

## **2.8 Water Quality and Storm Water Runoff**

### **2.8.1 Regulatory Setting**

#### **2.8.1.1 Federal Requirements: Clean Water Act**

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

### **2.8.1.2 State Requirements: Porter-Cologne Water Quality Control Act**

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required

by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

### ***State Water Resources Control Board and Regional Water Quality Control Boards***

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**

#### *Municipal Separate Storm Sewer Systems (MS4)*

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department's MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

### **Construction General Permit**

Construction General Permit, Order No. 2009-2009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than

one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

### **Section 401 Permitting**

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

## **2.8.2 Affected Environment**

This section is based on the Water Quality Assessment Report (2018) prepared for the project and the Water Quality Technical Memorandum (2016/2018 Addendum) prepared for Component 2 (Safety Component).

### **2.8.2.1 Surface Water**

This project is within the San Juan Hydrologic Unit (HU) and the Laguna Canyon Hydrologic Area (901.12) of the San Diego Regional Water Quality Control Board (RWQCB 2016) located in south Orange County. The project is located within the 11-square mile Laguna Coastal Streams Watershed and discharges to Laguna Canyon Creek, which runs parallel to State Route 133 (Laguna Canyon Road) and merges with El Toro creek at the intersection of Laguna Canyon Road and El Toro Road. The creek continues towards downtown Laguna Beach and ultimately discharges to the Pacific Ocean at Main Beach.

Laguna Canyon Creek is an 11-square-mile watershed that includes portions of the cities of Aliso Viejo, Laguna Beach, and Laguna Woods. Laguna Canyon creek begins north of Laguna Lakes and receives drainage from Little Sycamore Canyon, Camarillo Canyon, and El Toro Creek. Laguna Canyon Creek runs parallel to Laguna Canyon Road, underneath the San Joaquin Hills Transportation Corridor, through the city of Laguna Beach, and underneath the Pacific Coast Highway, before emptying into the Pacific Ocean. The creek is joined by a few small, unnamed drainages and larger tributaries as it makes its way through the watershed. The watershed covers the eastern boundary of Emerald Canyon watershed on the west and western boundary of Aliso Creek watershed on the east.

### ***Surface Water Quality Objectives and Standards***

Surface flows within Laguna Canyon creek consist primarily of perennial creek flows and the ephemeral flows from the smaller tributaries of the watershed. Laguna Creek at the project location receives a majority of flows from Laguna Coast Wilderness Park and some smaller tributaries from Aliso Viejo and Laguna Woods. Laguna canyon creek ultimately discharges to the Pacific Ocean at Main beach 4 miles downstream from the project location. The water quality in the Pacific Ocean along the Laguna Coastal Streams consistently ranks among the cleanest in Southern California with regard to Ocean Plan objectives.

The following numeric water quality objectives were listed in the San Diego RWQCB Basin Plan for the Laguna HA of the San Juan HU:

- Total Dissolved Solids: 1000 mg/L
- Chloride: 400 mg/L
- Sulfate: 500 mg/L
- Percent Sodium (Na): 60 percent
- Phosphorus: 0.1 mg/L
- Iron: 0.3 mg/L
- Manganese: 0.05 mg/L
- Methylene Blue Active Substances (MBAS): 0.5 mg/L
- Boron: 0.75 mg/L
- Turbidity: 20 Nephelometric Turbidity Units (NTUs)
- Fluoride: 1 mg/L

The San Diego RWQCB Basin Plan has designated the following surface water beneficial uses for Laguna Canyon Creek at the project location:

- **Agriculture Supply (AGR):** Waters are used for farming, horticulture or ranching. These uses include but are not limited to irrigation, stock watering, and support of vegetation for range grazing.
- **Water Contact Recreation (REC-1):** Waters are used for recreation activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs.
- **Non-Contact Water Recreation (REC-2):** Waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.
- **Warm Freshwater Habitat (WARM):** Waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
- **Wildlife Habitat (WILD):** Water support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.

The SWRCB approved the 2012 Integrated Report (Clean Water Act Section 303[d] List/305 [b]) on April 8, 2015. On July 30, 2015, the EPA approved the 2012 California 303(d) List of Water Quality Limited Segments. The segment of Laguna Canyon Creek in the project area is designated as impaired under the Section 303(d) of the Clean Water Act (CWA) for unknown sources of toxicity and sediment toxicity.

Laguna Canyon Creek ultimately discharges to the Pacific Ocean, which falls under the established Total Maximum Daily Load (TMDL) for indicator bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek). San Diego RWQCB adopted resolution No. R9-2010-0001 incorporating the TMDL into the San Diego Basin Plan and identified in Attachment IV of the Caltrans Statewide NPDES Permit (Order No. 2012-0011-DWQ as amended in Order No. 2014-0077-DWQ). Since this project discharges to a water body with an established TMDL as identified in Attachment IV of the Caltrans NPDES permit, any runoff treated in excess of the new impervious area created by the project may be claimed as a Compliance Unit (CU) to meet Caltrans NPDES permit requirements for achieving the TMDL compliance strategy.

### **2.8.2.2 Groundwater**

The project area is located in the Laguna Creek and Niguel Creek basins that drain exclusively from the San Joaquin Hills into the ocean. The drainage basin is roughly 6.5 miles long and averages 1.5 miles wide between its boundaries. The upper or northern half of the basin is relatively wide with low subdued hills, whereas the lower half is narrow with steep slopes forming Laguna Canyon. Elevations reach 1,000 feet (ft) above sea level in parts of the drainage basin.

The groundwater basin lies along the Canyon bottom following Laguna Canyon Road. The average annual rainfall is about 12 inches at Laguna Beach at the mouth of Laguna Creek and at times rainfall in the San Joaquin Hills is sufficient to cause sharp, damaging floods along Laguna Creek. Deterioration in the quality of groundwater caused the Laguna Canyon County Water District to import water. Currently, there is no active pumping of groundwater for supplemental domestic use and the Laguna Canyon County Water District imports all of its water from the Metropolitan Water District of Southern California.



### **Groundwater Quality and Objectives and Standards**

The San Diego RWQCB Basin Plan has designated beneficial uses for ground waters of the Lower San Juan Hydrologic Unit (1.00). The existing beneficial uses for ground water in Laguna Hydrologic Area (1.12) are:

- **Municipal and Domestic Supply (MUN):** Waters are used for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to drinking water supply.
- **Agriculture Supply (AGR):** waters are used for farming, horticulture or ranching. These uses include but are not limited to irrigation, stock watering, and support of vegetation for range grazing.

The following numeric water quality objectives were listed in the San Diego RWQCB Basin Plan for the Laguna HA of the San Juan HU:

- Total Dissolved Solids: 1200 mg/L
- Chloride: 400 mg/L
- Sulfate: 500 mg/L
- Percent Sodium (Na): 60 percent
- Phosphorus: 0.1 mg/L
- Iron: 0.3 mg/L
- Manganese: 0.05 mg/L
- Methylene Blue Active Substances (MBAS): 0.5 mg/L
- Boron: 0.75 mg/L
- Turbidity: 5 Nephelometric Turbidity Units (NTUs)
- Fluoride: 1 mg/L

### **2.8.3 Environmental Consequences**

#### **2.8.3.1 Temporary Impacts**

##### ***Alternative 1 (Build Alternative)***

Temporary impacts to water quality that can be anticipated during construction for the Build Alternative includes soil disturbing activities such as excavation and trenching, soil compaction, cut and fill activities and grading. Types of construction activities that can cause the transport of sediment includes excavation/trenching for the undergrounding of utility lines and the construction of drainage facilities and permanent treatment Best Management Practices, cut/fill and grading activities for the shoulder widening. The DSA created by these activities is susceptible to high

rates of erosion from wind and rain that result in sediment transport during rain events via storm water runoff.

The project will also have to manage materials and wastes associated with a construction project such as oil and grease spills or leaks from heavy equipment or vehicle used for construction, trash from workers and construction waste, petroleum products from construction equipment and/or vehicles, sanitary wastes from portable toilets and any other chemicals used for construction such as coolants used for equipment and/or concrete curing compounds.

It is anticipated that the project will not encounter groundwater during the construction but if project requires the discharge of groundwater encountered/ extracted during the construction, or if clear water/stream diversion is necessary for the modification, extension or construction of drainage facilities, the discharge must comply with General Waste Discharge Requirements (WDRs) from the San Diego Regional Water Quality Control Board. This WDR addresses temporary dewatering operations during construction. Dewatering BMPs must be used to control sediment and pollutants, and the discharges must comply with the WDRs issued by the San Diego RWQCB. Project Feature PF-WQ-6 would minimize any temporary impact due to the discharge of groundwater to surface water.

**PF-WQ-6** If dewatering is required, Construction site dewatering must comply with the General Waste Discharge Requirements for Groundwater Extraction Discharges to Surface Waters within the San Diego Region (Order No. R9-2015-0013, NPDES No. CAG919003) and any subsequent updates to the permit at the time of construction. This Permit addresses temporary dewatering operations during construction. Dewatering BMPs must be used to control sediment and pollutants, and the discharges must comply with the WDRs issued by the San Diego RWQCB.

The project's estimated DSA is 7.84 acres, which will require the project to comply with the Construction General Permit (CGP). The Build Alternative will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) and determine a Risk Level based on potential erosion and transport to receiving waters. The SWPPP will identify temporary BMPs to address the potential temporary impacts to water quality. The BMPs identified in the project SWPPP will include measures such as temporary soil stabilization measures, linear sediment barriers (i.e., silt fence,

gravel bag berms, fiber rolls), and construction site waste management (i.e., concrete washout, construction materials storage, litter/waste management and construction site dewatering). Project Features PF-WQ-2 and PF-WQ-3 would minimize any temporary impacts to the receiving waters.

**PF-WQ-2** The project will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-0009-DWQ, NPDES No. CAS000002 and any subsequent permits in effect at the time of construction.

**PF-WQ-3** The project will comply with the Construction General Permit by preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include BMPs to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management, and non-storm water BMPs. All work must conform to the Construction Site BMP requirements specified in the latest edition of the Storm Water Quality Handbooks: Construction Site Best Management Practices Manual to control and minimize the impacts of construction and construction-related activities, material, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.

### ***Alternative 2 (No Build Alternative)***

Under the No Build Alternative, no improvements other than routine roadway maintenance would be made. The No Build Alternative would result in no short-term water quality impacts from construction-related activities.

### **2.8.3.2 Permanent Impacts**

#### ***Alternative 1 (Build Alternative)***

The Build Alternative will result in an increase in impervious surface, which will result in an increase in storm water runoff. The existing impervious surface at the project location for the Build Alternative is approximately 8.0 acres. With the

widening of the existing shoulders, the additional impervious surface created by the project is 1.6 acres. This alternative does not involve any lane additions but proposes to extend the second travel lane from the El Toro Road intersection by 1200 ft in the northbound direction and 900 ft in the southbound direction and will taper back to one lane at the end of the project limits (Component 2, which was approved as part of the 2017 IS/MND/CE). The increase of impervious surface will solely be from the shoulder widening (Component 3) and the travel lane extension (Component 2). Pollutants typically generated during the operation of a transportation facility include sediment/turbidity, nutrients, trash and debris, bacteria and viruses, oxygen demanding substances, organic compounds, oil and grease, pesticides and metals. Although the impervious surface will increase due to the widening of the existing shoulders and extension of the travel lane (Components 2 and 3), the increase in impervious surface caused by the project is relatively small. The project will extend the existing travel lane and therefore create a minimal pollutant loading that is typically found with the addition of a new travel lane.

The construction of the lane extension, shoulder widening, trenching for utilities, grading slopes and drainage facilities will also include the construction of permanent source control BMPs also known as Design Pollution Prevention BMPs. Design Pollution Prevention BMPs such as slope/surface protection systems (vegetated surfaces, benching/terracing, slope rounding and hard surfaces), concentrated flow conveyance systems (i.e., Rock Slope Protection [RSP], ditches, berms dikes, swales, overside drains, flared culvert end sections and velocity dissipation devices such as riprap) and preservation of existing vegetation will be implemented to address any long-term impacts associated with the construction of the proposed project.

To address the build alternative long term impacts, the project will incorporate Caltrans approved treatment BMP and/or evaluate Low Impact Development (LID) strategies consistent with the Caltrans Statewide NPDES permit. Project Features PF-WQ-1 and PF-WQ-5 would minimize any permanent impacts to water quality.

**PF-WQ-1**                      The project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction.

**PF-WQ-5** Caltrans approved treatment Best Management Practices (BMPs) will be implemented consistent with the requirements of National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include biofiltration strips, biofiltration swales, infiltration basins, detention devices, dry weather flow diversion, gross solids removal devices (GSRDs), media filters, and wet basins.

In addition to evaluating and incorporating treatment BMPs, Caltrans will incorporate Design Pollution Prevention (Source Control) BMPs to ensure that adequate measures are included to minimize pollutant sources such as erosion from the project improvements. Project Feature PF-WQ-4 would minimize any permanent impacts to water quality.

**PF-WQ-4** Design Pollution Prevention BMPs will be implemented, such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes and swales, overside drains, flared end sections, and outlet protection/velocity dissipation devices.

***Alternative 2 (No Build Alternative)***

Under the No Build Alternative, no improvements other than routine roadway maintenance would be made. The No Build Alternative would not increase the impervious surface to the area; however, existing runoff would continue.

**2.8.4 Avoidance, Minimization, and/or Mitigation Measures**

The project will incorporate project features and standardized measures that include temporary and permanent BMPs as outlined above. With the implementation of these project features, no adverse impacts to water quality would occur. No avoidance, minimization, and/or mitigation measures are required.

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