

WHOLE FARM CONSERVATION **BEST PRACTICES** MANUAL

Addendum: Decision Tools for Conservation Professionals



Development of this Whole Farm Conservation Best Practices Manual was led by the Conservation Learning Group at Iowa State University Extension and Outreach.

The Conservation Learning Group is a collaborative team that strives to advance training, outreach, and research across land uses and production systems to increase overall sustainability of agricultural and natural systems for multiple generations to come.

Conservation systems summit participants:

Iowa State University Extension and Outreach

United States Department of Agriculture–Natural Resources Conservation Service

United States Department of Agriculture–Agricultural Research Service

Practical Farmers of Iowa

Iowa Soybean Association

Iowa Agriculture Water Alliance

Special thanks to:

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Decision Tools for Conservation Professionals

Decision tools are important step-by-step guides in the process of decision making and risk analysis. Being visual in nature, decision tools are readily comprehensible and applicable.

The decision tools that follow clearly illustrate the choices, risks, objectives, and information needs involved in the implementation of conservation practices. Further, these decision tools visually illustrate possible alternatives, probabilities and outcomes, providing clarity to the decision making process.

The conservation decision tools that follow are based on research and experience to help **conservation professionals** guide clients in implementing a variety of practices on their farms.

N This icon represents **nitrogen reduction** edge-of-field practices.

P This icon represents **phosphorus reduction** edge-of-field practices.



Helpful information for edge-of-field decision tools

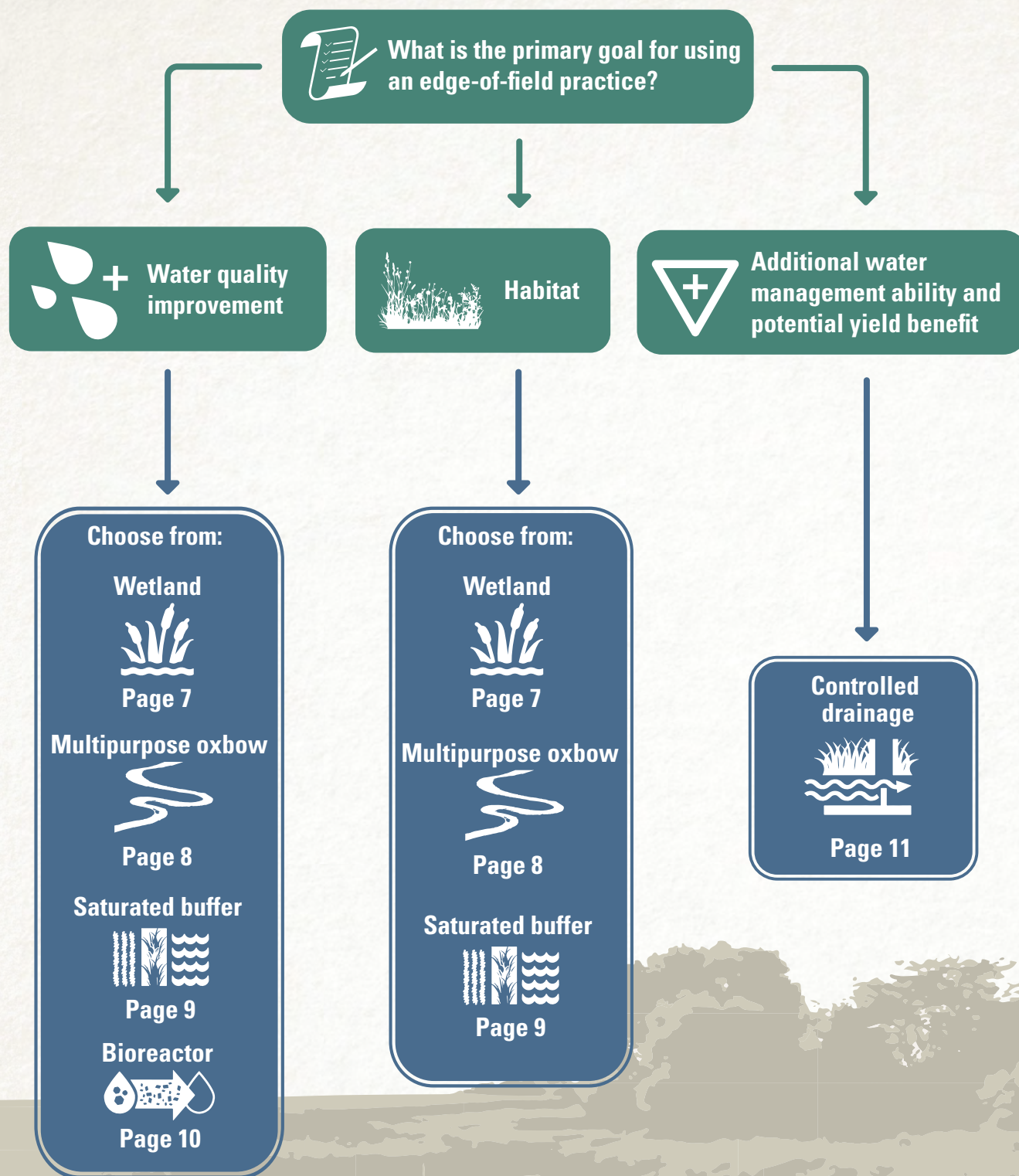
It is helpful to work with the decision maker (farmer or landowner) to gather background information prior to using the following edge-of-field decision tools, but collecting all the information suggested is not essential for using the tool.

Desirable background information includes aerial photos/imagery, drainage maps (with surface inlets if present), topographic maps, soil survey information, a conservation plan, awareness of the decision maker's goals, long-term site plans, profitability maps, knowledge of existing utilities, a watershed plan, any Agricultural Conservation Planning Framework (ACPF) information for the watershed, LiDAR maps, land-use and land-cover information for the surrounding watershed, and stream and river water quality monitoring data.





Could Nitrogen Reduction Edge-of-Field Practices Work for the Site?

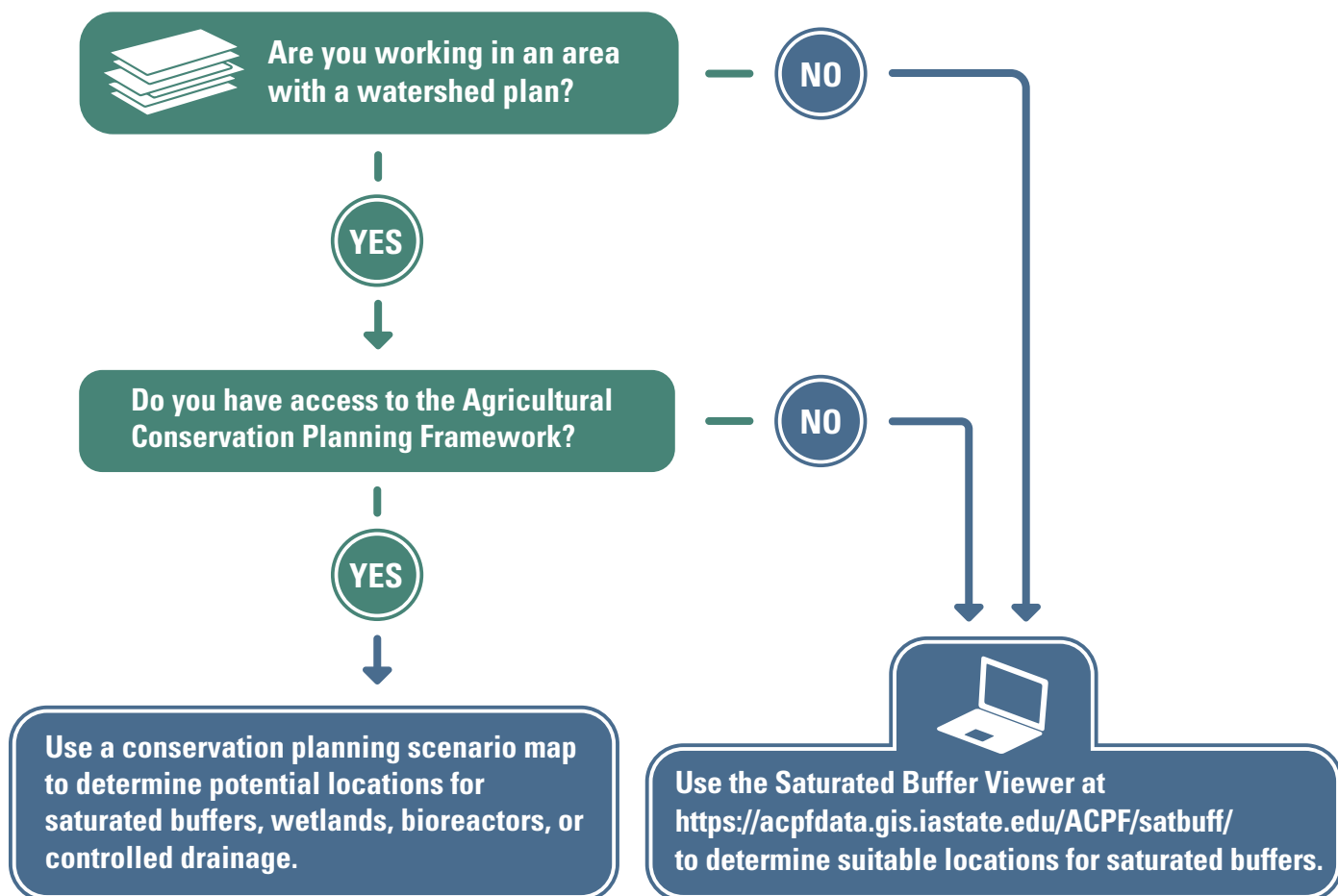


Attend a conservation field day to learn more!

Contact Iowa Learning Farms, Practical Farmers of Iowa, Iowa State University Extension and Outreach, or USDA-NRCS for field days near you.



Identifying Sites for Edge-of-Field Practices in a Hydrologic Unit Code (HUC) 12 Watershed

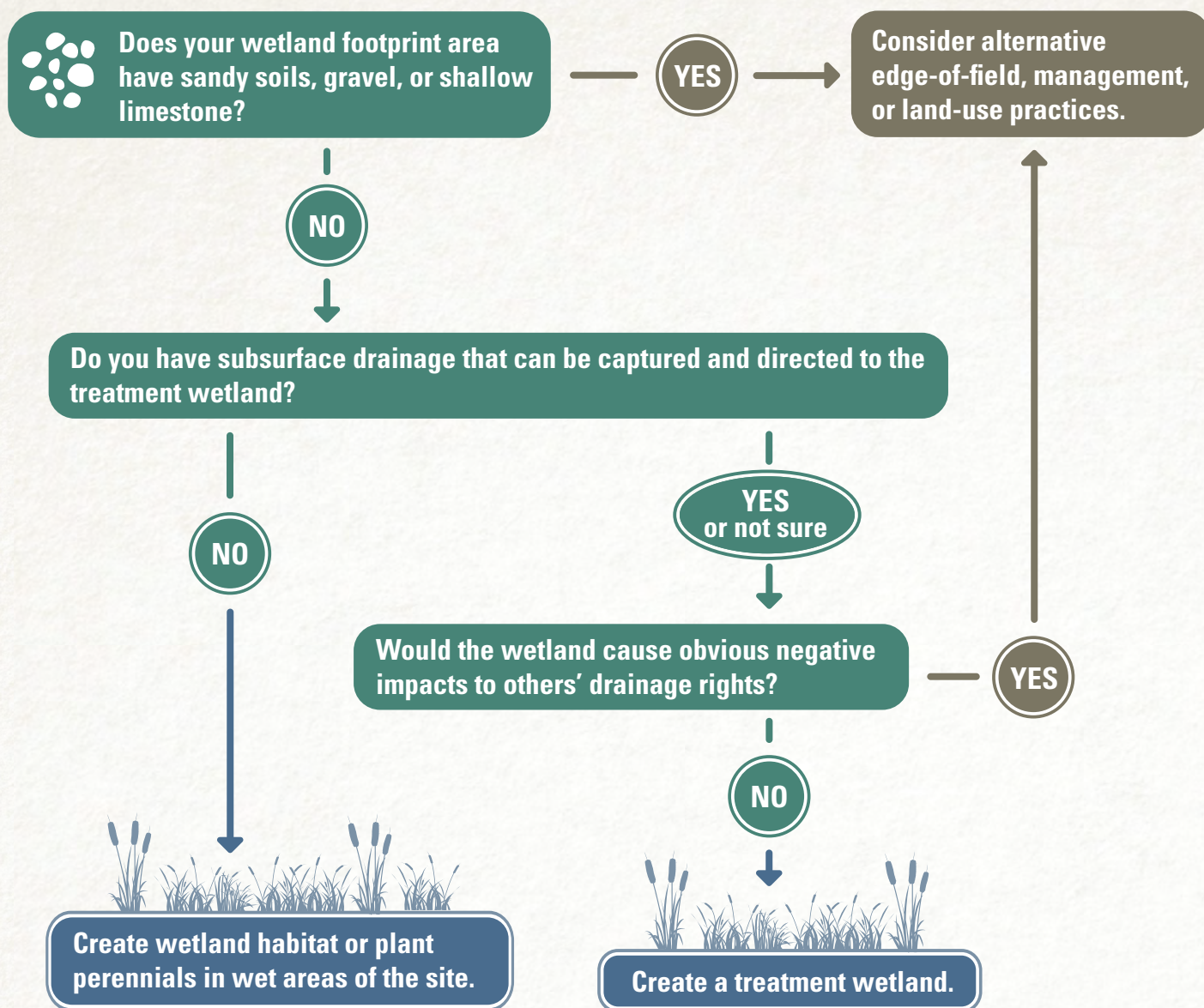


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Is a Wetland Right for the Site?

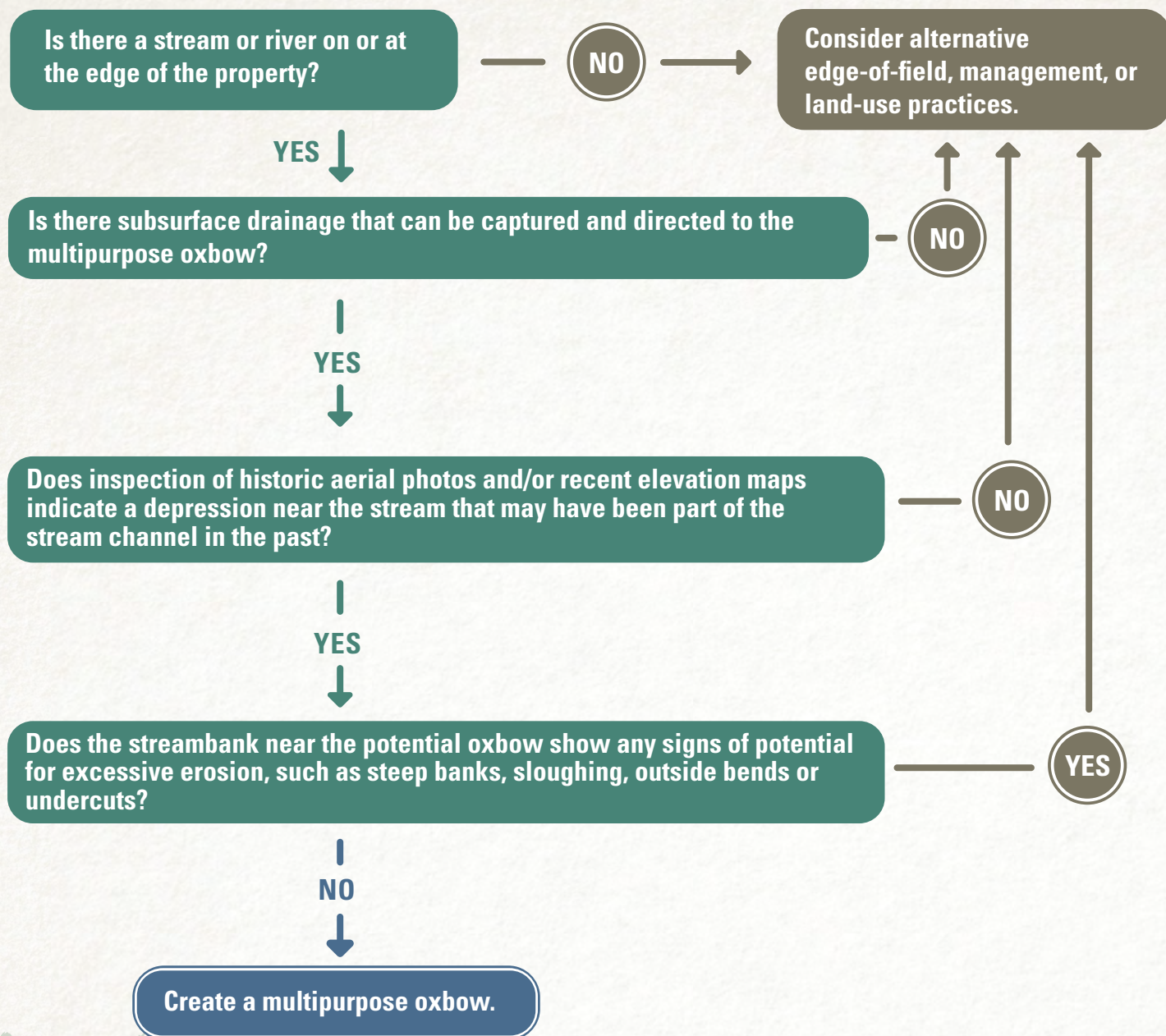


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Is a Multipurpose Oxbow Right for the Site?

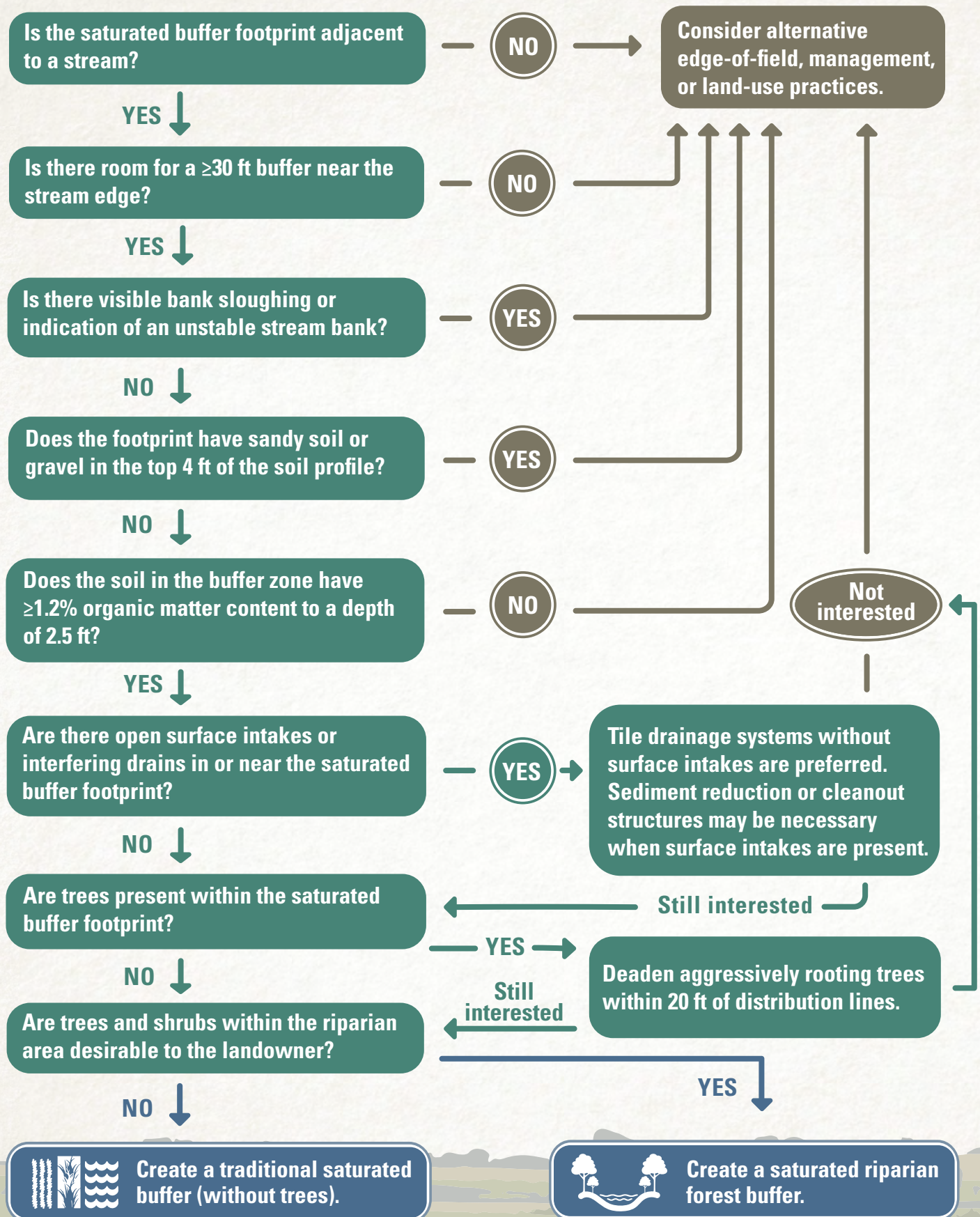


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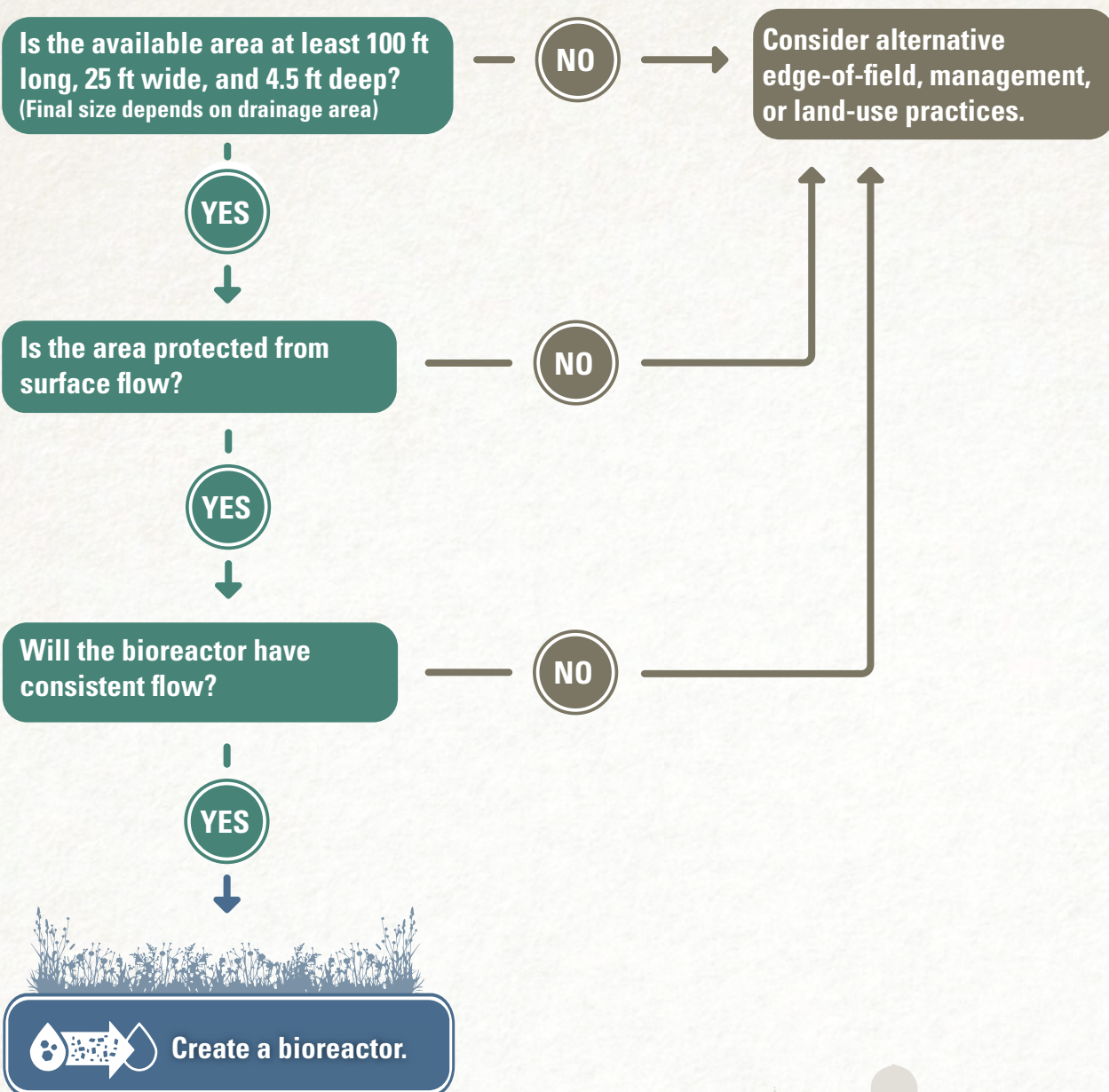


Is a Saturated Buffer Right for the Site?





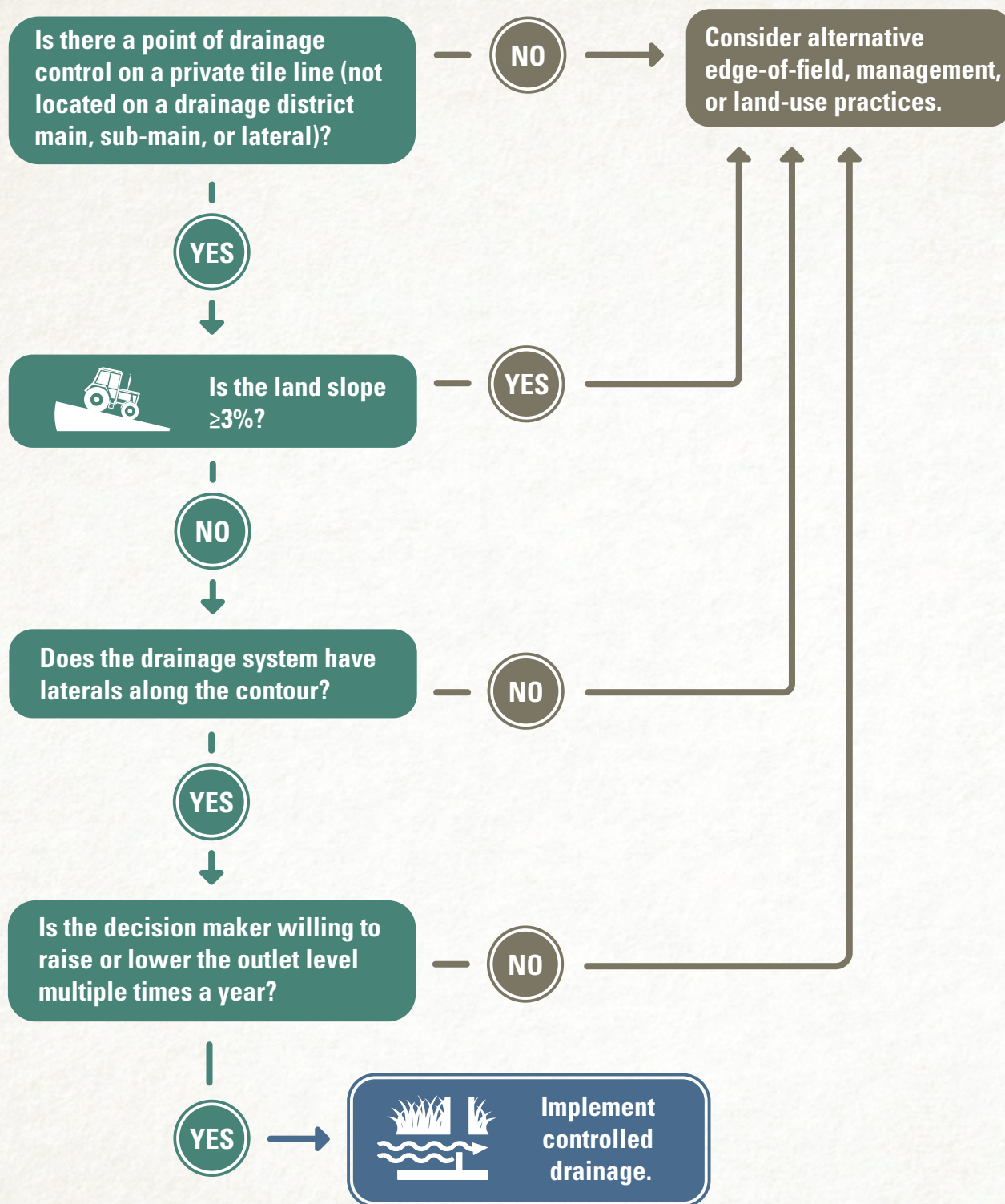
Is a Bioreactor Right for the Site?



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Is Controlled Drainage Right for the Site?

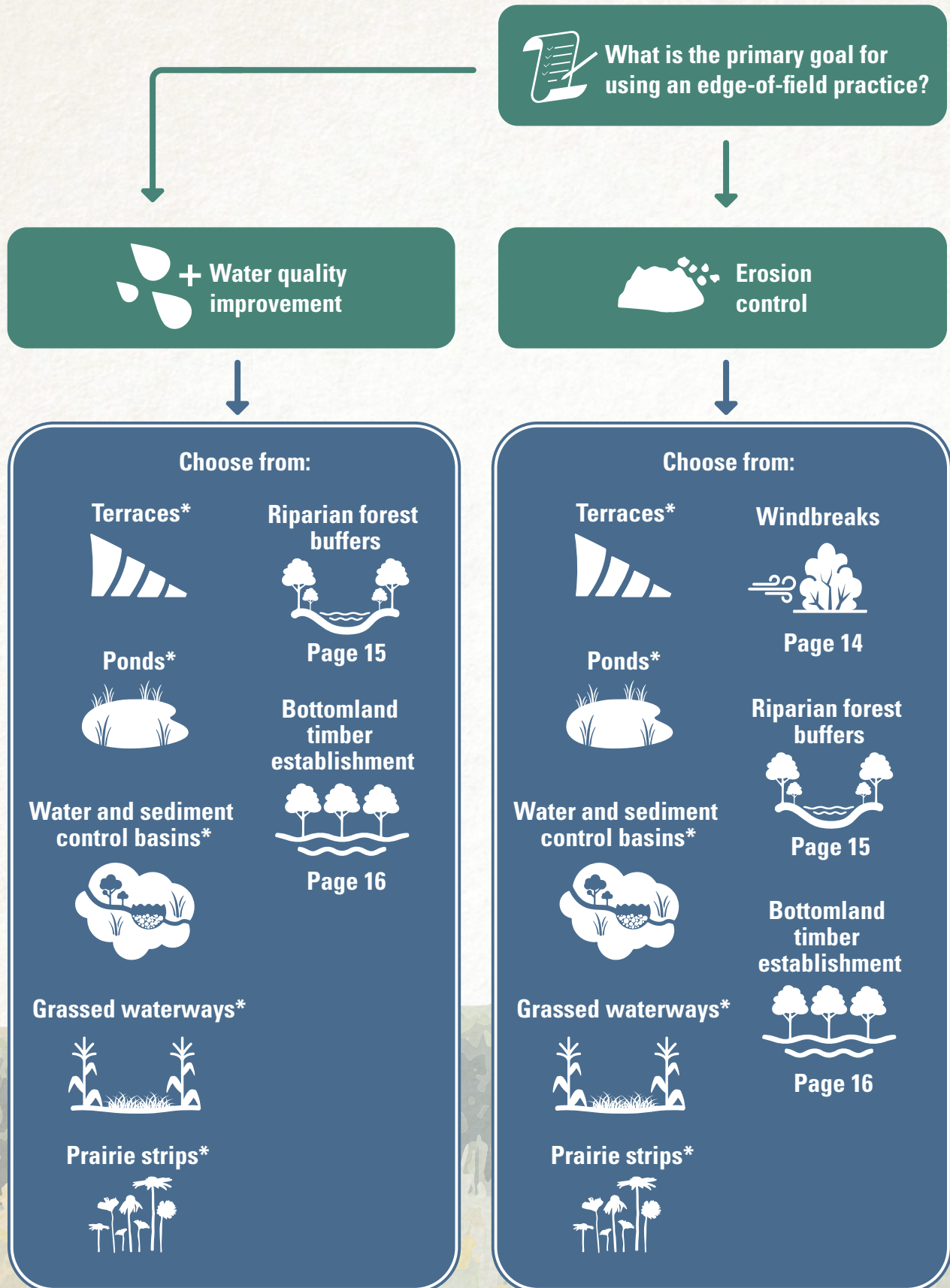


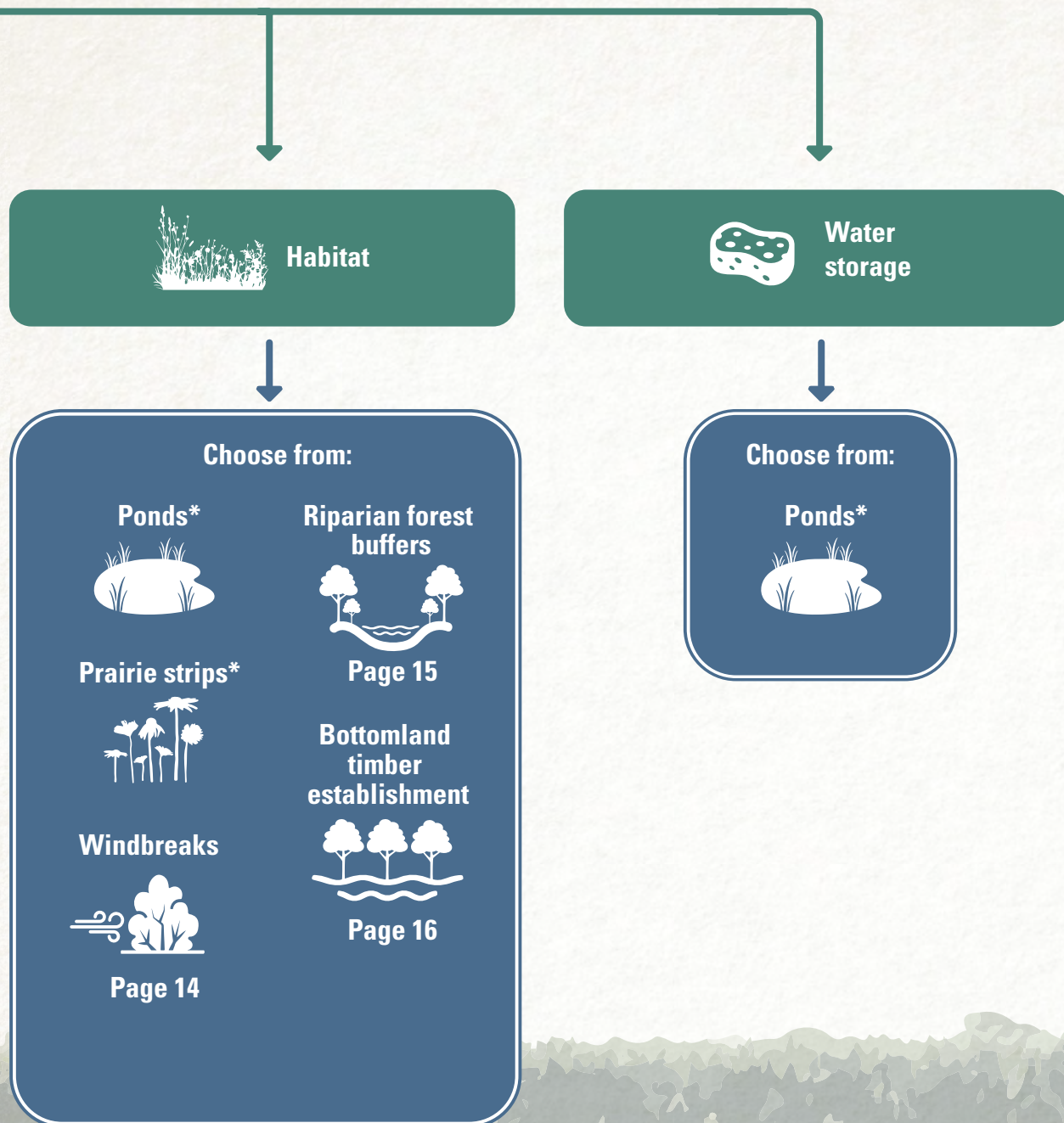
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Could Phosphorus Reduction Edge-of-Field Practices Work for the Site?

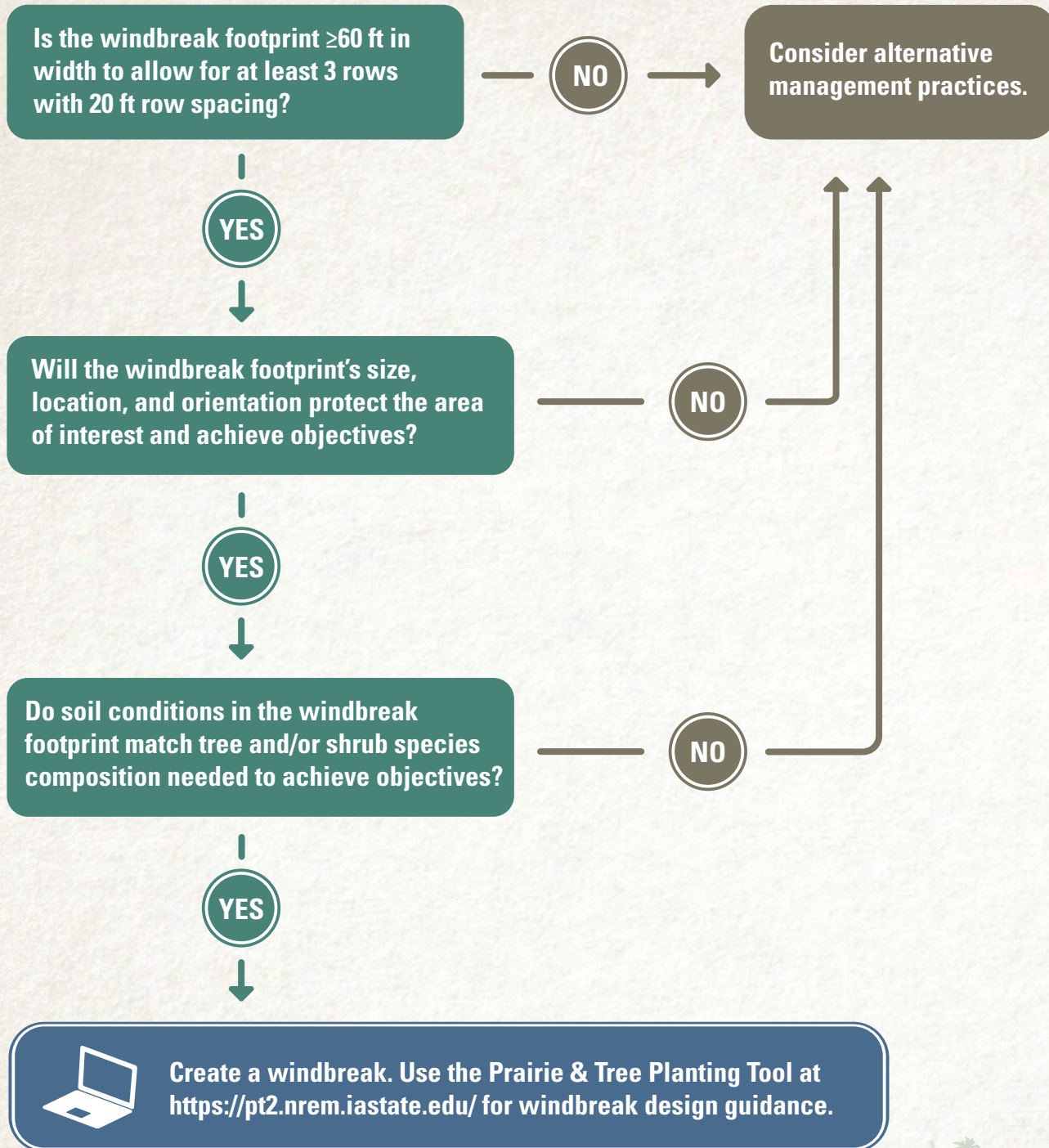




*Decision tools for these practices are only available in the full length Whole Farm Conservation Best Practices Manual, available at <https://store.extension.iastate.edu/product/Whole-Farm-Conservation-Best-Practices-Manual>.



Is a Windbreak Right for the Site?

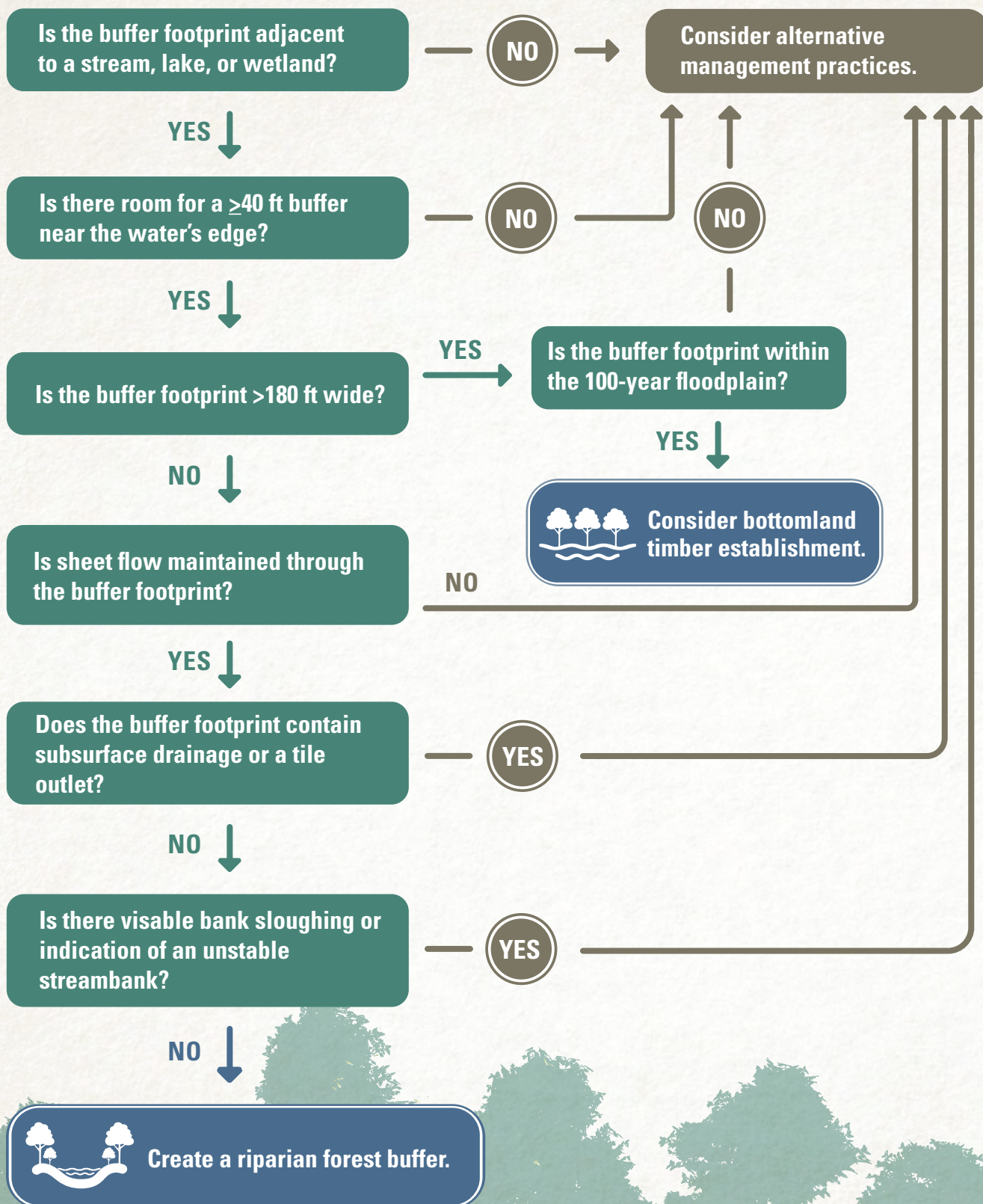


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Is a Riparian Forest Buffer Right for the Site?

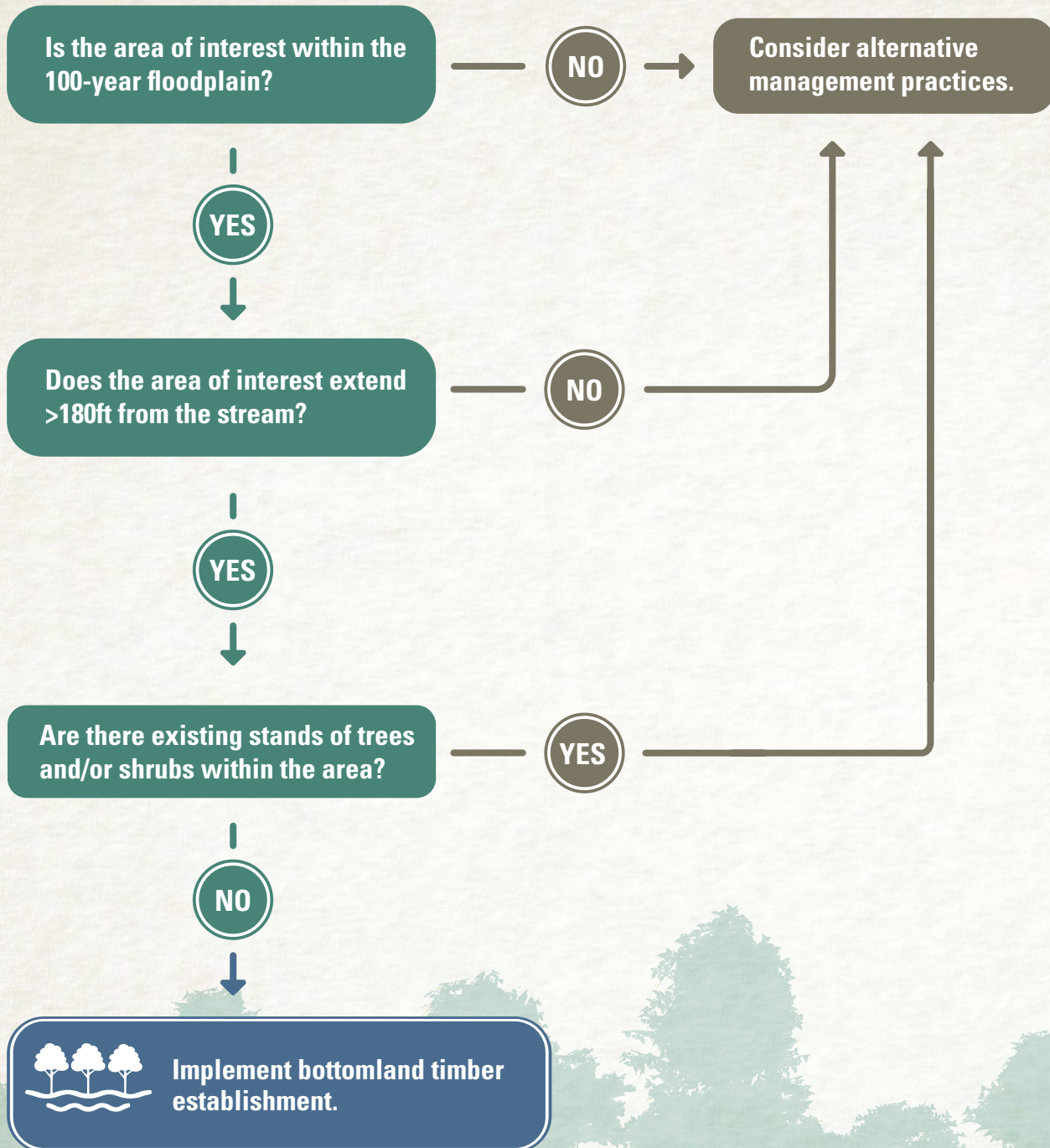


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Is Bottomland Timber Establishment Right for the Site?



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Edge-of-Field Practices

Baker, J.L., Melvin, S.W., Lemke, D.W., Lawlor, P.A., Crumpton, W.G., & Helmers, M.J. (2004, March). Subsurface drainage in Iowa and the water quality benefits and problem. In R. Cooke, Ed., *Drainage VIII: Proceedings of the Eighth International Symposium*, Sacramento, California, USA (Publication No. 701P0304, pp. 39-50). American Society of Agricultural Engineers.

Christianson, L.E., Frankenberger, J., Hay, C., Helmers, M.J., & Sands, G. (2016). [Ten ways to reduce nitrogen loads from drained cropland in the Midwest](http://draindrop.cropsci.illinois.edu/index.php/i-drop-impact/ten-ways-to-reduce-nitrogen-loads-from-drained-cropland-in-the-midwest/) (Pub. C1400). University of Illinois Extension. Retrieved from: <http://draindrop.cropsci.illinois.edu/index.php/i-drop-impact/ten-ways-to-reduce-nitrogen-loads-from-drained-cropland-in-the-midwest/>

[Directory of Professional Foresters and Forestry Contractors](https://naturalresources.extension.iastate.edu/contacts/forestry) <https://naturalresources.extension.iastate.edu/contacts/forestry>

Frankenberger, J., Kladvko, E., Sands, G., Jaynes, D., Fausey, N., Helmers, M., Brown, L. (2006). [Drainage water management for the Midwest: Questions and answers about drainage water management for the Midwest](http://extension.purdue.edu/extmedia/WQ/WQ-44.pdf) (WQ-44). Retrieved from Purdue University Extension website: <http://extension.purdue.edu/extmedia/WQ/WQ-44.pdf>

Iowa State University [Prairie & Tree Planting Tool](https://pt2.nrem.iastate.edu/) <https://pt2.nrem.iastate.edu/>

Jaynes, D., Reinhart, B., Hay, C., Isenhardt, T., Jacquemin, S., Kjaersgaard, J., Utt, N. (2018). [Questions and answers about saturated buffers for the Midwest](http://extension.purdue.edu/extmedia/ABE/ABE-160.pdf) (ABE-160). Retrieved from Purdue University Extension website: <http://extension.purdue.edu/extmedia/ABE/ABE-160.pdf>

STRIPS Team. (2017, June). [Prairie strips: small changes, big impacts](https://store.extension.iastate.edu/product/Prairie-Strips-Small-Changes-Big-Impacts). (Publication AE 3610). Retrieved from Iowa State University Extension and Outreach website: <https://store.extension.iastate.edu/product/Prairie-Strips-Small-Changes-Big-Impacts>

[USDA-ACPF Watershed Database Saturated Buffer Viewing](https://acpfdata.gis.iastate.edu/ACPF/satbuff/): <https://acpfdata.gis.iastate.edu/ACPF/satbuff/>

[USDA-NRCS Contour Buffer Strips Iowa Job Sheet](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_006620.pdf): https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_006620.pdf

[USDA-NRCS. \(2012, February\). Drainage Water Management](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1076966.pdf). Retrieved from: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1076966.pdf

Iowa Nutrient Reduction Strategy

Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Iowa State University College of Agriculture and Life Sciences. (2013). [*Iowa Nutrient Reduction Strategy: A science and technology-based framework to assess and reduce nutrients to Iowa waters and the Gulf of Mexico*](#). Retrieved from:

<https://nutrientstrategy.iastate.edu/sites/default/files/documents/NRSfull-130529.pdf>

[Tracking the Iowa Nutrient Reduction Strategy](#) <https://nrstracking.cals.iastate.edu/>

Map Resources

[Iowa Geographic Map Server](#)

<https://ortho.gis.iastate.edu>

LiDAR Maps

Open a Map Layer in ArcGIS Web App -> Elevation Maps -> Shaded Relief

US Topographic Maps

Open a Map Layer in ArcGIS Web App -> Elevation Maps -> USGS Topographic

Summer Aerial Photos

Open a Map Layer in ArcGIS Web App -> Summer Orthophotos 2004-2017

Spring Aerial Photos

Open a Map Layer in ArcGIS Web App -> Spring Orthophotos 2004-2018

Land Use Land Cover

Open a Map Layer in ArcGIS Web App -> 2002 IDNR Landcover

[USDA-NRCS Web Soil Survey \(Soil Survey information\):](#)

<https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

[Multi-Resolution Land Characteristics Consortium \(National Land Cover Database\):](#)

<https://mrlc.gov/data>

