



Meeting Virginia's Water Quality Demand

Innovative Strategies for TMDL Compliance



About RES

Private-sector solutions meeting government needs.

RES is the nation's largest provider of ecological restoration.

We're the only fully scaled operating company providing ecological restoration and water resource solutions to the public and private sectors. Our unique operating model covers project lifecycle from start to finish, all with in-house teams and project financing capacity.

RES serves public and private sector clients with turnkey, land-based projects that build and sustain natural resiliency in our ecosystems.

Whether it is helping a municipal system absorb stormwater, restore eroding streambanks, or enhance the resiliency of tidal ecosystems, we work every day to protect the essential elements of nature while promoting responsible progress.

Innovative Strategies to TMDL Compliance

- 1 Re-Imagining Turnkey
- 2 Extreme Customization
- 3 The Power of Nutrient Credits

Under One Roof



On the Ground

Certified arborists	Nursery managers
Construction operators	QA/QC oversight teams
Engineers	Rosgen IV certified stream designers
Field crew members	Superintendents
Field ecologists	Wetland scientists
Hydrologists	Wildlife biologists
Landscape architects	

Behind the Scenes

Environmental, health, safety, and security (EHS&S)	Public relations
Financial	Land acquisition
GIS specialists	Legal
Government affairs	Regulatory project managers
Project controls	



Stream restoration can provide some of the most cost-effective credits for TMDL compliance.

RES Stream Restoration
by the Numbers

60+

Stream restoration professionals

350+

Miles of streams restored

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Re-Imagining Turnkey: Going Green, Going Long

A true turnkey project includes sourcing land for the best sites, all design and permitting, complete construction, and monitoring and maintenance to ensure success. RES excels at nature-based projects, and our responsibility for them goes far beyond the “as built” stage. We see them through for the long-term. Highlights of a RES turnkey project include:

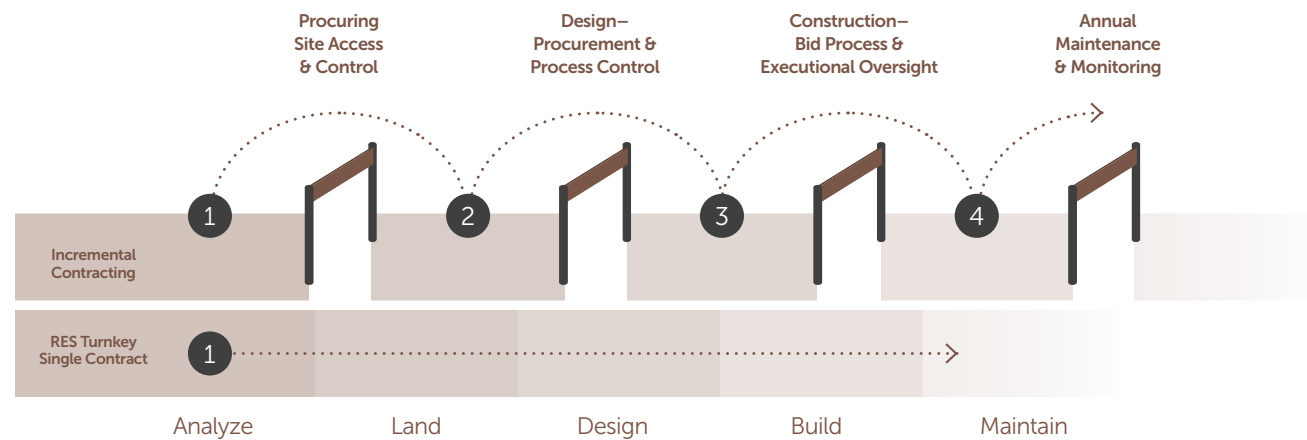
Financing and Payment Milestones

RES is sensitive to public sector budgets and can work with you to deliver a project immediately, financed over future years based on your budget. We also build in payment milestones that are based on project successes, favoring our client’s interests.

Why pay for a project design that may not be approved by the agencies? Why pay for construction delays? RES invoices upon project successes such as plan approval, obtaining permits, and construction completion, ensuring our clients only pay for successfully implemented projects.

De-risking and Liability Transfer

Fixed pricing combined with financial assurances means our clients are protected from the liabilities associated with project success monitoring. The successful delivery of credits rests solely on RES.



RES Turnkey vs. Incremental Contracting

Our Toolkit

Nature-Based, Low Impact Design, and Traditional BMPs

Stream and Wetland Restoration

Stormwater Retention Ponds (Wet or Dry)

Bioretention Facilities

Wetland-enhanced BMPs

Sand Filters

Buffer Planting / Enhancement

Regenerative Stormwater Conveyances

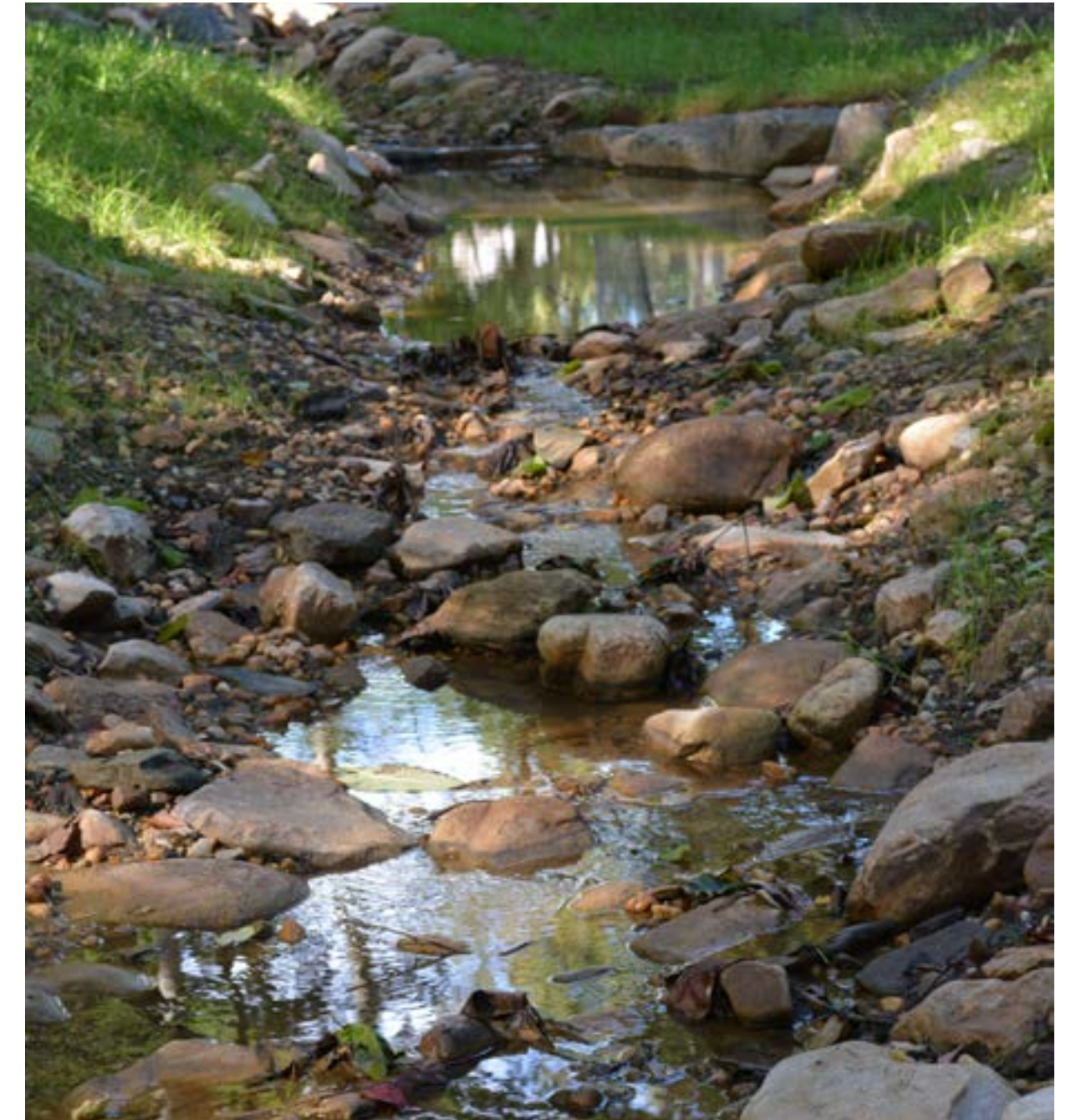
Floating Treatment Wetlands

Bioswales

Infiltration Planters

Underground Detention Vaults

Permeable Pavement / Pavers



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Extreme Customization

A municipality's water quality needs can be extremely specific. Threading the needle with the right credit strategies starts with a broad toolkit and an experienced partner.

- Some MS4 permittees may be more limited by nitrogen reductions than phosphorus.
- Some do not have streams in need of restoration and must look to other BMPs.
- Some projects seek to primarily protect an asset, like an exposed pipe, generating credits only secondarily.

Uncommon but Effective Tactics

Layering benefits. RES identifies projects that meet as many needs as possible for our clients. For example, in layering benefits, RES is able to combine the best aspects of asset protection and stormwater management with elements of public educational and recreational opportunities via the incorporation of trails, observation points, and/or fishing piers into our designs.

Projects on private land. Many MS4 permittees have limited options for implementing BMPs on locality-owned land, with available options often being cost-prohibitive or offering relatively low ecological uplift. By considering options on private land, a permittee can maximize economic and ecological benefits.

Projects located outside an MS4's regulated area *can* generate credits toward their TMDL compliance. RES uses proprietary GIS analysis to identify the best sites within the watershed, offering excellent costs-per-credit to our clients, while protecting and enhancing the landowner's property resources.

Multiple MS4 permittees can take advantage of credits from the same ecological restoration project. Teaming up in this manner can allow all purchasers to benefit from economy of scale pricing.

Experts at Enhanced Reduction Efficiencies

The default nutrient removal efficiency established by the expert panel for a stream restoration project is 50% but can be proven higher with a pre- and post-construction data comparison, approved by DEQ.

RES pioneered this technique, and has had consistent success demonstrating efficiencies well above the default rate, resulting in significant cost savings to our MS4 clients.

RES also capitalizes on additional nutrient and sediment removal by maximizing floodplain reconnection and calculating nitrogen removal during base stream flow. Also known as Protocols 2 and 3, their utilization adds significant load reductions to our projects.



Wancopin Creek Turnkey Stream Restoration

Loudoun County

RES is providing an innovative turnkey stream restoration project on VDOT's behalf, covering over seven miles of streams and yielding reductions of over 4,000 pounds of phosphorus. The project will restore degraded stream channels, create floodplain wetlands, and enhance riparian corridors and associated habitats near Middleburg.

[LEARN MORE](#)



P3 Contract for Stream Restoration

Prince William County

RES partnered with the County's Department of Parks and Recreation, establishing this first-of-its-kind public-private partnership (P3) for stream restoration. To date, we have restored over 12,000 LF of stream channel, with riparian enhancements, on County-owned parklands. True to our innovative roots, restoration work was done at no cost to the County, and pays the County a portion of credit sales.

[LEARN MORE](#)



Gambles Mill Eco-Corridor

City of Richmond

RES partnered with the University of Richmond to restore a 2,300 LF stream on campus. The project will generate approximately 1,440 pounds of cost-effective Total Phosphorus removal to be utilized by the City of Richmond for their MS4 permit's TMDL compliance goal. The campus benefits not only from enhanced natural habitat value, but RES also incorporated a recreational trail throughout and provided for hands-on educational opportunities to students and faculty.

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The Power of Nutrient Credits

Is it time for a second look? As permittees accomplish the easier projects from their TMDL Action Plans and look to the second and third MS4 permit cycles and final 100% TMDL goals, nutrient credits are increasingly beneficial to avoid any shortfalls in achieving reductions.

If you haven't checked current nutrient credit prices against the costs-per-credit estimated from your Action Plan projects, it may be worth this simple effort.

Current price pressure in the nutrient credit market has decreased costs in watersheds around the state. Combine this with the relatively new availability of SLAF funding for TMDL-related credit purchases, and this approach becomes much more favorable.

Credits remain an easy way to avoid long-term maintenance liability of credit-generating projects. Nutrient credits can also help obtain one specific nutrient reduction over another – phosphorus, nitrogen, or sediment – without ending up with more than you need.

Checklist of Benefits

- ✓ BMPs that self-improve
- ✓ Reduction of maintenance costs
- ✓ Payment flexibility to budget certainty
- ✓ Transfer of risk to liability
- ✓ Ancillary benefits to surrounding ecosystems & communities



RES maintains state-wide inventory of nutrient credits for our clients' convenience.



George Mason University (GMU) Stream Restoration
Fairfax County

RES successfully performed this challenging stream restoration in close coordination with GMU project staff due to the highly constrained nature of this urban stream, its integration with heavily traveled and populated areas of campus, and an extremely demanding timeframe. The project generated nutrient and sediment reductions to assist with GMU's TMDL requirements.

Dewey's Creek Stream Restoration
Prince William County

RES performed 6,395 LF of restoration and nearly 22 AC of riparian buffer enhancement to assist with the County's TMDL compliance. Adjacent to a tidal area, a soft floodplain surrounded the restoration work. This environment created a major challenge for our team and required the installation of a custom access road to protect this sensitive habitat, allowing us to perform the work while minimizing impacts to the area.

Innovation can have a ripple effect...

Learn more:

Jason Murnock, CPESC, CPSWQ

Client Solutions Manager

Direct: 540.905.4245 | Mobile: 571.264.3786

