Stormwater System
Operations and Maintenance Plan

For the Proposed:

Proposed Development

Located at:

143 River Road
Lisbon, Connecticut

Prepared for Submission to:
Town of Lisbon, CT

December 19, 2022

Prepared for:
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Table of Contents

GENERAL OVERVIEW **2**

Purpose & Goals 2
Responsible Parties 2
Maintenance Logs and Checklists 2
Forms 2
Employee Training 3
Spill Control 3

STORM WATER MANAGEMENT **4**

System Components 4
Catch Basins and Manholes 4
Hydrodynamic Separator 4

SITE MAINTENANCE **4**

Parking Lots 4
Landscaping 4
Outdoor Storage 5
Deicing and Snow Removal & Storage 5

General Overview

The proposed mixed-use development is located at 143 River Road within the Town of Lisbon. The property is approximately 6.54 acres in area. The proposed project includes the construction of a proposed retail/restaurant building with a G.F.A. of 10,233 S.F. In addition to the mixed-use building, the following site improvements are proposed to serve the development and operations: employee/customer parking, associated drive aisles and access drives, retaining walls, proposed ADA compliant sidewalk network, utility services including water, sanitary sewer, propane, electric and tele-communications and stormwater, landscaping, site lighting, and a comprehensive stormwater management system.

The following Operations and Maintenance Plan, herby referred to as Plan, was prepared specifically for this development located in the Town of Lisbon, Connecticut. The Plan was developed to satisfy the requirements of the Connecticut Department of Energy and Environmental Protection's *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* as well as provide long term directives for proper stormwater management functions and overall site maintenance.

Purpose & Goals

The purpose of this Manual is to ensure that the stormwater management components are operated in accordance with all approvals and permits. The primary goal is to inform all the property managers about how the system operates and what maintenance items are necessary. The secondary goal is to provide a practical, efficient means of maintenance planning and record keeping to verify permit compliance.

Responsible Parties

The Property Owner will be responsible for implementing the Plan on the property.

Maintenance inspections shall be performed by a qualified professional.

Some utilities located on the site will be owned and maintained by various utility companies in accordance with their standards. The property owner may maintain the service connections.

Maintenance Logs and Checklists

The property owner will keep a record of all maintenance procedures performed, date of inspection/ cleanings, etc. Copies of inspection reports and maintenance records shall be kept on-site. Yearly inspection reports of the stormwater management system shall be submitted to the Town.

Forms

The following forms will be developed for annual maintenance. Copies of the forms will be kept on-site as part of the Storm Water Management Plan.

- Annual Checklist
- Quarterly Checklist
- Monthly Checklist

Employee Training

The property owner will have an employee-training program, with annual up-dates, to ensure that the qualified employees charged with maintaining the buildings and grounds do so in accordance with the approved permit conditions. All employees that have maintenance duties will be adequately informed of their responsibilities.

Spill Control

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and clean-up:

- Manufacturer's recommended methods for spill clean-up will be clearly posted and site personnel will be made aware of the procedures and the location of the information and clean-up supplies.
- Materials and equipment necessary for spill clean-up will be kept in the material storage area on-site. Equipment and materials will include but not be limited to: absorbent booms or mats, brooms, dust pans, mops, rags, gloves, goggles, sand, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned immediately after discovery.
- The spill area will be kept well-ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance.
- Spills of toxic or hazardous material, regardless of size, will be reported to the appropriate State or local government agency.
- If a spill occurs, this plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean the spill if there is another one. A description of the spill, the cause, and the remediation measures will also be included.

A spill report shall be prepared by the property owner following each occurrence. The spill report shall present a description of the release, including quantity and type of material, date of spill, circumstances leading to the release, location of spill, response actions and personnel, documentation of notifications and corrective measures implemented to prevent reoccurrence.

The property owner shall identify an appropriately qualified and trained site employee involved with day-to-day site operations to be the spill prevention and clean-up coordinator. The name(s) of responsible spill personnel shall be posted on-site. Each employee shall be instructed that all spills are to be reported to the spill prevention and clean-up coordinator.

Storm Water Management

System Components

The storm water management system has several components that are shown on the Grading and Drainage Plans (GD-1 and GD-2), that performs various functions in treating storm water runoff:

Catch Basins and Manholes

The property owner is responsible for cleaning the catch basins and manholes on the property. A Connecticut Licensed hauler shall clean the sumps and dispose of removed sand legally. The road sand may be reused for winter sanding, but may not be stored on-site. As part of the hauling contract, the hauler shall notify the property owner in writing where the material is being disposed.

Each catch basin and manhole shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by Vacuum "Vactor" type of maintenance equipment.

During the inspection of each of the catch basin sumps, the hoods (where provided) on each of the outlet pipes shall also be observed. In the event that a hood is damaged or off the hanger, it shall be reset or repaired.

Hydrodynamic Separator

The hydrodynamic separator should be inspected regularly and maintained when necessary to ensure optimum performance. The rate at which the system collects sediment and debris will depend upon any on-site activities and site pollutant characteristics. The Contech Separator Inspection and Maintenance Guide is included at the end of this report for additional information on maintenance and inspection BMPs.

Site Maintenance

Parking Lots

Parking lots and sidewalks shall be swept as necessary by the property owner, or at least once per year, to clean sediment, trash, and other debris. The property owner will sweep parking lots on the property in the spring to remove winter accumulations of road sand.

Landscaping

The management company retained by the property owner will maintain landscaped areas. Normally the landscaping maintenance will consist of pruning, mulching, planting, mowing

lawns, raking leaves, etc. Use of fertilizers and soil amendments will be controlled and limited to minimal amounts necessary for healthy landscape maintenance.

The lawn areas, once established, will be maintained at a typical height of 2½"-3". This will allow the grass to be maintained with minimal impact from weeds and/or pests. The low-maintenance areas will be maintained as a meadow or allowed to revert back to natural conditions. Topsoil, brush, leaves, clippings, woodchips, mulch, equipment, and other material shall be stored off site.

Outdoor Storage

There will be no outdoor storage of hazardous chemicals, de-icing agents, fertilizer, pesticides, or herbicides anywhere around the building or on site.

Deicing and Snow Removal & Storage

Snow shall be shoveled and plowed from sidewalks, driveways, and parking areas as soon as practical during and after winter storms and stored in snow storage areas on site where practical. Areas graded to drain back into the paved parking areas and driveway areas are for snow storage. These areas are located along all paved parking areas and site driveways. The use of sodium chloride shall be minimized for ice or snow control on the site. No snow shall be pushed behind the snow storage areas towards downgradient areas. Areas downgradient of the snow removal deposition areas will be checked and maintained after the winter season by removal of any debris and sand and restored to original condition after seasonal winter conditions. Vegetation will be raked and if needed, pruned, or reseeded.

CATCH BASIN / CATCH BASIN INSERT INSPECTION LOG

Name of Inspector: Date:

Catch Basin ID	Condition (circle one)		Debris above 1’ within sump? (If yes then catch basin is to be cleaned)		Date of Catch Basin Cleaning (if debris is greater than 1’)		Condition of Hood (if applicable)	Comments:
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		

On-site Procedures for Inspection and Maintenance of Catch Basin Inserts

- Secure traffic and pedestrian traffic with cones, barrels, etc.
- Clean surface area around each catch basin
- Remove grates and set aside
- Clean grates, remove litter and debris that may be trapped within the grate
- Remove by vactor hose the debris that has been trapped in the trough area. Dispose of in accordance with local, state and federal regulatory agency requirements. Most debris that is captured in the trough or sump area will fall into the non-hazardous waste category.
- Visually inspect and check the condition of the trough area.
- Replace grate and lockdown as needed.
- Un-secure traffic control area.
- Complete service report and submit to facility owner.

MAINTENANCE SCHEDULE

During the First Year of Operation:		
Task:	Completion Date:	Manager's Initials:
JANUARY:		
Employee Training Program with Spill Program		
*Stormwater Management Basins (Underground & Above ground)		
FEBRUARY:		
* Stormwater Management Basins (Underground & Above ground)		
MARCH:		
* Stormwater Management Basins (Underground & Above ground)		
APRIL:		
*Catch Basin/Yard Drain		
* Stormwater Management Basins (Underground & Above ground)		
*Sanitary Inspection		
Shrub Fertilization		
AUGUST:		
*Catch Basin/Yard Drain		
* Stormwater Management Basins (Underground & Above ground)		
OCTOBER:		
* Stormwater Management Basins (Underground & Above ground)		
Tree and Lawn Fertilization		
DECEMBER:		
*Catch Basin/Yard Drain		
* Stormwater Management Basins (Underground & Above ground)		

*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

After the First Year of Operation:			
FOR YEAR_____			
Task:		Completion Date:	Manager's Initials:
JANUARY:			
Employee Training Program with Spill Program			
APRIL:			
*Catch Basin/Yard Drain			
* Stormwater Management Basins (Above Ground)			
*Sanitary Inspection			
Shrub Fertilization			
AUGUST:			
*Catch Basin/Yard Drain			
OCTOBER:			
* Stormwater Management Basins (Above Ground)			
Tree and Lawn Fertilization			
DECEMBER:			
*Catch Basin/Yard Drain			

*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

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CDS® Inspection and Maintenance Guide

CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, earth stabilization and wastewater treament products. For information, visit www.ContechES.com or call 800.338.1122

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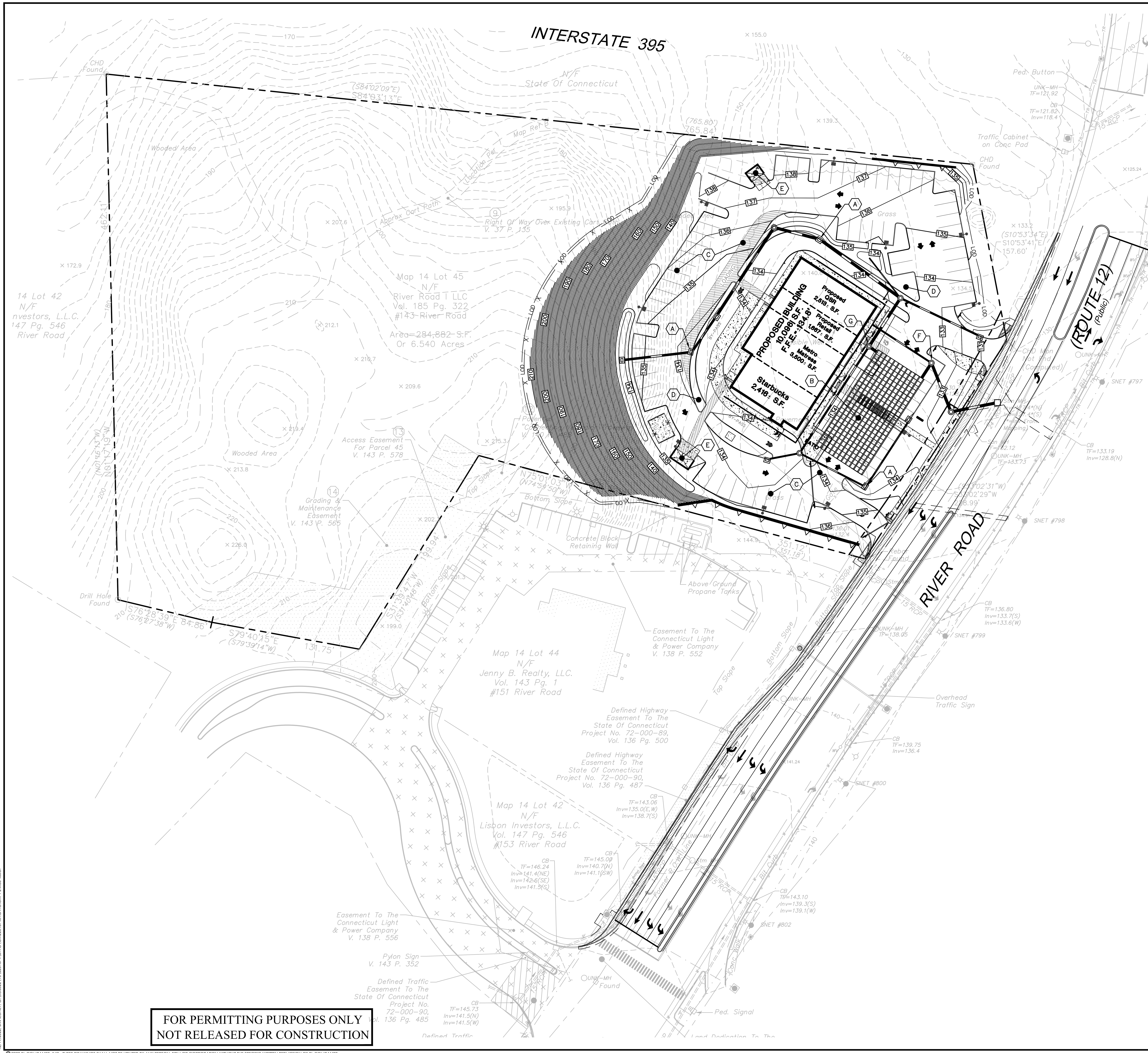
CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.



SITE LOCATION	AMENITY
A	CATCH BASINS/ CLEAN OUT
B	UNDERGROUND DETENTION CHAMBERS
C	PARKING LOTS
D	LANDSCAPING
E	TRASH COLLECTION
F	OUTLET CONTROL STRUCTURES
G	HYDRODYNAMIC SEPARATOR

NOTES:

1. REFERENCE THE SITE OPERATIONS AND MAINTENANCE PLAN DATED DECEMBER 19, 2022.
2. THE FACILITY MANAGER IS RESPONSIBLE FOR PREPARING AND DISTRIBUTING THE ANNUAL MAINTENANCE REPORT. THE FACILITY MANAGER CONTACT INFORMATION SHALL BE PROVIDED TO THE LISBON TOWN PLANNER, THE WATER AND SEWER DIVISION AS SOON AS FEASIBLE.
3. A COPY OF THE ANNUAL MAINTENANCE REPORT SHALL BE GIVEN TO THE LISBON TOWN PLANNER, AT 1 NEWENT ROAD, LISBON, CT 06351. (860) 885-8697.

OPERATION AND MAINTENANCE LEGEND

- PROPERTY LINE
- LOD — LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE
- STORM LINE
- EXISTING STORM LINE
- CATCH BASIN
- STORM MANHOLE
- FLARED END
- OUTLET CONTROL STRUCTURE
- INLET/OUTLET CONTROL STRUCTURE WITH MANHOLE COVER FOR UNDERGROUND CHAMBERS
- 100 — PROPOSED CONTOUR LINE
- x 100.00 — PROPOSED SPOT GRADE
- x TC=100.00 BC=99.50; x TW=108.00 BW=100.00; x 100.00 MEX

ABBREVIATIONS
- TC=TOP OF CURB
- BC=BOTTOM OF CURB
- TW=TOP OF WALL
- BW=BOTTOM OF WALL
- MEX=MATCH EXISTING

- 2% — PROPOSED SURFACE SLOPE
- E — ELECTRIC LINE
- T/C — ELECTRIC AND TELECOMMUNICATIONS LINES
- ETC — TELECOMMUNICATIONS LINE
- G — GAS LINE
- W — WATER LINE
- S — SANITARY SEWER LINE
- OH — OVERHEAD LINE
- T — TRANSFORMER
- HYDRANT
- UTILITY POLE
- SANITARY/STORM MANHOLE
- CO — SANITARY/STORM CLEANOUT
- WV — WATER VALVE
- GV — GATE VALVE
- THRUST BLOCK

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

BL Companies
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355 Research Parkway
Meriden, CT 06450
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PROPOSED DEVELOPMENT
143 RIVER ROAD
LISBON, CONNECTICUT

REVISIONS

No.	Date	Desc.
1.	12/19/2022	REVISED PER LISBON STAFF COMMENTS

Designed	B.C.M.
Drawn	B.C.M.
Reviewed	R.M.R.
Scale	1"=40'
Project No.	2201674
Date	11/29/2022
CAD File:	OM220167401

Title
OPERATION AND MAINTENANCE KEYED MAP

Sheet No.
OM-1

Xref (s): : BD220167401 ; XC220167404 ; XC220167401 ; XC220167402 ; XC220167403 ; XY220167403 ; XC220167402-20SC ; XC220167403-20sc