

2.5 Environmental Construction

CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN (CBMPP)

General

The [ALDOT CBMPP](#) is a document created and maintained for every ALDOT construction project, which requires construction stormwater permit coverage under the Alabama Department of Environmental Management (ADEM) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The CBMPP is also a means to gather and communicate other environmental concerns, commitments, and contract requirements to ALDOT Design and Construction Personnel as well as the Contractor. The CBMPP is a place to document environmental compliance including site inspections, rainfall amounts, and erosion and sediment control plan modifications. For Priority Construction Sites, the CBMPP will also contain the sampling data collected during turbidity monitoring.

For projects permitted by the Contractor, the CBMPP shall be prepared by the Contractor Qualified Credentialed Professional (QCP) using an ADEM approved format. The Contractor's CBMPP shall include the same concerns, commitments, and contract requirements made as part of the preliminary CBMPP provided by ALDOT and satisfy all of the requirements of the ADEM regulations.

A Priority Construction Site is a construction project discharging to a waterbody listed on the most recently EPA approved 303(d) list of impaired waters for turbidity, siltation, or sedimentation; any waterbody for which a TMDL has been finalized or approved by EPA for turbidity, siltation, or sedimentation; any waterbody assigned the Outstanding Alabama Water, Outstanding National Resource Water, or Treasured Alabama Lakes use classification in accordance with ADEM Administrative Code; or any waterbody assigned another special designation in accordance with ADEM Administrative Code. If a project is a Priority Construction Site, it will be noted in the CBMPP by the Designer.

Design Component

The design component of the ALDOT CBMPP is created and updated during the planning and design phase by ALDOT, and/or Consultant Design Personnel. The Design QCP certifies the design component of the CBMPP as having addressed all known environmental concerns and addressing the concerns in the project design.

The design component consists of three main sections: Project Information, Environmental Concerns and Commitments, and Environmental Best Management Practices (BMPs). The Project Information section compiles the ADEM Notice of Intent (NOI) and project quadrangle map; properties of the soil expected to be encountered; and hydraulic information including the anticipated rainfall conditions and the minimum design storm for temporary BMPs. The Environmental Concerns and Commitments section compiles information regarding construction stormwater along with other environmental issues such as wetlands, priority waters, threatened and endangered species, historical and archaeological sites, and hazardous materials. The Environmental BMPs section compiles standard information from the ALDOT Construction Manual, ALDOT Specifications, ALDOT Standard and Special Drawings, and project specific information.

ALDOT Construction Staff, including proposed Construction Project Staff, should become involved in the design process as early and as often as possible to provide input relevant to BMPs. The involvement in the early design process should include on-site walk-through meetings and preliminary design review meetings. Existing conditions and potential environmental concerns should be documented in writing, with photographs and/or video, and included with the project files. The Environmental Construction Section of the Construction Bureau will review the

plans for projects, which are Priority Construction Sites and/or with 20 acres or more of disturbance for the limits of exposed erodible material. During the Prebid Meeting (if one is held) and the On-site Stormwater Meeting, the Area Stormwater Coordinator is responsible for discussing the design component of the CBMPP and requirements of the contract related to environmental protection and communicating all known environmental concerns related to the project.

Operational Component

The operational component of the CBMPP is created and updated during the construction phase by ALDOT Project Personnel and Contractor Personnel. The Project QCP, which is typically the Area Stormwater Coordinator, certifies the design component will be adhered to as closely as possible, and the operational component will be created, updated, and adhered to during construction of the project.

The operational component consists of five sections: Contractor Submitted Components; ALDOT Inspection Reports; Rainfall Journal; Regulatory Actions Log; and CBMPP Modifications Log. The contractor submitted components are the Contractor's Stormwater Management Plan and any other environmental correspondence between ALDOT and the Contractor. The ALDOT Inspection Reports section has an ALDOT QCP CBMPP Evaluation Log and the completed stormwater inspection reports including any required turbidity sampling data. The Rainfall Journal section includes a chart of the locations of all rain gauges and virtual precipitation monitoring (VPM) points and a monthly printout of the rainfall journal from the [CPMS StormWater Tracking System \(SWTS\)](#) database. The Regulatory Actions Log includes a chart of all actions by environmental regulatory agencies and all corresponding documentation. The CBMPP Modifications Log includes a chart of all CBMPP modifications and corresponding documentation.

During the On-site Stormwater Meeting, the Area Stormwater Coordinator is responsible for communicating the requirements of the operational component of the CBMPP to Region/Area Construction staff, ALDOT project staff, Contractor representatives, and any Subcontractors responsible for clearing, earthwork, vegetation establishment, or erosion and sediment control. Others at the meeting may include environmental stakeholders including representatives of ADEM, U. S. Army Corps of Engineers (USACE), U. S. Fish and Wildlife (USFWS), and additional entities if deemed necessary or required by an environmental commitment. The Area Stormwater Coordinator shall utilize the Stormwater Meeting Checklist and provide the contractor with copies of any applicable permits and clearances. This document, once signed, shall be scanned and emailed to the Construction Bureau-Environmental Construction Section where it will be logged, and a copy will be added to the contract file. A copy shall also be housed in the [CBMPP](#) or [SWMP](#), which is kept onsite for the project. The discussion should cover scheduling, implementation of BMPs, and other measures taken to ensure and document environmental compliance with the ADEM Construction General Permit, any applicable USACE Permit and/or USFWS Clearances, and all other environmental commitments. All of the Stormwater Discharge Points should be visited and discussed. For Priority Construction Sites, turbidity monitoring and construction stormwater sampling shall also be discussed.

ALDOT CONTRACTOR'S STORMWATER MANAGEMENT PLAN (SWMP)

A completed SWMP is required for all projects regardless of the type of work, funding, or regulatory permitting. *For Contractor permitted projects, the SWMP is not required if all of the information is included as part of the Contractor's CBMPP.* The Contractor is required to use the current version of the [SWMP Template](#) without any modifications to the format of the document in order to be considered complete. The Contractor's SWMP should be submitted to the Area Stormwater Coordinator, or to the County Engineer for County projects, prior to the Preconstruction Conference and On-site Stormwater Meeting. The information contained within the SWMP shall be project specific; address all known environmental concerns and commitments; and explain how requirements of the contract

documents regarding water quality protection will be met by the Contractor. The Construction Bureau will review the SWMP prior to approval if requested by the Region/Area. The SWMP must be sent for Construction Bureau review if the project includes Roadway Pipe Rehabilitation or Bridge Cleaning, or if the Contractor requests a stream or waterbody encroachment or on-site storage of fuels/chemicals. Once the SWMP is accepted, it will be added to the CBMPP, and work may commence.

CONSTRUCTION STORMWATER INSPECTIONS

Construction Stormwater Inspection Forms

Detailed field conditions, observations, and other information regarding the QCI site inspections are documented in the [SWTS](#) on [Form C-34 \(Stormwater Inspection Report and BMP Certification\)](#). Sediment Loss and Turbid Discharge field conditions require additional information about the noncompliance be documented in the [SWTS](#) on [Form C-37 \(Stormwater Noncompliance Notification Report\)](#). Form C-34a is a listing of the Stormwater Discharge and Background Points printed from the [SWTS](#). All errors found on Form C-34a will be reported to the Area Stormwater Coordinator immediately, so a request for corrections can be sent to the Stormwater Permit Coordinator. Turbidity monitoring results from construction stormwater sampling shall be documented in the [SWTS](#) on [Form C-38 \(Stormwater Turbidity Sampling Report\)](#).

Stormwater Discharge and Background Points

The location of the Stormwater discharge and background points are selected by the Designer and entered into the Project Data Form in CPMS. For Priority Construction Sites, the points are potential locations for construction stormwater turbidity sampling. The points will be located and identified on the Erosion and Sediment Control sheets of the plans as follows. [Graphical examples](#) of point identification are located in the appendix of the manual. Additional stormwater points may be added by the Area Stormwater Coordinator as needed or as requested by ADEM.

Primary Stormwater Discharge Points shall be identified by an integer, which represents the contributing drainage area followed by a zero in the decimal place (example 25.0). The points are locations at which channelized construction stormwater discharge or a Water of the State leaves the ALDOT ROW. The points shall be identified in the field by a wooden stake notating the identification number.

Secondary Stormwater Discharge Points shall be identified by an integer, which is the same as the associated Primary Stormwater Discharge Point, followed by a letter in the decimal place (example 25.A). The points are locations within the ALDOT ROW where channelized construction stormwater discharge enters into a Water of the State.

Background Points shall be identified by an integer, which is the same as the associated Primary Stormwater Discharge Point, followed by a non-zero number in the decimal place (example 25.1). The points are locations at which channelized stormwater flow or a Water of the State enters the ALDOT ROW.

Field Conditions

Site observations, inspections, and evaluations are conducted on a periodic basis to assess the field conditions of each individual drainage area. The tasks begin prior to starting work on the project and continue until the project is accepted for maintenance. The findings will fall into one of the four following categories:

Satisfactory – The condition of the drainage area does not need any repairs or improvements. There is no substantial visible contrast observed at any stormwater discharge point. There is no visible evidence of substantial erosion or sediment loss. All BMPs applicable to the current phase of construction have been properly installed or applied; have been maintained and repaired as needed; and are effectively functioning as intended. Sediment may have accumulated immediately upstream of one or more BMPs, but it has not exceeded 1/3 the height or capacity of the BMPs. Any previously reported sediment deposits off-site or in a Water of the State have been remediated.

Needs Improvement – The condition of the drainage area needs minor repair or improvement. There is no substantial visible contrast observed at any stormwater discharge point. There is no visible evidence of off-site sediment loss. Minor erosion and on-site sediment loss may be observed. BMPs applicable to the current phase of construction may have not all been installed or applied, or the BMPs may have been placed improperly. BMPs may need repair or replacement. BMPs, which have been properly installed or applied, may not be effectively functioning as intended and need modification. Sediment may have accumulated immediately upstream of one or more BMPs, and it may have exceeded 1/3 the height or capacity of the BMPs. Any previously reported sediment deposits off-site or in a Water of the State have not been remediated.

Turbid Discharge – The condition of the drainage area needs repair or improvement. Turbid discharge occurs when turbid construction stormwater leaves the ALDOT ROW and may be observed as a substantial visible contrast at one or more stormwater discharge points. Turbid discharge also occurs when turbid construction stormwater causes an increase of more than 50 NTU in the turbidity level of a Water of the State.

Sediment Loss – The condition of the drainage area needs major repair or improvement. Sediment loss occurs when sediment or soil is transported from the project and is deposited in a location off the ALDOT ROW or within a Water of the State.

QCI Daily Observations

The ALDOT Project Qualified Credentialed Inspector (QCI) and the Contractor's QCI shall perform individual daily observations of each drainage area its Stormwater Discharge Points; and BMPs where the ground is disturbed. They shall also record rainfall measurements and weather information. Documentation of observations will be noted in the Daily Work Report. If a previously undocumented Needs Improvement, Turbid Discharge, or Sediment Loss condition is observed, then, a formal site inspection and report is required.

QCI Site Inspections

Site inspections will not be conducted outside of normal operating hours or during unsafe weather conditions. The ALDOT Project QCI together with the Contractor's QCI will perform a formal site inspection for the entire project after the accumulation of 3/4 inch of rainfall occurring within 24 hours and at least once per week. Inspections triggered by a rain event shall be initiated as soon as possible and within 24 hours of resuming work on the project.

The inspection will include an observation of each drainage area, its Stormwater Discharge Points, and BMPs. All areas of the project not undergoing active construction will be evaluated for temporary stabilization requirements.

During the inspections following a $\frac{3}{4}$ inch or more rain event, turbidity monitoring will be conducted on Priority Construction Sites disturbing 10 acres or more of erodible material. The turbidity monitoring portion of the inspection will be conducted as soon as possible. During regular weekly inspections, turbidity monitoring will be conducted if a substantial visible contrast is observed at one or more Stormwater Discharge Points.

Documentation on [Form C-34](#) should include field conditions and corrective actions required or completed. [Stormwater Inspection Reports and BMP Certifications](#) and all [Stormwater Noncompliance Notification Reports](#) will be entered into the [SWTS](#). Photographic documentation of inspections is required. At least one photograph per inspection will be uploaded to the [SWTS](#) with a clear description of the location. Reports will be closed within 48 hours of the qualifying rain event. Once a report is closed, the Project QCP will receive an email letting him or her know it is ready for review and approval. The reports will be reviewed and approved no later than 5 days after the qualifying rain event. Once a report is approved, the Project QCP prints a copy, signs it, and obtains the second approval signature from the Responsible Official, typically the Area Operations Engineer. Signed inspection reports will be included in the CBMPP at the project office, and a copy will be delivered to the Contractor QCI within 15 days of the qualifying rain event. An automatic notification is sent by the [SWTS](#) to ADEM, the Construction Bureau, the Office of Environmental Compliance, and the Area Operations Engineer for all approved inspection reports having cited field conditions other than Satisfactory.

For projects with permits held by the Contractor or an LPA, the reports shall be written using ADEM's Form 23 11/11 or Form 25 11/11 (if applicable) by the Permittee's QCI. Formal inspections shall be reported to ADEM by the Permittee in accordance with permit requirements. Copies of all draft reports shall be provided to the Engineer no later than 24 hours after the inspection, and copies of signed reports shall be submitted to the Engineer no later than 5 days after the inspection.

If a [Needs Improvement](#) field condition is observed, then, the information will be immediately communicated to the ALDOT Project Manager and Contractor. The Project Manager shall work with the Contractor to create a plan for immediate corrective actions, which shall be completed prior to the next storm event but no later than 5 days after the inspection unless prevented by unsafe weather conditions. The corrective action may require a suspension of all other operations. Additional inspections will be performed as needed until the observed deficiency can be documented as corrected, satisfactory, and in compliance with the ADEM permit.

If a [Turbid Discharge](#) or [Sediment Loss](#) field condition is observed, then, the information shall be immediately communicated to the Project QCP, the ALDOT Project Manager, and the Contractor. A [Turbid Discharge](#) or [Sediment Loss](#) condition requires a verbal notification by the Project QCP to the [ADEM Field Office](#) within 24 hours of the event and the submission of a written [Stormwater Noncompliance Notification Report](#) within 5 days of the event. The verbal notification requirement for [Turbid Discharge](#) conditions may be waived if written approval is given by the ADEM Field Office. The 24-hour notification will include the permit number, county, emergency contact information, and the period of the [Turbid Discharge](#) or [Sediment Loss](#) condition. The Project QCP will confirm the duration and frequency of any rain event of 2-year intensity or greater associated with a [Turbid Discharge](#) or [Sediment Loss](#) condition. The rain event information (for example a 2-year, 24-hour rain event) will also be included in the noncompliance notification. The ALDOT Project Manager will work directly with the Project QCI and the Contractor to gather additional data. The Project Manager will inform the Project QCP of the details regarding the

noncompliance. The Project QCP shall be the point of contact for any discussions with the Responsible Official, Area Stormwater Coordinator, property owners, environmental groups, or regulatory agencies. The Area Stormwater Coordinator will determine if additional consultation should be sought from the Construction Bureau. The Construction Bureau will determine if consultation should be sought from other bureaus within ALDOT or an independent QCP. The Project Manager and the Project QCP will work with the Contractor to create a plan and implement immediate corrective actions, which shall be completed prior to the next storm event but no later than 5 days after the inspection unless prevented by unsafe weather conditions. The corrective action may require a suspension of all other operations. If permanent corrective measures cannot be implemented within the 5-day timeframe, then, a written notification and detailed explanation will be given to ADEM. Additional inspections will be performed as needed until the observed deficiency can be documented as corrected, satisfactory, and in compliance with the ADEM permit.

QCP Site Evaluations

The Project QCP will conduct a project inspection and CBMPP review a minimum of every three months for priority construction sites or every six months for non-priority construction sites. The evaluations will be documented on the ALDOT QCP CBMPP Evaluation Log. A copy of the inspection report and any associated correspondence will be added to the CBMPP.

ALDOT Central Office Reviews

Additional project inspections and CBMPP reviews will be conducted by the ALDOT Construction Bureau as needed. The reviews are intended to aid Construction Personnel in maintaining compliance with the ADEM permit.

Unmanned Aerial Systems (UAS) – Project Reviews

Each month before letting, the Environmental Construction Section (ECS) of the Construction Bureau will review the project list and the following projects shall be flown by the Unmanned Aerial Systems Section of the Maintenance Bureau:

- Grade, Drain, Base, and Pave;
- Bridge and Bridge Culvert Replacements/Additions;
- Roundabouts;
- Rest Areas/Miscellaneous.

Projects will be flown for Pre-Construction and Post-Construction documentation as well as interim reviews. When a project begins, it will be placed on a 6week rotation to be flown unless a different timeline is specified. On the rotation, a 360° Aerial Panorama will be flown every 1000 linear feet within the project limits. Where bridges and/or bridge culverts are located or being constructed, an Orthomosaic will also be flown. Additionally, photographs will be taken upstream and downstream of the bridges and/or bridge culverts. When the flights are completed, they will be reviewed by the ECS and sent to the Area Stormwater Coordinators. If an issue is observed, the ECS will notify the Area Stormwater Coordinator, so the issue may be addressed. All issues observed will be documented on a Flight Review List within the Construction Bureau. The information obtained from the UAS – Project Reviews shall be used for internal purposes only unless specified by the State Construction Engineer.

TURBIDITY MONITORING

Turbidity monitoring is required on all Priority Construction Sites disturbing 10 or more acres of erodible material. The Environmental Concerns and Commitments section of the CBMPP will indicate if the project is a Priority Construction Site. A Project Note will be included in the plans indicating turbidity monitoring is required and the applicable drainage areas if not required for the entire project.

Primary and Secondary Stormwater Discharge and Background Points are all potential locations for turbidity monitoring. Current regulations require ALDOT construction stormwater discharges not increase the turbidity of the receiving water by more than 50 Nephelometric Turbidity Units (NTUs) or cause a substantial visible contrast. In order to document compliance with the requirements, the Permittee will conduct turbidity monitoring by sampling channelized construction stormwater discharges and measuring the NTUs with a portable turbidimeter.

The Permittee will conduct representative turbidity monitoring in each individual drainage area. Representative turbidity monitoring will be defined as sampling at the Primary Stormwater Discharge Point and every Background Point of a drainage area. The data from the points will allow the Permittee to determine whether the drainage area is in compliance with the 50 NTU above background limit. If a substantial visible contrast is observed at a Secondary Stormwater Discharge Point, an additional sample will be taken at the location. All results from turbidity monitoring will be recorded on the [Stormwater Turbidity Sampling Report](#) in the [SWTS](#).

There are some instances when stormwater sample collection will be waived in a drainage area. When a required sample is not collected, it must be due to one of the following acceptable reasons, which will be recorded on the [Stormwater Turbidity Sampling Report](#) in the [SWTS](#). In all cases, photographic documentation is required.

Prior to Construction – Turbidity monitoring in a drainage area is encouraged but not required to commence until work has begun in the drainage area. The reason is also acceptable in cases where there is not channelized flow because the pipe or ditch at the sampling location has not been constructed.

Insufficient Flow – There must be sufficient channelized flow in order to collect a stormwater sample. In some cases, there may not be sufficient flow until there is a considerable amount of precipitation. Sufficient channelized flow shall be defined as the ability to collect a sample of construction stormwater without the sample collection container touching the bottom of the conveyance (ex. ditch bottom, stream bed, pipe, etc.).

Hazardous Condition – There may be times when it is not possible to take a stormwater sample at a turbidity monitoring point due to a life-threatening hazardous condition. The details of the hazardous condition will be documented on the report.

Monitoring Suspended – Turbidity monitoring will continue in a drainage area until the final required stabilization is installed or applied; erosion is controlled to the maximum extent practicable; and stormwater sampling results have shown the drainage area to be in compliance for the last two months. If all of the requirements have been met, then, turbidity monitoring may be suspended in a drainage area. However, if the project has not been accepted for maintenance, turbidity monitoring will resume if the drainage area is subsequently disturbed; there is evidence of substantial erosion; or a substantial visual contrast is observed at a primary or secondary discharge point.

SAMPLING PROCEDURE

Sampling of construction stormwater will be conducted for channelized flow at the nearest accessible location to the sampling point identified in the plans. Construction stormwater samples will be collected and analyzed by the Permittee using a portable turbidimeter provided by the Contractor. Prior to sampling, the QCI will read the turbidimeter user manual and be familiar with proper equipment operation and handling procedures. Results will be recorded on the [Stormwater Turbidity Sampling Report](#) in the [SWTS](#).

Contractor Furnished Sample Analysis Equipment

Contractor retained turbidimeters will be used for analyzing construction stormwater samples. Approved turbidimeters are included on [List II-24 "Temporary and Permanent Erosion and Sediment Control Products."](#) The Contractor shall provide documentation of professional equipment calibrations. The Contractor shall also provide a calibration kit (calibration standards, soft lint-free cloth, and silicone oil) and sample tubes from the turbidimeter manufacturer. The Permittee's QCI will ensure the calibration standards are not expired. The Permittee's QCI will verify calibration and, if needed, calibrate the turbidimeters each day prior to sampling analysis.

Permittee Furnished Sample Collection Equipment

1. Sample Collection Containers – one-pint minimum volume, polyethylene or glass, wide-mouth container, preferably with a lip designed for pouring
2. Sample Storage Containers – one-pint minimum volume, polyethylene or glass, wide-mouth container, with a secure lid
3. Cleaning Brush(es)
4. Phosphate-Free Detergent
5. Distilled or Deionized Water – gallon jugs for use in the project office
6. Squirt Bottle – fill with distilled or deionized water for use in the field
7. Waterproof Labels – for labeling sample storage containers
8. Waterproof Ink Pens – for labeling sample storage containers

Equipment Cleansing

For accurate readings, sample tubes will be kept completely clean both inside and out. Sample tubes will be handled by the lid and will not be touched on the glass as much as possible. Scratched or etched sample tubes will be discarded and replaced. Do not reuse sample storage containers or sample tubes without proper cleaning. Sample collection containers, sample storage containers, and sample tubes will be washed after each day of use as follows:

1. Wash with a brush and phosphate-free detergent.
2. Rinse three times with cold tap water.
3. Rinse three times with distilled or deionized water.

Additionally, for samples tubes, wipe the exterior with a soft, lint-free cloth. If there are minor imperfections in the glass, a light coating of silicone oil should be applied to the exterior surface and wiped with the cloth to create a thin, even film over the entire surface.

Sample Collection

Construction stormwater samples will be collected by grab samples from flowing channelized discharge. The sample will be collected from the center of the main flow of the discharge, stream, or, if too deep or unsafe, as near to that location as possible. If you must stand in the water to take the sample, collect the sample upstream of you and any area you disturb. Collect downstream samples in the drainage area first beginning with the Primary Stormwater Discharge Point, any required Secondary Stormwater Discharge Points, and ending with any Background Points.

Rinse the inside of the sample collection container in the water to be sampled prior to each sample collection. To collect a sample, hold the sample collection container near the base and turn it with the opening downward towards the water surface. Being sure not to touch the bottom of the conveyance, plunge the container into the water 8-12 inches beneath the surface or halfway down for shallower flows. Turn the container opening away from you and in an upstream direction to collect the sample.

Sample Analysis

The sample analysis will be conducted in the field immediately after sample collection. Place the turbidimeter on a level surface; do not hold it in your hand. Fill the sample tube by pouring from the collection container. Securely cap the sample tube and follow the turbidimeter manufacturer's operation instructions to determine the turbidity of the construction stormwater sample. Results will be recorded as follows:

<u>NTU Range</u>	<u>Number of Decimal Places</u>
0.0 to < 1.0	2
1 to < 10	1
≥ 10	0

Sample tubes may be reused in the field if they are rinsed with distilled water immediately after each analysis.

Samples Exceeding 1000 NTU

If Construction stormwater samples have readings exceeding 1000 NTU, they will be further analyzed in the project office. Each sample storage container will have a waterproof label with a record in waterproof ink of the project number, sampling point identification number, sample date, sample time, and the name of the QCI who collected the sample. Fill the sample storage container by pouring from the collection container. Transport the sample to the project office immediately for analysis. If analysis cannot be conducted within 15 minutes of the sample collection time, the sample must be cooled to 4°C [39.2°F] and can only be held for up to 48 hours.

Agitate the stormwater sample by repeatedly inverting the container to re-suspend any potentially settled particles. Using turbidity-free distilled water, dilute the sample until the reading is below 1000 NTU. Compute the turbidity of the original sample by multiplying the turbidity of the diluted sample by the dilution factor. For example, if 5 units of volume of dilution are added to 1 unit of volume of the sample, and the turbidity of the diluted sample is 500 NTU, then, multiply the 500 NTU reading by the total 6 units of volume to equal a 3000 NTU turbidity measurement for the original sample.

RAINFALL JOURNAL**Rain Gauges**

Rain gauges will be utilized on all ALDOT construction sites. Rain gauges will be identified by the letter 'G' followed by an integer, which is the same as the associated Primary Stormwater Discharge Point of the drainage area in which it is located. Rain gauges will be located in an open area, so the measurement will not be influenced by outside factors such as overhangs, gutters, and trees. Rain gauges will be spaced approximately 3 miles apart. Daily rainfall amounts are rounded and reported to the nearest five hundredths (0.05") of an inch in the Rainfall Journal of the [SWTS](#) for each rain gauge. It is in addition to the weather and rainfall entry reported in CAMMS. The Rainfall Journal will be printed and added to the CBMPP at the end of each month.

Virtual Precipitation Monitoring

At least one Virtual Precipitation Monitoring (VPM) point will be utilized for all projects designated as a Priority Construction Site, projects having 20 or more acres of disturbance, or as requested. The location of the VPM points will be selected by the Construction Bureau. The Project QCP may request additional VPM points. VPM points will be identified by the letter 'R' followed by an integer, which is the same as the associated Primary Stormwater Discharge Point of the drainage area in which it is located. VPM points will be located within the project limits and ALDOT ROW. At minimum, one point shall be placed at a location representative of the entire project. Additional points may be placed at a culvert site, bridge site, or other Primary Stormwater Discharge Point with potential environmental impacts to a Water of the state.

After the project has been awarded, the Project QCP shall contact the Construction Bureau to set-up the VPM points. Then, the Construction Bureau Personnel will select the site and set-up the points. The procedure will allow for the project to be charged for initial set-up and monthly monitoring fees, and it will also allow for rainfall graphs to be generated for upset conditions or other intense rainfall events, as requested. When the Construction Bureau receives the monthly bill, it is reviewed and paid for through project funds. VPM point totals will be entered into the Rainfall Journal of the [SWTS](#) on a weekly basis by Construction Bureau Personnel. When the project is terminated, the Project QCP shall contact the Construction Bureau to terminate the VPM points.

STABILIZATION REQUIREMENTS

Temporary stabilization is necessary to minimize erosion of soils and transport of sediment. Temporary BMPs such as Stabilized Construction Entrances, Perimeter Sediment Barriers, and Sedimentation Basins shall be installed as soon as possible during clearing and prior to beginning grading operations in the contributing drainage area. Additional Temporary BMPs shall be installed during grading to protect Waters of the State, construction stormwater discharge points, construction stormwater inlets, and to divert stormwater flows around exposed work areas.

All exposed areas not undergoing active construction for a period of 7 days or more, including stockpiles, require temporary stabilization. When it is determined active construction in an exposed area has ceased, temporary stabilization measures shall be initiated by the end of the next business day. Temporary Mulch shall be applied if the exposed area will remain inactive for less than 60 days. Temporary Seed and Temporary Mulch shall be applied if the exposed area will remain inactive for 60 days or more. Rolled and Hydraulic Erosion Control Products should not be used for temporary stabilization. Temporary erosion and sediment control BMPs should be removed, unless

otherwise directed by the plans, as the final required stabilization is installed or applied in the drainage area and they are no longer serving their intended purpose.

Final or permanent stabilization is necessary to prevent erosion of soils and transport of sediment. Final stabilization should be continuously pursued by transitioning from temporary BMPs to permanent BMPs as grading advances while maintaining continuous erosion and sediment control. Final slope stabilization will be installed or applied in vertical increments not exceeding 20 feet as grading progresses. Forms of final required stabilization includes, but is not limited to, permanent seed and mulch, permanent seed and an erosion control product, sod, aggregate surfacing, riprap plating, concrete, and asphalt. When an exposed area is determined ready for final stabilization, these measures shall be initiated by the end of the next business day.

Once the final required stabilization is installed or applied to an area, the Contractor is allowed to expose an equivalent amount of acreage in another location. Additionally, any stormwater sampling locations in a drainage area, which has final stabilization, are eligible for evaluation for turbidity monitoring suspension. Once final required stabilization is in place on the entire project, vegetation is fully established, and the project is accepted for maintenance, the Permittee's QCP will request the coverage under the ADEM Construction General Permit be terminated. The Contractor is responsible for all erosion and sediment control until coverage under the ADEM Construction General Permit is terminated or 30 calendar days after submission of the termination request to ADEM, whichever occurs first. Required construction stormwater inspections by ALDOT personnel will cease according to the same terms.

QUALIFIED CREDENTIALLED INSPECTOR TRAINING

All personnel responsible for construction stormwater inspections must be certified through an ADEM-approved initial 8-hour QCI training course. The directive applies to ALDOT, Contractor, Subcontractor, County, City, and ALDOT Consultant personnel. Additionally, all QCIs must participate annually in an ADEM-approved, 4-hour QCI refresher training course. The ALDOT Construction Bureau conducts an ADEM-approved QCI annual refresher training course available to ALDOT, County, City, and ALDOT Consultant personnel for recertification.

ENVIRONMENTAL RESPONSIBILITIES FOR CONSTRUCTION

Area Stormwater Coordinator Responsibilities

The Area Stormwater Coordinator shall be the point of contact for all environmental issues on ALDOT construction projects in his/her Areas. The Area Stormwater Coordinator will attend Pre-Construction Meetings, and he/she will hold meetings quarterly or as needed with Project Personnel and the Contractor. He/she oversees Contractor compliance with the NPDES General Permit; any applicable U.S. Army Corps of Engineers (USACE) Permit and/or U.S. Fish and Wildlife Service (USFW) Clearances; the CBMPP; the Erosion and Sediment Control Plan (ESCP); and the Contractor's SWMP. He/she must possess knowledge of the Contractor's SWMP; the ESCP; the CBMPP; the NPDES General Permit requirements; and if applicable, the requirements of the USACE Permits and/or USFW Clearances. Additionally, the Area Stormwater Coordinator will monitor all construction projects for any issues with environmental commitments or permits. The Area Stormwater Coordinator will notify the Region and Construction Bureau of all significant issues regarding environmental commitments and/or permits, and he/she shall coordinate necessary resolutions. The Area Stormwater Coordinator must also ensure all significant correspondence between the Project and the Area or Subject Matter Experts are relayed to the Region and Construction Bureau. Prior to construction, the Area Stormwater Coordinator shall conduct the Onsite Stormwater Meeting with the Stormwater Meeting Checklist, which includes covering and thoroughly explaining all environmental project notes, any applicable Environmental Commitments, and Permits/Clearances. In addition to distributing the copies of the

permits and clearances during bidding, the Area Stormwater Coordinator shall supply copies of said permits and clearances to Contractor Personnel during the meeting. See Specification 107.21(e)3, 108.04(b)6, and 108.04(b)9.

ALDOT Project Personnel Responsibilities

Each project is assigned a Qualified Credential Inspector (QCI) who monitors the project daily for environmental issues and performs inspections a minimum of once per week. The QCI shall coordinate any environmental issues and meet with the Project Manager and the Area Stormwater Coordinator once per week or as often as needed. QCIs must possess knowledge of the [Contractor's SWMP](#); the ESCP; the [CBMPP](#); the NPDES General Permit requirements; and if applicable, the requirements of the USACE Permits and/or USFW Clearances. See Specification 107.21(e)1,2 and 108.04(b)7b. The Area Construction Engineer (ACE) has the principal authority at the project level. He/she has the authority to suspend projects and authorize remediation due to environmental and regulatory compliance issues. See Specification 108.04(b)1. The ACE shall be responsible for enforcing any applicable Environmental Commitments, permits, and/or clearances during the Pre-Construction Meeting with project and contractor personnel.

Construction Bureau Responsibilities

In the Construction Bureau, the Environmental Construction Engineer shall serve as the point of contact for all Area Stormwater Coordinators and environmental related issues in the construction phase. The Environmental Construction Engineer shall also serve as the point of contact between the Department and the regulatory agencies, and he/she will coordinate with the appropriate ALDOT subject matter experts prior to contact with these agencies to resolve said issues.

Design Bureau Responsibilities

In the Design Bureau, the Environmental Technical Section (ETS) and Stormwater Permitting Section house technical experts in specific areas such as USACE permitting; USFW clearances/surveys; archeological and cultural resource assessments; stormwater design; stormwater permitting, etc. These in-house technical experts will collaborate with the Environmental Construction Engineer to aid the Construction Bureau in the resolution of any environmental commitments and/or permitting issues, which may arise during the construction phase of the Department's projects.

Materials and Tests Responsibilities

In the Bureau of Materials and Tests, the Environmental Services Section house technical experts in specific areas such as Comprehensive Environmental Response; Compensation and Liability Act (CERCLA); Resource Conservation and Recovery Act (RCRA); Aboveground Storage Tank (AST)/Underground Storage Tank (UST) removal and closure; contaminated media, etc. These in-house technical experts will collaborate with the Environmental Construction Engineer to aid the Construction Bureau in the resolution of any environmental commitments and/or permitting issues, which may arise during the construction phase of the Department's projects.

Regulatory Agencies

The lead federal regulatory agency and associated agencies such as the Federal Highway Administration (FHWA), USFW, and/or the USACE liaisons, as well as state regulatory agencies such as the Alabama Department of Environmental Management (ADEM) shall serve as the points of contact and subject matter experts for the Department. Regulatory agencies will be contacted for any issues regarding non-compliance

and/or as specified in environmental agreements, clearances, commitments, permits, etc., as well as modifications.

Subject Matter Experts

The Construction Bureau will utilize in-house ALDOT subject matter experts from various Bureaus such as Design (ETS, Stormwater) and Materials and Tests (HAZMAT). Additionally, the Construction Bureau will utilize subject matter experts from outside agencies such as ADEM, FHWA, USACE, and USFWS to aid in the resolution of any construction-related environmental commitment or permitting issues.

Chain of Command Regarding Environment Regulation

Any issues regarding environmental regulation and/or commitments during the construction phase shall follow the chain of command from the Contractor; to the Area Stormwater Coordinator; to the Environmental Construction Engineer; and then directly to the regulatory agencies with prior consultation from the ALDOT subject matter experts. Response to these issues shall follow the reverse chain of command back to the Contractor to maintain continuity.