Implementing MRP Provision C.3

Stormwater NPDES Compliance
For New Developments

DAN CLOAK
ENVIRONMENTAL CONSULTING

Stormwater NPDES Compliance for New Developments

OVERVIEW

C.3 Regulatory History

1987 Congress adds Section 402(p) to Clean Water Act

1990 USEPA regulations require states to issue stormwater NPDES permits to large municipalities

1990 Regional Water Board issues first Bay Area stormwater NPDES permits

2000 State Water Resources Control Board "Bellflower decision" confirms municipalities must require new developments to treat runoff

OVERVIEW

C.3 Regulatory History

2003 Regional Water Board adds Provision C.3 to stormwater permit for Contra Costa municipalities

2005 C.3 implementation begins for projects creating or replacing an acre or more of impervious area

2006 Water Board adopts Contra Costa's Hydrograph Modification Management Plan and requirements take effect. C.3 threshold for treatment requirements drops from one acre to 10,000 square feet of impervious area

OVERVIEW

C.3 Regulatory History

2009 Municipal Regional Permit adopted, including LID requirements. Threshold for some land uses lowered to 5,000 SF of impervious area. Contra Costa develops current HMP sizing factors and calculator.

2011 MRP amended, including "Special Projects" categories. LID requirements take effect, including feasibility tests for infiltration and harvesting/reuse.

2013 C.3 includes "major issues" for MRP reissuance, scheduled for late 2014

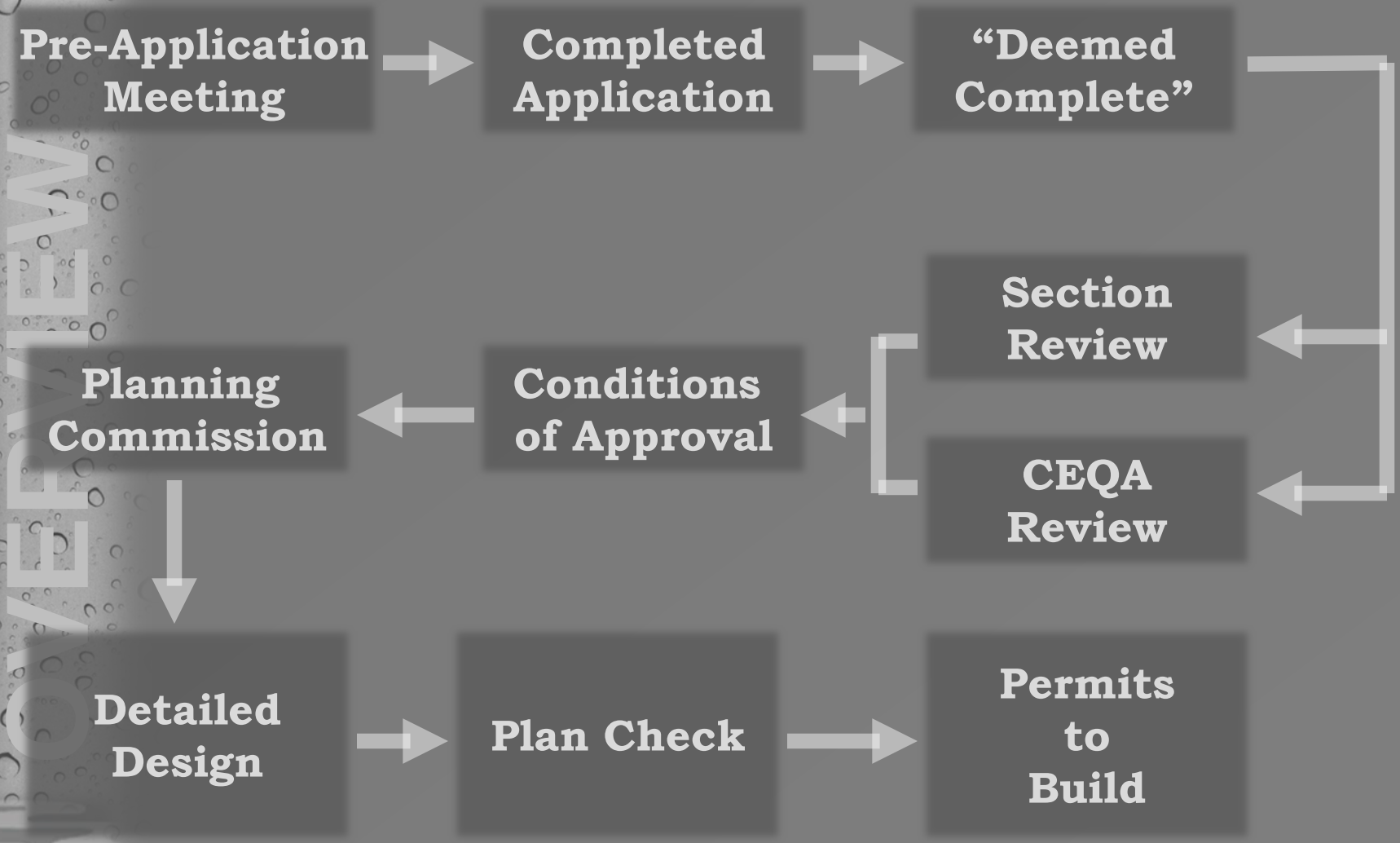
C.3 in a nutshell

Projects subject to C.3 must:

- Minimize imperviousness
- Control potential pollutant sources
- Use LID to treat stormwater before discharge
- Match runoff peaks and durations to pre-project conditions
  - Projects ≥ 1 acre impervious area, where downstream beneficial uses could be affected
- Maintain treatment and flow-control facilities.

OVERVIEW

C.3 & Development Review



Path to Compliance

1. Pre-application meeting
2. Review *Guidebook*
3. Prepare a Stormwater Control Plan
4. Prepare detailed project design
5. C.3 checklist on project plans
6. Prepare Operation & Maintenance Plan
7. Maintain facilities during construction
8. Final O&M Plan, transfer responsibility
9. Maintain facilities in perpetuity

Stormwater NPDES Compliance for New Developments

APPLICABILITY

APPLICABILITY

In Summary…

All projects	Site design measures and source controls
≥2500 SF	Include at least one of six LID measures
≥(5,000 SF) ≥10,000 SF	(For parking lots, auto service, restaurants) Treat flows to numeric standard
≥1 acre	Hydromodification Management

Applying the Thresholds

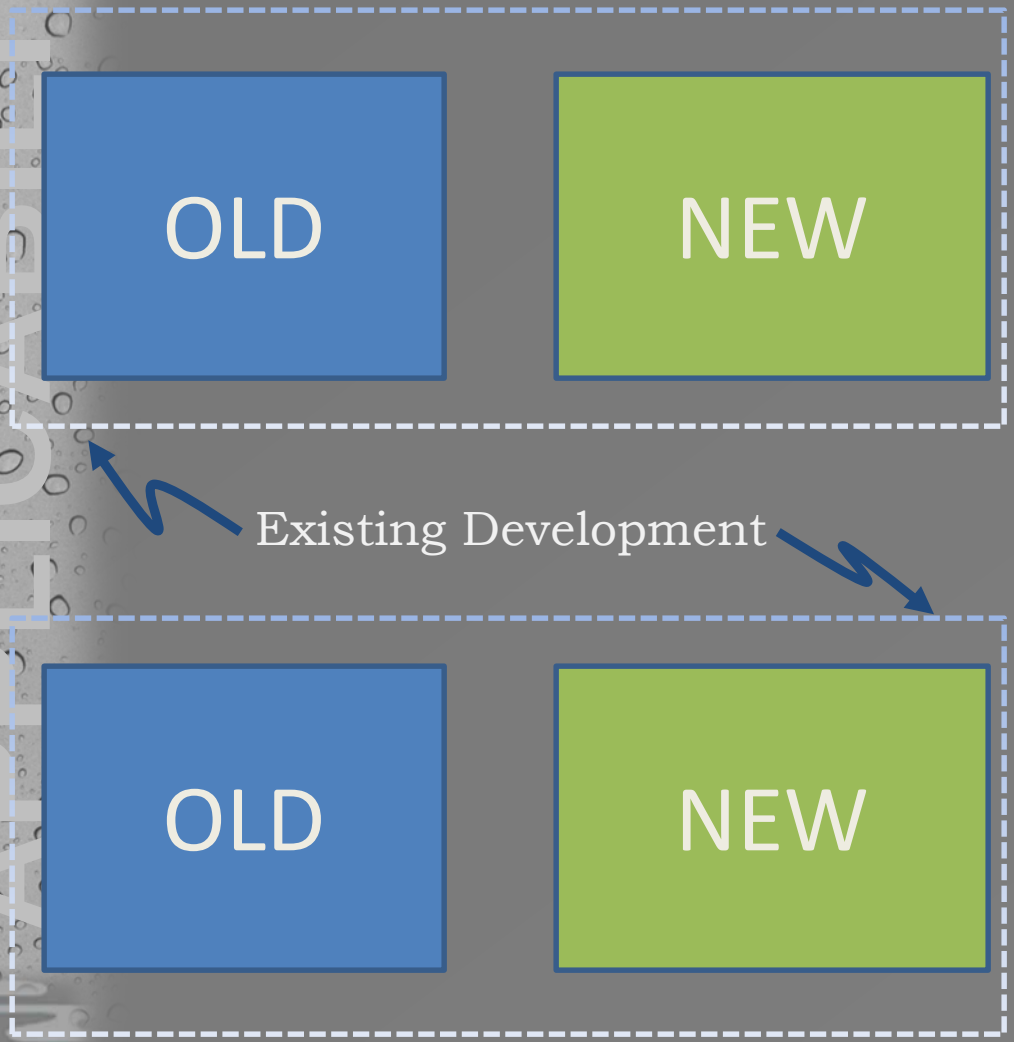
- Grandfathering and new approvals
- Phased Projects
  - Apply threshold to the whole of the action
  - Guard against piecemealing
  - Require the appropriate level of detail
- Subdivision Map Approvals
  - Estimate future impervious area
  - Type, size, location, final ownership of treatment and flow-control facilities
  - Mechanism to ensure future implementation
  - See the *Policy on C.3 for Subdivisions*

APPLICABILITY

Threshold Arcana

- What if the project *reduces* the amount of impervious surface?
- What about a 6,000 SF project with two parking spaces?
- Does pervious pavement count?
- Does pavement replacement count?
- Are swimming pools impervious?
- Is gravel impervious?
- Are public improvements included?

The 50% Rule



Criterion in previous permit (2003-2009): Project results in an **increase of or replacement of** 50% or more of existing development

MRP criterion: Project results in **alteration of** more than 50% of the previously existing development

Stormwater NPDES Compliance for New Developments

LID CONCEPTUAL DESIGN

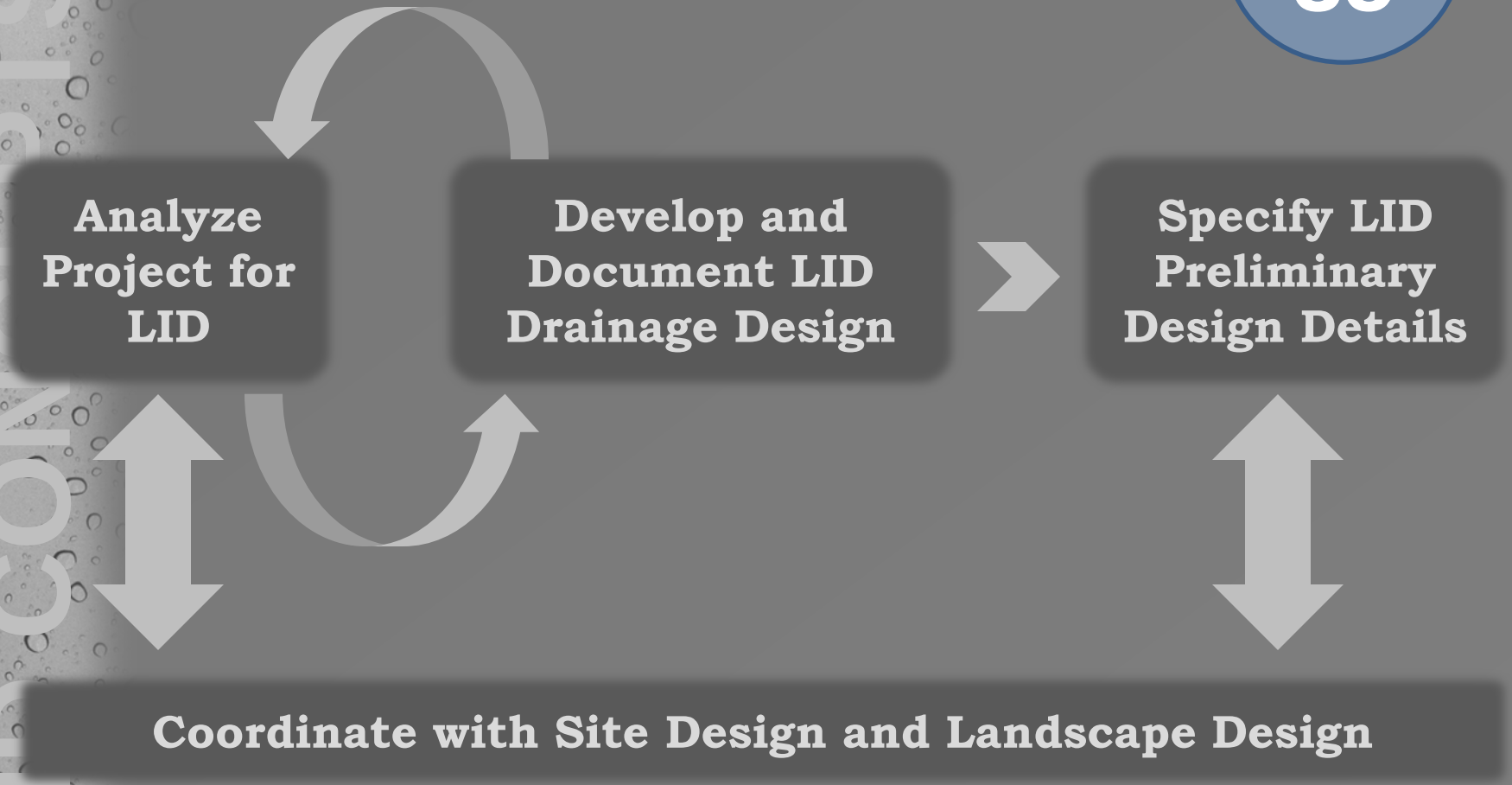
Conventional Urban Drainage

- Impervious surfaces: roofs and pavement
- Catch basins and piped drainage
- "Collect and convey" design objective

LID Design Objectives

Watershed and Stream Scale	Site scale
Reduce peak flows	Detain runoff on site
Increase time of concentration	Slow runoff from leaving site
No runoff from small storms	Infiltrate, evapotranspirate and reuse
Reduce duration of moderate flows	Let runoff seep away very slowly
Reduce runoff volume	Infiltrate and reuse where possible
Reduce runoff energy	Detain and slow flows
Increase groundwater storage and stream base flows	Facilitate infiltration
Reduce pollutants in runoff	Detain and filter runoff
Protect against spills and dumping	Disconnect drainage and filter runoff

LID Design Process



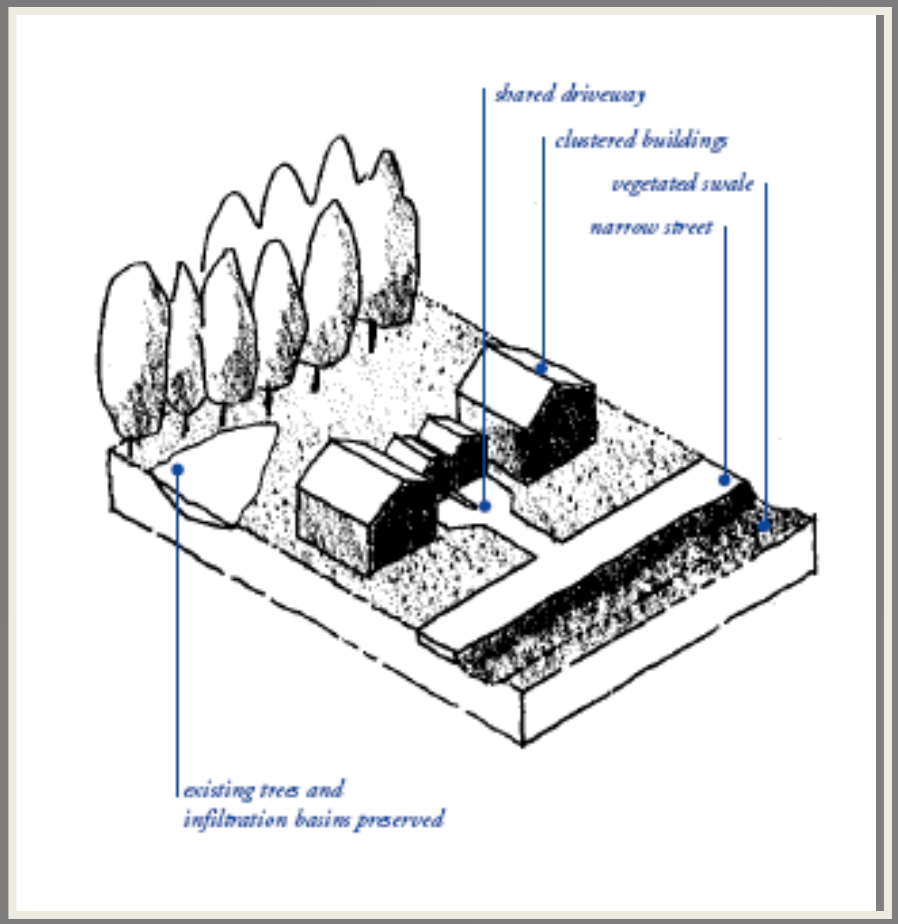
Analyzing a Project for LID

Five LID Strategies

1. Optimize the site layout
2. Use pervious surfaces
3. Disperse runoff
4. Store runoff and use it later
5. Direct runoff to bioretention facilities

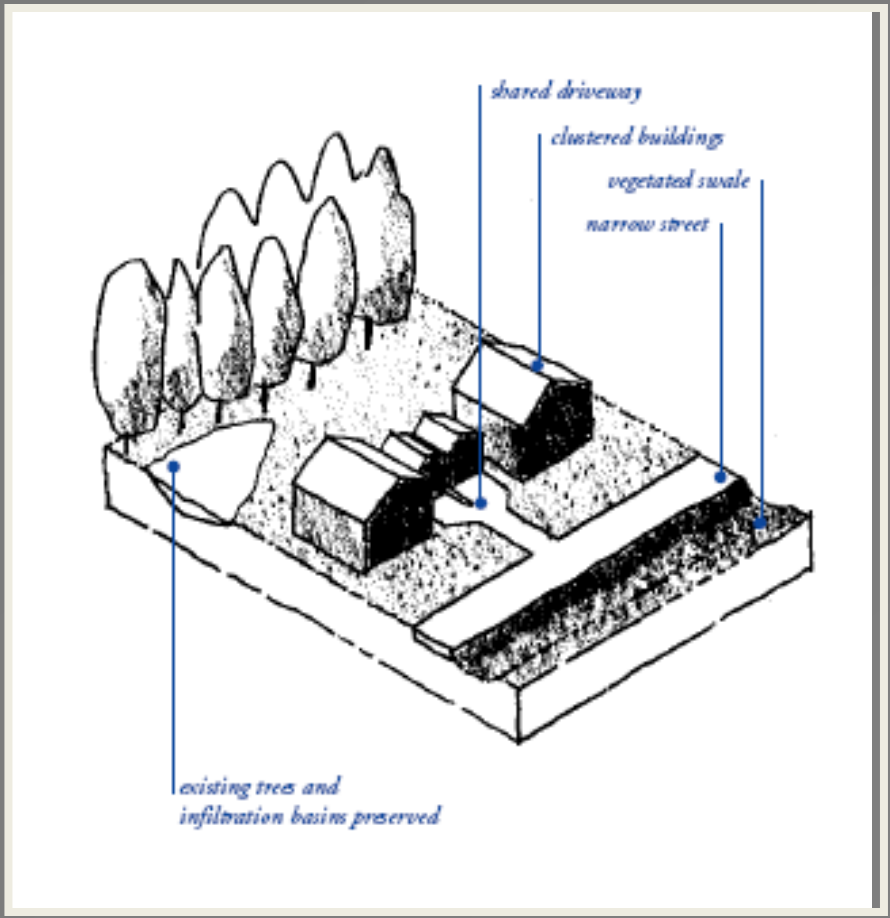
1. Optimize the Site Layout

- Define the development envelope
- Set back from creeks, wetlands, and riparian habitats
- Preserve significant trees
- Minimize grading



1. Optimize the Site Layout

- Preserve and use permeable soils
- Limit roofs and paving
- Detain and retain runoff throughout the site
- Use drainage as a design element



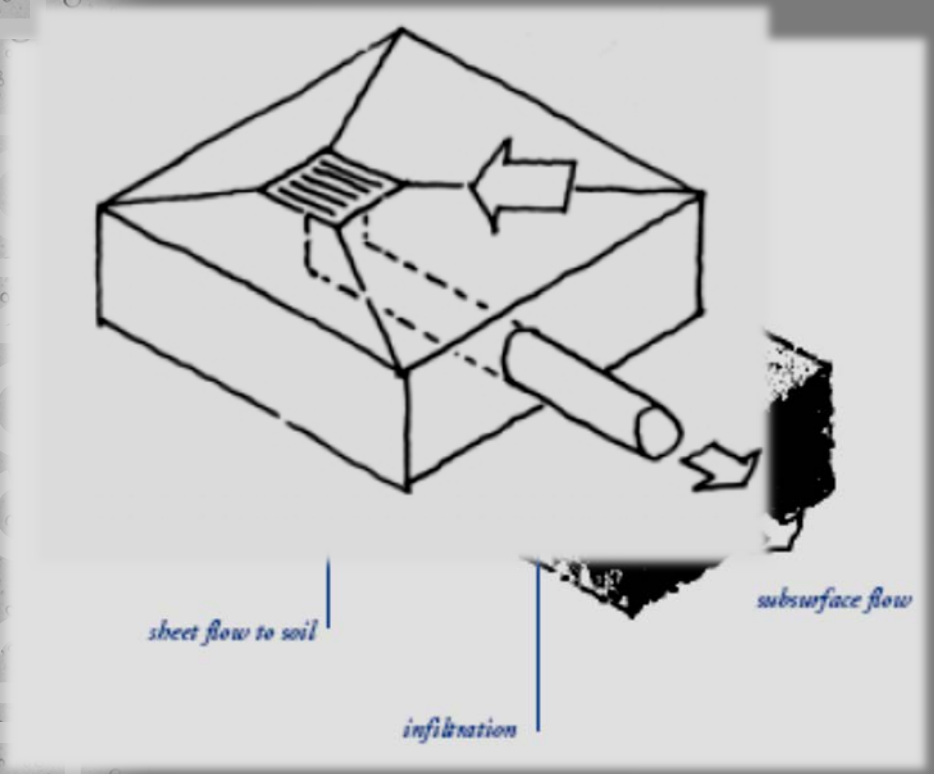
LID CONCEPTS

2. Use Pervious Surfaces

- Permeable pavements

- Green roofs

3. Disperse Runoff



4. Harvest and Reuse Runoff

- Feasibility analysis mandated by permit
- Analysis not required if enough runoff can be infiltrated on-site
  - 80% of long-term runoff
  - Requires $K_{sat} \geq 1.6$“/hour (Group A soils)
- Simplified criteria submitted to Water Board in Dec. 2011
- Feasibility Status Report due Dec. 2014

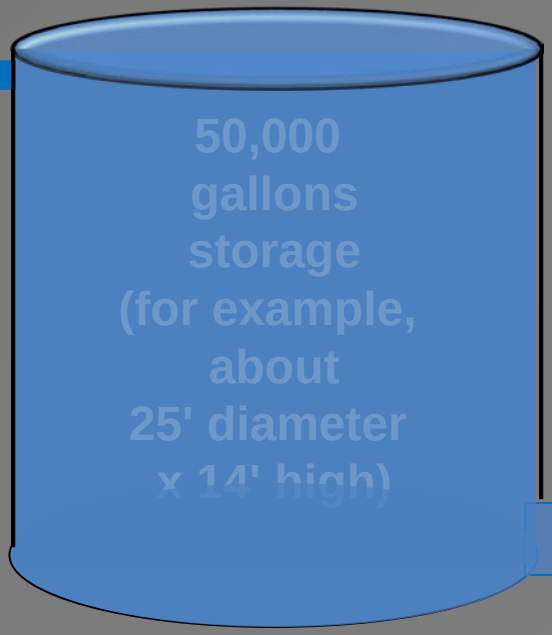
Screening for Adequate Demand

1. Identify and list sub-areas of site from which runoff could feasibly be captured
2. Calculate on-site demand for:
   - Toilet flushing
   - Landscape Irrigation
   - Other uses
3. Compare on-site demand to drawdown required given:
   - 80% of runoff to be used
   - 50,000 gal. storage/acre impervious area

Required Demand

30+ years of hourly runoff from one acre

Overflow (20% of total)



Reuse (80% of total)

Table 4-3 on page 41	
Rain Gauge	Min. Demand (gal/day/acre)
Berkeley	5900
Brentwood	4200
Martinez	5900
Dublin	4100

Select Roofs or other Surfaces

Page 40

- "List specific impervious areas from which runoff might be feasibly captured or stored.
- All contiguous roof areas 10,000 SF and greater must be listed."

Default Toilet Flushing Use

Land Use Type	*User Unit*	*User Unit Factor (Optional—use project-specific data if available)*	*Daily Use/Unit (gal./day/ user unit)**
Residential	Resident	2.8 residents/ dwelling unit	8.6
Office or Retail	Employee (non-visitor)	200 SF/ employee	6.9
Schools	Employee (does not include students)	50 SF/ employee	33.9
Industrial Uses (not including process water)	Employee (non-visitor)		5.4

**Or use project-specific data*

Mixed Use Development

A	B	C	D	E	F	G	H	I	J
Area	SF	Acres	Uses and User Units	Toilet and Urinal Usage (gal/day)	Water Use per Acre	Req'd Demand per Acre	F>G?	Adjacent pervious area ≥ 2.5 × "B"?	Other Use ≥ "G"?
B-1	**21000**	**0.48**	**77 DUs + 9000 SF Retail**	**1854 + 310 = 2164**	**4508**	**5900**	**No**	**No**	**No**

77 DUs × 2.8 residents/DU × 8.6 gal/day/resident = 1854 gal/day
9000 SF retail ÷ 200 SF/employee × 6.9 gal/day/employee = 310 gal/day

A	B	C	D	E	F	G	H	I	J
Area	SF	Acres	Uses and User Units	Toilet and Urinal Usage (gal/day)	Water Use per Acre	Req'd Demand per Acre	F>G?	Adjacentp ervious area ≥ 2.5 × "B"?	Other Use ≥ "G"?
All	**41102**	**0.94**	**23 DUs**	**554**	**589**	**5900**	**No**	**No**	**No**
Bldgs	**18975**	**0.44**	**23 DUs**	**554**	**1271**	**5900**	**No**	**No**	**No**
Bldg A	**4125**	**0.09**	**23 DUs**	**554**	**5850**	**5900**	**No**	**No**	**No**

23 DUs x 2.8 residents/DU
x 8.6 gal/day/resident
= 553.8 gal/day

554 gal/day ÷ .94 acres
= 589 gal/day/acre

Design for Water Supply

30+ years of hourly runoff from one acre

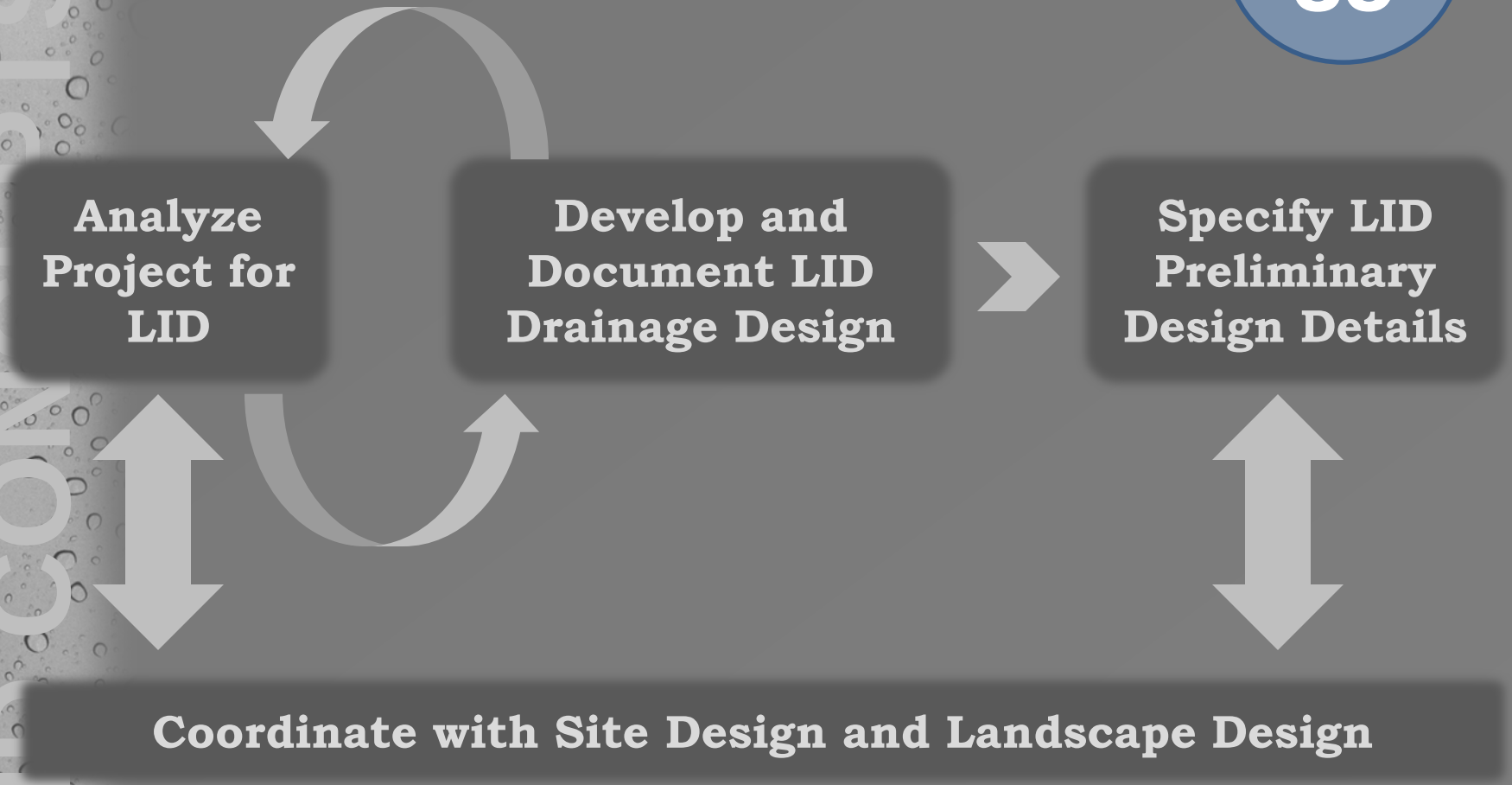
More Overflow (>>20% of total)

Less storage (<<50,000 gallons/acre)

Reuse (<<80% of total)

Bioretention in Series

LID Design Process



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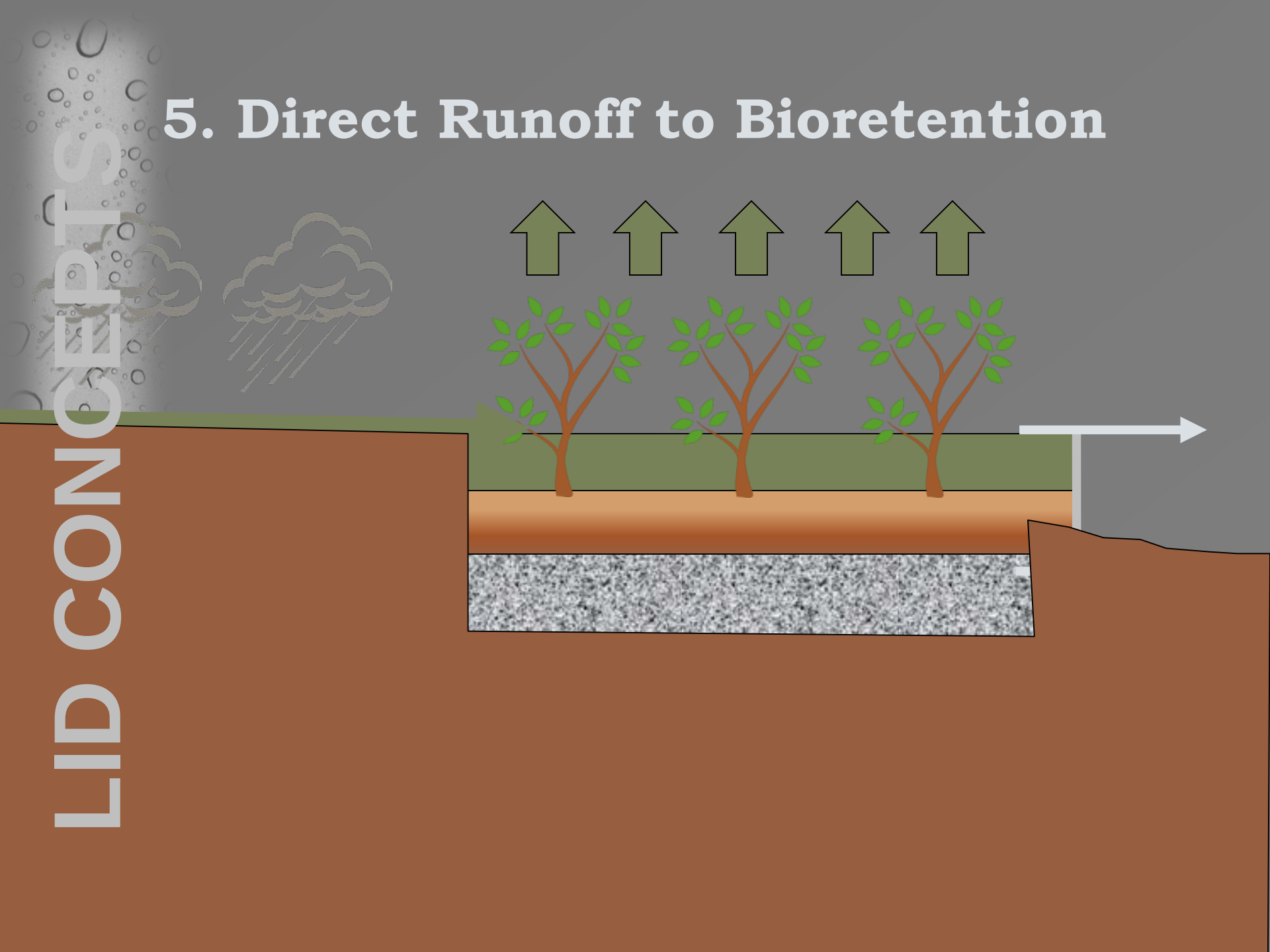
5. Direct Runoff to Bioretention



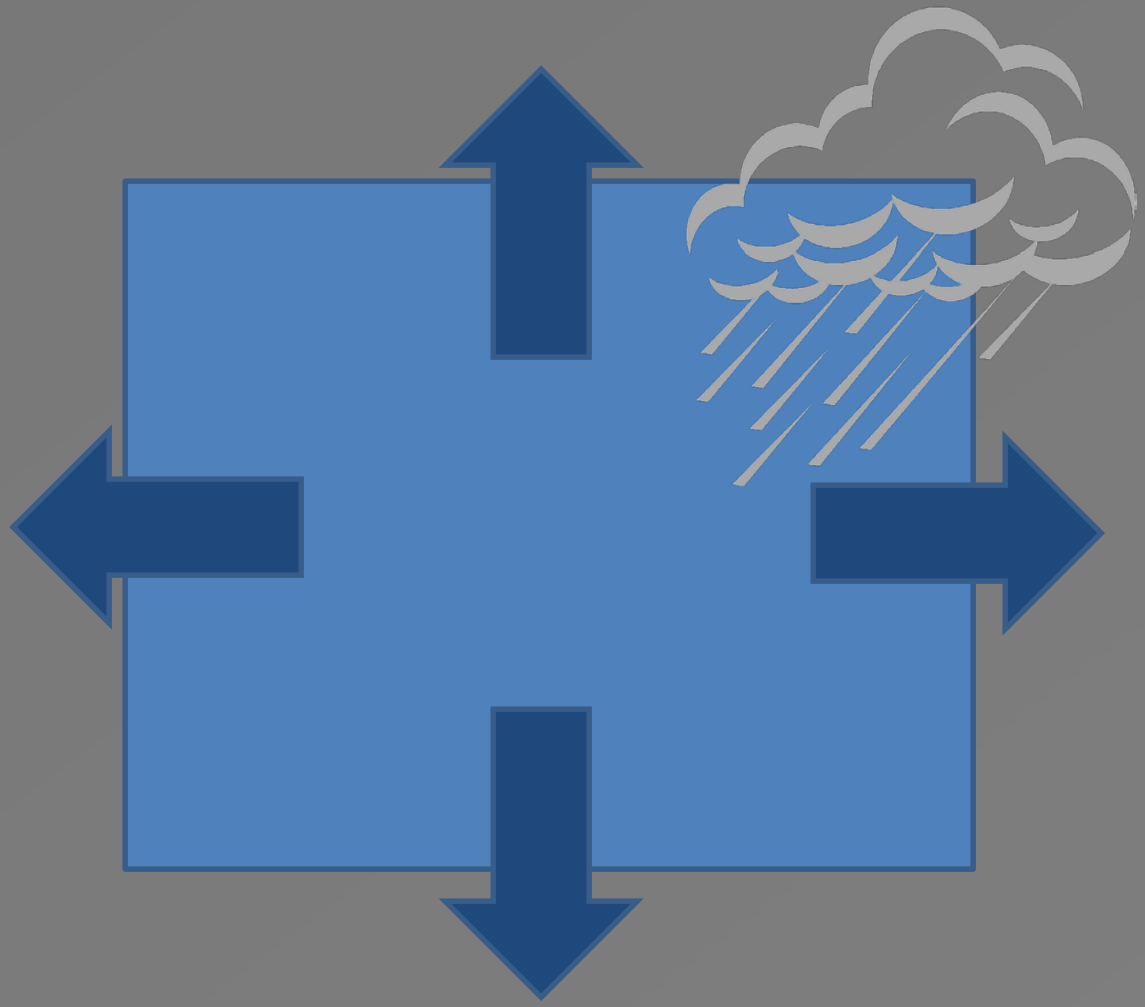
LID CONCEPTS

Stormwater NPDES Compliance for New Developments

DRAINAGE MANAGEMENT AREAS

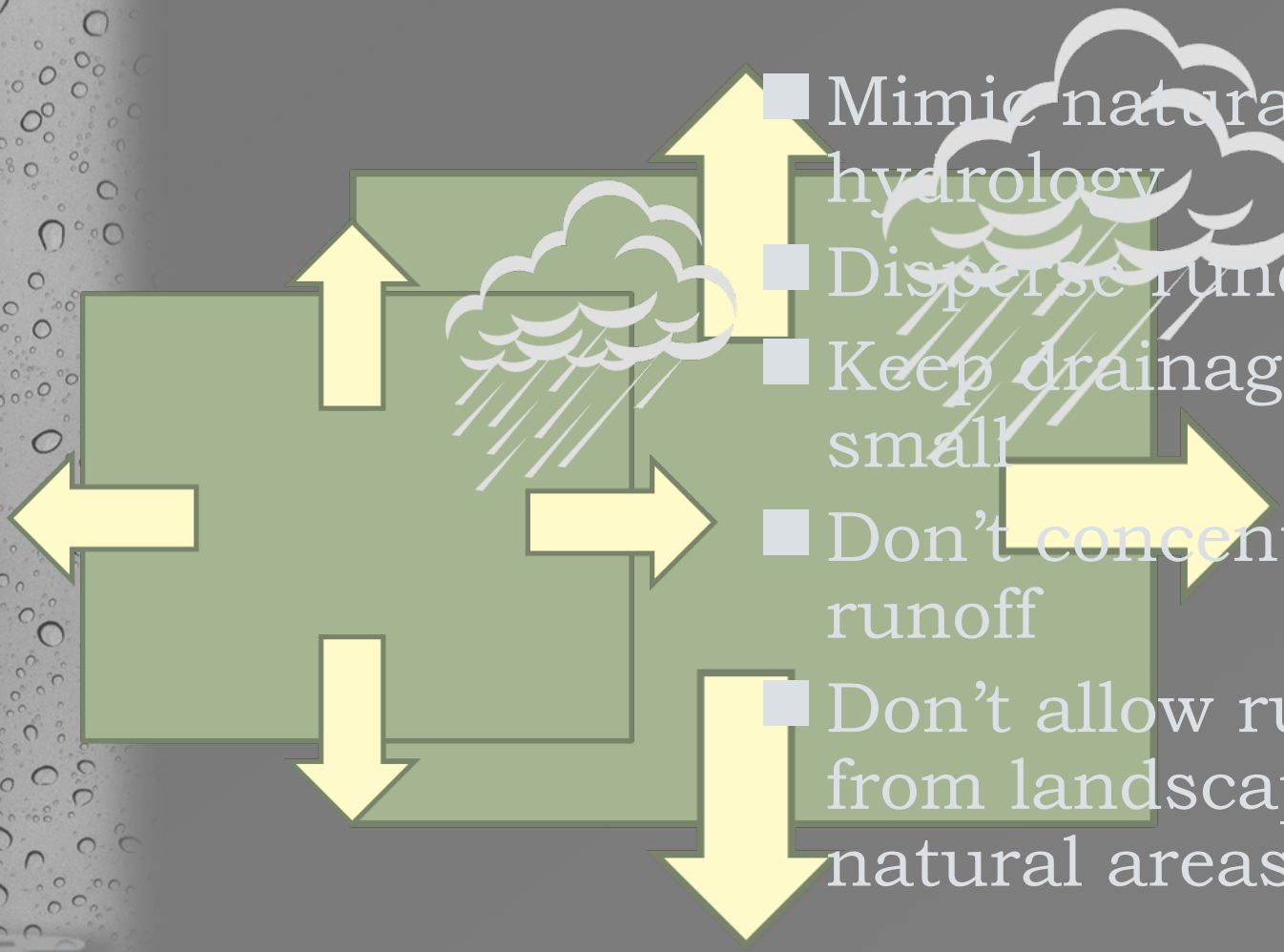
LID Site Design Principles

LID Site Design Principles



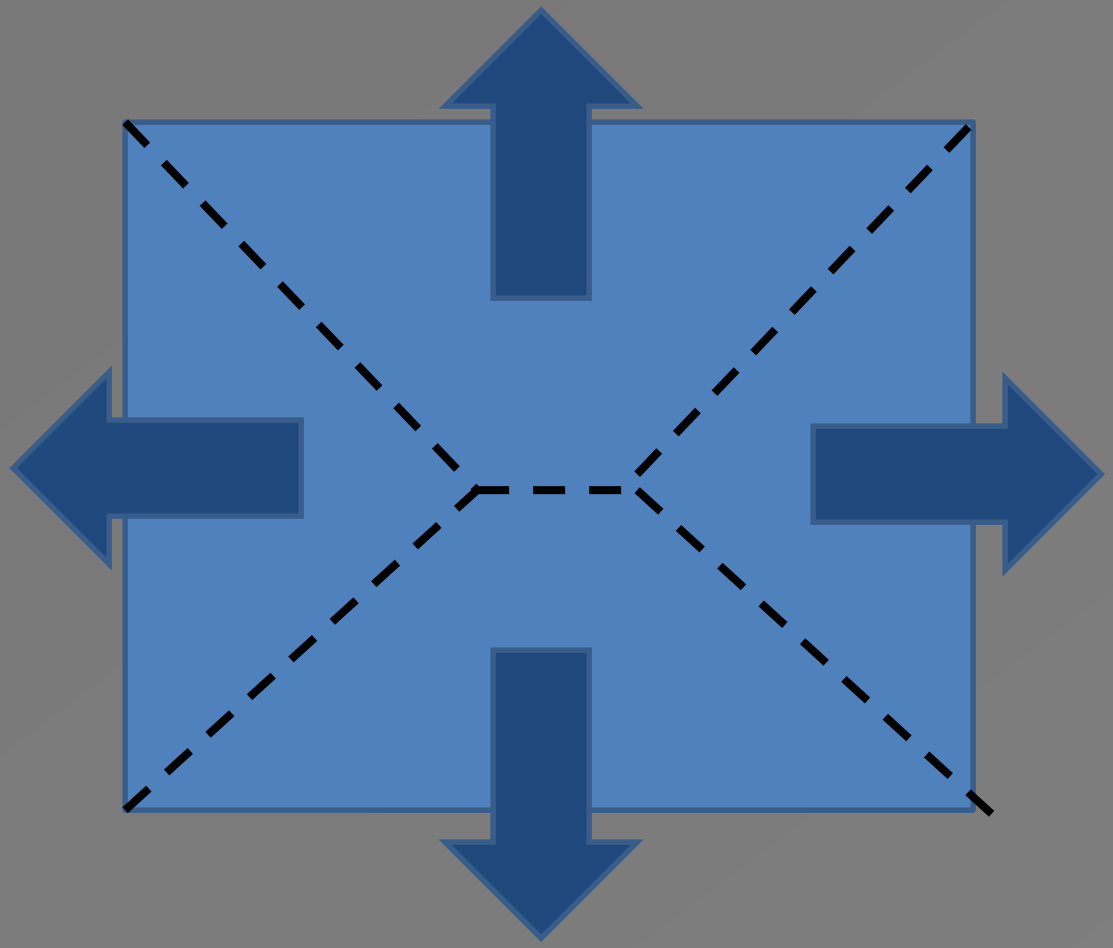
DMAs

LID Site Design Principles



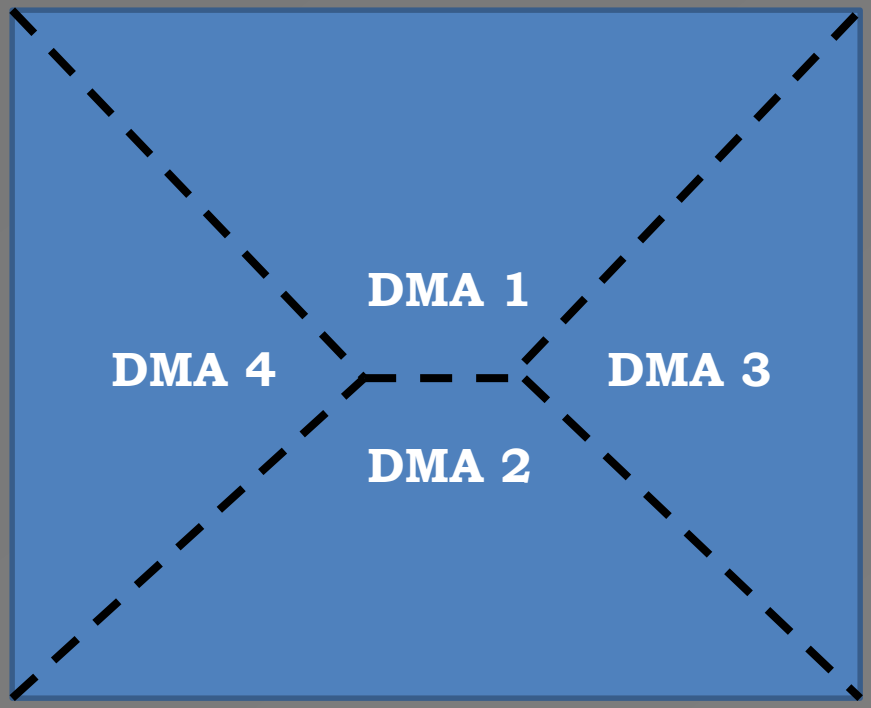
- Mimic natural hydrology
- Disperse runoff
- Keep drainage areas small
- Don’t concentrate runoff
- Don’t allow run-on from landscaped or natural areas

Drainage Management Areas



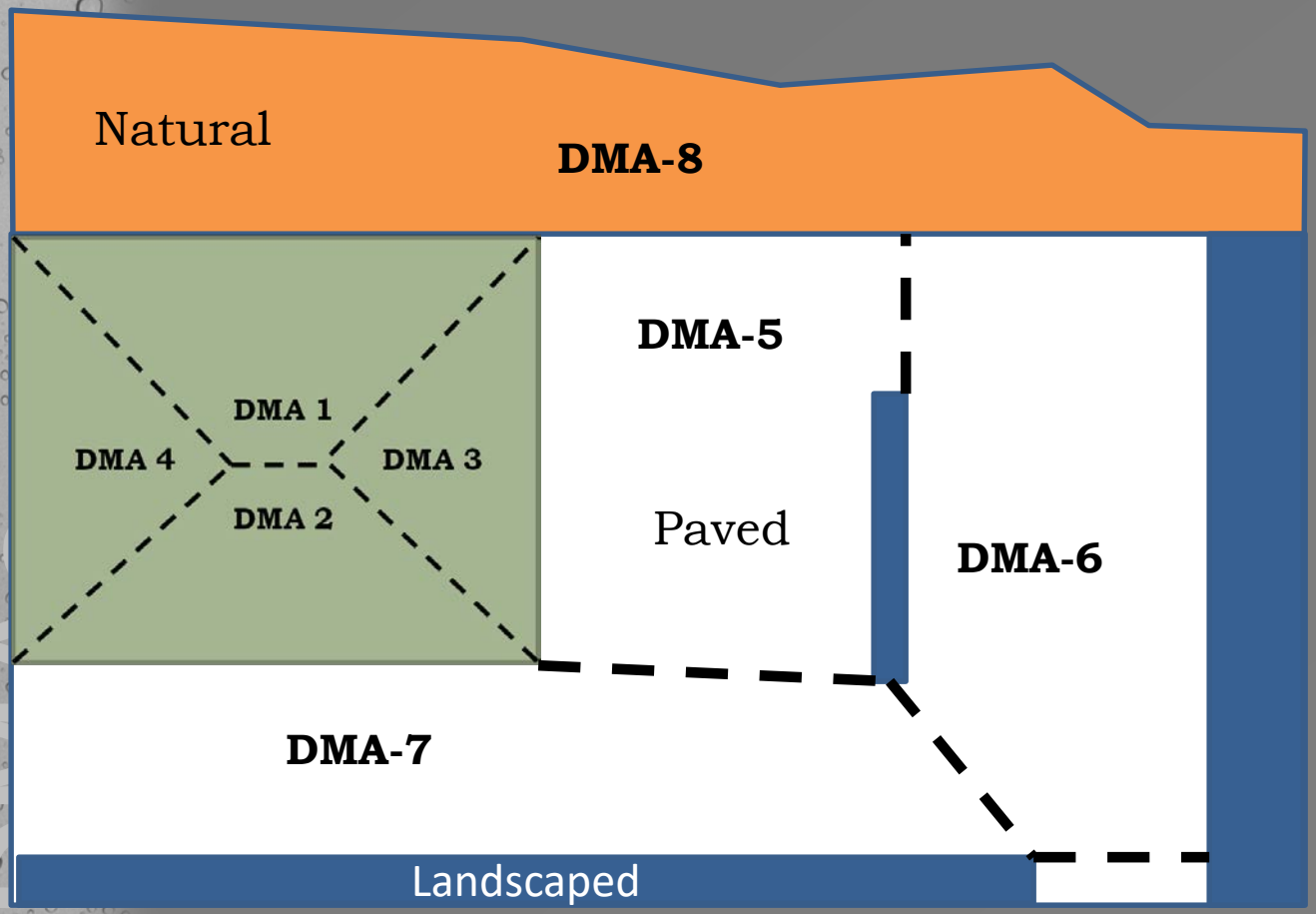
DMAs

Drainage Management Areas

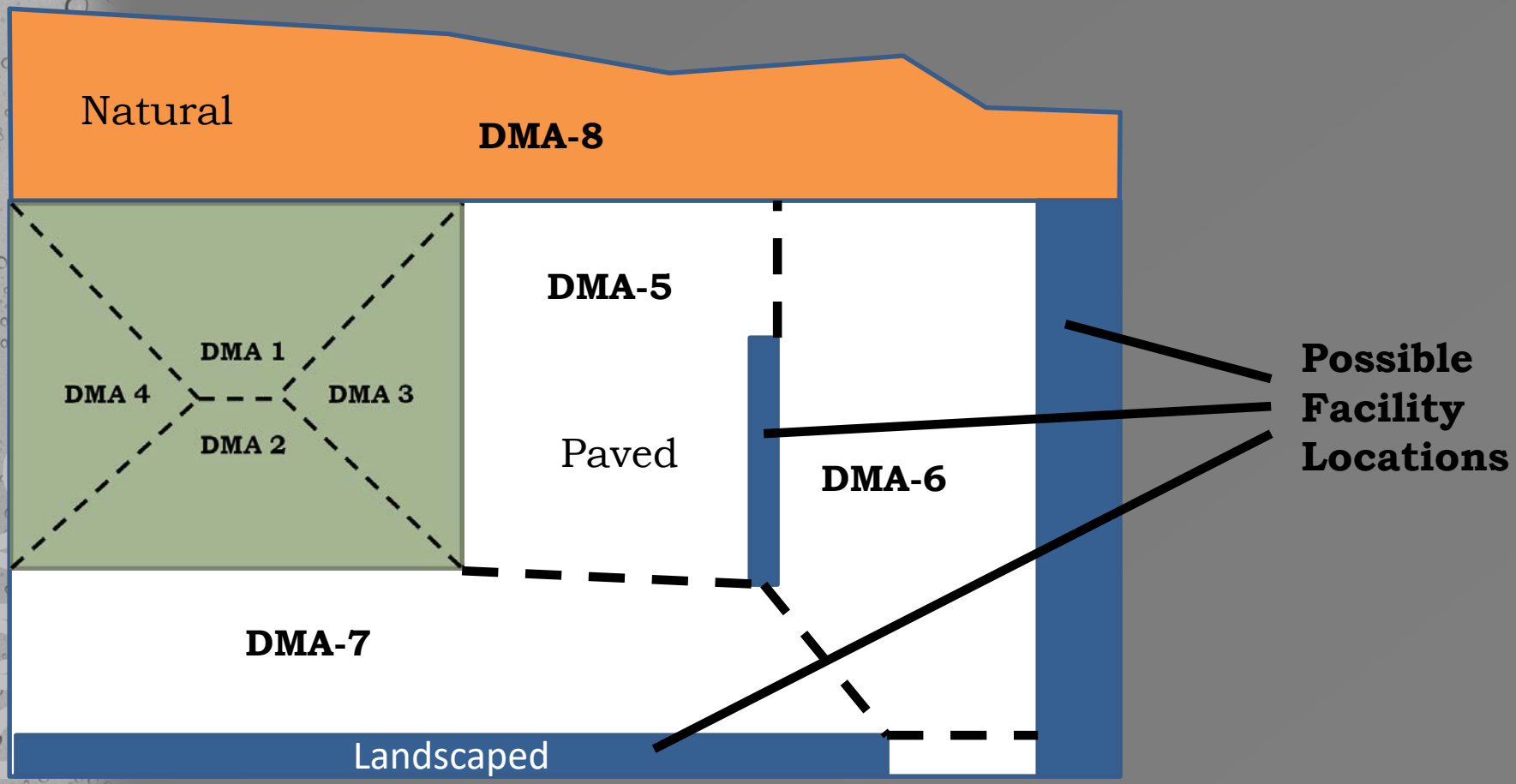


DMAs

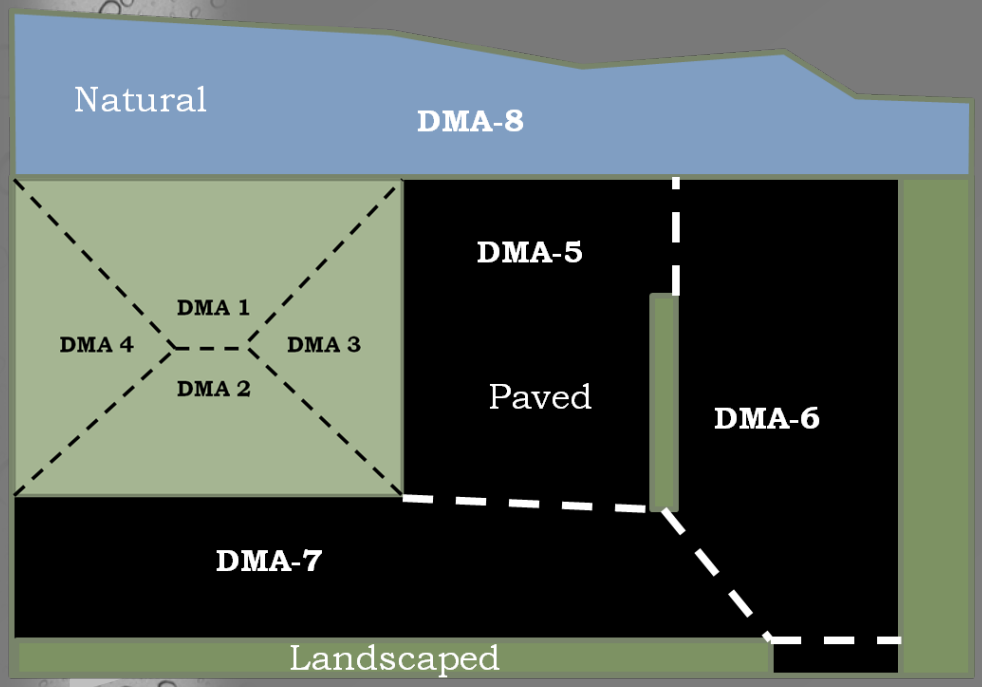
Drainage Management Areas



Drainage Management Areas

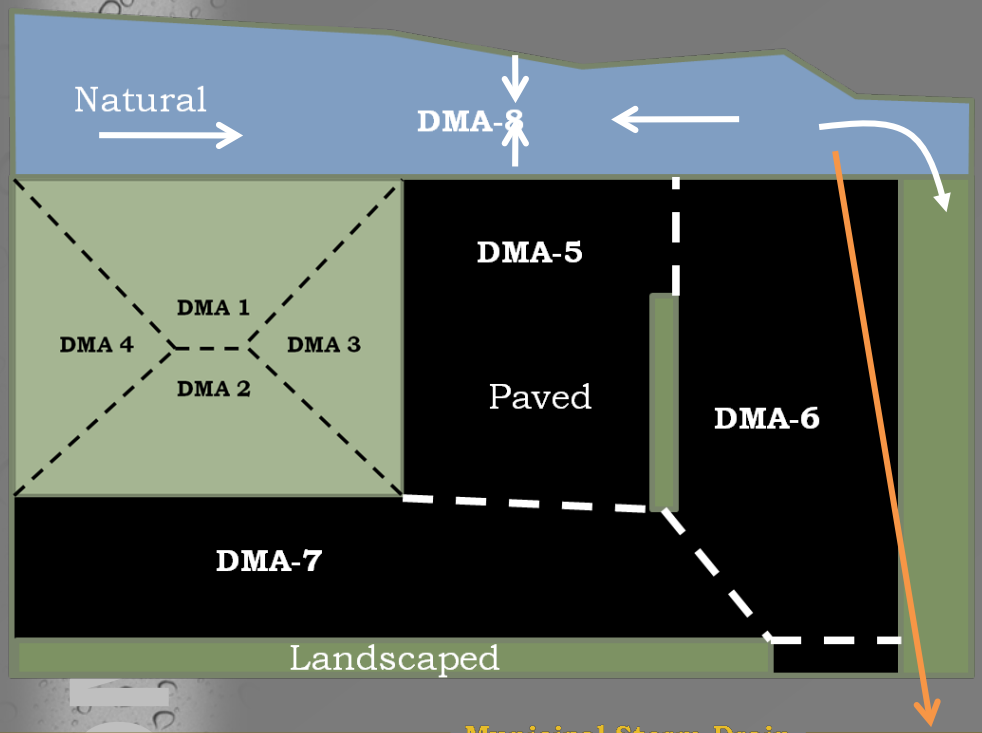


Options – Pervious DMAs



- DMA-8
  - Self-treating?
  - Self-retaining?
  - Drain to IMP?

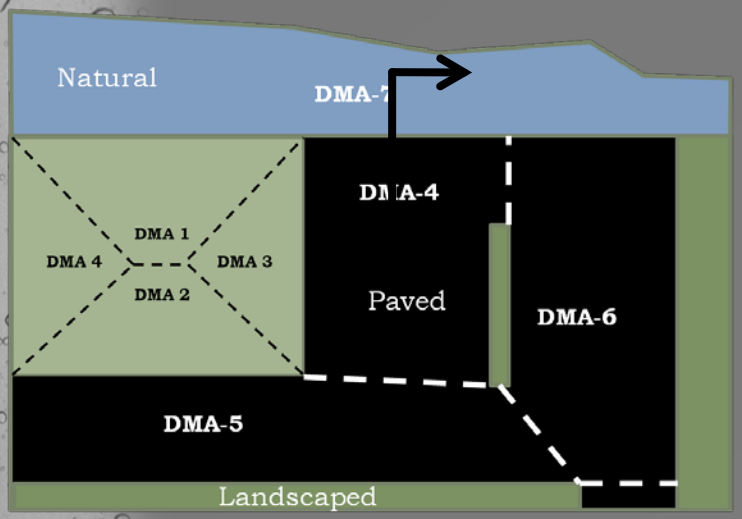
DMA 8



- Self-Treating
  - Drain directly to storm drain system
- Self-Retaining
  - Retain first inch of rainfall without producing runoff
- Drain to IMP
  - Use runoff factor to account for contribution

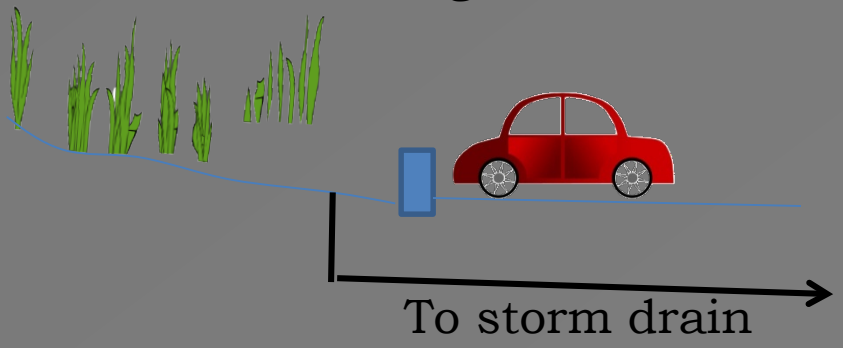
Best choice may depend on slope and relative elevation

Details

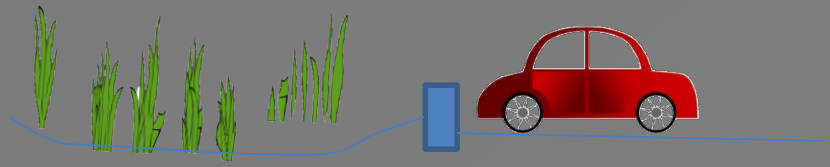


Municipal Storm Drain

Use a curb to avoid run-on from self-treating areas

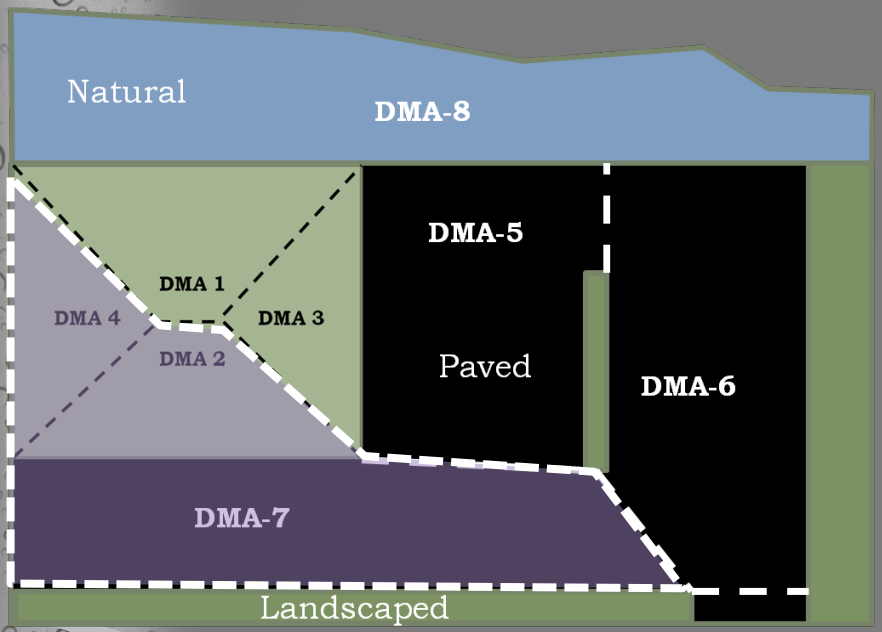


Grade self-retaining areas to drain inward. Set any area drains to pond 3"-4"

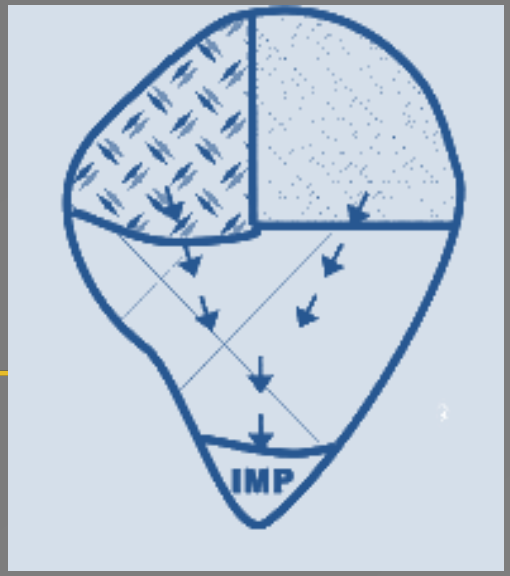


Consider that adjacent roofs or paved areas could drain to self-retaining areas (not to exceed 1:1)

Options – Combining DMAs



Option to combine DMAs if they have identical runoff factors (for example, roofs and paving) and drainage is routed to the same location.

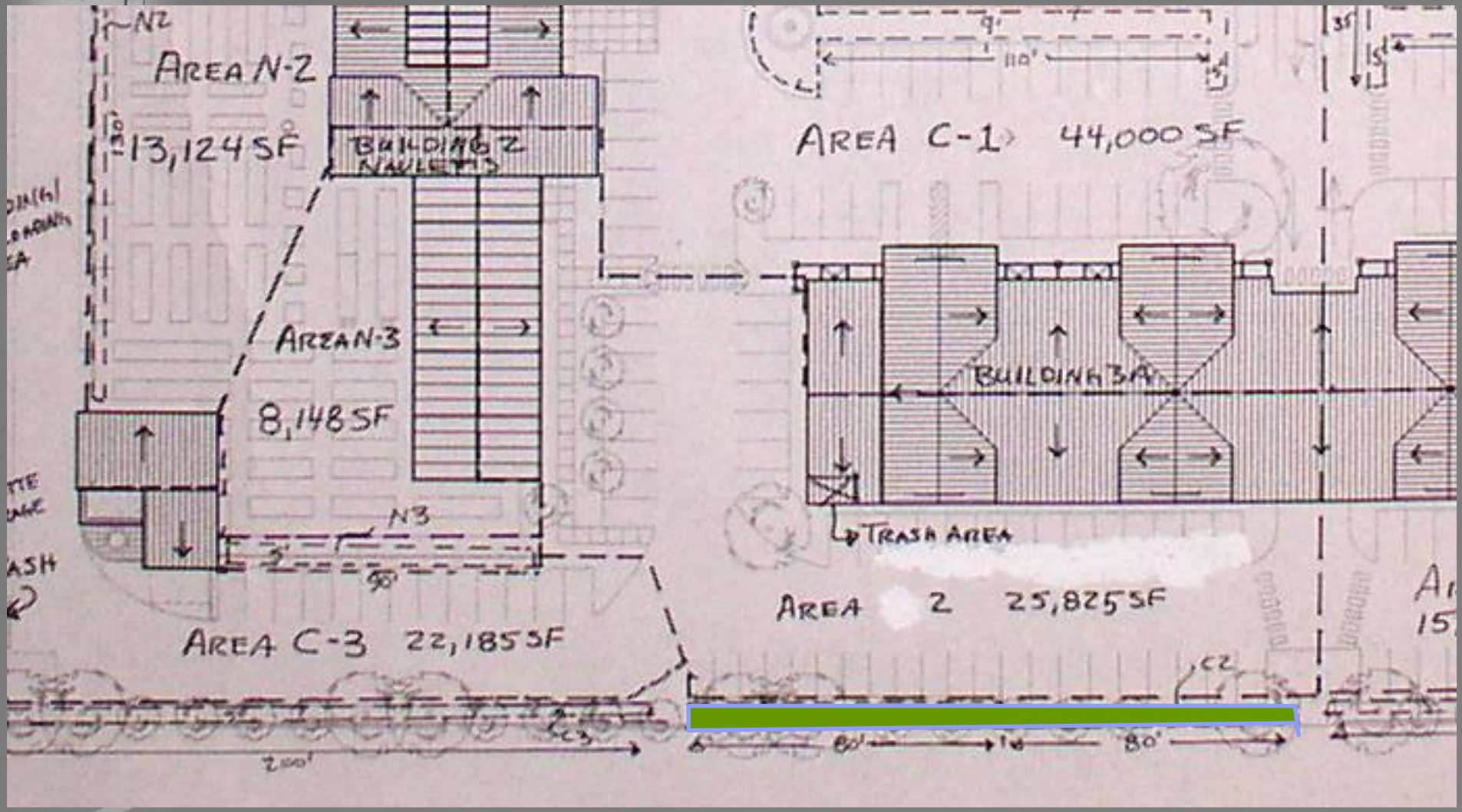


Municipal Storm Drain

Carefully follow grade breaks and roof ridges to delineate DMAs

Roof ridges and grade breaks

Roof and Grading Plans

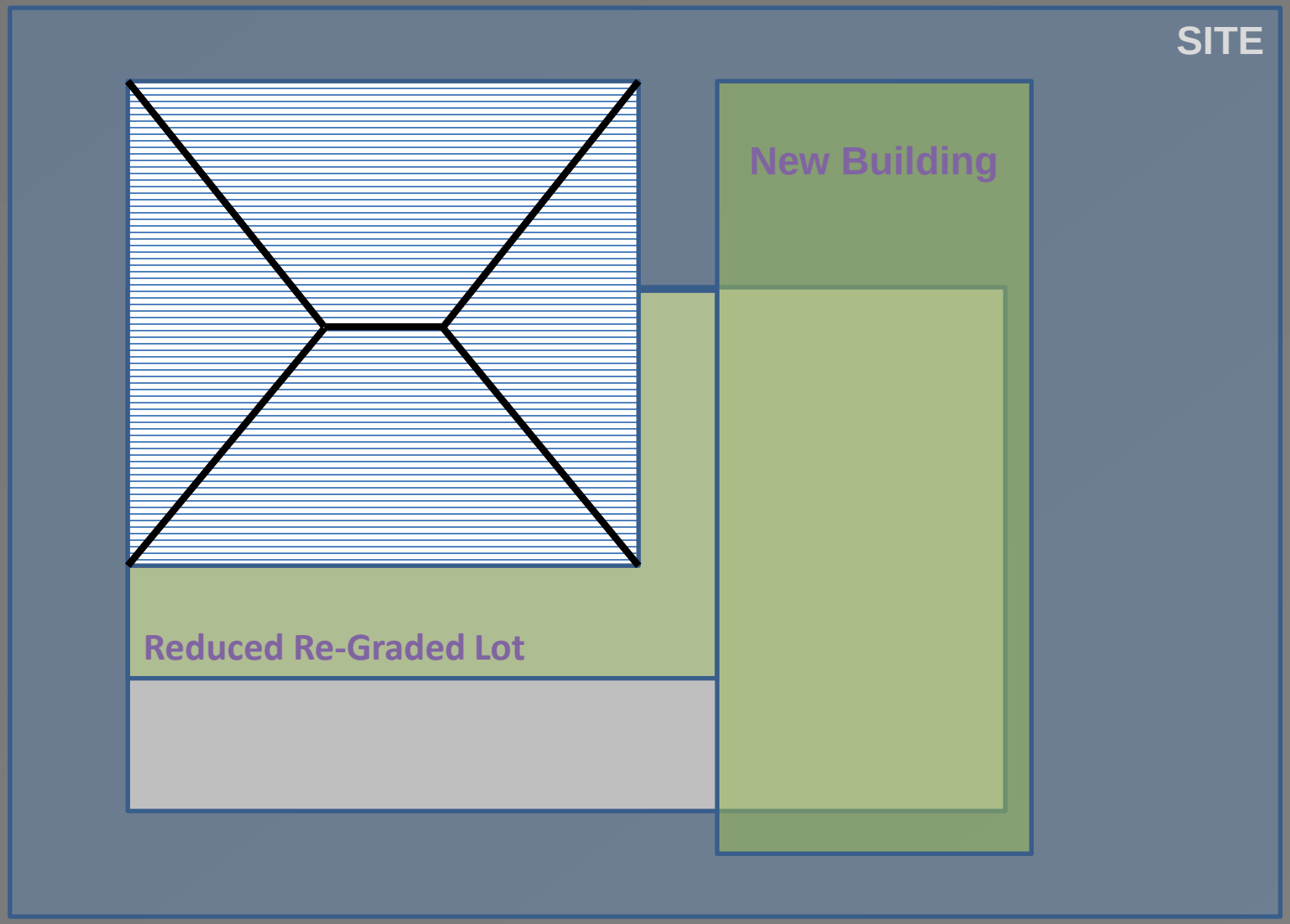


Stormwater NPDES Compliance for New Developments

REVIEWING STORMWATER CONTROL PLANS

Contents

Impervious Areas Pre/Post



Special Projects

- Project Categories
  - A
  - B
  - C
- Percent LID and non-LID treatment
- Other Reporting Requirements
  - Narrative on LID Feasibility
  - Criteria used for non-LID facilities
- Contact Program Staff for assistance

Setting and Strategies

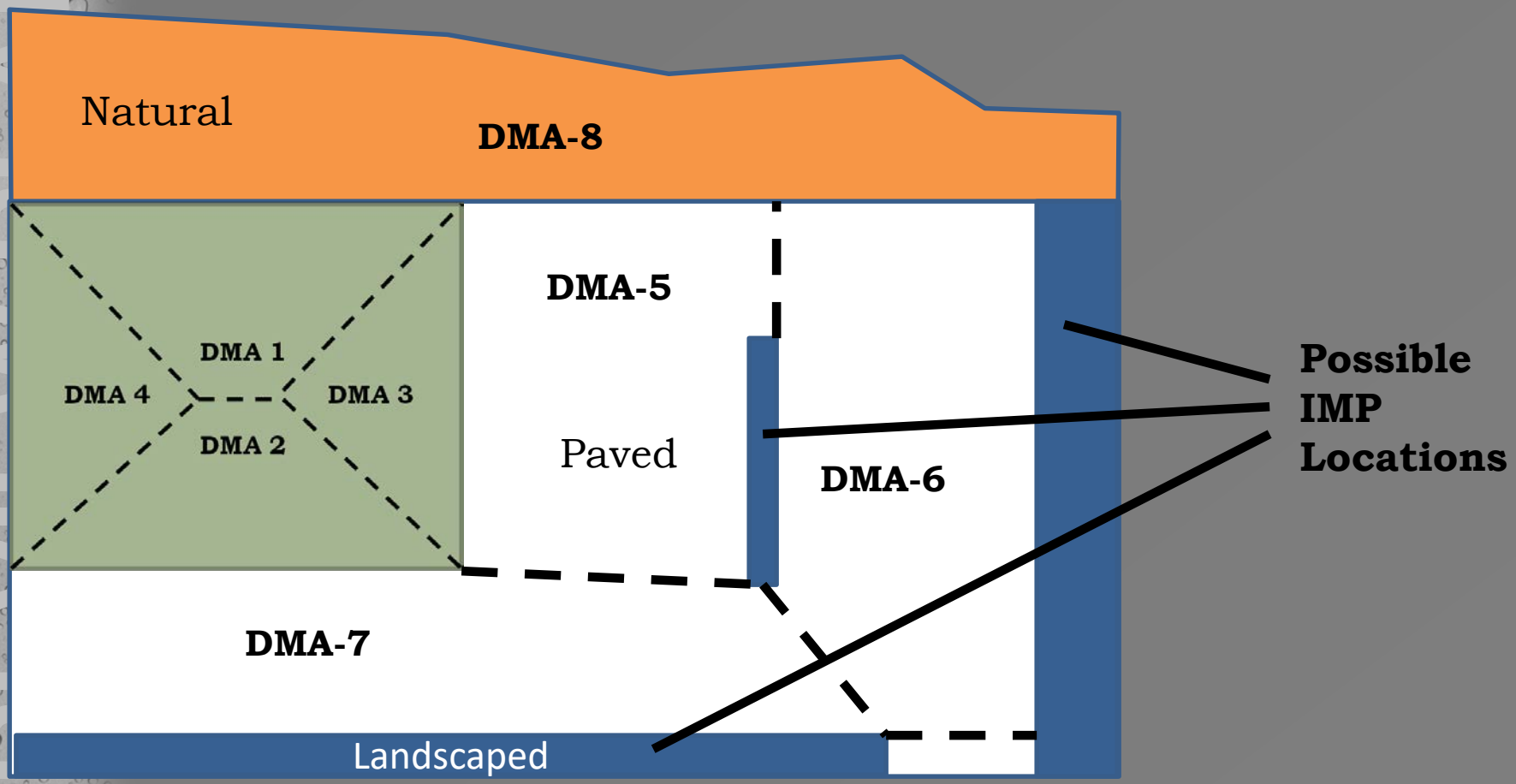
- Setting
  - Project Location and Description
  - Existing Site Features and Conditions
  - Opportunities and Constraints
- LID Strategies
  - Optimization of Site Layout
  - Use of Permeable Pavements
  - Dispersal of Runoff to Pervious Areas
  - Feasibility Assessment of Harvesting/Use
  - Integrated Management Practices (bioretention)

Drainage Design Calculations

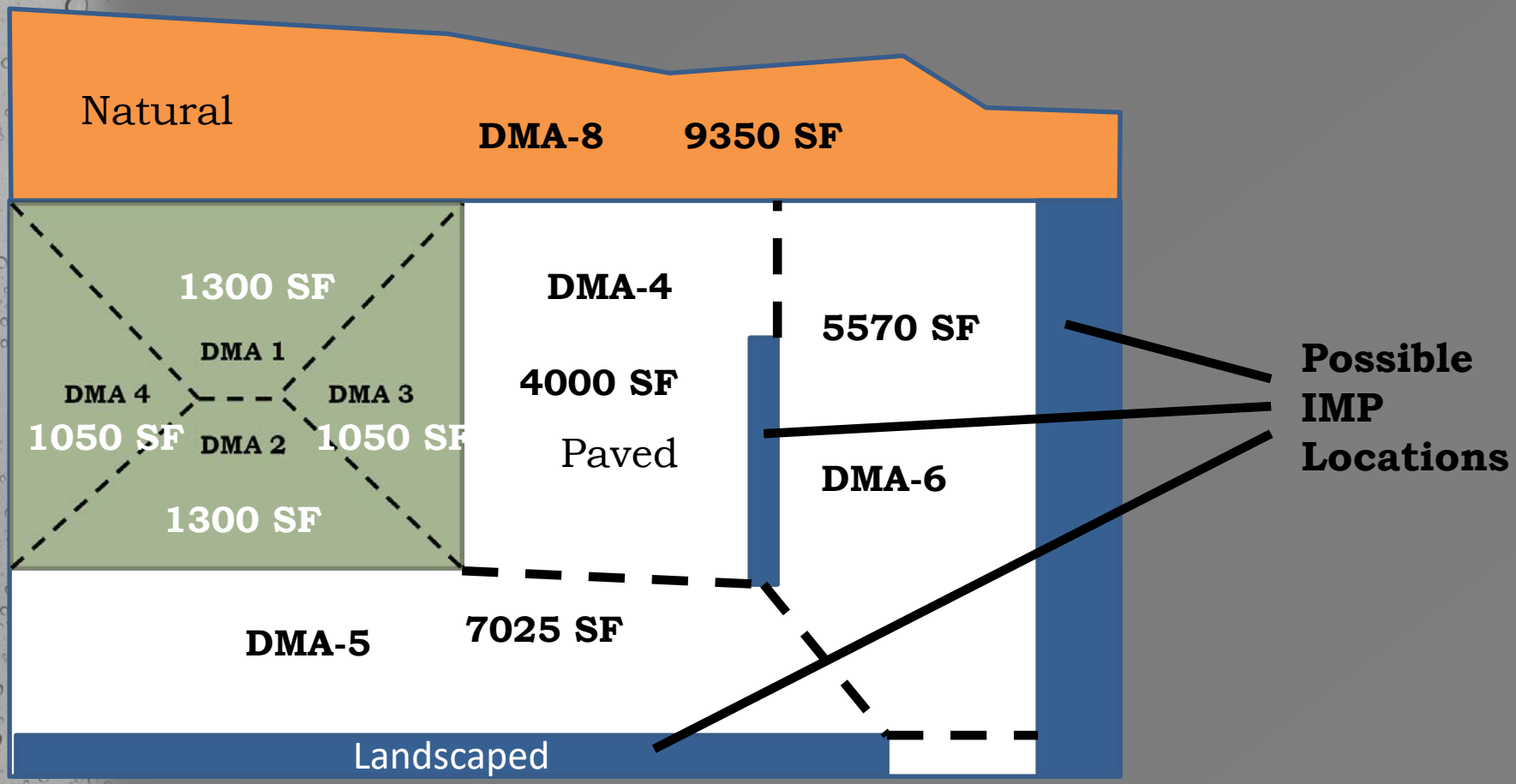
Drainage Management Areas		
DMA Name	Surface Type	Area in SF

Σ(DMAs + Bioretention Facilities) = Total Site

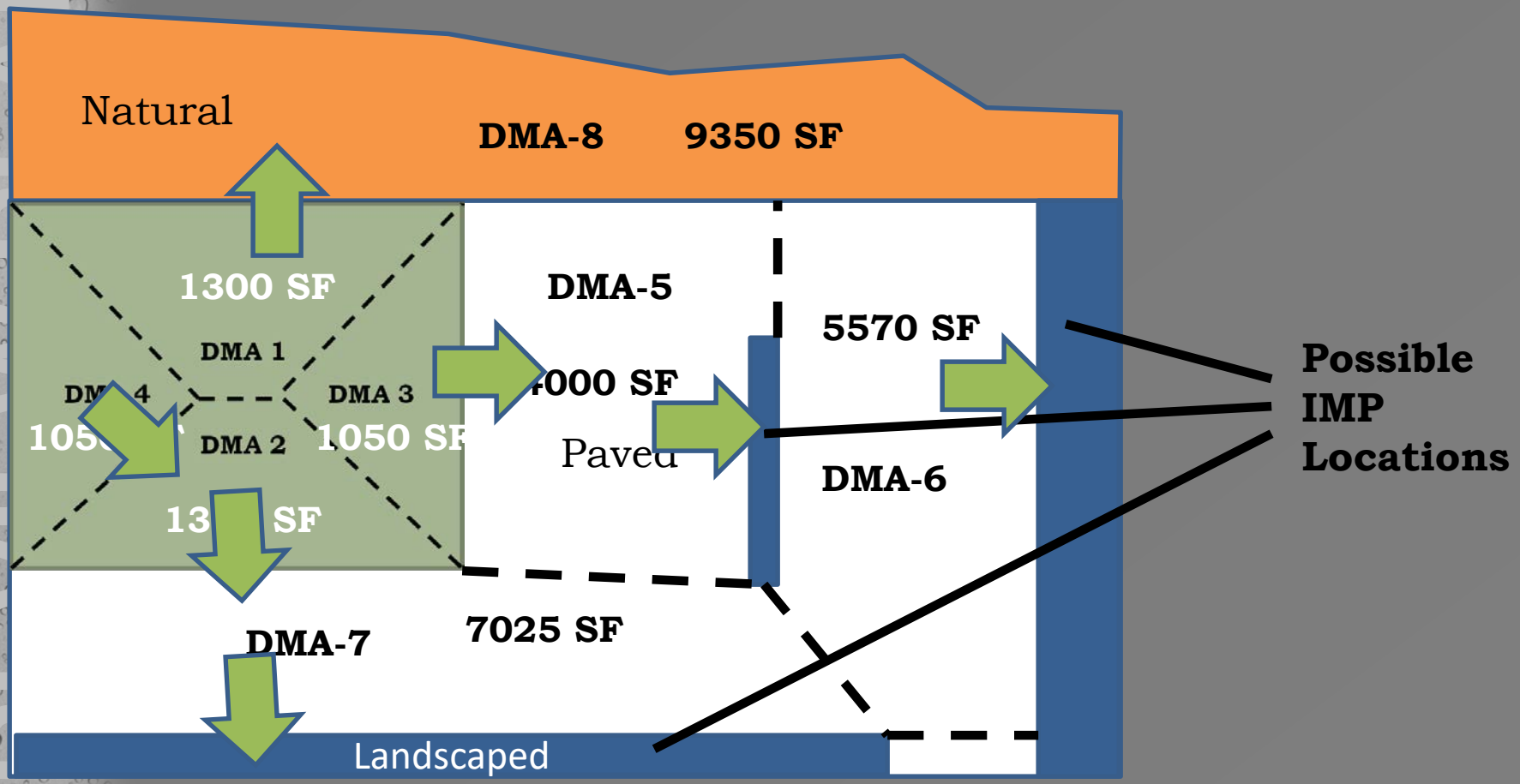
Example Site



Example Site



Example Site



Setting Up Calculations

- Self-retaining Area

DMA Name	Square Feet
DMA-8	9350

- Area Draining to Self-retaining Area

DMA	Square Feet	Surface	Runoff Factor	Product	Receiving DMA	Receiving Area	Ratio
DMA-1	1300	Roof	1.0	1300	DMA-8	9350	0.139

Setting Up Calculations

- Areas Draining to IMPs

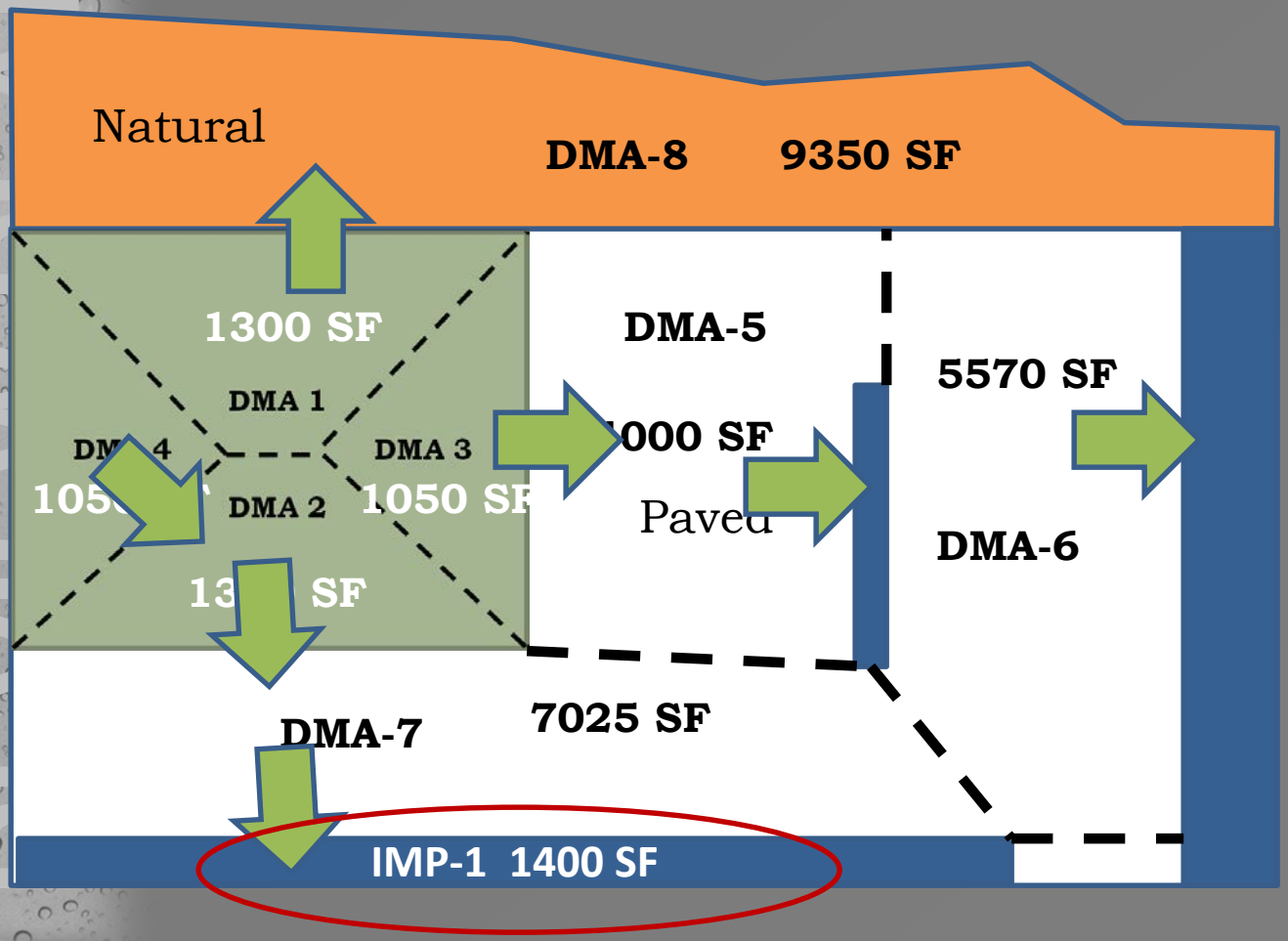
DMA	Area	Surface	Runoff Factor	Area × Runoff Factor	Soil Type			
DMA-2	1050	Roof	1.0	1050	D			
DMA-4	1300	Roof	1.0	1300				
DMA-7	7025	Paved	1.0	7025				
					IMP Sizing Factor	Rain Adjust Factor	Min Area or Volume	Proposed Area or Volume
				A				
				V1				
				V2				
				Orifice Size:				

Setting Up Calculations

- Areas Draining to IMPs

DMA	Area	Surface	Runoff Factor	Area x Runoff Factor	Soil Type			
DMA-2	1050	Roof	1.0	1050	D			
DMA-4	1300	Roof	1.0	1300				
DMA-7	7025	Paved	1.0	7025				
				9375	IMP Sizing Factor	Rain Adjust Factor	Min Area or Volume	Proposed Area or Volume
				A	0.06	1.0	562.5	
				V1	0.04	1.0	375.0	
				V2	0.05	1.0	468.8	
				Orifice Size:				

Example Site



Setting Up Calculations

Areas Draining to IMPs

DMA	Area	Surface	Runoff Factor	Area x Runoff Factor	Soil Type			
DMA-2	1050	Roof	1.0	1050	D			
DMA-4	1300	Roof	1.0	1300				
DMA-7	7025	Paved	1.0	7025				
				9375	IMP Sizing Factor	Rain Adjust Factor	Min Area or Volume	Proposed Area or Volume
				A	0.06	1.0	562.5	1400
				V1	0.04	1.0	375.0	400
				V2	0.05	1.0	468.8	475
				Orifice Size:				0.6 in.

APPENDIX D—STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLI

How to use this worksheet (also see instructions on page 28 of the *Stormwater C.3 Guidebook*):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that ap
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your Stormwater Control Plan drawings.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in a table i Control Plan. Use the format shown in Table 3-1 on page 27 of the *Guidebook*. Describe your specific BMPs in an accompanying na special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	**... THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE**		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on Stormwater Control Plan Drawings**	**3** **Permanent Controls—List in Stormwater Control Plan Table and Narrative**	**Operatio Stormwater**
☐ **A.** On-site storm drain inlets	☐ Locations of inlets.	☐ Mark all inlets with the words "No Dumping! Flows to Bay" or similar.	☐ Maintain replace in ☐ Provide s preventio owners, l ☐ See appli Fact Shee Maintena Stormwat www.cab ☐ Include t agreemer anyone t storm dra materials

VI. Source Control Measures

The townhomes will create few potential sources of stormwater pollutants. Sources to be controlled include:

- Potential dumping of wash-water or other liquids into storm drains inlets.
- Need for future indoor or structural pest control.
- Fertilizers and pesticides used in community square, garden, and yard maintenance.
- Fire sprinkler test water
- Miscellaneous drain or wash water
- Refuse will be handled by individual trash cans for each homeowner. Each homeowner will be required to store their cans in a covered area.
- A central plaza will be publicly used including for food preparation.

Sources and Source Control IMPs

Table 2

Potential Source	**Permanent Controls (BMPs)**	**Operational Controls (BMPs)**
On-site dumping into storm drain inlets	All accessible on-site inlets will be marked with the words "No Dumping! Flows to Creek"	Markings will be periodically repainted or replaced. Inlets and pipes conveying stormwater to BMPs will be

Stormwater Facility Maintenance

Page 29

- Ownership and responsibility
  - Commitment to execute agreements
  - Accept O&M until formally transferred
- Maintenance requirements
  - Fact sheets on website

REVIEWPLANS

Construction C.3 Checklist

IX. Construction Plan C.3 Checklist

Table 3

Stormwater Control Plan Reference	IMP Description	Plan Sheet Number
Section III	Runoff from DMA 1 is directed to IMP 1	
Section III	Runoff from DMA 2 is directed to IMP 2	
Section III	Runoff from DMA 3 is directed to IMP 3	
Section III	Runoff from DMA 4 is directed to IMP 4	
Section III	Runoff from DMA 5 is directed to IMP 5	
Section III	Runoff from DMA 6 is directed to IMP 6	
Section III	Runoff from DMA 8 is directed to DMA 7	
Section III	Runoff from DMA 9 is directed to DMA 7	
Section III	Runoff from DMA 10 is directed to DMA 7	
	Various landscaping and non-treatment planters will be located around the site.	
	On-site drain inlets to be marked with "no dumping" message.	
	Plant selection to minimize irrigation, minimize use of fertilizers and pesticides, and for pest resistance.	

Certification

- "The selection, size, and preliminary design of treatment BMPs and other control measures in this plan meet the requirements of Regional Water Quality Board Order R2-2009-0074."

Reporting

Provision C.3.b. Sample Reporting Table
Regulated Projects Approved During the Reporting Period 07/08 to 06/09
City of Eden Annual Report FY 2008-09

Project Name, Project Number, Location, Street Address,	Name of Developer, Project Phase No.,[1] Project Type & Description	Project Watershed[2]	Total Site Area, Total Area of Land Disturbed	Total New and/or Replaced Impervious Surface Area[3]	Total Pre- and Post-Project Impervious Surface Area[4]	Status of Project[5]	Source Control Measures	Site Design Measures	Treatment Systems Installed[6]	Operation & Maintenance Responsibility Mechanism	Hydraulic Sizing Criteria	Alternative Compliance Measures[7,8]	HM Controls[9,10]
Private Projects													
Nirvana Estates; Project #05-122; Property bounded by Paradise Lane, Serenity Drive, and Eternity Circle; Eden, CA	Heavenly Homes; Phase 1; Construction of 156 single-family homes and 45 townhomes with commercial shops and underground parking.	Runoff from site drains to Babbling Brook	25 acres site area, 21 acres disturbed	20 acres new	20 acres post-project	Application submitted 12/29/07, Application deemed complete 1/30/08, Project approved 7/16/08	Stenciled inlets, street sweeping, covered parking, car wash pad drains to sanitary sewer	Pervious pavement for all driveways, sidewalks, and commercial plaza	vegetated swales, detention basins,	Conditions of Approval require Homeowners Association to perform regular maintenance. Written record will be made available to City inspectors.	WEF Method	n/a	Contra Costa sizing charts used to design detention basin at Peace Park. Also contributed to in-stream projects in Babbling Brook
Barter Heaven; Project #05-345; Shoppers Lane & Bargain Avenue; 14578 Shoppers Lane, Eden, CA	Deals Galore Development Co.; Demolition of strip mall and parking lot and construction of 500-unit 5-story shopping mall with underground parking and limited outdoor parking.	Runoff from site drains to Bargain River	5 acres site area, 3 acres disturbed	1 acre new, 2 acres replaced	3.5 acres pre-project, 4.5 acres post-project	Application submitted 7/9/08, Application deemed complete 8/2/08, Project approved 12/12/08	Stenciled inlets, trash enclosures, underground parking, street sweeping	One-way aisles to minimize outdoor parking footprint; roof drains to planter boxes	tree wells with bioretention; planter boxes with bioretention	Conditions of Approval require property owner (landlord) to perform regular maintenance. Written record will be made available to City inspectors.	BMP Handbook Method	$ 250,000 paid to Renew Regional Project sponsored by Riverworks Foundation, 243 Water Way, Eden, CA 408-345-6789	Renew Project includes treatment and HM Controls

Stormwater NPDES Compliance for New Developments

SMALL PROJECTS

Provision C.3.i.

- Started December 1, 2012
- Small Projects
  - All projects requiring approvals or permits
  - 2,500 SF ≥ impervious area ≤10,000 SF
  - Single family homes ≥ 2,500 SF
- Site Design Measures
  - Rain barrels or cisterns
  - Direct runoff to vegetated areas
  - Permeable pavement
- Develop standard specifications
- Reporting: Discuss implementation

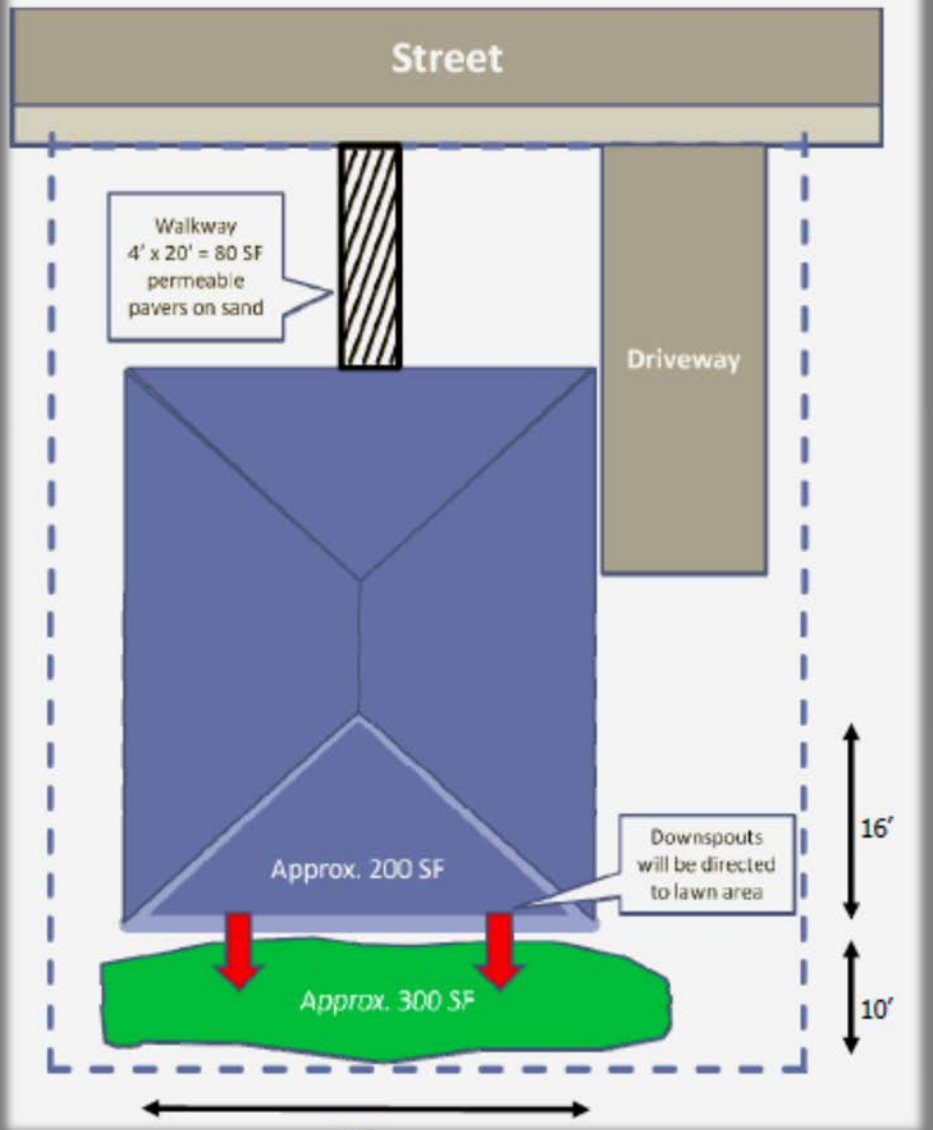
SMALL

SMALL

Example Sketch

The example below illustrates the level of detail required.

Not to Scale

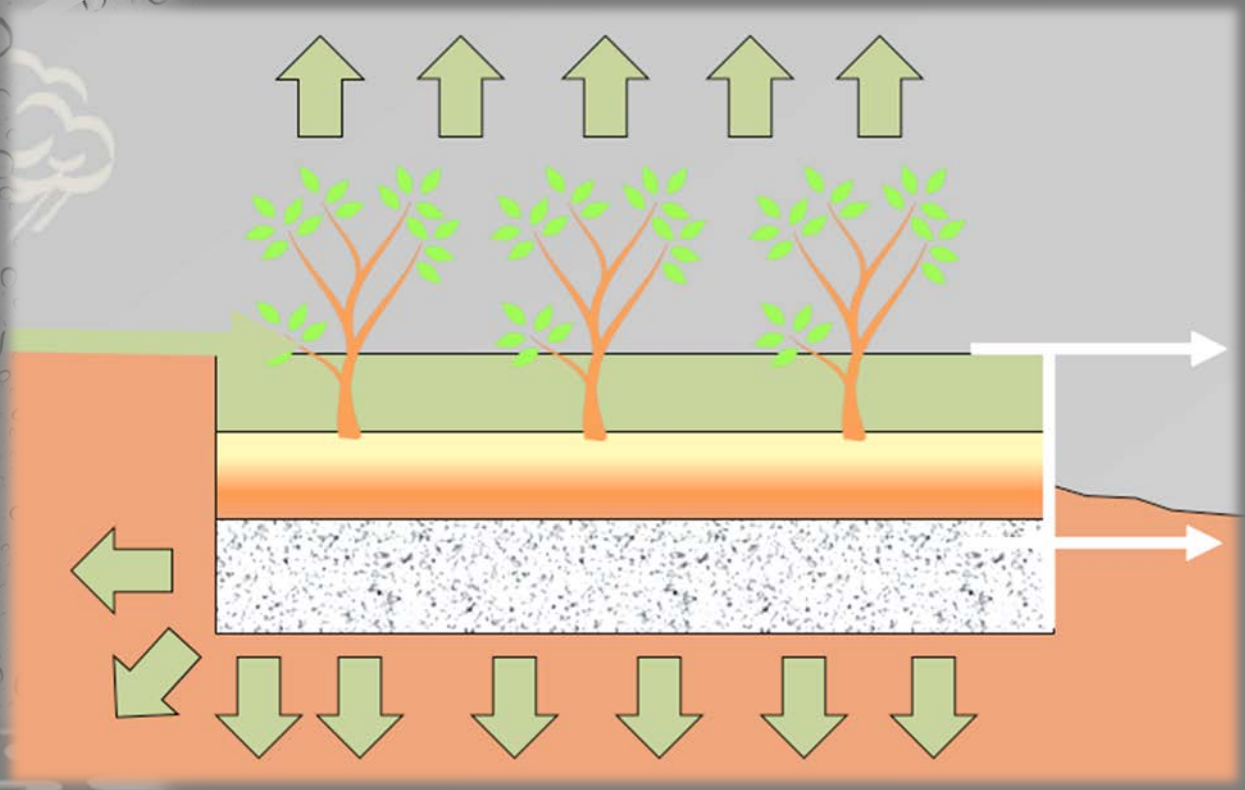


Stormwater NPDES Compliance for New Developments

BIORETENTION DESIGN

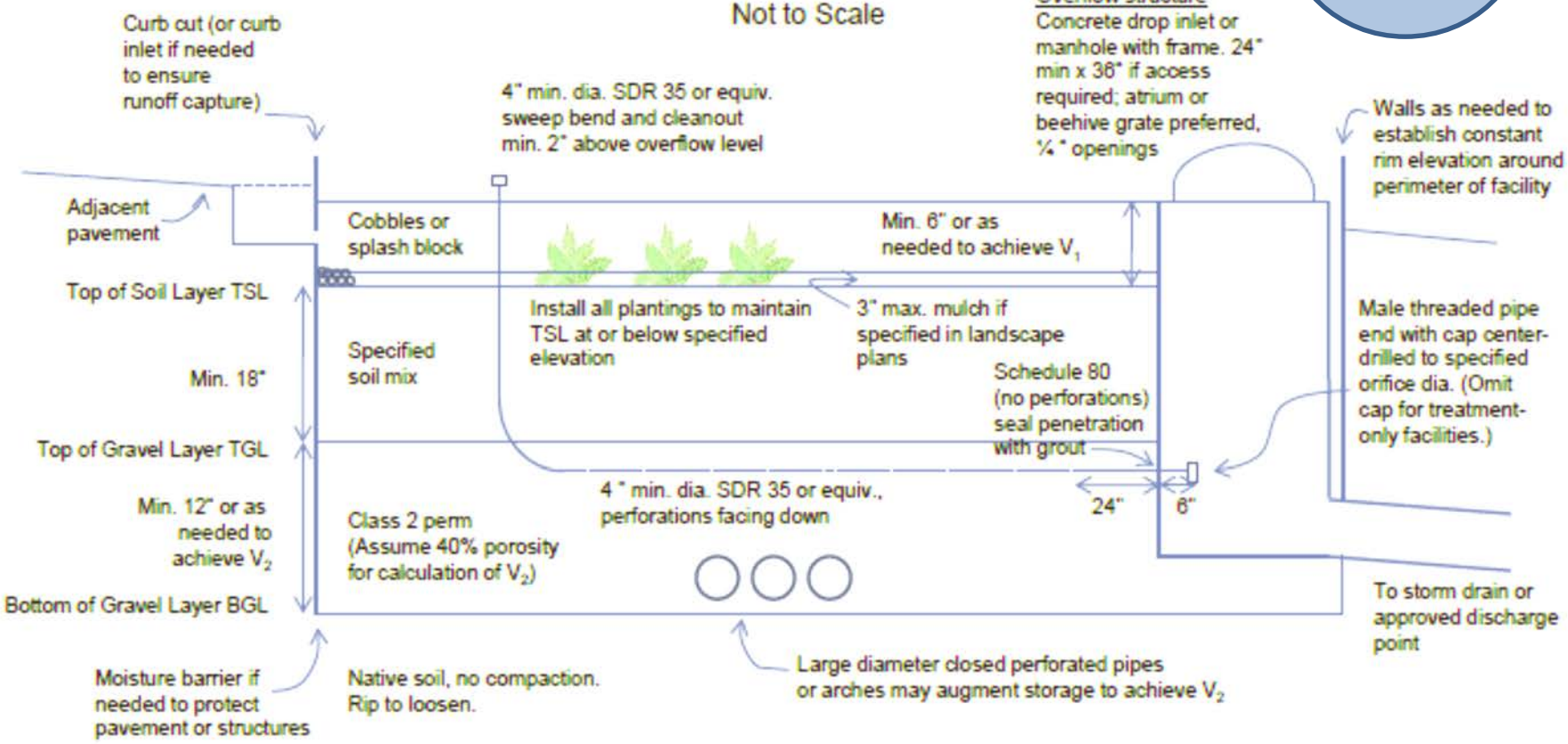
Make This Happen

- Bioretention facilities are level so they "fill up like a bathtub."



Bioretention Facility

Cross-section
Not to Scale

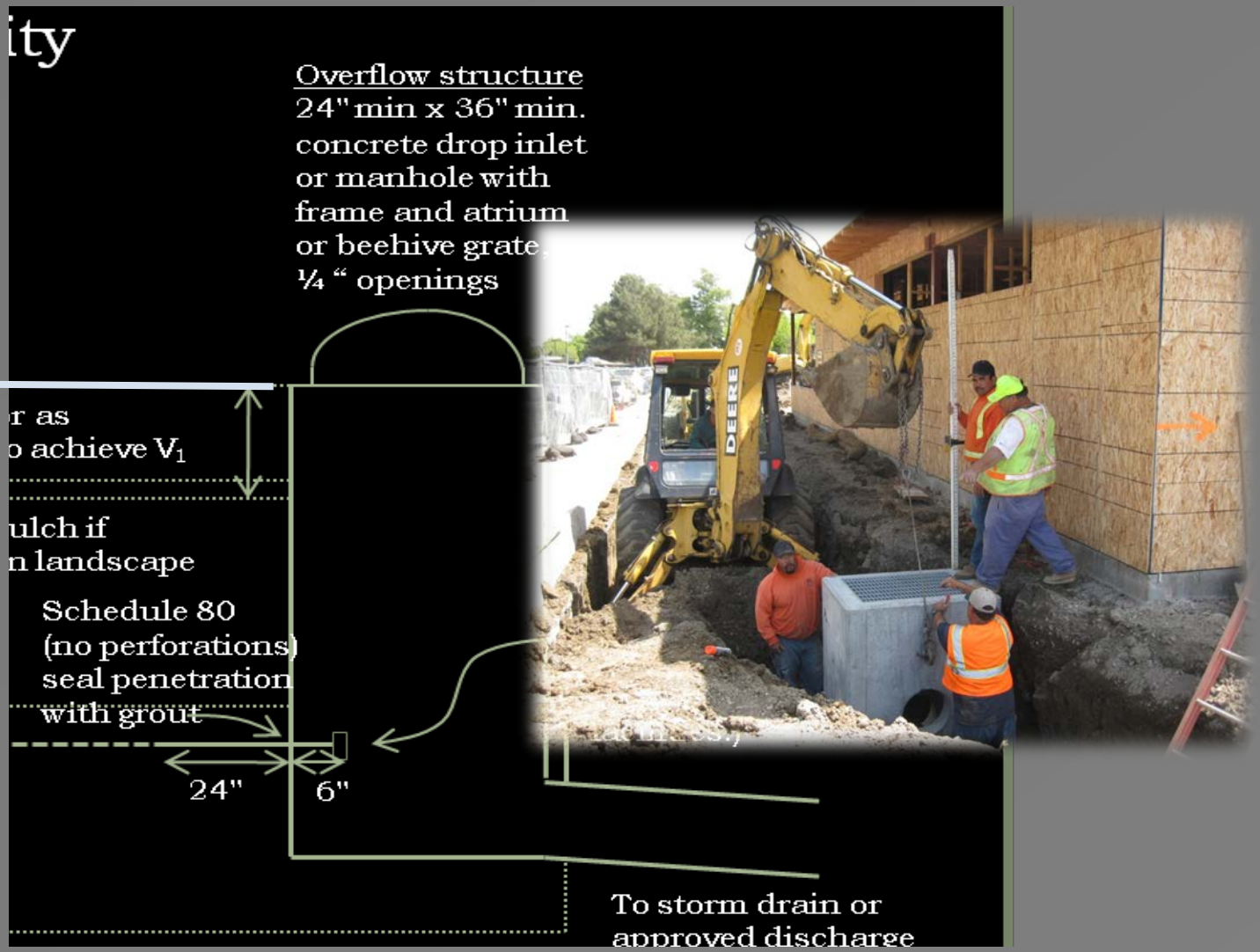


Notes:

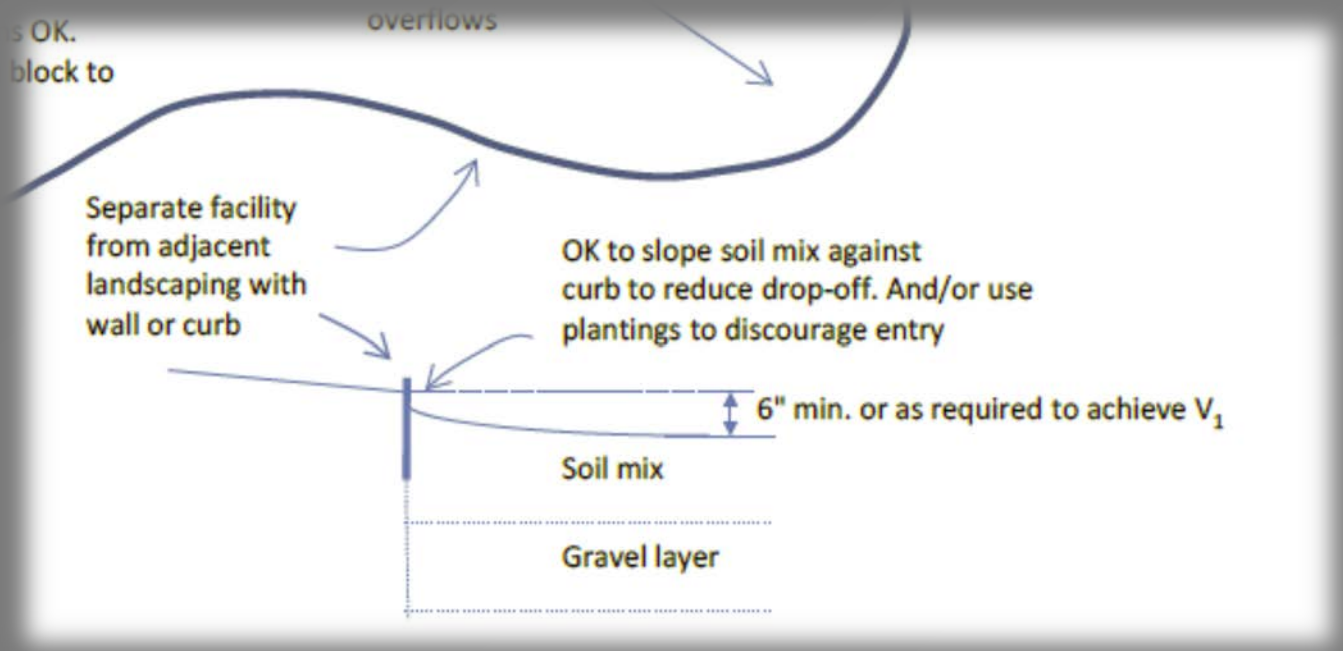
- No liner, no filter fabric, no landscape cloth.
- Maintain BGL. TGL, TSL throughout facility area at elevations to be specified in plan.
- Class 2 perm layer may extend below and underneath drop inlet.
- Elevation of perforated pipe underdrain is near top of gravel layer, except when zero infiltration is expected.
- See Appendix B for soil mix specification, planting and irrigation guidance.
- See Chapter 4 for factors and equations used to calculate V_1, V_2 and orifice diameter.

Outlets

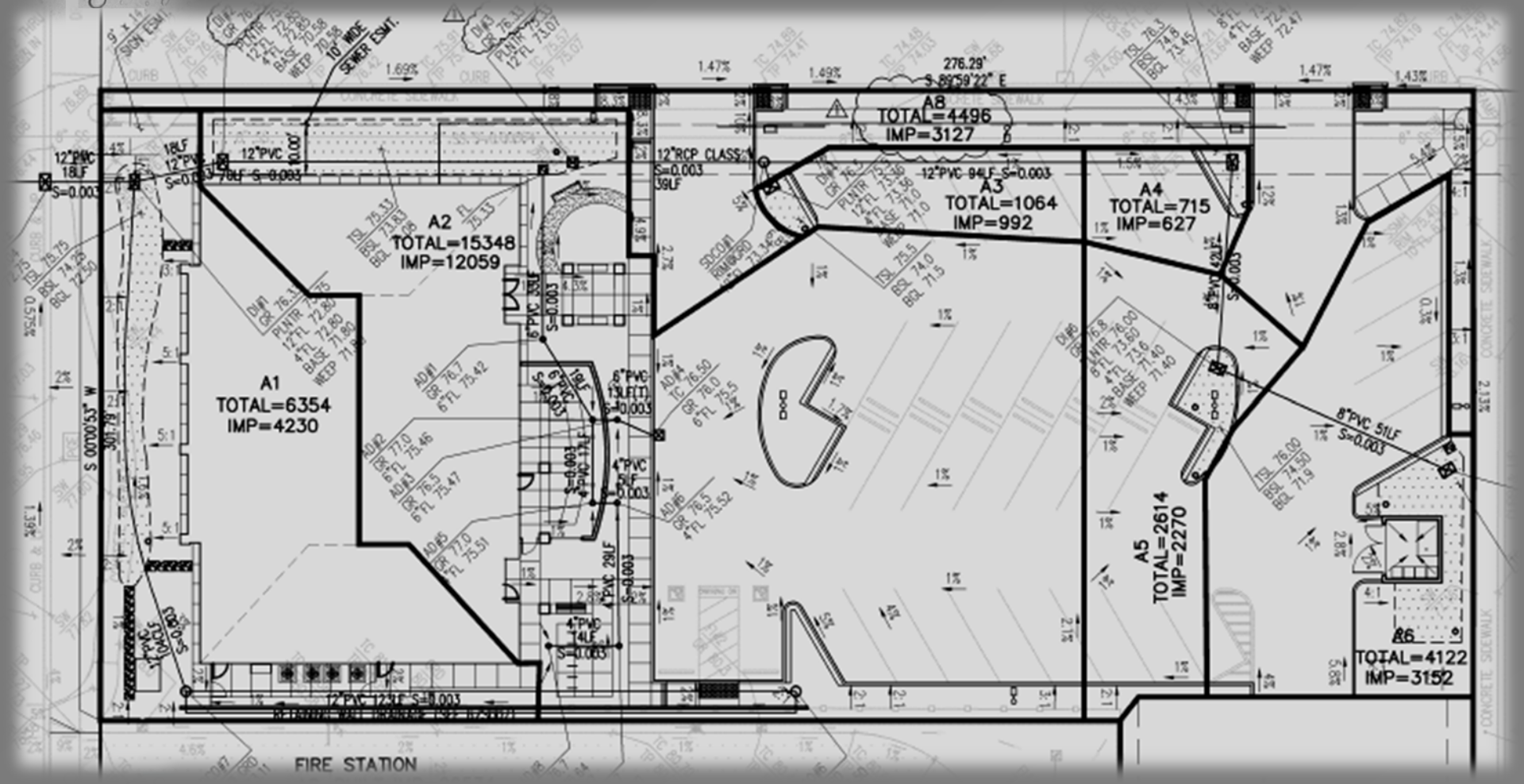
Overflow elevation



Bioretention Edges

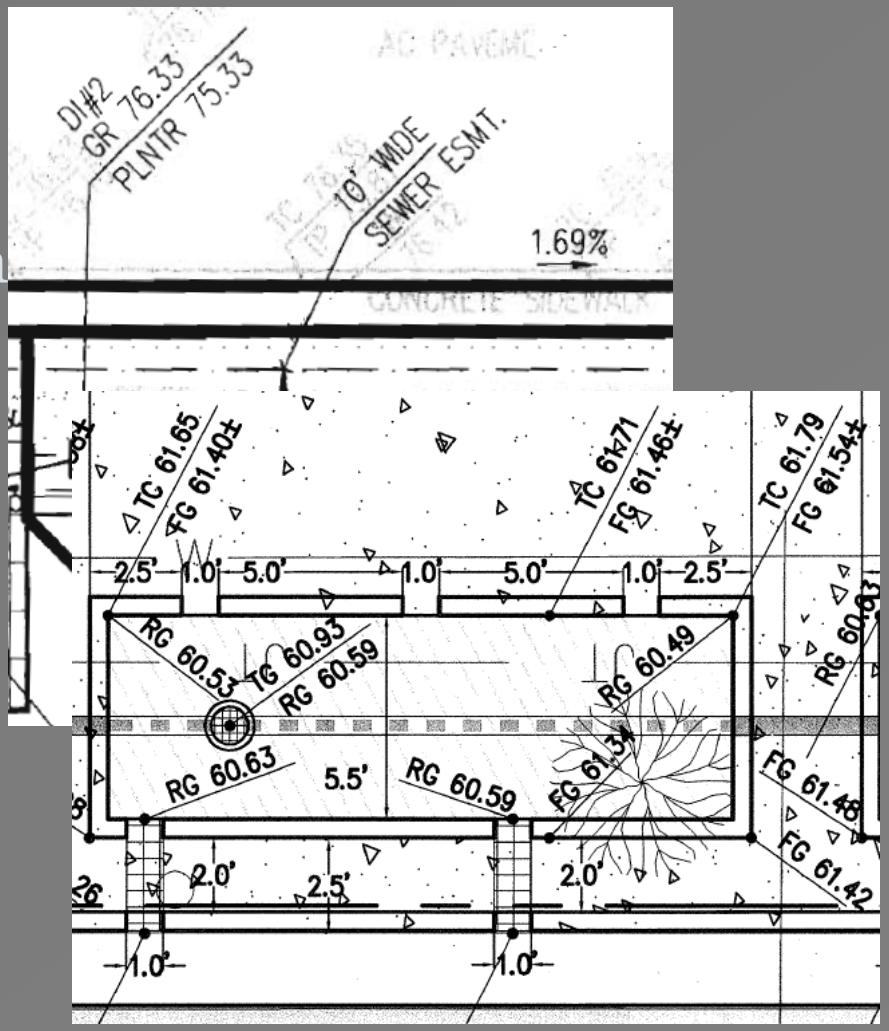


DMAs with Grading Shaded



Call out elevations

- Outlet structure
  - Top of overflow grate
  - Underdrain connection
- Inlet
  - Flow line at inlet
  - Top of curb
  - Top of adjacent paving
- Soil layers
  - Top of soil layer
  - Bottom of gravel layer
  - Bottom of soil layer



Gravel and Underdrain

- Class 2 permeable
  - Caltrans spec 68-1.025
  - Typical to be slightly off gradation spec on delivery
- No filter fabric
- Underdrain
  - Near top of gravel layer
  - PVC SDR 35 or equivalent; holes facing down
  - Solid pipe for 2' closest to outlet structure
  - Cleanout

BIORETENTION

Soil Specification

- 60-70% Sand
  - ASTM C33 for fine aggregate
- 30-40% Compost
  - Certified through US Composting Council Seal of Testing Assurance Program
- Submittal per Guidebook
- Option to accept test results for a “brand-name” mix if volume is less than 100 cubic yards
- Install in 8"-12" lifts
- Do not compact
- Do not overfill
- Leave room for mulch

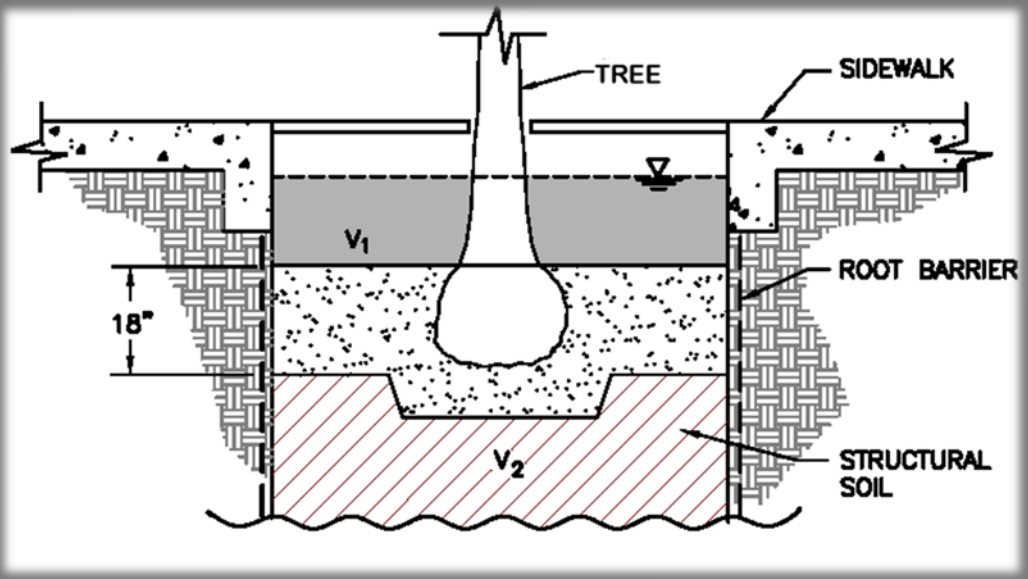
BIORETENTION

Bioretention Construction

- Runoff flow from the intended tributary drainage management area must flow into the facility.
- The surface reservoir must fill to its intended volume during high inflows.
- Runoff must filter rapidly through the layer of imported soil mix.
- Filtered runoff must infiltrate into the native soil to the extent possible (or allowable).
- Remaining runoff must be captured and drained to a storm drain or other approved location.

Plantings

- Maintain design top of soil elevation
- Trees
  - Incorporate into bioretention facility
  - Account for surface roots



BIORETENTION

Pedestrian Access, Utilities

Stormwater NPDES Compliance for New Developments

OPERATION & MAINTENANCE

Ensure Operation & Maintenance

- Initial inspection within 45 days
- Inspect 20% of facilities each year
- Inspect every facility once every 5 years

O&M

What to look for

- Properly designed and constructed bioretention facilities are nearly maintenance-free…
- **…Unless** facilities are treated as ordinary landscaping.
  - Additions of topsoil or mulch
  - Re-grading
  - Additional plantings
- Also…
  - Plants may grow so dense that runoff can't enter

O&M

Addition of material

Resources for O&M Inspections

- Forms
  - Designation of Responsible Individuals
  - Operation and Maintenance Log
- O&M Fact Sheets
- Example O&M Plans
- Example Contents of Inspector's Report

O&M

Table C.3.h. – Operation and Maintenance of Stormwater Treatment Systems
City of Eden Annual Report FY 2008-09

Facility/Site Inspected and Responsible Party for Maintenance	Date of Inspection	Type of Inspection (annual, follow-up, etc.)	Type of Treatment System or HM Control Inspected	Inspection Findings or Results	Enforcement Action Taken (Warning, NOV, administrative citation, etc.)	Comments
ABC Company 123 Alphabet Road San Jose	12/06/08	annual	offsite bioretention unit	proper operation	none	Unit is operating properly and is well maintained.
DEF site 234 Blossom Drive Santa Clara	12/17/08	annual	onsite media filter	ineffective filter media	verbal warning	Media filter is clogged and needs to be replaced.
	12/19/08	follow-up	onsite media filter	proper operation	none	New media filter in place and unit is operating properly.
	1/19/09	follow-up	onsite media filter	proper operation	none	Unit is operating properly.
GHI Hotel 1001 Grand Blvd 227 Touring Parkway	12/21/08	annual	onsite swales	proper operation	notice of violation	Bioretention unit #2 is badly eroded because of flow channelization. Stormwater is flowing over the eroded areas, bypassing treatment and running off into parking area.
			onsite bioretention unit #1	proper operation		
			onsite bioretention unit #2	eroded areas due to flow channelization		
	12/27/08	follow-up	onsite bioretention unit #2	proper operation	none	Entire bioretention unit #2 has been replanted and re-graded. Raining heavily but no overflow observed.
Rolling Hills Estates Homeowners' Association 543 Rolling Hill Drive Pleasanton	01/17/09	annual	onsite pond	sediment and debris accumulation	notice of violation	Pond needs sediment removal and check dam needs debris removal.
	01/24/09	follow-up	onsite pond	sediment and debris accumulation	administrative citation $1000	Pond still a mess. Administrative citation requires maintenance within a week.
	01/31/09	follow-up	onsite pond	proper maintenance	none	Pond maintenance completed.
	02/18/09	spot inspection	onsite pond	proper operation and maintenance	none	Proper operation and maintenance.

Discussion