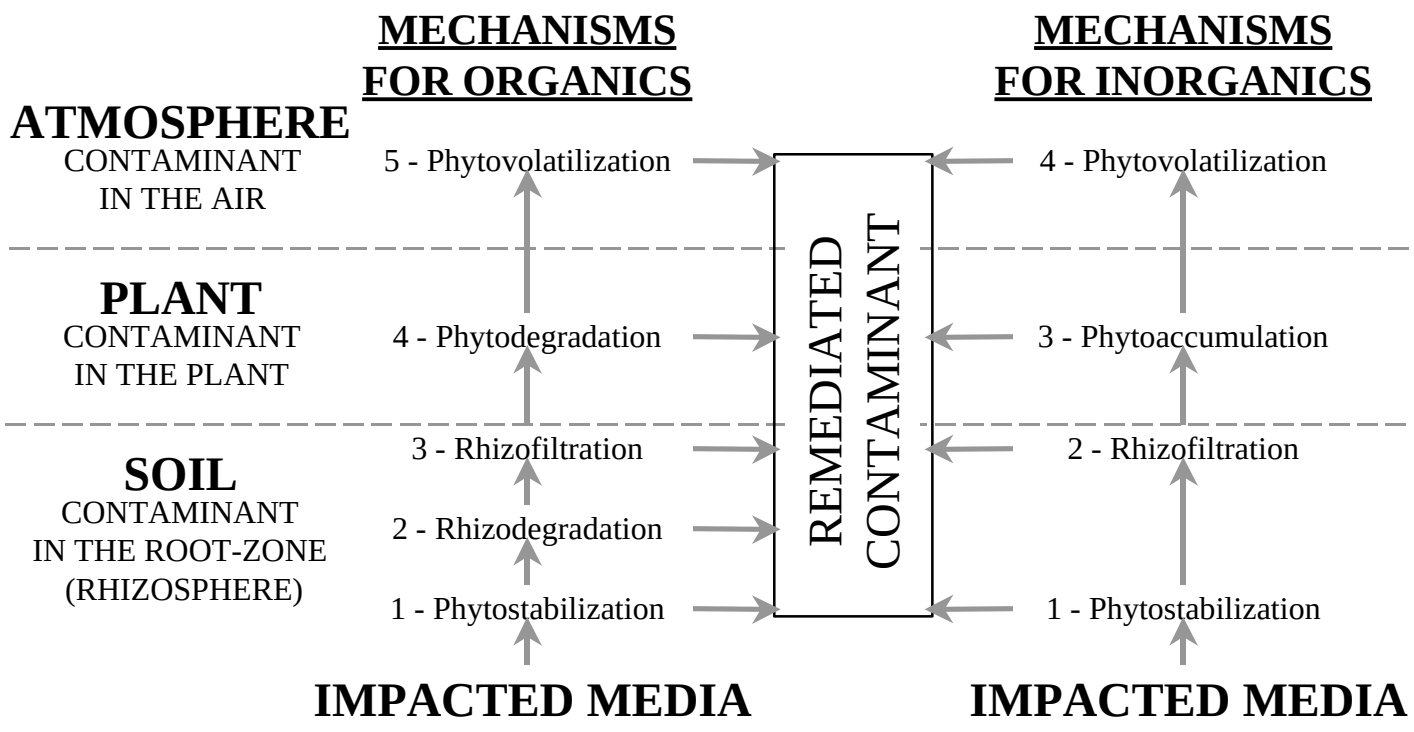
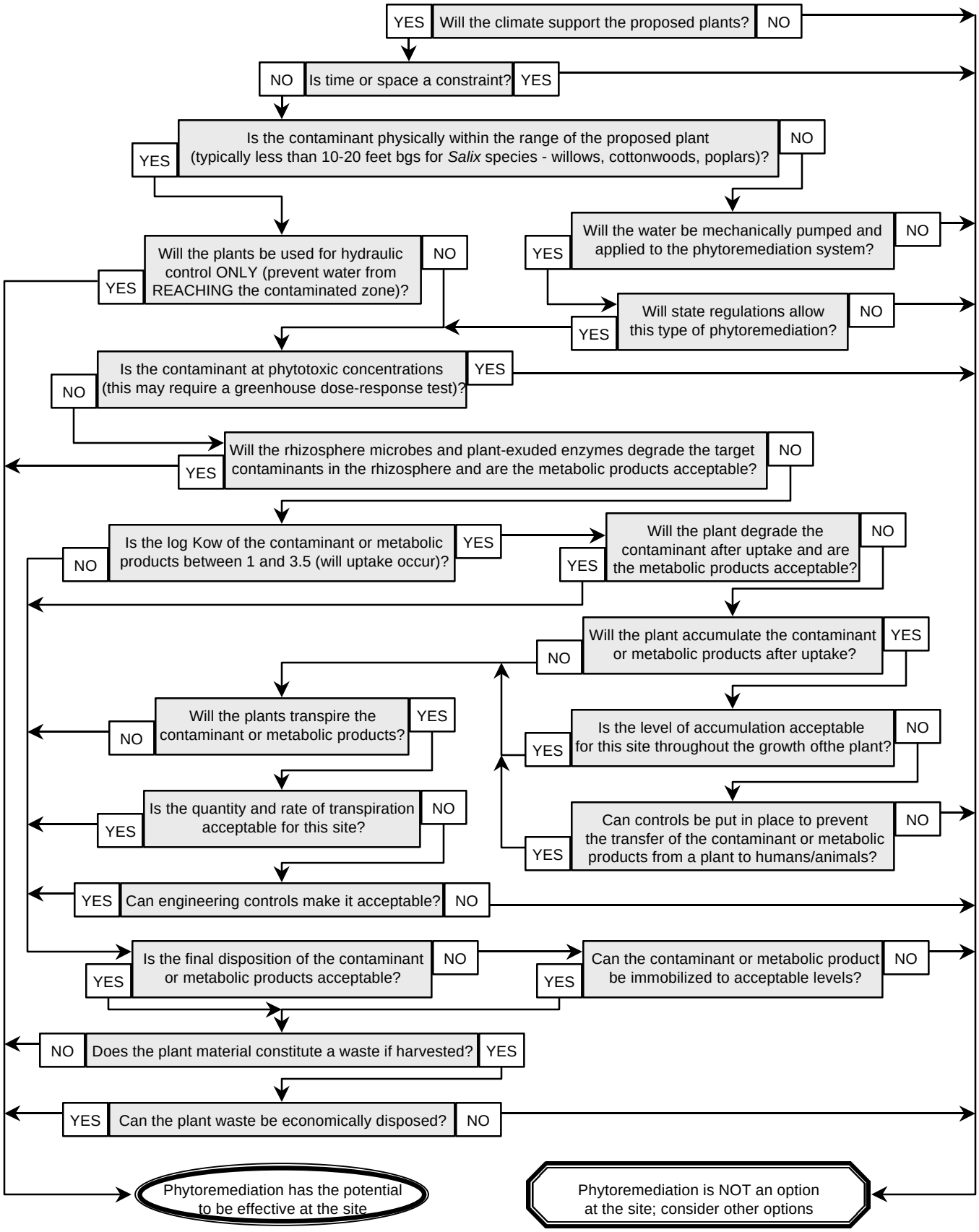
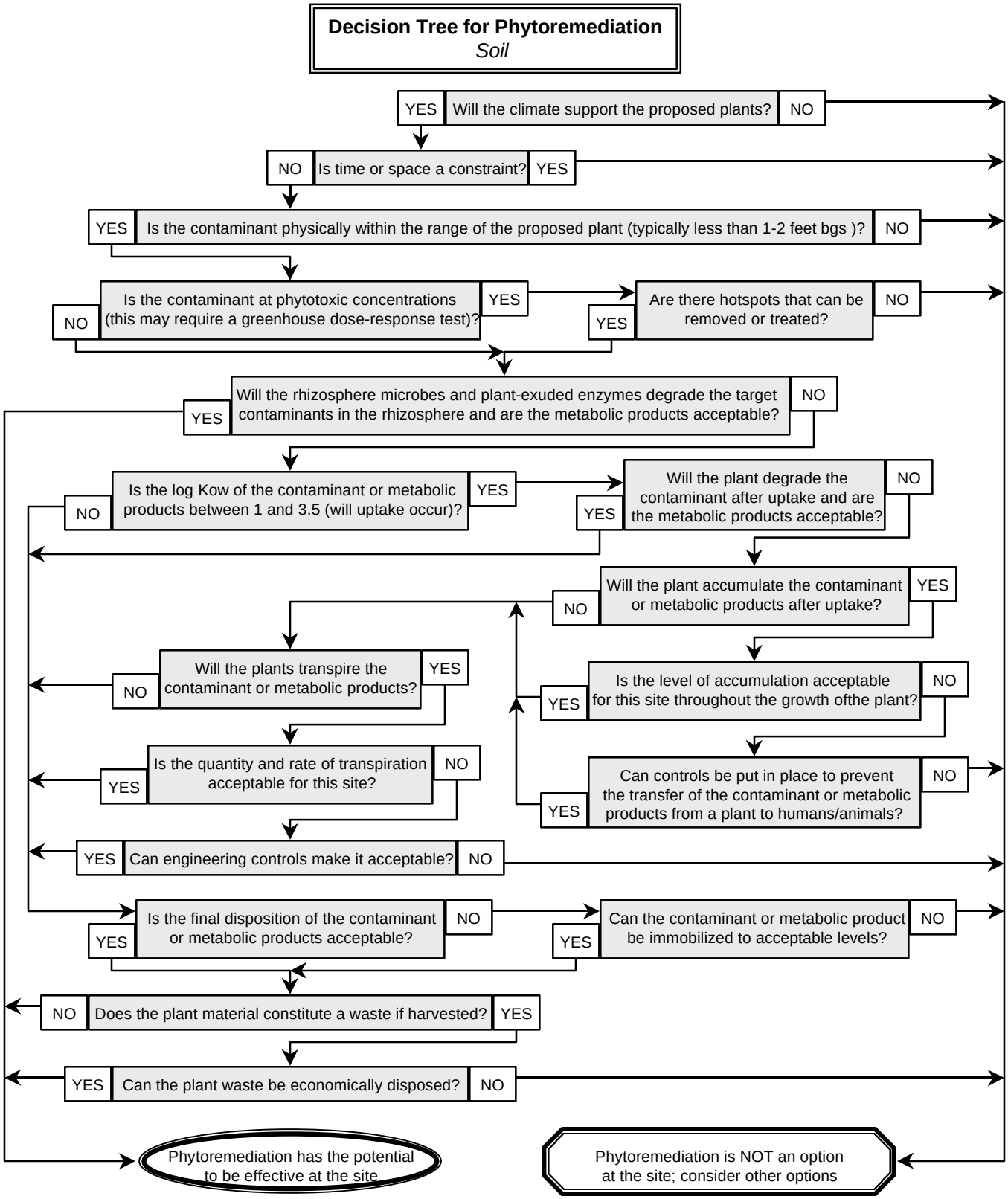
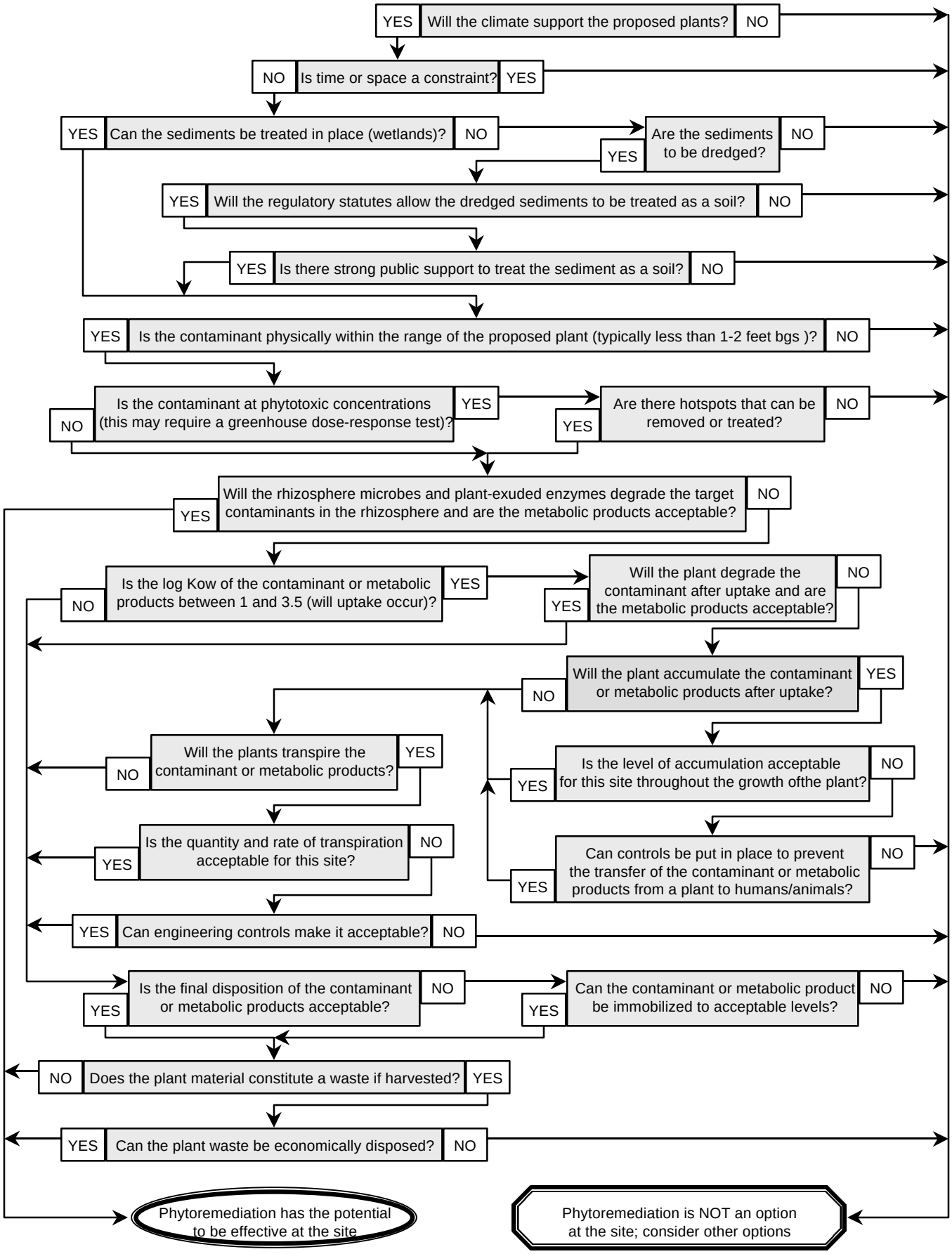

MECHANISMS FOR ORGANICS
MECHANISMS FOR INORGANICS
ATMOSPHERE
CONTAMINANT IN THE AIR
PLANT
CONTAMINANT IN THE PLANT
SOIL
CONTAMINANT IN THE ROOT-ZONE (RHIZOSPHERE)
5 - Phytovolatilization
4 - Phytodegradation
3 - Rhizofiltration
2 - Rhizodegradation
1 - Phytostabilization
REMEDIATED CONTAMINANT
4 - Phytovolatilization
3 - Phytoaccumulation
2 - Rhizofiltration
1 - Phytostabilization
IMPACTED MEDIA
IMPACTED MEDIA

Decision Tree for Phytoremediation
Groundwater




Decision Tree for Phytoremediation
Soil
YES
Will the climate support the proposed plants?
NO
NO
Is time or space a constraint?
YES
YES
Is the contaminant physically within the range of the proposed plant (typically less than 1-2 feet bgs)?
NO
NO
Is the contaminant at phytotoxic concentrations (this may require a greenhouse dose-response test)?
YES
YES
Are there hotspots that can be removed or treated?
NO
YES
Will the rhizosphere microbes and plant-exuded enzymes degrade the target contaminants in the rhizosphere and are the metabolic products acceptable?
NO
NO
Is the log Kow of the contaminant or metabolic products between 1 and 3.5 (will uptake occur)?
YES
YES
Will the plant degrade the contaminant after uptake and are the metabolic products acceptable?
NO
NO
Will the plant accumulate the contaminant or metabolic products after uptake?
YES
NO
Will the plants transpire the contaminant or metabolic products?
YES
YES
Is the level of accumulation acceptable for this site throughout the growth ofthe plant?
NO
YES
Is the quantity and rate of transpiration acceptable for this site?
NO
YES
Can controls be put in place to prevent the transfer of the contaminant or metabolic products from a plant to humans/animals?
NO
YES
YES
Can engineering controls make it acceptable?
NO
YES
Is the final disposition of the contaminant or metabolic products acceptable?
NO
YES
Can the contaminant or metabolic product be immobilized to acceptable levels?
NO
NO
Does the plant material constitute a waste if harvested?
YES
YES
Can the plant waste be economically disposed?
NO
Phytoremediation has the potential to be effective at the site
Phytoremediation is NOT an option at the site; consider other options

Decision Tree for Phytoremediation
Sediments