# *STORMWATER REPORT*

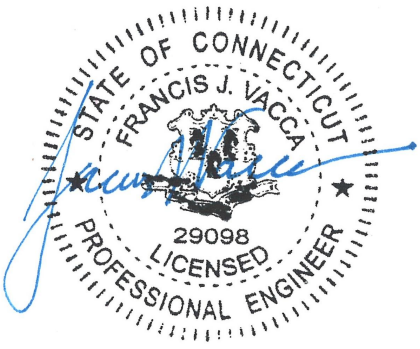
**CASADORO RISTORANTE & BAR PARKING LOT EXPANSION**
**2929 BERLIN TURNPIKE**
**NEWINGTON, CONNECTICUT**

JANUARY 2026

Owner/Applicant:

**Berlin Turnpike 2929, LLC**
208 Murphy Road
Hartford, CT 06114

BSC Job Number: 0100605.00

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## 1.01 PROJECT DESCRIPTION

Doro Restaurant Group is proposing to construct an expansion to an existing parking lot at 2929 Berlin Turnpike in Newington, Connecticut. The approximately 3.57 acre property is bounded by Berlin Turnpike to the east, the Turnpike Plaza to the west and south, and Louis Street to the north. Historically, approximately 2.60 acres of the site was with several restaurants and parking. Today, approximately 2.02 acres of the lot is currently in use, consisting of the restaurant and associated parking.

The project is proposing to construct an expansion of the existing parking facilities, pedestrian bridge, stormwater management systems, and other site improvements, including clearing and regrading of the previously developed portion of the site.

There is a wetland located on the property. The proposed improvements will take place within the local 100-foot regulated activity buffer review area. The are no improvements or site disturbance proposed within the wetland.

The proposed project has been designed to comply with the 2024 Connecticut Stormwater Quality Manual (WQM), 2024 Connecticut Guidelines for Soil Erosion & Sediment Control (E&S Manual), 2000 Connecticut Department of Transportation Drainage Manual (CTDOT Drainage Manual), and local municipal standards.

## 1.02 PRE-DEVELOPMENT CONDITIONS

The site is primarily developed with an existing restaurant and associated parking with some historically developed and now overgrown land. Site topography generally slopes west towards a drainage ditch abutting Turnpike Plaza along the western property line. There is an existing stormwater management system including an infiltration basin on the site. The majority of surface runoff is captured by the existing stormwater system and conveyed via piping to the infiltration basin. Once treated, the stormwater from the site is discharged to a drainage ditch to the west of the site. The remainder of the site, consisting of wooded land, to the south of the property sheet flows offsite to the drainage ditch.

Review of the UDA NRCS Web Soil Survey indicates that the site is comprised primarily of two soil types. For the purpose of hydrologic analysis for the project, the site was divided into areas of similar hydrologic soil groups (HSG). The western portion of the site is made of HSG “A” soils, characterized as very well-drained soils. The eastern portion of the site is made up of HSG “B” soils, characterized as well-drained soils. The Web Soil Survey is included in Appendix C.

## 1.03 POST-DEVELOPMENT CONDITIONS

As a redevelopment project located in a mix of soil drainage types, the intent of the proposed stormwater management system is to strategically place the proposed stormwater BMPs within soil groups best suited for stormwater infiltration to meet the requirements of the WQM.

The proposed stormwater management for the project has been designed to address both water quality and water quantity. The site has been graded to maintain or reduce existing. The site has been graded to maintain or reduce existing drainage areas to the existing stormwater management system. The portion of runoff associated with new proposed impervious area will be collected by one of two Focal Point proprietary bio-retention BMP systems, both of which discharge into an underground infiltration system.

A subsurface infiltration basin reduces stormwater runoff volumes and pollutant loads, and helps to recharge groundwater, by capturing, temporarily storing, and infiltrating stormwater in permeable soils below the bottom of the BMP. Pollutant removal occurs through physical filtering, adsorption of pollutants onto soil particles, and

subsequent biological and chemical conversion in the soil. The system has been designed with an overflow to safely pass larger storm events. In accordance with the WQM, surface runoff from impervious surfaces subject to potential pollutant loads will be directed to focal points for pre-treatment prior to entering the underground infiltration basin.

The "Focal Point" stormwater basins are designed to function similarly to bio-retention systems, providing water quality treatment by infiltrating stormwater through a proprietary media blend. The "Rain Guardian" inlet units provide pre-treatment through the use of filters. Stormwater that infiltrates through the "Focal Point" is collected in an underground infiltration chamber to provide groundwater recharge and peak runoff mitigation. The infiltration chambers have been designed with an overflow system to safely pass larger storm events.

The proposed stormwater management systems are focused on the proposed 1.38-acre development, which is where the new impervious areas and ground disturbance will take place.

## 2.01 Stormwater Standard 1 – Runoff Volume and Pollutant Reduction

Per the WQM Stormwater Management Standard #1, the project should *preserve pre-development hydrology and pollutant loads to protect water quality and maintain groundwater recharge.*

Water Quality Volume

The goal of this section of Stormwater Standard #1 is to for new developments and redevelopments with less than 40% existing directly connected impervious area (DCIA) to retain 100% of the water quality volume (WQV) onsite and redevelopments with greater than 40% existing DCIA to retain 50% of the WQV onsite. The volume of runoff required to be retained onsite is the required retention volume (RRV).

As a new development project, the project proposes to meet the requirements through the implementation of the following measures:

1. One (1) subsurface infiltration basin and two (2) "Focal Point" proprietary bioretention systems are proposed to provide the RRV for the associated catchment area. The two Focal Point systems directly discharge to the subsurface infiltration basin to provide the RRV. The subsurface infiltration basin BMP provides infiltration volume below the lowest outlet, with high level overflows for larger storm events. The system has been designed to fully drain within 48 hours in accordance with the WQM.
2. The remainder of the site, most of which is pervious, will sheet flow overland offsite.

**Table 2-1**

| BMP Catchment | Imp. Area (ac) | WQV Required (cf) | WQV Provided (cf) |
|---|---|---|---|
| Infiltration Basin | 0.78 | 2,536 | 2,657 |
| Uncontrolled | 0.08 | 69 | N/A |
| Total Site | 0.86 | 2,605 | 2,657 |

Table 2-1 above indicates that the total treated and retained WQV for the site will exceed the required WQV. Computations for WQV are included in Section 6.01.

Note that a small portion of the proposed development will drain to the existing Casadoro Ristorante & Bar detention basin, which has previously been designed to provide water quality treatment. Peak runoff to the existing basin is reduced from the pre-development condition. Therefore, it was not considered in Table 2-1 above.

TSS, Pollutant, and Nutrient Removal

The goal of this section of Stormwater Standard #1 is for projects to meet the minimum average annual pollutant load reductions of stormwater runoff in accordance with Table 4-3. Projects that meet the RRV are assumed to meet the pollutant reduction standards, therefore this Standard has been fully met.

## 2.02 Stormwater Standard 2 – Stormwater Runoff Quantity Control

Per the WQM Stormwater Management Standard #2, the project should *not exceed pre-development peak flow rates and manage the volume and timing of runoff to prevent downstream flooding, channel erosion, and other adverse impacts, and safely convey flows into, through, and from structural stormwater BMPs.*

Watershed modeling was performed using HydroCAD Stormwater Modeling Software version 10.20, a computer aided design program that combines SCS runoff methodology with standard hydraulic calculations. A model of the site's hydrology was developed for both pre- and post-development conditions to assess the effects of the proposed development on the project site and surrounding areas.

Stormwater runoff was modeled using rainfall data from the NOAA Atlas 14 Point Precipitation Frequency Database. A Storm Type of NOAA10, Storm Curve D, 24-hour duration was used for each rainfall event.

**Table 2-2**

| **Storm Frequency** | **NOAA 14++ Rainfall (Inches)** |
|---|---|
| 2-year | 3.24 |
| 10-year | 5.13 |
| 25-year | 6.31 |
| 100-year | 8.13 |

The peak rates of runoff for pre- and post-development conditions are provided in the following table:

**Table 2-3**

| Storm Discharge Comparison | | | | |
|---|---|---|---|---|
| Discharge Point | Storm Event | Existing (cfs) | Proposed (cfs) | Difference (cfs) |
| 1 | 2-year | 1.17 | 1.07 | -0.10 |
| | 10-year | 2.56 | 2.43 | -0.34 |
| | 25-year | 3.55 | 3.43 | -0.24 |
| | 100-year | 5.17 | 4.89 | 4.82 |

The above table demonstrates that the peak runoff rate for each design storm will decrease from pre- to post-development for all modeled storm events for Discharge Point 1.

Conveyance Protection

The goal of this section of Stormwater Standard #2 is for projects to *design the conveyance system leading to, from, and through structural stormwater BMPs based on the post-development peak flow rate associated with the 10-year, 24-hour or larger magnitude design storm.*

The stormwater piping conveying the outlet from the proposed underground infiltration system to the stabilized outfall has been sized to accommodate the discharge associated with the 100-year storm.

## 2.03 Stormwater Standard 3 – Construction Soil Erosion and Sediment Control

Per the WQM Stormwater Management Standard #3, the project should *design, install, and maintain effective soil erosion and sedimentation control measures during construction and land disturbance activities. Consideration for final site stabilization should also be included during the development of a SESC Plan.*

An Erosion & Sedimentation Control Plan, construction drawings, and construction details have been developed for the proposed project to demonstrate compliance with this Standard and the CT E&S Manual. Provisions for operations and maintenance during construction are included in Section 3 of this report.

## 2.04 Stormwater Standard 4 – Post-Construction Operation and Maintenance

Per the WQM Stormwater Management Standard #4, the project should *perform long-term maintenance of structural stormwater management systems to ensure that they continue to function as designed and implement operational source control and pollution prevention measures.*

Provisions for post-construction operations and maintenance are included in Section 4 of this report.

## 2.05 Stormwater Standard 5 – Stormwater Management Plan

Per the WQM Stormwater Management Standard #5, the project should *document how the proposed stormwater management measures meet the stormwater management standards, performance criteria, and design guidelines.*

The intent of this Stormwater Management Report is to meet Stormwater Standard #5 and demonstrate compliance with the WQM for the proposed project.

## 2.06 Conclusion

The project has been designed in accordance with local standards, the CT DEEP WQM, CT DEEP E&S Manual, and CTDOT Drainage Manual. The Stormwater Standards have been met to the maximum extent practicable for the proposed new development project.

## 3.0 CONSTRUCTION PERIOD EROSION AND SEDIMENTATION CONTROL PLAN

The objective of temporary erosion control during construction is to minimize the area of exposed soil, control runoff rate and direction, and provide for rapid stabilization of exposed areas. Prior to any construction activity, trenched silt fence and/or staked hay bales will be placed down gradient of the proposed work areas. The fence/barrier will provide some sediment control, as well as provide a limit of construction activity.

Construction entrances will be utilized to remove sediment from construction vehicle tires and prevent it from being tracked onto adjoining paved roadway areas.

Any excavated and stockpiled topsoil will be contained within staked hay bales and silt fence. Topsoil locations have been shown on the Erosion and Sediment Control (E&S) Plan. Erosion-prone areas to be left exposed for extended periods (>30 days) will be mulched and seeded for temporary vegetative cover. After construction, all exposed areas will be graded, mulched and re-vegetated with appropriate ground cover. The silt fence and/or hay bales will remain in place until groundcover is established.

Filter inserts will be used to collect sediment that may be carried in the storm runoff during construction. Filter inserts will be placed in each existing catch basin, yard drain, dry well, and in each new catch basin during construction and until all disturbed areas of the site have been stabilized. Replacement of the insert shall be as often as necessary to prevent excessive ponding due to clogged fabric.

Temporary diversion swales may be constructed to direct storm runoff away from disturbed areas. Stone or hay bale check dams will be installed at intervals along the swales to reduce the runoff velocity. In areas of excessive grade changes, temporary pipe slope drains will be constructed to convey runoff flows down the face of slopes without causing erosion problems. The diversion swales will outlet into temporary sediment traps.

Dewatering settling basins will be utilized where groundwater is encountered in trenching, foundation excavation, or any other excavation. The dewatering wastewaters will be infiltrated into the ground or discharged, after filtration into the nearest catch basin.

Throughout all phases of construction, the erosion control measures will be routinely inspected and cleaned, repaired, and replaced as necessary. See Section 4.0 entitled “Operation and Maintenance Plan” for more details.

Throughout the construction process, extra stocks of hay bales and silt fence will be kept on-site to replace those that become damaged and/or deteriorated.

Any erosion and sediment control measures, which, upon inspection, are found to be damaged, deteriorated or not functioning properly, will be repaired, replaced, and corrected immediately after inspection.

Areas which are mulched or seeded for temporary vegetative cover will be inspected for proper cover at the end of each workday if precipitation is forecast and prior to weekends. Additional seeding or mulch will be placed as necessary.

The temporary erosion and sediment control systems will not be removed until all stormwater drainage system components are in place, cleaned and working properly and until permanent vegetative cover and other stabilization measures are established.

The following maintenance procedures shall be followed by the Contractor for temporary and permanent erosion and sedimentation measures and stormwater treatment systems installed during the construction period:

a. Dust Control: Moisten disturbed soil areas with water periodically or use a non-asphaltic soil tackifier to minimize dust.

b. Temporary Seeding: Inspect weekly and within 24 hours of a storm with a rainfall generating a discharge. Continue inspection until vegetation is firmly established.

c. Permanent Seeding: Inspect seeded areas weekly and within 24 hours after a storm with a rainfall generating a discharge. Continue inspection until vegetation is firmly established.

d. Temporary Soil Protection: Inspect seeded areas weekly and within 24 hours after a storm with a rainfall generating a discharge.

e. Temporary Erosion Control Mat: Inspect mats weekly and within 24 hours after a storm with a rainfall generating a discharge.

f. Temporary Filter Inserts: Inspect the fabric at least once a week and within 24 hours after the end of a storm with a rainfall generating a discharge. Check the fabric for structural soundness (i.e. tears), proper anchoring/alignment within the grate and ability to drain runoff (i.e. percent of clogging by sediment). Remove the sediment every week, or sooner if ponding is excessive. Each time the sediment is removed, replace the section of fabric removed with a new section. Do not remove the sediment and reuse the same section of fabric.

g. Hay Bale/ Silt Fence Barrier: Inspect the barrier at least once a week and within 24 hours after the end of a storm with a rainfall generating a discharge. For dewatering operations, inspect frequently before, during and after pumping operations. Remove the sediment deposits when the depth reaches one half the barrier heights. Repair or replace a barrier within 24 hours of observed failure. Maintain the barrier until the contributing disturbed area is stabilized.

h. Construction Entrance/Exit Pad: Maintain the pad in a condition that will prevent tracking and washing of sediment onto paved surfaces. Place additional clean gravel on top of gravel that has become silted or remove the silted gravel and replace the gravel to the depth removed with clean gravel, as conditions warrant. Remove immediately all sediment spilled, dropped, washed, or tracked onto paved surfaces. Roads adjacent to the construction site shall be cleaned at the end of each day by hand sweeping or sweeper truck.

i. Dewatering Settling Basin (if used): Inspect the basin at least every two hours during periods of use. Remove accumulated sediments when the volume equals one half the provided storage volume.

j. Existing Catch Basins and Sumps: Inspect the sediment traps as specified in f. above. After final removal of the sediment traps at the end of construction, clean the sump of all silt and debris.

k. New Catch Basins and Sumps: As new catch basins are constructed; a sediment filter basket shall be installed in the unit and a sediment barrier installed around the grate. Inspect the basket and barrier weekly and within 24 hours after a storm with a rainfall generating a discharge. After stabilization of the drainage area entering the catch basin, remove the trap and barrier and clean the basin sump of all silt and debris.

l. Stone or Hay Bale Check Dams: Inspect the check dam at least once a week and within 24 hours after the end of a storm with a rainfall generating a discharge. Remove the sediment deposits when the depth reaches one half the check dam heights. Repair or replace a check dam within 24 hours of observed failure. Maintain the check dam until the contributing disturbed area is stabilized.

m. Waterbars: Inspect the waterbars daily when exposed to vehicle traffic and within 24 hours after the end of a storm with a rainfall generating a discharge. Repair and reshape the waterbar immediately after observing any damages. Remove the sediment deposits when the depth reaches one half the waterbar heights. Maintain the waterbar until the contributing disturbed area is stabilized.

n. Temporary Diversion Swales & Pipe Slope Drains: Inspect at least once a week and within 24 hours after the end of a storm with a rainfall generating a discharge. Inspect daily when construction activities are in close proximity to the swales or slope drains. Repair damaged areas within 24 hours of observed failure. Maintain the swales and slope drains until the contributing disturbed area is stabilized.

o. Temporary Stockpiles: Inspect temporary stockpiles at the end of each workday to ensure that tarps are in place and secured. Temporary stockpiles that are expected to be inactive for more than 30 days should be temporarily seeded (see above).

p. Temporary Sediment Traps: Inspect monthly and within 24 hours after a storm with a rainfall generating a discharge. Sediment and oil shall be removed when the storage volume is reduced by one half, or at least every 6 months during construction.

During construction, the Contractor shall be required to remove accumulated sediment from sediment control measures and water quality measures. Sediment shall be disposed of off-site in a manner and location approved by local and state agencies. Temporary storage of sediment on-site is permissible if it is protected from erosion and stockpiled in a manner that will prevent it from being carried by erosion into adjacent properties or resource areas.

Temporary sediment traps may be removed if the contributing drainage area is stabilized. The area shall be re-graded to match original grades or proposed grades as shown on the plans. The disturbed area shall be temporarily, or permanently seeded and mulched if the area is not to be paved.

For hay bale barriers, the stakes may be removed as soon as the upslope areas have been permanently stabilized. Unless proposed construction requires otherwise, any accumulated sediment shall be left in place and the hay bales left in place or broken up for ground cover.

Upon the stabilization of the contributing drainage area, silt fence shall be inspected for sediment accumulation prior to removal. For sediment depths greater than 6", the sediment shall be re-graded or removed. The silt fence shall be removed by pulling the support posts and cutting the geotextile at the ground level. Re-grade or remove the sediment as necessary and stabilize the disturbed soils by placing temporary or permanent seeding and mulch.

When dewatering has been completed, remove the hay bale barrier, sediment and stone, as appropriate, and re-grade the area to original or proposed grade. Stabilize the disturbed area with temporary or permanent seed and mulch.

After the drainage areas to the new and existing catch basins have been stabilized, the Contractor shall be required to clean all sumps and hoods of debris and silt. In addition, within the limits of work, the Contractor shall clean all storm drain piping of collected silt and debris by flushing with water. If the storm system discharges to ground, a hay bale and silt fence barrier must remain in place at each outfall to capture any sediment or debris carried down by the flushing. If the storm drainage system discharges into a public or private drainage collection system, the Contractor must install a means of collecting debris and filtering the sediment from the flushing water in the on-site storm system before discharge to the existing storm system.

# 4.0 OPERATION AND MAINTENANCE PLAN

As required by Stormwater Standard #4, this Operation and Maintenance Plan has been developed for source control and pollution prevention at the site after construction.

## MAINTENANCE RESPONSIBILITY

After construction is completed and accepted by the Owner, it shall be the responsibility of the Owner to maintain all drainage and water quality structures. In addition, the following inspection and maintenance guidelines shall be the responsibility of the Owner, or the Owner's representative, beginning the first year period following construction completion and acceptance, and shall be followed each year thereafter.

## GOOD HOUSEKEEPING PRACTICES

The site to be kept clean of trash and debris at all times. Trash, junk, etc. is not to be left outside. Inspect on a regular basis not to exceed weekly for litter and debris.

## REQUIREMENTS FOR ROUTINE INSPECTIONS AND MAINTENANCE OF STORMWATER BMPS

All stormwater BMPs are to be inspected and maintained as follows;

### *Parking Lot and Driveway Sweeping*

At least twice per year, with the first occurring as soon as possible after snowmelt and the second not less than 90 days following the first.

### *Landscaped Areas*

Inspect semi-annually for erosion or dying vegetation. Repair and stabilize any bare or eroded areas and replace vegetation as soon as possible.

### *Deep Sump Catch Basins*

Shall be inspected semi-annually and cleaned when the sump is one-half full of silt and/or debris.

### *Focal Point*

Follow manufacturer's recommendations for routine maintenance. At a minimum, inspect after major storms (1 inch or more of precipitation) during the first six months following construction, then inspect annually. Remove trash and organic debris (leaves) in the Spring and Fall. Maintain vegetated filter strip and/or grassed side slopes. Remove accumulated sediment from the system when accumulation exceeds 1 inch or when drawdown time exceeds 48 hours after the end of a storm event, in which case the soil media shall be replaced in accordance with the CT Stormwater Quality Manual.

### *Underground Infiltration System*

Inspect after major storm (1 inch or more precipitation) during the first six months following construction. Inspect the remainder of the infiltration system annually. Remove sediment from the pretreatment structure when it accumulates to more than 50% of the design depth. Remove accumulated sediment from the system when accumulation exceeds 1 inch or when drawdown time exceeds 48 hours after the end of a storm event, indication that the system is clogged.

## PROVISIONS FOR SOLID WASTE MANAGEMENT (SITE TRASH)

Trash will be placed in on-site dumpsters and the Owner will make provisions for its regular and timely removal.

## SNOW DISPOSAL AND PLOWING PLANS

The purpose of the snow and snowmelt management plan is to provide guidelines regarding snow disposal site selection, site preparation and maintenance. For the areas that require snow removal, snow storage onsite will largely be accomplished by using pervious areas along the shoulder of the roadway and development as windrowed by plows.

- Avoid dumping of snow into any water body, including rivers, ponds, or wetlands. In addition to water quality impacts and flooding, snow disposed of in open water can cause navigational hazards when it freezes into ice blocks.
- Avoid disposing of snow on top of storm drain catch basins or in stormwater basins. Snow combined with sand and debris may block a storm drainage system, causing localized flooding. A high volume of sand, sediment, and litter released from melting snow also may be quickly transported through the system into surface water.
- In significant storm events, the melting or off-site trucking of snow may be implemented. These activities shall be conducted in accordance with all local, state and federal regulations.
- Snow shall be removed from the areas around on-site fire-hydrants to maintain emergency access to hydrants at all times. Removable flags or markers should be placed on hydrants to allow snow removal crews to more easily locate hydrants and not damage them with plows or other snow removal equipment.

## WINTER ROAD SALT AND/OR SAND USE AND STORAGE RESTRICTIONS

The Owner will be responsible for sanding and salting the site. No storage on site.

## STREET SWEEPING SCHEDULES

There are three types of sweepers: Mechanical, Regenerative Air, and Vacuum Filter.

1) Mechanical: Mechanical sweepers use brooms or rotary brushes to scour the pavement.
2) Regenerative Air: These sweepers blow air onto the road or parking lot surface, causing fines to rise where they are vacuumed.
3) Vacuum filter: These sweepers remove fines along roads. Two general types of vacuum filter sweepers are available - wet and dry. The dry type uses a broom in combination with the vacuum. The wet type uses water for dust suppression.

Regardless of the type chosen, the efficiency of street sweeping is increased when sweepers are operated in tandem.

It is recommended that street sweeping of the parking areas occur four times a year, including once after the spring snow melt.