to be submitted and reviewed as part of the permitting process. Because the WWTP will be constructed as part of the proposed project before the WWTP is transferred to municipal water district ownership and operation, a County Major Use Permit has been applied for as part of this entitlement process. The County will also review recycled water distribution system plans prior to construction.

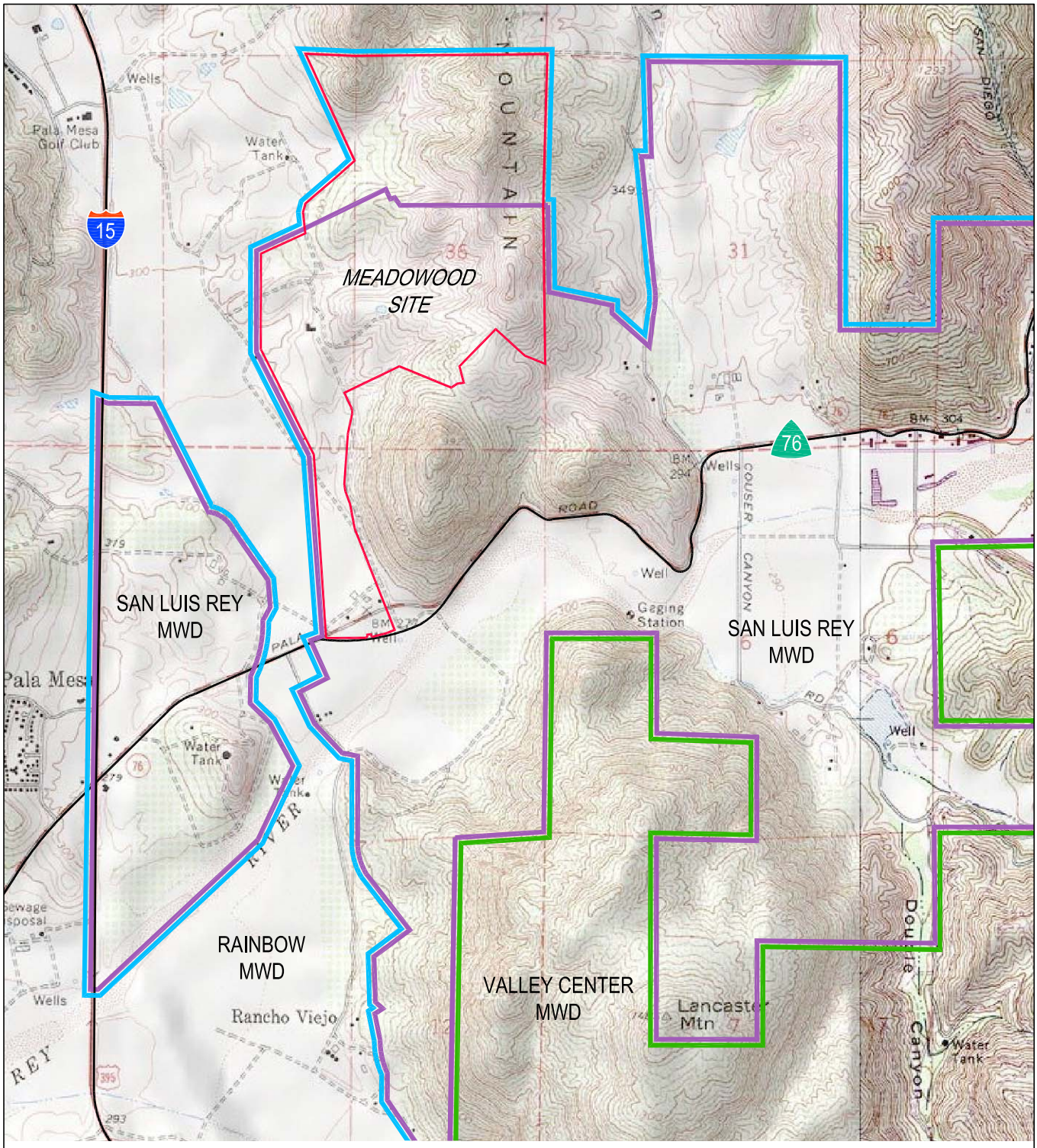

Figure No. 1
Water District Map

Meadowood
PARDEE HOMES

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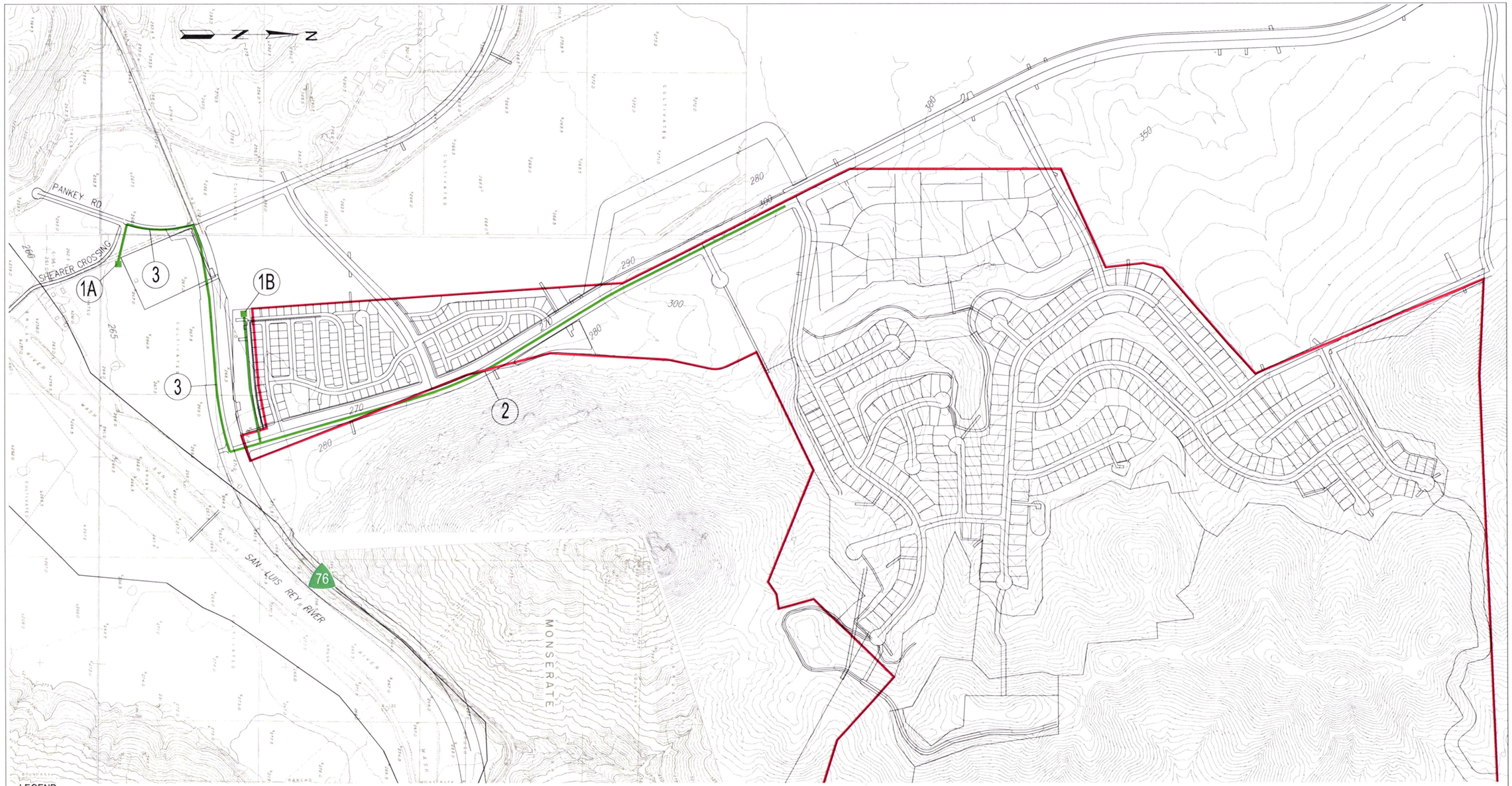

LEGEND

- 1A OFFSITE LIFT STATION LOCATION
- 1B ONSITE LIFT STATION LOCATION
- 2 10 INCH PVC GRAVITY WASTEWATER PIPELINE
- 3 12 INCH PVC GRAVITY WASTEWATER PIPELINE IF NECESSARY

1"=600' 0 600 Scale Feet

Figure No. 2
Wastewater Collection Infrastructure

Meadowood
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SECOND SAN DIEGO AQUEDUCT

FIRST SAN DIEGO AQUEDUCT

SAN LUIS REY MWD BOUNDARY

MEADOWOOD SITE

GROVE SITE

QUARRY SITE

PANKEY WEST

PANKEY EAST

N

SCALE

900 0 900 1800

Scale Feet

LEGEND

- PROPERTY BOUNDARIES
- WWTP ALTERNATE SITES (1 ACRE)
- HYDRAULIC SUBBASIN 3.12 BOUNDARY
- SLR RIVER FLOODWAY
- 100-YR FLOODPLAIN

Figure No. 3
WWTP Site Alternatives

Meadowood
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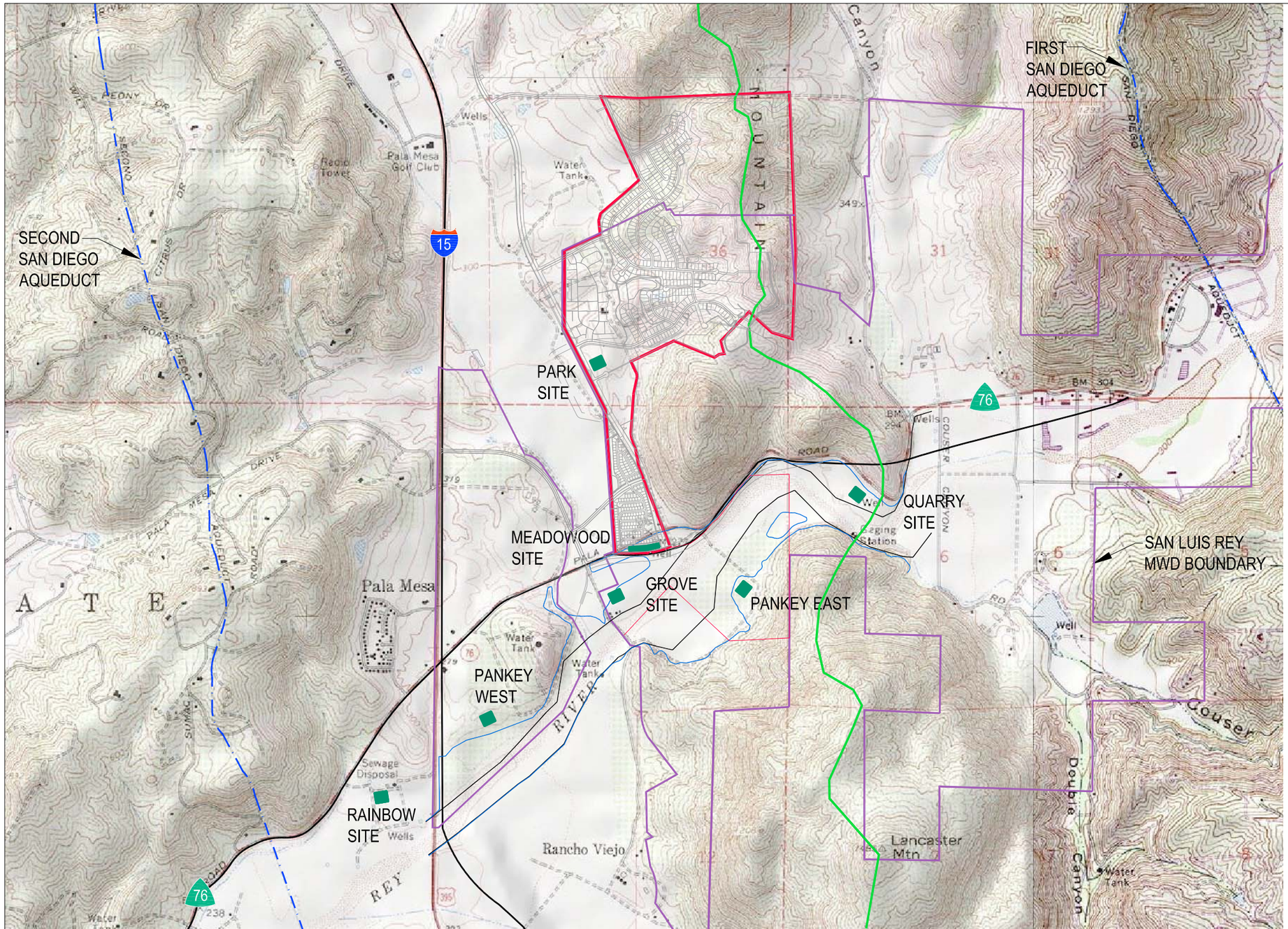

N

SCALE

900 0 900 1800

Scale Feet

LEGEND

- PROPERTY BOUNDARIES
- WET WEATHER POND SITES (1 ACRE BASED ON MEADOWOOD ONLY WWTP)
- HYDRAULIC SUBBASIN 3.12 BOUNDARY
- SLR RIVER FLOODWAY
- 100-YEAR FLOODPLAIN

NOTE: RAINBOW SITE IS POTENTIAL DISPOSAL LOCATION FOR RAINBOW MWD ONLY

Figure No. 4
Wet Weather Pond Siting Alternatives

Meadowood
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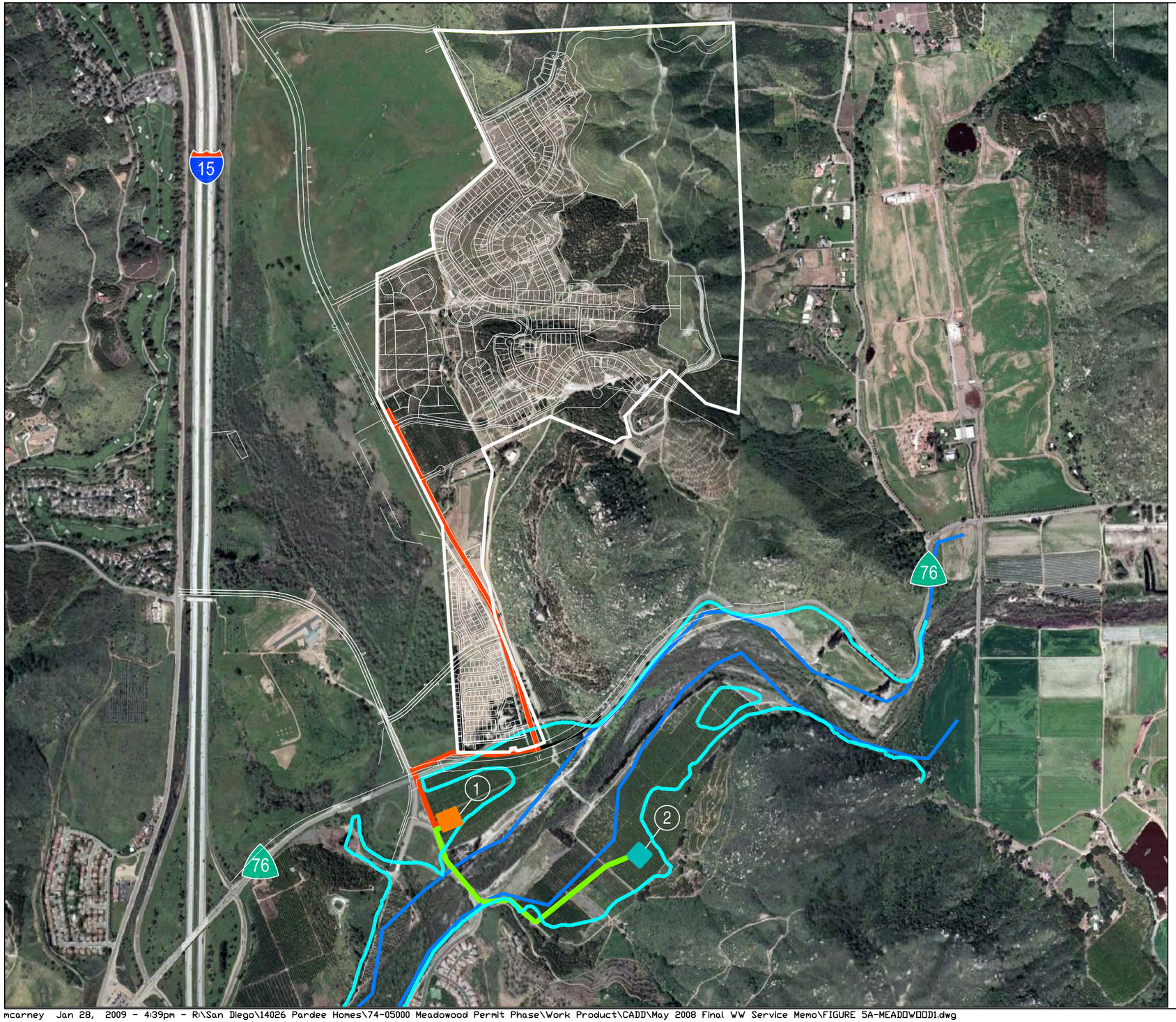

N

LEGEND

- PROPERTY BOUNDARIES
- SLR RIVER FLOODWAY
- CURRENT 100-YEAR FLOODPLAIN
- WASTEWATER COLLECTION MAIN
- TREATED WATER FORCE MAIN
- (1) TREATMENT PLANT SITE
- (2) WET WEATHER POND SITE

Figure No. 5A
Wastewater Alternative A

Meadowood
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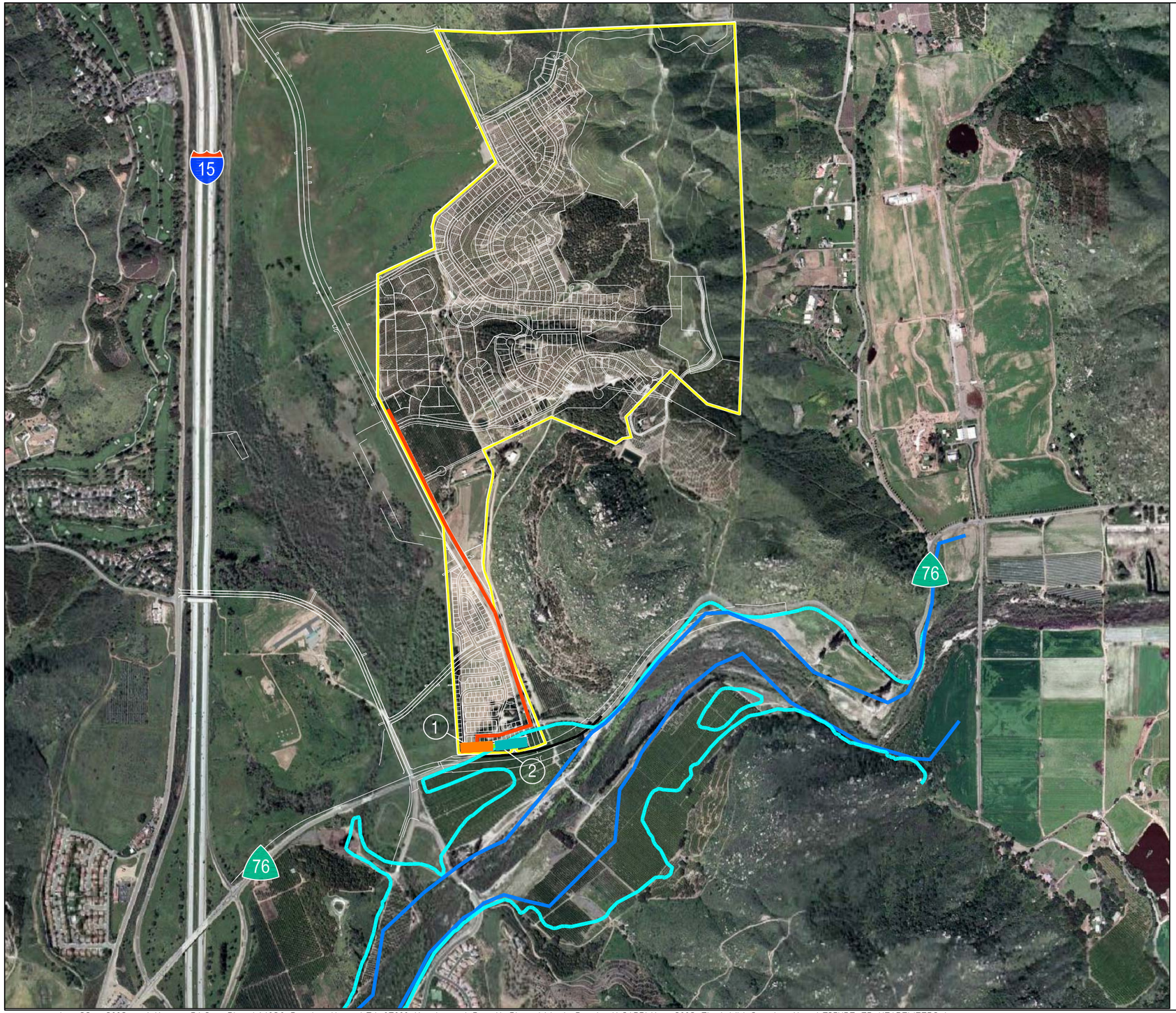

N

LEGEND

- PROPERTY BOUNDARIES
- SLR RIVER FLOODWAY
- CURRENT 100-YEAR FLOODPLAIN
- WASTEWATER COLLECTION MAIN
- TREATED WATER FORCE MAIN
- (1) TREATMENT PLANT SITE
- (2) WET WEATHER POND SITE

Figure No. 5B
Wastewater Alternative B

Meadowood
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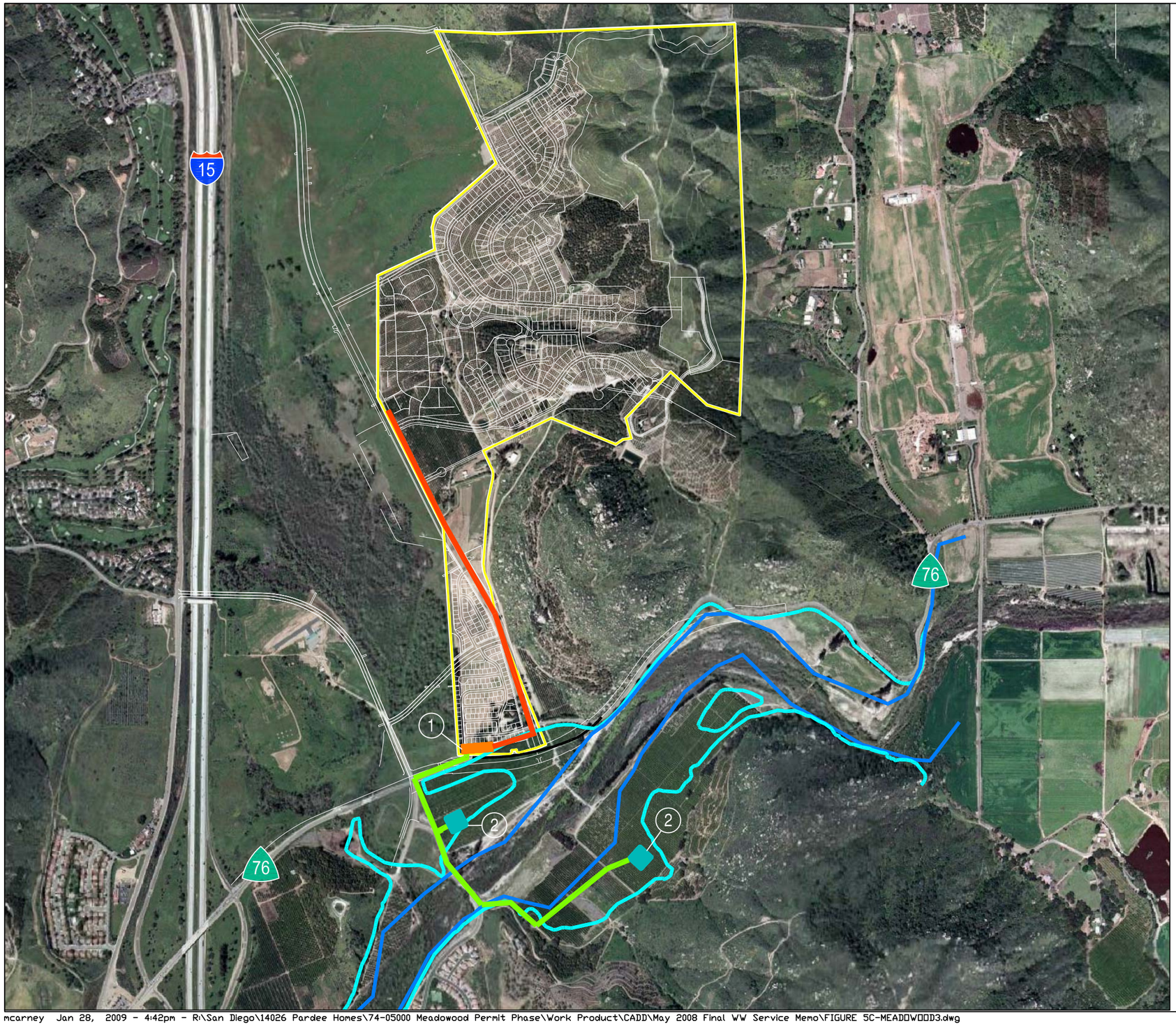

N

LEGEND

- PROPERTY BOUNDARIES
- SLR RIVER FLOODWAY
- CURRENT 100-YEAR FLOODPLAIN
- WASTEWATER COLLECTION MAIN
- TREATED WATER FORCE MAIN
- (1) TREATMENT PLANT SITE
- (2) WET WEATHER POND SITE

Figure No. 5C
Wastewater Alternative C

Meadowood
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mcarney Jan 28, 2009 - 4:42pm - R:\San Diego\14026 Pardee Homes\74-05000 Meadowood Permit Phase\Work Product\CADD\May 2008 Final WW Service Memo\FIGURE 5C-MEADOWOOD3.dwg

LEGEND

1 INLET GRAVITY MAIN
2 INLET PUMP STATION
3 PRELIMINARY TREATMENT BUILDING
4 EQUALIZATION BASINS
5 SECONDARY TREATMENT
6 CHLORINE DISINFECTION BASINS
7 RECYCLED WATER PUMP STATION
8 TREATED WATER PUMP STATION
9 THICKENER
10 SOLIDS DEWATERING ROOM
11A MCC/ELECTRICAL ROOM
11B OFFICE/LAB
11C MAINTENANCE ROOM
11D BLOWER ROOM

PRELIMINARY /SECONDARY TREATMENT FACILITIES
TERTIARY TREATMENT FACILITIES
SOLIDS TREATMENT FACILITIES
ADMINISTRATIVE FACILITIES

20 0 20 40
Scale Feet

Figure No. 6A
Proposed Site Layout for
Wastewater Alternative A

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PARDEE HOMES

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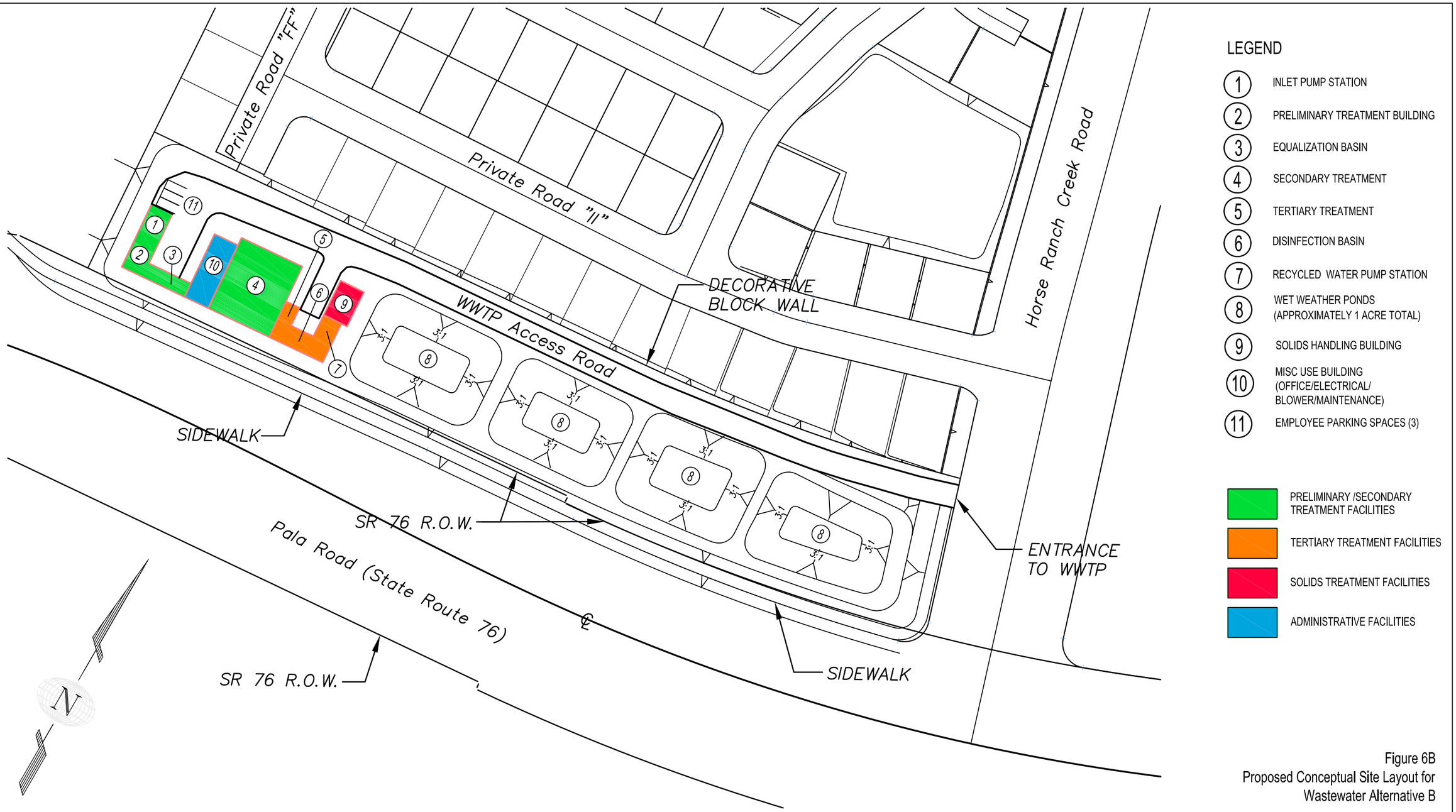

LEGEND

1. INLET PUMP STATION
2. PRELIMINARY TREATMENT BUILDING
3. EQUALIZATION BASIN
4. SECONDARY TREATMENT
5. TERTIARY TREATMENT
6. DISINFECTION BASIN
7. RECYCLED WATER PUMP STATION
8. WET WEATHER PONDS (APPROXIMATELY 1 ACRE TOTAL)
9. SOLIDS HANDLING BUILDING
10. MISC USE BUILDING (OFFICE/ELECTRICAL/ BLOWER/MAINTENANCE)
11. EMPLOYEE PARKING SPACES (3)

- PRELIMINARY /SECONDARY TREATMENT FACILITIES
- TERTIARY TREATMENT FACILITIES
- SOLIDS TREATMENT FACILITIES
- ADMINISTRATIVE FACILITIES

Figure 6B
Proposed Conceptual Site Layout for
Wastewater Alternative B

Meadowood
PARDEE HOMES

R·W BECK