

Stormwater Management Training for **CONSTRUCTION ACTIVITIES**



City of **Cottonwood**

2023

Agenda

PART 1

Stormwater Overview

- What is stormwater?
- What is an illicit discharge?
- Permit compliance
- Identifying and reporting illicit discharges
- How you can help

PART 2

Construction Program

- Construction General Permit
- Construction Inventory
- Site Plan Review Procedures
- Inspection Procedures
- Contractor Education
- Enforcement
- Non-Permitted Construction Sites

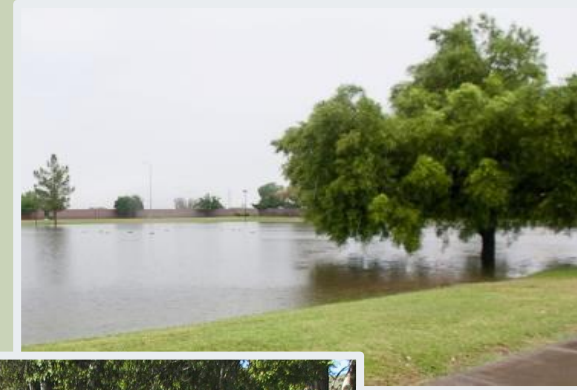
What is Stormwater?



- Runoff due to rain or snow melt
- Stormwater is collected by natural channels, storm drains, ditches, and gutters
- Along the way, stormwater picks up sediment, pathogens, oil, fertilizer, pesticides, and other **pollutants**
- Stormwater enters streams and rivers **without treatment**

Where does stormwater go?

Retention basins, washes, rivers, lakes...



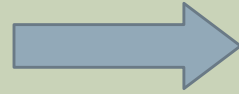
Where does YOUR stormwater go?

Ultimately, to the Verde River



How does stormwater get there?

Through the Municipal Separate
Storm Sewer System (**MS₄**)



And exits through outfalls.

The MS₄ consists of:

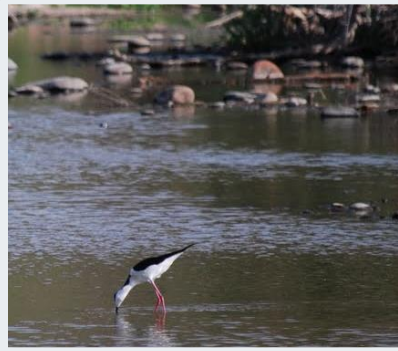
- Curbs and gutters
- Storm drains
- Catch basins
- Ditches
- Pipes



Why is stormwater quality important?

Polluted stormwater harms:

- Human health and safety
- Wildlife and habitat
- Recreation and tourism
- Land preservation



Stormwater Regulations

- Clean Water Act, Section 402
 - EPA delegated authority to ADEQ in 2002
 - Arizona Pollutant Discharge Elimination System (AZPDES)
 - AZPDES permits allow the discharge of stormwater to Protected Surface Waters
 - MS₄ Permit, Construction General Permit (CGP), Industrial Permit (MSGP)
- Cottonwood City Code chapters 13.24 & 15.40
 - Regulates discharge of stormwater pollutants
 - Authorizes Cottonwood to take enforcement actions
- Cottonwood Engineering Design Standards Manual
 - Sets City requirements for stormwater management in construction and post-construction

MS₄ Permit Requirements

- Develop and implement a Stormwater Management Plan (SWMP)
- Minimize discharge of pollutants “to the maximum extent practicable”
- Education & Outreach
- Visual and analytical monitoring of stormwater
- Inspect construction sites
- Submit annual reports
- **Illicit Discharge Detection and Elimination (IDDE)**
- **Provide employee training**



ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY



**Arizona Pollutant Discharge Elimination System
General Permit for Stormwater Discharges
From Small Municipal Separate Sewer Systems
to Protected Surface Waters**

This permit provides authorization to discharge under the Arizona Pollutant Discharge Elimination System (AZPDES) program, in compliance with the provisions of the Arizona Revised Statutes (A.R.S.), Title 49, Chapter 2, Article 3.1, the Arizona Administrative Code (A.C.C.), Title 18, Chapter 9, Article 9, and Chapter 11, Article 1; and the Clean Water Act as amended (33 U.S.C. 1251 *et seq.*). This general permit authorizes stormwater discharges of pollutants from small municipal separate storm sewer systems (MS4s) in Arizona to Protected Surface Waters, pursuant to federal conditions in 40 CFR § 122.34 and A.R.S. Title 49 Chapter 2, Article 3.1 *et seq.* State requirements for discharges to non-WOTUS protected surface waters are enforceable solely by the Arizona Department of Environmental Quality (ADEQ). All discharges authorized by this general permit shall be consistent with the terms and conditions of this general permit.

This general permit is effective on September 30, 2021.

This general permit and the authorization to discharge expires at midnight on September 29, 2026.

This general permit was modified on Sep 16, 2022

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

A handwritten signature in blue ink, appearing to read "T. Baggione".

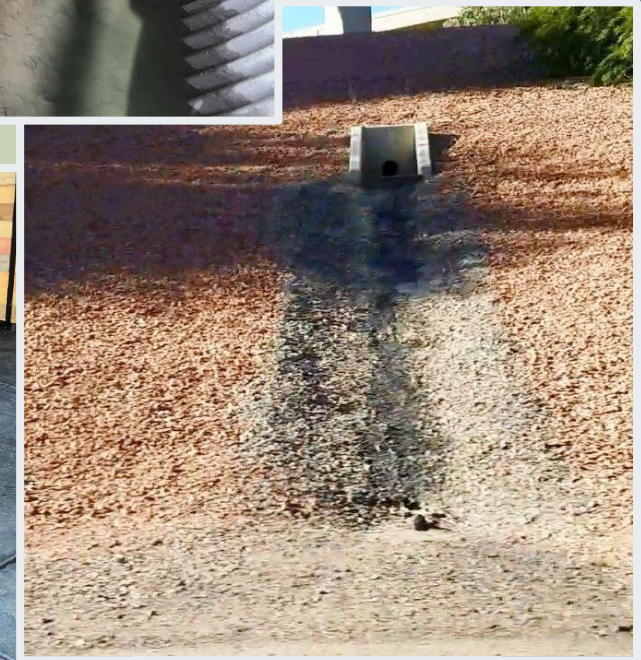
Trevor Baggione, Director
Water Quality Division

What is an Illicit Discharge?

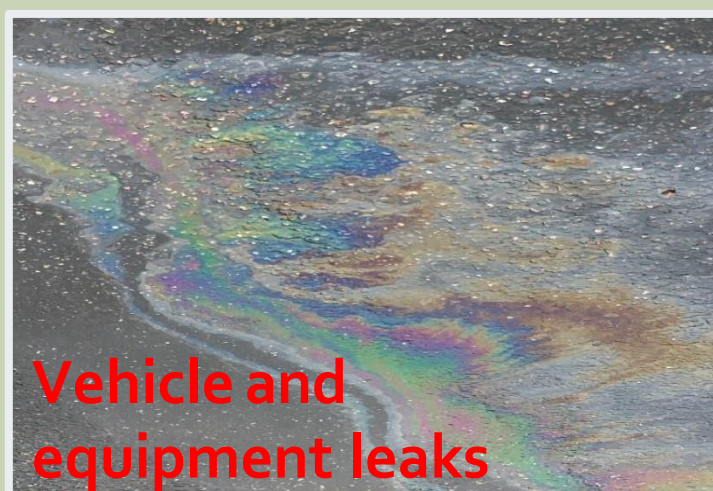
Any discharge to the MS₄ not composed entirely of stormwater, except:

- Certain allowable non-stormwater (*we'll get to this*)
- Discharges covered under their own AZPDES permit

Illicit Discharges may be intentional or accidental



Common Examples of Illicit Discharges



Other Types of Illicit Discharges

Littering and illegal dumping



Illicit Connections

A physical connection of a non-stormwater source to the storm drain system.



Some non-stormwater discharges are “allowable”

*... BUT they **must** be pollutant free!*

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Rising ground waters
- Uncontaminated groundwater infiltration
- Uncontaminated pumped groundwater
- Discharge from potable sources
- Fountain drains
- Air conditioning condensate
- Irrigation water
- Springs
- Water from crawl space pumps
- Footing drains
- Lawn watering
- Individual residential car washing
- Non-commercial, charity car washes
- Discharge from riparian habitats and wetlands
- Street wash water
- Discharges of flows from fire-fighting activities
- Building washing without added cleaning products

Recognizing Potential Illicit Discharges

- Flow in a gutter or outfall without a rain event
- Unusual water characteristics (color, odor, bubbles, solids, etc.)
- Visual observation of discharge/disposal
- Pavement staining



Illicit Discharges: What to Report?

- Chemical dumping
- Malfunctioning septic systems
- Leaking or blocked stormwater systems
- Dry weather discharges that may contain any pollutant
- Silt and sediment runoff from poorly controlled construction sites



*Anything that doesn't look like
normal rain runoff!*

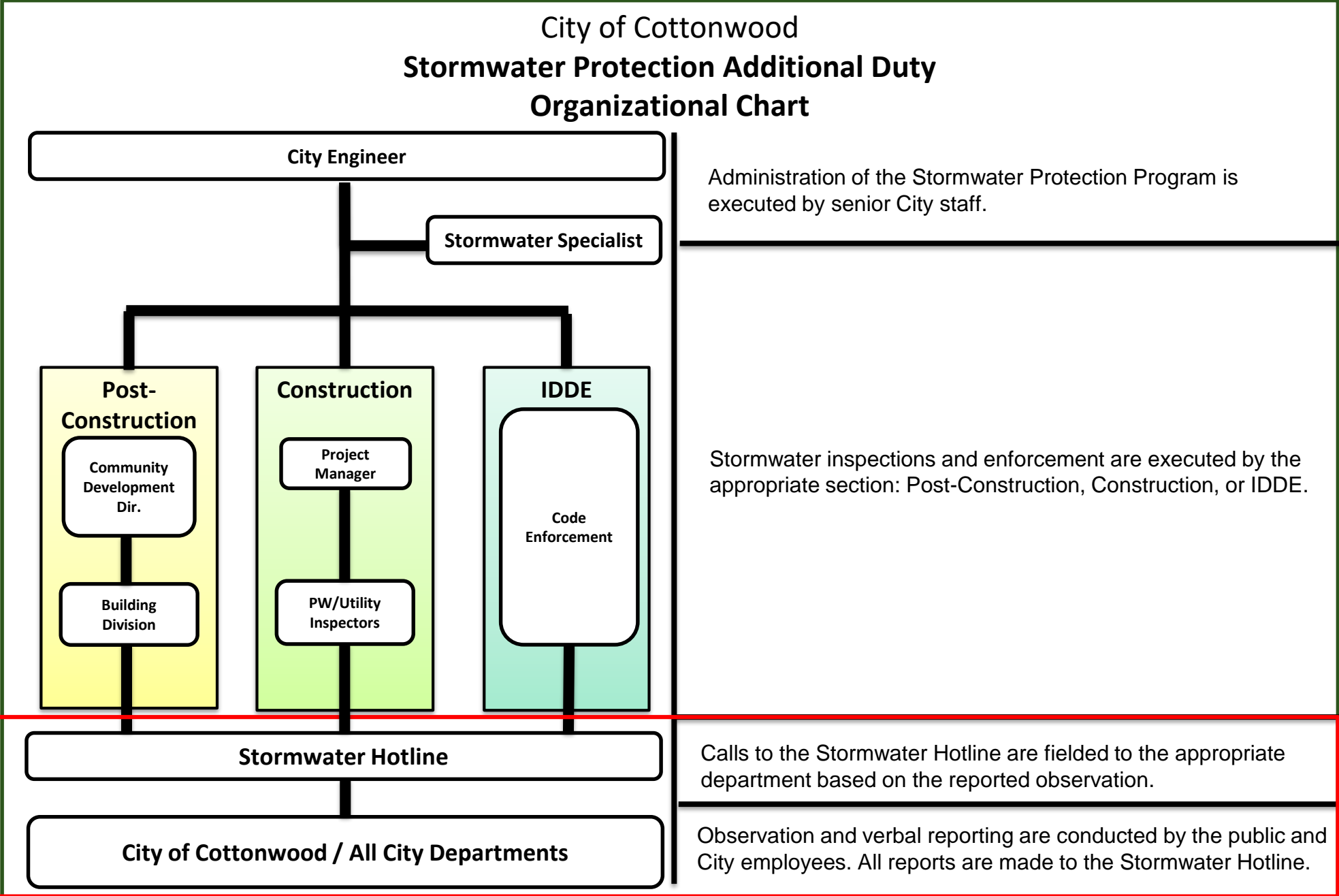
How to report Illicit Discharges

- If you see a potential illicit discharge:
 - Identify location, discharge characteristics, obvious sources
 - Take a picture or video (if it is safe to do so)
 - Notify Stormwater Staff:
 - Email: stormwater@cottonwoodaz.gov
 - Call: (928) 340-2772
- If the discharge might be hazardous material/waste:
 - DO NOT touch it!
 - Call the Fire Department at 911
 - Then contact stormwater staff

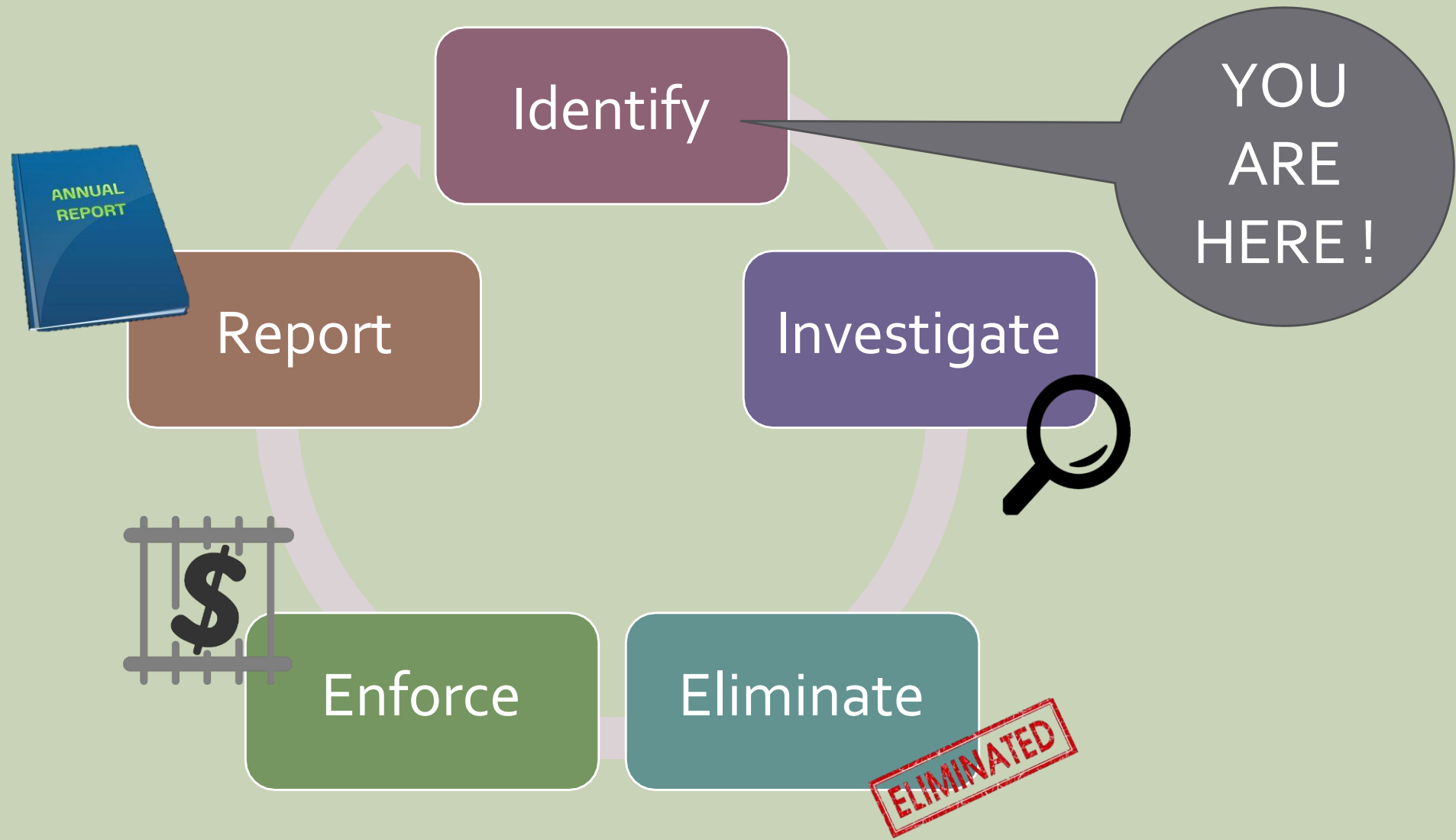


Organizational Chart for Stormwater Program

Illicit
Discharge
Reporting



City IDDE Program Responsibilities



How can you help keep our water clean?



As a Citizen...

- Maintain your vehicles
- Wash your vehicles at car washes
- Don't over-fertilize plants and lawns
- Pick up pet waste
- Maintain septic systems

As an Employee...

- Put vehicles in for service as needed
- Clean vehicles and equipment in designated areas
- Maintain vehicles and equipment in designated areas
- Report illicit discharges

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- Site Plan Review Procedures
- Inspection Procedures
- Contractor Education
- Enforcement
- Non-Permitted Construction Sites

CONSTRUCTION PROGRAM

- One element in the Stormwater Management Plan
- The objective is to reduce the transport of **sediment** and other **pollutants** from construction sites to the MS₄



Construction General Permit (CGP)

The ADEQ-issued permit regulates pollutant discharges from construction sites. Requires **contractors** to:

- File a Notice of Intent (NOI) before beginning construction
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP)

Includes installing and maintaining stormwater controls, performing inspections, recordkeeping, and reporting

- File a Notice of Termination (NOT) after final site stabilization is achieved

CGP Applicability

- All sites that disturb 1 acre or more, or are part of a common plan of development or sale are required to obtain CGP Coverage



City Requirements

MS4 Permit requires the City to:

- Develop and maintain a construction site inventory
- Review design plans for stormwater controls
- Inspect construction sites for stormwater controls
- Provide operator education
- Report construction activities without CGP coverage to ADEQ

Construction Inventory

- City maintains an inventory of all construction sites that disturb 1 acre or more (or are part of a larger plan of development)
- Construction projects are uploaded into 2nd Nature when an application for a permit is received



Plan Review

- Review construction site plans and Erosion Control Plans (ECPs)
- City verifies contractors have obtained CGP coverage from ADEQ
 - Notice of Intent (NOI)
 - Authorization To Discharge (ATD)
- Grading permits are not issued until all necessary documents are submitted and approved
- Contractors must follow specifications within the Yavapai County Drainage Criteria Manual

Cottonwood Stormwater Checklist	
Plan Review	
Project Name: _____	Project # _____
Reviewed By: _____	Phone: _____ Date: _____
Engineer: _____	Phone: _____
<p>Construction sites over 1 acre (or those sites that will disturb less than one acre, but are part of a common plan of development or sale that will ultimately disturb one acre or more) are subject to the Arizona Department of Environmental Quality (ADEQ) Arizona Pollution Discharge Elimination System (AZPDES) requirements for construction sites under Construction General Permit (CGP) AZG2013-001. Owners, developers, engineers, and/or contractors are required to prepare all documents required by this regulation, including but not limited to a Stormwater Pollution Prevention Plan (SWPPP), Notice of Intent (NOI), and Notice of Termination (NOT). This checklist is for use by City employees when reviewing construction site plans to comply with provisions of the Phase 2 Municipal Separate Storm Sewer System (MS4) General Permit Number AZG2002-002.</p>	
GENERAL REQUIREMENTS	
Yes	No
<input type="checkbox"/>	<input type="checkbox"/>
Is a copy of the Notice of Intent (NOI) and certified delivery receipt (delivery receipt required unless submitting via SMART NOI in which case delivery receipt is not required) OR a copy of ADEQs Authorization to Discharge (ATD) included?	
<input type="checkbox"/>	<input type="checkbox"/>
Are the appropriate resources referenced?	
<input type="checkbox"/>	<input type="checkbox"/>
Is the nearest receiving water(s) (including ephemeral and intermittent streams, dry washes, and arroyos) identified?	
PROPOSED CONTROL MEASURES	
Verify whether control measures are present (Pres) and appropriate (App) for each category of control measure.	
Erosion & Sediment Control	
Pres	App
<input type="checkbox"/>	<input type="checkbox"/>
Run-On Management	
<input type="checkbox"/>	<input type="checkbox"/>
Sediment Basins and Traps	
<input type="checkbox"/>	<input type="checkbox"/>
Culvert Stabilization	
<input type="checkbox"/>	<input type="checkbox"/>
Velocity Dissipation Devices	
<input type="checkbox"/>	<input type="checkbox"/>
Preserve Natural Vegetation	
<input type="checkbox"/>	<input type="checkbox"/>
Phase/Sequence Const. Activities	
<input type="checkbox"/>	<input type="checkbox"/>
Stabilize Steep Slopes	
<input type="checkbox"/>	<input type="checkbox"/>
Perimeter Control	
<input type="checkbox"/>	<input type="checkbox"/>
Stockpile Protection	
<input type="checkbox"/>	<input type="checkbox"/>
Storm Drain Inlet Protection	
<input type="checkbox"/>	<input type="checkbox"/>
Natural Buffers (or alternatives)	
Site Stabilization	
Pres	App
<input type="checkbox"/>	<input type="checkbox"/>
Temporary Stabilization	
Pollution Prevention	
<input type="checkbox"/>	<input type="checkbox"/>
Concrete Washout	
<input type="checkbox"/>	<input type="checkbox"/>
Run-On Management	
<input type="checkbox"/>	<input type="checkbox"/>
Provisions for: washing equipment, vehicles, applicators, and containers	
<input type="checkbox"/>	<input type="checkbox"/>
Fueling and Maintenance of Equipment and/or Vehicles	
<input type="checkbox"/>	<input type="checkbox"/>
Site Egress controls	
<input type="checkbox"/>	<input type="checkbox"/>
Good Housekeeping	
<input type="checkbox"/>	<input type="checkbox"/>
Material Storage, Handling, and Disposal Considerations (containment, cover)	
Determination	
Date notification provided to applicant that BMPs for the site are appropriate _____	
Date plans returned to applicant for revision: _____	

Construction Site Inspection

Every site receives stormwater inspections to:

- Verify compliance with City code
- Confirm stormwater controls are installed, maintained, and functioning properly
- Ensure contractor properly controls wastes, including:
 - Concrete washout & sawcut slurry
 - Trash
 - Fuel
 - Sanitary waste
 - Other chemicals



**CONSTRUCTION SITE STORMWATER INSPECTION FORM
CITY OF COTTONWOOD**

Section 1: General Information

Inspector:	Date:	Time:
Project #:	AZCON #:	
Site Location:	Onsite Rep:	
Site Owner:	Reps phone #:	
Precipitation w/in last 24 hours? <input type="checkbox"/> Yes <input type="checkbox"/> No	Weather (Approx. temp, etc.):	
Phase of construction (check all that apply):		
<input type="checkbox"/> Clearing/Grubbing	<input type="checkbox"/> Infrastructure or Building Construction	<input type="checkbox"/> Abandoned/Inactive
<input type="checkbox"/> Rough Grading	<input type="checkbox"/> Demolition	
<input type="checkbox"/> Final Grading	<input type="checkbox"/> Final Stabilization	<input type="checkbox"/> Post-Construction

Section 2: Permit Status

NOI Submitted: <input type="checkbox"/> Yes <input type="checkbox"/> No	Self-inspection reports on file: <input type="checkbox"/> Yes <input type="checkbox"/> No
SWPPP onsite: <input type="checkbox"/> Yes <input type="checkbox"/> No	All discharges composed of stormwater: <input type="checkbox"/> Yes <input type="checkbox"/> No
SWPPP up-to-date: <input type="checkbox"/> Yes <input type="checkbox"/> No	Non-stormwater discharges present: <input type="checkbox"/> Yes <input type="checkbox"/> No
NOT Submitted: <input type="checkbox"/> Yes <input type="checkbox"/> No	

Section 3: Active Sites

Inspect the following areas to determine if the condition is not applicable (NA), poor (P), fair (F), or good (G). If the condition is poor – follow-up is required. If the condition is fair – follow-up may be required. Areas in good condition do not require follow-up.

Area	Condition?	Repair Needed?	Localized or Widespread?	Comments/Observations
General Cleanliness	P F G		L W	
Construction Site Entrance/Exit	NA P F G		L W	
Surrounding Streets	NA P F G		L W	
Perimeter controls (silt fences, wattles)	NA P F G		L W	
Inlet protection	NA P F G		L W	
Concrete washout area	NA P F G		L W	
Material storage areas	NA P F G		L W	
Onsite fueling areas	NA P F G		L W	
Refuse areas	NA P F G		L W	
Other:	NA P F G		L W	
Other:	NA P F G		L W	
Other:	NA P F G		L W	

**CONSTRUCTION SITE STORMWATER INSPECTION FORM
CITY OF COTTONWOOD**

Section 4: Post-Construction Sites

Have all temporary stabilization measures been removed? YES NO

Area	Required Per Plan?	Installed?	Operating as Intended?	Comments/Observations
Check dams	Y N	Y N	Y N	
Embankment Protection	Y N	Y N	Y N	
Rip Rap	Y N	Y N	Y N	
Retention / Detention Pond	Y N	Y N	Y N	
Vegetation	Y N	Y N	Y N	
Soil Retention Blankets	Y N	Y N	Y N	
Inlet Protection	Y N	Y N	Y N	
Outlet Protection	Y N	Y N	Y N	
Headwalls	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	
Other:	Y N	Y N	Y N	

Section 5: Enforcement and Resolution

<input type="checkbox"/> Site IN Compliance	Evidence Collected (choose all that apply) <input type="checkbox"/> Photographs <input type="checkbox"/> Documents <input type="checkbox"/> Samples
<input type="checkbox"/> Site NOT In Compliance (choose option below and describe) <input type="checkbox"/> Follow-up Inspection required <input type="checkbox"/> Enforcement Action applied <input type="checkbox"/> Stop Work Order	
Enforcement action taken? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: <input type="checkbox"/> Verbal Notice <input type="checkbox"/> Written Notice <input type="checkbox"/> Fines <input type="checkbox"/> Injunctive Relief	
Resolution:	

Section 6: Inspector Signature

Inspector Signature:
Inspector Name:
Date and Time Completed:

Site Inspection Frequency

Stormwater inspections are done by a ***qualified site representative***.

To meet or exceed the required ADEQ frequency, the inspection frequency ***should be specified in every site's SWPPP***.

- Ideally, every site should receive stormwater inspections:
 - Within 1 month of the start of construction,
 - Quarterly, *and*
 - After construction, but before the final approval and issuance of the certificate of occupancy.



Inspecting Stormwater Controls Measures

What the heck are Stormwater Controls?

- Measures put in place to prevent pollutants from leaving the site
- May be structural or non-structural
- Are designed to:
 - Reduce stormwater runoff volume or velocity
 - Control erosion
 - Control sediment
 - Control wastes



Examples of Stormwater Controls

		Erosion Controls (prevent erosion from occurring)	Sediment Controls (prevent sediment from leaving site)	Practices to Control Wastes
Structural Controls		<ul style="list-style-type: none">▪ Wattles▪ Check dams▪ Riprap▪ Erosion control mats▪ Mini-benching slopes	<ul style="list-style-type: none">▪ Stabilized construction entrance (track-out pad)▪ Catch basin inlet protection▪ Silt fence▪ Sediment basins	<ul style="list-style-type: none">▪ Maintaining & utilizing spill kits▪ Properly maintaining equipment▪ Proper disposal of trash▪ Utilizing concrete washout containers
Non-Structural Controls		<ul style="list-style-type: none">▪ Minimizing disturbed areas▪ Revegetating disturbed areas▪ Phased grading to minimize acreage disturbed at one time	<ul style="list-style-type: none">▪ Street Sweeping▪ Inspecting, maintaining & repairing structural controls (removing accumulated sediment & replacing damaged controls)	

The [*ADOT Erosion and Pollution Control Manual*](#) is an excellent resource for technical guidance on Stormwater Controls

Stormwater Controls in Action



Good idea, didn't work



Too few wattles,
and needs maintenance



This ditch needs
erosion control



Much better!



Looking good,
vegetation taking hold



Beautiful!

Contractor Education



- Contractors must follow Cottonwood's stormwater Ordinance requirements and Engineering Design Standards Manual
- City provides training pamphlets to contractors with new permit applications
- Interaction between the City and contractors is the best means of education

Enforcement Authority

- The City has legal authority to
 - Prohibit illicit discharges to the MS₄
 - Conduct inspections
 - Carry out enforcement procedures
- Basis for enforcement is codified in the City Code
 - Chapter 13.24 Stormwater Policy
 - Chapter 15.40 Post-Construction Stormwater Detention Code
- The Enforcement Response Plan (ERP) describes the City's procedures for enforcing stormwater violations

Enforcement Response Plan (ERP)

INTRODUCTION

As required by the by the Arizona Department of Environmental Quality's (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) to Waters of the United States No. AZG2016-002 (Permit), the City of Cottonwood is required to develop and implement an Enforcement Response Plan (ERP). This ERP describes the City's procedures and policies regarding enforcement of the City's municipal ordinances relating to stormwater quality, including illicit discharges. Compliance shall be achieved through progressively stricter responses as needed. The ERP includes the following items relative to the City's enforcement procedures:

- A description of the types of enforcement issued by the City.
- A description of specific strategies for escalating enforcement response, where necessary, to address persistent, repeat or escalating violations.

The basis for the City's stormwater program enforcement can be found in the following documents:

- City Code Chapter 15.40 Ord. 172 § 1, 1985 City of Cottonwood Post Construction Stormwater Detention Code
- City Code Chapter 15.44.090 Ord. 144 § 10, 1984 City of Cottonwood Illicit Discharge and Illicit Connection Stormwater Code

This ERP documents the policies and procedures in support of the documents noted above.

1.0 ENFORCEMENT PROCESS

The City's enforcement of construction stormwater violations, water quality violations and illicit discharges is authorized by multiple sections of the City's municipal code.

1.1 NEW DEVELOPMENT

For new development and redevelopment sites, the City issues Planning and Zoning, and Building Permits. Permits are issued by the Planning and Zoning and Building Safety Divisions of the Community Development Department, respectively. Prior to issuing a building permit, Building Safety staff ensure that Planning and Zoning Permits and/or other stormwater-related permits have been submitted and approved. Once development is completed, Building Safety staff ensures as-builts have been submitted and approved by the Public Works Department before issuing a Certificate of Occupancy. If issues arise during construction, the City will withhold inspections and/or Certificates of Occupancy as necessary. Withholding inspections and/or Certificates of Occupancy is found to be the most effective in achieving compliance.

1.2 ILLICIT DISCHARGES

The City has a training program to educate appropriate employees on the identification of illicit discharges. Where an illicit discharge has been identified, it is routed to Code Enforcement for investigation. The Code Enforcement Officer performs an inspection to

Enforcement Measures

Compliance is achieved through progressively stricter measures:

1. Verbal warning
2. Corrective Order
3. Notice of Violation (NOV)
4. Civil Citation
5. Criminal penalties

For construction & development violations, the City may also:

- Issue a Stop Work order
- Withhold building inspections
- Withhold plan approvals
- Withhold Certificate of Occupancy

Non-Permitted Construction Sites

If a site fails to obtain CGP Coverage:

- Notify the site operator of the requirement
- Notify stormwater staff
- City is required to report sites without CGP Coverage to ADEQ monthly



SUGGESTED FIELD EQUIPMENT AND PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Camera
- Clipboard
- Inspection forms
- First Aid Kit
- Flashlight or spotlight
- Handheld GPS
- Tape Measure
- Traffic cones
- Waterproof marker/pen
- Mirror
- Hook/Crowbar
- Reflective safety vests
- Hearing protection
- Safety glasses
- Steel-toe boots



PPE needs may vary based on site and weather conditions!

HEALTH AND SAFETY CONCERNS

- If evidence of a health or safety issue exists....STOP the inspection.
- Notify your supervisor, fire department, or police department.



RECORDKEEPING

The City is required to keep any records pertaining to the MS₄ Permit for a minimum of 3 years

This includes:

- Reports
- Inspection Records
- Enforcement Actions
- Follow-up Documentation



Questions / Comments?

For any questions or concerns, contact:

Stormwater Hotline

stormwater@cottonwoodaz.gov

(928) 340-2772

City Engineer

(928) 340-2770



City of Cottonwood