

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

MARSHFIELD MUNICIPAL AIRPORT
GEORGE HARLOW FIELD
Marshfield, Massachusetts

AIP No. 3-25-0030-23-2013
November 2015





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Study Sponsor:

Marshfield Airport Commission
George Harlow Field
93 Old Colony Lane
Marshfield, Massachusetts 02050

Prepared by:

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“The preparation of this document was financed in part through a construction grant from the FAA as provided under the Airport Improvement Program of 1982, as amended. The contents of this report reflect the views of the consultant and do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.”

SWPPP IMPLEMENTATION SCHEDULE
GEORGE D. HARLOW FIELD – MARSHFIELD, MASSACHUSETTS

Frequency		Action(s)	Associated Forms / SWPPP Section	Follow-up
Weekly		<ul style="list-style-type: none"> Erosion Inspection 	<ul style="list-style-type: none"> See Section 3 	<ul style="list-style-type: none"> Take corrective action(s) if required
		<ul style="list-style-type: none"> Dumpster Inspection 	<ul style="list-style-type: none"> See Section 3 	<ul style="list-style-type: none"> Take corrective action(s) if required
		<ul style="list-style-type: none"> Drainage Swale Inspection 	<ul style="list-style-type: none"> See Section 3 	<ul style="list-style-type: none"> Take corrective action(s) if required
		<ul style="list-style-type: none"> Tie-down Apron Inspection 	<ul style="list-style-type: none"> See Section 3 	<ul style="list-style-type: none"> Take corrective action(s) if required
Quarterly	<i>January April July October</i>	<ul style="list-style-type: none"> Routine Facility Inspection by qualified personnel 	<ul style="list-style-type: none"> See Section 5.4.1 & Appendix A 	<ul style="list-style-type: none"> File a report of findings in this SWPPP Take corrective action(s) if required
		<ul style="list-style-type: none"> Visual Assessment of Stormwater Discharges 	<ul style="list-style-type: none"> See Section 5.4.2 & Appendix A 	<ul style="list-style-type: none"> File documented results in this SWPPP
Annually	<i>January</i>	<ul style="list-style-type: none"> Annual Report 	<ul style="list-style-type: none"> See Section 5.5 	Submit Annual Report electronically by January 30 th using NPDES eReporting tool (NeT) https://cdx.epa.gov/

SWPPP IMPLEMENTATION SCHEDULE
GEORGE D. HARLOW FIELD – MARSHFIELD, MASSACHUSETTS

Frequency		Action(s)	Associated Forms / SWPPP Section	Follow-up
Annually	June	<ul style="list-style-type: none"> Perform Outfall #4 TSS Monitoring (Impaired Water) 	<ul style="list-style-type: none"> See Section 5.4.3 	<ul style="list-style-type: none"> Send samples to laboratory for testing Report monitoring data using the EPA's electronic NetDMR tool within 30 days or receiving laboratory results
Annually	November	<ul style="list-style-type: none"> Employee Training 	<ul style="list-style-type: none"> <i>Employee Training Log</i> (see Appendix A) See Section 3 and 5 	<ul style="list-style-type: none"> File <i>Employee Training Log</i> in Appendix A
Upon Spill, Leak or Discharge		<ul style="list-style-type: none"> Notify the Marshfield Fire Department Follow their instructions SWPPP recommendations 	<ul style="list-style-type: none"> <i>Spill Notification Form</i> (see Appendix B) <i>Emergency Contact List</i> (see Appendix B) 	<ul style="list-style-type: none"> File <i>Spill Notification Form</i> in Appendix B File with Marshfield Fire Department
Upon Detection of BMP(s) not Functioning Properly		<ul style="list-style-type: none"> Repair, replace, remove, and/or modify the BMP(s) immediately 	<ul style="list-style-type: none"> <i>Control Measure Maintenance Records</i> (see Appendix A) See Section 3 of the SWPPP 	<ul style="list-style-type: none"> Monitor the BMP after repairing, replacing, or removing Observe the BMP at the next Quarterly Inspection
Tenant Lease Agreement or Renewal		<ul style="list-style-type: none"> Require tenant(s) to comply with USEPA NDPES MSGP by requiring them to prepare their own SWPPP 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Assist the tenant(s) in the development of their SWPPP if at all possible

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**GEORGE D. HARLOW FIELD
MARSHFIELD MUNICIPAL AIRPORT
FACILITY OPERATOR CERTIFICATION**

“I certify under penalty of law that I have read and understand the Part 1.1 eligibility requirements for coverage under the multi-sector stormwater general permit including those requirements relating to the protection of endangered or threatened species or critical habitat. To the best of my knowledge, the stormwater and allowable non-stormwater discharges authorized by this permit (and discharge related activities), pose no jeopardy to endangered or threatened species or critical habitat, or are otherwise eligible for coverage under Part 1.1.4.5 of the permit. To the best of my knowledge, I further certify that such discharges and discharge related activities do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage under Part 1.1.4.6 of the permit. I understand that the continued coverage under the multi-sector stormwater general permit is contingent upon maintaining eligibility as provided for in Part 1.1.

This document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Erik W. Strand, P.E.
Project Manager, Preparer
Gale Associates, Inc.

Date

David Suffredini
Chairman, Marshfield Airport Commission

Date

1. INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for George D. Harlow Field (the Airport), owned by the Town of Marshfield, Massachusetts, and operated by the Marshfield Airport Commission (the Commission).

Stormwater can carry or dissolve pollutants from their source and distribute them to many points along its path. Eliminating the pollutants from stormwater improves general water quality for everyone. If eliminating pollutants is not possible, then reduction or treatment of these pollutants is a prudent goal. This SWPPP describes the management practices and pollutant controls implemented or to be implemented at the Airport to reduce or eliminate pollutants from stormwater. This SWPPP is comprehensive in that it covers the entirety of the Airport property and its operations.

This plan will be reviewed and evaluated annually and amended accordingly within two weeks of review to include changes in the Airport environment, and when more effective prevention and control technologies are identified as needed. Records of reviews will be maintained with the SWPPP for a minimum of three years after the permit has expired or been terminated. This plan will also be amended if any significant material release occurs on Airport property and before any change is made in Airport operations and maintenance affecting the Airport's potential for pollutant discharge to stormwater. Some examples of changes that will require plan amendments include, but are not limited to:

- Construction or demolition that changes the amount of impervious area (building and paved areas) or the storm drainage system;
- Changes in the handling or storage of materials exposed to stormwater;
- Changes in the design, construction, daily operation, or maintenance activities that significantly affect the potential stormwater or pollutant discharge.

An authorized member of the Airport Commission will certify all amendments to this plan.

1.1 Applicability

This SWPPP is prepared solely for the Marshfield Airport Commission in compliance with applicable laws, rules, regulations, or policies pertaining to stormwater pollution. This SWPPP is not intended to serve as a compliance document for any other entity including airport tenants or others. The preparation and implementation of this SWPPP does not relieve these entities from their responsibility under current law to prepare their own SWPPP and file for their own stormwater permit, as required.

Where applicable, each airport tenant is responsible for preparing and maintaining its own individual SWPPP, if required, that is consistent with and follows the guidance of this SWPPP. These individual SWPPPs should contain at a minimum: identification of the in-house program team, tenant's facility sketch, inventory of potential pollutants, and best management practices summary. These individual SWPPPs, if any, are incorporated herein by reference.

1.2 Summary of Federal Regulations

The Federal Water Pollution Control Act of 1948 created regulations for restoring and maintaining the integrity of the Nation's waters. The amendments to this Act in 1972, 1977, and beyond are commonly referred to as the Clean Water Act (CWA).¹ The CWA gave the U.S. Environmental Protection Agency (USEPA) the authority to regulate pollution-control programs under Section 402 of that Act. Section 404 of the CWA is to put into practice programs that eliminate or minimize the discharge of pollutants into stormwater.

The USEPA regulates stormwater through the National Pollutant Discharge Elimination System (NPDES) program. Regulated facilities must comply with either an individual permit or a Multi-Sector General Permit (MSGP) for Industrial Activities. The MSGP is a permit that is national in scope and applies to all regulated facilities that are not otherwise covered by a state permit authorized by the USEPA.

Airports with any of the following were identified, under Phase I of NPDES regulations, as regulated facilities:

- Discharges of stormwater runoff that are specifically identified by outfall or discharge location;
- Vehicle maintenance shops (includes: maintenance, repairs, fueling, lubrication, and painting);
- Equipment or vehicle cleaning operations;
- Deicing operations using more than 100 tons of urea/year OR more than 100,000 gallons/year of ethylene glycol.

This Airport is a regulated facility because it performs aircraft and vehicle maintenance on Airport property.

In June 2015, the USEPA issued a revised MSGP² replacing the existing permit which expired in 2013. The Airport must comply with the 2015 MSGP by:

- Preparing a publically available plan demonstrating compliance;
- Submitting a NOI requesting coverage;
- Implementing and updating the plan as needed;
- Performing inspection and monitoring as required by the MSGP;
- Providing reports as required by the MSGP;
- Maintaining records of activities as required in the plan until such time as the MSGP expires or the Airport submits a Notice of Termination (NOT).

This SWPPP is adopted to address the above requirements.

¹ 33 U.S.C 1251 et seq.

² 80 Federal Register 34403, June 16, 2015

1.3 Plan Objectives

This SWPPP documents the Airport's policies on managing potential stormwater pollutants originating at the Airport. This SWPPP will:

- identify reasonably anticipated potential sources of stormwater and non-stormwater contamination
- identify BMP's to help prevent, reduce, and/or remove contamination from stormwater
- identify an implementation schedule to help manage contamination of stormwater

The Airport is organized into 1) the Airport administrative/operations and 2) tenant activities. As owner of the Airport, the Town of Marshfield is considered the responsible party by EPA for ensuring that all activities on Airport property comply with the requirements of the MSGP. Where applicable, each Airport tenant is responsible for preparing and maintaining its own SWPPP in compliance with all applicable local, state and federal laws, rules and regulations, and such SWPPPs must be consistent with and follow the guidance of this SWPPP.

1.4 SWPPP Team

The SWPPP only benefits the facility and the environment when all affected parties actively participate in the process. This process is cyclical, starting with the development of the SWPPP, implementation of the SWPPP recommendations, evaluation of the SWPPP for currency, and then redevelopment of the SWPPP where necessary. Since names may change over time, job titles are included for identification of the responsible parties:

Team Leader: Mr. David Dinneen Airport Manager, Phone: (781) 834-4928

Responsibilities: Has overall responsibility for ensuring that daily activities, including those of employees, tenants, and customers, comply with the requirements and recommendations of the SWPPP; identifying needed improvements to the SWPPP; providing SWPPP training requirements for Airport employees; and supervising any emergency response to an event that could lead to stormwater contamination.

Team Member: Mr. David Suffredini, Airport Commission Chairman

Responsibilities: Assists the Team Leader with enforcement of SWPPP requirements and recommendations by providing input into the development and evaluation of the SWPPP, and serving as the Team Leader during the Airport Manager's absence.

FBO Member: Shoreline Aviation, Inc. Contact: Mr. Keith Douglass

Responsibilities: Has overall responsibility for ensuring that daily activities, including those of Shoreline Aviation, Inc. employees, tenants, and customers, comply with the requirements and recommendations of the SWPPP; providing for SWPPP training requirements of Shoreline Aviation, Inc. employees, and for providing input into the development and evaluation of the SWPPP documentation.

Airport Consultant: Erik W. Strand, P.E., Gale Associates, Inc.

Responsibilities: Responsible for initial development and publishing of the SWPPP; providing the Project Team with regulatory expertise and interpretations with regards to the SWPPP; and providing coordination services with the Team Leader to ensure the SWPPP remains current.

1.5 SWPPP Availability

A copy of the SWPPP will be maintained at the Airport. The SWPPP will also be available to the public on the Airport's website.

The Massachusetts Department of Environmental Protection (MassDEP) may request a copy of the SWPPP. The Airport will submit the SWPPP to MassDEP within 14 days of such a request.

1.6 Authorization to Inspect

MassDEP may conduct an inspection of the facility to ensure compliance with state law requirements, including state water quality standards, and MassDEP may enforce its certification conditions.

2. FACILITY DESCRIPTION

2.1 Site Location

The Airport is located on the south shore of eastern Massachusetts in the Town of Marshfield, Plymouth County. The Airport is situated two miles east of Marshfield center on Old Colony Lane, and four miles east of Route 3. (See Figure 1).

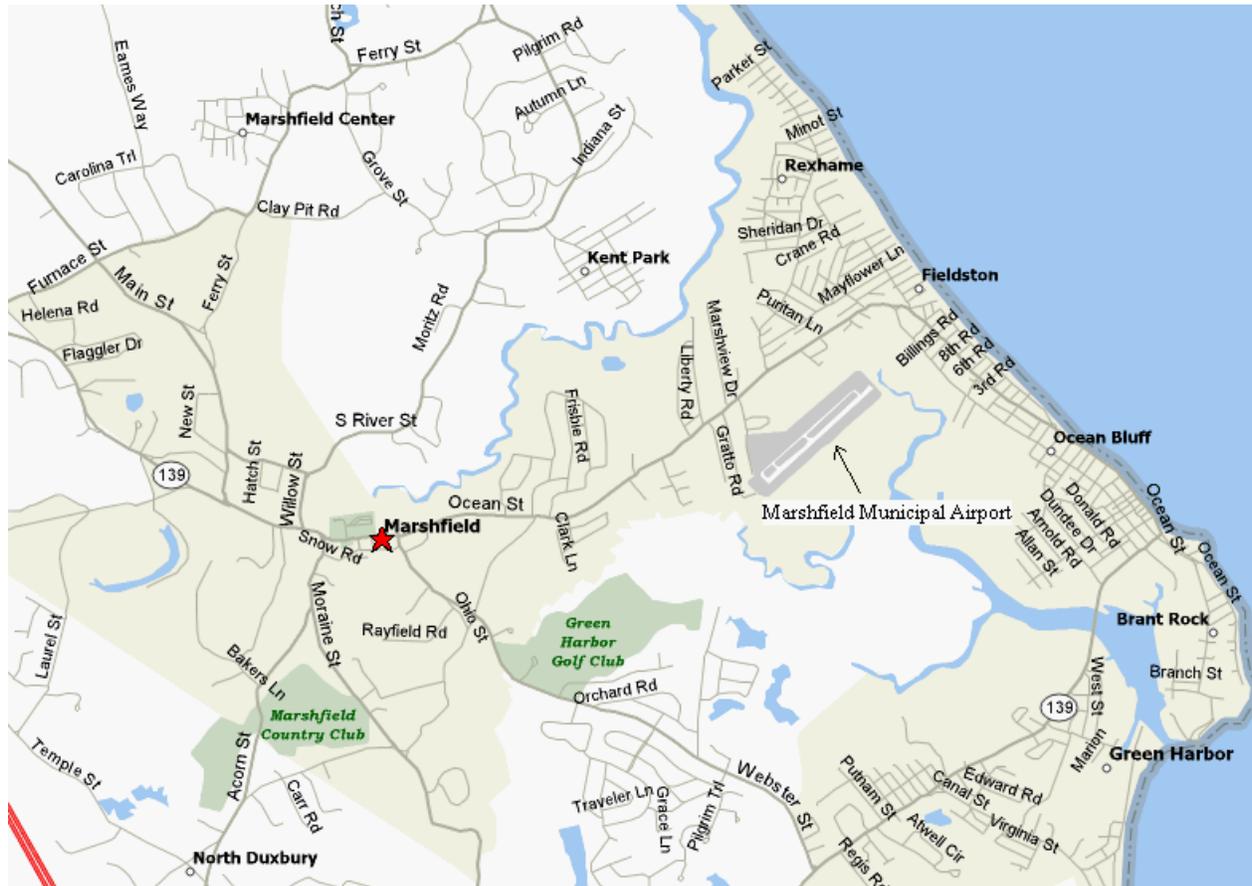


Figure 1

2.2 Site Description

The Airport is a small general aviation airport serving mostly private pilots and business aircraft. It is comprised of 136± acres set at approximately 0 to 9 feet above mean sea level. Approximately 21 acres (15%) of Airport area is covered by impervious surfaces (pavement and buildings). The terrain of the Airport proper is primarily level, with minimal slopes incorporated to aid drainage.

The Airport terminal building is located on the west side of the Airport adjacent to the terminal ramp. It was renovated in 2001 and has a vehicular parking area adjacent to it. Other buildings on the Airport are hangars used for aircraft storage, an aircraft maintenance hangar, and an SRE maintenance building. The Airport does maintain a fuel farm, consisting of two underground vaulted fuel tanks holding 100 Low Lead Aviation Gasoline, with one fueling pump. Jet fuel is stored separately in a 5,000 gallon truck. The terminal building houses the Airport Manager's office, FBO offices, a meeting room, a public use area, and is served by a compliant subsurface wastewater disposal system constructed in 2001.

Municipal sewer is available from Old Colony Lane. Other on-site facilities are primarily for electronic navigation, weather observance, landing aid, or are used directly in support of flight operations.

2.3 Region's Climate

The climate in the region reaches a mean high temperature of 75.9F³ in summer and can reach a mean low temperature of 19.1°F during the winter. On average, 51.06 inches of precipitation falls in the region each year.

2.4 Proximity to Floodplain

A significant portion of the Airport property lies within the FEMA⁴ 100-year floodplain which has been recently set at elevation 10 MSL⁵.

2.5 Existing/Future Drainage System Description

The Airport lies in a polder, an area where tide gates are used to manage the flow of water around the Airport. The northern portion of the Airport currently drains into Bass Creek and its associated wetlands. The southern portion drains to the Green Harbor River and its associated wetlands.

The runways and taxiways were designed to direct as much runoff as possible to the infield areas, where a system of vegetated filter strips and surface infiltration basins treat stormwater runoff. Catch basins within the infiltration areas provide an emergency overflow in the event of extreme storms. Rim elevations of these catch basins are set equal to the expected water elevation during the 100-year storm. Therefore, many of the potential outfalls are not expected to discharge stormwater, except in the extraordinary circumstances.

Runoff directed to the perimeter of the site is treated by vegetative buffers. This stormwater primarily follows overland flow patterns to abutting properties and the surrounding wetlands, with a couple exceptions. Outfall #3 and Outfall #6 discharge stormwater from outside the runway and taxiway areas towards Bass Creek and Green Harbor River, respectively (See Existing Conditions Site Map in Appendix C). A shallow detention pond along the south edge of the runway mitigates peak flow rates and treats stormwater by allowing solids and debris to settle.

The terminal apron includes a series of catch basins with attached leaching basins. Other paved areas within the terminal environment do not drain to structures, instead sheeting directly to abutting vegetated areas and subsequently into the surrounding wetlands. The lack of a closed, connected drainage system is not by accident; the vertical clearances required would not work with the existing elevation at the Airport.

Some runoff directed to the infield areas can't be infiltrated, due to the presence of seasonal high water that prohibits infiltration. The easternmost infield area contains only a small area that is able to be infiltrated; the remainder of the runoff directed to this infield is collected in a swale and discharged

³ *Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days 1971-2000* (Massachusetts), National Oceanic and Atmospheric Administration.

⁴ Federal Emergency Management Agency

⁵ Mean Sea Level

through a pipe (Outfall #4) toward Bass Creek. A portion of the center infield drains similarly (Outfall #2). Stormwater from both areas receives pretreatment through the use of vegetated filter strips and grassed swales prior to discharge.

2.6 Receiving Waters

The Airport is surrounded by extensive wetland systems that border along Bass Creek and Green Harbor River. Both of these rivers flow north to south, with Bass Creek flowing along the northern end of the airfield (the Runway 24 end) and Green Harbor River flowing along the southern end of the airfield (the Runway 6 end). The rivers come to a confluence 1,800 feet southeast of the airfield before flowing toward Green Harbor and Massachusetts Bay, approximately one mile down gradient of the airfield. Between the two river systems are large wetland systems that extend, in some cases, to near the edge of the runway.

Bass Creek is unimpaired.

Green Harbor River has been identified by Massachusetts as a Category 5 Water – Impaired or threatened for one or more uses and requiring a TMDL⁶. Causes of the impairment include excess algal growth, turbidity, and other non-pollutant physical barriers. Sources of the algal growth and turbidity are unknown. EPA-approved or established TMDLs relating to algal growth and turbidity are needed, but have not yet been developed. The EPA’s 2012 Waterbody Quality Assessment Report for Green Harbor River is included in Appendix E.

The Airport has no outfalls discharging to other receiving waters, impaired or unimpaired.

2.7 Inventory of Potential Pollutant Sources

Pollutants from a number of sources can potentially contaminate stormwater. The Airport is a general aviation airport providing services to private recreational and corporate aircraft. Activities and locations at the Airport that can potentially introduce pollutants are few. Typical activities or locations at the Airport that could introduce pollutants that are either exposed or not-exposed to stormwater are listed below.

- aircraft taxiing, departing, and arriving
- aircraft refueling
- aircraft and equipment maintenance
- aircraft and equipment washing
- aircraft preflight checks
- refuse disposal
- roadside areas
- shipping or receiving areas
- disturbed or constructed areas

The airport does not use sand or salt to treat runways, taxiways, or apron areas, as these materials are very damaging and/or corrosive to aircraft. In addition, Harlow Field does not utilize any de-icing or anti-icing chemicals. This translates to a very low amount of suspended solids in stormwater, and thus a

⁶ Total Maximum Daily Load

cleaner drainage system that is easier to maintain. Floor drains in the Airport buildings are either capped or connected to the public sewer system in Marshfield.

2.8 Site Materials and Activities Exposed to Stormwater

Materials and activities that occur outside and are exposed to stormwater are limited to the following (excludes construction activities that are covered under construction SWPPPs):

- aircraft taxiing, departing, and arriving;
- aircraft, automobile, and equipment parking;
- aircraft fueling;
- aircraft preflight checks;
- refuse disposal facilities;
- shipping or receiving areas;
- roadside areas.

Each of these activities is discussed more fully below, with respect to their exposure to stormwater and their potential for stormwater pollution.

Aircraft, Automobile and Equipment Parking: Aircraft at the airport are currently parked outdoors on tie-downs and indoors in hangars. Because the Airport is such a relatively small facility, almost all aircraft parked outdoors are within view of the Airport terminal building and staff and therefore are under constant visual supervision. Therefore, these aircraft as well as those stored indoors have a low probability of polluting stormwater.

Automobile parking typically takes place outside the terminal building with overflow to an adjacent unpaved lot. The automobiles parked in the front of the terminal building are on pavement where leaks can be detected and cleaned up immediately. The unpaved parking lot is used rarely when events are taking place. Therefore, these areas both have a relatively low probability of polluting stormwater.

The Airport houses a 2006 Ford F-350 with a plow and an Oshkosh Snow Blower. Neither of these equipment items pose a high level of threat for stormwater pollution. The snow blower is parked indoors.

Refuse Disposal: The Airport provides refuse waste disposal facilities; a dumpster is available for tenants' use. The dumpster is within daily view of Airport staff and is inspected to ensure it does not pose a threat to stormwater quality.

Aircraft and Vehicle Fueling: Aircraft fueling takes place near the Airport Manager's office in the terminal area. The Airport has two underground fuel tanks, each with a capacity of 6,420 gallons though, only one tank is in use. No self-service fueling is allowed and all fueling activities are conducted either by the Airport Manager or by a staff person under the manager's supervision. A fuel dispenser is mounted near the tanks. Fueling hoses and other components of the dispensing equipment are replaced periodically and inspected daily to assure their integrity. Therefore, the threat to stormwater quality is relatively low due to these practices and conditions. Jet fuel is stored in one 5,000 gallon mobile refueler truck. The airport also houses a mobile refueler truck containing 100LL aviation gasoline.

The Airport has one Ford F-750 pick-up truck used primarily for light snow removal activities and to access remote parts of the Airport. This vehicle is fueled off-site.

Aircraft Preflight Checks: Pilots are advised to check the fuel (typical 100LL aviation gasoline) in their aircraft for contamination (by water or other contaminant) prior to engine start-up. This practice is done by withdrawing a small amount of fuel (3 tablespoons per tank) into a glass jar or other container and examining the contents. Many Certified Flight Instructors are now instructing students on the use of GATS jars (see Appendix H) that, when used properly, can return uncontaminated fuel to the aircraft by separating the contaminants or debris from the fuel. The GATS jars are not only preferred for environmental reasons, but also to protect pavement from the debilitating effects of fuel.

2.9 Non-Stormwater Discharges to the Stormwater System

Non-stormwater discharges include both allowable and prohibited discharges to the stormwater system. Allowable discharges include:

- fire fighting activity discharges;
- potable water flushings;
- uncontaminated air conditioning or compressor condensate;
- uncontaminated ground or spring water;
- landscape watering provided that all pesticides and fertilizers are properly applied;
- incidental windblown mist from cooling towers that collects on roof tops;
- fire hydrant flushings;
- irrigation drainage;
- routine external building wash waters without detergents;
- uncontaminated flows from foundation or footing drains;
- pavement wash waters without detergents and when no spills have occurred.

Non-stormwater discharges into the stormwater system that are not included above are required to undergo chemical testing or be disconnected from the stormwater system with the discharge being properly disposed. At the time of inspection, the Airport has no known unallowable non-stormwater discharges to its stormwater system.

See the non-stormwater discharge assessment and certification at the beginning of this document.

2.10 Past Pollution Incidents

The MDEP publishes a searchable online⁷ database identifying all reported releases of hazardous materials for the previous 10 years within the Commonwealth of Massachusetts. A total of 74 records exist for releases within the boundaries of the Town of Marshfield, none of which were on Airport property and eighteen were within approximately 1 mile of the Airport. MDEP Reportable Release Lookup results are contained in Appendix G.

⁷ <http://www.mass.gov/eea/agencies/massdep/cleanup/sites/>

2.11 Site Observations

A site walk was conducted by Gale Associates, Inc. on September 1, 2015 to observe typical daily operating activities, document the Airport's existing stormwater catchment and distribution system, and observe any potentially prohibited stormwater connections or discharges. The weather was hot and sunny with no precipitation having occurred during the previous 24-hour period. The following observations were made:

- All catch basins observed appeared to be in good operating condition. Many of the sumps contained standing water. No debris, silt, or other deposits were visible in the sumps.
- All ditches and swales were in good operating condition. There were no signs of erosion or sedimentation deposits.
- All infiltration basins observed appeared to be in good operating condition. There were no signs of erosion, tree growth, or sediment accumulation.
- All outfalls were located and appeared to be in good operating condition.
- Areas around the T-hangars and the maintenance hangar were generally clean without visible outdoor storage of materials or refuse.
- The dumpster was empty and uncovered. It abutted a culvert near the edge of apron pavement. Small areas of rust were observed on the dumpster and rust deposits were present on the pavement alongside it. *The airport's good housekeeping BMPs for dumpsters should be followed to ensure stormwater is not contaminated.*
- Vehicular parking areas did not show evidence of leaks or other potential contamination sources.

2.12 Endangered Species

Consultation with the U.S. Fish and Wildlife Service (FWS) revealed (2) *threatened* species to consider as part of an effect analysis for any proposed action at the Airport: the Northern Long-eared Bat and the Red Knot. Both are terrestrial species, i.e., they are not aquatic or aquatic-dependent. As such they are unlikely to be impacted by stormwater discharges. Additionally, FWS species profiles for the Long-eared Bat and Red Knot do not indicate the species are known or believed to occur in Plymouth County, Massachusetts. No federally listed *endangered* species or critical habitat were found to be present in the Airport's area of potential effect for stormwater discharges through consultation with FWS. A review of the National Marine Fisheries Service (NMFS) website⁸ revealed no additional endangered or threatened species or critical habitat. The Airport meets eligibility Criterion C⁹ for endangered and threatened species and critical habitat protection under the 2015 MSGP. Documentation supporting the eligibility determination is contained in Appendix F.

⁸ <http://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/maps/index.html>

⁹ **Criterion C.** "Federally listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near your facility's "action area," and your industrial activity's discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat"

2.13 Historic/Archaeological Resources

Discharges from the Airport are confined to existing stormwater channels and natural drainage areas. These discharges do not have the potential to cause effects on historic properties.

Several archaeological surveys have been performed at the Airport. UMass Archaeological Services (UMass) conducted a Phase 1A Archaeological Reconnaissance Survey in 2006 to assess the potential impacts of improvements outlined in a 2004 Airport Master Plan Update (AMPU). The Survey found that, in general, the Airport exhibits low-sensitivity for archaeological resources, but did identify some limited areas of moderate to high archaeological sensitivity and recommended a Phase 1B Intensive Archaeological Survey of those areas.

A Phase 1B Intensive Archaeological Survey was conducted by UMass in August 2008. During the Phase 1B testing, Native American artifacts were recovered from six survey units. No additional survey was recommended in five of the survey units because the artifacts found in those units were secondary in nature, or isolated or low in volume and their contexts were deemed not eligible for inclusion in the National Register.

An archaeological Phase 2 survey was performed for Survey Unit 1, where Native American artifacts were produced from a comparatively well-preserved portion of the Airport property. The survey recommended Phase 3 Data Recovery excavations of several areas. The defined areas were later excavated to mitigate project-related impacts.

Future drainage improvements planned at the Airport, primarily in the apron areas, will involve significant subsurface disturbance. Because greater than 1 acre of ground disturbance is expected to occur, the improvements, if constructed, would require coverage under the Construction General Permit. Therefore, the Airport meets eligibility Criterion A of the MSGP (See section 1.1.4.6 – Historic Properties Preservation). Additionally, the majority of ground impacts due to planned improvements would be to pre-disturbed areas. Adverse impacts to historic properties or archaeological resources are not expected.

3. STORMWATER CONTROL MEASURES

3.1 Best Management Practices (BMPs)

Best management practices (BMPs) for stormwater are practices and policies that are used to prevent pollutants from reaching nearby waterbodies. BMPs can include structural systems, generally accepted "good housekeeping" practices, preventative maintenance, spill prevention and response, erosion prevention, and stormwater runoff treatment. Most important is the Airport's policy of informing its employees (through regular training sessions), tenants, and users (through its Minimum Standards, Rules and Regulations, periodic mailings, and monitoring by Airport personnel) of the Airport's responsibilities to maintain its stormwater. The Airport documents the use of BMPs on a regular basis.

3.1.1 Structural BMPs

Structural BMPs in place at the Airport include shallow grass swales, vegetated filter strips, deep sump catch basins, leaching basins, infiltration basins, and an extended detention basin. These control measures address the potential pollutant sources identified in Section 2.7 in various ways. Grassed swales remove pollutants through sedimentation and gravity separation. Deep sump catch basins remove trash, debris, and coarse sediment from stormwater runoff and serve as temporary spill containment devices for floatables such as oils and greases. Vegetated filter strips slow runoff velocities, trap sediment, and promote infiltration, thereby reducing runoff volumes. Infiltration basins and leaching basins also remove many contaminants and promote infiltration.

The extended detention basin attenuates peak flow and allows solids and debris to settle. Nutrients in the stormwater runoff are reduced by the detention basin and grass swales before the stormwater reaches the Green Harbor River. This prevents the eutrophication problem of the River from being exacerbated.

3.1.2 Good Housekeeping Practices and Preventative Maintenance

Good housekeeping practices are those that help to keep exposed areas of the Airport neat, clean, and orderly such that the potential is minimized for pollutants to enter into the stormwater systems. Preventative maintenance activities are those that can be done to prevent potential pollutants from entering the stormwater systems. Table 3-1 identifies BMPs for good housekeeping and preventative maintenance that are practical to apply at the Airport. Table 3-2 identifies BMPs incorporated to address specific pollutant sources.

Table 3-1	
Good Housekeeping and Preventative Maintenance BMPs	
Areas of Concern	BMPs
Trash containers, dumpsters	<ul style="list-style-type: none"> • Place all trash into containers. • Firmly attach lids on trash containers. • Replace trash containers that leak.

Table 3-1	
Good Housekeeping and Preventative Maintenance BMPs	
Areas of Concern	BMPs
	<ul style="list-style-type: none"> • Contract for regular trash disposal services. • Inspect trash container areas daily.
Exterior unsheltered storage areas	<ul style="list-style-type: none"> • Provide secondary containment for oil and hazardous materials, including fuel trucks. • Firmly attach lids on all drums and containers. • Place materials under cover or indoors whenever possible or practicable.
Cargo handling or loading areas	<ul style="list-style-type: none"> • Provide cover over loading/unloading areas where possible or practicable to reduce exposure to precipitation. • Park delivery vehicles so that spills can be contained. • Maintain cargo handling and loading areas in clean condition by sweeping or shoveling where needed. • Avoid transfer of loads near storm drains. • Provide adequate supplies of cleanup materials near areas where cargo is handled or loaded.
Roadside areas	<ul style="list-style-type: none"> • Remove all trash from paved and turfed areas. • Mow drainage swales on a regular basis. • Remove excess sand from winter sanding operations from drainage swales and culverts and dispose of properly.
Aircraft tie-downs	<ul style="list-style-type: none"> • Require aircraft owners to keep their tie down space neat and free of debris or trash. • Do not allow placement of gas cans, oil containers, or other potential pollutants to stormwater in tie-down areas. • Contain spills and leaks immediately and dispose of spilled or leaked materials properly. • Check aircraft on tie-downs regularly (weekly) for leaks particularly aircraft that have not been flown for an extended period .
Fueling areas	<ul style="list-style-type: none"> • Provide adequate supplies of clean up materials nearby.

Table 3-1	
Good Housekeeping and Preventative Maintenance BMPs	
Areas of Concern	BMPs
	<ul style="list-style-type: none"> • Maintain fueling tanks and dispensing equipment. • Do not hose down spills or leaks but instead use absorbent materials and dispose of properly. • Avoid "hot refueling" of aircraft. • Continue to Fuel equipment (i.e.: the tractor) on the fueling apron away from stormwater catchment basins.
Aircraft and equipment washing areas	<ul style="list-style-type: none"> • Restrict aircraft or vehicle washing to designated wash area.
Equipment Maintenance	<ul style="list-style-type: none"> • Check equipment and vehicles regularly for leaks and repair any leaks promptly. • At a minimum check valves, pumps, flanges and other connections in equipment for leaks since these are common areas for leaks to occur.
Aircraft preflight checks	<ul style="list-style-type: none"> • Restrict pilots conducting preflight fuel sump checks to use GATS¹⁰ jars or equivalent instead of discarding sumped fuel on the ground.
Aircraft or Runway De-icing	<ul style="list-style-type: none"> • The Airport does not currently offer de-icing services for aircraft. If de-icing is offered in the future the SWPPP will need to be updated to incorporate BMPs to reduce or prevent pollutants associated with de-icing activities from entering the stormwater system. The airport does not de-ice the runway.
Material storage and handling	<ul style="list-style-type: none"> • Look for signs that materials are being lost during loading/unloading operations. • Reduce inventory quantities of possible pollutants stored at the Airport. • Assure that adequate space is provided for material storage. • Keep material containers away from traffic areas to prevent accidental spills. • Store all chemicals and lubricants indoors, properly label containers and store on shelves whenever

¹⁰ See Appendix E for GATS jar literature

Table 3-1	
Good Housekeeping and Preventative Maintenance BMPs	
Areas of Concern	BMPs
	<p>practical.</p> <ul style="list-style-type: none"> • Maintain a current inventory of materials. • Assure that all containers are properly labeled to show the type of substance, expiration date, potential health hazard, suggestions for handling, and first aid instructions. • Substitute less harmful substances whenever practicable. • Recycle pollutants that cannot be eliminated completely from use. • Locate waste and recycling containers in controlled areas of the Airport. • Recycle cleaning agents where possible.
Building and grounds maintenance	<ul style="list-style-type: none"> • Plant vegetation that reduces or eliminates the need for irrigation, pesticides, and fertilizers. • Clean gutters and storm drains on a regular basis. • Remove trash and dispose of properly. • Stockpile majority of snow in areas that drain toward treatment components of the stormwater management system to allow for treatment of melt water.
Aircraft maintenance	<ul style="list-style-type: none"> • Investigate the use of non-caustic detergents for parts cleaning. • Use detergent or water based cleaning agents where practical. • Replace chlorinated organic solvents with non-chlorinated solvents where possible. • Place drip pans under aircraft that might leak while work is being performed. • Transfer used fluids to proper waste or recycling containers for proper disposal. • Continue to maintain aircraft in the maintenance hangar, indoors.
Employee training	<ul style="list-style-type: none"> • Incorporate good housekeeping practices into Airport's

Table 3-1	
Good Housekeeping and Preventative Maintenance BMPs	
Areas of Concern	BMPs
	<p>employee training program.</p> <ul style="list-style-type: none"> • Discuss good housekeeping items at employee meetings including how to contain spills, no topping off of fuel tanks, how to contact the proper authorities, and encouraging the use of GATS jars. • Post a bulletin board in the maintenance hangar with reminders, tips and procedures for good housekeeping.
Airport Lease Holders	<ul style="list-style-type: none"> • Require all lease holders to maintain their own SWPPP by lease condition. • Provide a copy of this SWPPP and its accompanying SPCC Plan to all Airport lease holders.
Runway	<ul style="list-style-type: none"> • Sweep runway twice annually to remove sediments.
Stormwater Management Systems	<ul style="list-style-type: none"> • See Appendix M – Long Term Pollution Prevention Plan & Stormwater Operations & Maintenance Plan for inspection and maintenance of stormwater system components. Structural BMPs to be maintained include deep sump catch basins, vegetated filter strips, dry detention basins, grassed channels, infiltration basins, leaching catch basins, and rip-rap aprons. Where Routine Facility Inspections occur more frequently than inspections planned for a control measure in the Stormwater O&M Plan, the quarterly frequency of the Routine Facility Inspection shall govern.

Table 3-2	
BMPs to Address Specific Pollutant Sources	
Stormwater Pollutant Sources	Related BMPs
1. Aircraft fueling	Fueling limited to Airport staff; fuel pumps protected by bollards; emergency shut-offs in place; spill containment equipment within easy reach of fueling area with emergency contact information in case of a spill.
2. Sand/salt	N/A - Not currently used
3. De-icers	N/A - Not currently used

Table 3-2 BMPs to Address Specific Pollutant Sources	
4. Aircraft Engine oils and lubricants	Stored inside, off floor; repairs limited to Maintenance Hangar; aircraft and vehicles routinely checked for leaks, particularly those on turf tie-downs. Airport policy prohibits storage of fuel or oil in hangars other than that contained in the garaged aircraft itself, or the aircraft owner's vehicle that is stored when the owner is away on a flight.
5. Paint, Paint Thinner	Stored inside, off the floor, properly marked in containers checked regularly for leaks or rust. Empty containers properly disposed.
6 Batteries and battery acid	Stored inside, recycled when possible.
7. Runway grease or rubber	No significant build-up on runway. Remove excess build-up on runway if it occurs.
8. Cleaners and solvents	Stored inside/recycled, off floor, in clearly labeled containers.
9. Waste Oil	Stored inside of Maintenance Hangar and recycled. Containers routinely checked for leaks or rust.

Where practical, potential sources of pollution will be reduced by use of substitute non-toxic products; Technical assistance may be obtained through the Massachusetts Toxics Use Reduction Institute at (617) 626-1060 or on the web at <http://www.mass.gov/ota>; for education and research on toxics use reduction call the Toxics Use Reduction Institute at (978) 934-3275 or reach the institute on the web at <http://www.turi.org>.

3.2 Maintenance of Control Measures

The Airport must maintain all control measures identified in this SWPPP and implemented at the Airport in effective physical operating condition at all times. Failure to do so is a violation of the MSGP.

When, during inspections or any other event or observation, the Airport identifies control measures in need of routine maintenance (such as an infiltration basin that is filled with soil or debris and is not allowing the stormwater to infiltrate), the necessary maintenance must be conducted immediately. If a control measure is found to need repair or replacement, all reasonable steps to prevent or minimize discharge of pollutants will be taken immediately. Final repair/replacement should be completed as soon as feasible, but must be completed within 14 days, or if that infeasible, within 45 days. If the 45 day timeframe will be exceeded, the Airport will take the minimum additional time necessary, notify the EPA regional, and document in the SWPPP the justification for the extended repair schedule. In the interim, the Airport must put in place backup measures to ensure that the quality of its stormwater discharge is not diminished. There is no grace period in the MSGP for making control measure repairs.

The Airport must document all maintenance and repairs in the SWPPP, including dates of routine maintenance. For repairs, the date of deficiency discovery and the date on which the BMP was restored to full-function should also be documented in the SWPPP (See Maintenance Log in Appendix A).

3.3 Erosion Prevention and Sediment Controls

The Airport will maintain areas prone to erosion using methods including, but not limited to: application of rip-rap, turf, installation of silt fencing, or stone/hay bale check dams. The purpose of these methods is to prevent soil from entering the stormwater system. Sediment controls at the Airport also include vegetated swales, catch/leaching basins, a stormwater detention basin, and infiltration basins.

3.4 Mobile Refueler Requirements

Mobile refueler trucks are regulated as aboveground storage tanks (ASTs) under the USEPA Spill Prevention Countermeasure and Control (SPCC) rule. USEPA Oil Pollution Prevention regulations¹¹ require that any aboveground container for the storage of oil be provided with appropriate containment or diversionary structures to prevent discharge. See the Airport's Spill Prevention Control Countermeasures Plan (SPCC) in Appendix D for additional information about the use of mobile refueler trucks.

3.5 Employee Training

Participation by all employees, users, and vendors in this SWPPP is key to successfully protecting stormwater from pollutants. One aspect of this participation is recurrent SWPPP training for Airport employees and leaseholders. The more knowledgeable these participants are in SWPPP requirements and recommendations, the greater the chances of success of this SWPPP. The topics covered during these training sessions can vary but are focused around spill prevention and response, good housekeeping and other BMPs, record keeping, and other goals of the SWPPP. The Airport will document these training sessions by including an attendee roster and a brief summary of the topic for each training session (See Employee Training Log in Appendix A). It should be noted that participation in these training sessions by leaseholders does not relieve the leaseholder from responsibility to train its own employees in its specific SWPPP requirements.

3.6 Construction Practices

For construction projects at the Airport, the Airport shall require that all contractors demonstrate compliance with applicable local, regional, state, and federal laws, rules and regulations with regard to the prevention of stormwater pollution. Where appropriate, the Airport shall review a contractor's stormwater pollution prevention and spill control plans to ensure they contain appropriate measures with respect to handling and storage of hazardous materials; repair of equipment, vehicles and tools; equipment and vehicle storage; equipment and vehicle fueling; and other practices that may pose a threat to surface or groundwater.

These plans should, at a minimum, address the locations where and conditions under which hazardous materials will be stored and the locations of construction activities (equipment fueling or repair, etc.) that pose a threat to stormwater.

¹¹ 40 CFR 112 *Oil Pollution Prevention*

4. EMERGENCY RESPONSE

The following is a suggested program for reducing the likelihood of an emergency spill (e.g., fueling spill, aircraft accident), and responding to an emergency spill if necessary. The program encompasses all potential pollutant sources identified in Section 2.7. The Airport also has a Spill Prevention, Control, and Countermeasure (SPCC) Plan (see Appendix D), which describes oil storage at the airport and identifies spill prevention and response procedures specifically for oil spills.

4.1 Pre-Spill Practices

4.1.1 Common Sense Practices and Spill Prevention

Airport employees should be trained to implement spill prevention practices for work with and around oil sources. Airport personnel should use common sense and rely on spill prevention practices at all times to minimize the potential for a release of oil.

For example, the following “common sense” practices are recommended:

- Keep container lids securely fastened at all times;
- Do not leave portable sources unattended (outside);
- Return portable sources to their storage location after use;
- Use pads, drip pans, and funnels when transferring petroleum products from a portable container;
- Protect oil sources from damage by moving equipment;
- Contaminated water should be removed and disposed of by a licensed hazardous waste contractor;
- Do not store oil sources near catch basins or drains that could lead to stormwater or groundwater contamination; and
- Loading and unloading of petroleum products should be attended at all times.

4.1.2 Potential Spill Area Identification

The activities and areas where spills are likely to occur are:

- Material loading and unloading areas (e.g., maintenance hangar and fueling facilities);
- Indoor storage areas (i.e., chemical storage);
- Fueling facilities (e.g., truck to aircraft);
- Solid waste storage facilities (i.e., dumpsters)
- Mobile refueler truck parking area.

4.1.3 Spill Prevention Procedures

Following is a list of actions that will lessen the potential for a spill:

- Maintain leak detection and overflow controls on fueling equipment.
- Do not top-off fuel tanks in aircraft.
- Use caution when fueling aircraft to prevent overflows.
- Continue to fuel equipment on the fueling apron.
- Implement material transfer procedures that reduce the chance of spills.
- Spill prevention during oil deliveries (offloading) is primarily the responsibility of the supplier until the product is safely in the tank or vessel; aircraft fueling is the responsibility of Airport personnel. The Airport should implement spill prevention measures for aircraft fueling and truck unloading operations.
- Inspect dumpsters weekly for leaks, failing parts, missing lid or other deficiency including overloading; correct any deficiencies found without delay.

4.1.4 Aircraft Refueling (Dispensing)

Only trained Airport personnel will perform aircraft fueling operations. Facility personnel will monitor the fueling area for safe and proper operation, and take immediate action to correct and deficiencies. Unattended fueling operation is not allowed (self-serve fueling is not allowed).

4.2 Emergency Response

This section describes the cleanup response protocols to follow in the event of a spill. State or federal laws prohibit the uncontrolled discharge of oil to groundwater, surface water, or soil. It is imperative that action be taken to respond to a spill once it has occurred. In the event of a spill, depending on the volume and characteristics of the material released, the Airport has defined spill response as either a “Minor Spill Response” or “Major Spill Response” (“Spill Emergency”). A list of Emergency Contacts is included in Appendix B. A list of recommended spill response materials that should be kept at the Airport in a central location is also included in Appendix B.

4.2.1 Minor Spill Response

A “Minor Spill Response” is defined as one that poses no significant harm to human health or the environment. These spills involve generally less than 10 gallons and can usually be cleaned up by Airport personnel. Other characteristics of a minor spill include the following:

- The spilled material is easily stopped or controlled at the time of the spill;
- The spill is localized;
- The spilled material is not likely to reach surface water or groundwater;
- There is little danger to human health;
- There is little danger of fire or explosion.

In the event of a minor spill the following guidelines shall apply:

- Immediately notify the senior on-site person (i.e., Airport Manager, or designee);
- Call the Massachusetts Department of Environmental Protection (1-888-482-0777) within two hours;
- Under the direction of the senior on-site person, contain the spill with spill response materials and equipment;
- Place spill debris in properly labeled waste containers and dispose of properly;
- Complete the Spill Notification Form (Appendix B) and send to the Marshfield Fire Prevention Officer.

4.2.2 Major Spill Response (Spill Emergency)

A “Major Spill Emergency” is defined as one involving a spill that cannot be safely controlled or cleaned up. Characteristics include the following:

- The spill is large enough to spread beyond the immediate spill area or is large enough to be reportable (see Appendix I for a list of Reportable Quantities of Hazardous Substances);
- The spilled material enters surface water or groundwater (regardless of spill size);
- The spill requires special training and equipment to cleanup;
- The spilled material is dangerous to human health;
- There is a danger of fire or explosion.

In the event of a spill emergency, the following guidelines shall apply:

- All workers shall immediately evacuate the spill site and move to a safe distance away from the spill.
- The senior on-site person shall call for medical assistance if workers are injured (no worker shall engage in rescue operations unless they have been properly trained and equipped).
- The senior on-site person shall immediately contact the Massachusetts Department of Environmental Protection (1-888-482-0777) and the National Response Center (1-800-424-8802). Document the telephone call on the Spill Notification Form in Appendix B.
- Notify the Marshfield Fire Department or Marshfield Police Department (Call 911).
- The senior on-site person shall contact the Airport Manager and the Airport Commission Chairman and provide details regarding the spill.
- The Airport Manager will coordinate cleanup efforts and seek assistance from a cleanup contractor as necessary. The party responsible for the spill will be charged for all cleanup and reporting costs, and will be legally liable for the release.

If a senior on-site person is not available at the time of the spill, then the next highest Airport employee in command shall assume responsibility.

4.2.3 Spill Response Equipment

Spill response equipment as outlined in the checklist in Appendix B should be stored convenient to the fuel pumps and maintenance hangar.

4.2.4 Waste Disposal

Wastes resulting from a minor spill response will be containerized in impervious bags, drums, or buckets. The waste will be removed from the site by a licensed waste hauler within two weeks.

Wastes resulting from a major spill response will be removed and disposed of by a cleanup contractor.

4.2.5 Notification and Reporting

In the event of a minor spill, the senior on-site person shall notify the Airport Manager and Airport Commission Chairman, complete a written Spill Notification Form (see Appendix B), and file the completed form with the SWPPP. This form details the time, material, and quantity of substance released.

If a major spill occurs the Airport Manager shall, **in addition to the notification procedures above**, provide written information to the EPA Regional Administrator. A copy of this information must also be provided to the MDEP.

After the appropriate phone calls are made and the spill is contained, the Spill Notification Form shall be submitted to the Marshfield Fire Department Fire Prevention Officer. The Spill Notification Form includes a checklist to document the proper notification of state and federal agencies. The form shall be filed and maintained as long as the Town of Marshfield owns and/or operates this facility.

4.2.6 SWPPP Update Post-Discharge

The SWPPP must be updated following a discharge, with an evaluation of the success or failure of the SWPPP and any necessary improvements, with particular attention to BMP's involved.

4.3 Area Plans

The EPA administers Area Plans for spill contingency response by Region throughout the United States. In a major spill event, contacting the National Response Center hotline (1-800-424-8802) will trigger assistance from the appropriate agency, if needed.

5. PROGRAM IMPLEMENTATION

This section presents an implementation schedule for the Airport to follow in order to maintain this SWPPP. It is the responsibility of the Airport to see that the required monitoring, training and maintenance of BMPs is performed as described in this SWPPP. An additional requirement of the MSGP is that this SWPPP be evaluated and amended as needed, and records of any such evaluations be kept with this SWPPP.

5.1 Implementation Schedule

In order to be in compliance with the MSGP, certain recommendations are required to be implemented at the Airport. For a complete list of recommended actions, see the *SWPPP Implementation Schedule* located at the front of this report. All recommendations in this SWPPP should be implemented as soon as practicable.

5.2 Schedules for New and Recurrent Training

Training of tenants, Airport personnel and users is essential to the effectiveness of the SWPPP. The SWPPP training program includes, but is not limited to:

Spill Prevention and Response

- Potential spill areas and stormwater drainage patterns are identified and information on past spills and causes are provided.
- Spill containment procedures are discussed and the location and proper use of spill response equipment is identified.
- Significant (reportable) spills are reported as required in the SWPPP.
- Material handling and storage procedures and requirements are provided.
- On-site contractors and temporary personnel are informed of Airport operations with a view toward preventing accidental discharges and spills.

Good Housekeeping

- Airport tenants and personnel are instructed on how to maintain a clean and orderly work environment with an emphasis on regular sweeping, prompt cleanup of spilled materials, and instruction on securing drums and other containers and frequently checking for spills or leaks.

Materials Management Practices

- The importance of organizing stored materials is discussed.
- Identify all toxic or hazardous materials or substances that are stored or handled on-site.
- Discuss proper handling and storage procedures for all toxic or hazardous materials.
- Unacceptable practices such as hosing down work areas or washing or pouring materials down drains and sinks is discussed.

Scheduled tenant and Airport personnel employee training should occur at least once each year or at the time a new employee is hired, as well as when changes to the SWPPP are made (see Employee

Training Log in Appendix A). Training updates or bulletins should be posted in the Airport Manager's office in a conspicuous location.

5.3 Maintaining an Updated SWPPP

The SWPPP must be reviewed and evaluated annually for effectiveness and updated whenever there is:

- Construction or a change in design;
- Operation or maintenance that may have a significant impact on the discharge, or potential for discharge, of pollutants;
- Whenever deficiencies in the BMPs are detected;
- Whenever an inspection by a local, state, tribal or federal official (other than EPA) determines that modifications are necessary;
- Whenever there is a spill, leak or other release;
- Any time there is an unauthorized discharge from the Airport.

SWPPP modifications must be made within 14 calendar days after discovery, observation, or event requiring a SWPPP modification.

5.4 Inspections and Monitoring

5.4.1 Routine Facility Inspections

Qualified personnel, such as the Airport Manager or designee, will conduct a routine facility inspection once each quarter. Facility inspections will be performed by the individuals designated in the Pollution Prevention Team as having responsibility and expertise in conducting such reviews. At least one member of the SWPPP team will be present for the inspection. The following areas must be inspected:

- ➔ Areas where industrial materials are exposed to stormwater;
- ➔ Areas identified in the SWPPP and those that are potential pollutant sources;
- ➔ Areas where spills and leaks have occurred in the past 3 years;
- ➔ Discharge points; and
- ➔ Control measures used to comply with effluent limits.

Inspectors will examine the following:

- ➔ Industrial materials, residue or trash that may have or could come into contact with stormwater;
- ➔ Leaks or spills from industrial equipment, drums, tanks, and other containers;
- ➔ Offsite tracking of industrial or waste materials, or sediment where vehicles enter or exit the site;
- ➔ Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas;

- Control measures needing replacement, maintenance, or repair;
- Evidence of, or the potential for, pollutants entering the drainage system;
- Evidence of pollutants discharging to surface waters; and
- Stormwater BMPs identified in the SWPPP.

At least once each calendar year, the routine inspection will be conducted while stormwater discharge is occurring and stormwater BMPs are in active operation. Where discharge locations are inaccessible, nearby downstream locations will be inspected. Findings must be documented and kept with this report. A Routine Facility Inspection Report template is included in Appendix A.

5.4.2 Quarterly Visual Assessment of Stormwater Discharges

Once each quarter a stormwater sample will be collected from each outfall and visually assessed. The samples will be collected in such a manner that they are representative of the stormwater discharge. A clean, colorless glass or plastic container will be used. The sample will be examined in a well-lit area.

Samples will be collected within the first 30 minutes of an actual discharge from a storm event. If it is not possible to collect the sample within the first 30 minutes of discharge, the sample will be collected as soon as practicable after the first 30 minutes and the assessor should document why it was not possible to take the sample within the first 30 minutes. The sampled discharges should be from a storm event occurring at least 72 hours (three days) from the previous discharge.

The following water quality characteristics will be visually inspected or observed:

- Color;
- Odor;
- Clarity (diminished);
- Floating solids;
- Settled solids;
- Suspended solids;
- Foam;
- Oil sheen; and
- Other obvious indicators of stormwater pollution.

The first quarterly visual assessment of each calendar year is tentatively planned for January. This assessment should be performed at a time when snowmelt discharge can be captured. It may be delayed as necessary, but not beyond March 31st.

Whenever the visual assessment shows evidence of stormwater pollution, a corrective action procedure will be initiated. See section 4 of the MSGP for corrective action procedures. The results of visual assessments will be documented and maintained onsite with this SWPPP. A Quarterly Visual Assessment Report form is included in Appendix A.

5.4.3 IMPAIRED WATERS MONITORING

Outfalls #1 and #6 discharges to Green Harbor River, which has been identified as impaired by turbidity (See section 2.6 – Receiving Waters). Beginning in the first full quarter following September 2, 2015, Outfalls #1 and #6 will be monitored once per year for Total Suspended Solids (TSS).

Monitoring will be performed on a storm event that results in an actual discharge (“measurable storm event”) that follows a preceding measurable storm event by at least 72 hours (3 days). In the case of snowmelt, the monitoring will be performed at a time when a measurable discharge occurs.

A minimum of one grab sample will be taken. Methods for preparing sample containers and collecting samples can be found in Appendix J – Chapter 5 Water Quality Conditions (USEPA). Sample containers shall be cleaned and rinsed before sampling.

Samples shall be collected within the first 30 minutes of discharge. If it is not possible to collect the sample within the first 30 minutes, the sample shall be collected as soon as practicable after the first 30 minutes. An explanation of the delay must be documented and kept with this SWPPP. In the case of snowmelt, samples shall be taken during a period with a measurable discharge.

Samples shall be sent to a lab for total solids analysis and tested within seven days of collection. They should be kept on ice or refrigerated.

Monitoring data will be reported using the EPA’s electronic NetDMR tool at www.epa.gov/netdmr no later than 30 days after complete laboratory results have been received. If Total Suspended Solids in the discharge from Outfall #4 are found to be minimal, the airport may request that monitoring be discontinued.

5.5 Annual Reporting

An Annual Report will be submitted electronically to the EPA by January 30th for each year of MSGP coverage. The report will contain information generated from the past calendar year. The following information will be included:

- A summary of the past year’s routine facility inspection documentation;
- A summary of the past year’s quarterly visual assessment documentation; and
- A summary of any corrective action documentation from the past year, any incidents of noncompliance, or if none, a statement that the Airport is in compliance with the MSGP.

The Annual Report shall be submitted using the EPA’s electronic NPDES eReporting tool (NeT), accessible at <http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-eNOI-System-for-EPAs-MultiSector-General-Permit.cfm>.

5.6 Additional EPA Reporting

The Airport shall report to the EPA Regional office:

- Any noncompliance which may endanger health or the environment. Once the Airport is aware of the noncompliance, the Airport must provide the information orally to the EPA within 24 hours. Follow-up the 24 hour oral report with a written submission to the EPA within 5 days of the time the Airport becomes aware of the noncompliance. Compliance schedules shall be submitted no later than 14 days following each schedule date.

- Notice of no less than 30 days before making any planned physical alterations or additions that would qualify the Airport as a new source or that could significantly change the nature or significantly increase the quantity of pollutants discharged.

If the Airport becomes aware of that they failed to submit facts in the NOI or they submitted incorrect data in the NOI or other report, the Airport shall submit the facts and/or data to the EPA promptly.

5.7 Record Keeping

Records of all spills will be maintained and used to provide guidance in developing future BMPs to prevent similar spills in the future.

All completed forms and other records pertaining to the SWPPP including inspection reports and communications with regulatory agencies should be maintained in Appendix A of this SWPPP.

5.8 SWPPP Revision

This SWPPP has been prepared to conform to the requirements of the 2015 MSGP. The Airport facility must be inspected annually and this SWPPP must incorporate any changes to the stormwater management system, daily operations, material storage, material handling, or material processing that occurs at the Airport.

APPENDIX A

ADDITIONAL MSGP DOCUMENTATION

Additional MSGP Documentation

For:

George D. Harlow Field
93 Old Colony Lane
Marshfield, MA 02050
MAR05DI20

Instructions:

- Keep the following inspection, corrective action, monitoring, and certification records in the same location that you keep your SWPPP:
 - A copy of the NOI submitted to EPA along with any correspondence exchanged between you and EPA specific to coverage under this permit (you should already have this);
 - A copy of the acknowledgment you receive from the EPA assigning your NPDES ID (you should already have this);
 - A copy of 2015 MSGP (you can provide an electronic copy);
 - Documentation of maintenance and repairs of control measures, including the date(s) of regular maintenance, date(s) of discovery of areas in need of repair/replacement, and for repairs, date(s) that the control measure(s) returned to full function, and the justification for any extended maintenance/repair schedules (see Part 2.1.2.3);
 - All inspection reports, including the Routine Facility Inspection Reports (see Part 3.1) and Quarterly Visual Assessment Reports (see Part 3.2.2);
 - Description of any deviations from the schedule for visual assessments and/or monitoring, and the reason for the deviations (e.g., adverse weather or it was impracticable to collect samples within the first 30 minutes of a measurable storm event) (see Parts 3.2.3 and 6.1.5);
 - Corrective action documentation required per Part 4.4;
 - Documentation to support any determination that pollutants of concern are not expected to be present above natural background levels if you discharge directly to impaired waters, and that such pollutants were not detected in your discharge or were solely attributable to natural background sources (see Part 6.2.4.1);
- With the exception of the first 3 items, these are records that you will be updating throughout the permit term. Follow the instructions in Sections A through L of this template to keep your records complete.

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G. Corrective Action Documentation.....	14
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A. Employee Training Log

Training Date:	
Training Description: Spill Prevention & Response, Good Housekeeping, Inspections, Material Management Practices, BMP Maintenance, Record Keeping	
Trainer:	
<u>Employee(s) trained</u>	<u>Employee signature</u>

Training Date:	
Training Description: Spill Prevention & Response, Good Housekeeping, Inspections, Material Management Practices, BMP Maintenance, Record Keeping	
Trainer:	
<u>Employee(s) trained</u>	<u>Employee signature</u>

Training Date:	
Training Description: Spill Prevention & Response, Good Housekeeping, Inspections, Material Management Practices, BMP Maintenance, Record Keeping	
Trainer:	
<u>Employee(s) trained</u>	<u>Employee signature</u>

B. Maintenance

Control Measure Maintenance Records (copy information below for each control measure)

Control Measure: [Grass Swales](#)

Regular Maintenance Activities: [Remove sediment as necessary, mow regularly during growing season.](#)

Regular Maintenance Schedule: [Inspect quarterly and at end of foliage and snow removal seasons.](#)

Date of Maintenance Action:

Reason for Action: Regular Maintenance Discovery of Problem
If Problem,

- Description of Action Required:
- Date Control Measure Returned to Full Function:
- Justification for Extended Schedule, if applicable:

Notes:

Control Measure: [Catch Basins](#)

Regular Maintenance Activities: [Clean with a vacuum or clamshell apparatus.](#)

Regular Maintenance Schedule: [Inspect basins quarterly. Clean annually, or when accumulated sediment reaches half the sump depth or half the depth from the bottom of the outlet hood to the bottom of the basin.](#)

Date of Maintenance Action:

Reason for Action: Regular Maintenance Discovery of Problem
If Problem,

- Description of Action Required:
- Date Control Measure Returned to Full Function:
- Justification for Extended Schedule, if applicable:

Notes:

Control Measure: [Leaching Basins](#)

Regular Maintenance Activities: [Clean with a vacuum or clamshell apparatus.](#)

Regular Maintenance Schedule: [Inspect basins quarterly. Remove sediment when basin is 50% filled.](#)

Date of Maintenance Action:

Reason for Action: Regular Maintenance Discovery of Problem
If Problem,

- Description of Action Required:
- Date Control Measure Returned to Full Function:
- Justification for Extended Schedule, if applicable:

Notes:

Control Measure: [Infiltration Basins](#)

Regular Maintenance Activities: [Remove grass clippings, accumulated organic matter, trash, and debris. Break up clogged surfaces. Remove sediment as necessary. Till remaining soil and revegetate.](#)

Regular Maintenance Schedule: [Inspect quarterly. Mow at least twice per year.](#)

Date of Maintenance Action:

Reason for Action: **Regular Maintenance** **Discovery of Problem**
If Problem,

- **Description of Action Required:**
- **Date Control Measure Returned to Full Function:**
- **Justification for Extended Schedule, if applicable:**

Notes:

Control Measure: [Extended Detention Basin](#)

Regular Maintenance Activities: [Remove trash and debris. Remove sediment and clean forebay per the maintenance schedule below. Repair eroded areas.](#)

Regular Maintenance Schedule: [Inspect quarterly and at end of foliage and snow removal seasons. Remove sediment when accumulation exceeds 6 inches, at least once every 10 years. Clean forebay when sediment accumulation reaches depth of 1 foot.](#)

Date of Maintenance Action:

Reason for Action: **Regular Maintenance** **Discovery of Problem**
If Problem,

- **Description of Action Required:**
- **Date Control Measure Returned to Full Function:**
- **Justification for Extended Schedule, if applicable:**

Notes:

Control Measure: [Good Housekeeping](#)

Regular Maintenance Activities: [Keep tie-down space neat and free of debris, trash, gas containers, or other pollutants. Check aircraft on tie-downs for leaks and inspect dumpsters.](#)

Regular Maintenance Schedule: [Weekly](#)

Date of Maintenance Action:

Reason for Action: **Regular Maintenance** **Discovery of Problem**
If Problem,

- **Description of Action Required:**
- **Date Control Measure Returned to Full Function:**
- **Justification for Extended Schedule, if applicable:**

Notes:

C. Routine Facility Inspection Reports

Instructions:

- Include in your records copies of all routine facility inspection reports completed for the facility.
- The sample inspection report is consistent with the requirements in Part 3.1.2 of the 2015 MSGP relating to routine facility inspections.

Using the Sample Routine Facility Inspection Report

- When conducting the inspection, walk the site by following your site map and numbered control measures/areas of industrial activity to be inspected. Also note whether the “Areas of Industrial Materials or Activities exposed to stormwater” have been addressed (customize this list according to the conditions at your facility). Note any required corrective actions and the date and responsible person for the correction.

Stormwater Industrial Routine Facility Inspection Report

General Information			
Facility Name	George D. Harlow Field		
NPDES Tracking No.	MAR05DI20		
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications			
Weather Information			
Weather at time of this inspection?			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snow <input type="checkbox"/> High Winds <input type="checkbox"/> Other: _____ Temperature: _____			
Have any previously unidentified discharges of pollutants occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			
Are there any discharges occurring at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____			

Control Measures

- Number the structural stormwater control measures identified in your SWPPP on your site map and list them below (add as many control measures as are implemented on-site). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required control measures at your facility.
- Identify if maintenance or corrective action is needed.
 - If maintenance is needed, fill out section B of this template
 - If corrective action is needed, fill out section G of this template

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Maintenance or Corrective Action Needed and Notes
I14	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C7	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C3	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
S1	Grass Swale	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
D1	Detention Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C1	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C2	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Maintenance or Corrective Action Needed and Notes
C4	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I1	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I2	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C5	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C6	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I3	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I4	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C8	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C9	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I5	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I6	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I7	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C10	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I8	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
S3	Grass Swale	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C11	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C12	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I9	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I10	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance	

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Maintenance or Corrective Action Needed and Notes
			<input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C13	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C14	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C15	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C16	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I11	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I12	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
I13	Infiltration Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C17	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
S4	Grass Swale	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
S5	Grass Swale	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C18	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C19	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
L3	Leaching Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C20	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
L2	Leaching Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
L1	Leaching Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C21	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
L4	Leaching Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair	

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Maintenance or Corrective Action Needed and Notes
			<input type="checkbox"/> Replacement	
C22	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C23	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
C24	Catch Basin	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
S2	Grass Swale	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Maintenance <input type="checkbox"/> Repair <input type="checkbox"/> Replacement	

Areas of Industrial Materials or Activities Exposed to Stormwater

Below are some general areas that should be assessed during routine inspections. Customize this list as needed for the specific types of industrial materials or activities at your facility that are potential pollutant sources. Identify if maintenance or corrective action is needed. If maintenance is needed, fill out section B of this template. If corrective action is needed, fill out section G of this template.

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective and operating)?	Maintenance or Corrective Action Needed and Notes
1	Material loading/unloading and storage areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2	Equipment operations and maintenance areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3	Fueling areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4	Outdoor vehicle and equipment washing areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5	Waste handling and disposal areas	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
6	Erodible areas/construction	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	
7	Dust generation and vehicle tracking	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective and operating)?	Maintenance or Corrective Action Needed and Notes
8	Immediate access roads used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Discharge Points

At discharge points, describe any evidence of, or the potential for, pollutants entering the drainage system. Also describe observations regarding the physical condition of and around all outfalls, including any flow dissipation devices, and evidence of pollutants in discharges and/or the receiving water. Identify if any corrective action is needed.

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

Additional Control Measures

Describe any additional control measures needed to comply with the permit requirements:

Notes

Use this space for any additional notes or observations from the inspection:

Checked For:

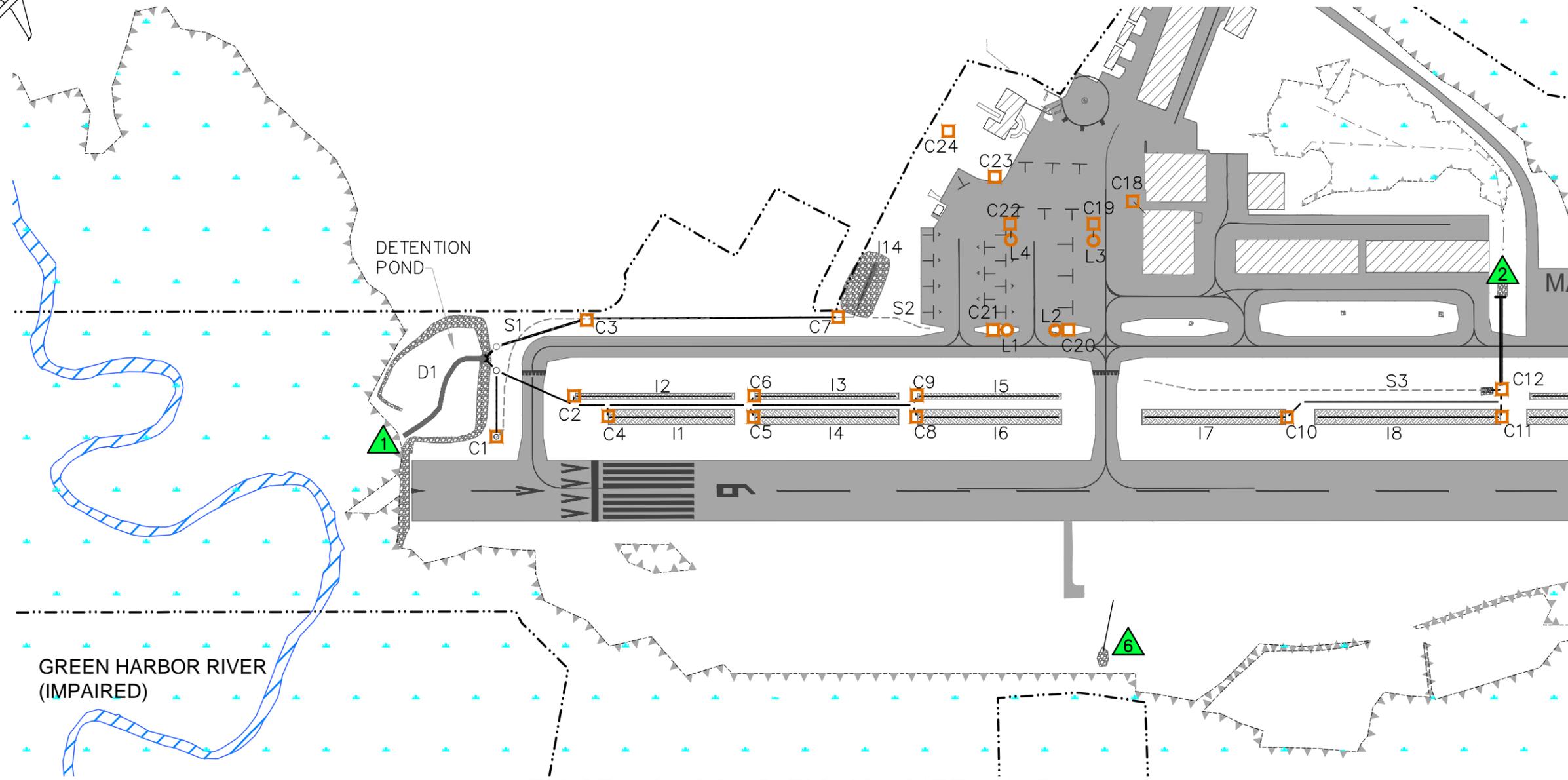
- Corroded drums or drums without plugs or covers
- Corroded or damaged tanks, tank supports, or tank drain valves
- Torn bags or bags exposed to rainwater
- Corroded or leaking pipes
- Leaking or improperly closed or seated valves and valve fittings
- Broken walls, leaking roofs or other physical barriers designed to prevent stormwater from reaching stored materials
- Windblown dry chemicals
- Signs of erosion or sedimentation
- Deteriorated headwalls or blocked culverts

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title: _____

Signature: _____ **Date:** _____



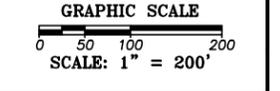
EXISTING CONDITIONS SITE MAP

MATCHLINE - CONT. ON FIG. NO. 2.3

GALE
 Gale Associates, Inc.
 Engineers - Planners
 15 Constitution Drive
 Bedford, NH 03110
 P 603.471.1887
 F 603.471.1809
 www.gainc.com
 Boston Baltimore Orlando San Francisco
 This drawing and the design and construction features disclosed are proprietary to Gale Associates, Inc. and shall not be altered or reused in whole or part without the express written permission of Gale Associates, Inc.
 Copyright ©2015

PROJECT STORMWATER POLLUTION PREVENTION PLAN	OWNER MARSHFIELD MUNICIPAL AIRPORT
---	---------------------------------------

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	CAR		
DRAWN BY	CAR		
CHECKED BY	EWS		
DATE	8/18/2015		



SHEET TITLE
 EXISTING CONDITIONS SITE MAP

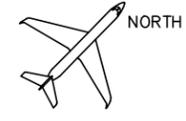
DRAWING NO.
FIG-2.2

U:\77002-0812-Removal Final Design\77002-0812-Removal\SWPPP\Drawings\SWPPP\Existing Conditions Map\Figures 2.2 A, 2.3 Map, 9/5/2015 9:44:44 AM.dwg

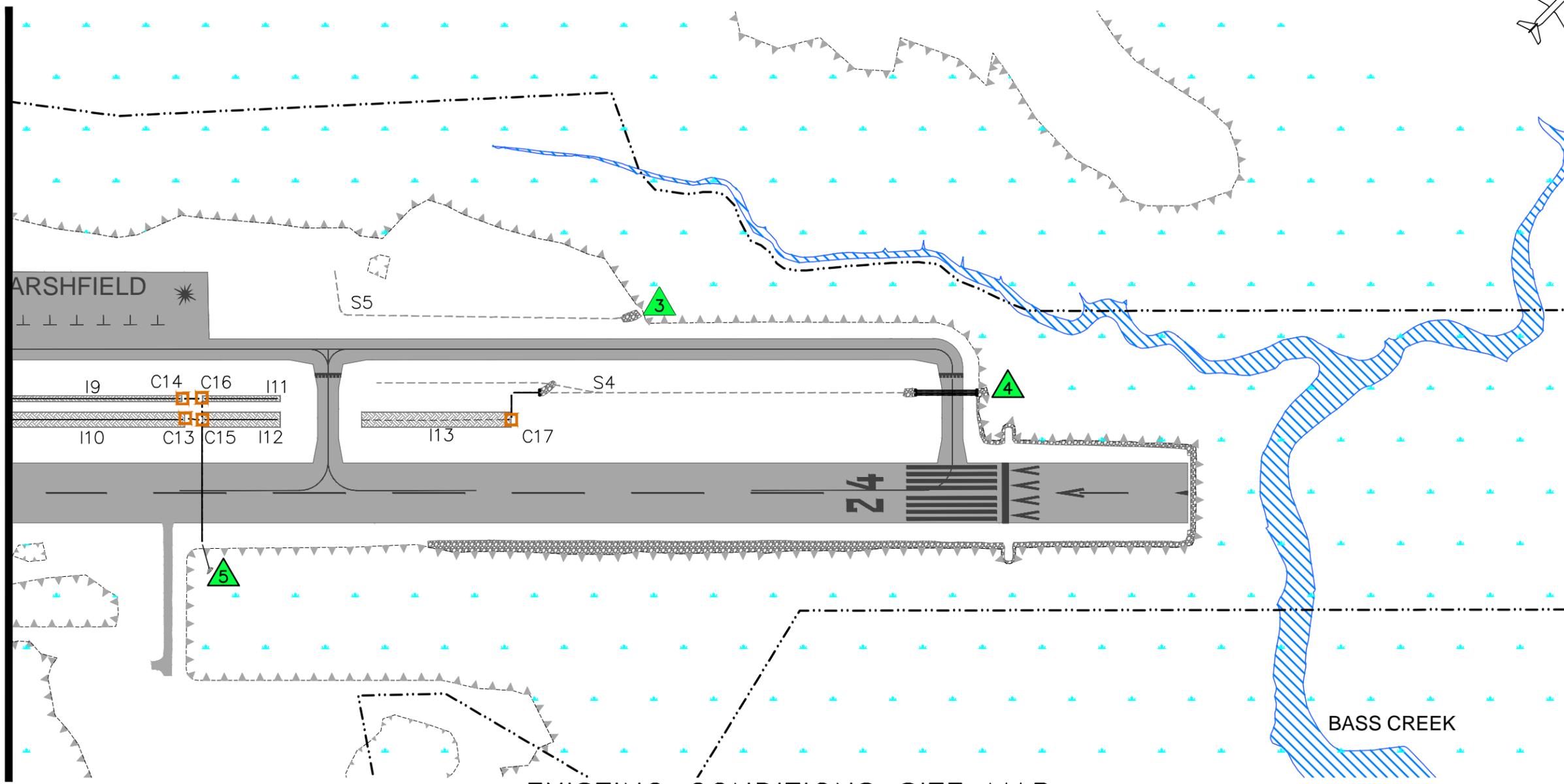
LEGEND

	DRAIN PIPE *SEE NOTE 2		WETLANDS
	RIP RAP STABILIZATION		PAVEMENT
	INFILTRATION BASIN		PROPERTY LINE
	CREEK/RIVER		STORMWATER OUTFALL
	CATCH BASIN		
	LEACHING BASIN		
	DRAINAGE SWALE		

NOTES:
 1. NOT ALL SWALES/CHANNELS ARE SHOWN. SEE FIGURE 2.1 FOR ADDITIONAL SWALE/CHANNEL LOCATIONS.
 2. THICKNESS OF DRAIN PIPE LINE REPRESENTS RELATIVE SIZE (DIAMETER) OF THE PIPE RUN



MATCHLINE - CONT. ON FIG. NO. 2.2



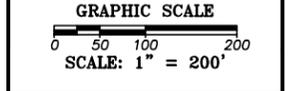
EXISTING CONDITIONS SITE MAP

LEGEND	
	DRAIN PIPE *SEE NOTE 2
	RIP RAP STABILIZATION
	INFILTRATION BASIN
	CREEK/RIVER
	CATCH BASIN
	LEACHING BASIN
	DRAINAGE SWALE
	WETLANDS
	PAVEMENT
	PROPERTY LINE
	STORMWATER OUTFALL

- NOTES:
- NOT ALL SWALES/CHANNELS ARE SHOWN. SEE FIGURE 2.1 FOR COMPLETE SWALE/CHANNEL LOCATIONS.
 - THICKNESS OF DRAIN PIPE LINE REPRESENTS RELATIVE SIZE (DIAMETER) OF THE PIPE RUN

PROJECT	STORMWATER POLLUTION PREVENTION PLAN
OWNER	MARSHFIELD MUNICIPAL AIRPORT

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	CAR		
DRAWN BY	CAR		
CHECKED BY	EWS		
DATE	8/18/2015		



SHEET TITLE

EXISTING CONDITIONS SITE MAP

DRAWING NO.

FIG-2.3

3 OF 3

U:\77002_G012_Removal_Final_Design\DWG\MarshfieldMunicipalAirport\SWPPP\ExistingConditionsMap\Fig2.3.dwg, 9/5/2015 9:55:53 AM, car

D. Quarterly Visual Assessment Reports

Instructions:

- Include in your records copies of all quarterly visual assessment reports completed for the facility (Part 3.2.2).

MSGP Quarterly Visual Assessment Form

(Complete a separate form for each outfall you assess)

Name of Facility: **George D. Harlow Field**

NPDES Tracking No. **MAR05DI20**

Outfall Name: "Substantially Identical Discharge Point"?

Yes (identify substantially identical outfalls):
 No

Person(s)/Title(s) collecting sample:

Person(s)/Title(s) examining sample:

Date & Time Discharge Began:

Date & Time Sample Collected:

Date & Time Sample Examined:

If sample not taken within first 30 minutes, explain why:

Substitute Sample? No Yes (identify quarter/year when sample was originally scheduled to be collected):

Nature of Discharge: Rainfall Snowmelt

If rainfall: Rainfall Amount (inches):

Previous Storm Ended > 72 hours Before Start of This Storm? Yes No* (explain):

Pollutants Observed

Color None Other (describe): _____

Odor None Musty Sewage Sulfur Sour Petroleum/Gas
 Solvents Other (describe): _____

Clarity Clear Slightly Cloudy Cloudy Opaque Other

Floating Solids No Yes (describe): _____

Settled Solids** No Yes (describe): _____

Suspended Solids No Yes (describe): _____

Foam (gently shake sample) No Yes (describe): _____

Oil Sheen None Flecks Globs Sheen Slick
 Other (describe): _____

Other Obvious Indicators of Stormwater Pollution No Yes (describe): _____

* The 72-hour interval can be waived when the previous storm did not yield a measurable discharge or if you are able to document (attach applicable documentation) that less than a 72-hour interval is representative of local storm events during the sampling period.

** Observe for settled solids after allowing the sample to sit for approximately one-half hour.

Identify probable sources of any observed stormwater contamination. Also, include any additional comments, descriptions of pictures taken, and any corrective actions necessary below (attach additional sheets as necessary).

Certification Statement (Refer to MSGP Subpart 11 Appendix B for Signatory Requirements)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. Name:

B. Title:

C. Signature:

D. Date Signed:

E. Monitoring results

Instructions:

- Include in your records copies of all monitoring results for the facility. Also include copies of monitoring data submitted to EPA's NetDMR reporting system.

F. Deviations from assessment or monitoring schedule

Instructions:

Include in your records:

- A description of any deviations from the schedule you provided in your SWPPP for visual assessments and/or monitoring (Part 5.5), and
- The reason for the deviations (e.g., adverse weather or it was impracticable to collect samples within the first 30 minutes of a measurable storm event) (Parts 3.2.3 and 6.1.5 of the 2015 MSGP).

Use the fields below to document the deviations. Repeat as necessary for any deviations.

Date:
 Visual assessments Monitoring
Describe deviation from schedule:
Reason for deviation:

Date:
 Visual assessments Monitoring
Describe deviation from schedule:
Reason for deviation:

Date:
 Visual assessments Monitoring
Describe deviation from schedule:
Reason for deviation:

Date:
 Visual assessments Monitoring
Describe deviation from schedule:
Reason for deviation:

G. Corrective Action Documentation

Instructions:

Within 24 hours of becoming aware of a condition identified in Parts 4.1 or 4.2 of the 2015 MSGP, document the existence of the condition and subsequent actions. Note that this information must be summarized in the annual report (as required in Part 7.5 of the 2015 MSGP).

Description of Condition:

For Spills and Leaks:

Description of Incident:

Material:

Date/Time:

Amount:

Location:

Reason for Spill:

Discharge to Waters of U.S.:

Date:

Immediate Actions:

Actions Taken within 14 Days:

14 Day Infeasibility:

45 Day Extension:

Description of Condition:

For Spills and Leaks:

Description of Incident:

Material:

Date/Time:

Amount:

Location:

Reason for Spill:

Discharge to Waters of U.S.:

Date:

Immediate Actions:

Actions Taken within 14 Days:

14 Day Infeasibility:

45 Day Extension:

H. Impaired Waters Monitoring: Documentation of Natural Background Sources or Non-Presence of Impairment Pollutant

Instructions:

This section applies only if your facility:

- Discharges directly to an impaired water without an EPA approved or established total maximum daily load (TMDL), and either your impaired waters monitoring results shows that the pollutant(s) for which the water is impaired is
 1. Not present and not expected to be present in your discharge, or
 2. Present, but you have determined its presence is caused solely by natural background sources. See Part 6.2.4.1 of the 2015 MSGP.

If # 1 applies to your facility, include here documentation that the impairment pollutant(s) was not detected in your discharge sample.

If # 2 applies to your facility, include the following documentation here:

- An explanation of why you believe that the presence of the pollutant(s) causing the impairment in your discharge is not related to the activities at your facility; and
- Data and/or studies that tie the presence of the pollutant(s) causing the impairment in your discharge to natural background sources in the watershed.

Note: You are reminded that the permit requires you to include a notification that you have met either condition # 1 or # 2 (above) in your monitoring report that you submit to EPA.

Date:

Check one of the boxes below and complete the additional documentation:

#1 – Pollutant(s) for which the water is impaired is not present and not expected to be present in your discharge

Attach documentation that the impairment pollutant(s) was not detected in your discharge sample(s).

#2 – Pollutant(s) for which the water is impaired is present, but you have determined its presence is caused solely by natural background sources.

Attach the following documentation:

- An explanation of why you believe that the presence of the pollutant(s) causing the impairment in your discharge is not related to the activities at your facility; and
- Data and/or studies that tie the presence of the pollutant(s) causing the impairment in your discharge to natural background sources in the watershed.

I. SWPPP Amendment Log

Instructions:

Include in your records:

- A log of the date and description of any amendments to your SWPPP.

Fill in the appropriate columns of this table for each amendment to your SWPPP.

Amend. No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

J. Miscellaneous Documentation

Instructions:

Use this section to keep records of any additional documentation that relates to your compliance with the permit.

APPENDIX B

**SPILL NOTIFICATION REPORT FORM, RECOMMENDED LIST OF SPILL
RESPONSE MATERIALS, EMERGENCY CONTACT LIST**

Spill Notification Report Form

Part A: Basic Spill Data		
Type of Spilled Substance:	Notification Person:	
Quantity Released:	Spill Date and Time:	
Location of Spill:	Discovery Date and Time:	
	SPILL DURATION:	
Facility Name & Location: Marshfield Municipal Airport 93 Old Colony lane Marshfield, MA 02050	Release to: <input type="checkbox"/> air <input type="checkbox"/> water <input type="checkbox"/> <input type="checkbox"/> soil <input type="checkbox"/> containment <input type="checkbox"/> other _____	
Owner / Company Name: Airport Commission 93 Old Colony lane Marshfield, MA 02050	Telephone: Facility: (781) 834-4928 24 hr.: (781) 249-7330	
Nature of spill and any environmental or health effects: <input type="checkbox"/> Injuries <input type="checkbox"/> Fatalities		
Part B: Notification Checklist		
Spill Type	Notification Date & Time	Name of Person that Received Call
Spill is any amount of petroleum product:		
Marshfield Fire Department 911		
Massachusetts Department of Environmental Protection 1-888-482-0777 or 617-556-1133		
Spill reaches groundwater or surface water:		
Marshfield Fire Department 911		
Massachusetts Department of Environmental Protection 1-800-482-0777		
USEPA National Response Center 1-800-424-8802		

Send a copy of completed form to the Town of Marshfield Fire Department Environmental Compliance Officer.

Recommended List of Minimum Spill Response Materials

Cleanup Equipment:

Non-sparking shovel
Push broom
Barriers
Speedy Dry
Drum container to hold equipment
Drum container to hold contaminated materials

Safety Equipment:

Eye Protection (goggles)
Protective Clothing
Fire Extinguisher
Vinyl or PVC Pull-on Over boots
Neoprene Gloves

Emergency Contact List

Spill Reporting Hotlines

Agency	Telephone #
Massachusetts Department of Environmental Protection Oil Spill Response	1-888-304-1133
National Response Center USCG/USEPA	1-800-424-8802

Local Emergency Agencies

Agency	Telephone #
Marshfield Fire Department	911
Marshfield Police Department	911

Spill Response Contractors

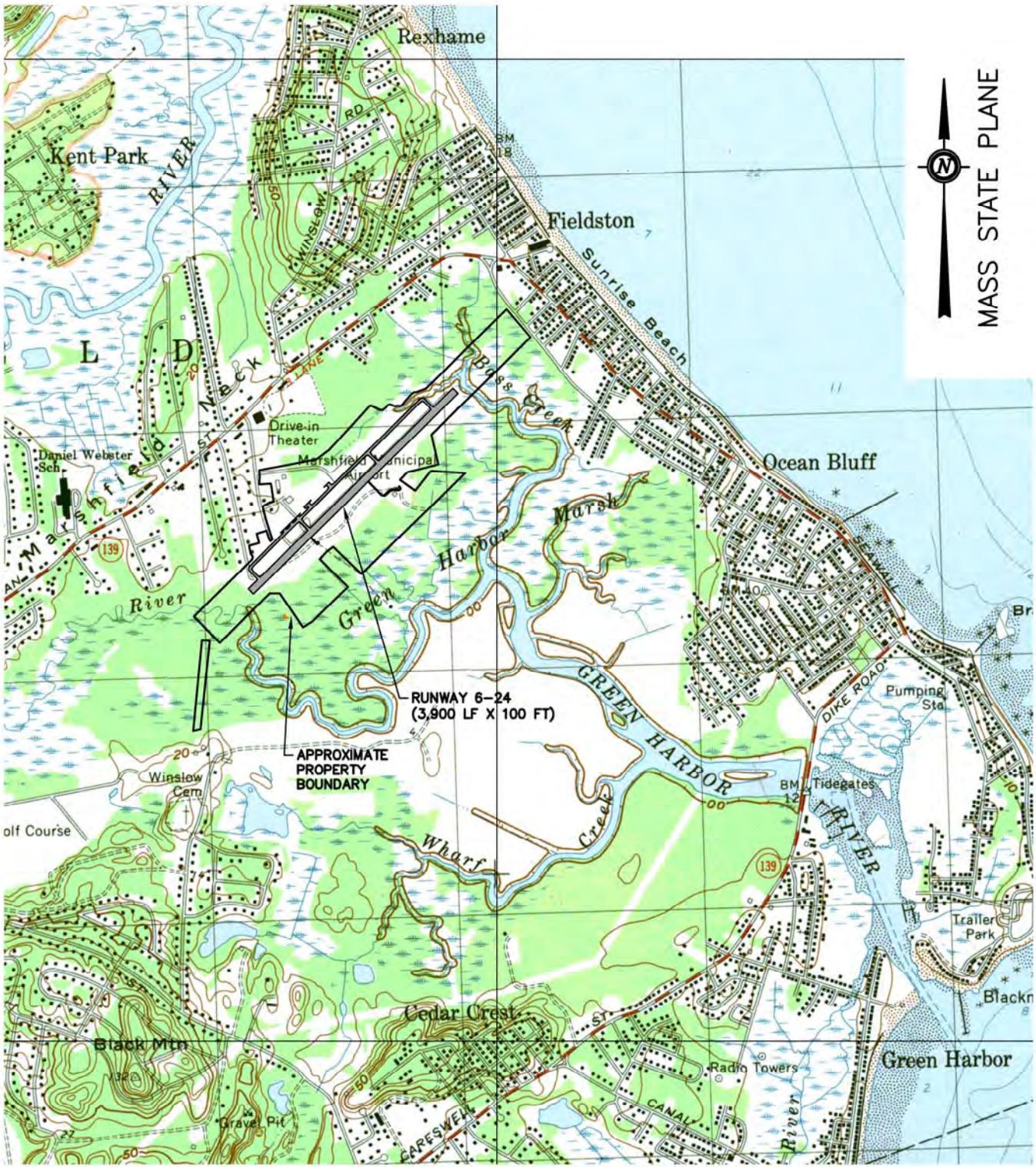
Company/Location	Telephone #
Clean Harbors	800-645-8265

Marshfield Municipal Airport

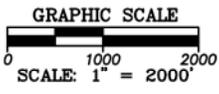
Name/Title	Telephone #
David Dinneen, Airport Manager	(781) 834-4928 (Airport) (781) 710-0034 (Mobile)
David Suffredini, Airport Commission Chairman	(781) 834-4928 (Airport)

APPENDIX C

PLANS & MAPS



MASS STATE PLANE



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 Engineers Architects Planners
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 Bedford, NH 03110
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 www.gainc.com

Boston Baltimore Orlando San Francisco

GENERAL LOCATION MAP

STORMWATER POLLUTION PREVENTION PLAN MARSHFIELD MUNICIPAL AIRPORT

PROJ. NO:	DRAWN	REVIEWED	CADD FILE
777002	CAR	EWS	GEN LOCATION

DATE: 8/13/15

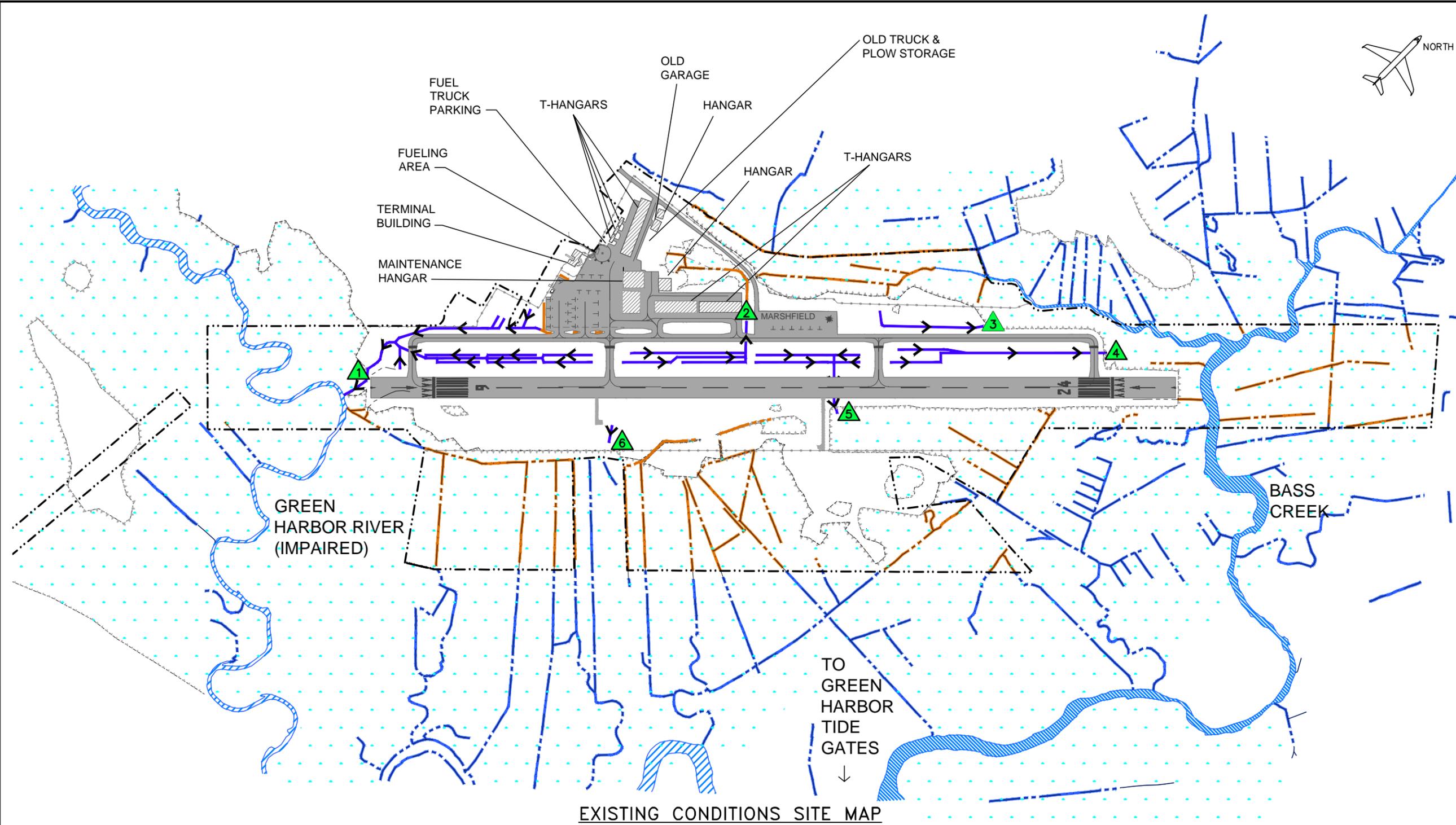
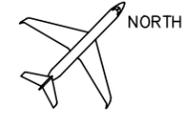
SCALE: 1"=2,000'

REVISION:

FIG.-1

1 OF 1

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EXISTING CONDITIONS SITE MAP

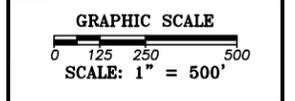
LEGEND

- | | | | |
|--|---------------------------|--|---------------|
| | ON-AIRPORT DRAINAGE PATH | | WETLANDS |
| | ON-AIRPORT SWALE/CHANNEL | | PAVEMENT |
| | OFF-AIRPORT SWALE/CHANNEL | | PROPERTY LINE |
| | CREEK/RIVER | | |
| | STORMWATER OUTFALL | | |

- NOTES:
1. SIZE OF PROPERTY = 136 +/- ACRES
 2. OUTFALLS 1 AND 6 ARE STORMWATER MONITORING LOCATIONS
 3. NO AREAS OF DESIGNATED CRITICAL HABITAT FOR ENDANGERED OR THREATENED SPECIES ARE PRESENT

PROJECT	STORMWATER POLLUTION PREVENTION PLAN
	MARSHFIELD MUNICIPAL AIRPORT
OWNER	MARSHFIELD MUNICIPAL AIRPORT

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	CAR		
DRAWN BY	CAR		
CHECKED BY	EWS		
DATE	8/14/2015		



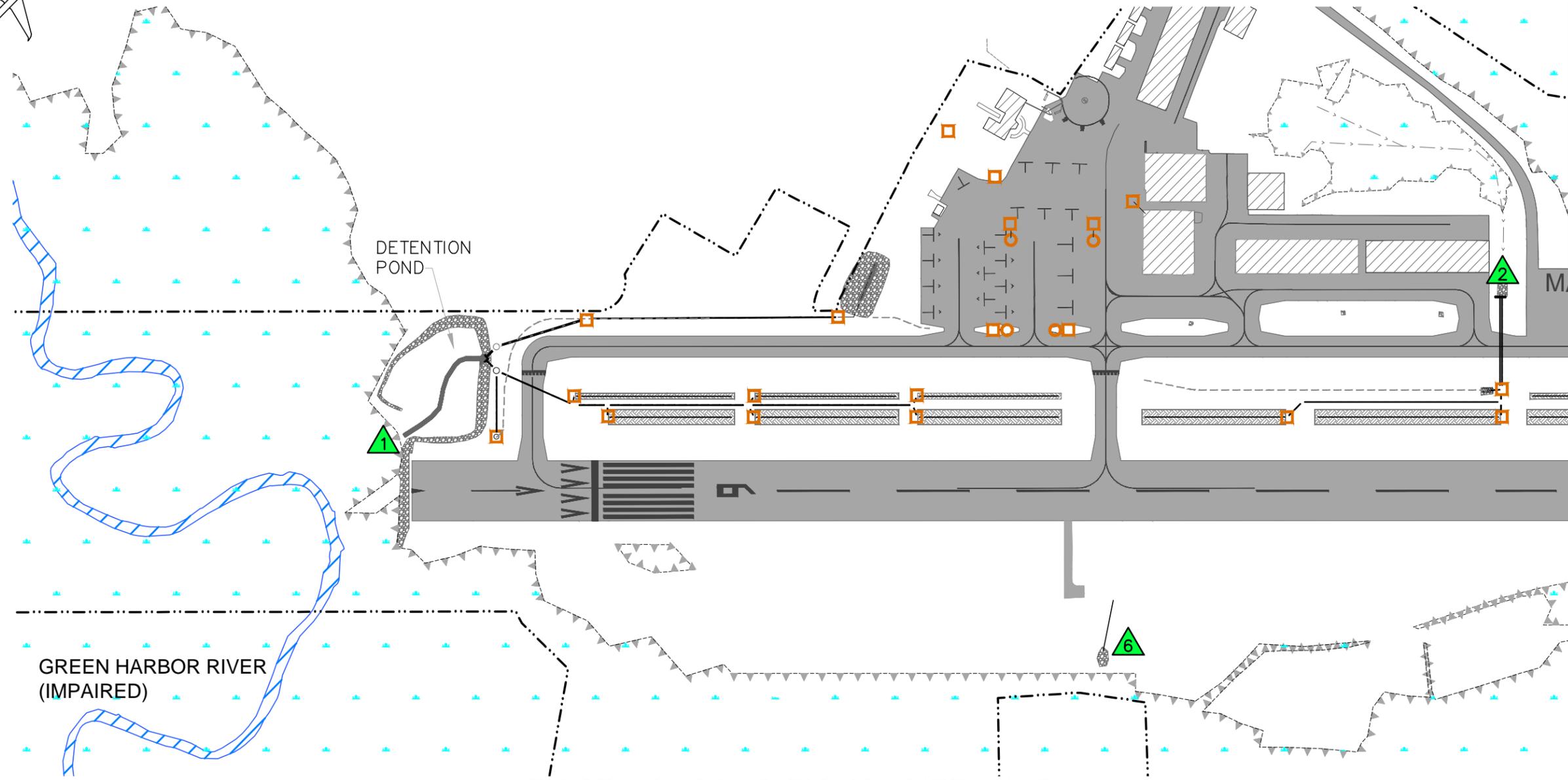
SHEET TITLE

EXISTING CONDITIONS SITE MAP

DRAWING NO.

FIG-2.1

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EXISTING CONDITIONS SITE MAP

LEGEND

- | | | | |
|--|------------------------|--|--------------------|
| | DRAIN PIPE *SEE NOTE 2 | | WETLANDS |
| | RIP RAP STABILIZATION | | PAVEMENT |
| | INFILTRATION BASIN | | PROPERTY LINE |
| | CREEK/RIVER | | STORMWATER OUTFALL |
| | CATCH BASIN | | |
| | LEACHING BASIN | | |
| | DRAINAGE SWALE | | |

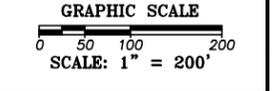
- NOTES:
1. NOT ALL SWALES/CHANNELS ARE SHOWN. SEE FIGURE 2.1 FOR ADDITIONAL SWALE/CHANNEL LOCATIONS.
 2. THICKNESS OF DRAIN PIPE LINE REPRESENTS RELATIVE SIZE (DIAMETER) OF THE PIPE RUN

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PROJECT	STORMWATER POLLUTION PREVENTION PLAN
OWNER	MARSHFIELD MUNICIPAL AIRPORT

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	CAR		
DRAWN BY	CAR		
CHECKED BY	EWS		
DATE	8/18/2015		



SHEET TITLE

EXISTING CONDITIONS SITE MAP

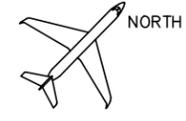
DRAWING NO.

FIG-2.2

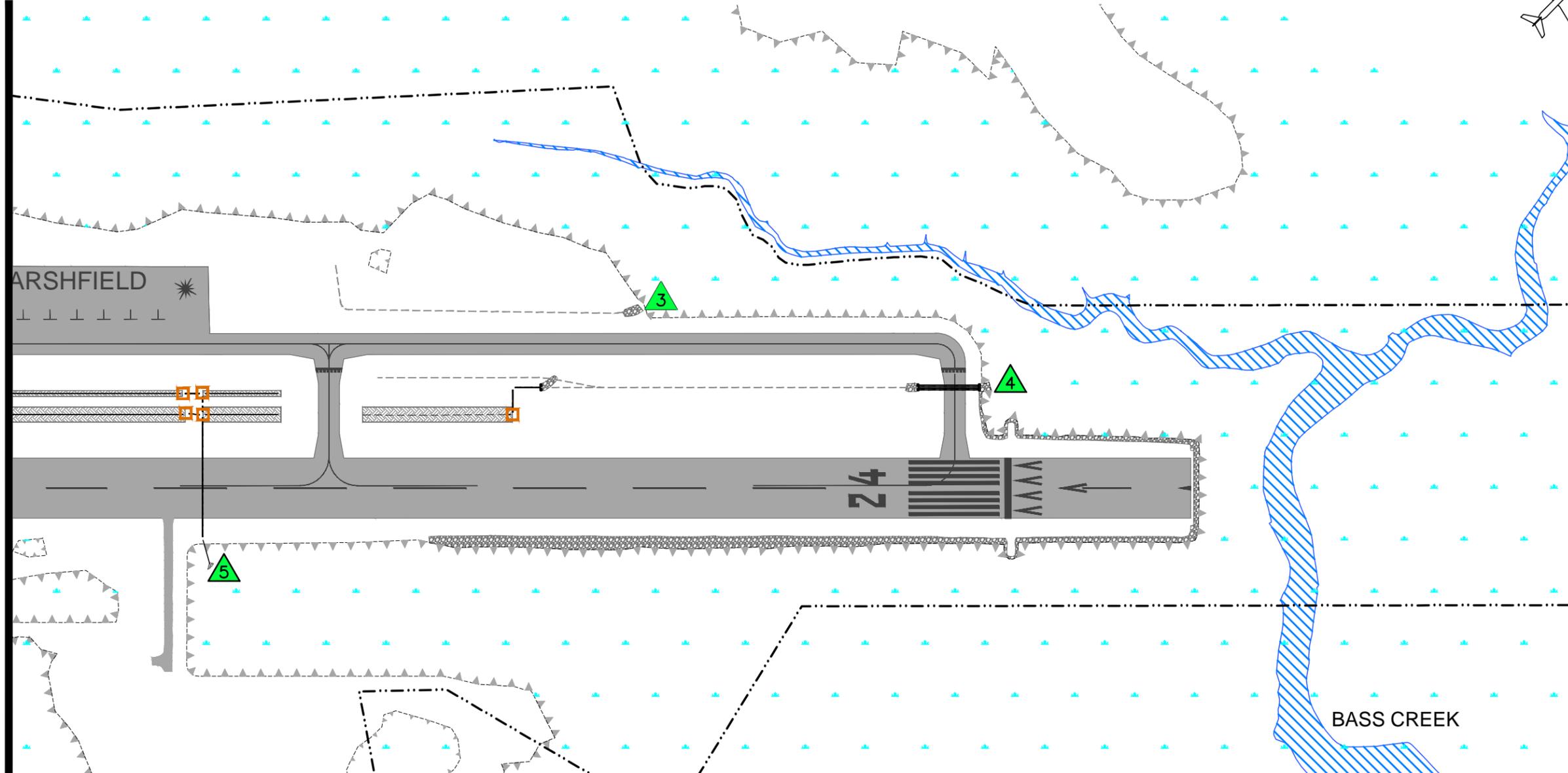
2 OF 3

U:\77002_GHSP_Removal_Final_Design\77002_Design\GIS\Map\Drawings\Map\Drawings\SWPPP\Drawings\SWPPP_FIG2_Existing Conditions Site Map-Figures 2.2 & 2.3.dwg, 8/27/2015, 4:01:30 PM, car

MATCHLINE - CONT. ON FIG. NO. 2.2



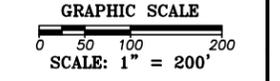
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EXISTING CONDITIONS SITE MAP

PROJECT
 STORMWATER POLLUTION PREVENTION PLAN
 OWNER
 MARSHFIELD MUNICIPAL AIRPORT

NO.	DATE	DESCRIPTION	BY
PROJECT NO.		777002	
DESIGNED BY		CAR	
DRAWN BY		CAR	
CHECKED BY		EWS	
DATE		8/18/2015	



SHEET TITLE
 EXISTING CONDITIONS SITE MAP
 DRAWING NO.

FIG-2.3

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- LEGEND**
- DRAIN PIPE *SEE NOTE 2
 - RIP RAP STABILIZATION
 - INFILTRATION BASIN
 - CREEK/RIVER
 - CATCH BASIN
 - LEACHING BASIN
 - DRAINAGE SWALE
 - WETLANDS
 - PAVEMENT
 - PROPERTY LINE
 - STORMWATER OUTFALL

- NOTES:
1. NOT ALL SWALES/CHANNELS ARE SHOWN. SEE FIGURE 2.1 FOR COMPLETE SWALE/CHANNEL LOCATIONS.
 2. THICKNESS OF DRAIN PIPE LINE REPRESENTS RELATIVE SIZE (DIAMETER) OF THE PIPE RUN

APPENDIX D

**OIL SPILL PREVENTION, CONTROL, AND
COUNTERMEASURES (SPCC) PLAN
GEORGE D. HARLOW FIELD
NOVEMBER 2008**



Oil Spill Prevention,
Control, and Countermeasures
(SPCC) Plan

November 2008

Study Sponsor:

George D. Harlow Field
Marshfield Airport Commission
93 Old Colony Lane
Marshfield, MA

Prepared by:

Gale Associates, Inc.
15 Constitution Drive
Bedford, New Hampshire 03110

“The preparation of this document was financed in part through a planning grant from the FAA as provided under the Airport Improvement Program of 1982, as amended. The contents of this report reflect the views of the consultant and do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.”

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APPENDIX B – PROCEDURES AND FORMS

APPENDIX C – SPILL RESPONSE CONTRACTORS

APPENDIX D – SPCC PLAN AMENDMENTS

APPENDIX E – SPCC PLAN 5-YEAR REVIEW DOCUMENTATION

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1. STATEMENTS

1.1 Management Policy

It is the policy of George D. Harlow Field (the Airport), Marshfield, Massachusetts to conduct activities in an environmentally safe and responsible manner. This policy is intended to be implemented through compliance with environmental, employee health and safety regulations, well-designed and maintained facilities, trained employees and tenants, and detailed release prevention and response planning.

The goal of the Spill Prevention, Control, and Countermeasure (SPCC) Plan is to minimize the potential for discharge of oil into the navigable waters of the United States, adjoining shorelines, or other natural resources. In the event of a release of oil, the SPCC Plan provides procedures to respond to the release.

The SPCC Plan describes the systems to be used to achieve this goal. It is the responsibility of all employees and emergency responders to be familiar with this SPCC Plan, to use the systems described in it, and, in the event of a release or threat of a release, to use the emergency response and notification procedures.

The Airport warrants that the resources (manpower, equipment, and materials) needed to respond to a release of oil (control and remove any harmful quantity of oil discharged) or the potential for a release will be available.

Signature:



Name:

Robert C. Merrill

Position:

Airport Commission Chairman

Date:

11/12/08

1.2 P.E. Certification

George D. Harlow Field
93 Old Colony Lane
Marshfield, Massachusetts

“Spill Prevention, Control, and Countermeasure Plan” for George D. Harlow Field, Marshfield, Massachusetts, dated November 2008.

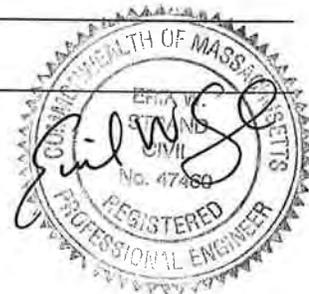
I, being familiar with the provisions of 40 CFR Part 112 – Oil Pollution Prevention (regulations in effect March 2003), regarding Spill Prevention Control and Countermeasure Plans (SPCC Plan), have reviewed the SPCC Plan for the Airport, and I or my agent has visited and examined the facility. The SPCC Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR Part 112. Procedures for required inspections and testing have been established, and this SPCC Plan is adequate for the Airport operations.

This certification is no longer valid when any planned or unplanned change takes place at the Airport that can increase the potential for a discharge of oil to navigable waters of the United States, adjoining shorelines, or certain other natural resources, or when the regulations imposing SPCC Plan requirements change, or after the deadline to review the continued applicability of this SPCC Plan has passed.

Airport representatives provided certain information contained within this Plan. It is understood that they certify that the information provided is true and accurate.

This certification does not relieve the Airport of its duty to prepare and fully implement a SPCC Plan in accordance with 40 CFR Part 112.

Name: Erik W. Strand
Date: NOVEMBER 11, 2008
License Number: 47460
State Issuing License: Massachusetts



1.3 Certification of the Applicability of the Substantial Harm Criteria

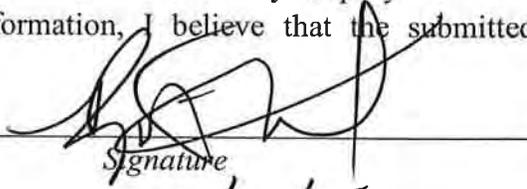
The Airport has reviewed the Applicability of Substantial Harm Criteria found at 40 CFR 112.20 (f)(1), and has made the following determinations:

- 1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?
Yes _____ No X
- 2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?
Yes _____ No X
- 3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using appropriate formula found in Appendix C to 40 CFR 112) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?
Yes _____ No X
- 4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using appropriate formula found in Appendix C to 40 CFR 112) such that a discharge from the facility would shutdown a public drinking water intake?
Yes _____ No X
- 5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?
Yes _____ No X

Certification

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate and complete.

Robert C. Merrill
Name
Airport Commission Chairman
Title


Signature
11/12/08
Date

2. INTRODUCTION

2.1 Plan Purpose

Title 40 of the Code of Federal Regulations in Part 112 requires that facilities with aboveground oil storage capacity in excess of 1,320 gallons or underground storage capacity in excess of 42,000 gallons (unless completely buried and subject to all the technical requirements of 40 CFR 280 or a State program approved under 40 CFR 281) prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan. The purpose of a SPCC Plan is to minimize the potential for oil discharge into or upon the navigable waters of the United States and their adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States. Oil means oil of any kind including petroleum, fuel oil, oil sludge, synthetic oils, mineral oils, vegetable oils, etc. Discharge means spilling, leaking, pumping, pouring, emitting, etc. Discharge does not include an oil discharge authorized under a current National Pollutant Discharge Elimination System (NPDES) permit.

George D. Harlow Field (the Airport) in Marshfield, Massachusetts stores oil in various aboveground containers and equipment. Combined, these aboveground containments of oil have an aggregate storage capacity greater than 1,320 gallons; therefore, contained herein is the SPCC Plan required by 40 CFR Part 112 for the Airport. All oil tanks and containers located on Airport property are identified in this plan, including tenant operations. It is recommended that tenants of the Airport implement the procedures provided in Appendix B of this SPCC plan to ensure proper oil handling, storage, and spill cleanup.

This SPCC Plan is written to conform to the requirements contained in the federal regulations listed below:

- 40 CFR Part 110 – Discharge of Oil
- 40 CFR Part 112 – Oil Pollution Prevention

Preparation of the SPCC Plan also considered the requirements contained in the Massachusetts regulations listed below:

- 527 CMR 4.00 - Oil Burning Equipment
- 527 CMR 9.00 – Tanks and Containers
- 310 CMR Part 40.0300 – Massachusetts Contingency Plan, Subpart C

2.2 Plan Organization

This SPCC Plan describes the oil storage at the Airport and identifies procedures that will be used to minimize the potential for a discharge of oil into or upon the navigable waters of the United States, their adjoining shoreline, or certain other natural resources.

The SPCC Plan is presented so that those who must implement it can understand the oil handling facilities and practices that are in place, how oil could reach the navigable waters of the United States or certain natural resources and how the potential for a spill will be minimized. The SPCC Plan also provides guidance on how Airport personnel should respond to a potential or actual spill or discharge of oil.

2.3 40 CFR Part 112 Checklist

Section 112.7(j) of 40 CFR Part 112, dated and as amended through December 26, 2006, requires that an SPCC Plan include a discussion of conformance with the guidelines presented in Part 112 where appropriate. Below is a list of the guidelines and where they have been addressed in the SPCC Plan.

40 CFR Section	Guideline	Plan Section
112.1(d)(2)	Storage Capacity	3.4
112.3(a), (b), and (c)	Duty to Prepare an SPCC Plan	3.1 and 3.6
112.3(d)	PE Certification	1.2
112.4 and 112.5	Plan Amendments	7.0
112.5(b)	Plan Review Documentation	Appendix E
112.7(a)(3)	Facility Diagram	Appendix A
112.7(a)(4) and (5)	Discharge Reporting	6.2 and 8.0
112.7(b)	Failure Flow Prediction	4.1
112.7(c)	Containment	3.5, 4.1, and 5.2
112.7(d)	Contingency Plan and Commitment	8.0 and 1.1
112.7(e)	Inspections, Tests, and Records	5.3.3 and 6.1
112.7(f)(1)	Training	5.3.5
112.7(f)(2)	Designated Accountable Person	2.4
112.7(g)	Security	5.3.4
112.7(h)	Tanker Unloading	3.6 and 5.2
112.8(b)	Facility Drainage	4.2 and 4.3
112.8(c)	Bulk Storage Containers	3.4
112.8(d)	Transfer Operations	3.4.3 and 5.2.3

2.4 Designated Accountable Person

The person designated to be responsible for SPCC Plan maintenance and oil spill prevention is:

Airport Manager:	Ann Pollard
Address:	93 Old Colony Lane, Marshfield, MA
Phone:	(781) 834-4928
Cell Phone:	(781) 249-7330

2.5 Plan Distribution

Copies of the SPCC Plan are kept in the Airport Manager's office at the Airport.

2.6 Record of SPCC Plan Amendments

Amendments to SPCC Plan sections shall be recorded in the Record of SPCC Plan Amendments Table, provided in Appendix D of this Plan. The effective date of incorporation and a description of the revision shall be recorded by the individual making the amendment. Technical amendments to the SPCC Plan including changes in the design, operation, or maintenance of the Airport that affect the potential for a discharge of oil to occur require the certification of a Professional Engineer. In such cases, both the name and license number of the engineer responsible for the revisions should be entered in the Table.

It will be the responsibility of the SPCC Plan *Designated Accountable Person* to distribute revised pages of SPCC Plans to all SPCC Plan holders and to inform such persons of the amendments made to the plan.

3. DESCRIPTION OF FACILITIES AND OPERATIONS

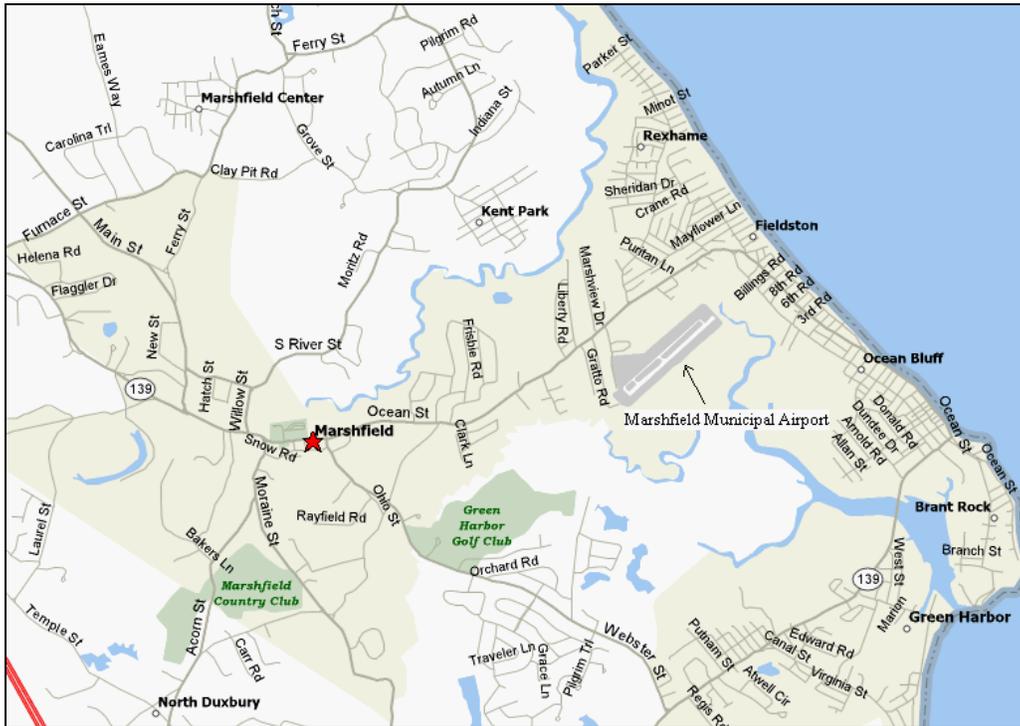
3.1 Airport Operations

The Airport is owned by the Town of Marshfield, Massachusetts and overseen by the Marshfield Airport Commission (the Commission). The Airport maintains several buildings, including the Administration Building, the Snow Removal Equipment (SRE) building, and several hangars. The Airport has one Fixed Base Operator (FBO) tenant, Shoreline Aviation, that manages the fueling facilities on the Airport, and offers aircraft maintenance and repair and charter services.

3.2 Site Locus Map

Figure 3-1 is a USGS Grid Locus Map that shows the location of the Airport relative to the surrounding area.

Figure 3-1: Site Locus Map



3.3 Site Oil Storage

Table 3-1 details the various types of oil products stored at the Airport. Oil storage areas for the Airport, including FBOs and other tenants, are listed and described by location, oil type, storage device, oil amount and whether it is an above or a below ground device. Refer to the site map in Appendix A for oil storage equipment storage locations.

Table 3-1: Oil Storage Locations

Location	Type of Oil	Storage Device	Storage (gallons)	Container Type
Airport				
Fuel Farm	100 Low Lead Gasoline (AvGas)	steel, vaulted tank	6,250	UST
Fuel Farm	100 Low Lead Gasoline (AvGas)	steel, vaulted tank	6,280	UST
Fuel Farm	100 Low Lead Gasoline (AvGas)	mobile fuel truck	750	Truck
Fuel Farm	Jet-A Gasoline	mobile fuel truck	5,000	Truck

3.4 Oil Storage Activities

3.4.1 Fuel Farm

The Airport owns and operates a fueling facility for aircraft located adjacent to the Airport Administration Building. The fuel farm has two USTs for the storage of 100 Low Lead Aviation Gasoline (AvGas). These tanks, one of which has a capacity of 6,250 gallons and the other with a capacity of 6,280, were installed in 1993. These tanks are double-walled, vaulted steel tanks.

The Airport utilizes an outside vendor to conduct integrity testing of the UST and associated piping every three years based on recognized API, STI and/or other industry testing standards. Records of the daily inventories and monthly reconciliation data are maintained in the Airport offices. The Airport maintains tank integrity testing records. Records of tank inspections and testing are maintained for the life of the equipment.

Fuel delivery operations are performed in the presence of Airport employees trained in fuel delivery. The Airport procedure for safe fuel offloading is included in Appendix B.

Spill control equipment including absorbent materials, boom, and personal protective equipment, are stored adjacent to the fuel farm. Materials are inspected periodically and replenished as necessary.

3.5 Oil Offloading, Loading, and Transfer Activities

Procedures are in place to minimize the risk of a fuel release during offloading/loading operation. Procedures for fuel transfer activities performed by the Airport are detailed in Appendix B.

3.5.1 Mobile Refueler Trucks

The Airport leases two mobile refueler trucks for use onsite which are operated by Shoreline Aviation. Mobile refueling trucks are exempt from the secondary containment requirements of the SPCC regulations, but are required to meet the general spill containment requirements of 40 CFR 112.7(c). The volume capacity of each truck and type of fuel stored is detailed below:

Truck	Capacity (Gallons)
Jet-A	5,000
AvGas	750

Refueler trucks are parked on the main apron (see Appendix A, "Site Map"). Spill control equipment is located on each vehicle. Materials are inspected periodically and replenished as necessary.

Vehicles are inspected daily prior to use for leaks, spills, and general condition of the tankers. Shoreline Aviation maintains inspection records. Trained personnel perform all fuel transfer operations.

4. POTENTIAL DISCHARGE PATHWAYS

4.1 General

Where experience indicates a reasonable potential for equipment failure (such as overflow, rupture, or leakage), the SPCC Plan should include a prediction of the direction, rate of flow, and total quantity of oil that could be discharged from the Airport as a result of each major type of failure. The direction a spill would flow is predicted by drainage patterns, location of Airport exits, storm drains, and secondary containment. The rate of flow will depend on the size and location of failure and the equipment involved.

Table 4-1 summarizes the volume, rate, direction, and containment for different types of failures at the oil storage and handling locations at the Airport. The Source column identifies the equipment location on Figure 1 located in Appendix A.

Table 4-1: Potential Spill Predictions

Potential Event	Maximum Volume Released (gal)	Maximum Discharge Rate	Direction of Flow	Secondary Containment
Fuel Truck Parking Area				
Failure of Mobile Refueler Tank	5,000 gal	Gradual to instantaneous	SE to apron low point	Double-walled tank construction, Active secondary containment*
Tank overfill	150 gallons (assuming 30 second spill time before response)	40-300 gpm**	SE to apron low point	Double-walled tank construction, Active secondary containment*
Pipe failure	Unknown	40-300 gpm**	SE to apron low point	Double-walled tank construction, Active secondary containment*
Leaking pipe or valve	Unknown	1 gpm	SE to apron low point	Double-walled tank construction, Active secondary containment*
Loading / Offloading Area				
Offloading truck leak or failure	Volume of offloading truck	Gradual to instantaneous	SE to apron low point	Spill Response Kit*
Hose leak during offloading from truck to ASTs	Unknown	Unknown	SE to apron low point	Spill Response Kit*
Hose leak during truck offloading to airplanes	1 to 200	30-50 gpm	SE to apron low point	Spill Response Kit*
Fuel Dispensing Areas				
Mobile refueler truck and fuel dispenser hose/connections leak	1 to 600	35 to 75 gpm	SE to apron low point	Drip pan and Spill Response Kit

* The Airport plans to install a temporary secondary containment structure, such as a berm or dike at the north end of the apron.

** Fuel pump flow rates estimated from Ascent Aviation Group mobile refueler specifications.

4.2 Drainage Pathways and Distance to Navigable Waters/Adjoining Shorelines

Infiltration basins are located in several areas on Airport property (Appendix A). These basins discharge or leach into the ground and indirectly into Bass Creek and the Green Harbor River and their associated wetlands. Storm water management is detailed in the Airport Stormwater Pollution Prevention Plan (SWPPP) dated March 2007 prepared by Gale Associates, Inc. The SWPPP is kept in the Airport Manager's office, along with monitoring and inspection reports. The Airport has adopted an extensive stormwater management inspection and monitoring program and use of Best Management Practices to prevent discharge and help eliminate pollutants from stormwater.

5. DISCHARGE PREVENTION

5.1 General

Described in this section is the system of structural and non-structural controls that will be used to prevent a discharge or minimize the potential for a discharge of oil in harmful quantities into or onto the navigable waters of the United States, their adjoining shoreline, or other natural resources. The system will consist of:

- Structural controls;
- Compliance with storage tank regulations;
- Operating procedures designed to minimize the potential for a release of oil;
- Routine inspections and testing;
- Airport security measures;
- Personnel training regarding established procedures and available equipment to prevent oil spills and subsequent discharges;
- Emergency response and spill equipment; and
- Routine SPCC Plan effectiveness reviews and amendments.

In addition to this system of structural and non-structural controls, two other means will be used to achieve the goal of the SPCC Plan: an oil spill contingency plan and a commitment of resources as necessary to control and cleanup any oil discharges that may be harmful.

An oil spill contingency plan is included in Section 8 of this SPCC Plan. The oil spill contingency plan defines the actions Airport personnel will take in the event of an actual spill of oil to prevent such a release from reaching navigable waters of the United States or other natural resources.

Airport management has made the commitment to provide the manpower, equipment and material necessary to respond to a release of oil, as stated in Section 1.1, Management Policy.

For the final P.E. Certification of the SPCC Plan, a “punch list” has been developed, describing modifications to existing structural and non-structural controls that will be required to provide the necessary minimum discharge prevention measures. *The requirements listed in the punch list (Appendix F) should be fully implemented within 6 months of the date of the current revision of the SPCC Plan in accordance with 40 CFR 112.5.*

5.2 Structural Controls

The general requirements for the preparation and implementation of a SPCC Plan (40 CFR Part 112.7) require the use of “appropriate containment and/or diversionary structures or equipment to prevent a discharge of oil...” from reaching navigable

waterways, adjoining shorelines, or other natural resources. Structural controls that are mentioned for consideration for onshore facilities include:

- Dikes, berms or retaining walls;
- Curbing;
- Culverting, gutters or other drainage systems;
- Spill diversion ponds;
- Retention ponds; and
- Sorbent material.

In addition, all tanks must be equipped with at least one of the following level sensing techniques, tested on a regular basis to ensure proper operation:

- High liquid level alarms;
- High liquid level pump cutoff;
- Direct audible or code signal between pumping station and container gauge; or
- Fast response liquid level system.

5.2.1 *Supplier Deliveries*

The structural controls around the fill connections and the area where the tank trucks park to off-load are appropriate. The Airport has decided that secondary containment systems for the truck parking areas will not be installed. As an alternative to installing a containment area structural control, the Airport has decided to utilize the following:

- Spill Contingency Plan;
- Storm drain covers;
- Drip pans;
- Spill kits located for easy access; and
- Airport personnel observing tanker off-loading process.

5.2.2 *Mobile Refueler Activities*

The mobile refueler trucks operated by the FBO deliver fuel to aircraft and vehicles at various locations on Airport property. Structural controls are not feasible for this varied operation. As an alternative to installing a containment area structural control for mobile fueling operations, the Airport has decided to allow the FBO to utilize:

- Spill Contingency Plan;
- Storm drain covers;
- Drip pans;
- Spill kits located for easy access; and
- Trained personnel performing the fueling operation.

5.3 Non Structural Controls

5.3.1 Compliance with Tank System Regulations

Massachusetts has issued regulations governing storage of flammable liquids in tanks and containers, found at 527 CMR 4.00 and 9.00 and 520 CMR 12.00. This SPCC Plan is based on the Airport's report that the Airport has achieved compliance with the requirements of the regulations and assumes compliance with all provisions of the regulations will be maintained.

The following is a summary of some federal requirements that apply directly or indirectly to ASTs and USTs:

- EPA's SPCC program under the Clean Water Act applies to ASTs and USTs that may discharge petroleum products into United States navigable waters, adjoining shorelines, or other natural resources; and
- The NPDES stormwater permitting regulations under the Clean Water Act cover industrial activities that could involve ASTs.

5.3.2 Procedures

A component of the discharge prevention system is the preparation of, adherence to, and proper execution of procedures. Several of these procedures are presented in Appendix B. These procedures are to be used as described and as appropriate to the activity. The procedures are to be refined/modified when a condition or Airport modification warrants it, to assure the goal of the SPCC Plan is achieved. Unless superseded by a more specific procedure, the procedures listed below will be followed.

- No. 1: SPCC Plan Training Sign In Sheet;
- No. 2: Inspection of Tanks, Containers, and Containment Structures;
- No. 3: Receiving Fuel Shipments;
- No. 4 Annual Tank Inspection; and
- No. 5: Spill Response.

5.3.3 Inspections and Testing

Inspection and testing procedures will be conducted at the Airport monthly, as detailed below and in Procedure No. 2 (Appendix B). Inspections will be conducted according to standard engineering practices and/or system supplier recommendations. Inspection records must be signed and retained for 3 years, as part of the SPCC Plan maintained at the Airport offices.

Inspections will, as appropriate, include:

- Oil storage tanks, including level controls;
- Aboveground oil transfer piping;

- Secondary containment structures;
- Spill response material and equipment (kits); and
- Alarm and communication equipment.

Regular testing to verify appropriate operation will include storage tank level sensing devices, overfill protection equipment, and alarms. These items must be tested on a regular basis, according to standard engineering practices and/or system supplier recommendations.

In addition to regular inspections and tests, 40 CFR 112.8(c)(6) requires regularly scheduled integrity testing of aboveground storage containers (including tanks), and also whenever material repairs are made to the container. Integrity testing shall be in addition to visual inspection, and shall take into account container size and design. Acceptable techniques include hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another means of nondestructive shell testing. Container supports and foundations shall also be inspected, and comparison records must be kept.

All tanks must typically have an integrity test at least every 10 years, performed by a qualified Tank Inspector. A qualified Tank Inspector is one who is certified by either the American Petroleum Institute (API) or the Steel Tank Institute (STI). Integrity testing will generally include a pressure test for tightness using an inert gas, and may also include ultrasonic testing and/or visual inspection of the tank interior, depending on the tank system.

The standards recommended for implementing integrity testing are API 653, for field fabricated tanks, and STI SP001-00 for shop fabricated tanks (typically less than 50,000 gallons). API 653 provides guidance for determining the necessary frequency of testing, while STI SP001-00 specifies 10-year intervals.

5.3.4 *Airport Security*

The Airport perimeter is secured by approximately 8,700 linear feet of 6-foot high chain link fencing topped with 2 feet of barbed wire. The terminal area is secured by 8-foot high chain link fencing, a portion of which is topped with 2 feet of barbed wire. South of the terminal building is a 4 foot wide pedestrian gate. North of the terminal building is a 4 foot wide pedestrian gate and a 20 foot wide slide gate.

The Airport is periodically patrolled during the night and day by the Marshfield Police Department as part of the Airport's overall security plan.

The Airport is occupied by Airport and FBO personnel from 8:00 AM to 5:00 PM and often longer into the evening, five days per week.

The Main Apron area and the fueling area are lighted at night. All valves for the mobile refuelers are locked in the closed position and may only be opened by authorized

personnel. Shoreline Aviation (the FBO) holds the keys to the locks on all of the drain valves.

5.3.5 *Personnel Training*

The *designated accountable person* (see Section 2.4) for oil pollution prevention is responsible for ensuring that personnel receive the appropriate level of training for their job function. All Airport personnel who engage in spill response activities will be fully trained and properly equipped as appropriate for the level of response to be provided. Qualified instructors in accordance with state and federal requirements will provide personnel training for oil handling and emergency response actions.

Existing employees involved with oil storage, handling and spill response will be provided “initial” training in oil spill prevention and response, as appropriate for their job responsibilities, within 6 months of the issuance of the SPCC Plan. New employees, those hired after the initial training is provided to existing employees, will be provided with the required training before they are allowed to handle oil.

Review/refresher training will be conducted for all appropriate personnel at least annually or whenever:

1. An amended or updated SPCC Plan is issued;
2. Personnel changes require; or
3. A reportable spill occurs.

Training will include pertinent SPCC topics, such as malfunctioning SPCC system components, recent discharges, and any new precautionary measures. Note that the SPCC Plan training may be conducted in conjunction with training for other environmental programs, such as Spill Contingency Plan and/or Emergency Response training.

The initial and review/refresher training must be documented using the form presented in Appendix B, Procedure No. 1, SPCC Plan Training. Records of training must be kept that show the name of the persons trained, the dates the training took place, the content of the training program, and the instructor’s name.

Employees who may need to participate in *incidental release response (any spill contained within the building)* and all other employees regularly working with or around oils who are likely to witness or discover an oil spill will be given awareness training. In the event of a spill of a significant amount of oil or fuel, trained Airport personnel will perform response actions to the extent described in the Oil Spill Contingency Plan (see Section 8). Outside contractors will be summoned to provide the primary emergency response to a spill of oil that escapes to the environment.

Any employee observing an actual or potential emergency must notify the Emergency Coordinator *as soon as possible* so that appropriate action can be taken in accordance with the SPCC and Contingency Plans.

If this policy changes, this SPCC Plan will be revised to reflect the appropriate training requirements for affected employees as they are specified in 29 CFR 1910.120 (q).

Other training topics related to SPCC that may be presented include:

1. Pertinent topics from Occupational Safety and Health Administration (OSHA) 1910.38, Employee Emergency Action Plan training:
 - Emergency escape procedures and route assignments;
 - Procedures to be followed by employees who remain to operate critical operations before they evacuate;
 - Procedures to account for all employees;
 - Rescue and medical duties for those who are to perform them;
 - The preferred means of reporting fires and other emergencies; and
 - The names of individuals to contact for more information or explanations of duties under the Plan.
2. Pertinent topics from the OSHA Hazard Communication Standard (29 CFR 1910.1200) training:
 - Physical and health hazards of oils used at the Airport;
 - Safe work practices when handling oils;
 - Characteristics and detection methods for oils used; and
 - Explanation of the labeling system and material safety data sheets.

5.4 Emergency Spill Response Equipment

Oil Spill Response kits to be used for containment and/or clean-up of an oil spill will be maintained at various locations throughout the Airport. These kits will allow a prompt response to spill situations. Kits will be placed near the following activities, at a minimum:

- Fuel Farm
- Inside the SRE Building
- Fuel Truck Parking
- Inside the Shoreline Aviation Hangars

The Oil Spill Response kits should contain the following:

- Oil absorbent granular material (30-gallon container equivalent minimum);
- Oil absorbing pads;
- Oil absorbent booms;
- Drain covers;
- Oil resistant gloves;

- Plastic drop cloths;
- Plastic disposal bags (heavy duty);
- Shovel; and
- Copy of up-to-date SPCC Plan.

5.5 SPCC Plan Effectiveness Reviews

The causes for plan effectiveness review and related amendments as well as the schedule for these reviews are presented in Section 7. Through adherence to the requirements of Section 7, the Airport will maintain the SPCC Plan up-to-date and assure its continued effectiveness.

6. RECORDKEEPING AND REPORTING

6.1 Records

All original records pertaining to the SPCC Plan, or clear photocopies of the original records, shall be kept at the Airport in the appropriate department. Records shall be kept for a minimum retention period of at least 3 years and must be readily available for inspection by federal, state, or local agencies having jurisdiction, as well as by the employees of the Airport.

Records that will be kept for at least 3 years include:

- A copy of the SPCC Plan, including associated inspections and testing procedures;
- A copy of each revision to the SPCC Plan;
- Copies of all correspondence with the Massachusetts Department of Environmental Protection (DEP), local fire department and other agencies regarding oil storage;
- Copies of all correspondence and notes of telephone calls related to spill notifications to the NRC, DEP and other agencies as required by a spill;
- List of personnel that received initial training on pertinent aspects of the SPCC Plan and their responsibilities and duties, including date of training, instructor's name, and content of the training program;
- List of personnel that received review/refresher training including the date of training, instructor's name, and content of the training program;
- Copies of all inspection reports;
- Records of the oil product stored in each tank and the date of any product conversion;
- Copies of inspection records for tanks, containers, equipment, containment structures, and aboveground piping and appurtenances.
- Copies of testing results for storage tank overfill protection equipment, level sensing devices, and alarms.
- Copies of results of storage tank, aboveground container, and piping integrity tests;
- Dates and description of replacement of permanent components and substantial modification to tank systems;
- A copy of the Airport registration(s) and any amendments. If an Airport registration form has not been amended within 10 years, the most recent registration shall be retained.

6.2 Spill Reporting Requirements

40 CFR Part 110, Discharge of Oil

This section of the SPCC regulations requires that any person in charge of the Airport, as soon as he/she has knowledge of a discharge that violates Part 110, Section 110.6, Prohibited Discharge, must “immediately” notify the National Response Center (NRC) in Washington, D.C. A *prohibited discharge* is defined to be a discharge in harmful quantities. Harmful quantities is defined at 40 CFR Part 110, Section 110.3, to include discharges that:

- Violate water quality standards; or
- Cause a film or sheen upon, or discoloration of, the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shoreline.

Alternatively, if a direct report to the NRC cannot be made, the report can be made to the NRC through the Coast Guard. The person in charge of the Airport must still notify the NRC as soon as possible.

Contact NRC immediately at 800-424-8802, 24-hours a day.

40 CFR Part 112.4

This section of the SPCC regulations requires that the owner or operator of the Airport submit a report to the Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (DEP) if a discharge into or upon the navigable waters of the United States or its adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States, is greater than:

- One thousand (1,000) gallons of oil in a single spill event, or
- Forty-two (42) gallons (1 barrel) in two spill events occurring within any 12-month period.

The report to the EPA and DEP must be within 60 days of the spill event and include the following:

- Name of Airport;
- Name of owner or operator;
- Location of Airport;
- Maximum storage capacity of the Airport and normal daily throughput;
- Description of the Airport including topographical maps and other drawings;
- Cause of the spill(s) including a failure analysis;
- Corrective actions taken;
- Additional preventive measures taken or contemplated; and

- Any other information the regulatory agencies request.

30 CMR 40.0300 Massachusetts Contingency Plan Reporting

This regulatory program requires notification to the DEP within 2 hours of any of the following releases:

- Greater than 10 gallons of oil to the environment (pavement, storm drain, wetland);
- Greater than the reportable quantity of any other hazardous material to the environment;
- Sheen to a water body; and
- Greater than one pound of hazardous chemicals and which poses an imminent hazard

Requires immediate notification to the DEP, not to exceed 2 hours from discharge discovery of a release or threat of impending release to the environment of any hazardous material that poses a threat to human health or the environment, for example into storm or sanitary sewers, onto the land or into the air, groundwater or surface waters. In the event of a reportable release of hazardous chemical, notification to the Marshfield Fire Department is required.

- **Contact the DEP at 888-304-1133, 24-hour hotline; and**
- **Local Fire Department at 911.**

7. PLAN AMENDMENTS

7.1 Amendments by the Airport

7.1.1 Five Year Review

In accordance with 40 CFR 112.5(b), a review and evaluation of this SPCC Plan is conducted at least once every 5 years, from the date the last review of the Plan was required. The completion of this review and evaluation must be documented by the Airport, on the form provided in Appendix D of this Plan. This form also indicates whether or not the Airport will amend the SPCC Plan based on this review.

The Airport will amend the SPCC Plan within 6 months of this review to include more effective prevention and control technology if such technology will significantly reduce the likelihood of a spill event from the Airport, and if such technology has been field-proven at the time of review. These SPCC Plan amendments shall be certified by a Professional Engineer, and noted in the table provided in Appendix D of this Plan, SPCC Amendments. These amendments must be implemented as soon as possible, but no later than 6 months after preparation of the amendments.

7.1.2 Airport Changes

In addition, the SPCC Plan will be amended within 6 months of a change in the Airport design, construction, operation, or maintenance that materially affects the Airport's potential for the discharge of oil into or upon the navigable waters of the United States, adjoining shorelines, or other natural resources. These SPCC Plan amendments shall be certified by a Professional Engineer, and noted in the table provided in Appendix D, SPCC Plan Amendments. These amendments must be implemented as soon as possible, but no later than 6 months after preparation of the amendments.

7.1.3 Minor Changes

The Plan will also be updated to reflect minor changes that do not significantly affect the potential for a discharge to occur, such as a change in telephone numbers. These updates will not be certified by a Professional Engineer, but will be distributed to all recipients of the plan, and noted in the table provided in Appendix D, SPCC Plan Amendments.

7.2 Amendments Required by EPA

40 CFR 112.4 allows that the EPA Regional Administrator may require amendments to be made to the SPCC Plan, if there are two discharges of oil greater than 42-gallons to the navigable waters of the United States within a 12-month period or if any discharge involves over 1,000 gallons of oil. If such discharge(s) occur, the Airport must submit to the EPA Regional Administrator and the MA DEP, within 60 days of such discharge(s), the information required in 40 CFR 112.4, outlined below:

- Name of facility;
- Name of owner or operator;
- Location of facility;
- Maximum storage capacity of the facility and normal daily throughput;
- Description of the facility including topographical maps and other drawings;
- Cause of the spill(s) including a failure analysis;
- Corrective actions taken;
- Additional preventive measures taken or contemplated; and
- Any other information the regulatory agencies request.

8. OIL SPILL CONTINGENCY PLAN

40 CFR 112.7(d) directs the use of an Oil Spill Contingency Plan in instances where the installation of the minimum preventative structures or equipment listed in Part 112.7(c) and (h)(1) and Part 112.8(c)(2) and (c)(11) is impracticable. In general, the required minimum structures or equipment have been provided for the Airport oil storage and use locations described in this SPCC Plan. However, adequate secondary containment has not been provided for the fuel offloading area at the fuel farm. Because there is always at least some possibility that an oil spill can occur, the Airport has prepared the Oil Spill Contingency Plan described in this section. The Oil Spill Contingency Plan is intended to define the actions the Airport personnel will take in the event of an oil spill to prevent such a release from reaching the navigable waters of the United States.

The Airport policy is that employees will *not* conduct emergency response operations as defined in OSHA 29 CFR 1910.120. The policy directs that employees observing an actual or potential emergency make appropriate internal notifications and evacuate the area. Outside contractors will be summoned to conduct the emergency response operation.

However, in “incidental” spill situations, Airport policy allows employees to take actions to stop, contain, and clean up the spill. “Incidental” releases are considered by OSHA at 29 CFR 1910.120 to be releases that can be “absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel.”

The release of any quantity of petroleum products can present an environmental, fire and/or health hazard. Therefore, it is imperative that all precautions are taken to minimize the possibility for such a release to occur. Personnel on the scene of a release shall be responsible to initiate and effectively carry through to completion the appropriate spill control measures as outlined in the Airport Oil Spill Contingency Plan. During such occurrences, personnel shall consider the safety of the public and other employees, as well as their own safety.

Tenants are required to notify the Airport’s Emergency Coordinator in the event of an oil release or other environmental, fire, or health related emergency at their facility. Tenants are responsible for spill cleanup and must comply with all regulatory reporting requirements under the SPCC regulations 40 CFR 112 and the Massachusetts Contingency Plan, 310 CMR 40.00.

8.1 Emergency Coordinator

In the event of a release, fire, or explosion involving oil or fuel oil, the primary and alternate Emergency Coordinators for the Airport with overall responsibility for carrying out appropriate response measures as identified in the Oil Spill Contingency Plan are as follows:

Emergency Coordinator	Ann Pollard
Office	781-834-4928
Cell	781-249-7330

Alternate Emergency Coordinator	Keith Douglass
Office	781-834-4928

As part of implementing the emergency response procedures identified in the Oil Spill Contingency Plan, the Emergency Coordinator (or Alternates) must also:

- Follow all other policies and procedures relative to the particular emergency in accordance with all federal, state and local regulations;
- Contact off-site emergency response contractors as necessary;
- Make notifications to federal, state, and local agencies, as required; and
- Submit follow-up reports to agencies as required.

8.2 Oil Spill Contingency Plan

The Airport's Oil Spill Contingency Plan is summarized in Table 8-1 below as a three-step process. Following the table, a summary discussion of each step is provided in separate subsections.

Table 8-1: Oil Spill Contingency Plan

Response Action	Incidental Spills (see Section 8.2.1.1)	Non-Incidental Spills (see Section 8.2.1.2)
1. Notification	Call the Emergency Coordinator. Inform Emergency Coordinator of size of spill and location	Call the Emergency Coordinator. Inform Emergency Coordinator of spill location and any medical, fire or environmental emergencies.
2. Stop and Contain Leak	Stop/Contain and <i>Clean-up</i> Leak.	Stop/Contain Leak <i>only</i> if safe to do so.
3. Clear Area	Keep personnel away from spill area.	Evacuate area.

8.3 Emergency Notifications

Oil Spill Contingency Plan notifications depend on whether the spill event is an incidental spill or an outside spill.

8.3.1 Incidental Spills

An incidental spill has *all* of the following characteristics:

- The spill is contained within the building;
- The spill can entirely be cleaned up within 24 hours with the capabilities of the Airport personnel;
- The spill or cleanup operation does not pose a safety risk; and
- The spilled material did not release to the environment; or
- The spill is outside the building and is a small quantity that does not impact the water or soil.

The first person to detect an oil spill is responsible for immediately notifying the Emergency Coordinator of the situation.

Incidental spills only require internal notifications. Inform the Emergency Coordinator of the spill situation, including location and quantity spilled, and any relevant or requested information that you know.

8.3.2 *Non-Incidental Spills*

If a spill is large and leaves a hangar or building, it is not an incidental spill and may require assistance of a clean-up contractor.

The initial notification requirements for an outside spill are the same as for an incidental spill: immediately report the incident to the Emergency Coordinator.

It is important to communicate the size and location of the spill to the Emergency Coordinator so that appropriate response and further notifications can be determined. If the spill requires response by an ambulance or the fire department, make sure to inform the Emergency Coordinator. The Emergency Coordinator will notify:

- Fire Department or ambulance, if required;
- Emergency Response Contractor (see Appendix C);
- Appropriate management; and
- Appropriate regulatory agencies (see Section 8.3).

The Emergency Coordinator will inform the necessary parties of the spill situation and of all relevant information available. A Spill Response Notification Form, including appropriate phone numbers, is provided in Section 8.4 to guide the Emergency Coordinator in notifying the regulatory agencies and response organizations.

8.4 **Stop and Contain Leak**

8.4.1 *For Incidental or Outside Releases:*

Only if safe to do so, trained personnel should stop an oil leak by such means as:

- Closing valve;
- Stopping pump;
- Righting knocked-over container; and
- Lifting dropped hose.

Only if safe to do so, trained personnel should contain an oil leak by such means as:

- Using spill kit absorbent materials to stop movement of oil;
- Cover catch basin or other drain system inlets; and
- Using other available materials and equipment only if spill materials are not available.

8.4.2 *For Incidental Releases ONLY:*

Trained personnel should clean up the spilled material using absorbents and/or the spill kit provided in the vicinity. Dispose of all spill clean-up materials appropriately, i.e. preferably in a drum.

8.5 Clear Area

8.5.1 *Incidental Spills*

Personnel not involved in the spill response activities must be kept away from the spill area. If possible, rope off the area.

8.5.2 *Outside Spills*

Evacuate the area.

8.6 Emergency Response Contractor

In the event of an outside spill, a release outside the Airport of oil or an otherwise non-incident spill, the Airport will request assistance from an emergency response contractor to provide spill containment, clean-up, and disposal services. Contact information for emergency response contractors is provided in the Spill Response Notification Form provided below.

Spill Response Notification Form

CALLER NOTIFICATIONS

Emergency Response Contractors	Phone	Person/Time Called
Clean Harbors	800-645-8265	
Moran Environmental Recovery, LLC	888-233-5338	

Federal Organizations	Phone	Person/Time Called
National Response Center (NRC) – if impacts surface water	800-424-8802	
U.S. EPA Region I 24-Hour Spill Line	617-223-7265	
U.S. Coast Guard	617-223-3212	

State Organizations – if greater than 10 gallons	Phone	Person/Time Called
MA DEP – 24 hour spill reporting hotline	888-304-1133	

Local Organizations – if assistance required	Phone	Person/Time Called
Marshfield Fire Department Emergency Response	911 or 781-837-1315	
Marshfield Police Department Emergency Response	911 or 781-834-6655	
Local Emergency Planning Committee (LEPC)	781-837-7100	
Evacuation Notification	Police Notify	
State Emergency Response Commission (SERC)	508 820-2000	

APPENDICES

APPENDIX A – SITE MAP

APPENDIX B – PROCEDURES AND FORMS

APPENDIX C – SPILL RESPONSE CONTRACTORS

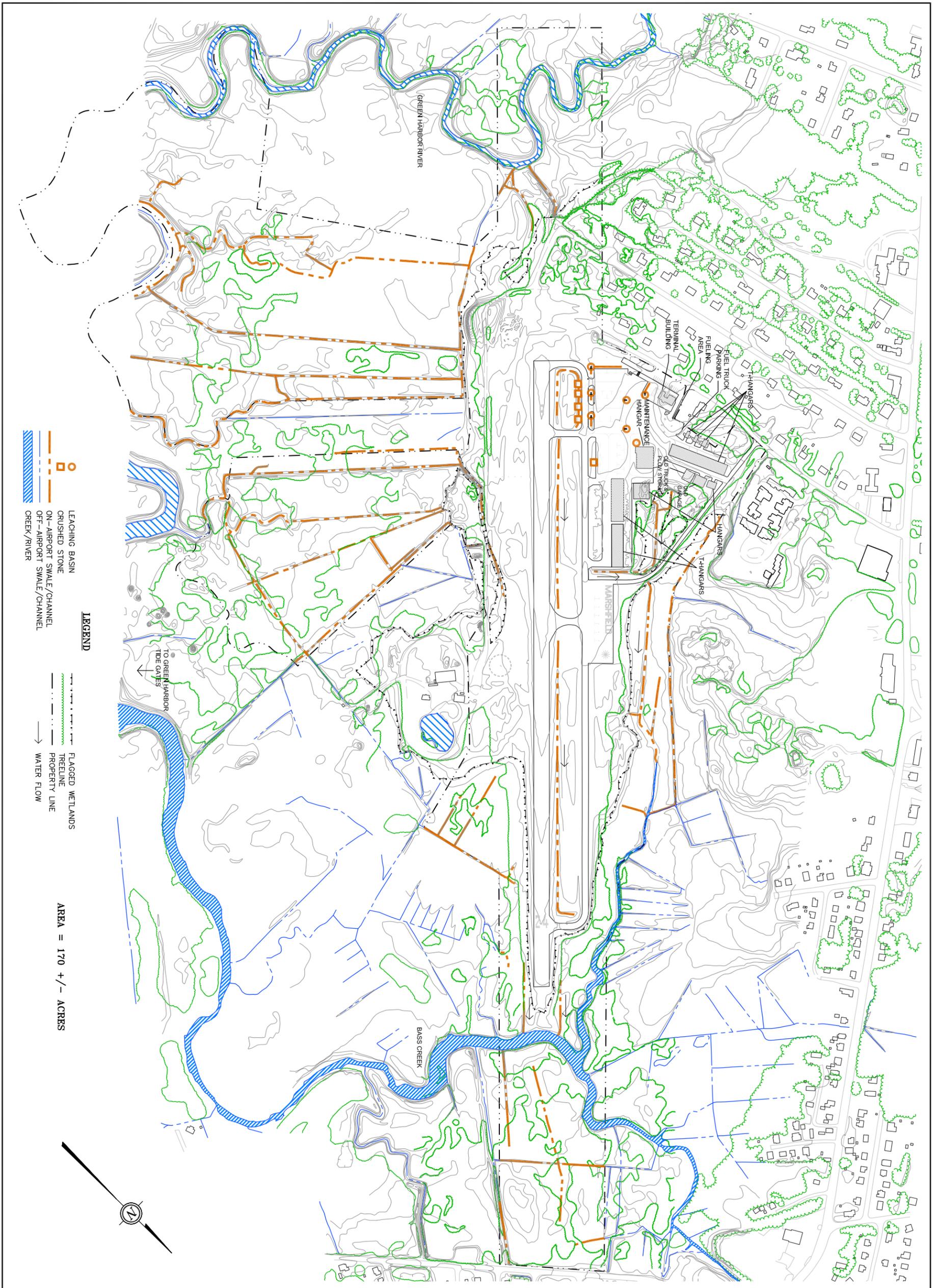
APPENDIX D – SPCC PLAN AMENDMENTS

APPENDIX E – SPCC PLAN 5-YEAR REVIEW DOCUMENTATION

APPENDIX F – DISCHARGE PREVENTION SYSTEM PUNCH LIST

APPENDIX A

SITE MAP



- LEGEND**
- LEACHING BASIN
 - CRUSHED STONE
 - ON-AIRPORT SWALE/CHANNEL
 - OFF-AIRPORT SWALE/CHANNEL
 - CREEK/RIVER
 - FLAGGED WETLANDS
 - TREELINE
 - PROPERTY LINE
 - WATER FLOW

AREA = 170 +/- ACRES

SITE MAP

DRAWING NO.

FIG. 1

PROJECT		OWNER	
GEORGE D. HARLOW FIELD MARSHFIELD AIRPORT COMMISSION MARSHFIELD, MASSACHUSETTS		GEORGE D. HARLOW FIELD MARSHFIELD AIRPORT COMMISSION MARSHFIELD, MASSACHUSETTS	
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	775845		
CAAD FILE	SPCC Site Map		
DESIGNED BY	JAT		
DRAWN BY	JAT		
CHECKED BY	AAD		
DATE	June 2008		
DRAWING SCALE	1" = 200'		
<p>GRAPHIC SCALE</p> <p>0 100 200 400 SCALE: 1" = 200'</p>			
SHEET TITLE			

GALE
Gale Associates, Inc
Engineers Architects Planners
15 Constitution Drive
Bedford, NH 03110
P 603.471.1887 F 603.471.1809
www.gainc.com

Boston Baltimore Orlando San Francisco

The Asset Owner retains ownership of this drawing. The Owner may not use this drawing for other than the purpose intended. Gale Associates and its employees shall not be liable for any damages or consequences which may occur by virtue of the use of this drawing for any purpose other than the intended purpose. This drawing is to be used only for the project and site shown in any way from the original form.

APPENDIX B

PROCEDURES AND FORMS

PROCEDURE NO. 1

SPCC PLAN TRAINING SIGN IN SHEET

The following individuals have reviewed the Spill Prevention, Control and Countermeasures Plan for the Airport, or attended SPCC training, as described below.

Name (Print)	Description of Review or Training	Signature

Date: _____

Instructor: _____

PROCEDURE NO. 2

- Title:** Inspection of Mobile Refueler Tanks
- Objective:** To locate leaks in progress and conditions that could result in a leak.
- Frequency:** Weekly.
- Records:** Inspection Logs.
- Procedure:**
1. The designated, trained person will visit each mobile refueler.
 2. All surfaces will be observed, specifically looking for:
 - A. *Drip Marks;*
 - B. *Discoloration;*
 - C. *Puddles;*
 - D. *Corrosion;*
 - E. *Cracks; and*
 - F. *Chipped Paint.*
 3. Check piping and connections for:
 - A. *Droplets;*
 - B. *Discoloration;*
 - C. *Corrosion;*
 - C. *Bowing of pipe between supports; and*
 - E. *Evidence of stored material on union/joints, valves, or seals.*
 4. Inspect, and clean if necessary, normal operating vents and emergency vents.
 5. Deteriorating or unusual conditions and observed leaks or results of leaks will be recorded in the log.
 6. Report unusual conditions immediately.

PROCEDURE NO. 3

Title:	Receiving Fuel Shipments
Objective:	To assure fuel is transferred from the delivery vehicle to the storage tank without a spill occurring.
Frequency:	At each delivery.
Records:	N/A
Procedure:	<ol style="list-style-type: none">1. Driver will stop at Administration Building Office and log in, prior to performing oil transfer.2. Seal the storm drains with drain pads prior to hooking up any hoses.3. Airport personnel shall be present during and observe entire unloading operation.4. Verify the volume of the delivery with the driver and assure that the designated receiving tank has adequate available capacity to receive the load.5. Airport personnel will ensure that spill kits are available at the delivery site and that the driver performs the following:<ol style="list-style-type: none">a) Sets the brakes and chocks.b) Hooks up discharge hose to tanker and vents the tanker.c) Sets valves and places drip pans under the hose connections.d) Begins delivery at a slow rate to verify that all connections are leak tight and then proceeds with delivery.6. Airport personnel and driver remain at the unloading site and inspect the tank, lines, and pumps for leaks during the transfer cycle.7. When the delivery is complete the Airport personnel will ensure the driver performs the following:<ol style="list-style-type: none">a) Secures the proper valves.b) Ensures that the discharge hose is drained.c) Empties the drip pan and cap connections as required.d) Inspects the vehicle and ensures that all truck valves are not leaking and removes chocks.8. Airport personnel sign for the delivery slips and turn in the delivery paperwork at the Airport Administration Building office.

PROCEDURE NO. 4

Title: Annual Tank Inspection.

Objective: To assure that the alarm/gauge systems used to prevent overfilling a tank, and emergency vent o-rings or gaskets are in good working condition.

Frequency: At least annually.

Records: Inspection Logs.

Procedure:

1. Test alarm systems and level gauges and similar equipment to demonstrate they are working as new installation equipment would work in accordance with manufacturer instructions.
2. Inspect emergency vent o-rings or gaskets for damage or deterioration.
3. Record results of testing and inspections in the log.

PROCEDURE NO. 5

Title:	Spill Response
Objective:	To respond to incidental spills.
Frequency:	As needed.
Records:	Incident Report Form
Procedure:	<ol style="list-style-type: none">1. Evaluate the safety of the situation, including potential for fire or explosion: if determined unsafe, move away from the area and immediately contact local emergency personnel (911) for assistance.2. Contact the Emergency Coordinator.3. Oversee Airport/building evacuation if determined necessary.4. When safe, attempt to stop or minimize the release of oil/fuel from the source, including shutting down operations, as necessary.5. Cover storm drains, as necessary.6. Use soil or other material to limit the spread of oil/fuel and to divert the flow away from a waterway, storm drain, or other sensitive receptor.7. Use speedi-dry or absorbent pads to absorb released oil, if appropriate.8. Once the release is under control, identify the character, exact source, amount, and extent of any released materials.9. Determine if release is reportable to DEP.10. If reportable, notify DEP per Oil Spill Contingency Plan.11. Contact spill cleanup contractor to begin containment and cleanup measures.12. Maintain a safe area around the release.13. Replenish spill materials.14. Maintain spill records.

APPENDIX C

SPILL RESPONSE CONTRACTORS

APPENDIX D

SPCC PLAN AMENDMENTS

APPENDIX E

SPCC PLAN 5-YEAR REVIEW DOCUMENTATION

SPCC PLAN 5-YEAR REVIEW DOCUMENTATION

When the 5-year review and evaluation of this SPCC Plan has been completed, the following statement, or similar statement, must be signed by the owner or operator of the Airport to indicate whether or not revisions to the Plan will be made. This signed statement must be maintained in the SPCC Plan, either at the beginning or end of the Plan, or in an appendix to the Plan.

“I have completed review and evaluation of the SPCC Plan for George D. Harlow Field in, Marshfield, Massachusetts on _____(date), and will (will not) amend the Plan as a result.”

(signature of owner/operator)

APPENDIX F

DISCHARGE PREVENTION SYSTEM PUNCH LIST

DISCHARGE PREVENTION SYSTEM PUNCH LIST

The action items listed below must be completed within 6 months of the SPCC Plan certification. Successful completion of each item *must be documented*, and included in Appendix F of the SPCC Plan. Documentation includes a description of the action taken, the date completed, the individual responsible for completing the item, and the signature of the responsible individual.

The action items are as follows:

1. Store all oil drums and other liquid chemicals at the Airport on spill collection pallets with 110% containment capacity of the largest container.
2. Store all snow removal equipment on pavement.
3. Secure all oil tanks within the buildings/hangars of the Airport in accordance with 527 CMR 9.00.
4. Obtain a contract for spill cleanup services from a spill cleanup contractor.
5. Improve use of spill kits as a means to minimize risk of release to the environment. Add spill kits to the following locations:
 - Maintain spill kits in all hangars that have oil storage.
 - Place spill kit near Shoreline refueling tankers.
 - Place spill kit near vehicles in storage at the SRE Building

RECORD OF DISCHARGE PREVENTION SYSTEM PUNCHLIST COMPLETION

George D. Harlow Field - Marshfield, MA

Punch List Item No.	Description of Action Taken	Date Completed	Responsible Person (print)	Responsible Person (signature)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

APPENDIX E

RECEIVING WATERS DOCUMENTATION



Watershed Assessment, Tracking & Environmental Results

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[Return to home page](#)

On This Page

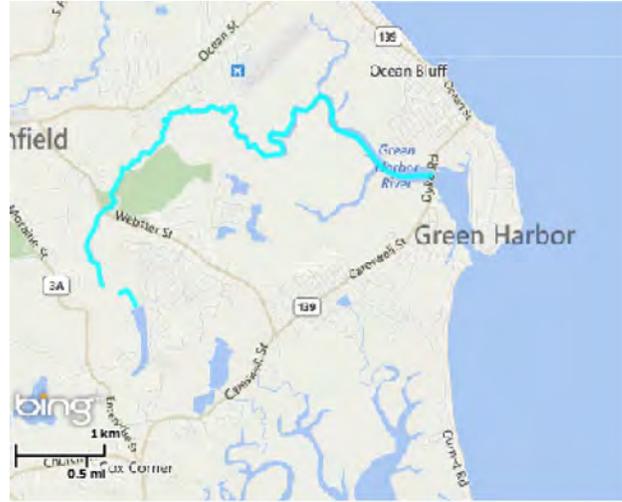
- [Water Quality Assessment Status](#)
- [Causes of Impairment](#)
- [Probable Sources Contributing to Impairments](#)
- [TMDLs That Apply to This Waterbody](#)
- [Previous Causes of Impairment Now Attaining All Uses](#)

State: [Massachusetts](#)
Waterbody ID: MA94-10
Location: Outlet Black Mountain Pond, Marshfield to the tidegate at Route 139, Marshfield.
State Waterbody Type: River
EPA Waterbody Type: Rivers and Streams
Water Size: 5.648
Units: miles
Watershed Name: [Cape Cod](#)

[Waterbody History Report](#)

Data are also available for these years: [2010](#)
[2006](#) [1996](#)

2012 Waterbody Report for Green Harbor River



Click on the waterbody for an interactive map

Features

- [About This Database \(Integrated Report\)](#)
- [Assessing Water Quality \(Questions and Answers\)](#)
- [Integrated Reporting Guidance](#)
- [Previous National Water Quality Reports](#)
- [EnviroMapper for Water](#)
- [AskWATERS](#)
- [EPA WATERS Homepage](#)
- [Exchange Network](#)
- [Assessment Database](#)
- [Statewide Statistical Surveys](#)
- [How's My Waterway Local Search tool](#)
- [Pollution Categories Summary Document](#)
- [Nitrogen and Phosphorus Pollution Data Access Tool \(NPDAT\)](#)

Water Quality Assessment Status for Reporting Year 2012

The overall status of this waterbody is Impaired.

[Description of this table](#)

Designated Use	Designated Use Group	Status
Aesthetic	Aesthetic Value	Impaired
Fish Consumption	Aquatic Life Harvesting	Not Assessed
Fish, Other Aquatic Life And Wildlife	Fish, Shellfish, And Wildlife Protection And Propagation	Impaired
Primary Contact Recreation	Recreation	Impaired
Secondary Contact Recreation	Recreation	Impaired

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Causes of Impairment for Reporting Year 2012

[Description of this table](#)

Cause of Impairment	Cause of Impairment Group	Designated Use(s)	State TMDL Development Status
Excess Algal Growth	Algal Growth	Aesthetic, Primary Contact Recreation, Secondary Contact Recreation	TMDL needed
Fish Passage Barrier	Habitat Alterations	Fish, Other Aquatic Life And Wildlife	Non-pollutant impairment
Other Flow Regime Alterations	Flow Alteration(s)	Fish, Other Aquatic Life And Wildlife	Non-pollutant impairment
Turbidity	Turbidity	Primary Contact Recreation, Aesthetic, Secondary Contact Recreation	TMDL needed

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Probable Sources Contributing to Impairment for Reporting Year 2012

[Description of this table](#)

Probable Source	Probable Source Group	Cause(s) of Impairment
Changes In Tidal Circulation/Flushing	Hydromodification	Fish Passage Barrier; Other Flow Regime Alterations
Hydrostructure Impacts On Fish Passage	Hydromodification	Fish Passage Barrier; Other Flow Regime Alterations
Impacts From Hydrostructure Flow Regulation/Modification	Hydromodification	Fish Passage Barrier; Other Flow Regime Alterations
Source Unknown	Unknown	Excess Algal Growth; Turbidity

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TMDLs That Apply to this waterbody

No TMDL data have been recorded by EPA for this waterbody.

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Previous Causes of Impairments Now Attaining All Uses

No causes of impairment are recorded as attaining all uses for this waterbody.

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[EPA Home](#) | [Privacy and Security Notice](#) | [Contact Us](#)

http://iaspub.epa.gov/tmdl_waters10/attains_waterbody.control?p_au_id=MA94-10&p_list_id=MA94-10&p_cycle=2012

[Print As-Is](#)

Last updated on 8/11/2015

This document will now print as it appears on screen when you use the File » Print command.
Use View » Refresh to return to original state.

This document will now print as it appears on screen when you use the File » Print command.
Use View » Refresh to return to original state.

This document will now print as it appears on screen when you use the File » Print command.
Use View » Refresh to return to original state.

Massachusetts Category 5 Waters "Waters requiring a TMDL"

NAME	SEGMENT ID	DESCRIPTION	SIZE	UNITS	IMPAIRMENT CAUSE	EPA TMDL NO.
Green Harbor River	MA94-10	Outlet Black Mountain Pond, Marshfield to the tidegate at Route 139, Marshfield.	5.648	MILES	(Fish-Passage Barrier*)	
					(Other flow regime alterations*)	
					Excess Algal Growth	
					Turbidity	
Herring River	MA94-07	Outlet Old Oaken Bucket Pond, Scituate to confluence with North River, Scituate.	0.077	SQUARE MILES	Fecal Coliform	
Indian Head River	MA94-04	Outlet of Factory Pond, Hanover/Hanson to Curtis Crossing Dam (also called Ludhams Ford Dam) west of Elm Street, Hanover/Pembroke.	2.914	MILES	Mercury in Fish Tissue	
					Oxygen, Dissolved	
					Phosphorus (Total)	
Indian Head River	MA94-22	From Curtis Crossing Dam (also called Ludhams Ford Dam) west of Elm Street, Hanover/Pembroke to confluence with Herring Brook, (forming headwaters of North River) Hanover/Pembroke.	0.883	MILES	Mercury in Fish Tissue	
Iron Mine Brook	MA94-24	Headwaters north of Route 139, Hanover to the confluence with Indian Head River, Hanover.	1.393	MILES	Fecal Coliform	
Jones River	MA94-12	Headwaters outlet Silver Lake, Kingston to dam near Wapping Road, Kingston.	4.057	MILES	(Fish-Passage Barrier*)	
					(Low flow alterations*)	
					Aquatic Plants (Macrophytes)	
					Excess Algal Growth	
					Oxygen, Dissolved	
Jones River	MA94-13	From dam near Wapping Road, Kingston to dam at Elm Street, Kingston.	0.93	MILES	(Low flow alterations*)	
					Aquatic Plants (Macrophytes)	
					Excess Algal Growth	
					Oxygen, Dissolved	
					Turbidity	
Jones River	MA94-14	From dam at Elm Street, Kingston to mouth at Duxbury Bay, Kingston.	0.089	SQUARE MILES	Fecal Coliform	
Lily Pond	MA94179	Cohasset	50.503	ACRES	(Fish-Passage Barrier*)	
					(Non-Native Aquatic Plants*)	
					Secchi disk transparency	
Musquashcut Pond	MA94-33	Scituate (formerly reported as MA94105)	0.109	SQUARE MILES	(Other flow regime alterations*)	
					Chlorophyll-a	
					Dissolved oxygen saturation	
					Excess Algal Growth	
					Fecal Coliform	
					Phosphorus (Total)	

APPENDIX F

ENDANGERED SPECIES ELIGIBILITY DOCUMENTATION

Criterion C Eligibility Form

Instructions:

In order to be eligible for coverage under criterion C, you must complete the following form and you must submit it to EPA following the instructions in Section VII a **minimum of 30 days prior to filing your NOI for permit coverage.** After you submit your form, you may be contacted by EPA with additional measures (e.g., additional stormwater controls or modifications to your discharge-related activities) that you must implement in order to ensure your eligibility under criterion C.

If after completing this worksheet you cannot make a determination that your discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or designated critical habitat, you must submit this completed worksheet to EPA, and you may not file your NOI for permit coverage until you receive a determination from EPA that your discharges and/or discharge-related activities are not likely to adversely affect listed species and critical habitat.

Note: Much of the information needed for this form can be obtained from your draft SWPPP which will be needed when you file your NOI.

SECTION I. OPERATOR, FACILITY, AND SITE LOCATION INFORMATION.

1) Operator Information

a) Operator Name: _____

b) Point of Contact

First Name: _____ Last Name: _____

Phone Number: _____

E-mail: _____

2) Facility Information

a) Facility Name: _____

b) Check which of the following applies:

I am seeking coverage under the MSGP as a new discharger or as a new source

I am seeking coverage under the MSGP as an existing discharger and my facility has modifications to its discharge characteristics (e.g., changes in discharge flow or area drained, different pollutants) and/or discharge-related activities (e.g., stormwater controls)

Indicate the number of years the facility has been in operation: _____ years

Provide your NPDES ID (i.e., permit tracking number) from your previous MSGP coverage: _____

I am seeking coverage under the MSGP as an existing discharger and there are no modifications to my facility.

Indicate the number of year the facility has been in operation: _____ years

Provide your NPDES ID (i.e., permit tracking number) from your previous MSGP coverage: _____

c) Facility Address:

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip Code: _____

d) Identify the primary industrial sector to be covered under the 2015 MSGP:

SIC Code _____ or Primary Activity Code _____

Sector _____ and Subsector _____

e) Identify the sectors of any co-located activities to be covered under the 201r MSGP:

Sector _____ Subsector _____

f) Estimated area of industrial activity exposed to stormwater: _____ acres

g) Provide a general description of the industrial activities that are taking place at this facility:

3) Receiving Waters Information

List all the stormwater outfalls from your facility.				For each outfall, provide the following receiving water information:	
Outfall ID	Design Capacity (if known)	Latitude (decimal degrees)	Longitude (decimal degrees)	Name of the receiving water that receives stormwater from the outfall and/or from the MS4 that the outfall discharges to	Type of Waterbody (e.g., lake, pond, river/stream/creek, estuarine/marine water)
		____.____	____.____		
		____.____	____.____		
		____.____	____.____		
		____.____	____.____		
		____.____	____.____		

No. 6 Unknown 42.0955 70.6745 Green Harbor River/Surrounding Wetlands River

SECTION II. ACTION AREA

Ensure that your action area is described in [Attachment 1](#), as required in [Step 2](#).

SECTION III. LISTED SPECIES AND CRITICAL HABITAT LIST

Ensure that the listed species and critical habitat list is included in [Attachment 2](#), as required in [Step 3](#).

Review your species list in Attachment 2, choose one of the following three statements, and follow the corresponding instructions:

The species list includes only terrestrial species and/or their designated critical habitat. No aquatic or aquatic-dependent species or their critical habitat are present in the action area. **You may skip to [Section IV](#) of this form. You are not required to fill out [Section V](#).**

The species list includes only aquatic and/or aquatic-dependent species and/or their designated critical habitat. No terrestrial species or their critical habitat are present in the action area. **You may skip to [Section V](#) of this form and are not required to fill out [Section IV](#).**

The species list includes both terrestrial and aquatic or aquatic-dependent species and/or their designated critical habitat. **You must fill out both [Sections IV](#) and [V](#) of this form.**

Note: For the purposes of this permit, "terrestrial species" would not include animal or plant species that 1) spends any portion of its life cycle in a waterbody or wetland, or 2) if an animal, depends on prey or habitat that occurs in a waterbody or wetland. For example, shorebirds, wading birds, amphibians, and certain reptiles would not be considered terrestrial species under this definition. Please also be aware that some terrestrial animals (e.g., certain insects, amphibians) may have an aquatic egg or larval/juvenile phase.

SECTION IV. EVALUATION OF DISCHARGE-RELATED ACTIVITIES EFFECTS

Note: You are only required to fill out this section if your facility's action area contains terrestrial species and/or their designated critical habitat. If your action area only contains aquatic and/or aquatic-dependent species and/or their designated critical habitat, you can skip directly to [Section V](#).

Most of the potential effects related to coverage under the MSGP are assumed to occur to aquatic and/or aquatic-dependent species. However, in some cases, potential effects to terrestrial species and/or their critical habitat should be considered as well from any discharge-related activities that occur during coverage under the MSGP. Examples of discharge-related activities that could have potential effects on listed terrestrial species or their critical habitat include the storage of materials and land disturbances associated with stormwater management-related activities (e.g., the installation or placement of stormwater control measures).

A. Select the applicable statement(s) below and follow the corresponding instructions:

There are no discharge-related activities that are planned to occur during my coverage under the MSGP. You can conclude that your discharge-related activities will have no likely adverse effects, and:

- If there are any aquatic or aquatic-dependent species and/or their critical habitat in your action area, you must skip to [Section V](#), *Evaluation of Discharge Effects*, below.
- If there are no aquatic or aquatic-dependent species you may skip to [Section VI](#) and verify that your activities will have no likely adverse effects. You must submit this form to EPA as specified in [Section VII](#) of this form. You may select criterion C on your NOI form and may submit your NOI for permit coverage 30 days after you have submitted this *Criterion C Eligibility Form*. You must also provide a description of the basis for the criterion you selected on your NOI form, **including the species and critical habitat list(s) in your action area**, as well as any other documentation supporting your eligibility. You must also include this completed *Criterion C Eligibility Form* in your SWPPP.

There are discharge-related activities planned as part of the proposal. Describe your discharge-related activities in the following box and continue to (b) below.

Describe discharge-related activities:

B. In order to ensure any discharge-related activities will have no likely adverse effects on listed species and/or their designated critical habitat, you must certify that all the following are true:

Discharge-related activities will occur:

- on previously cleared/developed areas of the site where maintenance and operation of the facility are currently occurring or where existing conditions of the area(s) in which the discharge-related activities will occur precludes its use by listed species (e.g., work on existing impervious surfaces, work occurring inside buildings, area is not used by species), and
- if discharge-related activities will include the establishment of structures (including, but not limited to, infiltration ponds and other controls) or any related disturbances, these structures and/or disturbances will be sited in areas that will not result in isolation or degradation of nesting, breeding, or foraging habitat or other habitat functions for listed animal species (or their designated critical habitat), and will avoid the destruction of native vegetation (including listed plant species).

If vegetation removal (e.g., brush clearing) or other similar activities will occur, no terrestrial listed species that use these areas for habitat would be expected to be present during vegetation removal.

If all the above are true, you can conclude that your discharge-related activities will have no likely adverse effects, and:

- If there are any aquatic or aquatic-dependent species and/or critical habitat in your action area, you must skip to [Section V](#), *Evaluation of Discharge Effects*, below.
- If there are no aquatic or aquatic-dependent species you may skip to [Section VI](#) and verify that your activities will have no likely adverse effects. You must submit this form to EPA as specified in [Section VII](#) of this form. You may select criterion C on your NOI and may submit your NOI for permit coverage 30 days after you have submitted this completed form. You must also provide a description of the basis for the criterion you selected on your NOI form, **including the species and critical habitat list(s)**, and any other documentation supporting your eligibility. You must also include this completed *Criterion C Eligibility Form* in your SWPPP.
- **If any of the above are not true**, you cannot conclude that your discharge-related activities will have no likely adverse effects. You must complete the rest of this form (if applicable), and must submit the form to EPA for assistance in determining your eligibility for coverage.

SECTION V. EVALUATION OF DISCHARGE EFFECTS

Note: You are only required to fill out this section if your facility's action area includes aquatic and/or aquatic-dependent species and/or their critical habitat.

In this section, you will evaluate the likelihood of adverse effects from your facility's discharges. The scope of effects to consider will vary with each facility and species/critical habitat characteristics. The following are examples of discharge effects you should consider:

- **Hydrological Effects.** Stormwater discharges may adversely affect receiving waters from pollutant parameters such as turbidity, temperature, salinity, or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a stormwater discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- **Toxicity of Pollutants.** Pollutants in stormwater may have toxic effects on listed species and may adversely affect critical habitat. Exceedances of benchmarks, effluent limitation guidelines, or state or tribal water quality requirements may be indicative of potential adverse effects on listed species or critical habitat. However, some listed species may be adversely affected at pollutant concentrations below benchmarks, effluent limitation guidelines, and state or tribal water quality standards. In addition, stormwater pollutants identified in Part 5.2.3.2 of your SWPPP, but not monitored as benchmarks or effluent limitation guidelines, may also adversely affect listed species and critical habitat.

As these effects are difficult to analyze for listed species, their prey, habitat, and designated critical habitat, this form helps you to analyze your discharges and make a determination of whether your discharges will have likely adverse effects and whether there are any additional controls you can implement to ensure no likely adverse effects.

A. Evaluation of Pollutants and Controls to Avoid Adverse Effects. In this section, you must document all of your pollutant sources and pollutants expected to be discharged in stormwater. You must also document the controls you will implement to avoid adverse effects on listed aquatic and aquatic-dependent species. You must include specific details about the expected effectiveness of the controls in avoiding adverse effects to the listed aquatic-and aquatic-dependent species. Attach additional pages if needed.

Potential Pollutant Source	Potential Pollutants	Controls to Avoid Adverse Effects on Listed Aquatic and Aquatic-Dependent Species. Include information supporting why the control(s) will ensure no adverse effects, including any data you have about the effectiveness of the control(s) in reducing pollutant concentrations. You may also attach photos of your controls to this form.
e.g., vehicle and equipment fueling	e.g., <ul style="list-style-type: none"> • Oil & grease • Diesel • Gasoline • TSS • Antifreeze 	e.g., <ul style="list-style-type: none"> • Fueling operators (including the transfer of fuel from tank trucks) will be conducted on an impervious or contained pad or under cover • Drip pans will be used where leaks or spills of fuel can occur and where making and breaking hose connections • Spill kit will be kept on-site in close proximity to potential spill areas • Any spills will be cleaned-up immediately using dry clean up methods • Stormwater runoff will be diverted around fueling areas using diversion dikes and curbing

Potential Pollutant Source	Potential Pollutants	Controls to Avoid Adverse Effects on Listed Aquatic and Aquatic-Dependent Species.

Potential Pollutant Source	Potential Pollutants	Controls to Avoid Adverse Effects on Listed Aquatic and Aquatic-Dependent Species.

Check if you are not able to make a preliminary determination that any of your pollutants will be controlled to a level necessary to avoid adverse effects on aquatic and/or aquatic-dependent listed species and their designated critical habitat. You must check in [Section VI](#) that you are unable to make a determination of no likely adverse effects, and must complete the rest of the form. You must submit your completed form to EPA for assistance in determining your eligibility for coverage.

B. Analysis of Effects Based on Past Monitoring Data. Select which of the following applies to your facility:

- I have no previous monitoring data for my facility because there are no applicable monitoring requirements for my facility's sector(s).
- I have no previous monitoring data for my facility because I am a new discharger or a new source, but I am subject to monitoring under the 2015 MSGP. You must provide information to support a conclusion that your facility's discharges are not expected to result in benchmark or numeric effluent limit exceedances that will adversely affect listed species or their critical habitat:
- My facility has not had any exceedances under the 2008 MSGP of any required benchmark(s) or numeric effluent limits.
- My facility has had exceedances of one or more benchmark(s) or numeric effluent limits under the 2008 MSGP, but I have addressed them during my coverage under the 2008 MSGP, or in my evaluation of controls to avoid adverse effects in (A) above. Describe all actions (including specific controls) that you will implement to ensure that the pollutants in your discharge(s) will not result in likely adverse effects from future exceedances.
- Check if your facility has had exceedances of one or more benchmarks or numeric effluent limits under the 2008 MSGP and you have not been able to address them to avoid adverse effects from future exceedances, or if you are a new discharger or a new source but you are not sure if you can avoid adverse effects from possible exceedances. You must check in [Section VI](#) that you are unable to make a determination of no likely adverse effects. You must submit your completed form to EPA for assistance in determining your eligibility for coverage. You may not file your NOI for permit coverage until you are able to make a determination that your discharges will avoid adverse effects on listed species and designated critical habitat.

SECTION VI VERIFICATION OF PRELIMINARY EFFECTS DETERMINATION

Based on Steps I – V of this form, you must verify your preliminary determination of effects on listed species and designated critical habitat from your discharges and/or discharge-related activities :

- Following the applicable Steps in I – V above, I have made a preliminary determination that my discharges and/or discharge-related activities are not likely to adversely affect listed species and designated critical habitats.
- Following the applicable Steps in I – V above, I am **not** able to make a preliminary determination that my discharges and/or discharge-related activities are not likely to adversely affect listed species and designated critical habitats.

Certification Information

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Attachment 1

Include a map **and a written description** of the action area of your facility, as required in [Step 2](#). You may choose to include the map that is generated from the FWS' on-line mapping tool IPaC (the *Information, Planning, and Consultation System*) located at <http://ecos.fws.gov/ipac/>.

The written description of your action area that accompanies your action area map must explain your rationale for the extent of the action area drawn on your map. For example, your action area written description may look something like this:

The action area for the (name of your facility)'s stormwater discharges extends downstream from the outfall(s) in (name of receiving waterbody) (# of meters/feet/kilometers/miles). The downstream limit of the action area reflects the approximate distance at which the discharge waters and any pollutants would be expected to cause potential adverse effects to listed species and/or critical habitat because (insert rationale). The action area does/does not extend to the (name of receiving waterbody)'s confluence with (name of confluence waterbody) because (insert rationale).

Note that your action area written description will be highly site-specific, depending on the expected effects of your facility's discharges and discharge-related activities, receiving waterbody characteristics, etc.

Attachment 2

List or attach the listed species and critical habitat in your action area on this sheet, as required in [Step 3](#). You must include a list for applicable listed NMFS and FWS species and critical habitat. If there are listed species and/or critical habitat for only one Service, you must include a statement confirming there are no listed species and/or critical habitat for the other Service. For FWS species, include the full printout from your IPaC query. *Note: If your Official Species List from the USFWS indicated no species or critical habitat were present in your action area, include the full consultation tracking code at the top of your Official Species List in your NOI submittal in the question "Provide a brief summary of the basis for the criterion selected in Appendix E." If an Official Species List was not available on IPaC, list the contact date and name of the Service staff with whom you corresponded to identify the existence of any USFWS species or critical habitat present in your action area.*



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Code: 05E1NE00-2015-SLI-1914

September 02, 2015

Event Code: 05E1NE00-2015-E-02404

Project Name: Marshfield Municipal Airport (GHG) SWPPP Update

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Marshfield Municipal Airport (GHG) SWPPP Update

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
(603) 223-2541
<http://www.fws.gov/newengland>

Consultation Code: 05E1NE00-2015-SLI-1914

Event Code: 05E1NE00-2015-E-02404

Project Type: WATER QUALITY MODIFICATION

Project Name: Marshfield Municipal Airport (GHG) SWPPP Update

Project Description: Water Quality Modification - Marshfield Municipal Airport Stormwater Pollution Prevention Plan (SWPPP) Update

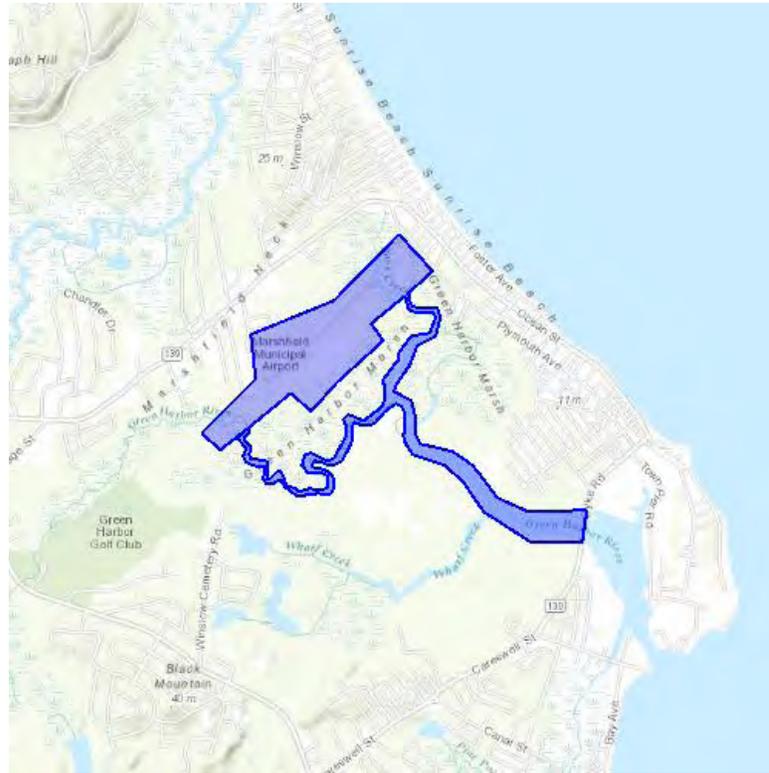
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Marshfield Municipal Airport (GHG) SWPPP Update

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Plymouth, MA



United States Department of Interior
Fish and Wildlife Service

Project name: Marshfield Municipal Airport (GHG) SWPPP Update

Endangered Species Act Species List

There are a total of 2 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Red Knot (<i>Calidris canutus rufa</i>)	Threatened		
Mammals			
Northern long-eared Bat (<i>Myotis septentrionalis</i>)	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: Marshfield Municipal Airport (GHG) SWPPP Update

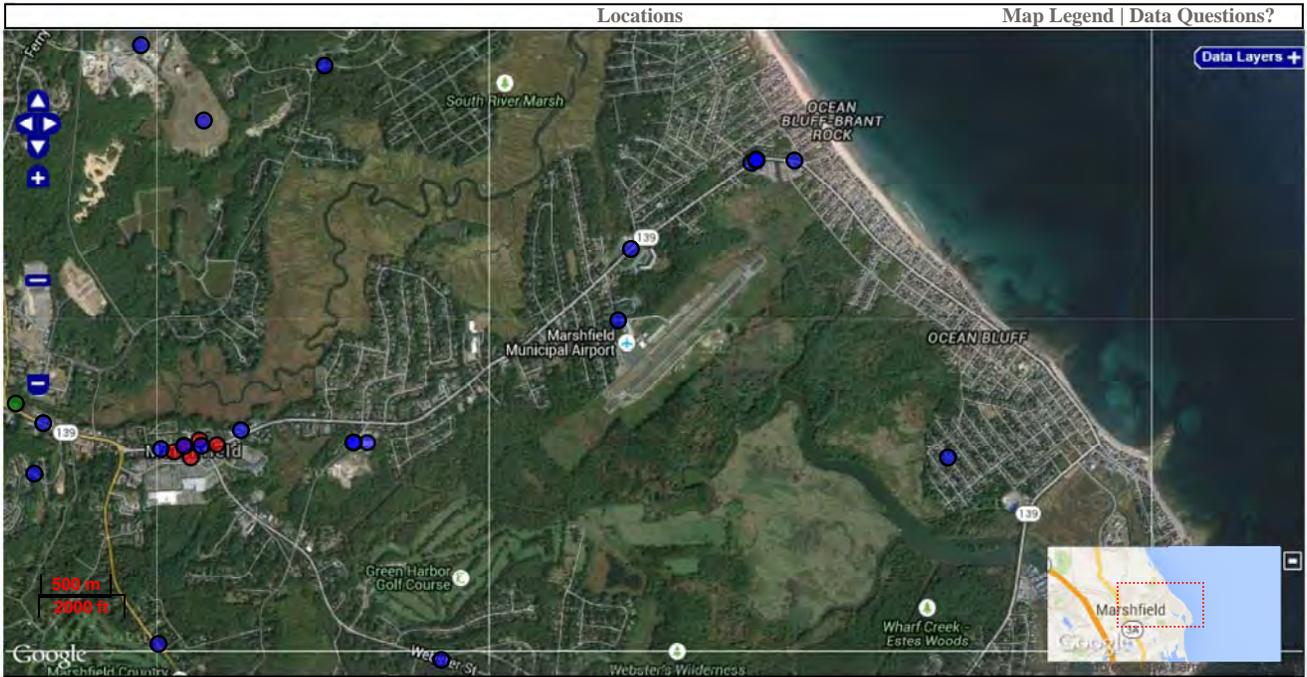
Critical habitats that lie within your project area

There are no critical habitats within your project area.

APPENDIX G

MDEP REPORTABLE RELEASE LOOKUP

Reportable Release Lookup



● Open Sites ● Closed Sites ● Closed Sites with Use Limitation

The search returned 74 results | Search Keywords >> 'MARSHFIELD' | Data last updated: 08/04/2015

Select	RTN	City/Town	Release Address	Site Name Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type	Files	GIS
<input type="checkbox"/>	4-0000210	MARSHFIELD	220 MAIN ST	JONESIE SERVICE CTR	NONE	1986-09-03	DEPNFA	1993-07-23				Files	
<input type="checkbox"/>	4-0000372	MARSHFIELD	975 PLAIN ST	BFI MAINTENANCE FACILITY	NONE	1987-04-15	RAO	1995-05-18		A1	Oil	Files	
<input type="checkbox"/>	4-0000378	MARSHFIELD	95 CENTRAL ST	TAYLOR MARINE CORP	NONE	1987-06-29	RAO	2005-07-29		A2		Files	MAP
<input type="checkbox"/>	4-0000466	MARSHFIELD	RTE 139	GREEN HARBOR MARINA	NONE	1988-01-15	DEPNFA	1996-08-02				Files	
<input type="checkbox"/>	4-0000558	MARSHFIELD	2139 OCEAN ST	CITGO SERVICE STATION	NONE	1988-06-27	RAO	1997-06-10		A2		Files	
<input type="checkbox"/>	4-0000753	MARSHFIELD	2054 OCEAN ST	SUNOCO SERVICE STATION	NONE	1990-01-15	RAO	1996-08-14		A2		Files	
<input type="checkbox"/>	4-0000759	MARSHFIELD	SUMMER ST	PROPERTY	NONE	1989-10-15	LSPNFA	1996-05-28				Files	
<input type="checkbox"/>	4-0000789	MARSHFIELD	2170 OCEAN ST	TEXACO SERVICE STATION	NONE	1989-10-24	RAO	1996-12-23		A3	Oil	Files	MAP
<input type="checkbox"/>	4-0000866	MARSHFIELD	668 PLAIN ST	ANTONS CLEANERS	NONE	1990-02-01	REMOPS	2013-01-20	PHASE V		Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0000889	MARSHFIELD	CLAY PIT RD	PROPERTY	NONE	1993-07-15	RAO	2003-09-26		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0001013	MARSHFIELD	430 CARESWELL ST	CEDARVIEW SERVICE STATION	NONE	1991-01-15	RAO	2002-01-11	PHASE II	B1	Oil	Files	MAP
<input type="checkbox"/>	4-0001059	MARSHFIELD	83 ENTERPRISE DR	COMMERCE CENTER TRUST	NONE	1993-07-15	RAO	2001-04-30	PHASE III	A2		Files	MAP
<input type="checkbox"/>	4-0001172	MARSHFIELD	89 FOREST ST	MARSHFIELD HIGH SCHOOL	NONE	1993-07-13	TIERI	1995-04-10	PHASE III		Hazardous Material	Files	
<input type="checkbox"/>	4-0001210	MARSHFIELD	PARSONAGE ST RTE 139	MARSHFIELD DPW	NONE	1992-10-15	RAO	2009-01-30	PHASE III	A2		Files	MAP
<input type="checkbox"/>	4-0001238	MARSHFIELD	923 PLAIN ST	MAGUIRE CHEVROLET INC	NONE	1993-07-15	RAO	1997-08-11		A2		Files	
<input type="checkbox"/>	4-0006010	MARSHFIELD	1933 OCEAN ST	PUBLIC PETROLEUM	NONE	1993-12-13	REMOPS	2005-03-07	PHASE V		Oil	Files	MAP
<input type="checkbox"/>	4-0010073	MARSHFIELD	134 OLD COLONY AVE	NO LOCATION AID	TWO HR	1993-11-03	RAO	1994-11-03		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0010172	MARSHFIELD	1948 OCEAN ST	PROCUT HAIR SALON	TWO HR	1993-12-22	RAO	1994-11-28		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0010189	MARSHFIELD	219 CANAL ST	GREEN HARBOR SECTION	TWO HR	1994-01-10	RAO	1995-01-03		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0010263	MARSHFIELD	SOUTH RIVER RD OFF RTE 3A	CENTRAL FIRE STATION	TWO HR	1994-02-07	RAO	1994-11-14			Hazardous Material	Files	

Select	RTN	City/ Town	Release Address	Site Name Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type	Files	GIS
<input type="checkbox"/>	4-0010370	MARSHFIELD	1919 OCEAN ST	LOT 21 OS ASSESSORS MAP H7	120 DY	1994-03-29	RAO	1994-05-31	PHASE II	B1	Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0010378	MARSHFIELD	682 UNION ST	NO LOCATION AID	TWO HR	1993-10-01	RAO	1998-12-07		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0010416	MARSHFIELD	200 MAIN ST	NYNEX FACILITY	72 HR	1994-04-14	RAO	1995-03-31		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0010454	MARSHFIELD	RTE 139 969 OCEAN ST	NO LOCATION AID	120 DY	1994-05-04	RTN CLOSED	1995-11-27			Oil	Files	MAP
<input type="checkbox"/>	4-0010528	MARSHFIELD	969 OCEAN ST	MARSHFIELD BP	72 HR	1994-05-04	RAO	1997-10-27	PHASE II	A1	Oil and Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0010933	MARSHFIELD	969 OCEAN ST	FRASCAS BP SERVICE STA	72 HR	1994-11-18	RTN CLOSED	1995-11-27			Oil	Files	MAP
<input type="checkbox"/>	4-0011993	MARSHFIELD	1896 OCEAN ST	GULF SERVICE STATION	120 DY	1996-03-07	DPS	2009-05-05	PHASE II		Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0012094	MARSHFIELD	535 PLAIN ST	BRITEWAY CAR WASH	120 DY	1996-11-25	URAM	2006-10-30	PHASE V		Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0012942	MARSHFIELD	JUNE DR	NO LOCATION AID	TWO HR	1997-04-04	RAO	1997-06-09		A2		Files	MAP
<input type="checkbox"/>	4-0012962	MARSHFIELD	4 ATINA RD	RESIDENCE	72 HR	1997-04-22	RAO	1997-08-11		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0013083	MARSHFIELD	1900-1920 OCEAN ST	WEBSTER ST	120 DY	1997-06-05	DPS	1997-06-05			Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0013152	MARSHFIELD	612 PLAIN ST	NEAR ENTERPRISE DRIVE	120 DY	1997-06-13	DPS	1997-06-13			Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0013222	MARSHFIELD	700 PLAIN ST	GILLESPIE FORD DEALER FMR	120 DY	1997-07-28	RAO	2010-11-19		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0013572	MARSHFIELD	974 PLAIN ST	BAPTIST CHURCH	TWO HR	1997-12-23	RAO	1998-12-02		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0013675	MARSHFIELD	696 PLAIN ST	HEALTH STOP	120 DY	1998-02-13	RTN CLOSED	1998-02-13			Hazardous Material		
<input type="checkbox"/>	4-0013813	MARSHFIELD	CLAY PIT RD	TOWN LANDFILL	TWO HR	1998-04-17	RAO	1999-12-14		A1		Files	MAP
<input type="checkbox"/>	4-0014025	MARSHFIELD	714 WEBSTER ST	NO LOCATION AID	TWO HR	1998-07-09	TIER1D	2008-07-07			Oil	Files	
<input type="checkbox"/>	4-0014487	MARSHFIELD	95 CENTRAL ST	TAYLOR MARINE INC	72 HR	1999-01-27	RTN CLOSED	2000-01-27			Oil	Files	MAP
<input type="checkbox"/>	4-0014933	MARSHFIELD	1399 OCEAN ST	GAS STATION	TWO HR	1999-08-12	RTN CLOSED	1999-12-15			Oil	Files	
<input type="checkbox"/>	4-0014967	MARSHFIELD	1874 OCEAN ST	OPPOSITE WEBSTER ST	120 DY	1999-08-20	DPS	1999-08-27			Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0015047	MARSHFIELD	497 PLAIN ST	NO LOCATION AID	120 DY	1999-10-04	DPS	1999-11-04			Oil and Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0015098	MARSHFIELD	1896 OCEAN ST	GULF STATION FMR	72 HR	1999-10-29	RTN CLOSED	1999-11-23			Oil	Files	MAP
<input type="checkbox"/>	4-0015170	MARSHFIELD	1227 SOUTH RIVER ST	NO LOCATION AID	72 HR	1999-12-08	RAO	2000-02-15		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0015251	MARSHFIELD	1901 OCEAN ST	NO LOCATION AID	120 DY	2000-01-11	TIER1	2002-01-31	PHASE IV		Oil and Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0015523	MARSHFIELD	95 CENTRAL ST	TAYLOR MARINE CORP	72 HR	2000-06-02	RTN CLOSED	2001-06-05			Oil	Files	MAP
<input type="checkbox"/>	4-0015673	MARSHFIELD	1840 OCEAN ST	JRW REALTY TRUST	120 DY	2000-08-09	RAO	2010-07-06	PHASE V	A2	Oil	Files	MAP
<input type="checkbox"/>	4-0015787	MARSHFIELD	PLAIN ST	POLE 18/58	TWO HR	2000-09-28	RAO	2000-11-01		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0016068	MARSHFIELD	35 PARSONAGE ST	NORTH DRY WELL	120 DY	2001-02-14	RAO	2001-10-24		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0016069	MARSHFIELD	35 PARSONAGE ST	WEST DRY WELL	120 DY	2001-02-14	RAO	2001-10-24		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0016073	MARSHFIELD	76 LITTLE LN	NORTH RIVER	TWO HR	2001-02-21	ADEQUATE REG	2001-02-21			Oil		
<input type="checkbox"/>	4-0016459	MARSHFIELD	11 RIDGE RD	NO LOCATION AID	TWO HR	2001-08-01	RAO	2001-08-09		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0016806	MARSHFIELD	610 MORAIN ST	RTE 3A	TWO HR	2001-12-26	RAO	2003-01-02		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0017094	MARSHFIELD	739 SOUTH RIVER ST	NO LOCATION AID	72 HR	2002-05-30	RAO	2002-08-01		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0017637	MARSHFIELD	WEBSTER ST	MARSHFIELD PLAZA	TWO HR	2003-02-12	RAO	2003-02-21		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0017781	MARSHFIELD	820 PLAIN ST	SETTLES GLASS	72 HR	2003-04-18	RAO	2003-09-30		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0018225	MARSHFIELD	411 SCHOOL ST	NO LOCATION AID	TWO HR	2004-01-14	RAO	2005-01-21		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0018477	MARSHFIELD	985 PLAIN ST	BOCH MARSHFIELD	120 DY	2004-06-02	RAO	2004-06-02		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0018731	MARSHFIELD	15 WYOMING ST	NO LOCATION AID	TWO HR	2004-10-19	RAO	2005-01-20		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0018766	MARSHFIELD	515 MORAIN ST	UTILITY POLE # 9315/482C	TWO HR	2004-11-15	RAO	2004-11-15		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0019085	MARSHFIELD	20 CLAY PIT RD	NO LOCATION AID	TWO HR	2005-05-11	RAO	2005-07-11		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0019221	MARSHFIELD	969 OCEAN ST	NO LOCATION AID	72 HR	2005-07-14	RAO	2005-10-26		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0020229	MARSHFIELD	682 GROVE ST	SOUTH RIVER ST & GROVE ST	TWO HR	2006-12-18	RAO	2007-02-16		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0020565	MARSHFIELD	137 STAGECOACH DR	NO LOCATION AID	TWO HR	2007-06-11	RAO	2007-10-11		A1		Files	MAP
<input type="checkbox"/>	4-0021854	MARSHFIELD	35 PARSONAGE ST	DPW FACILITY	TWO HR	2009-03-25	RAO	2010-03-25		A2	Oil	Files	
<input type="checkbox"/>	4-0022358	MARSHFIELD	5 LITTLES LN	RESIDENCE	TWO HR	2009-12-22	RAO	2013-03-01	PHASE II	A2	Oil	Files	MAP
<input type="checkbox"/>	4-0023356	MARSHFIELD	2139 OCEAN STREET	HESS STATION	72 HR	2011-06-27	RAO	2012-01-18		A1		Files	MAP
<input type="checkbox"/>	4-0023451	MARSHFIELD	393 PLEASANT STREET		120 DY	2011-08-03	RAO	2011-12-22		A2	Hazardous Material	Files	MAP

Select	RTN	City/ Town	Release Address	Site Name Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type	Files	GIS
				PLEASANT STREET WATER TANK									
<input type="checkbox"/>	4-0023510	MARSHFIELD	1185 OCEAN STREET	POLE 76A	TWO HR	2011-09-01	RAO	2011-09-19		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0023670	MARSHFIELD	OFF MARINERS HILL DRIVE	PUDDING HILL WATER TANK	120 DY	2011-11-17	RAO	2012-03-15		A2	Hazardous Material	Files	MAP
<input type="checkbox"/>	4-0023837	MARSHFIELD	915 OCEAN DRIVE	OCEAN DRIVE AND PLYMOUTH AVENUE	120 DY	2012-03-13	RAO	2013-02-15		B1	Oil	Files	MAP
<input type="checkbox"/>	4-0024023	MARSHFIELD	VIC 758 SUMMER STREET	SUMMER STREET ROADWAY	TWO HR	2012-06-22	RAO	2012-10-18		A2	Oil	Files	MAP
<input type="checkbox"/>	4-0024292	MARSHFIELD	SCHOOL STREET	UTILITY POLE # 204/5 AT 130 SCHOOL ST.	TWO HR	2012-11-08	RAO	2012-11-28		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0024416	MARSHFIELD	NEAR 21 DEERHILL LN	HYDRAULIC OIL RELEASE	TWO HR	2013-02-13	RAO	2013-03-01		A1	Oil	Files	MAP
<input type="checkbox"/>	4-0024770	MARSHFIELD	VIC 272 DAMON'S POINT ROAD	NORTH RIVER	TWO HR	2013-09-10	PSC	2014-05-27		PC	Oil	Files	MAP

APPENDIX H

GATS JAR LITERATURE

Myles Accessories

81A - 85 Main St. North Reading MA. 01864



Phone: 800-354-5338 978-664-0616 Fax: 978-664-5571

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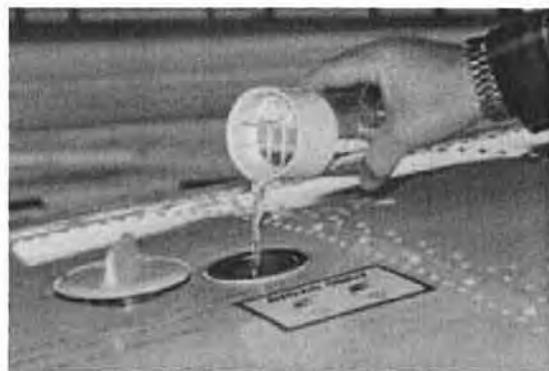
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APPENDIX I

REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES

40 CFR 117.3 (also look to 40 CFR 302.4)

Note: The first number under the column headed "RQ" is the reportable quantity in pounds. The number in parentheses is the metric equivalent in kilograms. For convenience, the table contains a column headed "Category" which lists the code letters "X", "A", "B", "C", and "D" associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively.

Table 117.3_Reportable Quantities of Hazardous Substances Designated Pursuant to Section 311 of the Clean Water Act

Material	Category	Reportable Quantities in pounds (kilograms)
Acetaldehyde.....	C.....	1,000 (454)
Acetic acid.....	D.....	5,000 (2,270)
Acetic anhydride.....	D.....	5,000 (2,270)
Acetone cyanhydrin.....	A.....	10 (4.54)
Acetyl bromide.....	D.....	5,000 (2,270)
Acetyl chloride.....	D.....	5,000 (2,270)
Acrolein.....	X.....	1 (0.454)
Acrylonitrile.....	B.....	100 (45.4)
Adipic acid.....	D.....	5,000 (2,270)
Aldrin.....	X.....	1 (0.454)
Allyl alcohol.....	B.....	100 (45.4)
Allyl chloride.....	C.....	1,000 (454)
Aluminum sulfate.....	D.....	5,000 (2,270)
Ammonia.....	B.....	100 (45.4)
Ammonium acetate.....	D.....	5,000 (2,270)
Ammonium benzoate.....	D.....	5,000 (2,270)
Ammonium bicarbonate.....	D.....	5,000 (2,270)
Ammonium bichromate.....	A.....	10 (4.54)
Ammonium bifluoride.....	B.....	100 (45.4)
Ammonium bisulfite.....	D.....	5,000 (2,270)
Ammonium carbamate.....	D.....	5,000 (2,270)
Ammonium carbonate.....	D.....	5,000 (2,270)
Ammonium chloride.....	D.....	5,000 (2,270)
Ammonium chromate.....	A.....	10 (4.54)
Ammonium citrate dibasic.....	D.....	5,000 (2,270)
Ammonium fluoborate.....	D.....	5,000 (2,270)
Ammonium fluoride.....	B.....	100 (45.4)
Ammonium hydroxide.....	C.....	1,000 (454)
Ammonium oxalate.....	D.....	5,000 (2,270)
Ammonium silicofluoride.....	C.....	1,000 (454)
Ammonium sulfamate.....	D.....	5,000 (2,270)
Ammonium sulfide.....	B.....	100 (45.4)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Ammonium sulfite.....	D.....	5,000 (2,270)
Ammonium tartrate.....	D.....	5,000 (2,270)
Ammonium thiocyanate.....	D.....	5,000 (2,270)
Amyl acetate.....	D.....	5,000 (2,270)
Aniline.....	D.....	5,000 (2,270)
Antimony pentachloride.....	C.....	1,000 (454)
Antimony potassium tartrate.....	B.....	100 (45.4)
Antimony tribromide.....	C.....	1,000 (454)
Antimony trichloride.....	C.....	1,000 (454)
Antimony trifluoride.....	C.....	1,000 (454)
Antimony trioxide.....	C.....	1,000 (454)
Arsenic disulfide.....	X.....	1 (0.454)
Arsenic pentoxide.....	X.....	1 (0.454)
Arsenic trichloride.....	X.....	1 (0.454)
Arsenic trioxide.....	X.....	1 (0.454)
Arsenic trisulfide.....	X.....	1 (0.454)
Barium cyanide.....	A.....	10 (4.54)
Benzene.....	A.....	10 (4.54)
Benzoic acid.....	D.....	5,000 (2,270)
Benzonitrile.....	D.....	5,000 (2,270)
Benzoyl chloride.....	C.....	1,000 (454)
Benzyl chloride.....	B.....	100 (45.4)
Beryllium chloride.....	X.....	1 (0.454)
Beryllium fluoride.....	X.....	1 (0.454)
Beryllium nitrate.....	X.....	1 (0.454)
Butyl acetate.....	D.....	5,000 (2,270)
Butylamine.....	C.....	1,000 (454)
n-Butyl phthalate.....	A.....	10 (4.54)
Butyric acid.....	D.....	5,000 (2,270)
Cadmium acetate.....	A.....	10 (4.54)
Cadmium bromide.....	A.....	10 (4.54)
Cadmium chloride.....	A.....	10 (4.54)
Calcium arsenate.....	X.....	1 (0.454)
Calcium arsenite.....	X.....	1 (0.454)
Calcium carbide.....	A.....	10 (4.54)
Calcium chromate.....	A.....	10 (4.54)
Calcium cyanide.....	A.....	10 (4.54)
Calcium dodecylbenzenesulfonate.	C.....	1,000 (454)
Calcium hypochlorite.....	A.....	10 (4.54)
Captan.....	A.....	10 (4.54)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Carbaryl.....	B.....	100 (45.4)
Carbofuran.....	A.....	10 (4.54)
Carbon disulfide.....	B.....	100 (45.4)
Carbon tetrachloride.....	A.....	10 (4.54)
Chlordane.....	X.....	1 (0.454)
Chlorine.....	A.....	10 (4.54)
Chlorobenzene.....	B.....	100 (45.4)
Chloroform.....	A.....	10 (4.54)
Chlorosulfonic acid.....	C.....	1,000 (454)
Chlorpyrifos.....	X.....	1 (0.454)
Chromic acetate.....	C.....	1,000 (454)
Chromic acid.....	A.....	10 (4.54)
Chromic sulfate.....	C.....	1,000 (454)
Chromous chloride.....	C.....	1,000 (454)
Cobaltous bromide.....	C.....	1,000 (454)
Cobaltous formate.....	C.....	1,000 (454)
Cobaltous sulfamate.....	C.....	1,000 (454)
Coumaphos.....	A.....	10 (4.54)
Cresol.....	B.....	100 (45.4)
Crotonaldehyde.....	B.....	100 (45.4)
Cupric acetate.....	B.....	100 (45.4)
Cupric acetoarsenite.....	X.....	1 (0.454)
Cupric chloride.....	A.....	10 (4.54)
Cupric nitrate.....	B.....	100 (45.4)
Cupric oxalate.....	B.....	100 (45.4)
Cupric sulfate.....	A.....	10 (4.54)
Cupric sulfate, ammoniated.....	B.....	100 (45.4)
Cupric tartrate.....	B.....	100 (45.4)
Cyanogen chloride.....	A.....	10 (4.54)
Cyclohexane.....	C.....	1,000 (454)
2,4-D Acid.....	B.....	100 (45.4)
2,4-D Esters.....	B.....	100 (45.4)
DDT.....	X.....	1 (0.454)
Diazinon.....	X.....	1 (0.454)
Dicamba.....	C.....	1,000 (454)
Dichlobenil.....	B.....	100 (45.4)
Dichlone.....	X.....	1 (0.454)
Dichlorobenzene.....	B.....	100 (45.4)
Dichloropropane.....	C.....	1,000 (454)
Dichloropropene.....	B.....	100 (45.4)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Dichloropropene-Dichloropropane (mixture).	B.....	100 (45.4)
2,2-Dichloropropionic acid.....	D.....	5,000 (2,270)
Dichlorvos.....	A.....	10 (4.54)
Dicofol.....	A.....	10 (4.54)
Dieldrin.....	X.....	1 (0.454)
Diethylamine.....	B.....	100 (45.4)
Dimethylamine.....	C.....	1,000 (454)
Dinitrobenzene (mixed).....	B.....	100 (45.4)
Dinitrophenol.....	A.....	10 (45.4)
Dinitrotoluene.....	A.....	10 (4.54)
Diquat.....	C.....	1,000 (454)
Disulfoton.....	X.....	1 (0.454)
Diuron.....	B.....	100 (45.4)
Dodecylbenzenesulfonic acid.....	C.....	1,000 (454)
Endosulfan.....	X.....	1 (0.454)
Endrin.....	X.....	1 (0.454)
Epichlorohydrin.....	B.....	100 (45.4)
Ethion.....	A.....	10 (4.54)
Ethylbenzene.....	C.....	1,000 (454)
Ethylenediamine.....	D.....	5,000 (2,270)
Ethylenediamine-tetraacetic acid (EDTA).	D.....	5,000 (2,270)
Ethylene dibromide.....	X.....	1 (0.454)
Ethylene dichloride.....	B.....	100 (45.4)
Ferric ammonium citrate.....	C.....	1,000 (454)
Ferric ammonium oxalate.....	C.....	1,000 (454)
Ferric chloride.....	C.....	1,000 (454)
Ferric fluoride.....	B.....	100 (45.4)
Ferric nitrate.....	C.....	1,000 (454)
Ferric sulfate.....	C.....	1,000 (454)
Ferrous ammonium sulfate.....	C.....	1,000 (454)
Ferrous chloride.....	B.....	100 (45.4)
Ferrous sulfate.....	C.....	1,000 (454)
Formaldehyde.....	B.....	100 (45.4)
Formic acid.....	D.....	5,000 (2,270)
Fumaric acid.....	D.....	5,000 (2,270)
Furfural.....	D.....	5,000 (2,270)
Guthion.....	X.....	1 (0.454)
Heptachlor.....	X.....	1 (0.454)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Hexachlorocyclopentadiene.....	A.....	10 (4.54)
Hydrochloric acid.....	D.....	5,000 (2,270)
Hydrofluoric acid.....	B.....	100 (45.4)
Hydrogen cyanide.....	A.....	10 (4.54)
Hydrogen sulfide.....	B.....	100 (45.4)
Isoprene.....	B.....	100 (45.4)
Isopropanolamine	C.....	1,000 (454)
dodecylbenzenesulfonate.		
Kepone.....	X.....	1 (0.454)
Lead acetate.....	A.....	10 (4.54)
Lead arsenate.....	X.....	1 (0.454)
Lead chloride.....	A.....	10 (4.54)
Lead fluoborate.....	A.....	10 (4.54)
Lead fluoride.....	A.....	10 (4.54)
Lead iodide.....	A.....	10 (4.54)
Lead nitrate.....	A.....	10 (4.54)
Lead stearate.....	A.....	10 (4.54)
Lead sulfate.....	A.....	10 (4.54)
Lead sulfide.....	A.....	10 (4.54)
Lead thiocyanate.....	A.....	10 (4.54)
Lindane.....	X.....	1 (0.454)
Lithium chromate.....	A.....	10 (4.54)
Malathion.....	B.....	100 (45.4)
Maleic acid.....	D.....	5,000 (2,270)
Maleic anhydride.....	D.....	5,000 (2,270)
Mercaptodimethur.....	A.....	10 (4.54)
Mercuric cyanide.....	X.....	1 (0.454)
Mercuric nitrate.....	A.....	10 (4.54)
Mercuric sulfate.....	A.....	10 (4.54)
Mercuric thiocyanate.....	A.....	10 (4.54)
Mercurous nitrate.....	A.....	10 (4.54)
Methoxychlor.....	X.....	1 (0.454)
Methyl mercaptan.....	B.....	100 (45.4)
Methyl methacrylate.....	C.....	1,000 (454)
Methyl parathion.....	B.....	100 (45.4)
Mevinphos.....	A.....	10 (4.54)
Mexacarbate.....	C.....	1,000 (454)
Monoethylamine.....	B.....	100 (45.4)
Monomethylamine.....	B.....	100 (45.4)
Naled.....	A.....	10 (4.54)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Naphthalene.....	B.....	100 (45.4)
Naphthenic acid.....	B.....	100 (45.4)
Nickel ammonium sulfate.....	B.....	100 (45.4)
Nickel chloride.....	B.....	100 (45.4)
Nickel hydroxide.....	A.....	10 (4.54)
Nickel nitrate.....	B.....	100 (45.4)
Nickel sulfate.....	B.....	100 (45.4)
Nitric acid.....	C.....	1,000 (454)
Nitrobenzene.....	C.....	1,000 (454)
Nitrogen dioxide.....	A.....	10 (4.54)
Nitrophenol (mixed).....	B.....	100 (45.4)
Nitrotoluene.....	C.....	1,000 (454)
Paraformaldehyde.....	C.....	1,000 (454)
Parathion.....	A.....	10 (4.54)
Pentachlorophenol.....	A.....	10 (4.54)
Phenol.....	C.....	1,000 (454)
Phosgene.....	A.....	10 (4.54)
Phosphoric acid.....	D.....	5,000 (2,270)
Phosphorus.....	X.....	1 (0.454)
Phosphorus oxychloride.....	C.....	1,000 (454)
Phosphorus pentasulfide.....	B.....	100 (45.4)
Phosphorus trichloride.....	C.....	1,000 (454)
Polychlorinated biphenyls.....	X.....	1 (0.454)
Potassium arsenate.....	X.....	1 (0.454)
Potassium arsenite.....	X.....	1 (0.454)
Potassium bichromate.....	A.....	10 (4.54)
Potassium chromate.....	A.....	10 (4.54)
Potassium cyanide.....	A.....	10 (4.54)
Potassium hydroxide.....	C.....	1,000 (454)
Potassium permanganate.....	B.....	100 (45.4)
Propargite.....	A.....	10 (4.54)
Propionic acid.....	D.....	5,000 (2,270)
Propionic anhydride.....	D.....	5,000 (2,270)
Propylene oxide.....	B.....	100 (45.4)
Pyrethrins.....	X.....	1 (0.454)
Quinoline.....	D.....	5,000 (2,270)
Resorcinol.....	D.....	5,000 (2,270)
Selenium oxide.....	A.....	10 (4.54)
Silver nitrate.....	X.....	1 (0.454)
Sodium.....	A.....	10 (4.54)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Sodium arsenate.....	X.....	1 (0.454)
Sodium arsenite.....	X.....	1 (0.454)
Sodium bichromate.....	A.....	10 (4.54)
Sodium bifluoride.....	B.....	100 (45.4)
Sodium bisulfite.....	D.....	5,000 (2,270)
Sodium chromate.....	A.....	10 (4.54)
Sodium cyanide.....	A.....	10 (4.54)
Sodium dodecylbenzenesulfonate..	C.....	1,000 (454)
Sodium fluoride.....	C.....	1,000 (454)
Sodium hydrosulfide.....	D.....	5,000 (2,270)
Sodium hydroxide.....	C.....	1,000 (454)
Sodium hypochlorite.....	B.....	100 (45.4)
Sodium methylate.....	C.....	1,000 (454)
Sodium nitrite.....	B.....	100 (45.4)
Sodium phosphate, dibasic.....	D.....	5,000 (2,270)
Sodium phosphate, tribasic.....	D.....	5,000 (2,270)
Sodium selenite.....	B.....	100 (45.4)
Strontium chromate.....	A.....	10 (4.54)
Strychnine.....	A.....	10 (4.54)
Styrene.....	C.....	1,000 (454)
Sulfuric acid.....	C.....	1,000 (454)
Sulfur monochloride.....	C.....	1,000 (454)
2,4,5-T acid.....	C.....	1,000 (454)
2,4,5-T amines.....	D.....	5,000 (2,270)
2,4,5-T esters.....	C.....	1,000 (454)
2,4,5-T salts.....	C.....	1,000 (454)
TDE.....	X.....	1 (0.454)
2,4,5-TP acid.....	B.....	100 (45.4)
2,4,5-TP acid esters.....	B.....	100 (45.4)
Tetraethyl lead.....	A.....	10 (4.54)
Tetraethyl pyrophosphate.....	A.....	10 (4.54)
Thallium sulfate.....	B.....	100 (45.4)
Toluene.....	C.....	1,000 (454)
Toxaphene.....	X.....	1 (0.454)
Trichlorfon.....	B.....	100 (45.4)
Trichloroethylene.....	B.....	100 (45.4)
Trichlorophenol.....	A.....	10 (4.54)
Triethanolamine	C.....	1,000 (454)
dodecylbenzenesulfonate.		
Triethylamine.....	D.....	5,000 (2,270)

**Table 117.3_Reportable Quantities of Hazardous Substances Designated
Pursuant to Section 311 of the Clean Water Act**

Material	Category	Reportable Quantities in pounds (kilograms)
Trimethylamine.....	B.....	100 (45.4)
Uranyl acetate.....	B.....	100 (45.4)
Uranyl nitrate.....	B.....	100 (45.4)
Vanadium pentoxide.....	C.....	1,000 (454)
Vanadyl sulfate.....	C.....	1,000 (454)
Vinyl acetate.....	D.....	5,000 (2,270)
Vinylidene chloride.....	B.....	100 (45.4)
Xylene (mixed).....	B.....	100 (45.4)
Xylenol.....	C.....	1,000 (454)
Zinc acetate.....	C.....	1,000 (454)
Zinc ammonium chloride.....	C.....	1,000 (454)
Zinc borate.....	C.....	1,000 (454)
Zinc bromide.....	C.....	1,000 (454)
Zinc carbonate.....	C.....	1,000 (454)
Zinc chloride.....	C.....	1,000 (454)
Zinc cyanide.....	A.....	10 (4.54)
Zinc fluoride.....	C.....	1,000 (454)
Zinc formate.....	C.....	1,000 (454)
Zinc hydrosulfite.....	C.....	1,000 (454)
Zinc nitrate.....	C.....	1,000 (454)
Zinc phenolsulfonate.....	D.....	5,000 (2,270)
Zinc phosphide.....	B.....	100 (45.4)
Zinc silicofluoride.....	D.....	5,000 (2,270)
Zinc sulfate.....	C.....	1,000 (454)
Zirconium nitrate.....	D.....	5,000 (2,270)
Zirconium potassium fluoride....	C.....	1,000 (454)
Zirconium sulfate.....	D.....	5,000 (2,270)
Zirconium tetrachloride.....	D.....	5,000 (2,270)

APPENDIX J

CHAPTER 5 WATER QUALITY CONDITIONS (US EPA)



Water: Monitoring & Assessment

You are here: [Water](#) » [Our Waters](#) » [Rivers & Streams](#) » [Monitoring & Assessment](#) » Chapter 5 Water Quality Conditions

Chapter 5 Water Quality Conditions

[5.1 - Stream Flow](#)

[5.2 - Dissolved Oxygen and Biochemical Oxygen Demand](#)

[5.3 - Temperature](#)

[5.4 - pH](#)

[5.5 - Turbidity](#)

[5.6 - Phosphorus](#)

[5.7 - Nitrates](#)

[5.8 - Total Solids](#)

[5.9 - Conductivity](#)

[5.10 - Total Alkalinity](#)

[5.11 - Fecal Bacteria](#)

Quality Assurance, Quality Control, and Quality Assessment Measures

Water quality monitoring is defined here as the sampling and analysis of water constituents and conditions. These may include:

- Introduced pollutants, such as pesticides, metals, and oil
- Constituents found naturally in water that can nevertheless be affected by human sources, such as dissolved oxygen, bacteria, and nutrients

The magnitude of their effects can be influenced by properties such as pH and temperature. For example, temperature influences the quantity of dissolved oxygen that water is able to contain, and pH affects the toxicity of ammonia.

Volunteers, as well as state and local water quality professionals, have been monitoring water quality conditions for many years. In fact, until the past decade or so (when biological monitoring protocols were developed and began to take hold), water quality monitoring was generally considered the primary way of identifying water pollution problems. Today, professional water quality specialists and volunteer program coordinators alike are moving toward approaches that combine chemical, physical, and biological monitoring methods to achieve the best picture of water quality conditions.

Water quality monitoring can be used for many purposes:

- *To identify whether waters are meeting designated uses.* All states have established specific criteria (limits on pollutants) identifying what concentrations of chemical pollutants are allowable in their waters. When chemical pollutants exceed maximum or minimum allowable concentrations, waters might no longer be able to support the beneficial uses such as fishing, swimming, and drinking for which they have been designated. Designated uses and the specific criteria that protect them (along with antidegradation statements say waters should not be allowed to deteriorate below existing or anticipated uses) together form water quality standards. State water quality professionals assess water quality by comparing the concentrations of chemical pollutants found in streams to the criteria in the state's standards, and so judge whether streams are meeting their designated uses. Water quality monitoring, however, might be inadequate for determining whether aquatic life uses are being met in a stream. While some constituents (such as dissolved oxygen and temperature) are important to maintaining healthy fish and aquatic insect populations, other factors, such as the physical structure of the stream and the condition of the habitat, play an equal or greater role. Biological monitoring methods (see Chapter 4) are generally better suited to determining whether aquatic life is supported.
- *To identify specific pollutants and sources of pollution.* Water quality monitoring helps link sources of pollution to a stream quality problem because it identifies specific problem pollutants. Since certain activities tend to generate certain pollutants (e.g., bacteria and nutrients are more likely to come from an animal feedlot than an automotive repair shop), a tentative link might be made that would warrant further investigation or monitoring.
- *To determine trends.* Chemical constituents that are properly monitored (i.e., consistent time of day and on a regular basis, using consistent methods) can be analyzed for trends over time.
- *To screen for impairment.* Finding excessive levels of one or more chemical constituents can serve as an early warning "screen" of potential pollution problems.

Designing a water quality monitoring program

The first step in designing a water quality monitoring program is to determine the purpose of the monitoring. This will help you select which parameters to monitor. The program steering committee should make this decision based on factors such as:

- Types of water quality problems and pollution sources that will likely be encountered (Table 5.1)
- Cost of available monitoring equipment
- Precision and accuracy of available monitoring equipment
- Capabilities of the volunteers

Source	Common Associated Chemical Pollutants	Table 5.1
Cropland	Turbidity, phosphorus, nitrates, temperature, total solids	Sources and associated pollutants A volunteer water quality monitoring program should be geared to the types of watershed land
Forestry harvest	Turbidity, temperature, total solids	
Grazing land	Fecal bacteria, turbidity, phosphorus, nitrates, temperature	
Industrial discharge	Temperature, conductivity, total solids, toxics, pH	
Mining	pH, alkalinity, total dissolved solids	
Septic systems	Fecal bacteria (i.e., Escherichia coli, enterococci), nitrates, phosphorus, dissolved oxygen/biochemical oxygen demand, conductivity, temperature	
Sewage treatment plants	Dissolved oxygen and biochemical oxygen demand, turbidity, conductivity, phosphorus, nitrates, fecal bacteria, temperature, total solids, pH	
Construction	Turbidity, temperature, dissolved oxygen and biochemical oxygen demand, total solids, and toxics	
Urban runoff	Turbidity, phosphorus, nitrates, temperature, conductivity, dissolved oxygen and biochemical oxygen demand	

	uses most often encountered.
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Because of the expense and difficulty involved, volunteers generally do not monitor for toxic substances such as heavy metals and organic chemicals (e.g., pesticides, herbicides, solvents, and PCBs). They might, however, collect water samples for analysis at accredited labs.

The parameters most commonly monitored by volunteers in streams are discussed in detail in this chapter. They include stream flow, dissolved oxygen and biochemical oxygen demand, temperature, pH, turbidity, phosphorus, nitrates, total solids, conductivity, total alkalinity, and fecal bacteria. Of these, the first five are the most basic and should form the foundation of almost any volunteer water quality monitoring program.

Relatively inexpensive and simple-to-use kits are available from scientific supply houses to monitor these pollutants. Many volunteer programs use these kits effectively. Meters and sophisticated lab equipment may be more accurate, but they are also more expensive, less flexible (e.g., meters generally have to be read in the field), and require periodic calibration. This chapter discusses specific equipment and sampling considerations for each parameter, and usually describes several approaches to monitor them. [Table 5.2](#) lists methods available for monitoring key parameters, including the preferred testing site (lab or field).

General preparation and sampling considerations

The sections that follow will detail specific sampling and equipment considerations and analytical procedures for each of the most common water quality parameters. There are, however, two general tasks that are accomplished anytime water samples are taken. These are discussed below.

Task 1 Preparation of Sampling Containers

Reused sample containers and glassware must be cleaned and rinsed before the first sampling run and after each run by following either Method A or Method B described below. The most suitable method depends on the parameter being measured.

Method A: General Preparation of Sampling Containers

The following method should be used when preparing all sample containers and glassware for monitoring conductivity, total solids, turbidity, pH, and total alkalinity. Wear latex gloves!

1. Wash each sample bottle or piece of glassware with a brush and phosphate-free detergent.
2. Rinse three times with cold tap water.
3. Rinse three times with distilled or deionized water.

Method B: Acid Wash Procedure for Preparing Sampling Containers

This method should be used when preparing all sample containers and glassware for monitoring nitrates and phosphorus. Wear latex gloves!

1. Wash each sample bottle or piece of glassware with a brush and phosphate-free detergent.
2. Rinse three times with cold tap water.
3. Rinse with 10 percent hydrochloric acid.
4. Rinse three times with deionized water.

Task 2 Collecting Samples

In general, sample away from the streambank in the main current. Never sample stagnant water. The outside curve of the stream is often a good place to sample, since the main current tends to hug this bank. In shallow stretches, carefully wade into the center current to collect the sample.

A boat will be required for deep sites. Try to maneuver the boat into the center of the main current to collect the water sample.

When collecting a water sample for analysis in the field or at the lab, follow the steps below.

For Whirl-pak® Bags

1. Label the bag with the site number, date, and time.
2. Tear off the top of the bag along the perforation above the wire tab just prior to sampling (Fig. 5.1). Avoid touching the inside of the bag. If you accidentally touch the inside of the bag, use another one.
3. *Wading.* Try to disturb as little bottom sediment as possible. In any case, be careful not to collect water that contains bottom sediment. Stand facing upstream. Collect the water sample in front of you.
Boat. Carefully reach over the side and collect the water sample on the upstream side of the boat.
4. Hold the two white pull tabs in each hand and lower the bag into the water on your upstream side with the opening facing upstream. Open the bag midway between the surface and the bottom by pulling the white pull tabs. The bag should begin to fill with water. You may need to "scoop" water into the bag by drawing it through the water upstream and away from you. Fill the bag no more than 3/4 full!
5. Lift the bag out of the water. Pour out excess water. Pull on the wire tabs to close the bag. Continue holding the wire tabs and flip the bag over at least 4-5 times quickly to seal the bag. Don't try to squeeze the air out of the top of the bag. Fold the ends of the wire tabs together at the top of the bag, being careful not to puncture the bag. Twist them together, forming a loop.
6. Fill in the bag number and/or site number on the appropriate field data sheet. This is important! It is the only way the lab coordinator know which bag goes with which site.
7. If samples are to be analyzed in a lab, place the sample in the cooler with ice or cold packs. Take all samples to the lab.

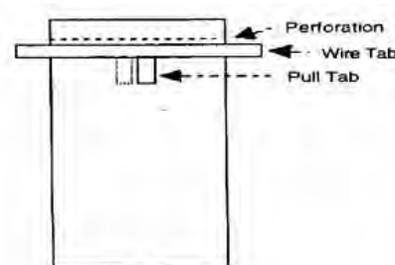


Figure 5.1

Sketch of a Whirl-pak® bag

Volunteers can be easily trained to use these factory-sealed, disposable water sample collection bags.

For Screw-cap Bottles

To collect water samples using screw-cap sample bottles, use the following procedures (Fig. 5.2 and 5.3):



Figure 5.2

Getting into position to take a water sample

Volunteers should sample in the main current, facing upstream.

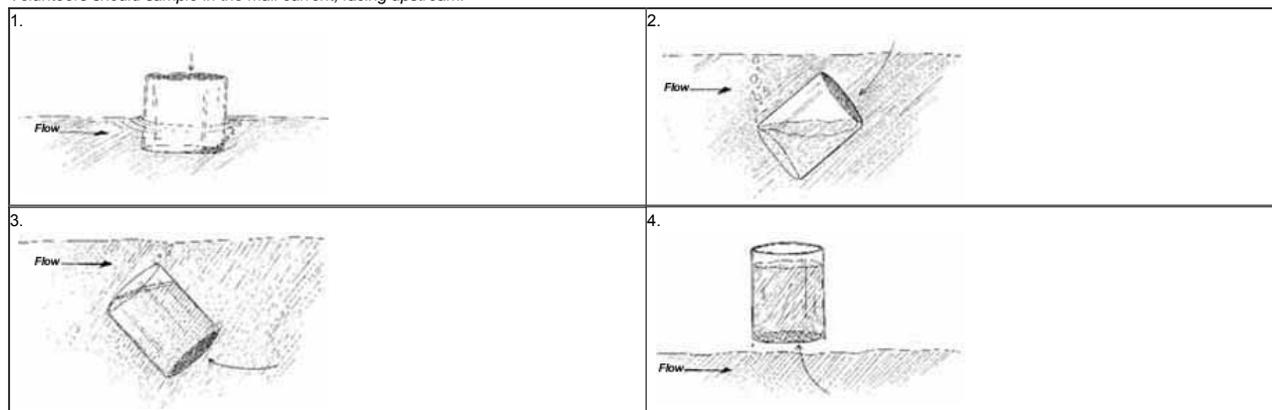


Figure 5.3

Taking a water sample

Turn the bottle into the current and scoop in an upstream direction.

1. Label the bottle with the site number, date, and time.
2. Remove the cap from the bottle just before sampling. Avoid touching the inside of the bottle or the cap. If you accidentally touch the inside of the bottle, use another one.
3. *Wading.* Try to disturb as little bottom sediment as possible. In any case, be careful not to collect water that has sediment from bottom disturbance. Stand facing upstream. Collect the water sample on your upstream side, in front of you. You may also tape your bottle to an extension pole to sample from deeper water. *Boat.* Carefully reach over the side and collect the water sample on the upstream side of the boat.
4. Hold the bottle near its base and plunge it (opening downward) below the water surface. If you are using an extension pole, remove the cap, turn the bottle upside down, and plunge it into the water, facing upstream. Collect a water sample 8 to 12 inches beneath the surface or mid-way between the surface and the bottom if the stream reach is shallow.
5. Turn the bottle underwater into the current and away from you. In slow-moving stream reaches, push the bottle underneath the surface and away from you in an upstream direction.
6. Leave a 1-inch air space (Except for DO and BOD samples). Do not fill the bottle completely (so that the sample can be shaken just before analysis). Recap the bottle carefully, remembering not to touch the inside.
7. Fill in the bottle number and/or site number on the appropriate field data sheet. This is important because it tells the lab coordinator which bottle goes with which site.
8. If the samples are to be analyzed in the lab, place them in the cooler for transport to the lab.

Last updated on Tuesday, March 06, 2012

APPENDIX K

**LONG TERM POLLUTION PREVENTION PLAN &
STORMWATER OPERATIONS & MAINTENANCE PLAN**

LONG TERM POLLUTION PREVENTION PLAN & STORMWATER OPERATIONS & MAINTENANCE PLAN

GEORGE D. HARLOW FIELD (GHG) – MARSHFIELD, MA

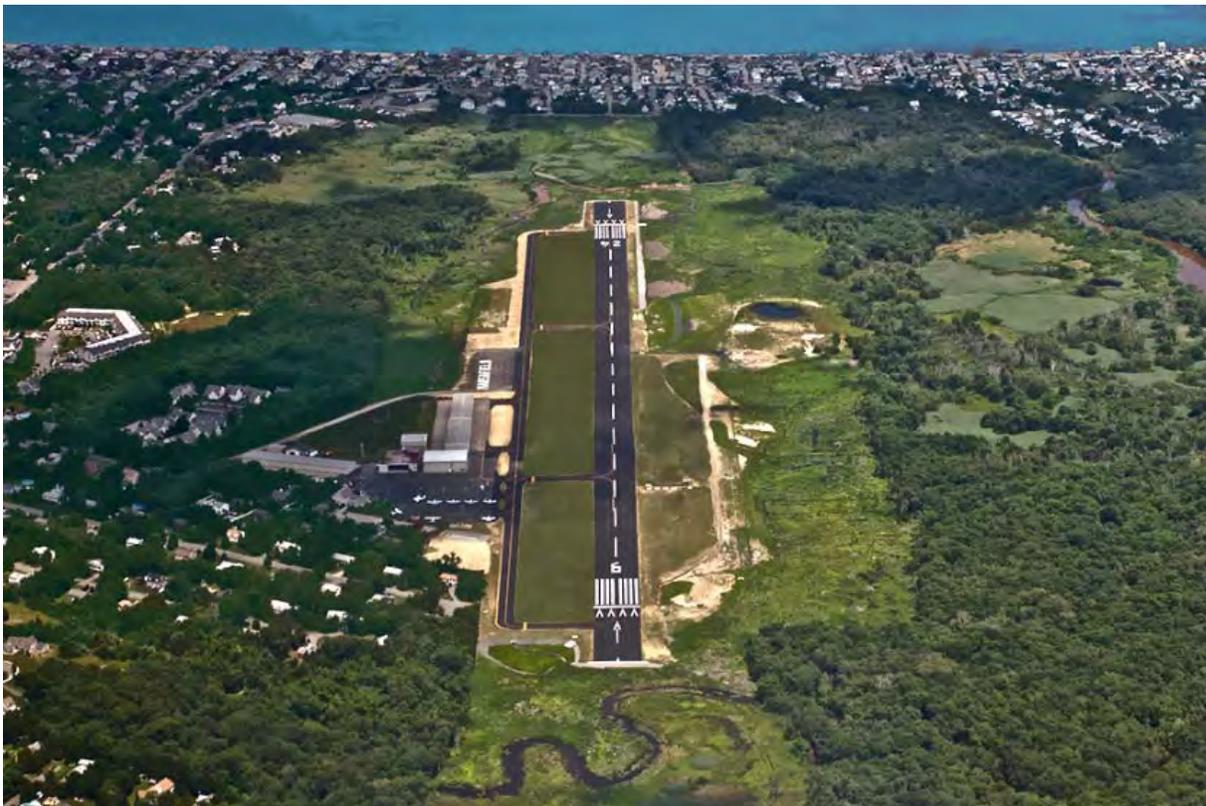
Prepared for:

Marshfield Airport Commission

93 Old Colony Lane

Marshfield, Massachusetts 02050

Updated - September 2015



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1 INTRODUCTION:

In order to comply with conditions set forth in the Wetland Variance Decision dated June 1, 2012 (MassDEP File No. SE 42-2334) this “Long Term Pollution Prevention (LTPP) Plan and Stormwater Operations and Maintenance (O&M) Plan” has been established to guide the Marshfield Airport Commission (Airport) in the routine operations of its entire stormwater management system. The best practices set forth in this plan shall be implemented by the Marshfield Airport Commission, or its designated representative, as defined herein.

The Stormwater System at the Airport today consists of both newly constructed and previously existing drainage systems. Stormwater from the newly paved surfaces (Runway 6-24, Taxiway ‘A’, Taxiway ‘B’ and Taxiway ‘C’ is directed into grassed infields between Taxiway ‘A’ and the Runway and to the outlying turf area to the South-East of the Runway. Within these areas are vegetated filter strips leading to groundwater infiltration basins. These systems have been designed to comply with standards set forth in the Massachusetts Stormwater Handbook (310 CMR 10.05 (6) (k) (1-10)).

Stormwater from the existing paved surfaces is directed North towards shallow sloping grassed filter strips leading to vegetated swales which discharge into the wetlands adjacent to the Airport’s Main Apron and Municipal Apron. The existing paved surface not impacted as part of the most recent construction project at the Airport is considered a Land Use with Higher Potential Pollutant Loads (LUHPPL) and as such, is subject to additional regulations for treatment prior to discharge. Included in this document is a conceptual plan for the future redevelopment of this LUHPPL site for the purposes of complying with applicable stormwater regulations.

Off-site drainage from Woodbine Road and Gratto Road are intercepted by the new stormwater drainage system at the airport and are directed to a large, vegetated storage basin on the northwest portion of the Airport property. These waters are exempt from this regulation, as they are not generated from the Airport’s industrial activity or stormwater management system.

2 LONG TERM POLLUTION PREVENTION

A OWNERSHIP AND RESPONSIBILITY

This Long Term Pollution Prevention (LTPP) Plan ensures compliance with 310 CMR 10.00 of the Massachusetts Stormwater Handbook, improves the water quality of stormwater runoff from the new paved surfaces, and controls runoff to down gradient-areas. It is the ongoing responsibility of the Marshfield Airport Commission to implement and maintain this plan.

Failure to implement this plan as approved by MassDEP is considered non-compliance with the Variance Decision dated June 1, 2012 (MassDEP File No. SE 42-2334), and the applicant may be subject to enforcement action by MassDEP or by the Marshfield Conservation Commission for failure to comply.

Contact Information for LTPP Coordinator:

Owner's Name: Marshfield Airport Commission
Address: 93 Old Colony Lane
City, State: Marshfield, Massachusetts 02050
Contact: David V. Dinneen (Airport Operator)
Telephone: 781.834.4928
Email: ddinneen@shorelineaviation.net

B GOOD HOUSEKEEPING PRACTICES

Good housekeeping practices can prevent and/or reduce the amount of pollutants entering the resource areas adjacent to the airport. The use of Best Management Practices (BMPs) such as street sweeping, deep sump catch basins, vegetated filter strips, grassed channels, infiltration basins, leaching catch basins, rip-rap outfall protection, and storage of any erodible materials under cover or indoors can extend the service life of the stormwater systems and reduce the amount of Total Suspended Solids which enter them.

For further information regarding the types of BMPs, maintenance schedules, and procedures for correcting any deficiency observed, see the Stormwater Operation and Maintenance Plan in Section 3 of this document.

C STORAGE OF MATERIALS AND WASTE PRODUCTS

While highway, roadway and parking lot uses can produce a significant pollution load, the Marshfield Airport's pavements do not receive sand, salt, nor any chemical application at any time of the year. Any erodible materials stored on site shall be stored in an appropriate container, under a roof or some other secure enclosure. Any waste products generated from this site shall be placed in secure receptacles until they are emptied by a licensed solid waste management company in the Commonwealth of Massachusetts.

D VEHICLE AND AIRCRAFT WASHING

Vehicle and Aircraft washing is performed inside the hangar adjacent to the Main Apron, the wash waters from these activities are directed to a floor drain within the hangar which is connected to the publicly owned water treatment facility in Marshfield. Any washing of Aircraft which may take place outside these hangars shall be done only within the Main Apron area with buckets, rags, and environmentally friendly, non-toxic detergents only. For further information on stormwater and wash water discharges in the LUHPPL area on this site see section (2)(K)(1).

E INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

This information can be found in Section 3 – “OPERATION AND MAINTENANCE”

F SPILL PREVENTION AND RESPONSE

Title 40 of the Code of Federal Regulations in Part 112 requires that facilities with aboveground oil storage capacity in excess of 1,320 gallons or underground storage capacity in excess of 42,000 gallons (unless completely buried and subject to all the technical requirements of 40 CFR 280 or a State program approved under 40 CFR 281) prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan. The purpose of a SPCC Plan is to minimize the potential for oil discharge into or upon the navigable waters of the United States and their adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States. Oil means oil of any kind including petroleum, fuel oil, oil sludge, synthetic oils, mineral oils, vegetable oils, etc. Discharge means spilling, leaking, pumping, pouring, emitting, etc. Discharge does not include an oil discharge authorized under a current National Pollutant Discharge Elimination System (NPDES) permit.

1 SPILL PREVENTION CONTROL & COUNTERMEASURES

The SPCC plan for the airport has been included in this document as Appendix A.

G MAINTENANCE OF VEGETATED AREAS

The Airport is responsible for the maintenance of the vegetated areas located on the Airport property. Routine mowing and inspections take place in all upland areas to deter wildlife and maintain safe aircraft operation environments. A large portion of the Airport property is classified as wetlands, and the Airport has prepared a Vegetation Management Plan (VMP) which establishes best practices for control and maintenance of the wetland and habitat areas adjacent to the Runway and Taxiway environments. This VMP has been included as Appendix B.

H PET WASTE MANAGEMENT

No pets are present on this site due to the operational conditions of this site.

I OPERATION AND MAINTENANCE OF SEPTIC SYSTEMS

The majority of the Airport is now connected to the municipal sewer infrastructure, however a septic system still exists at the Administration Building. This system accommodates the Administration building, which is located adjacent to the Main Apron. Septic systems that are not properly maintained are a major cause of contaminated groundwater, shellfish beds, and polluted waterways.

The septic system shall be inspected every three (3) to five (5) years by a professional who meets the DEP Requirements to perform Title 5 System Inspections. The septic system shall be pumped every 3 years to remove accumulated solids. No trees or shrubs shall be planted within thirty (30) feet of the Septic system or leaching field. Only additives which are on the MassDEP Approved list shall be used in this system. No non-biodegradable materials will be directed down toilets or drains which lead to the septic system. No hazardous materials such as paint thinner, polyurethane, anti-freeze, pesticides, dyes, disinfectants or other strong chemicals shall be placed into the system.

J DE-ICING AND SNOW REMOVAL

De-icing agents are not used at this Airport. Snow removal procedures are outlined in the Airport's Snow Removal Plan which has been included as Appendix C.

K. LANDS UNDER HIGHER POTENTIAL POLLUTANT LOADS

The airport contains an area which is classified as a Land Use with Higher Potential Pollutant Loads (LUHPPL) due to the fueling of aircraft. This area consists of the entire Main Apron. LUHPPL areas require that stormwater be treated by the specific structural BMPs determined to be suitable for treating runoff from this type of land use. This site has not been disturbed or altered during the latest airport construction project. However, it does not currently meet the treatment standards outlined in the Massachusetts Stormwater Handbook. A future re-development project is planned to improve upon the BMPs which receive runoff from this LUHPPL and bring it into compliance with MassDEP treatment standards. This future project has been tentatively scheduled for 2020 and is subject to the availability of funding assistance from the FAA and MassDOT Aeronautics Division.

1 MAIN APRON REDEVELOPMENT PLAN

A conceptual plan for the re-development of this LUHPPL has been prepared and is included as Appendix D.

2 *TSS REMOVAL*

Due to FAA criteria and the existence of wetlands around the entire perimeter of the runway and taxiway, TSS treatment methods from the Massachusetts Stormwater Handbook are not viable alternatives at this airport. Multiple alternative methods for removing TSS have been considered, and the Wetland Variance Decision (DEP File No. SE 42-2334) or just “the Variance” has specifically conditioned that future development projects be implemented to satisfy this requirement. The future redevelopment of the LUHPPL site at the Airport will bring the airport closer to the required removal rate. Additional information on this subject can be found in Section (2)(L). Other non-structural BMPs have been implemented to reduce the total TSS concentration at the airport; the Airport currently maintains its paved surfaces in a very clean and debris free condition. No salt, sand, or de-icing agents are permitted at this airport, and thus the stormwater is very clean by comparison to the uses listed in the Massachusetts Stormwater Handbook.

3 *HANGAR FLOOR DRAINS*

Located at the Airport is an aircraft storage hangar where the Fixed Base Operator (FBO) stores aircraft. Inside this hangar is a floor drain system which is connected to the public sewer system in Marshfield. In order to comply with the discharge and pre-treatment requirements of 314 CMR 12.00, the Airport has prohibited discharge of any substance which meets the following criteria:

- Any substance, material, or wastewater that can cause harm to the sewers, treatment process, equipment at the treatment facility
- Any substance that can have an adverse effect on the receiving waters or otherwise endanger life, limb, or public property.
- Any pollutant which creates a fire or explosion hazard.
- Any Pollutants which will cause corrosive structural damage to the sewer system or treatment plant, and in no case may any discharge have a pH lower than 5.5.
- Any solid or viscous pollutant including oils and grease.
- Any oxygen demanding pollutants which will cause interference with the performance of the treatment facility.
- Heat in amounts which will inhibit biological activity in the treatment facility.
- Any substance containing more than one part per billion (ppb) of mercury.

4 *ILLICIT DISCHARGES*

All illicit discharges to the stormwater management system are prohibited.

L COMPLIANCE WITH 310 CMR 10.05 (6) (K) (1-10)

As required by the Variance Decision Special Conditions (No. 71), the LTPP and O&M Plan shall comply with each of the ten (10) stormwater Standards specified in 310 CMR 10.05 (6) (K) to the maximum extent practicable. Each of these ten (10) standards is listed below with a description of the practices for ensuring compliance :

- **310 CMR 10.05 (6) (K) (1):**

“No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the commonwealth”

The Airport has point discharges in three (3) locations which are not “untreated” but do not meet the standard for treatment: the wetland at the Runway 24 end, along the north section of Taxiway ‘A’ near the Runway 24 end, and a new headwall adjacent to Taxiway ‘A’ and the Runway 6 end. These discharge points receive partial treatment prior to discharging into a wetland or waterway, but do not meet the stormwater standards required by this condition. Providing additional BMPs for these discharges would require additional wetland impacts, and therefore a waiver has been requested and approved by MassDEP.

- **310 CMR 10.05 (6) (K) (2):**

“Stormwater management systems shall be designed so that post development peak discharge rates do not exceed pre-development peak discharge rates”

The stormwater management systems have been designed to ensure the post-development peak discharge rates do not exceed pre-development rates for the 2, 10, and 100-year storms; flood storage has also been provided so that there is no increase in flooding impacts off site resulting from this project. For peak flow rates at each discharge point as defined in the original stormwater drainage report, see Table 1 Below.

Design Point		Existing Conditions Design Storm			Proposed Conditions Design Storm		
		2-Year	10-Year	100-Year	2-Year	10-Year	100-Year
1	Peak Flow Rate (cfs)	7.24	10.40	15.93	5.52	8.19	12.87
2	Peak Flow Rate (cfs)	8.57	14.21	24.57	10.65	16.37	26.49
3	Peak Flow Rate (cfs)	8.17	18.06	51.10	7.01	9.94	19.88
4	Peak Flow Rate (cfs)	3.17	5.67	10.41	12.25	19.25	31.88
5	Peak Flow Rate (cfs)	1.16	4.05	11.45	5.70	9.06	15.09
6	Peak Flow Rate (cfs)	11.87	25.22	53.04	10.33	22.68	48.49
7	Peak Flow Rate (cfs)	5.74	10.55	37.07	5.55	9.45	15.72
8	Peak Flow Rate (cfs)	13.18	20.02	32.07	11.26	17.10	27.39
9	Peak Flow Rate (cfs)	5.77	10.97	29.54	6.68	11.57	19.18
10	Peak Flow Rate (cfs)	0.15	1.44	4.80			
11	Peak Flow Rate (cfs)	30.20	44.65	69.90	27.15	40.18	63.34
Cumulative Peak Flow (cfs)		69.04	123.57	231.92	66.75	111.39	194.81

Notes: 1. 2-Year Storm = 3.40", Type III, 24-Hour
10-Year Storm = 4.70", Type III, 24-Hour
100-Year Storm = 7.00", Type III, 24-Hour

In addition to the above reduction in peak flow rate for the post development condition, calculations were provided to and approved by MassDEP which demonstrate that the rip-rap apron outlets are sized sufficiently and will not cause scour to adjacent BVW, replication, restoration, or compensatory flood storage areas.

- **310 CMR 10.05 (6) (K) (3):**

“Loss of annual recharge to the groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices and good operation and maintenance. At a minimum the annual recharge from the post development site shall approximate the annual recharge from the pre-development condition.”

This standard could not be met for several reasons. There are large infiltration basins that exceed site requirements; however only approximately 35% of impervious surfaces are directed to these areas. Additionally, depth to seasonal high water below these infiltration basins in some cases does not meet the standards set forth in the Massachusetts Stormwater Handbook. In lieu of compliance with this Stormwater Standard, the Airport will continue to comply with the requirements and conditions stated in the Wetland Variance Decision from MassDEP.

- **310 CMR 10.05 (6) (K) (4):**

“Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- a. Suitable practices for source control and pollution prevention are identified in a long term pollution prevention plan and are thereafter maintained;***
- b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and***
- c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.”***

This standard could not be met for several reasons. The Applicant has attempted to avoid, minimize and mitigate the release of TSS into the surrounding ecosystems. The Wetland Variance Decision from MassDEP requires the Applicant to undertake future projects to raise the rate of TSS removal to a level which meets the requirements of the Massachusetts Stormwater Handbook. These future projects are subject to funding availability from the FAA, State and Local Government.

- **310 CMR 10.05 (6) (K) (5):**

“For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow belt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the department to be suitable for such use as provided in the Massachusetts Stormwater Handbook. Stormwater Discharges from lands with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26 through 53, and the regulations promulgated thereunder at 314 CMR 3.00, 3.14 CMR 4.00 and 314 CMR 5.00.”

The drainage system for the LUHPPL is separate from the remainder of the airport’s drainage systems. As a result, the state of the existing LUHPPL area remains unchanged. Future improvements to the Airport’s LUHPPL area have been included in Appendix D.

- **310 CMR 10.05 (6) (K) (6):**

“Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near any other critical area require the use of specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the department to be suitable for managing stormwater discharges to such area as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area, if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment.”

There are no stormwater systems discharging to a Zone II or Interim Wellhead Protection Area.

- **310 CMR 10.05 (6) (K) (7):**

“A redevelopment project is required to meet the following stormwater management standards only to the maximum extent practicable: Standard 2, Standard 3, And the pretreatment and structural stormwater best management practice requirements of standards, 4, 5, and 6. Existing stormwater discharges shall not comply with standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.”

This project, as constructed, does not meet the definition for “redevelopment”.

- **310 CMR 10.05 (6) (K) (8):**

”A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion sedimentation and pollution prevention plan) shall be developed and implemented.

This standard was met by inclusion of a Construction SWPPP which was submitted and approved by MassDEP for the construction of this project.

- **310 CMR 10.05 (6) (K) (9):**

”A long term operation and maintenance plan shall be developed and implemented to ensure that the stormwater management system functions as designed.”

This document shall serve as both the Long Term Pollution Prevention (LTPP) Plan and the Operation and Maintenance (O&M) Plan.

- **310 CMR 10.05 (6) (K) (10):**

”All illicit discharges to the stormwater management system are prohibited”

This standard will be met.

3 OPERATION AND MAINTENANCE

A OWNERSHIP AND RESPONSIBILITY

This Long Term Operation and Maintenance (O&M) Plan ensures compliance with 310 CMR 10.00 of the Massachusetts Stormwater Handbook and establishes standard operating procedures related to the operation, inspection and maintenance of the Airport's stormwater systems. It is the ongoing responsibility of the Marshfield Airport Commission to implement and maintain this plan.

Failure to implement this plan as approved by MassDEP is considered non-compliance with the Variance Decision dated June 1, 2012 (MassDEP File No. SE 42-2334), and the applicant may be subject to enforcement action by MassDEP or by the Marshfield Conservation Commission for failure to comply.

Contact Information for O&M Coordinator:

Owner's Name: Marshfield Airport Commission
Address: 93 Old Colony Lane
City, State: Marshfield, Massachusetts 02050
Contact: David V. Dinneen (Airport Operator)
Telephone: 781.834.4928
Email: ddinneen@shorelineaviation.net

It shall be the responsibility of the Airport Operator to:

- Maintain an operation and maintenance log for the last three (3) years, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location)
- Make this log available to MassDEP and the Conservation Commission upon request; and
- Allow members and agents of the MassDEP and Conservation Commission to enter and inspect the premises to evaluate and ensure that the responsible party complies with the O&M Plan requirements for each BMP.

Inspection and Maintenance Logs can be found in Appendix E.

B DOCUMENTATION

An Inspection and Maintenance Record Log and Schedule shall be kept by the Airport Operator summarizing inspections, maintenance, repairs, and any other corrective actions taken. The log will include the date of each inspection and/or maintenance task, and the name of the personnel performing the task. If a maintenance task requires clean-out of any sediments or debris, the location where all materials are disposed of after removal will be indicated. Inspection logs shall be kept at the Airport Administration Building.

C ROUTINE INSPECTIONS & MAINTENANCE

The following areas, facilities, and structural components shall be inspected by the Airport Operator and maintained as specified in Table 2 below. Identified deficiencies shall be corrected as soon as practicable. Accumulated sediments and debris will be properly disposed of off-site in accordance with local, state, and federal regulations. For the Stormwater Management Systems Plan see Appendix F.

Table 2 – Stormwater Systems Inspection & Maintenance Schedule		
Stormwater BMP	Routine Maintenance	Non-Routine Maintenance
<u>Deep Sump Catch Basins:</u>		
<p>Regular maintenance is essential. Deep sump catch basins remain effective at removing pollutants only if they are cleaned out frequently. Once 50% of the sump volume is filled, the catch basin is not able to retain additional sediments. If handling runoff from land uses with higher potential pollutant loads or discharging runoff near or to a critical area, more frequent cleaning may be necessary. Clamshell buckets are typically used to remove sediment in Massachusetts. However, vacuum trucks are preferable, because they remove more trapped sediment and supernatant than clamshells. Vacuuming is also a speedier process and is less likely to snap the cast iron hood within the deep sump catch basin.</p>	<p>Inspect units four (4) times per year</p> <p>Clean units four (4) times per year</p>	<p>Clean units whenever the depth of deposits is greater than or equal to ½ the depth from the bottom to the lowest pipe in the basin.</p>

<u>Vegetated Filter Strips:</u>		
<p>Regular maintenance is critical for filter strips to be effective and to ensure that flow does not short-circuit the system. Inspect for sediment buildup and signs of erosion, bare spots, and overall health. Under no circumstances is the maintenance of these features permitted to alter wetland resource areas.</p>	<p>Inspect every six (6) months during the first year; Annually thereafter.</p> <p>Regularly Mow Grass</p>	<p>Remove sediment from the toe of slope or level spreader and re-seed bare spots</p>
<u>Extended Dry Detention Basins:</u>		
<p>Potential problems that should be checked include: subsidence, erosion, cracking or tree growth on the embankment; damage to the emergency spillway; sediment accumulation around the outlet; inadequacy of the inlet/outlet channel erosion control measures; changes in the condition of the pilot channel; and erosion within the basin and banks. Make any necessary repairs immediately. During inspections, note any changes to the extended dry detention basin or the contributing watershed, because these could affect basin performance.</p>	<p>Inspect outlet devices two (2) times per year</p> <p>Mow the embankments and bottom two (2) times per year.</p> <p>Remove sediments from the basin one (1) time every five (5) years.</p>	<p>Inspect extended dry detention basins during and after major storms to determine if the basin is meeting the expected detention times</p> <p>Remove trash and debris from basin as observed.</p>
<u>Drainage/Grassed Channels:</u>		
<p>Potential problems that should be checked include: slope integrity, soil moisture, soil stability, soil compaction, ponding, sediment accumulation. Take care to protect drainage channels from snow removal procedures and off-street parking. Ensure that grass length is maintained between three (3) and six (6) inches.</p>	<p>Inspect for erosion, rilling, gullyng and vegetative growth two (2) times per year</p> <p>Mow regularly</p> <p>Remove sediment and debris one (1) time per year</p>	<p>Reseed dead or dying areas as necessary.</p>

<u>Infiltration Basins:</u>		
<p>Standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been compromised. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots). Potential problems that should be checked include: signs of differential settlement, cracking, erosion, leakage, tree growth on embankments, condition of underdrain, sediment accumulation, and vegetative growth.</p>	<p>Perform Preventative maintenance two (2) times per year</p> <p>Inspect for proper function two (2) times per year</p>	<p>Inspect for proper function after every major storm event for the first three (3) months of service.</p>
<u>Leaching Catch Basins:</u>		
<p>Potential problems that should be checked include: Sediment buildup in catch basin ahead of leaching chamber, clogging of geotextile fabrics, sediments migrating into the stone voids, pollutants entering the leaching basin.</p>	<p>Inspect for sediments and debris one (1) time per year</p>	<p>Remove sediments when the Catch Basin ahead of the Leaching Basin is 50% filled.</p> <p>Rehabilitate the basin if it fails due to clogging</p>
<u>Rip-Rap Aprons:</u>		
<p>Potential Problems that should be checked include: Sediments migrating into stone, Rip-Rap apron is sized inadequately to dissipate energy from flows during major events, erosion around pipe outlets and at the end of the apron, vegetative growth inside rip-rap stone.</p>	<p>Inspect aprons for erosion two (2) times per year</p>	<p>Inspect for vegetative growth periodically throughout the growth seasons.</p> <p>Remove sediment build-up as necessary</p>

D INVASIVE SPECIES MANAGEMENT

The management of invasive species has been established in the Airport's Invasive Species Control & Management Plan which has been attached as Appendix G.

APPENDIX A
SPILL PREVENTION CONTROL & COUNTERMEASURES PLAN (SPCC)
(INCLUDED ON THE ATTACHED DISC)

APPENDIX B
VEGETATION MANAGEMENT PLAN (VMP)
(INCLUDED ON THE ATTACHED DISC)

APPENDIX C
SNOW REMOVAL PLAN

**GEORGE D. HARLOW FIELD
MARSHFIELD, MASSACHUSETTS**

SNOW REMOVAL PLAN

PREPARED FOR:

**Marshfield Airport Commission
Marshfield, Massachusetts**

August, 2014

PREPARED BY:



**Gale Associates, Inc.
15 Constitution Drive
Bedford, New Hampshire**

1. INTRODUCTION

Disposal of collected snow poses a challenge at George D. Harlow Field. Snow poses a serious safety risk to aircraft operations and therefore must be removed from the paved surfaces expeditiously. With the conclusion of the latest construction project to bring the Airport into compliance with federal safety standards, a new standard practice for snow removal must be established. The new practices for snow removal operations are established herein.

The Airport's long term development plan shows approximately 19.35 acres (843,000 square feet) of paved surface which requires snow removal. No salt, sand, or de-icing chemicals are used on any of the airport pavement surfaces, as these materials may cause damage to aircraft engines if sucked up through the air intake manifolds or promote air-frame rust. For this reason, the majority of snow plowed at the Airport is clean and free of debris and chemicals which could be detrimental to vegetation, habitat, and groundwater.

2. SNOW STORAGE CAPACITY

The first step in properly removing and storing snow is to estimate the annual snowfall for the area of interest. To help in this determination, a 2 year, 24 hour rainfall event was established as the storm frequency resulting in the best balance of storage volume and minimization of impacts. Historically the highest monthly snowfall for the town is during January and February, during which time the monthly total is approximately 15 inches of snow. In order to accommodate the peak monthly snowfall, the Airport will require a storage volume of approximately 39,000 cubic yards.

3. SITE SELECTION

The key to effective snow management is to locate the disposal sites adjacent to, or on pervious surfaces in upland areas. The following areas have been avoided in choosing snow disposal sites:

- The Green Harbor River
- Bass Creek
- Bordering Vegetated Wetlands (BVWs)
- Lands Under Water (LUWs)
- Salt Marshes
- Ponds
- Wetland Restoration & Replication Areas
- Turtle Nesting Habitat Enhancement Areas
- Compensatory Flood Storage Areas
- Stormwater Infiltration Basins
- Drainage Swales

The remaining upland areas available for snow storage are estimated to account for the required snow storage volume. For more information on areas chosen for snow storage, see Figure 1.

4. SITE PREPARATION AND MAINTENANCE

The selected sites as shown in Figure 1 should be inspected for signs of erodible materials prior to depositing snow. If any unstable grade, steep slopes, open sand, or other potential problem areas are observed, the area should be protected with silt fence or other BMP's as necessary.

All debris will be removed from the sites prior to using the site for snow storage.

To protect the adjacent areas and filter sediments out of the melt water, a fifty foot (50') vegetated buffer strip will be allowed to grow during the fall growth season, and shall remain until the following spring.

During the spring cleanup all debris deposited into the storage area shall be removed and disposed legally off airport property.

5. SNOW REMOVAL METHODOLOGY:

In order to maintain operational safety on the airport during snow events, the paved surfaces are plowed to clear highest priority surfaces first. The Runway pavement is the highest priority, followed by the Taxiways, Main Apron, Tie-down Apron, and finally Taxilanes. Each area must be clear of snow banks, drifts, and other obstructions to provide safe wing tip clearance for aircraft moving around the airfield. Based on the availability of snow removal equipment, the Airport will plow snow into temporary stockpile areas on paved surfaces, and load snow into loader buckets or dump trucks to transport it to storage areas.

No salt, sand or de-icing agents are permitted for use at the airport. If any removal practices aside from plowing are used, the airport shall submit an updated Snow Removal Plan to the Massachusetts Department of Environmental Protection for prior written approval.

A prompt notification system to aircraft owners and operators shall be placed into operation when airfield movement areas cannot be cleared of snow, ice, slush or standing water in a timely manner. These notices include NOTAMS (Notices to Airmen), written notifications, and E-mail notifications.

6. EMERGENCY SNOW STORAGE

During snow emergencies, if all upland disposal sites have been exhausted, snow may be disposed of near resource areas. If this is required the following guidelines shall be followed:

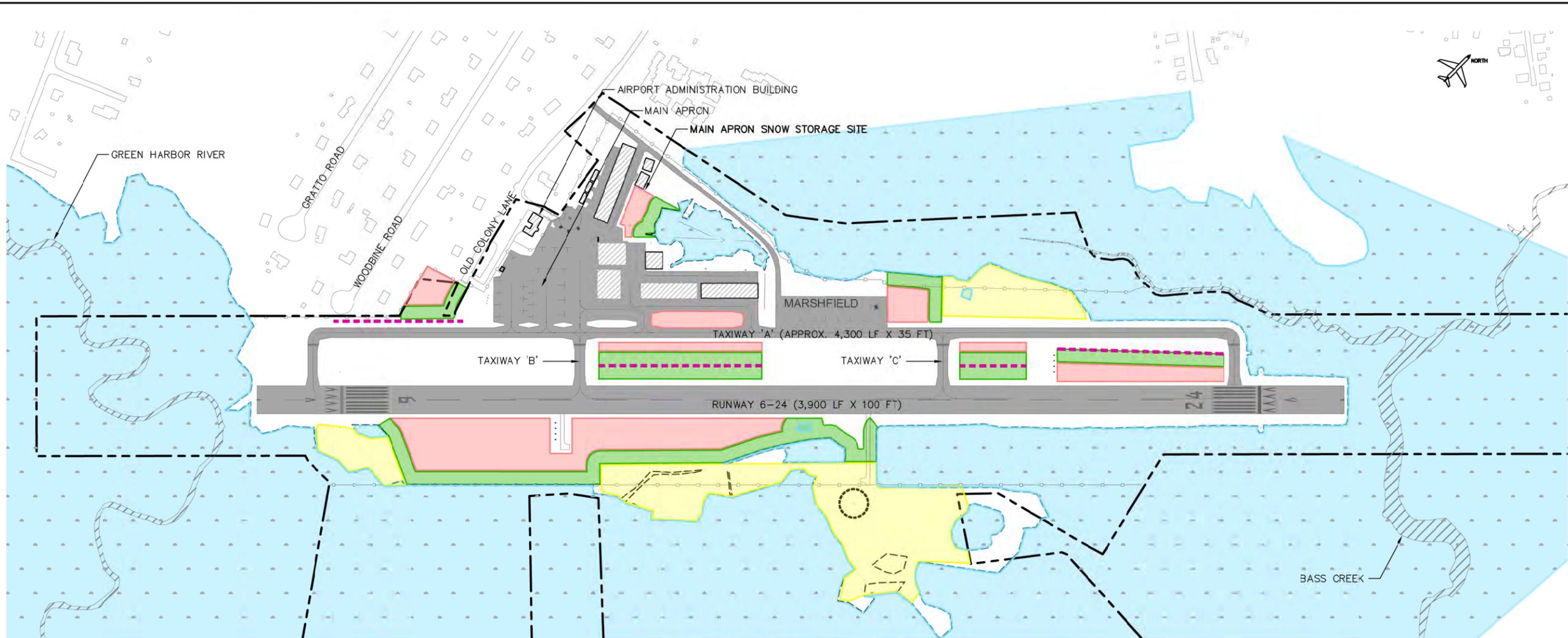
- No snow shall be disposed of in salt marshes, vernal pools, vegetated wetlands, drinking water reservoirs, Zone IIs or IWPA's of public supply wells, or any other areas of critical environmental concern.
- No disposal of snow shall take place in a location where trucks may cause erosion or other damage to the ground surface.



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Engineers Architects Planners

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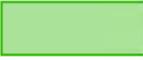
Boston Baltimore Orlando San Francisco
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SNOW REMOVAL PLAN

SCALE: 1"=400'

LEGEND

-  VEGETATED WETLAND – NO SNOW PILING
-  WILDLIFE HABITAT AREA – NO SNOW PLOWING
-  SNOW STORAGE AREA
-  50' VEGETATED BUFFER
-  EXISTING PAVED SURFACES
-  AIRPORT PROPERTY LINE
-  AIRPORT PERIMETER FENCE
-  EXISTING DRAINAGE SWALE

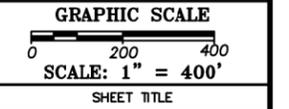
NOTES:

1. EACH SEASON PRIOR TO FIRST SNOWFALL THE AIRPORT OPERATOR SHALL INSPECT EACH DESIGNATED SNOW STORAGE AREA FOR DEBRIS AND OTHER MATERIALS WHICH MAY ERODE OR CAUSE CONTAMINATION DUE TO MELT WATER. IF ENCOUNTERED, THE AIRPORT OPERATOR SHALL REMOVE AND LEGALLY DISPOSE OF THESE MATERIALS OFF AIRPORT PROPERTY.
2. IF EROSION OCCURS THE AIRPORT OPERATOR SHALL INSTALL SILT FENCE AROUND THE PERIMETER OF EACH SNOW STORAGE AREA PRIOR TO USE.
3. NO SNOW STORAGE SHALL BE PERMITTED IN ANY RESOURCE AREA LISTED IN THE AIRPORT'S SNOW REMOVAL PLAN.
4. SNOW FROM THE MAIN APRON MUST BE STORED IN THE SITE DEPICTED ON THE PLAN ABOVE.
5. IN SNOW EMERGENCY SITUATIONS, SNOW THAT IS NOT VISIBLY CONTAMINATED WITH SEDIMENTS MAY BE DEPOSITED INTO THE 50' BUFFER ZONE BETWEEN STORAGE AREAS AND RESOURCE AREAS.
6. FOR FURTHER INFORMATION PERTAINING TO SNOW REMOVAL OPERATIONS SEE THE AIRPORT'S SNOW REMOVAL PLAN.

PROJECT
SHIFT, EXTEND AND CONSTRUCT RUNWAY 6-24 (APPROX. 3,900 LF X 100 FT.); CONSTRUCT PARALLEL TAXIWAY A, AND STUB TAXIWAYS B, AND C; CONSTRUCT RUNWAY 6-24 END SAFETY AREAS (APPROX. 300 LF X 150 FT.); OBSTRUCTION REMOVAL (ON AND OFF AIRPORT PROPERTY); AND CONSTRUCT WETLAND REPLICATION AND TURTLE HABITAT AREAS

OWNER
TOWN OF MARSHFIELD AIRPORT COMMISSION
MARSHFIELD, MASSACHUSETTS

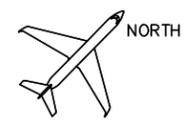
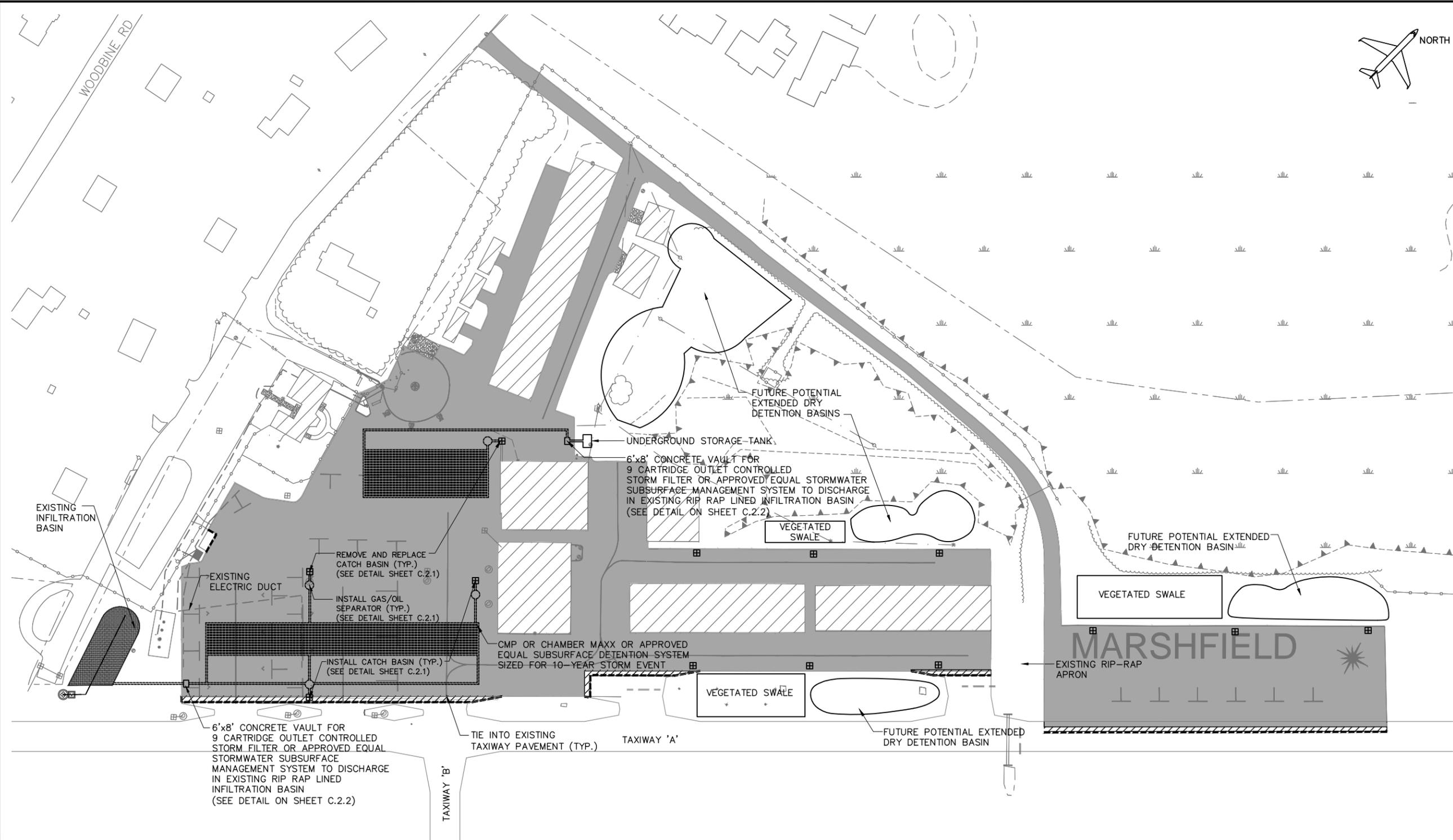
NO.	DATE	DESCRIPTION	BY
PROJECT NO.	MARSHFIELD 2014		
CADD FILE	REVISION 1		
DESIGNED BY	NAI		
DRAWN BY	NAI		
CHECKED BY	EWS		
DATE	AUGUST, 2014		
DRAWING SCALE	1"=400'		



SNOW REMOVAL PLAN

DRAWING NO.
FIG. 1

APPENDIX D
MAIN APRON REDEVELOPMENT PLAN



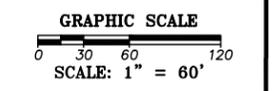
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PLANNING SET

PROJECT	CONCEPTUAL APRON STORMWATER DESIGN	
	OWNER	
TOWN OF MARSHFIELD AIRPORT COMMISSION MARSHFIELD, MASSACHUSETTS		

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	MEM		
DRAWN BY	MEM		
CHECKED BY	EWS		
DATE	JUNE 24, 2014		



SHEET TITLE

**APRON DRAINAGE
LAYOUT PLAN**

DRAWING NO.

C1.1

LEGEND

- | | |
|--|---|
| --- AIRPORT PROPERTY LINE | ⊞ PROPOSED DEEP SUMP CATCH BASIN |
| ▲---▲ EDGE OF JURISDICTIONAL WETLANDS | ○ PROPOSED GAS/OIL SEPARATOR |
| ===== DRAINAGE PIPE | ▨ EXISTING RIP RAP LINED INFILTRATION BASIN |
| - - - 5' - - EXISTING 5' MAJOR CONTOUR | ⊙ EXISTING DRAINAGE MANHOLE |
| - - - 1' - - EXISTING 1' MINOR CONTOUR | ////// MILL AND OVERLAY |

NOTES:

1. CONCEPTUAL STORMWATER DESIGN BASED ON AERIAL MAPPING.
2. STORMWATER DESIGN BASED ON CURRENT MASSDEP STORMWATER REGULATIONS.
3. GEOTECHNICAL INFORMATION FROM SUBSURFACE INVESTIGATION PERFORMED IN MARCH 2002.
4. SIZE SUBSURFACE DETENTION FOR 10-YEAR STORM EVENT.
5. CATCH BASINS AND GAS/OIL SEPARATORS TO MEET MASSDEP STD. 5 PRETREATMENT REQUIREMENTS (44% TSS REMOVAL).
6. NINE (9) CARTRIDGE STORM FILTER DESIGNED FOR FIRST INCH OF RUNOFF TO MEET MASSDEP STD. 5 TREATMENT REQUIREMENT FOR LUHPPL SITES (80% TSS REMOVAL).

U:\777002-GHG Runway Final Design\EWS\Drawings\Misc\Conceptual Apron Design - C1.1.dwg, C1.1, 11/10/2014 3:09:46 PM, Aq, DWG To PDF.pc3, ANSI full bleed D (34.00 x 22.00 inches), 1:1

APPENDIX E
STORMWATER INSPECTION AND MAINTENANCE CHECKLIST

STORM DRAIN MAINTENANCE SCHEDULE

GEORGE D. HARLOW FIELD - MARSHFIELD, MA

Frequency	Actions	Follow-up
Weekly (or after rain event)	Erosion Inspection	Take corrective action(s) if required
Semi-Annually	Complete Visual Inspection Checklist for Each Structure: <ul style="list-style-type: none"> • Drainage Swale Inspection • Catch Basin Inspection • Manhole Inspection • Infiltration Basin Inspection • Gate Valve Inspection • Headwall/End Section Inspection 	File Visual Inspection Checklist Take corrective action(s) if required Take corrective action(s) if required
Annually	Perform sediment removal from structures and pipes as needed	Note any problem areas and inspect as necessary

VISUAL INSPECTION CHECKLIST

(FOR SEMI-ANNUAL USE BY AIRPORT)

Date of Inspection: _____

Inspector: _____

Type of Structure Being Inspected:

MH CB Swale Infiltration Basin

Gate Valve Headwall/End Section Other

Location or Number of Structure being Inspected:

What to Check for:

- Is the condition of the structure deteriorating?
- Are there signs of sediment?
- Are there signs of erosion?
- Is trash or foreign debris present in the structure?
- Are the pipes corroding or leaking?
- Are the frame and grate/cover still intact?
- Is the vegetation overgrown or encroaching on the structure?
- Gate Valves (only). Is the valve in the "OFF" position?

No	Yes	N/A

Notes/Comments:

Type of Structure Being Inspected:

MH CB Swale Infiltration Basin

Gate Valve Headwall/End Section Other

Location or Number of Structure being Inspected:

What to Check for:

- Is the condition of the structure deteriorating?
- Are there signs of sediment?
- Are there signs of erosion?
- Is trash or foreign debris present in the structure?
- Are the pipes corroding or leaking?
- Are the frame and grate/cover still intact?
- Is the vegetation overgrown or encroaching on the structure?
- Gate Valves (only). Is the valve in the "OFF" position?

No	Yes	N/A

Notes/Comments:

Type of Structure Being Inspected:

MH CB Swale Infiltration Basin

Gate Valve Headwall/End Section Other

Location or Number of Structure being Inspected:

What to Check for:

- Is the condition of the structure deteriorating?
- Are there signs of sediment?
- Are there signs of erosion?
- Is trash or foreign debris present in the structure?
- Are the pipes corroding or leaking?
- Are the frame and grate/cover still intact?
- Is the vegetation overgrown or encroaching on the structure?
- Gate Valves (only). Is the valve in the "OFF" position?

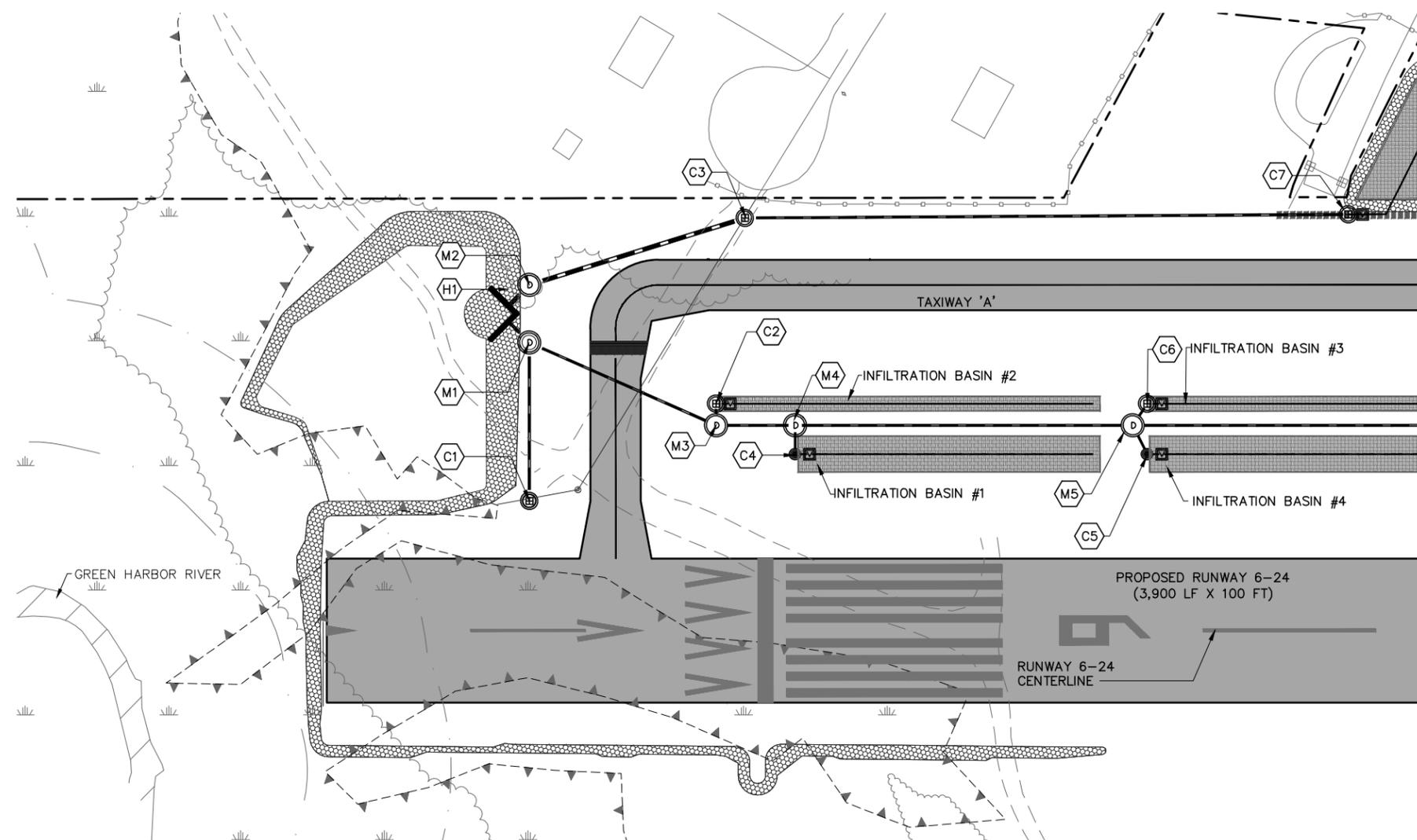
No	Yes	N/A

Notes/Comments:

APPENDIX F
STORMWATER MANAGEMENT SYSTEMS PLAN

LEGEND

- AIRPORT PROPERTY LINE
- RIP-RAP SLOPE STABILIZATION
- EDGE OF JURISDICTIONAL WETLANDS
- DRAINAGE PIPE
- DRAINAGE STRUCTURE LABEL
- GATE VALVE
- CATCH BASIN
- LOW PROFILE CATCH BASIN
- CATCH/LEACHING BASIN
- DRAINAGE MANHOLE
- FLARED END SECTION
- HEADWALL
- GRASS INFILTRATION BASIN



MATCHLINE - CONT. ON DWG. NO. MT.2

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NOT FOR CONSTRUCTION

PLANNING SET

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OWNER
 TOWN OF MARSHFIELD AIRPORT COMMISSION
 MARSHFIELD, MASSACHUSETTS

DRAINAGE STRUCTURES MAINTENANCE PLAN
 SCALE: 1"=50'

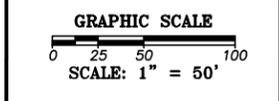
DRAINAGE STRUCTURE SCHEDULE

<p>C1 8' DIA. CATCH BASIN STA. 193+30.00, 90.00 LT. ITEM NO. D-751-4 RIM ELEV. = 4.55 INV. IN = N/A INV. OUT = 1.35 (PIPE A)</p>	<p>C5 4' DIA. CATCH BASIN, TYPE II STA. 197+60.00, 122.50 LT. ITEM NO. D-751-2 RIM ELEV. = 6.29 INV. IN = 4.95 (4" U.D.) INV. OUT = 3.42 (PIPE K)</p>	<p>M2 10' DIA. MANHOLE STA. 193+30.00, 240.00 LT. ITEM NO. D-751-8 RIM ELEV. = 7.00 INV. IN = 0.11 (PIPE E) INV. OUT = 0.01 (PIPE C)</p>
<p>C2 4' DIA. CATCH BASIN STA. 194+60.00, 157.50 LT. ITEM NO. D-751-1 RIM ELEV. = 4.98 INV. IN = 2.50 (6" U.D.) INV. IN = 3.06 (4" U.D.) INV. OUT = 2.37 (PIPE G)</p>	<p>C6 4' DIA. CATCH BASIN STA. 197+60.00, 157.50 LT. ITEM NO. D-751-2 RIM ELEV. = 5.97 INV. IN = 4.64 (4" U.D.) INV. OUT = 3.37 (PIPE M)</p>	<p>M3 8' DIA. MANHOLE STA. 194+60.00, 142.50 LT. ITEM NO. D-751-7 RIM ELEV. = 4.50 INV. IN = 2.11 (PIPE F) INV. IN = 2.35 (PIPE G) INV. IN = 0.50 (6" U.D.) INV. OUT = 0.39 (PIPE D)</p>
<p>C3 8' DIA. CATCH BASIN STA. 194+80.00, 286.50 LT. ITEM NO. D-751-4 RIM ELEV. = 5.09 INV. IN = 0.95 (PIPE I) INV. IN = FIELD VERIFY EXIST. INV. OUT NW = 0.85 (PIPE E)</p>	<p>C7 4' DIA. CATCH BASIN STA. 199+00.00, 289.00 LT. ITEM NO. D-751-1 RIM ELEV. = 6.00 INV. IN = 3.95 (4" U.D.) INV. OUT = 3.02 (PIPE I)</p>	<p>M4 5' DIA. MANHOLE STA. 195+15.00, 142.50 LT. ITEM NO. D-751-6 RIM ELEV. = 5.25 INV. IN = 2.33 (PIPE J) INV. IN = 2.33 (PIPE H) INV. OUT = 2.33 (PIPE F)</p>
<p>C4 4' DIA. CATCH BASIN, TYPE II STA. 195+15.00, 122.50 LT. ITEM NO. D-751-2 RIM ELEV. = 4.91 INV. IN = 3.54 (4" U.D.) INV. OUT = 2.37 (PIPE H)</p>	<p>M1 10' DIA. MANHOLE STA. 193+30.00, 200.00 LT. ITEM NO. D-751-8 RIM ELEV. = 6.75 INV. IN = 0.06 (PIPE D) INV. IN = 1.05 (PIPE A) INV. IN = 1.50 (6" U.D.) INV. OUT = 0.04 (PIPE B)</p>	<p>M5 8' DIA. MANHOLE STA. 197+50.00, 142.50 LT. ITEM NO. D-751-7 RIM ELEV. = 7.20 INV. IN = 3.01 (PIPE L) INV. IN = 3.25 (PIPE M) INV. IN = 3.25 (PIPE K) INV. OUT = 2.91 (PIPE J)</p>

HEADWALL & END SECTION SCHEDULE

NO.	STRUCTURE	R/W STA. OFF.	INVERT ELEV.	DESCRIPTION
H1	PRECAST HEADWALL	193+22.62 219.89' LT.	0.08 (30"), (18") RCP	PRECAST CONCRETE HEADWALL ITEM NO. D-752-1

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777002		
DESIGNED BY	IR		
DRAWN BY	IR		
CHECKED BY	EWS		
DATE	DECEMBER 2, 2013		



SHEET TITLE
DRAINAGE STRUCTURES MAINTENANCE PLAN (SHEET 1 OF 4)

DRAWING NO.
MT.1

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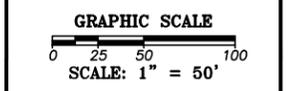
NOT FOR CONSTRUCTION

PLANNING SET

PROJECT: SHIFT, EXTEND AND CONSTRUCT RUNWAY 6-24 (APPROX. 3,900 LF X 100 FT.); CONSTRUCT PARALLEL TAXIWAY 'A' AND STUB TAXIWAYS 'B' AND 'C'; CONSTRUCT RUNWAY 6-24 END SAFETY AREAS (APPROX. 300 LF X 150 FT.); OBSTRUCTION REMOVAL (ON AND OFF AIRPORT PROPERTY); AND CONSTRUCT WETLAND REPLICATION AND TURTLE HABITAT AREAS

OWNER: TOWN OF MARSHFIELD AIRPORT COMMISSION
MARSHFIELD, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
-	-	-	-
-	-	-	-
-	-	-	-
PROJECT NO.	777002		
DESIGNED BY	INAI		
DRAWN BY	IBEL		
CHECKED BY	EWS		
DATE	DECEMBER 2, 2013		



SHEET TITLE

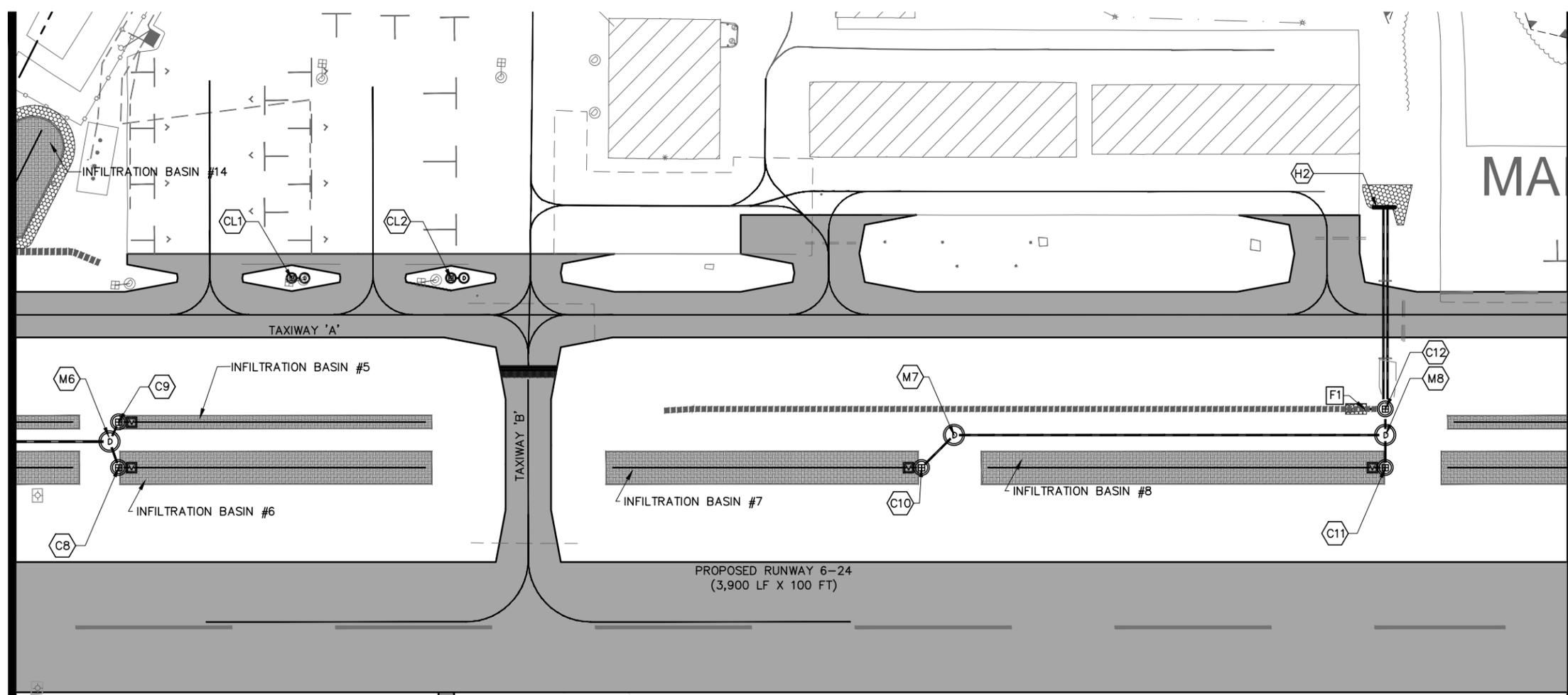
DRAINAGE STRUCTURES MAINTENANCE PLAN (SHEET 2 OF 4)

DRAWING NO.

MT.2

MATCHLINE - CONT. ON DWG. NO. MT.1

MATCHLINE - CONT. ON DWG. NO. MT.3



DRAINAGE STRUCTURES MAINTENANCE PLAN

SCALE: 1"=50'

HEADWALL & END SECTION SCHEDULE

NO.	STRUCTURE	R/W STA. OFF.	INVERT ELEV.	DESCRIPTION
H2	PRECAST HEADWALL	210+07.00 321.75' LT	1.44 (2) 12" RCP	PRECAST CONCRETE HEADWALL ITEM NO. D-752-2
F1	12" DIA. RCP END SECTION	209+95.00 167.50' LT	3.40 12" RCP	FLARED END SECTION ITEM NO. D-701-5
F3	12" DIA. RCP END SECTION	203+62.00 169.50' RT	2.95 12" RCP	FLARED END SECTION ITEM NO. D-701-5
F4	12" DIA. RCP END SECTION	203+54.03 210.50' RT	2.85 12" RCP	FLARED END SECTION ITEM NO. D-701-5

PROPOSED DRAINAGE STRUCTURE SCHEDULE

<p>C8</p> <p>4' DIA. CATCH BASIN STA. 200+32.00, 122.50 LT RIM ELEV. = 6.34 INV. IN = 4.84 (4" U.D.) INV. OUT = 3.95 (PIPE N) ITEM NO. D-751-1</p>	<p>C11</p> <p>4' DIA. CATCH BASIN STA. 210+07.00, 122.50 LT RIM ELEV. = 5.18 INV. IN = 4.09 (4" U.D.) INV. OUT = 2.71 (PIPE R) ITEM NO. D-751-1</p>	<p>M6</p> <p>5' DIA. MANHOLE STA. 200+25.00, 142.50 LT RIM ELEV. = 6.50 INV. IN = 3.78 (PIPE N) INV. IN = 3.78 (PIPE O) INV. OUT = 3.68 (PIPE L) ITEM NO. D-751-6</p>	<p>CL1</p> <p>4' DIA. CATCH/LEACHING BASIN STA. 201+65.00, 268.00 LT RIM ELEV. = 6.10 INV. OUT = 2.10 (TO LEACHING BASIN) ITEM NO. D-751-9</p>
<p>C9</p> <p>4' DIA. CATCH BASIN STA. 200+32.00, 157.50 LT RIM ELEV. = 6.18 INV. IN = 3.96 (4" U.D.) INV. OUT NW = 3.84 (PIPE O) ITEM NO. D-751-1</p>	<p>C12</p> <p>8' DIA. CATCH BASIN STA. 210+07.00, 167.50 LT RIM ELEV. = 5.25 INV. IN = 2.50 (6" U.D.) INV. IN = 3.32 (PIPE T) INV. IN = 2.00 (PIPE S) INV. OUT = 1.82 (PIPES U&V) ITEM NO. D-751-4</p>	<p>M7</p> <p>4' DIA. MANHOLE STA. 206+75.00, 147.50 LT RIM ELEV. = 6.70 INV. IN = 4.24 (PIPE P) INV. OUT = 4.14 (PIPE Q) ITEM NO. D-751-5</p>	<p>CL2</p> <p>4' DIA. CATCH/LEACHING BASIN STA. 202+88.00, 268.00 LT RIM ELEV. = 6.30 INV. OUT = 2.30 (TO LEACHING BASIN) ITEM NO. D-751-9</p>
<p>C10</p> <p>4' DIA. CATCH BASIN STA. 206+50.00, 122.50 LT RIM ELEV. = 5.94 INV. IN = 4.79 (4" U.D.) INV. OUT NW = 4.32 (PIPE P) ITEM NO. D-751-1</p>		<p>M8</p> <p>5' DIA. MANHOLE STA. 210+07.00, 147.50 LT RIM ELEV. = 6.50 INV. IN = 2.50 (PIPE R) INV. IN = 2.50 (PIPE Q) INV. OUT = 2.14 (PIPE S) ITEM NO. D-751-6</p>	

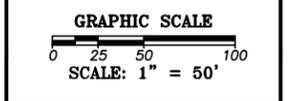
NOT FOR CONSTRUCTION

PLANNING SET

PROJECT: SHIFT, EXTEND AND CONSTRUCT RUNWAY 6-24 (APPROX. 3,900 LF X 100 FT.); CONSTRUCT PARALLEL TAXIWAY 'A' AND STUB TAXIWAYS 'B' AND 'C'; CONSTRUCT RUNWAY 6-24 END SAFETY AREAS (APPROX. 300 LF X 150 FT.); OBSTRUCTION REMOVAL (ON AND OFF AIRPORT PROPERTY); AND CONSTRUCT WETLAND REPLICATION AND TURTLE HABITAT AREAS

OWNER: TOWN OF MARSHFIELD AIRPORT COMMISSION
 MARSHFIELD, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
PROJECT NO.	777002		
DESIGNED BY	INAI		
DRAWN BY	IBEL		
CHECKED BY	EWS		
DATE	DECEMBER 2, 2013		



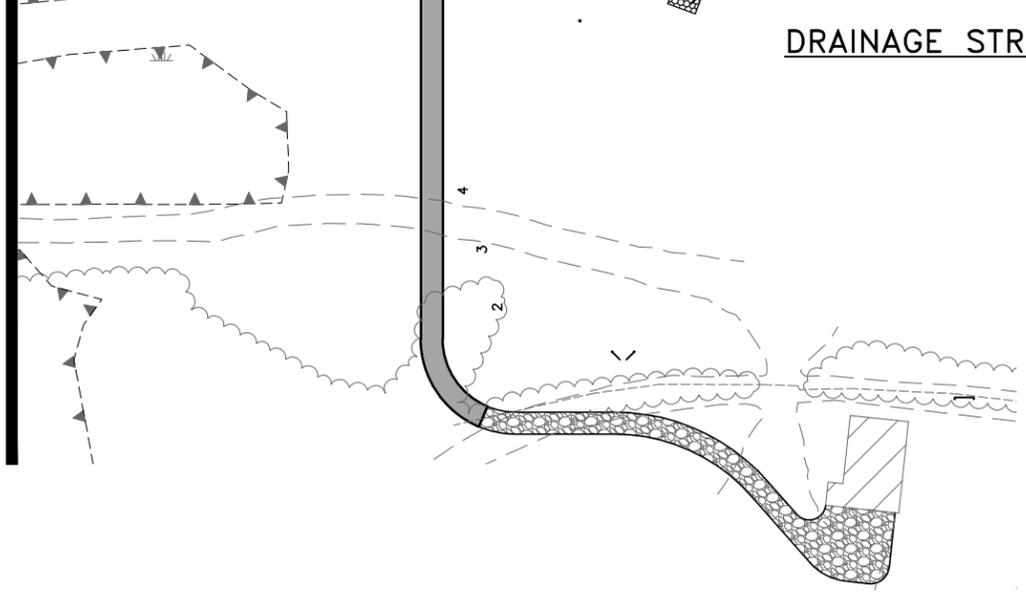
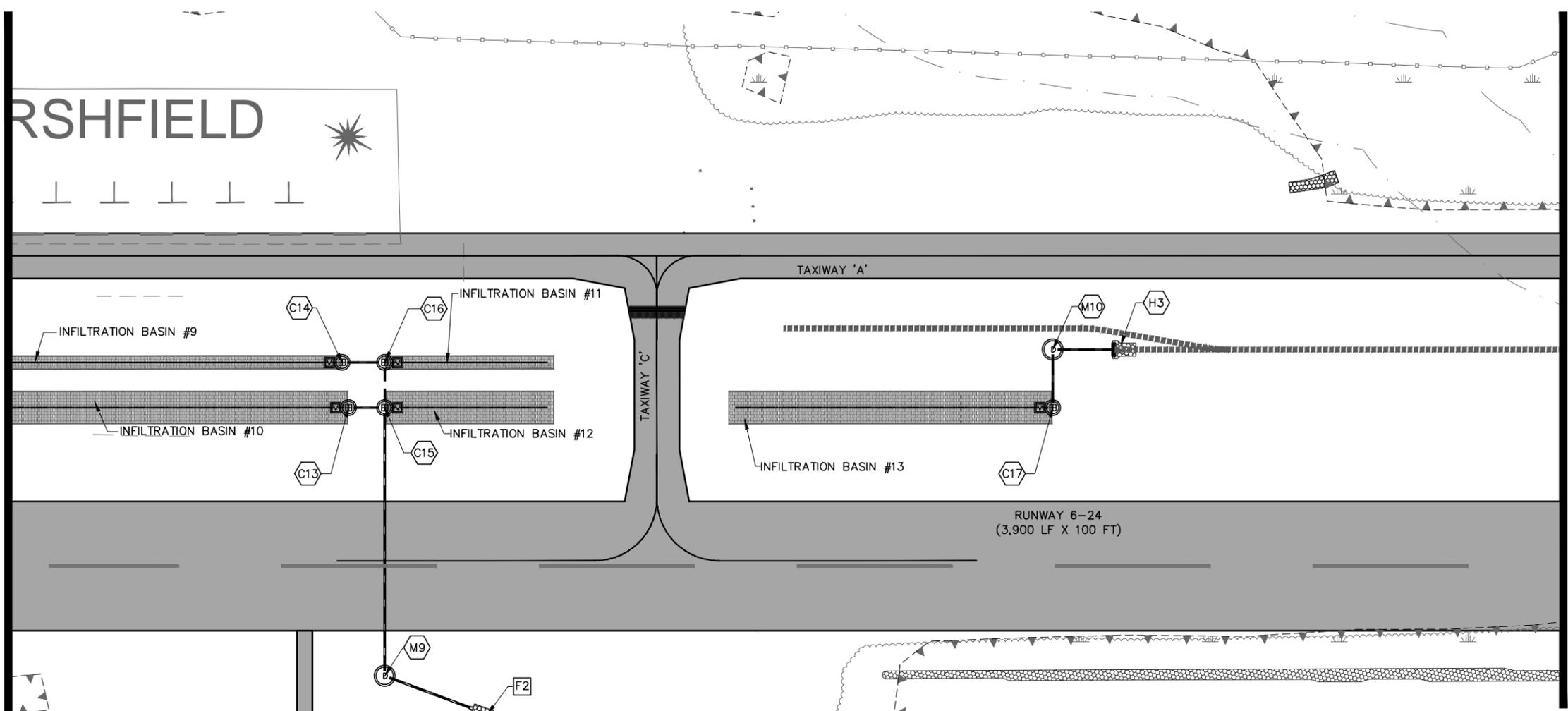
DRAINAGE STRUCTURES MAINTENANCE PLAN (SHEET 3 OF 4)

DRAWING NO.
MT.3

SHEET: 3 OF 1

MATCHLINE - CONT. ON DWG. NO. MT.2

MATCHLINE - CONT. ON DWG. NO. MT.4



DRAINAGE STRUCTURES MAINTENANCE PLAN
 SCALE: 1"=50'

HEADWALL & END SECTION SCHEDULE

NO.	STRUCTURE	R/W STA. OFF.	INVERT ELEV.	DESCRIPTION
H3	PRECAST HEADWALL	220+05.34 167.50' LT	1.73 12" RCP	PRECAST CONCRETE HEADWALL ITEM NO. D-752-3
F2	15" DIA. END SECTION	215+04.45 109.39' RT	1.35 12" RCP	FLARED END SECTION ITEM D-701-5

PROPOSED DRAINAGE STRUCTURE SCHEDULE

<p>C13 4' DIA. CATCH BASIN STA. 214+11.00, 122.50 LT RIM ELEV. = 4.66 INV. IN = 3.34 (4" U.D.) INV. IN = 2.60 (6" U.D.) INV. OUT = 2.47 (PIPE Y)</p>	<p>C16 5' DIA. CATCH BASIN, TYPE II STA. 214+39.00, 157.50 LT RIM ELEV. = 3.98 INV. IN = 2.43 (4" U.D.) INV. IN = 2.41 (PIPE AA) INV. OUT = 2.31 (PIPE Z)</p>	<p>M9 4' DIA. MANHOLE STA. 214+39.00, 85.00 RT RIM ELEV. = 4.50 INV. IN = 2.00 (6" U.D.) INV. IN = 1.62 (PIPE X) INV. OUT = 1.52 (PIPE W)</p>
<p>C14 4' DIA. CATCH BASIN STA. 214+06.00, 157.00 LT RIM ELEV. = 3.98 INV. IN = 2.87 (4" U.D.) INV. OUT = 2.48 (PIPE AA)</p>	<p>C17 4' DIA. CATCH BASIN STA. 219+57.00, 122.50 LT RIM ELEV. = 4.06 INV. IN = 2.58 (4" U.D.) INV. OUT = 2.04 (PIPE BB)</p>	<p>M10 4' DIA. MANHOLE STA. 219+57.00, 167.50 LT RIM ELEV. = 4.50 INV. IN = 1.94 (PIPE BB) INV. OUT = 1.84 (PIPE CC)</p>
<p>C15 5' DIA. CATCH BASIN, TYPE II STA. 214+39.00, 122.50 LT RIM ELEV. = 4.01 INV. IN = 4.33 (4" U.D.) INV. IN = 2.23 (PIPE Z) INV. IN = 2.23 (PIPE Y) INV. OUT NW = 2.13 (PIPE X)</p>		