

Appendix H. Low Impact Development Plan



Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING

LOW IMPACT DEVELOPMENT (LID)

FOR:

OMP GARDENA INDUSTRIAL CENTER
1600 W. 135TH STREET
GARDENA, CA 90249
APNs: 6102-013-026, -027 AND -029

OWNER:

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OCTOBER 25, 2021

JOB NO. 3564

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LOW IMPACT DEVELOPMENT (LID)

FOR

“OMP GARDENA INDUSTRIAL CENTER”



PREPARED BY LUIS PRADO
UNDER THE SUPERVISION OF:

REINHARD STENZEL
R.C.E. 56155
EXP. 12/31/2022

10/25/21
DATE

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1.0 Project Description

The project site is located at 1600 W. 135th Street in the City of Gardena, at APNs 6102-013-026, -027 and -029 of Los Angeles County (Figure 1 – Vicinity Map). The project site consists of two properties: the north property and south property. The north property encompasses approximately 8.60 acres while the south property encompasses approximately 2.40 acres. Proposed improvements to the north property consist of the construction of one commercial type building of approximately 191,230 square feet. A truck yard will be located along the south side of the building. Vehicle parking will be located along the south and north sides of the building. Landscaping will be provided adjacent to W. 135th Street and throughout the project site. Proposed improvements to the south property consist of the demolition of the northerly building and replacing it with new concrete pavement. The remaining portion of the southerly property will remain undisturbed. Since the project is disturbing less than 50 percent of the southerly property LID requirements only apply to the disturbed areas.

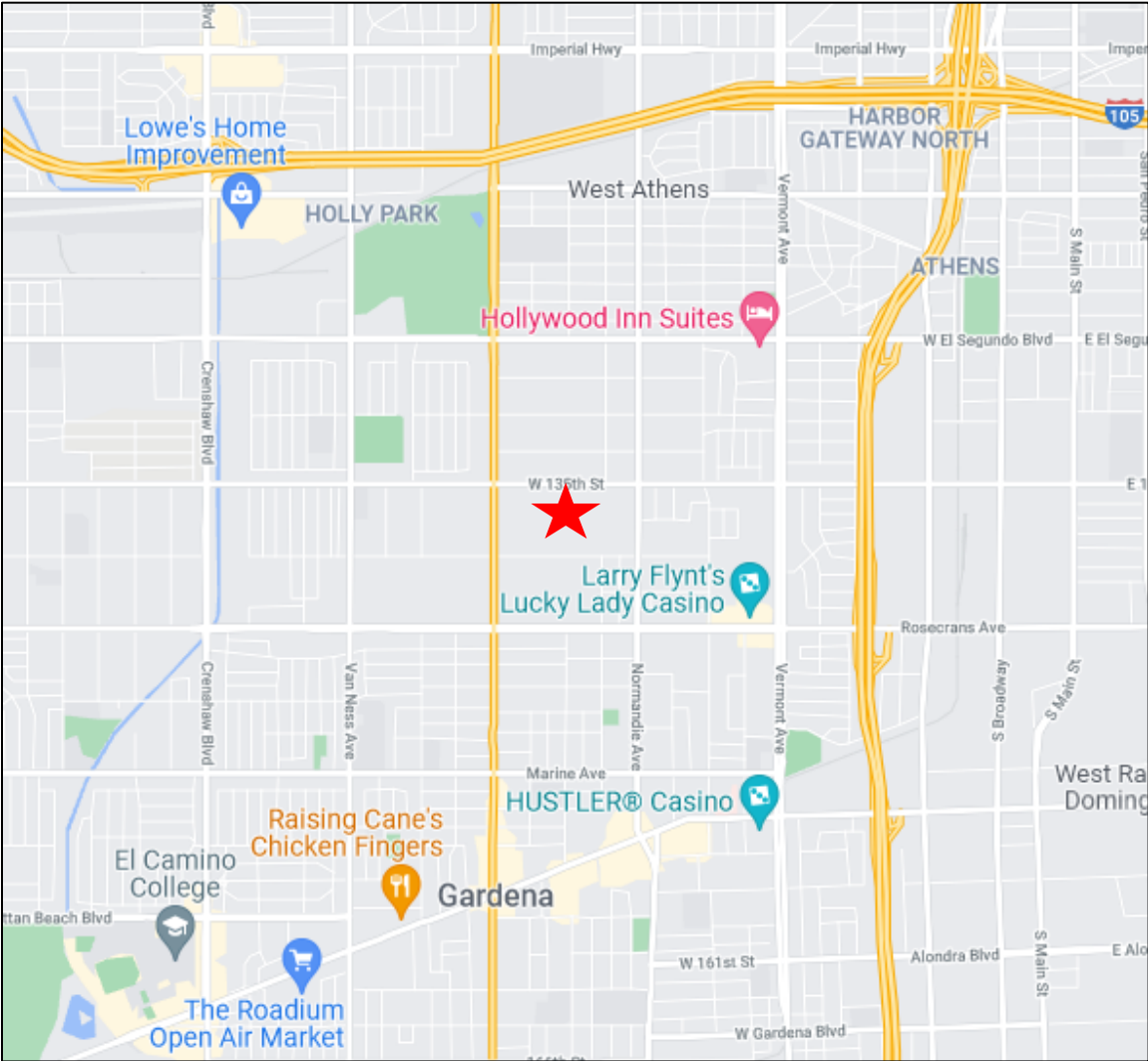


Figure 1 - Vicinity Map (North↑)

The project will treat stormwater runoff generated by the project through the use of WetlandMOD biofiltration systems and underground detention systems sized to treat 1.5 times the Stormwater Quality Design volume (SWQDv). The 1.5x SWQDv is achieved by multiplying the 85th percentile rainfall depth by 1.5. Refer to Appendix A for references and calculations.

1.1 Existing Site Description

The project site has eight warehouse type buildings and several smaller outbuildings. The entire site is paved and there is auto parking and various outdoor equipment. The grading plan for the existing development wasn't available, hence existing drainage is based on surveyed conditions. No clear drainage path exists, but many inlets and outlets were observed during the field survey.

There are several 4" curb opening drains along the northeasterly frontage of the site. It is possible that the roof drains for the approximately 56,231 square foot building drain through the curb directly to 135th street. The site generally drains southerly to many drop inlets scattered around the site. There is a larger inlet in the southwesterly corner of the northern parking lot, but without the grading plan it is unclear where the runoff travels.

By connecting the drop inlets and assuming that the difference in grate elevations indicate flow direction towards storm drain manholes, it appears that the southern portion of the north property and the south property drain southerly towards 139th Street.

The westerly neighboring site currently drains onto the proposed project site. The runoff is collected in the drop inlets in the drive isle along the westerly side of the southerly property and appears to drain towards 139th Street along with the onsite runoff.

1.2 Proposed Site Description

The north property is tabled to the existing public storm drain (Project No. 537) in W. 135th Street. In the proposed condition, runoff from the north property including the building roof, the northerly vehicle parking, east and westerly drive isles, and the truck yard all drain southerly to the truck yard. This allows for storm water to be detained to reduce peak flow rates to meet the County's requirements.

Runoff from the northerly portion of the roof and northerly vehicle parking will drain to catch basins in the drive isle. A private storm drain will convey the storm water westerly then southerly around the west side of the building. Catch basins in the drive isle will collect runoff and tie into the storm drain. The storm drain will continue southerly then turn easterly into the truck yard. Three catch basins will collect runoff from the southerly portion of the building roof, truck yard, and easterly drive isle.

The storm drain will then wrap back around the westerly site of the building and flow north towards 135th Street. The private drain will connect to the existing 8'6" x 3' box.

The south property is tabled to the existing public storm drain (Project No. 3501) in 139th Street. A catch basin in the proposed truck yard will collect the runoff and a storm drain will convey runoff southerly through the drive isle towards 139th Street. The southern building adjacent to 139th Street will be left as-is.

A portion of the frontage along W. 135th Street (Subarea 1C, 0.20 acres) comprised of landscape and some driveway will sheet flow offsite without being routed to the proposed LID BMPs. The landscaping is considered self-treating.

Prior to discharging offsite, the 1.5x SWQDv will be diverted via a separate storm drain system towards the underground detention systems. From the detention systems, the SWQDv will be pumped into at-grade proprietary biofiltration devices (WetlandMod) that utilize the MS4 Permit's Attachment H soils for treatment. The pump is designed to pump a low flowrate that is equal to or slightly greater than the WetlandMod's treatment flowrate. This flowrate is intended to drain/treat the 1.5x SWQDv within the allotted 96 hours. Pumped flows exceeding the WetlandMod's treatment flowrate will overflow into a return pipe and outlet back into the upstream pump's wet well. Since the pump's flowrate is small, stormwater is designed/expected to back-up and fill the detention system. Once the detention system is full, it is understood that the 1.5x SWQDv has been achieved and stormwater will again back-up into the main storm drain line (serving the site) that ultimately discharge into existing public storm drains in W. 135th Street and 139th Street. After the storm event has passed, no additional flows will enter the detention system. The detention system will slowly deplete as stormwater is being pumped through the WetlandMod for treatment over 96 hours. Treated flows will outlet back into the onsite storm drain system prior to discharging offsite. See Appendix A for detailed calculations.

1.3 Geological Investigation/Infiltration Feasibility

Draft Phase I Environmental Site Assessment (ESA) prepared July 20, 2021

According to the draft Phase I ESA, since at least 1993, several investigations have been completed at the site. Soil, soil gas, and groundwater at the site have been found to be impacted with VOCs, namely tetrachloroethene (PCE) and trichloroethene (TCE). Soil and groundwater characterization and remediation are being completed under the direction and oversight of the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) under a voluntary basis. The site vicinity has been used for industrial/manufacturing purposes for over 50 years. Some of the adjacent facilities may have contributed to the VOC groundwater issues.

Due to soil and groundwater contamination, infiltration is not recommended. Instead, the project proposes the use of WetlandMod biofiltration systems and underground detention systems. Refer to Appendix F for a draft of the Phase I ESA.

2.0 Project Specific Requirements

The proposed project within the north property is a redevelopment project disturbing the entire property; therefore, the entire site must meet the requirements of Los Angeles County's Low Impact Development Standards Manual (February 2014).

The proposed project within the south property is a redevelopment project disturbing less than 50 percent of the impervious surface and the previous development project was not subject to post-construction stormwater quality control measures; therefore, only the proposed disturbed areas must meet the requirements of Los Angeles County's Low Impact Development Standards Manual (February 2014). Refer to sheet 1 of the LID Site Map for a visual representation of the disturbed areas.

2.1 Peak Storm Water Runoff Discharge Rates

Based on hydrology calculations from Los Angeles County Department of Public Works, the northerly property is tabled to Project No. 537 in W. 135th Street and the southerly property is tabled to Project No. 3501 in 139th Street. The official allowable discharge rate is pending, but based on conversations with the County it is assumed that the allowable peak flow rate for the site is 1.0 cfs/acre.

2.2 Source Controls

Source control measures are designed to prevent pollutants from contacting stormwater runoff or prevent discharge of contaminated stormwater runoff to the storm drain system and/or receiving water. This section describes structural-type, source control measures that must be considered for implementation in conjunction with appropriate nonstructural source control measures, such as good housekeeping and employee training, to optimize pollution prevention.

Source control measures should be implemented to the maximum extent practicable to mitigate pollutant mobilization from the project site in stormwater and non-stormwater runoff. A summary of the source control measures that should be implemented for each type of project is summarized below.

2.2.A Storm Drain Message and Signage (S-1)

All proposed and any existing inlets to remain will be stenciled with prohibitive language and/or graphical icons to prevent dumping. Legibility of the stencils/markers will be maintained on a yearly basis, or as needed.

2.2.B Outdoor Material Storage Area (S-2)

There are no proposed outdoor material storage areas for this project. Any and all materials will be stored indoors.

2.2.C Outdoor Trash Storage/Waste Handling Areas (S-3)

Not applicable

2.2.D Outdoor Loading/Unloading Dock Area (S-4)

The proposed project will construct one aboveground truck dock in the north property. The concrete surface is designed to minimize run-on to the loading docks and will be treated by biofiltration. Dock area flows are captured by inlets that utilize drain inserts to filter out pollutants prior to entering the underground chambers and proprietary biofiltration unit. Additionally, the proposed building will be utilized as a warehouse for finished goods and consequently, items being loaded and unloaded do not have the potential to contribute to stormwater pollution.

2.2.F Outdoor Vehicle/Equipment Repair/Maintenance Area (S-5)

Not applicable

2.2.G Outdoor Vehicle/Equipment Accessory Wash Area (S-6)

Not applicable

2.2.H Fuel & Maintenance Area (S-7)

Not applicable

2.2.I Landscape Irrigation Practices (S-8)

Install irrigation systems that utilize a weather-based smart irrigation controller to minimize water usage and reduce dry weather urban runoff.

2.2.J Building Materials (S-9)

Not applicable

2.2.K Animal Care and Handling Facilities (S-10)

Not applicable

2.2.L Outdoor Horticulture Areas (S-11)

Not applicable

2.3 Low Impact Development (LID)

2.3.A Infiltration

Refer to section 1.3 Geotechnical Investigation/Infiltration Feasibility.

2.3.B Harvest and Use

This concept was not utilized because it is an industrial facility where the amount of impervious area is much greater than landscape and toilet use. However, stormwater is detained for biofiltration prior to discharging offsite.

2.3.C Biofiltration

Prior to discharging offsite, the 1.5x SWQDv will be diverted via a separate storm drain system towards the underground detention systems. From the detention systems, the SWQDv will be pumped into at-grade proprietary biofiltration devices (WetlandMod) that utilize the MS4 Permit's Attachment H soils for treatment. The pump is designed to pump a low flowrate that is equal to or slightly greater than the WetlandMod's treatment flowrate. This flowrate is intended to drain/treat the 1.5x SWQDv within the allotted 96 hours. Pumped flows exceeding the WetlandMod's treatment flowrate will overflow into a return pipe and outlet back into the upstream pump's wet well. Since the pump's flowrate is small, stormwater is designed/expected to back-up and fill the detention system. Once the detention system is full, it is understood that the 1.5x SWQDv has been achieved and stormwater will again back-up into the main storm drain line (serving the site) that ultimately discharge into existing public storm drains in W. 135th Street and 139th Street. After the storm event has passed, no additional flows will enter the detention system. The detention system will slowly deplete as stormwater is being pumped through the WetlandMod for treatment over 96 hours. Treated flows will outlet back into the onsite storm drain system prior to discharging offsite. See Appendix A for detailed calculations.

2.4 Hydromodification

The proposed site is tributary to an engineered channel (Dominguez Channel) that is regularly maintained and is not susceptible to hydromodification impacts. In addition, the onsite water quality BMPs will assist in increasing the time of concentration and discharging flows at a control rate.

2.5 Conserve Natural Areas

During the subdivision design and approval process, the site layout must be consistent with the applicable General Plan and Local Area Plan policies and implement the following:

- *Concentrate or cluster development on portions of the site while leaving the remaining land in a natural undisturbed condition;*
- *Limit clearing and grading of native vegetation at the site to the minimum amount needed to build lots, allow access, and provide fire protection;*
- *Maximize trees and other vegetation at the site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants;*
- *Promote natural vegetation by using parking lot islands and other landscaped areas;*
- *Preserve riparian areas and wetlands.*

The property was previously developed with no natural areas to conserve.

2.6 Minimize Storm Water Pollutants of Concern

Stormwater runoff from a site has the potential to contribute oil and grease, suspended solids, metals, gasoline, pesticides, and pathogens to the stormwater conveyance system. The development must be designed so as to minimize, to the maximum extent practicable, the introduction of pollutants of concern that may result in significant impacts, generated from site runoff of directly connected impervious areas (DCIA), to the stormwater conveyance system as approved by the building official. Pollutants of concern, 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.

In meeting this specific requirement, “minimization of the pollutants of concern” will require the incorporation of a BMP or combination of BMPs best suited to maximize the reduction of pollutant loadings in that runoff to the Maximum Extent Practicable.

Anticipated pollutants generated from the proposed development are:

- Suspended Solids
- Total Phosphorus
- Total Nitrogen
- Total Kjeldahl Nitrogen
- Cadmium, Total
- Chromium, Total
- Copper, Total
- Lead, Total
- Zinc, Total

The receiving waters and their impairments are:

- Dominguez Channel (lined portion above Vermont Ave): Copper, Diazinon, Indicator Bacteria, Lead, Toxicity, and Zinc.
- Dominguez Channel Estuary (unlined portion below Vermont Ave): Benthic Community Effects, Benzo(a)pyrene (3-4-Benzonpyrene-7-d), Benzo(a)anthracene, Chlordane (tissue), Chrysene (C1-C4), Copper, Indicator Bacteria, DDT (tissue & sediment), Dieldrin (tissue), Lead, PCBs (Polychlorinated biphenyls), Phenanthrene, Pyrene, Toxicity and Zinc (sediment).
- Los Angeles Harbor – Consolidated Slip: 2-Methylnaphthalen, Benthic Community Effects, Benzo(a)anthracene, Benzo(a)pyrene, Cadmium (sediment), Chlordane (tissue & sediment), Chromium, Chrysene (C1-C4), Copper (sediment), DDT (tissue & sediment), Dieldrin, Lead (sediment), Mercury (sediment), PCBs (Polychlorinated biphenyls) (tissue & sediment), Phenanthrene, Pyrene, Toxaphene (tissue), Toxicity and Zinc (sediment).
- Los Angeles/Long Beach Inner Harbor: Beach Closures, Benthic Community Effects, Benzo(a)pyrene (3-4-Benzonpyrene-7-d), Chrysene (C1-C4), Copper, DDT (Dichlorodiphenyltrichloroethane), PCBs (Polychlorinated biphenyls), Toxicity, and Zinc.

The pollutants of concern of the project site are:

- Heavy Metals
- Nutrients

The proposed project will disconnect runoff from impervious areas by means WetlandMOD biofiltration systems and underground detention. Inlets are used to intercept “low flows” towards the biofiltration systems for treatment prior to discharging offsite.

2.7 Protect Slopes and Channels

Project plans must include BMPs consistent with local codes and ordinances and LID to decrease the potential of slopes and/or channels from eroding and impacting stormwater runoff:

- *Convey runoff safely from the tops of slopes and stabilize disturbed slopes.*
- *Utilize natural drainage systems to the maximum extent practicable.*
- *Control or reduce or eliminate flow to natural drainage systems to the maximum extent practicable.*
- *Stabilize permanent channel crossings.*
- *Vegetate slopes with native or drought tolerant vegetation.*
- *Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion, with the approval of all agencies with jurisdiction, e.g., the U.S. Army Corps of Engineers and the California Department of Fish and Game.*

The proposed project site is located on a flat terrain. There are no slopes, natural drainage systems, or channel crossings to protect.

2.8 Provide Proof of Ongoing BMP Maintenance

Improper maintenance is one of the most common reasons why water quality controls will not function as designed or which may cause the system to fail entirely. It is important to consider who will be responsible for maintenance of a permanent BMP, and what equipment is required to perform the maintenance properly. If Structural or Treatment Control BMPs are required or included in project plans, the applicant must provide verification of maintenance provisions through such means as may be appropriate, including, but not limited to legal agreements, covenants, CEQA mitigation requirements and/or Conditional Use Permits.

The verification will include the developer's signed statement, as part of the project application, accepting responsibility for all Structural and Treatment Control BMP maintenance until the time the property is transferred and, where applicable, a signed agreement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance. The transfer of property to a private or public owner must have conditions requiring the recipient to assume responsibility for maintenance of any Structural or Treatment Control BMP to be included in the sales or lease agreement for that property, and will be the owner's responsibility. The condition of transfer shall include a provision that the property owners conduct maintenance inspection of all Structural or Treatment Control BMPs at least once a year and retain proof of inspection. For residential properties where the Structural or Treatment Control BMPs are located within a common area, which will be maintained by a homeowner's association, language regarding the responsibility for maintenance must be included in the project's conditions, covenants and restrictions (CC&Rs). Printed educational materials will be required to accompany the first deed transfer to highlight the existence of the requirement and to provide information on what stormwater management facilities are present, signs that maintenance is needed, how the necessary maintenance can be performed, and assistance that the Permittee can provide. The transfer of this information shall also be required with any subsequent sale of the property.

Structural or Treatment Control BMPs located within a public area proposed for transfer will be the responsibility of the developer until accepted for transfer by the appropriate public agency. Structural or Treatment Control BMPs proposed for transfer must meet design standards adopted by the public entity for the BMP installed and should be approved by the appropriate public agency prior to its installation.

The property owner/operator will maintain proof of ongoing maintenance at the site as recorded in the covenant and agreement (see Appendix D).

2.9 Design Standards for Structural or Treatment Controls BMPs

The proposed project within the north property is a redevelopment project disturbing the entire property; therefore, the entire site must meet the requirements of Los Angeles County's Low Impact Development Standards Manual (February 2014).

The proposed project within the south property is a redevelopment project disturbing less than 50 percent of the impervious surface and the previous development project was not subject to post-

construction stormwater quality control measures; therefore, only the proposed disturbed areas must meet the requirements of Los Angeles County's Low Impact Development Standards Manual (February 2014). Refer to sheet 1 of the LID Site Map for a visual representation of the disturbed areas.

Prior to discharging offsite, the 1.5x SWQDv will be diverted via a separate storm drain system towards the underground detention systems. From the detention systems, the SWQDv will be pumped into at-grade proprietary biofiltration devices (WetlandMod) that utilize the MS4 Permit's Attachment H soils for treatment. The pump is designed to pump a low flowrate that is equal to or slightly greater than the WetlandMod's treatment flowrate. This flowrate is intended to drain/treat the 1.5x SWQDv within the allotted 96 hours. Pumped flows exceeding the WetlandMod's treatment flowrate will overflow into a return pipe and outlet back into the upstream pump's wet well. Since the pump's flowrate is small, stormwater is designed/expected to back-up and fill the detention system. Once the detention system is full, it is understood that the 1.5x SWQDv has been achieved and stormwater will again back-up into the main storm drain line (serving the site) that ultimately discharge into existing public storm drains in W. 135th Street and 139th Street. After the storm event has passed, no additional flows will enter the detention system. The detention system will slowly deplete as stormwater is being pumped through the WetlandMod for treatment over 96 hours. Treated flows will outlet back into the onsite storm drain system prior to discharging offsite. See Appendix A for detailed calculations.

2.10 Provisions Applicable to Individual Priority Project Categories

2.10.A Parking Lots

2.10.A.1 Properly Design Parking Area

Parking lots contain pollutants such as heavy metals, oil and grease, and polycyclic aromatic hydrocarbons that are deposited on parking lot surfaces by motor-vehicles. These pollutants are directly transported to surface waters. To minimize the offsite transport of pollutants, the following design criteria are required:

- *Reduce impervious land coverage of parking areas.*
- *Infiltrate runoff before it reaches storm drain system.*
- *Treat runoff before it reaches storm drain system.*

The proposed project is designed so that pollutants from the impervious surfaces are disconnected prior to discharging offsite. Runoff from the parking lots is conveyed to the biofiltration units for treatment.

2.10.A.2 Properly Design to Limit Oil Contamination and Perform Maintenance

Parking lots may accumulate oil, grease, and water insoluble hydrocarbons from vehicle drippings and engine system leaks.

- *Treat to remove oil and petroleum hydrocarbons at parking lots that are heavily used (e.g. fast food outlets, lots with 25 or more parking spaces, sports event parking lots, shopping malls, grocery stores, discount warehouse stores).*
- *Ensure adequate operation and maintenance of treatment systems particularly sludge and oil removal, and system fouling and plugging prevention control.*

The project owner will ensure that grease and oil are contained. The parking lot will be swept on a monthly basis, minimum, and before any rain events. Absorbent materials will be used to collect any spilled oil, and disposed of properly, to ensure they do not contaminate stormwater. Drain inserts will be installed at all onsite catch basins. Hydrocarbon booms from the drain inserts are highly effective in the removal of hydrocarbons.

2.11 Waiver

A Permittee may, through adoption of an ordinance or code incorporating the treatment requirements of LID, provide for a waiver from the requirement if impracticability for a specific property can be established. A waiver of impracticability shall be granted only when all other Structural or Treatment Control BMPs have been considered and rejected as infeasible. Recognized situations of impracticability include, (i) extreme limitations of space for treatment on a redevelopment project, (ii) unfavorable or unstable soil conditions at a site to attempt infiltration, and (iii) risk of ground water contamination because a known unconfined aquifer lies beneath the land surface or an existing or potential underground source of drinking water is less than 10 feet from the soil surface. Any other justification for impracticability must be separately petitioned by the Permittee and submitted to the Regional Board for consideration. The Regional Board may consider approval of the waiver justification or may delegate the authority to approve a class of waiver justifications to the Regional Board Executive Officer. The supplementary waiver justification becomes recognized and effective only after approval by the Regional Board or the Regional Board Executive Officer. A waiver granted by a Permittee to any development or redevelopment project may be revoked by the Regional Board Executive Officer for cause and with proper notice upon petition.

The proposed project does not require a waiver of impracticability from any LID conditions.

2.12 Mitigation Funding

The Permittees may propose a management framework, for endorsement by the Regional Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

- *A waiver for impracticability is granted;*

- *Legislative funds become available;*
- *Off-site mitigation is required because of loss of environmental habitat; or*
- *An approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.*

No management framework for mitigation funding is necessary for the proposed project.

Funding will be the responsibility of the owner:

OVERTON MOORE PROPERTIES
19700 S. VERMONT AVENUE, SUITE 101
TORRANCE, CA 90502
PHONE: (310) 323-9100
CONTACT: KANEN MONTANA

2.13 Limitation on Use of Infiltration BMPs

Three factors significantly influence the potential for storm water to contaminate ground water. They are (i) pollutant mobility, (ii) pollutant abundance in storm water, (iii) and soluble fraction of pollutant. The risk of contamination of groundwater may be reduced by pretreatment of storm water. A discussion of limitations and guidance for infiltration practices is contained in, Potential Groundwater Contamination from Intentional and Non-Intentional Stormwater Infiltration, Report No. EPA/600/R-94/051, USEPA (1994).

In addition, the distance of the groundwater table from the infiltration BMP may also be a factor determining the risk of contamination. A water table distance separation of ten feet depth in California presumptively poses negligible risk for storm water not associated with industrial activity or high vehicular traffic.

Infiltration BMPs are not recommended for areas of industrial activity or areas subject to high vehicular traffic (25,000 or greater average daily traffic (ADT) on main roadway or 15,000 or more ADT on any intersecting roadway) unless appropriate pretreatment is provided to ensure groundwater is protected and the infiltration BMP is not rendered ineffective by overload.

See Section 1.3 of this LID report for details.

2.14 Alternative Certification for Storm Water Treatment Mitigation

In lieu of conducting detailed BMP review to verify Structural or Treatment Control BMPs adequacy, a Permittee may elect to accept a signed certification from a Civil Engineer or a Licensed Architect registered in the State of California, that the plan meets the criteria established herein. The Permittee is encouraged to verify that certifying person(s) have been trained on BMP design for water quality, not more than two years prior to the signature date. Training conducted by an organization with storm water BMP design expertise (e.g., a University, American Society of Civil Engineers, American Society of Landscape Architects,

American Public Works Association, or the California Water Environment Association) may be considered qualifying.

A California licensed civil engineer has provided a detailed BMP review of this report.

2.15 Resources and Reference

California Storm Water Best Management Practices Handbooks for Construction Activity (2009), Municipal (2003), and Industrial/Commercial (2003).