# *Appendix G: Water Quality Analysis*

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# WATER QUALITY
# TECHNICAL REPORT

## For:
## Platinum Triangle Project

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## EXECUTIVE SUMMARY

The Water Quality Technical Report presented herein was developed to support conclusions presented in the Environmental Impact Report for the proposed Platinum Triangle Project development located within the City of Anaheim, California under the requirements stipulated by the California Environmental Quality Act (CEQA).

The report presents the regulatory framework, assessment methodologies, an evaluation of existing and proposed conditions, potential mitigation measures, and discussions of cumulative impacts with respect to thresholds of significance. The evaluations presented herein address key elements of surface water quality as they relate to project development namely potential impacts to storm water quality conditions and downstream receiving waters.

The Platinum Triangle Project lies within City of Anaheim's Drainage Districts 25, 26, and 27 and within the overall 2,500 square-mile Santa Ana River Basin. The Platinum Triangle encompasses the Angel Stadium of Anaheim, the Arrowhead Pond of Anaheim, the Grove of Anaheim, and the surrounding light industrial buildings, several industrial parks, distribution facilities, offices, hotels, restaurants, and supporting retail uses.

### Project Impacts

Because of limited available monitoring data, existing water quality was characterized based on published pollutant generation rates that are a function of land use. Pollutants of concern for this project may include sediment, nutrients, heavy metals, organic substances, trash and debris, oxygen demanding substances, oil and grease, bacteria and viruses, and pesticides. Under developed conditions, estimated concentrations of Copper, Lead and Zinc are expected to be below the California Toxics Rule Criteria. There are no direct Basin Plan numerical objectives for the land use based constituent data applicable to the project area. Therefore, a direct comparison with Basin Plan numerical objectives is not possible. However, there are no known water quality impairments that may cause Basin Plan violations.

For the Platinum Triangle Project, the main land uses that are proposed to change from the existing conditions are acreages allocated to light industrial, commercial and mixed uses. Even without any mitigation measures, concentrations of all considered constituents are predicted to decrease for the project under proposed land use conditions as compared to existing conditions. The proposed project land uses are expected to produce lower concentrations of pollutants than the existing land uses. With implementation of the recommended mitigation measures, these pollutant concentrations are expected to further decrease and the project water quality impacts (if any) fully mitigated. Water quality mitigation measures may include structural and non-structural BMPs for post-construction and construction conditions. The recommended structural BMPs for this project may include biofiltration (swales), drain inserts or hydrodynamic separator systems (HSS). For other pollutants where structural BMPs may not completely mitigate increases in concentrations, or where post-mitigation pollutant levels cannot be estimated, it will be important to implement non-structural measures to provide additional mitigation.

Construction BMPs are identified and would require contractor compliance to both State and local regulations for Storm Water Pollution Prevention Plans. Construction BMPs would mitigate potential increases in sediment during construction, and post-construction measures would result in reduced sediment and debris loads from the project.

**Cumulative Impacts**

It is expected that future developments will be required to comply with current development regulations, Clean Water Act/ National Pollutant Discharge Elimination System (NPDES) permits, and the CEQA process and therefore, cumulative impacts with respect to storm water quality will be less than significant.

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# I. INTRODUCTION

The following report is a water quality technical report prepared for the Platinum Triangle Project project, located in the City of Anaheim, California. On August 17, 2004, the Anaheim City Council approved The Platinum Triangle Master Land Use Plan which envisions a high density, mixed-use, urban environment unique to Orange County that could include up to 9,175 dwelling units, 5 million square feet of office space and over 2 million square feet of commercial uses. The environmental impacts associated with establishing the Platinum Triangle Master Land Use Plan were addressed in the Final Environmental Impact Report (FEIR) No. 330. To further analyze impacts associated with the implementation of the Master Land Use Plan and other associated actions, a Draft Supplemental Environmental Impact Report (DSEIR) is being prepared by the City. In order to define the scope and content of the DSEIR, a Notice of Preparation and an Initial Study have been prepared and circulated for a 30-day public review which ended on January 10, 2005. The proposed project includes conversion of about 820 acres of mostly urban uses into mixed uses including commercial and office space.

Following development of the project site, changes in storm water quality could be anticipated and if not mitigated, these changes may cause an impact downstream. However, with proper planning and implementation of mitigation measures, these impacts will be reduced to a less than significant level. This report presents a summary of baseline conditions, impacts and mitigation measures associated with the project site storm water quality issues. This report is intended to provide information to be used in the DSEIR.

## A. PURPOSE AND OBJECTIVES

The main purpose of this report is to provide an assessment of the storm water quality impacts and proposed mitigations in support of the Platinum Triangle Project DSEIR, per the California Environmental Quality Act (CEQA) guidelines. The main objectives of the investigation presented here are the following:

- To review and synthesize background information and data for the project area as well as relevant guiding documents.
- To identify the applicable storm water regulations/guidelines.
- Provide a conceptual evaluation of the existing storm water conditions in the project site.
- Examine project characteristics including developed conditions land uses and provide a conceptual evaluation of the developed storm water conditions for the project.
- Provide a conceptual comparison of existing and developed conditions as well as a comparison of both conditions with the regulatory standards to establish project impacts.
- Examine the required mitigation measures (“Best Management Practices”) to minimize and/or eliminate these impacts.
- Assess the cumulative impacts and mitigation measures.

The storm water quality issues presented in this report provide a preliminary assessment for Platinum Triangle Project based on the Scope of Work agreement dated November 16, 2004 with

The Planning Center. The findings presented in this report may be used in the DSEIR and as a management tool in planning of the required Best Management Practices. However, with further and more detailed evaluations of project design, all applicable criteria and requirements should be implemented and adhered to.

B. PROJECT LOCATION AND DESCRIPTION

The Platinum Triangle Project (herein after also referred to as the "project area") lies in the City of Anaheim, and within the 2,500 square-mile Santa Ana River Basin, in Orange County, California. The Platinum Triangle encompasses the Angel Stadium of Anaheim, the Arrowhead Pond of Anaheim, the Grove of Anaheim, and the surrounding light industrial buildings, several industrial parks, distribution facilities, offices, hotels, restaurants, and supporting retail uses.

**Project Location**

The Platinum Triangle is located generally east of I-5, west of the Santa Ana River channel and SR-57, south of the Southern California Edison easement, and north of the southerly Anaheim City limit. Project location is shown on Figure 1, below.

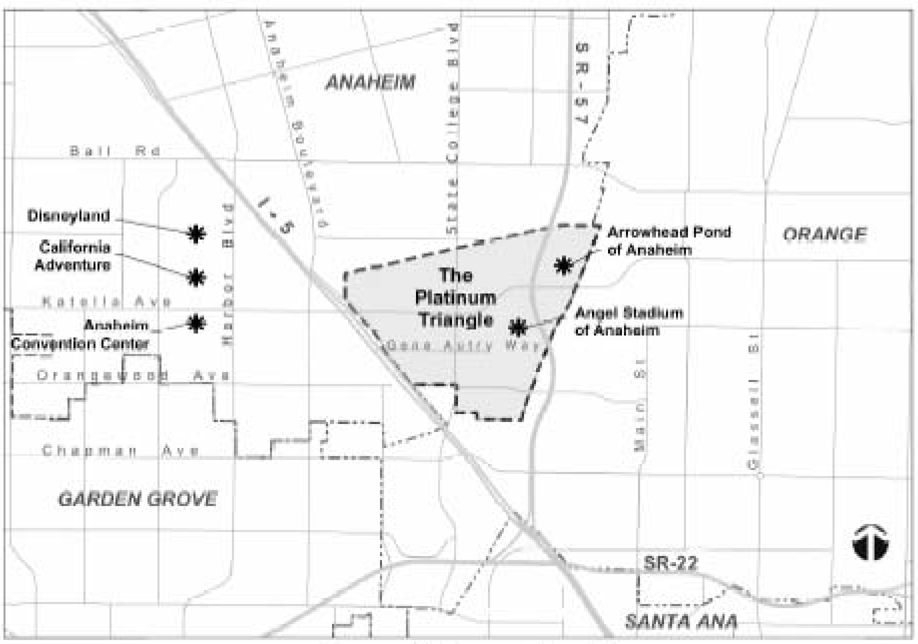



Figure 1: Location Map

**Project Description/Land Uses**

According to the General Plan Update (approved on May 25, 2004 by the Anaheim City Council) for the Platinum Triangle Project, the following existing land uses have been identified:

- Commercial Recreation
- Business Office/Mixed Use/Industrial

The General Plan Update changes these existing designations to the following land uses to provide opportunities for existing uses to transition to mixed-use, residential, office and commercial uses.

- Mixed-Use
- Office – High
- Office – Low
- Industrial
- Open Space
- Institutional

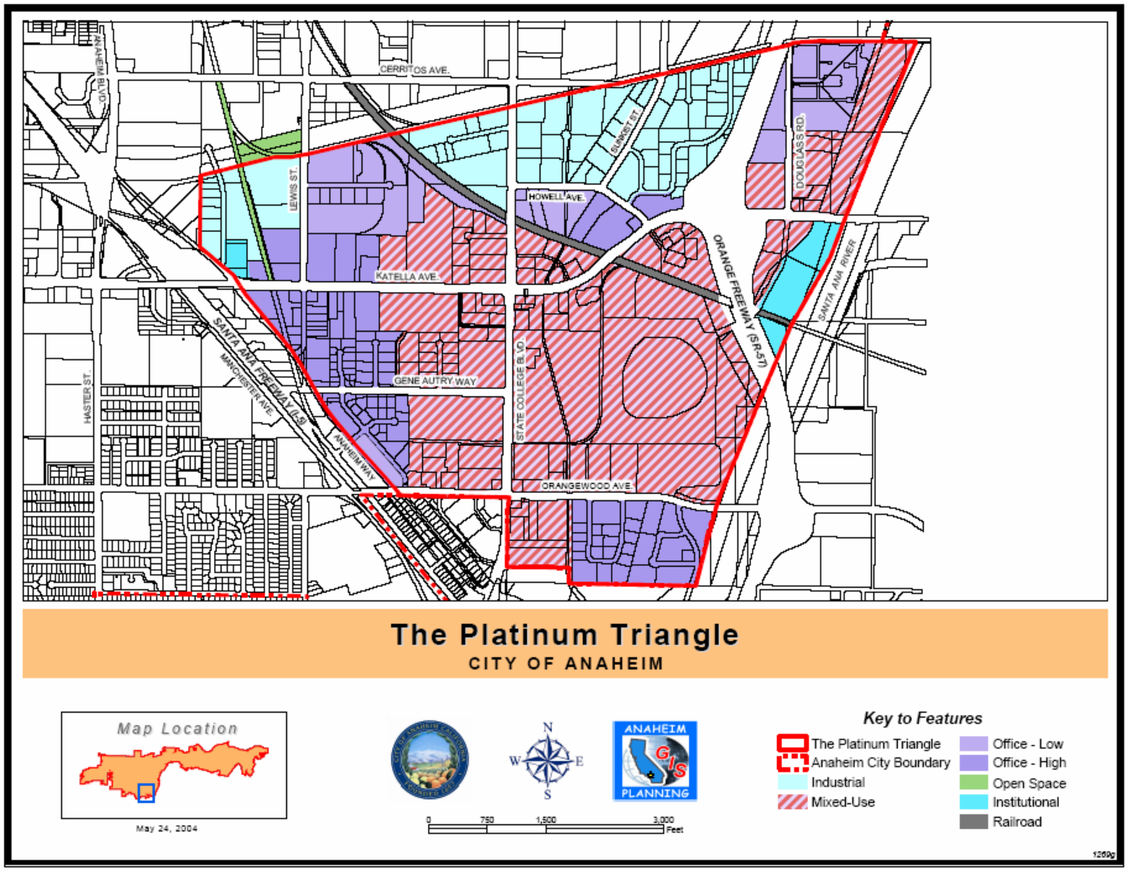
About 150 acres of mostly roads and rail road right-of-way is expected to remain unchanged from exiting to proposed conditions. Table 1 provides a general comparison of land use changes from existing to proposed conditions. The proposed land uses are shown on Figure 2.

**TABLE 1**
**Comparison of General Land Use Changes[1]**

| Land Use | Existing (ac) | Proposed (ac) |
|---|---|---|
| Light Industrial | 364.5 | 130.8 |
| Commercial | 362.5[2] | 214.8[3] |
| Agriculture/Vacant, Open Space | 16.2 | 2.3 |
| Mixed Use | - | 375.5 |
| Public-Institutional | - | 19.8 |
| Total | 743.2 | 743.2 |

1) Summarized and categorized based on fax and email summaries from The Planning Center (January 2005).
2) Includes Convention Center/Stadium Area, Lodging, Office, Outdoor Use, Quasi Public/Governmental, Retail/Service and Service Station.
3) Office-Low and Office-High.

**Figure 2**


CERRITOS AVE.
ANAHEIM BLVD.
LEWIS ST.
HOWELL AVE.
SUNKIST ST.
DOUGLASS RD.
KATELLA AVE.
ORANGE FREEWAY (SR-57)
SANTA ANA RIVER
SANTA ANA FREEWAY (I-5)
MANCHESTER AVE.
GENE AUTRY WAY
STATE COLLEGE BLVD.
HASTER ST.
ANAHEIM WAY
ORANGEWOOD AVE.
The Platinum Triangle
CITY OF ANAHEIM
Map Location
May 24, 2004
N
W
E
S
ANAHEIM
PLANNING
0
750
1,500
3,000
Feet
Key to Features
The Platinum Triangle
Anaheim City Boundary
Industrial
Mixed-Use
Office - Low
Office - High
Open Space
Institutional
Railroad

# II. EXISTING CONDITIONS

This section provides an overview of the existing storm water conditions as well as related regulatory requirements governing development at the project site.

## A. CURRENT REGULATORY SETTING

Storm runoff from the project site, and discharges of runoff into and/or encroachment upon natural drainages, wetlands, and/or flood plains (if any) are subject to the requirements of the federal Clean Water Act (33 U.S.C. §§ 1251 et seq.; CWA) and associated regulations, the State Porter-Cologne Water Quality Control Act (Cal. Water Code §§ 13000 et seq.) and associated regulations, and to requirements established by the U.S. EPA, , State Water Resources Control Board (SWRCB), the Regional Water Quality Control Board, Santa Ana Region (RWQCBSAR), County of Orange and the City of Anaheim. Each of these requirements and agencies are discussed below.

### Clean Water Act

The project would be subject to federal permit requirements under the Clean Water Act. In 1972, the Federal Water Pollution Control Act (later referred to as the CWA) was amended to require that the discharge of pollutants to waters of the United States from any point source be effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to add Section 402(p), requiring that the U.S. EPA establish regulations for permitting of storm water discharges by municipal and industrial facilities and construction activities under the NPDES permit program. The U.S. EPA published final regulations directed at municipal separate storm sewer systems (MS4s) serving a population of 100,000 or more, and storm water discharges associated with industrial activities, including construction activities, on November 16, 1990. The regulations require that MS4 dischargers to surface waters be regulated by a NPDES permit (Phase I Final Rule, 55 Fed. Reg. 47990). The U.S. EPA published final regulations directed at storm water discharges not covered in the Phase I Final Rule, including, as applicable here, small construction projects of one to five acres, on December 8, 1999 (Phase II Final Rule, 64 Fed. Reg. 68722).

Section 402(p) of the CWA provides that MS4 permits must “require controls to reduce the discharge of pollutants to the maximum extent practicable [MEP], including management practices, control techniques and system, design and engineering methods and such other provisions as the [U.S. EPA] Administrator or the State determines appropriate for the control of such pollutants.” The Office of Chief Counsel of the State Water Resources Control Board has issued a memorandum interpreting the meaning of MEP to include technical feasibility, cost, and benefit derived with the burden being on the municipality to demonstrate compliance with MEP by showing that a BMP is not technically feasible in the locality or that BMP costs would exceed any benefit to be derived (dated February 11, 1993).

The CWA authorizes the U.S. EPA to permit a state to serve as the NPDES permitting authority in lieu of the U.S. EPA. The State of California has in-lieu authority for an NPDES program. The Porter-Cologne Water Quality Control Act (Cal. Water Code §§ 13000 et seq.) authorizes the SWRCB, through (as applicable here) the RWQCBSAR, to regulate and control the discharge of pollutants into waters of the State. The SWRCB entered into a memorandum of agreement with the U.S. EPA, on September 22, 1989, to administer the NPDES Program governing discharges to waters of the U.S.

In addition, the CWA requires the States to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g. wildlife habitat, agricultural supply, fishing etc.), along with water quality objectives necessary to support those uses. Water quality objectives can be numerical concentrations or levels of constituents, such as lead, and suspended sediment, or narrative statements that represent the quality of water needed to support a particular use. Because California had not established a complete list of acceptable water quality objectives to the U.S. EPA, the U.S. EPA, EPA Region IX (in which California lies) has established numeric water quality criteria applicable to all receiving waters for certain toxic constituents in the form of the California Toxics Rule ("CTR") (40 CFR 131.38).

When designated beneficial uses of a particular water body are being compromised and fail to meet water quality objectives, Section 303(d) of the CWA requires identifying and listing that water body as "impaired." Once a water body has been deemed impaired, a Total Maximum Daily Load ("TMDL") must be developed for each water quality constituent that compromises a beneficial use. A TMDL is an estimate of the total load of pollutants, from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a "factor of safety" included). Once established, the TMDL is allocated among current and future dischargers into the water body.

Pursuant to Section 303(d) of the CWA, the reach of the river in which the project lies (Reach 2 of the Santa Ana River) has not been listed as being impaired for any pollutants, nor has the downstream reach, Reach 1. Likewise, no TMDLs have been developed for any reach of the Santa Ana River.

### General Construction Activity Storm Water Permit

Under the General Construction Activity Storm Water Permit (NPDES No. CAS000002, General Construction Activity Storm Water Permit, reissued on April 17, 1997, updated 2001), facilities discharging storm water associated with construction projects with a disturbed area of one or more acres (March 2003) are required either to obtain individual NPDES permits for storm water discharges, or to be covered by a statewide general permit by completing and filing a Notice of Intent with the SWRCB. The General Construction Activity Storm Water Permit addresses both storm water and non-storm water discharges from construction sites.

The applicant under the General Construction Activity Storm Water Permit must ensure that a Storm Water Pollution Prevention Plan (SWPPP) is prepared, and a Notice of Intent (NOI) is filed with the SWRCB to comply with the State Permit prior to issuance of a grading permit. The General Construction Activity Storm Water Permit relies upon BMPs to control pollutants.

The RWQCBSAR is the enforcement authority in the Santa Ana Region for the General Construction Activity Storm Water Permit, and all NPDES storm water and non-storm water permits issued by the RWQCBSAR. These construction sites and discharges are also regulated under local laws and regulations.

**Water Quality Control Basin Plan**

All of the activities under the NPDES program are aimed at meeting water quality objectives of receiving waters, which eventually discharge into receiving waters that often traverse multiple counties and cities. The RWQCBSAR adopted the Water Quality Control Plan (Basin Plan) for the Santa Ana Region on March 11, 1994 which was further revised in 1995. The Basin Plan designates the beneficial uses of receiving waters, including Reach 2 of the Santa Ana River to which the project site currently discharges and the project would discharge, and specifies both narrative and numerical water quality objectives for these receiving waters in Orange County. Because these standards are applicable to receiving waters, they are not a direct measure of storm water quality from the project site. However, water quality criteria from the Basin Plan are useful as benchmarks.

Reach 2 of the Santa Ana River lies between Prado Dam and 17th Street in Santa Ana. Under the Basin Plan, beneficial uses for Reach 2 include Agriculture; Groundwater; Contact Water Recreation; Non-Contact Water Recreation; Warm Freshwater Habitat; Wildlife Habitat; and Rare, Threatened or Endangered Species. The downstream reach of the Santa Ana River (Reach 1, a normally dry flood control facility that extends from 17th Street to the tidal prism at the Pacific Ocean) has no additional beneficial uses. Both reaches have been excepted from Municipal uses.

*Basin Plan Water Quality Objectives*

Water quality objectives, as defined by the California Water Code Section 13050(h), are the "limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses or the prevention of nuisance within a specific area." Beneficial uses are designated under CWA Section 303 in accordance with regulations. The Basin Plan defines existing and potential beneficial uses for identified water bodies receiving discharges. The project is located along Reach 2 of the Santa Ana River. Beneficial uses identified for Reach 2 include those listed above.

Water quality objectives are the water quality standards used to assess the potential impact of project discharges on the water quality of receiving waters (not end-of-pipe discharges). Table 2, Water Quality Objectives, summarizes the numerical and narrative water quality objectives for the Santa Ana River reach (Reach 2) in which the project lies.

**California Toxics Rule (CTR)**

The California Toxics Rule (CTR) is a federal regulation issued by the U.S. EPA providing water quality criteria for protection of surface waters of the State of California with designated uses protective of human health or aquatic life. However, CTR water quality criteria and water quality objectives and beneficial uses do not apply directly to discharges of storm water runoff. Nonetheless, these standards can provide a useful benchmark to assess the potential for project discharges to affect the water quality of receiving waters when pollutant load analyses are performed.

**General MS4 Permit**

As stated above, on November 16, 1990, pursuant to Section 402(p) of the CWA, the U.S.EPA promulgated federal regulations (40 Code of Federal Regulations [CFR] Part 122.26) establishing requirements for storm water discharges under the NPDES program. In California, the NPDES permit program is administered by the State Water Resources Control Board (SWRCB) through the RWQCBs as established by the State Porter-Cologne Water Quality Control Act.

The project site, located within the City of Anaheim, falls within the jurisdiction of the RWQCBSAR (Region 8), and the project is subject to the waste discharge requirements of the RWQCBSAR Municipal Permit (General MS4 Permit) Order No. R8-2002-0010, NPDES No. CAS618030 (adopted January 2002). The City of Anaheim is a Permittee under the General MS4 permit and therefore has legal authority for enforcing the terms of the permit in its jurisdiction.

The General MS4 Permit is intended to ensure that combinations of site planning, source control and treatment control BMPs are implemented to protect the quality of receiving waters. To do so, the General MS4 Permit requires that new development employ BMPs to the MEP (maximum extent practicable), including management practices, control and treatment techniques and systems, and site design planning to control the level of pollutants entering receiving waters. Further, the Permittees under the MS4 Permit (the County of Orange [Principal Permittee], the Orange County Flood Control District and incorporated cities, including the City of Anaheim) must ensure that storm water discharges from the MS4 shall neither cause nor contribute to the exceedence of water quality standards and objectives nor create conditions of nuisance in the receiving waters, and that the discharge of non-storm water to the MS4 has been effectively addressed. The General MS4 Permit notes, by reference to the U.S. EPA's "Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits" (August 26, 1996), that because of the nature of storm water discharges and the lack of detailed, documented, and accepted information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass) for many pollutants of concern, the permitting approach utilizing BMPs does, indeed, provide for the attainment of water quality standards and negates the need for numerical effluent criteria as a standard.

Among other things, the General MS4 Permit requires the Permittees to prepare a WQMP (Water Quality Management Plan) specifying the BMPs that will be implemented to reduce the discharge of pollutants in storm water to the MEP. The various components of the WQMP, taken together, are expected to reduce pollutants in storm water and urban runoff to the MEP. The emphasis of the WQMP is pollution prevention through education, public outreach, planning, and implementation as source control BMPs first, and then structural and treatment control BMPs.

The U.S. EPA recommends that, for NPDES-regulated municipal storm water discharges, effluent limitations should be expressed as BMPs or other similar requirements, rather than as numeric effluent limits. This approach involves implementing site design, source control and treatment control BMPs that reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP).

**County of Orange**

The County of Orange also regulates storm runoff and water quality as the Principal Permittee under the General MS4 Permit and the Drainage Area Management Plan (DAMP). As previously mentioned, the City of Anaheim is a co-permittee under the General MS4 Permit and has legal authority for enforcing the terms of the permit in its jurisdiction.

Applicants for development projects have the following responsibilities under the General MS4 permit:

- Implementation of management programs, monitoring programs, implementation plans and all BMPs outlined in the DAMP within each respective jurisdiction, and take any other actions necessary to meet the MEP standard.
- Coordination among internal departments and agencies to facilitate implementation of the General MS4 Permit and the DAMP.
- Establishment and maintenance of adequate legal authority, as required by Federal Storm Water Regulations.
- Storm drain system inspection and maintenance in accordance with criteria developed by the County of Orange.
- Implementation of enforcement actions for illicit discharges to the MS4 system owned or operated by the co-permittee.

In addition to these responsibilities, the permittees are required to submit a Water Quality Management Plan (WQMP) for new development or significant redevelopment projects, and a Storm Water Pollution Prevention Plan (SWPPP) for all municipal construction projects with disturbed areas greater than five acres.

**TABLE 2**
**BASIN PLAN WATER QUALITY OBJECTIVES***

| Issue | Objective |
|---|---|
| Algae | Waste discharges shall not contribute to excessive algal growth in inland surface receiving waters |
| Ammonia (Un-ionized) | To prevent chronic toxicity to aquatic life in the Santa Ana River, Reaches 2, 3 and 4, Chino Creek, Mill Creek (Prado Area), Temescal Creek and San Timoteo Creek, discharges to these waterbodies shall not cause the concentration of un-ionized ammonia (as nitrogen) to exceed 0.098 mg/L ($NH_3$-N) as a 4-day average (Basin Plan p.4-6). |
| Total Coliform (MUN) | Less than 100 organisms/100 ml (Basin Plan p.4-6). |
| Fecal coliform (REC-1) | Log mean less than 200 organisms/100 ml based on five or more samples/30 day period, and not more than 10% of the samples exceed 400 organisms/100 ml for any 30-day period (Basin Plan p.4-6) |
| Fecal coliform (REC-2) | Average less than 2000 organisms/100 ml and not more than 10% of the samples exceed 4000 organisms/100 ml for any 30-day period (Basin Plan p.4-6) |
| Boron | Boron concentrations shall not exceed 0.75 mg/L in inland surface waters of the region as a result of controllable water quality factors (Basin Plan p.4-6). |
| COD (Chemical oxygen demand) | Waste discharges shall not result in increases in COD levels in inland surface waters which adversely affect beneficial uses (Basin Plan p.4-7). |
| Chloride | Chloride levels shall not be increased as a result of controllable water quality factors (Basin Plan p.4-7). |
| Chlorine, total residual | To protect aquatic life, the chlorine residual in wastewater discharged to inland surface waters shall not exceed 0.1 mg/L (Basin Plan p.4-7). |
| Color | Waste discharges shall not result in coloration of the receiving waters which causes a nuisance or adversely affects beneficial uses. The natural color of fish, shellfish or other inland surface water resources used for human consumption shall not be impaired (Basin Plan p.4-7). |
| TDS | The dissolved mineral content of the waters of the region, as measured by the dissolved solids test, shall not exceed 650 mg/L as a result of controllable water quality factors (Basin Plan p. 4-7). |
| Floatables | Waste discharges shall not contain floating materials, including solids, liquids, foam or scum, which cause a nuisance or adversely affect beneficial uses (Basin Plan p.4-7). |

**TABLE 2**
**BASIN PLAN WATER QUALITY OBJECTIVES***

| Issue | Objective |
|---|---|
| Fluoride | Fluoride concentrations shall not exceed values specified [in Annual Average of Maximum Daily Air Temperature (°C) vs. Optimum Fluoride Concentration (mg/L) on Basin Plan p.4-7] in inland surface waters designated MUN as a result of controllable water quality factors (Basin Plan p.4-7). |
| Hardness (as $CaCO_3$) | The hardness of receiving waters used for municipal supply (MUN) shall not be increased as a result of waste discharges to levels that adversely affect beneficial uses (Basin Plan p.4-8). |
| **METALS** | **SITE-SPECIFIC OBJECTIVES (SSOs)** |
| Cadmium | Cd SSO = $0.85[e^{[0.7852*\ln(TH)-3.490]}]$ (Basin Plan p.4-8) |
| Copper | Cu SSO = $0.85[e^{[0.8545*\ln(TH)-1.465]}]$ (Basin Plan p.4-8) |
| Lead | Pb SSO = $0.25[e^{[1.273*\ln(TH)-3.958]}]$ (Basin Plan p.4-8) |
| | *NOTE: TH is total hardness (as $CaCO_3$) in mg/L* |
| MBAS (methylene blue activated substances), such as detergents and other anionic surfactants | MBAS concentrations shall not exceed 0.5 mg/L in inland surface waters designated MUN as a result of controllable water quality factors (Basin Plan p.4-9) |
| Nitrate | Nitrate-nitrogen concentrations shall not exceed 45 mg/L (as $NO_3$) or 10 mg/L (as N) in inland surface waters designated MUN as a result of controllable water quality factors (Basin Plan p.4-9). |
| Nitrogen, Total Inorganic | Total inorganic nitrogen levels shall not be increased as a result of controllable water quality factors (Basin Plan p.4-9). |
| Oil & grease | Waste discharges shall not result in deposition of oil, grease, wax or other materials in concentrations which result in a visible film or in coating objects in the water, or which cause a nuisance or adversely affect beneficial uses (Basin Plan p.4-9). |
| Dissolved oxygen (DO) | The dissolved oxygen content of surface waters shall not be depressed below 5 mg/L for waters designated WARM, or 6mg/L for waters designated COLD, as a result of controllable water quality factors. In addition, waste discharges shall not cause the median dissolved oxygen concentration to fall below 85% of saturation or the 95$^{th}$ percentile concentration to fall below 75% of saturation within a 30-day period (Basin Plan p.4-10). |
| pH | The pH of inland surface waters shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors (Basin Plan p.4-10). |
| Radioactivity | Radioactive materials shall not be present in the waters of the region in concentrations which are deleterious to human, plant or animal life. Waters |

**TABLE 2**
**BASIN PLAN WATER QUALITY OBJECTIVES***

| Issue | Objective |
|---|---|
| | designated MUN shall meet the limits specified in the California Code of Regulations, Title 22 (Basin Plan p.4-10). |
| Sodium | Sodium levels shall not be increased as a result of controllable water quality factors (Basin Plan p.4-10). |
| Solids, suspended and settleable | Inland surface waters shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors (Basin Plan p.4-10). |
| Sulfate | Sulfate levels shall not be increased as a result of controllable water quality factors (Basin Plan p.4-10). |
| Sulfides | The dissolved sulfide content of inland surfaces waters shall not be increased as a result of controllable water quality factors (Basin Plan p.4-10). |
| Surfactants (surface-active agents) | Waste discharges shall not contain concentrations of surfactants which result in foam in the course of flow or use of the receiving water, or which adversely impact aquatic life (Basin Plan p.4-11). |
| Taste and Odor | The inland surface waters shall not contain, as a result of controllable water quality factors, taste or odor-producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. The natural taste and odor of fish, shellfish, or other regional inland surface water resources used for human consumption shall not be impaired (Basin Plan, p.4-11). |
| Temperature | The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of water designated COLD shall not be increased by more than 5°F as a result of controllable water quality factors. The temperature of water designated WARM shall not be raised above 90°F June through October or above 78°F during the rest of the year as a result of controllable water quality factors (Basin Plan p.4-11). |
| Toxic Substances | Toxic substances shall not be discharged at levels that will bioaccumulate in aquatic resources to levels which are harmful to human health. The concentrations of contaminants in waters which are existing or potential sources of drinking water shall not occur at levels which are harmful to human health. The concentrations of toxic pollutants in the water column, sediments or biota, shall not adversely affect beneficial uses (Basin Plan p.4-11). |
| Turbidity | Increases in turbidity which result from controllable water quality factors shall comply with the following: for natural turbidity of 0-50 NTU, the maximum increase is 20%; for natural turbidity of 50-100 NTU, the maximum increase is 10 NTU; for natural turbidity greater than 100 NTU, |

**TABLE 2**
**BASIN PLAN WATER QUALITY OBJECTIVES***

| Issue | Objective |
|---|---|
| | the maximum increase is 10%. All inland surface waters of the region shall be free of changes in turbidity which adversely affect beneficial uses (Basin Plan p.4-11). |

* Source**:** California Regional Water Quality Control Board, Santa Ana Region, Water Quality Control Plan, Santa Ana River Basin (8), 1995.

The DAMP recognizes such approaches to reducing water pollution as prevention of pollutant introduction into the drainage system (source controls) and the removal of pollutants from the drainage system (structural best management practices). In order to comply with the DAMP, the City of Anaheim as well as other cities in Orange County have adopted water quality ordinances to effectively prohibit non-storm water discharges into the storm drain system and to reduce the discharge of pollutants into urban runoff. Examples of measures include: implementation of ordinances such as new development guidelines, residential recycling, street sweeping, household hazardous waste management, local ordinances, drainage system maintenance, public education, and litter control. In the following section a general overview of the state of water quality best management practices and current efforts and requirements for MS4 Permittees (City of Anaheim and County of Orange) are outlined.

*Water Quality Best Management Practices*

In water pollution control, best management practices (BMPs) refer to the best means available to control pollution of waterways from non-point sources. For storm water runoff, Section 402(p) of the CWA provides that MS4 permits must require controls to reduce the discharge of pollutants to the MEP. The MEP standard was clarified by the federal courts, which held that MEP did not require that municipal storm water discharges strictly comply with numeric water quality standards (*Defenders of Wildlife v. Browner*, 191 F.3d 1159 (9th Cir. 1999)). The MEP standard is attained by the use of BMPs. For a particular permit, the U.S. EPA generally bases the MEP standard on technological feasibility, water quality objectives, and other site-specific considerations.

BMPs are actions and procedures established to reduce the pollutant loadings in storm drain systems. The three main categories of BMPs are (1) site design (or planning and management), (2) source control and (3) treatment and structural control.

<u>Site Planning BMPs</u>

Site design or planning management BMPs are used to conserve natural areas and minimize impervious cover, especially in those areas directly connected to receiving waters. Site planning BMP strategies include:

- Minimizing Impervious Areas and Directly Connected Impervious Areas
- Selection of Construction Materials and Design Practices
- Conservation of Natural Areas
- Protection of Slopes and Channels with Vegetative Cover

Source Control BMPs

- Source control BMPs are usually the most effective and economical in preventing pollutants from entering storm and non-storm runoff. Examples of source control BMPs that may be relevant to the project include:
    - Public Education/Participation activities that make information available to homeowner groups, associations, and municipalities for further distribution to homeowners and businesses.
    - Drain Inlet Stenciling This includes community and resort education and litter control program

  Materials Management activities, such as:

    - Materials Use Controls, which include good housekeeping practices (storage, use and cleanup) when handling potentially harmful materials, such as cleaning materials, fertilizers, paint, pool chemicals and, where possible, using safer alternative products;
    - Material Exposure Controls, which prevent and reduce pollutant discharge to storm water by minimizing the storage of hazardous materials (such as pesticides) on site, storing materials in a designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors; and
    - Material Disposal and Recycling, which includes storm drain system signs and stenciling with language to discourage illegal dumping of unwanted materials. Household hazardous waste and used oil recycling at collection centers and round-up activities are very productive BMPs.
    - Spill Prevention and Cleanup activities, which are directed toward reducing the risk of spills during the outdoor handling and transport of chemicals, and toward developing plans and programs to contain and rapidly clean up spills before they get into a storm drain system. This BMP also deals with the prevention and reduction of pollution from vehicle leaks and spills from vehicles during transport, as well as aboveground storage tanks. This BMP would be relevant to the construction of a gasoline station on the proposed commercial site, should one occur.
    - Illegal Dumping Controls, which consist of laws, ordinances and public education programs intended to prevent the dumping of waste products (solid waste/liquid waste and yard trash) into storm drain systems and watercourses.

- Street and Storm Drain Maintenance activities that control the movement of pollutants and remove them from pavement through catch basin cleaning, storm drain flushing, street sweeping, and by regularly removing illegally dumped material from storm channels and creeks. Modification of channel/creek characteristics to improve hydraulics and increase pollutant removals also enhances aesthetic and habitat value.
- Good Housekeeping practices including such activities as sweeping down driveways as opposed to washing them down.
- Irrigation Controls and Management, Proper Storage and Application of Fertilizers and Pesticides.
- Capture and re-use of storm water runoff and nuisance flows.

<u>Treatment and Structural BMPs</u>

Treatment and structural control BMPs involve physical treatment of the runoff, usually through structural means. Treatment control BMPs are also referred to as structural BMPs throughout this report. A variety of treatment control measures have been utilized throughout the country for storm water quality; however, the effectiveness of these controls is highly dependent on local conditions, such as climate, hydrology, soils, groundwater conditions, and extent of urbanization.

Some of the more common Treatment Controls are:

- Oil/water separators, which are designed to remove one specific group of contaminants: petroleum compounds and grease. However, separators will also remove floating debris and settable solids.

- Infiltration, which refers to a family of systems in which the majority of the runoff from small storms is infiltrated into the ground rather than discharged to a surface water body. Infiltration systems include: ponds, vaults, trenches, dry wells, porous pavement, and concrete grids.

- Biofilters, which are of two types: swale and strip. A swale is a vegetated channel that treats concentrated flow. A strip treats sheet flow and is placed parallel to the contributing surface.

- Extended water quality detention basins that are dry between storms. During a storm, the basin fills and a bottom outlet releases the storm water slowly to provide time for sediments to settle.

- Media filtration consists of a settling basin followed by a filter. Common filter are sands, peat/sand mixtures, and other filter media.

- Hydrodynamic Separator Systems such as Gross Solids Removal Devices (GSRDs) and Continuous Deflector Separation (CDS) Units

- Multiple systems which are a combination of two or more of the preceding controls in a series; also referred to as a "treatment train."

**City of Anaheim**

The City of Anaheim is required by the Santa Ana Region Municipal Permit to minimize short and long-term impacts on receiving waters from new development and significant redevelopment to the maximum extent practicable. The City of Anaheim's General Plan which was updated in May 25, 2004 provides general overview of requirements development/redevelopment within the City to ensure adequate watershed and water quality protection to receiving waters. Furthermore, the City's Local Implementation Plan (November 2003) requires new development and significant redevelopment projects within the City to address storm water quality impacts through incorporation of permanent (post-construction) BMPs in project design. "New Development" includes land disturbing activities; structural development, including construction or installation of a building or structure, the creation of impervious surfaces; and land subdivision. "Significant Redevelopment" means development that would create or add at least 5,000 square feet of impervious surfaces on an already developed site as defined by the Municipal Permit. Water Quality Management Plans (WQMPs) are required for private and public "New Development" and "Significant Redevelopment" projects. The City requires the project applicants to submit a Project WQMP at the project processing and permitting stages. In general, the WQMPs shall follow guidelines set forth in the Model WQMP, provided in the Orange County DAMP Section 7, Per these guidelines, a combination of Source Control BMPs (routine non-structural and routine structural BMPs) and Sit Design BMPs are recommended to be incorporated in projects. The City also requires Treatment Control BMPs to be considered for all Priority projects. The City shall categorize various projects as priority or non-priority using specific guidelines relating to the type of development, location and size.

## B. DRAINAGE AREAS AND RECEIVING WATERS

In September 2004, Merit Civil Engineering, Inc., prepared a drainage study for the Platinum Triangle project. The following is a very general overview of project drainage conditions as related to the water quality assessments provided herein. More detailed discussion and maps are provided in the Drainage Study report.

The Platinum Triangle Project is located within the overall Santa Ana River Watershed and covers an area that includes portions of City of Anaheim's Drainage Districts 25, 26, and 27. Drainage patterns in this area are varied and are mostly conveyed on street surfaces as well as local storm drainage facilities, which convey runoff to the regional facilities owned and maintained by the County of Orange. Drainage from this area eventually flows into regional drainage facilities and the Santa Ana River which traverses in a mostly southerly direction along the City's eastern boundaries, collecting runoff from the regional facilities and conveying it to the Pacific Ocean. Santa Ana River, which extends through the Santa Ana Canyon, is the largest river in Southern California, draining an area of about 2,500 square miles.

This general area is currently served with local and regional storm drain systems which will need to be supplemented and/or replaced in order to convey the generated flows. The project area was divided into zones to identify general drainage requirements that should be anticipated. Various developments proposed for the project site are subject to mitigation to address storm drain/drainage deficiencies. The 2004 Drainage Study identifies the basic needed storm drain requirements, however as particular developments occur within the project site, they will need to sufficiently evaluate and incorporate mitigation measures to satisfy all the local and regional requirements.

## C. EXISTING SURFACE WATER QUALITY ISSUES AND CONSTRAINTS

In order to address potential storm water quality impacts of the project, an assessment of existing conditions is necessary. This assessment is mainly based on published pollutant concentrations for various land uses. Specifically, it is based on the County of Los Angeles's Integrated Receiving Water Impacts Report (1994-2000). This section provides an overview of existing storm water quality conditions for the proposed project.

Due to lack of better site specific data, land use specific storm water quality data provided by Los Angeles County (2000) was used in making the assessment provided in this section. The summary provided in this section includes a discussion of typical pollutants associated with the project land uses (designated as "pollutants of concern"), event mean concentrations (EMCs), and comparison with regulatory standards.

**Pollutants of Concern**

Pollutants of concern typically consist of any pollutants that exhibit one or more of the following characteristics:

- current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water,
- elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein,
- or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna.

Pollutants of concern for the Platinum Triangle Project development were chosen based upon typical pollutants found in urban runoff associated with the existing and proposed land uses at the site as well as regulatory guidelines discussed previously. Table 1 provides a summary of existing and proposed categories of land uses at the project site.

As shown on Table 1, the areas designated as agriculture/vacant and open space comprise about 2 percent and 0.3 percent of the existing and proposed land uses, respectively. Due to lack of better data, these uses are lumped as vacant uses under both the existing and proposed scenarios. However since it is known that the existing land uses comprise a higher percentage of agricultural uses than vacant uses and since typical pollutant concentrations for agricultural uses are usually much higher than vacant (and also other urban uses), the estimated pollutant concentrations from existing conditions are somewhat underestimated in the analysis provided herein. Therefore, the percent impact assessments (based on comparison of existing and proposed conditions) provided in this study are generally conservative.

The project land uses are likely to generate the following broad categories of constituents:

Sediment: soils or other surface materials eroded and then transported or deposited by the action of wind, water, ice, or gravity. Sediments can increase turbidity, clog fish gills, reduce spawning habitat, lower young aquatic organisms survival rates, smother bottom dwelling organisms, and suppress aquatic vegetation growth.

Nutrients: inorganic substances, such as nitrogen and phosphorus. They commonly exist in the form of mineral salts that are either dissolved or suspended in water. Primary sources of nutrients in urban runoff are fertilizers and eroded soils. Excessive discharge of nutrients to water bodies and streams can cause excessive aquatic algae and plant growth. Such excessive production, referred to as cultural eutrophication, may lead to excessive decay of organic matter in the water body, loss of oxygen in the water, release of toxins in sediment, and the eventual death of aquatic organisms.

Metals: raw material components in non-metal products such as fuels, adhesives, paints, and other coatings. The primary sources of metal pollution in storm water are typically commercially available metals and metal products. Metals of concern include cadmium, chromium, copper, lead, mercury, and zinc. Lead and chromium have been used as corrosion inhibitors in primer coatings and cooling tower systems. At low concentrations naturally occurring in soil, metals are not toxic. However, at higher concentrations, certain metals can be toxic to aquatic life. Humans can be impacted from contaminated groundwater resources, and bioaccumulation of metals in fish and shellfish. Environmental concerns, regarding the potential for release of metals to the environment, have already led to restricted metal usage in certain applications.

Organic Compounds: carbon-based (commercially available or naturally occurring) substances found in pesticides, solvents, and hydrocarbons. Organic compounds can, at certain concentrations, indirectly or directly constitute a hazard to life or health. When rinsing off objects, toxic levels of solvents and cleaning compounds can be discharged to storm drains. Dirt, grease, and grime retained in the cleaning fluid or rinse water may also adsorb levels of organic compounds that are harmful or hazardous to aquatic life.

Trash and Debris: general waste products (such as paper, plastic, polystyrene packing foam, aluminum materials, leaves, grass cuttings, and food waste) on the landscape. The presence of trash and debris may have a significant impact on the recreational value of a water body and aquatic habitat. Excess organic matter can create a high biochemical oxygen demand in a stream and thereby lower its water quality. Also, in areas where stagnant water exists, the presence of excess organic matter can promote septic conditions resulting in the growth of undesirable organisms and the release of odorous and hazardous compounds such as hydrogen sulfide.

Oxygen-Demanding Substances: biodegradable organic material as well as chemicals that react with dissolved oxygen in water to form other compounds. Proteins, carbohydrates, and fats are examples of biodegradable organic compounds. Compounds such as ammonia and hydrogen sulfide are examples of oxygen-demanding compounds. The oxygen demand of a substance can lead to depletion of dissolved oxygen in a water body and possibly the development of septic conditions.

Oil and Grease: high-molecular weight organic compounds. The primary sources of oil and grease are petroleum hydrocarbon products, motor products from leaking vehicles, esters, oils, fats, waxes, and high molecular-weight fatty acids. Introduction of these pollutants to the water bodies are very possible due to the wide uses and applications of some of these products in municipal, residential, commercial, industrial, and construction areas. Elevated oil and grease content can decrease the aesthetic value of the water body, as well as the water quality.

Bacteria and Viruses: ubiquitous microorganisms that thrive under certain environmental conditions. Their proliferation is typically caused by the transport of animal or human fecal wastes from the watershed. Water containing excessive bacteria and viruses can alter the aquatic habitat and create a harmful environment for humans and aquatic life. Also, the decomposition of excess organic waste causes increased growth of undesirable organisms in the water.

Pesticides: chemical compounds commonly used to control nuisance growth of organisms. Excessive application of a pesticide may result in runoff containing toxic levels of its active component.

Different land uses may generate different constituents, as shown in Table 3:

**TABLE 3**
**CONSTITUENTS GENERATED BY EXISTING AND PROPOSED LAND USES**

| | **Constituents** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Land Uses** | Sediments | Nutrients | Heavy Metals | Organic Substances | Trash and Debris | Oxygen-Demanding Substances | Oils and Grease | Bacteria and Viruses | Pesticides |
| Mixed-Use | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Office – High | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Office – Low | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | |

Furthermore, these constituents were chosen for evaluation because they are commonly found in urban runoff and tend to be more amenable to treatment with urban BMPs. Furthermore, reliable land use data is available for these constituents for assessing water quality impacts.

**Event Mean Concentrations**

Storm water runoff water quality will vary within a storm event depending on the rainfall pattern and storm duration (intra-event variability). Because of this variability, water quality concentrations are often expressed in the form of EMCs, which are the concentrations that would be measured if the entire runoff from an event were captured and mixed before sampling. The extensive use of EMCs to characterize storm water quality was initiated in the U.S. EPA's Nationwide Urban Runoff Program (NURP) (U.S. EPA, *Nationwide Urban Runoff Program*, Executive Summary, 1983).

Storm water runoff quality will also vary from storm to storm (inter-event variability) depending on a variety of conditions, including the characteristics of the storm event, the time between storms, conditions in the watershed, and time of year. This latter effect is particularly important in semi-arid environments where there is a dry and wet season, and where soil saturation and runoff vary greatly depending on the season and changes in long-term climate cycles. Because of this intra- and inter-event variability, storm water quality is often expressed and evaluated statistically.

The EMCs used to characterize the existing (and developed) storm water quality at the proposed project site are shown below in Table 4. This data was used to provide EMCs for the existing and proposed land uses because of the ready availability of the data, because the monitored land uses were representative of the proposed development land uses, and because the data evaluates storm water quality unique to specific land uses.

Comparison of existing versus proposed conditions is only possible when statistically determinate EMCs are available for all land uses listed, therefore, only the following pollutants are considered:

- Oxygen-Demanding Substances (COD, chemical oxygen demand, is used)
- Sediment (TSS, total suspended solids, is used)
- Metals (copper, lead, and zinc are used)
- Nutrients (TKN, total kjeldahl nitrogen, is used)

**TABLE 4**
**EMCS BASED ON LAND USE**

| Land Use[1] | Pollutant EMCs | | | | | |
|---|---|---|---|---|---|---|
| | **Oxygen-Demanding Substances** | **Sediment** | **Dissolved Metals** | | | **Nutrients** |
| | **COD** | **TSS** | **Cu** | **Pb[4]** | **Zn** | **TKN** |
| | **(mg/L)** | **(mg/L)** | **(µg/L)** | **(µg/L)** | **(µg/L)** | **(mg/L)** |
| Light Industrial | 80 | 240 | 20 | 4.5 | 407 | 3.0 |
| Commercial | 98 | 66 | 14 | 4.8 | 152 | 3.4 |
| Agriculture/ Vacant/Open Space[2] | 17 | 186 | 8.6[5] | ND[6] | 25.8[5] | 0.79 |
| Mixed-Use[3] | 81 | 64.5 | 13 | 3.8 | 117.5 | 2.95 |
| Public-Institutional[4] | 37 | 95 | 13 | 1.3 | 66 | 1.6 |

Notes:
1) EMCs for each land use are based on LA County Integrated Receiving Water Impacts Report (1994-2000), unless noted.
2) Agriculture is not a land use EMCs and use designation utilized in the LA County Report; EMCs are taken to be roughly equivalent to EMCs for vacant uses.
3) Mixed Use is not a land use designation utilized in the LA County Report; EMCs are taken to be roughly equivalent to the average of EMCs for Commercial and Mixed Residential land uses (except where EMCs were reported as "statistically invalid data" for one land use; then the EMC for the other land use was used), based on similarity in pollutants generated.
4) Public-Institutional is not a land use designation utilized in the LA County Report; EMCs are taken to be roughly equivalent to EMCs for Educational land uses.
4) EMCs reported by LA County Report are shown as "statistically invalid data". Therefore, EMCs as reported for Total Pb were used in computing the estimated dissolved fraction of Pb based on information provided by Sansalone et al (1997).
5) EMCs reported by LA County Report are shown as "statistically invalid data". Therefore, EMCs as reported for Total Cu and Total Zn were used in computing the estimated dissolved fractions based on fractions computed for other land uses (such as residential) from the LA County data.
6) ND = Not enough data detected above limits for both Dissolved and Total Pb.

In order to determine expected existing pollutant concentrations at the project site without having actual monitoring data, the EMCs from Table 4 have been prorated based on acreage of existing land uses, as shown in Table 1. Results are summarized in Table 5.

**TABLE 5**
**EXPECTED EXISTING POLLUTANT CONCENTRATIONS**

| Land Use | | | Pollutant EMCs | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Oxygen-Demanding Substances | Sediment | Metals | | | Nutrients |
| | | | COD | TSS | Cu | Pb | Zn | TKN |
| | (ac) | (%)* | (mg/L) | (mg/L) | (µg/L) | (µg/L) | (µg/L) | (mg/L) |
| Light Industrial | 364.5 | 49 | 39.2 | 117.6 | 9.8 | 2.2 | 199.4 | 1.5 |
| Commercial | 362.5 | 49 | 48.0 | 32.3 | 6.9 | 2.4 | 74.5 | 1.7 |
| Agriculture/Vacant | 16.2 | 2 | 0.34 | 3.7 | 0.17 | - | 0.52 | 0.02 |
| Total | 743.2 | 100 | 87.5 | 153.6 | 16.9 | 4.6 | 274.4 | 3.2 |

**Comparison with Water Quality Criteria**

The water quality criteria comparison includes the CTR criteria for trace metals and the water quality objectives specified in the Basin Plan. However, there are no direct Basin Plan numerical objectives for the constituents listed on Table 5 applicable to the project area. This section provides a comparison of the expected existing pollutant concentrations to the CTR Criteria. Table 6 provides a comparison of the existing metal concentrations with the CTR criteria. As shown, the estimated pollutant concentrations in existing site conditions are below the CTR criteria with the exception of the estimated dissolved zinc concentration which is estimated to be above the limits at 200 mg/l hardness.

**TABLE 6**
**ESTIMATED DISSOLVED METALS CONCENTRATIONS**
**EXISTING CONDITIONS COMPARED TO CTR CRITERIA**

| Parameter | Units | Existing Conditions | California Toxics Rule – Freshwater Criteria (Dissolved metals) | | | |
|---|---|---|---|---|---|---|
| | | | 400 mg/l Hardness | | 200 mg/l Hardness | |
| | | | Chronic | Acute | Chronic | Acute |
| Dissolved Copper | ug/L | 16.9 | 31 | 52 | 17 | 27 |
| Dissolved Lead | ug/L | 4.6 | 19 | 480 | 7.7 | 200 |
| Dissolved Zinc | ug/L | 274.4 | 390 | 390 | 220 | 220 |

# III. PROJECT IMPACTS

## A. SIGNIFICANCE THRESHOLD CRITERIA

This report provides an estimate of the potential impacts of the Platinum Triangle Project development on storm water quality. The analysis is based on a predetermined set of "significance threshold criteria". If the impacts are deemed significant, appropriate mitigation measures will need to be implemented.

The "significance threshold criteria" are based on requirements and guidelines set forth by regulatory requirements (discussed in Section 2), and Appendix G of the CEQA Guidelines As related to storm water quality, Appendix G of the CEQA indicates that a project will normally have a significant effect on the environment if it will: i) violate any water quality standards or waste discharge requirements; and ii) provide substantial additional sources of polluted runoff; otherwise substantially degrade water quality. The following is brief outline of the "significance threshold criteria" used in determining the project impacts as related to storm water quality issues. With these criteria in mind, the following "thresholds of significance" were used in evaluating the Platinum Triangle Project impacts:

**Existing verses post-construction storm water quality concentrations**

An increase of pollutant concentrations resulting from the development is evaluated in light of the significance criteria. If the pollutant concentrations after project development are predicted to remain the same or be reduced to below existing conditions, then it is concluded that the project will not cause a significant impact to ambient water quality of the receiving waters. If concentrations increase post project development, then potential impacts and mitigations to address these impacts are considered.

**Water Quality Criteria as provided in the Basin Plan Objectives and the CTR Criteria**

Per these regulations, and as presented in Section 2, numerical and narrative standards have been established. However, it should be noted that these standards are applicable to the receiving waters and should not be used as a direct measure of storm water quality from the project site. There is currently limited data on the conditions of the ambient receiving waters to determine the impacts from the project with respect to these standards. Therefore, these standards are provided for comparative basis only.

B. STORM WATER QUALITY IMPACTS

**Construction Storm Water Quality Impacts**

Pollutant export could increase significantly during the project construction. Initial clearing and grading operations during construction exposes much of the surface soils. Unless adequate erosion controls are installed and maintained at the site, significant quantities of sediment may be delivered to the downstream receiving water, along with attached soil nutrients and organic matter.

Erosion and sedimentation caused by construction activities are dependent upon on climatic and site conditions, as well as the degree of disturbance and type of construction project. Sediment resulting from the excessive erosion of disturbed soils, is the primary pollutant of concern. Other pollutants of concern are metals, nutrients, soil additives, pesticides, construction chemicals, and miscellaneous waste from construction sites. The following is brief overview of the potential construction type pollutants.

Nutrients: Nitrogen, phosphorous, and potassium are the major nutrients used for fertilizing new landscape at construction sites. Heavy use of commercial fertilizers can result in discharge of nutrients to water bodies where they may cause excessive algae growth.

Trace Metals: Over half of the metal load carried in storm water is associated with sediments (Schuler, 1987). Many of the uses during a construction project such as galvanized metals, paint, or preserved wood may contain metals. If uncontrolled, these metals may enter the storm water and impact the downstream receiving waters.

Pesticides: Unnecessary or improper application of pesticides may result in direct surface water contamination and/or indirect pollution by transport off soil surfaces into surface water.

Other Toxic Chemicals: If improperly stored and/or disposed of, synthetic organic compounds (such as adhesives, cleaners, sealants, and solvents) that may be used at construction sites will have a significant impact on receiving waters.

Miscellaneous Wastes: These may include wash water from concrete mixers, paints and painting equipment cleaning activities, solid wastes from land clearing activities, wood and paper material from packaging of building material, and sanitary wastes. Discharge of these wastes can lead to polluted waterways.

**Post Construction Storm Water Quality Impacts**

As was done under the existing condition evaluations, in order to determine expected proposed pollutant concentrations at the project site without having actual monitoring data, the EMCs from Table 4 were prorated based on acreage of proposed land uses, as shown in Table 7.

**TABLE 7**
**EXPECTED PROPOSED POLLUTANT CONCENTRATIONS**

| Land Use | | | Pollutant EMCs | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Oxygen-Demanding Substances | Sediment | Metals | | | Nutrients |
| | | | COD | TSS | Cu | Pb | Zn | TKN |
| | (ac) | (%) | (mg/L) | (mg/L) | (µg/L) | (µg/L) | (µg/L) | (mg/L) |
| Light Industrial | 130.8 | 18 | 14.4 | 43.2 | 3.6 | 0.81 | 73.3 | 0.54 |
| Commercial | 214.8 | 29 | 28.4 | 19.1 | 4.1 | 1.4 | 44.1 | 0.99 |
| Open Space | 2.3 | 0.3* | 0* | 0* | 0* | 0* | 0* | 0* |
| Mixed-Use | 375.5 | 50 | 40.5 | 32.3 | 6.5 | 1.9 | 58.8 | 1.5 |
| Public-Institutional | 19.8 | 3 | 1.1 | 2.9 | 0.39 | 0.04 | 2.0 | 0.05 |
| Total | 743.2 | 100 | 84.4 | 97.5 | 14.6 | 4.1 | 178.1 | 3.1 |

* Rounded to zero. .

*Comparison with Water Quality Criteria*

The water quality criteria comparison includes the CTR criteria for trace metals and the water quality objectives specified in the Basin Plan. However, as indicated previously, there are no direct Basin Plan numerical objectives for the constituents listed on Table 5 applicable to the project area. This section provides a comparison of the expected proposed pollutant concentrations to the CTR Criteria. Table 8 provides a comparison of the existing metal concentrations with the CTR criteria. As shown, the estimated pollutant concentrations in developed site conditions are well below the CTR criteria.

**TABLE 8**
**ESTIMATED DISSOLVED METALS CONCENTRATIONS**
**DEVELOPED CONDITIONS COMPARED TO CTR CRITERIA**

| Parameter | Units | Proposed Conditions | California Toxics Rule – Freshwater Criteria (Dissolved metals) | | | |
|---|---|---|---|---|---|---|
| | | | 400 mg/l Hardness | | 200 mg/l Hardness | |
| | | | Chronic | Acute | Chronic | Acute |
| Dissolved Copper | ug/L | 14.6 | 31 | 52 | 17 | 27 |
| Dissolved Lead | ug/L | 4.1 | 19 | 480 | 7.7 | 200 |
| Dissolved Zinc | ug/L | 178.2 | 390 | 390 | 220 | 220 |

*Comparison with Existing Condition Concentrations*

Table 9 summarizes the expected changes in pollutant concentrations for the proposed condition, with and without BMPs. The BMPs are discussed in Section III and their pollutant removal efficiencies are summarized on Table 11.

Even without any mitigation, concentrations of all considered constituents are predicted to decrease for the project under the proposed land use conditions as compared to existing conditions. The decreases in concentrations are the result of changes in land use, which in general will result in less light industrial/commercial and more missed uses. With implementation of the recommended mitigation measures (see Section III), these pollutant concentrations are expected to further decrease and the project water quality impacts (if any) fully mitigated. Therefore, with proper implementation of the recommended BMPs (structural and non-structural), project water quality conditions are expected to be better than existing conditions and impacts should be less than significant.

**TABLE 9**
**EXPECTED CHANGES IN POLLUTANT CONCENTRATIONS**
**PROPOSED CONDITION**
**MITIGATED AND UNMITIGATED**

| | Pollutant EMCs | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oxygen-Demanding Substances | | Sediment | | Metals | | | | | | Nutrients | |
| | COD | | TSS | | Cu | | Pb | | Zn | | TKN | |
| | (mg/L) | % Incr. | (mg/L) | % Incr. | (µg/L) | % Incr. | (µg/L) | % Incr. | (µg/L) | % Incr. | (mg/L) | % Incr. |
| Existing | 87.5 | -- | 153.6 | -- | 16.9 | -- | 4.6 | -- | 274.4 | -- | 3.2 | -- |
| Proposed (Unmitigated) | 84.4 | -4% | 97.5 | -37% | 14.6 | -14% | 4.1 | -11% | 178.2 | -35% | 3.1 | -3% |
| Mitigated w/ Biofiltration (Swale) | 27.9 | -68% | 18.5 | -88% | 7.2 | -57% | 1.4 | -70% | 51.7 | -81% | 1.9 | -41% |
| Mitigated w/ HSS | 84.4 | -4% | 77.0 | -50% | 14.6 | -14% | 3.1 | -33% | 147.9 | -46% | 3.0 | -6% |
| Mitigated w/Drain Inserts | 32.9 | -62% | 66.3 | -57% | 13.2 | -22% | 4.1 | -11% | 178.2 | -35% | 3.1 | -3% |

The first storm events typically have higher concentrations of pollutants due to accumulation during the dry months. Storm events occurring later in the wet season will typically have lower concentrations as less time elapses between storm events and less accumulation occurs. Given the low pollutant concentrations in site runoff expected with BMP treatment (discussed in Section IIII), it is not expected that there would be detrimental effects to the receiving waters.

# IIII. MITIGATION MEASURES

The approach used in selection of water quality control measures for the Platinum Triangle Project, involves consideration of both non-structural and structural BMPs to reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP) consistent with the regulatory agency requirements discussed in Section II. With the implementation of the proposed BMPs at the project site, the estimated average annual pollutants concentrations are anticipated to be further lowered (much lower than the existing conditions). Therefore, if implemented and maintained properly, the recommended BMPs would be beneficial in reduction of the project storm water loads.

As mentioned above, in addition to the recommended structural measures, a number of non-structural BMPs are recommended for the Platinum Triangle Project development. However, due to lack of meaningful data, it is currently not possible to provide data on pollutant concentration decreases associated with non-structural BMPs. However, with proper implementation of non-structural BMPs, significant reductions in the pollutant loads could be anticipated. Therefore, with the recommended structural and non-structural BMPs, the storm water quality impacts associated with the Platinum Triangle Project are anticipated to be less than significant. The following is a brief overview of construction BMPs as well as structural/non-strucutral BMPs recommended for the Platinum Triangle Project.

## A. CONSTRUCTION BEST MANAGEMENT PRACTICES

This section provides a brief summary of typical construction site BMPs, which may be implemented, as appropriate, during construction of the Platinum Triangle Project. The recommended BMP categories include measures for temporary sediment control, temporary soil stabilization, scheduling, preservation of existing vegetation, conveyance controls, wind control, temporary stream crossings, waste management as well as many other measures which may be implemented during the construction project. These measures are consistent with requirements set forth in the General Construction Permit. The following is a brief overview of BMPs directed at reducing storm runoff pollutants and eliminating non-storm water discharges:

### Erosion Control

During construction, erosion control techniques to retain soil and sediment on the site will need to be implemented. Particular attention must be paid to large mass-graded sites where the potential for soil exposure to the erosive effects of rainfall and wind is great. Typical measures which may be considered include appropriate vegetation of exposed areas, minimizing disturbed areas, diversion of runoff (such as earth dikes, temporary drains, slope drains), velocity reduction (outlet protection, check dams, and slope roughening/terracing) as well as dust control measures (such as sand fences, watering, etc).

**Stabilization**

All disturbed areas of the construction site must be stabilized during the project. Example measures may include: blankets, reinforced channel liners, soil cement, fiber matrices, geotextiles, or other erosion resistant soil coverings or treatments. The construction entrance/exist must also be stabilized (e,g. aggregate underdrain with filter cloth).

**Sediment Control**

These measures include BMPs that will prevent a net increase of sediment load in storm water discharge relative to pre-construction levels. Sediment control BMPs are recommended at appropriate locations along the site perimeter and at all operational internal inlets to the storm drain system at all times during the rainy season. Sediment control practices may include filtration devices and barriers (such as fiber rolls, silt fence, straw bale barriers, and gravel inlet filters) and/or settling devices (such as sediment traps or basins).

**Non-Storm Water Management**

Possible non-storm water discharges from the construction site to receiving waters must be properly controlled. Examples of non-storm water discharges include: watering for dust control purposes, and vehicle and equipment wash down wastes. Non-storm water discharges should be eliminated or reduced to the extent feasible.

These above mentioned measures are consistent with requirements set forth under the General Construction Permit. These BMPs are directed at reducing storm runoff pollutants and eliminating non-storm water discharges.

Also, prior to start of soil-disturbing activity at the project site, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) will need to be prepared in accordance with and in order to partially fulfill the California State Water Resources Control Board Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 (General Construction Permit). The SWPPP shall meet the applicable provisions of Sections 301 and 402 of the CWA by requiring controls of pollutant discharges that utilize best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to reduce pollutants. The SWPPP will need to be implemented concurrently with commencement of the soil-disturbing activity. The SWPPP will need to be certified in accordance with the signatory requirements of the General Construction Permit.

The SWPPP shall be developed and amended or revised, when necessary, to meet the following objectives:

a. Identify all pollutant sources including sources of sediment that may affect the quality of storm water discharges associated with construction activity (storm water discharges) from the construction site, and
b. Identify non-storm water discharges, and

c Identify, construct, implement in accordance with a time schedule, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction, and

d Develop a maintenance schedule for BMPs installed during construction designed to reduce or eliminate pollutants after construction is completed (post-construction BMPs).

The SWPPP shall remain at the site during construction working hours, commencing with the initial construction activity and ending with termination of coverage under the General Permit. As a minimum, the SWPPP shall include detailed description of the following:

- Source Identification
- Erosion Control
- Stabilization
- Sediment Control
- Non-Storm Water Management
- Post-Construction Storm Water Management
- Maintenance, Inspection, and Repair
- Training
- List of Contractors/Subcontractors

Also the SWPPP may incorporate by reference the appropriate elements of other plans (e.g. Spill Prevention Plan) required by local, State, or Federal agencies.

Per the April 26, 2001 modification to the General Construction Permit, a contingency "Sampling and Analysis Plan" should be developed in the event that the BMPs implemented at the construction site fail to prevent non-visible pollutants from discharging from the site. Inspections of all BMPs are required at prior to storm events, every 24 hours during extended events and after the storm events. The main focus of these inspections should be to ensure proper function of the BMPs and identify necessary repairs in a timely manner. A record of the inspections and repairs should be documented in the SWPPP.

Following the completion of the construction project and when the site has been stabilized, a Notice of Termination must be filed with the RWQCB. As discussed in the General Construction Permit, a construction site is considered to be stabilized when a uniform vegetative cover with 70 percent of the native vegetative cover has been established or equivalent stabilization measures have been employed.

In addition, before the rainy season, a separate erosion control plan must be submitted to the local municipality describing the erosion control measures that will be implemented during the rainy season.

## B. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES

### Structural BMPs

There are a number of post-construction structural or treatment control BMPs that can be used to minimize or prevent the introduction of storm water pollutants from re-development (and/or new development) projects. Post-construction structural best management practices (BMPs) provide treatment for storm water emanating from the project site. Implementation of NPDES General Permit requirements entails the use of post-construction BMPs that will remain in service to protect water quality throughout the life of the project. Structural BMPs are an integral element of post-construction storm water management and include storage, filtration, and infiltration practices. BMPs have varying degrees of effectiveness versus different pollutants of concern (See Table 10).

**TABLE 10**
**STRUCTURAL/TREATMENT CONTROL BMP SELECTION MATRIX**

Legend: High Removal Efficiency; Medium Removal Efficiency; Low Removal Efficiency

| **Pollutant of Concern** | Structural/Treatment Control BMPs: Biofilters | Detention Basins | Infiltration Basins | Wet Ponds or Wetlands | Drainage Inserts | Filtration | Hydrodynamic Separators |
|---|---|---|---|---|---|---|---|
| Sediment | Medium | High | High | High | Medium | High | Medium |
| Nutrients | Low | Medium | Medium | Medium | Medium | Medium | Low |
| Heavy Metals | Medium | Medium | Medium | High | Medium | High | Low |
| Oxygen Demanding Substances | Low | Medium | Medium | Medium | Low | Medium | Low |

*Treatment Control BMP Selection*

As indicated previously and shown on Table 9, even without any BMPs, concentrations of all of the constituents considered in this study are predicted to decrease for the project under the proposed land use conditions as compared to existing conditions. The decreases in concentrations are the result of the change in land uses, which will result in less industrial/commercial uses and more mixed uses. With implementation of any one of the recommended mitigation measures outlined above, these pollutant concentrations are expected to further decrease and the project water quality impacts (if any) fully mitigated. The final selection of the BMP type, exact number and location of the BMPs may be done in the future phases of the project.

The selection, design and siting of structural BMPs within a project depend largely on the project-wide drainage plan. BMP alternatives were evaluated for their relative effectiveness for treating potential pollutants from the project site (see Table 10); as well as site feasibility; relative costs and benefits; and applicable legal, institutional, and other constraints.

The applied BMP removal efficiencies for mitigated conditions are included in Table 9. Various data sources were examined to estimate the anticipated performance of proposed BMPs and to include the American Society of Civil Engineers (ASCE), California Department of Transportation (Caltrans), Environmental Protection Agency (EPA) database as well as others. For these BMPs, ranges of BMP removal efficiencies were compiled and then average BMP removal efficiencies were applied. Data sources are included in the Reference list of this report.

For the Platinum Triangle project, the limiting factor in BMP selection is available land for their implementation. Because there is limited open space, detention basins, infiltration basins, and wet ponds/wetlands are not feasible for this project. In addition, filtration technologies, while not requiring as much land as basins, still require more land than is typically available in already developed urban areas. The following is a list of typical BMPs, which may be considered for this project are as follows:

- Biofiltration Systems (swales)
- Drain Inserts
- Hydrodynamic Separators Systems (HSS)

The following is a very brief description of these BMPs including maintenance requirements:

*Biofiltration Systems (swales)*

Biofiltration swales are vegetated channels specifically designed to remove particulates and to reduce the velocity of runoff through the storm system. Swales typically provide low to moderate treatment efficiencies and are mainly effective at removing debris and solid particles. Vegetated swales also help minimize overland and concentrated flow depths and velocities. Figure 3 shows a conceptual schematic of a swale.

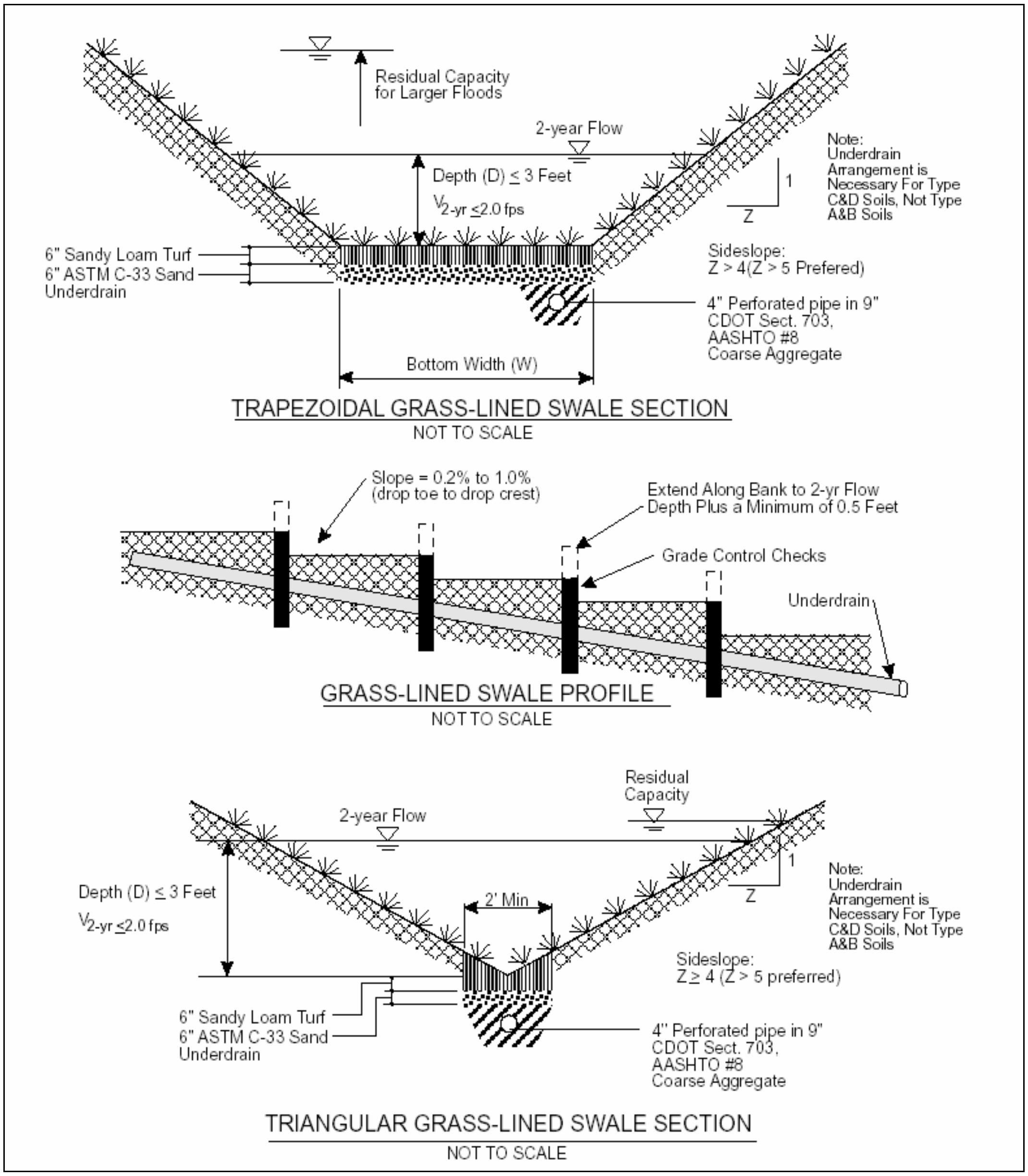



*Figure 3 Schematic Biofiltration (swale) System*

Typical maintenance and monitoring requirements for swales include:

- Vegetation management to maintain adequate hydraulic functioning.
- Animal and vector control.
- Periodic sediment removal to optimize performance.
- Trash, debris, grass trimmings, tree prunings, and leaf collection and removal to prevent obstruction.
- Removal of standing water, which may contribute to the development of aquatic plant communities or mosquito breeding areas.

- Erosion and structural maintenance to prevent the loss of soil and maintain the performance of the swale.

*Hydrodynamic Separator Systems (HSS)*

Hydrodynamic separation systems (HSS) are flow-based, flow-through BMPs that are installed within a storm drain line in order to remove large sediment particles and associated storm water pollutants, as well as trash, oils, and grease. They are typically designed to allow particulate matter to fall out of suspension and settle in a collection chamber, while floatable materials are collected above the water surface.

Figure 4 shows a conceptual schematic of an HSS. Although maintenance requirements vary greatly depending on the particular model and manufacturer, they are typically maintained quarterly to yearly for clean-outs. Cleaning after a storm event may also be required. Inspection will be required to make certain that the unit is operating correctly and to make any repairs.

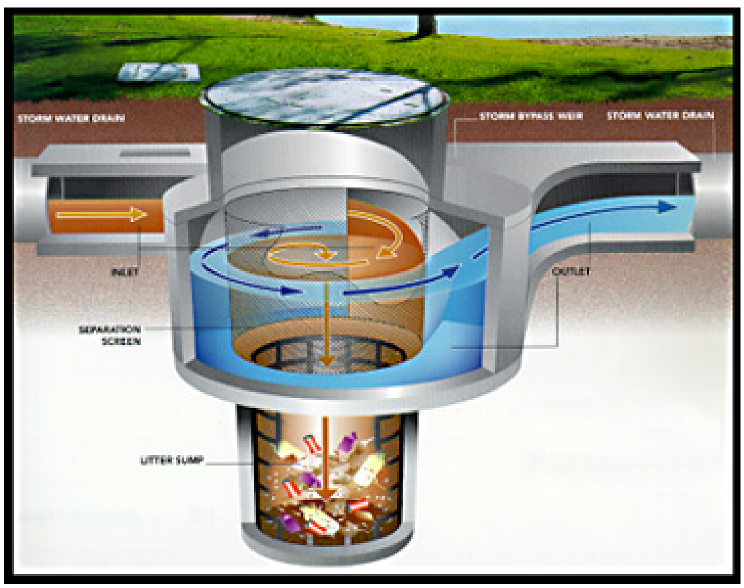



*Figure 4 Schematic HSS*

*Catch Basin Inserts*

Catch basin inserts (Figure 5) are flow-based BMP options for consideration at various locations to treat runoff before it enters the storm drain system by filtering or screening out sediments and associated storm water pollutants during dry weather and low flow events. During large flow events, they are typically designed to allow storm water runoff to bypass the inlet device and continue directly into the storm drain system. Although treatment levels are generally low for the pollutants of concern for this project, the inserts would provide pre-treatment of storm water runoff prior to further treatment at downstream BMPs. Although maintenance requirements vary greatly depending on the particular model and manufacturer, they are typically maintained quarterly to yearly for clean-outs. Cleaning after a storm event and in anticipation of storm events after extended dry periods or periods of typical debris removal will also likely be required and is recommended. Inspection will be required to make certain that the unit is operating correctly and to make any repairs.

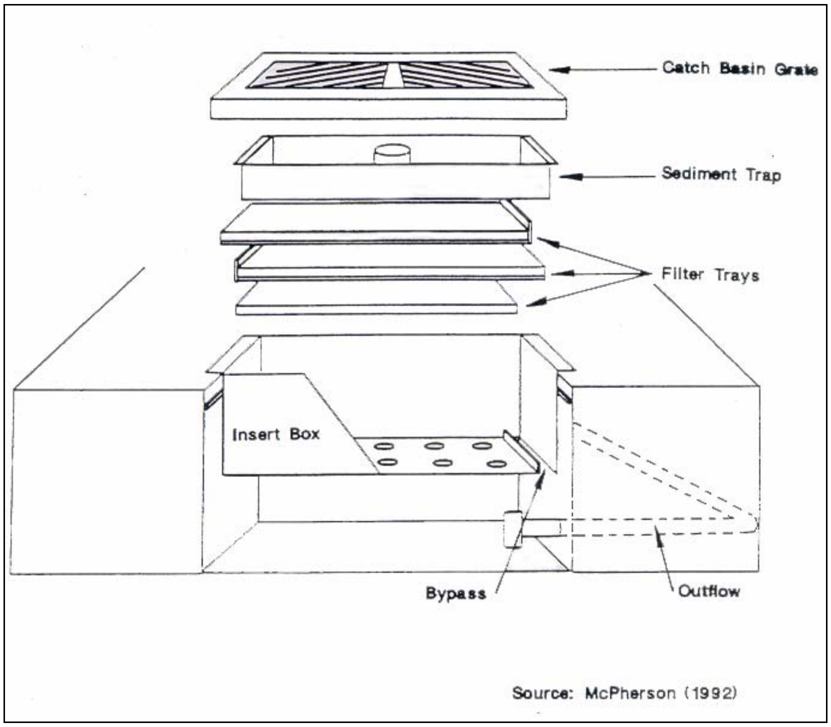



*Figure 5 Catch Basin Inserts*

Typical removal efficiencies for these BMPs for the pollutants under consideration are summarized in Table 11 and used in the estimation of post-construction mitigated conditions for the Platinum Triangle Project presented in Table 9.

**TABLE 11**
**REMOVAL EFFICIENCIES FOR SELECTED BMPS**

| | Removal Efficiencies | | | | | |
|---|---|---|---|---|---|---|
| | **Oxygen-Demanding Substances** | **Sediment** | **Metals** | | | **Nutrients** |
| | **COD** | **TSS** | **Cu** | **Pb** | **Zn** | **TKN** |
| Swales | 67% | 81% | 51% | 67% | 71% | 38% |
| HSS | 0% | 21% | -- | 24% | 17% | 5% |
| Catch Basin Inserts | 61% | 32% | 9.5% | -- | -- | -- |

As is shown on Table 9, with implementation of the recommended structural BMPs, pollutant concentrations are significantly reduced below their existing levels. For other pollutants where structural BMPs may not completely mitigate increases in concentrations, or where post-mitigation pollutant levels cannot be estimated, it will be important to implement non-structural measures to provide additional mitigation. With the proper implementation and regular maintenance of the proposed BMPs, it is anticipated that project impacts related to surface water quality will be mitigated to less than significant levels.

**Non-structural BMPs**

In addition to the proposed structural post-construction BMPs described above, the following non-structural or source control BMPs may be applicable and should be considered for the Platinum Triangle Project development.

It is recommended that once construction is completed, street sweeping frequencies be evaluated. The accumulation of sediment and debris will vary with the type and volume of vehicle and pedestrian traffic using the roadways. For high traffic areas, monthly street sweeping is recommended, while in areas with low rates of traffic and little pedestrian use annual or semi-annual street sweeping may be sufficient to collect the majority of debris likely to accumulate during the year.

For common areas such as landscaping areas, the selection of "low-impact" vegetation should be encouraged. The vegetation could be native and/or non-invasive plants that require minimal irrigation, fertilizing and pest control. The use of pesticides and herbicides should be kept to a minimum and guidance for landscaping contractors will be developed to minimize the amount of such applications and maximize the benefits.

An education program should include both the education of residents regarding water quality issues and also target landscaping contractors. In addition, building occupants should be aware of other service contractors whose services could adversely affect water quality, such as carpet cleaners and others who may not properly dispose of cleaning wastes. Community car washes should only take place in areas that are drained to the sanitary sewer system. Residential car washing should be addressed through educational channels (e.g. brochures, television, radio, workshops, etc.). Driveways should, were possible, be designed to drain to front yard landscaping to minimize impacts from washing of vehicles.

Because of the concerns regarding indicators of human pathogens, education programs should emphasize animal waste management, such as the importance of cleaning up after pets and not feeding wild animals, such as pigeons, seagulls, ducks and geese. Features that attract wild animals should be kept to minimum, however for aesthetic reasons, these features will most likely be present and the potential health risk should be made clear to the public.

Finally, it is recommended that the non-structural BMP program implement some form of materials management controls as discussed in Section II. With proper implementation of these BMPs (and the recommended structural BMPs), it is anticipated that project impacts related to surface water quality will be mitigated to less than significant levels.

## V. CUMULATIVE IMPACTS AND MITIGATIONS

Cumulative impacts and mitigations are evaluated relative to the build out of the entire subwatersheds (Drainage Districts 25, 26, and 27) of the Santa Ana River Watershed in which the project lies.

The cumulative effects on water quality of future development within the watershed could be adverse and possibly significant. The nature of the land uses involved, the manner in which runoff is controlled prior to discharge, and the manner in which urban wastes are managed and prevented from becoming part of the storm water runoff would all affect the significance of such cumulative water quality impacts. The Santa Ana RWQCB's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters within the Region. The Plan includes narrative and numerical water quality objectives for several constituents and parameters that must be attained or maintained to protect the designated beneficial uses of the river and its tributaries. The Regional Water Quality Control Board, therefore, has the authority to regulate water quality in Orange County, including the Santa Ana River Watershed, and it is the responsibility of the local jurisdictions (i.e., Orange County and City of Anaheim) to ensure that future development within the watershed would be subject to the same or similar types of water quality requirements as the proposed project. Therefore, with these requirements in place, no cumulative water quality impacts are anticipated.

In conclusion, all cumulative projects within the tributary watershed and within other undeveloped areas of the City are required to meet the same or similar general water quality requirements as the proposed project, and other site-specific requirements. These requirements serve to avoid the potential for creating water quality impacts in the Santa Ana River and its tributaries.

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