

APPENDIX I - EXOTIC AND INVASIVE SPECIES CONTROL PLAN



Mountain Valley Pipeline Project

Docket No. CP16-10-000

Exotic and Invasive Species Control Plan

October 2015
Revised July 2016

Mountain Valley Pipeline, LLC (MVP) has developed an exotic, noxious, and invasive plant species control plan for the Mountain Valley Pipeline Project (Project). The following exotic, noxious, and moderate to highly invasive plant species have the potential to occur along the Project right-of-way (Table 1).

Table 1		
Non-Native/Invasive Plant Species with the Potential to Occur Along the Project Route		
Scientific Name	Common Name	Location of observation ¹
Highly Invasive Plant Species <u>a/</u>		
<i>Acer platanoides</i> *	Norway maple	Unknown
<i>Ailanthus altissima</i> * tree-of-he	aven	Giles; Montgomery; Roanoke; Franklin
<i>Alliaria petiolata</i> * garlic	mustard	Unknown
<i>Ampelopsis brevipedunculata</i>	porcelain-berry N/A	
<i>Arthraxon hispidus</i>	small carpglass	N/A
<i>Berberis thunbergii</i> * Japa	nese barberry	Roanoke
<i>Bromus tectorum</i> *	cheatgrass Unkn	own
<i>Celastrus orbiculata</i> *	Asian bittersweet	Giles; Montgomery
<i>Centaurea stoebe</i> ssp. <i>micranthos</i> *	spotted knapweed	Montgomery
<i>Cirsium arvense</i> * Can	ada thistle	Giles; Montgomery; Roanoke; Franklin; Pittsylvania
<i>Coronilla varia</i> *	purple crown-vetch	Montgomery; Roanoke; Franklin
<i>Dioscorea oppositifolia</i>	Chinese yam	N/A
<i>Dioscorea polystachya</i>	cinnamon vine	N/A
<i>Elaeagnus umbellate</i> var. <i>parvifolia</i> *	autumn olive	Giles; Montgomery; Roanoke; Franklin
<i>Euonymus alata</i>	winged spindletree	N/A
<i>Euonymus fortunei</i>	winter creeper	N/A
<i>Ficaria verna</i>	lesser celandine	N/A
<i>Hydrilla verticillata</i>	hydrilla N/A	
<i>Iris pseudocorus</i> *	yellow flag	Unknown
<i>Lespedeza cuneate</i> *	Chinese bushclover	Unknown
<i>Ligustrum sinense</i> *	Chinese privet	Unknown
<i>Ligustrum vulgare</i> * Eu	ropean privet	Roanoke
<i>Lonicera japonica</i> * Japa	nese honeysuckle	Webster; Giles; Montgomery; Roanoke; Franklin; Pittsylvania
<i>Lonicera maackii</i> * Amur	honeysuckle	Unknown
<i>Lonicera morrowii</i> *	Morrow's honeysuckle	Unknown
<i>Lonicera tatarica</i> *	Tatarian honeysuckle	Unknown
<i>Lythrum salicaria</i>	purple loosestrife	N/A
<i>Microstegium vimineum</i> *	Japanese stiltgrass	Giles; Montgomery; Franklin
<i>Murdannia keisak</i>	marsh dewflower	N/A
<i>Myriophyllum aquaticum</i>	parrot feather	N/A
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil	N/A

Scientific Name	Common Name	Location of observation ¹
<i>Persicaria perfoliata</i> *	mile-a-minute weed	Unknown
<i>Phalaris arundinacea</i> * reed	canarygrass	Giles
<i>Phellodendron japonicum</i>	cork tree	N/A
<i>Phragmites australis</i> *	common reed	Unknown
<i>Polygonum cuspidatum</i> * Jap	anese knotweed	Roanoke; Franklin
<i>Polygonum perfoliatum</i> *	Asiatic tearthumb	Unknown
<i>Pueraria montana var. lobate</i> *	kudzu Roa	noke; Franklin
<i>Pyrus calleryana</i>	Bradford pear	N/A
<i>Rosa multiflora</i> * multiflora	rose	Webster; Greenbrier; Summers; Monroe; Giles; Montgomery; Roanoke; Franklin
<i>Rubus phoenicolasius</i>	wine raspberry, wineberry	N/A
<i>Schedonorus phoenix</i> *	tall fescue	Unknown
<i>Schedonorus pratensis</i> *	meadow fescue	Unknown
<i>Sorghum halepense</i> *	Johnson grass	Montgomery
<i>Urtica dioica</i>	European stinging nettle	N/A
<i>Vinca minor</i>	lesser periwinkle	N/A
Moderately Invasive Plant Species <u>b/</u>		
<i>Aegopodium podagraria</i>	Bishop's goutweed	N/A
<i>Akebia quinata</i>	fiveleaf akebia	N/A
<i>Ampelopsis brevipedunculata</i>	Amur peppervine	N/A
<i>Arctium minus</i>	lesser burdock	N/A
<i>Agrostis capillaris</i>	colonial bent-grass	N/A
<i>Albizia julibrissin</i> *	mimosa, silktree	Roanoke; Franklin
<i>Barbarea vulgaris</i>	garden yellow-rocket	N/A
<i>Bromus commutatus</i>	meadow brome	N/A
<i>Bromus inermis ssp. inermis var. inermis</i> *	smooth brome	MP 216
<i>Bromus japonicus</i>	Japanese brome	N/A
<i>Bromus secalinus</i>	rye brome	N/A
<i>Bromus sterilis</i>	poverty brome	N/A
<i>Carduus nutans ssp. marcollepis</i>	nodding plumeless-thistle	N/A
<i>Centaurea nigrescens</i>	Wocheiner knapweed	N/A
<i>Chelidonium majus var. majus</i>	celandine N/A	
<i>Cirsium vulgare</i>	bull thistle	N/A
<i>Conium maculatum</i> * pois	on-hemlock	Montgomery
<i>Cynoglossum officinale</i>	gypsy-flower N	/A
<i>Daucus carota</i> *	Queen Anne's-lace, wild carrot	MP 217, 221, 222, 225, 226, 227, 229, 234

Scientific Name	Common Name	Location of observation¹
<i>Dipsacus fullonum</i> *	Fuller's teasel, wild teasel	MP 224
<i>Dipsacus laciniatus</i> *	lacinate wild teasel	Unknown
<i>Duchesnea indica</i>	Indian-strawberry N	/A
<i>Echium vulgare</i> *	Viper's bugloss, bluethistle, bluedevil	Montgomery
<i>Elaeagnus angustifolia</i> * Russia	n olive	Unknown
<i>Frangula alnus</i>	glossy false buckthorn	N/A
<i>Glechoma hederacea</i> * grou	nd-ivy, gill-over-the-ground	Unknown
<i>Hedera helix</i>	English ivy	N/A
<i>Hesperis matronalis</i>	mother-of-the-evening N/A	
<i>Hieracium caespitosum</i>	meadow hawkweed	N/A
<i>Holcus lanatus</i> *	common velvetgrass	Unknown
<i>Humulus japonicas</i> *	Japanese hops	Unknown
<i>Hypericum perforatum</i> *	common St. John's-Wort	Unknown
<i>Hypochaeris radicata</i>	hairy cat's-ear	N/A
<i>Lespedeza bicolor</i>	Japanese bushclover, shrubby bushclover	N/A
<i>Leucanthemum vulgare</i> * oxe	ye daisy	Unknown
<i>Ligustrum obtusifolium</i> ssp. <i>obtusifolium</i>	border privet	N/A
<i>Linaria vulgaris</i>	butter-and-eggs	N/A
<i>Lolium perenne</i> ssp. <i>multiflorum</i> *	perennial ryegrass	Unknown
<i>Lonicera bella</i>	Bell's honeysuckle	N/A
<i>Lonicera standishii</i>	Standish's honeysuckle	N/A
<i>Lysimachia nummularia</i> *	creeping Jenny, moneywort	Unknown
<i>Melilotus officinalis</i> *	sweetclover Unkno	wn
<i>Miscanthus sinensis</i> *	Chinese silvergrass	Unknown
<i>Najas minor</i>	brittle naiad, brittle waternymph	N/A
<i>Ornithogalum nutans</i>	Drooping Star of Bethlehem	N/A
<i>Ornithogalum umbellatum</i>	Star of Bethlehem	N/A
<i>Pastinaca sativa</i> *	parsnip Unkn	own
<i>Paulownia tomentosa</i> *	princess-tree, royal paulownia	Unknown
<i>Perilla frutescens</i> *	beefsteak plant	Montgomery; Pittsylvania
<i>Persicaria longisetata</i>	long-bristled smartweed	N/A
<i>Phyllostachys aurea</i>	golden bamboo	N/A
<i>Poa compressa</i> *	Canada bluegrass, flat-stemmed bluegrass	Unknown
<i>Poa pratensis</i> ssp. <i>pratensis</i> * Kentuck	y bluegrass	Montgomery; Roanoke; Franklin
<i>Poa trivialis</i> *	rough bluegrass	Unknown
<i>Polygonum caespitosum</i> var. <i>longisetum</i> *	oriental lady's thumb	Unknown

Scientific Name	Common Name	Location of observation ¹
<i>Potamogeton crispus</i>	curly pondweed	N/A
<i>Pyrus calleryana</i>	Callery pear	N/A
<i>Ranunculus ficaria</i> var. <i>bulbifera</i>	lesser celandine	N/A
<i>Rhamnus cathartica</i>	common buckthorn	N/A
<i>Rhodotypos scandens</i>	jetbead N	/A
<i>Rorippa nasturtium-aquaticum</i> *	watercress Unkno	wn
<i>Rumex acetosella</i> *	common sheep sorrel	Unknown
<i>Sedum sarmentosum</i> * stonecrop	p	Unknown
<i>Spiraea japonica</i> var. <i>fortune</i> *	Japanese spiraea	Unknown
<i>Stellaria media</i>	common chickweed	N/A
<i>Stellaria media</i> ssp. <i>media</i>	common chickweed	N/A
<i>Stellaria media</i> ssp. <i>pallida</i>	common chickweed	N/A
<i>Ulmus pumila</i>	Siberian elm	N/A
<i>Verbascum thapsus</i> *	great mullein	Unknown
<i>Veronica hederifolia</i>	ivy-leaved speedwell	N/A
<i>Viburnum dilatatum</i>	Linden arrow-wood	N/A
<i>Wisteria sinensis</i>	Chinese Wisteria	N/A
Low Risk Invasive Plant Species c/		
<i>Achillea millefolium</i> var. <i>occidentalis</i> *	western yarrow	Unknown
<i>Acinos arvensis</i>	mother-of-thyme, basil-thyme	N/A
<i>Agrostemma githago</i>	corn cockle	N/A
<i>Agrostis canina</i> *	velvet bent grass	Unknown
<i>Agrostis gigantean</i>	giant bentgrass	N/A
<i>Agrostis stolonifera</i>	creeping bentgrass	N/A
<i>Ajuga reptans</i>	blue bugle	N/A
<i>Allium vineale</i> ssp. <i>vineale</i>	wild garlic, crow garlic	N/A
<i>Anthoxanthum odoratum</i> ssp. <i>odoratum</i>	sweet vernal grass	N/A
<i>Arrhenatherum elatius</i>	tall oatgrass	N/A
<i>Arrhenatherum elatius</i> var. <i>elatius</i>	tall oatgrass	N/A
<i>Artemisia annua</i>	annual wormwood	N/A
<i>Artemisia vulgaris</i> var. <i>vulgaris</i> *	common mugwort	Unknown
<i>Arundo donax</i>	giant reed	N/A
<i>Berberis vulgaris</i>	European barberry	N/A
<i>Broussonetia papyrifera</i>	paper-mulberry N/A	
<i>Cardamine impatiens</i> *	bittercress Unkno	wn
<i>Carduus crispus</i>	curled thistle	N/A
<i>Centaurea cyanus</i>	garden coneflower	N/A
<i>Centaurea jacea</i>	Brown knapweed	N/A

Scientific Name	Common Name	Location of observation ¹
<i>Centaurea nigra</i>	black knapweed, Spanish-Buttos	N/A
<i>Centaurea solstitialis</i>	yellow starthistle	N/A
<i>Cerastium fontanum</i> ssp. <i>Vulgare</i>	common mouse-ear chickweed	N/A
<i>Cerastium glomeratum</i>	sticky mouse-ear chickweed	N/A
<i>Chenopodium album</i> var. <i>album</i>	lamb's quarters	N/A
<i>Chenopodium ambrosioides</i> var. <i>ambrosioides</i>	Mexican tea	N/A
<i>Cichorium intybus</i> *	chicory, blue sailors	MP 217, 222, 223, 225
<i>Commelina communis</i> *	Asiatic dayflower	Montgomery
<i>Commelina communis</i> var. <i>communis</i>	Asiatic dayflower	N/A
<i>Convolvulus arvensis</i> *	field bindweed	Unknown
<i>Cosmos bipinnatus</i>	common cosmos	N/A
<i>Cruciata pedemontana</i> *	Piedmont bedstraw	Unknown
<i>Cynodon dactylon</i>	Bermuda grass	N/A
<i>Dactylis glomerata</i> ssp. <i>glomerata</i> *	orchard grass	MP 217, 221, 224, 227, 229
<i>Datura stramonium</i> *	Jimson weed	MP 217. 224
<i>Dianthus armeria</i> *	Deptford-pink	Montgomery; Franklin
<i>Egeria densa</i>	Brazilian water-weed	N/A
<i>Elaeagnus pungens</i>	thorny olive	N/A
<i>Eleusine indica</i>	goose grass, yard grass	N/A
<i>Elymus repens</i>	creeping wild rye	N/A
<i>Epilobium hirsutum</i>	hairy willow-herb	N/A
<i>Eragrostis cilianensis</i>	stinkgrass	N/A
<i>Eragrostis curvula</i>	weeping lovegrass	N/A
<i>Euphorbia esula</i> var. <i>esula</i> *	leafy spurge	Unknown
<i>Euphorbia lathyris</i>	caper spurge, mole plant, wolf's-milk	N/A
<i>Foeniculum vulgare</i>	sweet fennel	N/A
<i>Galium mollugo</i>	false baby's-breath	N/A
<i>Hemerocallis fulva</i> *	common day lily	Unknown
<i>Hemerocallis lilioasphodelus</i>	yellow day lilly	N/A
<i>Hibiscus syriacus</i>	Rose-of-Sharon, shrubby althea	N/A
<i>Hieracium floribundum</i>	smooth hawkweed	N/A
<i>Hieracium aurantiacum</i>	devil's paintbrush	N/A
<i>Hieracium pilosella</i> var. <i>pilosella</i>	mouse-ear hawkweed	N/A
<i>Hieracium piloselloides</i>	tall hawkweed	N/A
<i>Ipomoea coccinea</i>	red morning-glory	N/A
<i>Ipomoea hederacea</i>	ivy-leaved morning-glory	N/A
<i>Kummerowia stipulacea</i>	Korean bushclover	N/A

Scientific Name	Common Name	Location of observation ¹
<i>Kummerowia striata</i>	Japanese clover	N/A
<i>Lactuca saligna</i>	willow lettuce	N/A
<i>Lamium amplexicaule</i>	henbit	N/A
<i>Lamium purpureum</i> var, <i>purpureum</i>	purple dead-nettle	N/A
<i>Lapsana communis</i>	nipplewort	N/A
<i>Leonurus cardiac</i> ssp. <i>Cardiac</i> *	motherwort	Montgomery
<i>Lepidium campestre</i>	cream-anther field pepperwort	N/A
<i>Lepidium densiflorum</i> var. <i>densiflorum</i>	dense peppergrass	N/A
<i>Lepidium perfoliatum</i>	clasping pepperwort	N/A
<i>Lepidium ruderale</i>	stinging pepperweed	N/A
<i>Lonicera fragrantissima</i>	sweet breath of spring, winter honeysuckle	N/A
<i>Lotus corniculatus</i> *	garden bird's-foot-trefoil	Unknown
<i>Malva moschata</i>	musk mallow	N/A
<i>Malva neglecta</i> *	common mallow	Unknown
<i>Malva sylvestris</i>	high mallow	N/A
<i>Malva verticillata</i>	whorled mallow, curled mallow	N/A
<i>Marrubium vulgare</i>	white horehound	N/A
<i>Medicago lupulina</i> *	black medic	Unknown
<i>Melia azedarach</i>	Chinaberry	N/A
<i>Mentha verticillata</i>	whorled mint	N/A
<i>Mentha gracilis</i>	small-leaved mint	N/A
<i>Mentha piperita</i> *	peppermint	Unknown
<i>Mentha rotundifolia</i>	roundleaf mint	N/A
<i>Mentha aquatic</i>	water mint	N/A
<i>Mentha spicata</i> *	spearmint	Unknown
<i>Microthlaspi perfoliatum</i>	perfoliate pennycress	N/A
<i>Miscanthus sinensis</i>	Chinese silver grass	N/A
<i>Morus alba</i> *	white mulberry	Unknown
<i>Murdannia keisak</i>	aneilema	N/A
<i>Muscari botryoides</i>	grape hyacinth	N/A
<i>Myosoton aquaticum</i>	giant chickweed	N/A
<i>Nepeta cataria</i> *	catnip	Unknown
<i>Papaver dubium</i>	scarlet poppy	N/A
<i>Pennisetum glaucum</i>	pearl-millet	N/A
<i>Phalaris canariensis</i>	canary grass	N/A
<i>Phleum pretense</i> *	timothy	MP 217, 221, 225, 226, 227
<i>Phyllostachys nigra</i>	black bamboo	N/A

Scientific Name	Common Name	Location of observation ¹
<i>Picea abies</i>	Norway spruce	N/A
<i>Poa annua</i> *	annual bluegrass	Unknown
<i>Polygonum aviculare</i>	yard knotweed	N/A
<i>Polygonum convolvulus</i> var. <i>convolvulus</i>	black bindweed	N/A
<i>Polygonum orientale</i>	prince's feather	N/A
<i>Polygonum persicaria</i>	spotted lady's-thumb	N/A
<i>Populus alba</i>	white poplar	N/A
<i>Potentilla recta</i>	Sulphur cinquefoil	N/A
<i>Prunella vulgaris</i>	common self-heal	N/A
<i>Prunus avium</i>	sweet cherry	N/A
<i>Prunus mahaleb</i>	perfumed cherry	N/A
<i>Ranunculus acris</i> var. <i>acris</i>	tall buttercup, meadow buttercup	N/A
<i>Ranunculus arvensis</i>	corn crowfoot	N/A
<i>Ranunculus bulbosus</i>	bulbous buttercup	N/A
<i>Ranunculus flammula</i> var. <i>filiformis</i>	greater creeping spearwort	N/A
<i>Ranunculus repens</i>	creeping buttercup	N/A
<i>Ranunculus sardous</i>	hairy buttercup	N/A
<i>Raphanus raphanistrum</i>	wild radish	N/A
<i>Rhodotypos scandens</i>	jetbead, white kerria	N/A
<i>Rorippa sylvestris</i>	creeping yellowcress	N/A
<i>Rosa canina</i>	dog rose	N/A
<i>Rosa eglanteria</i>	sweetbrier N	/A
<i>Rubus illecebrosus</i>	strawberry-raspberry N/A	
<i>Rumex crispus</i> ssp. <i>crispus</i> *	curly dock	Unknown
<i>Salix alba</i>	white willow	N/A
<i>Saponaria officinalis</i> * bou	ncing-bet	Unknown
<i>Senecio vulgaris</i>	common groundsel	N/A
<i>Senna obtusifolia</i>	coffeeweed N	/A
<i>Setaria faberi</i>	giant foxtail-grass	N/A
<i>Setaria italic</i>	foxtail millet	N/A
<i>Setaria verticillata</i>	bristly foxtail	N/A
<i>Setaria viridis</i> var. <i>viridis</i>	green foxtail	N/A
<i>Silene latifolia</i> ssp. <i>Alba</i>	white campion	N/A
<i>Sisymbrium altissimum</i>	tall hedge-mustard	N/A
<i>Sisymbrium officinale</i>	hedge mustard	N/A
<i>Solanum dulcamara</i> var. <i>dulcamara</i>	bittersweet	N/A
<i>Sonchus arvensis</i> ssp. <i>Uliginosus</i>	field sowthistle	N/A

Scientific Name	Common Name	Location of observation ¹
<i>Sonchus asper ssp. Asper</i>	spiny sow thistle	N/A
<i>Sonchus oleraceus</i>	common sowthistle	N/A
<i>Stellaria graminea</i>	lesser stitchwort	N/A
<i>Torilis arvensis ssp. Arvensis</i>	hedge parsley	N/A
<i>Tragopogon dubius</i>	meadow goat's-beard	N/A
<i>Trapa natans</i>	water chestnut	N/A
<i>Trifolium arvense</i>	rabbit-foot clover	N/A
<i>Trifolium aureum*</i>	yellow hop clover	Unknown
<i>Trifolium campestre</i>	low hop clover	N/A
<i>Trifolium dubium</i>	small hop clover	N/A
<i>Trifolium hybridum</i>	alsike clover	N/A
<i>Trifolium incarnatum</i>	crimson clover	N/A
<i>Trifolium pretense*</i>	red clover	MP 217, 221, 222, 223, 229, 234
<i>Trifolium repens*</i>	white clover	MP 222; Giles; Montgomery; Roanoke; Franklin; Pittsylvania
<i>Trifolium resupinatum*</i>	reversed clover	Unknown
<i>Tussilago farfara*</i>	colt's-foot	Unknown
<i>Typha glauca*</i>	cattail	Unknown
<i>Veronica arvensis</i>	corn speedwell	N/A
<i>Veronica beccabunga</i>	European brooklime	N/A
<i>Veronica chamaedrys</i>	germander speedwell, bird's-eye speedwell	N/A
<i>Veronica filiformis</i>	filiform speedwell	N/A
<i>Veronica longifolia</i>	long-leaved speedwell	N/A
<i>Veronica officinalis var. officinalis</i>	common speedwell, gypsyweed	N/A
<i>Veronica persica var. persica</i>	bird's-eye speedwell	N/A
<i>Veronica polita</i>	field speedwell	N/A
<i>Veronica serpyllifolia ssp. serpyllifolia</i>	thyme-leaved speedwell	N/A
<i>Virburnum opulus var. opulus</i>	guelder-rose	N/A
<i>Vicia cracca ssp. cracca</i>	vetch	N/A
<i>Vicia grandiflora*</i>	large-flowered vetch	Unknown
<i>Vicia hirsute</i>	vetch	N/A
<i>Vicia sativa ssp. nigra</i>	common vetch	N/A
<i>Vicia sativa ssp. sativa</i>	spring vetch	N/A
<i>Vicia sepium var. sepium</i>	bush vetch	N/A
<i>Vicia tetrasperma</i>	four-seeded vetch	N/A
<i>Vicia villosa ssp. varia</i>	hairy-fruit vetch	N/A
<i>Vicia villosa ssp. villosa</i>	hairy vetch	N/A
<i>Vinca major</i>	greater periwinkle	N/A

Table 1		
Non-Native/Invasive Plant Species with the Potential to Occur Along the Project Route		
Scientific Name	Common Name	Location of observation ¹
<i>Wisteria floribunda</i>	Japanese wisteria	N/A
<i>Xanthium spinosum</i>	spiny cocklebur	N/A
<p>¹ The list of locations for each species may not be exhaustive; locations are provided only for observations that included spatial information. When available, the milepost (MP) is provided.</p> <p><u>a/</u> Highly invasive species exhibit the most invasive tendencies in natural areas and native plant habitats. They pose a significant threat to native species, natural communities or the economy by disrupting ecosystem processes and causing major alterations in plant community composition and structure. They establish readily in natural systems and spread rapidly.</p> <p><u>b/</u> Moderately invasive species may have minor influence on ecosystem processes, alter plant community composition, and affect community structure in at least one layer. They may become dominant in the understory layer without threatening all species found in the community. These species usually require a minor disturbance to become established.</p> <p><u>c/</u> Occasionally invasive species generally do not affect ecosystem processes but may alter plant community composition by outcompeting one or more native plant species. They often establish in severely disturbed areas. The disturbance may be natural or human origin, such as icestorm damage, windthrow, or road construction. These species spread slowly or not at all from disturbed sites.</p> <p>* Species observed within the project area</p> <p>Sources: Virginia Department of Conservation and Recreation, Division of Natural Heritage, 2015. http://www.dcr.virginia.gov/natural_heritage/invspdflist.shtml West Virginia Division of Natural Resources, Natural Heritage Program, 2009. http://www.wvdnr.gov/wildlife/invasivewv.shtm</p>		

Excavation for pipeline placement exposes the topsoil surface to potential entrance of exotic, noxious, and/or invasive plant species. This can occur either by physical transport onto the exposed soil site by way of equipment, machinery or vehicles, through windborne dissemination of seeds of exotic or invasive species from the surrounding area, or by introduction of seeds or plant parts contained in mulch or straw bales. To avoid and minimize the potential for the introduction of these seeds to the Project corridor, MVP will apply the following management strategies to control exotic, noxious, and invasive plant species.

The three principal strategies for exotic, noxious, and invasive plant species control include:

1. The first strategy that will be used during construction is the avoidance of exotic and invasive species in organic materials brought on-site. If available, certified weed-free mulch, straw and hay bales will be used to construct sediment control devices during construction.
2. The second strategy to be used in this plan involves the monitoring and selective spot treatment/eradication of any exotic or invasive species encountered during construction and post-construction. MVP will monitor the right-of-way annually after the first and second growing seasons following construction to allow for early detection of exotic or invasive species infestations or outbreaks. If species or colonies of exotic or invasive species are found in numbers that are substantially greater than those existing nearby in off right-of-way locations, MVP will conduct selective spot eradications of those species. Eradication measures could include hand cutting unless requested to use herbicides by a state or federal management agency to achieve effective removal of these species. Herbicide types will be determined based on species requiring control, and all

herbicides will be applied by applicators appropriately licensed or certified by the state in which the work is conducted.

3. The third strategy to be used in this plan involves MVP's commitment to using only native seed mixes during restoration. Along with implementing restoration measures contained in the FERC *Upland Erosion Control, Revegetation and Maintenance Plan* (FERC Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (FERC Procedures), MVP is partnering with the Wildlife Habitat Council (WHC), a nonprofit organization dedicated to assisting organizations and individuals with the restoration and enhancement of wildlife habitat. The WHC is working with MVP on their commitment towards native restoration of the pipeline right-of-way using seed mixes tailored to meet construction specifications, budgetary targets, and stakeholder desires while also providing local wildlife with native habitat. Working with the WHC, MVP will also incorporate principles of Integrated Vegetation Management into MVP's right-of-way maintenance. Integrated Vegetation Management incorporates seed mix selection, vegetation maintenance scheduling, and selection of mechanical vegetation maintenance techniques to encourage a low ground cover of native species that flower for a long duration of the growing season.

In addition to the strategies described above, the following control measures will be used to further minimize introduction and/or spread of these species:

- Adhere to erosion control measures in the FERC Plan and Procedures to ensure that sediment movement and the associated movement of non-native seeds into newly disturbed soils are minimized.
- Prior to Project mobilization, contractors shall thoroughly clean all construction equipment prior to moving the equipment to the Project area in order to limit the potential for the spread of noxious weeds, insects, or other soil-borne pests.
- Equipment cleaning stations will be established along the pipeline to ensure equipment is free of debris before being transported to a new construction spread. During construction, the environmental inspector will ensure all contractors clean the tracks, tires, and blades of equipment by hand or compressed air to remove any excess soil prior to movement of equipment out of known weed or soil-borne pest infested areas, or utilize designated cleaning stations (Table 2) to remove vegetative materials.
- Use construction techniques along the pipeline route that minimize the time that bare soil is exposed and, therefore, minimize the opportunity for exotic species to become established.
- In areas along the pipeline identified as containing higher than usual concentrations of exotic and invasive species, the topsoil from the full width of the construction right-of-way will be stripped and stored separately from other less contaminated topsoil and subsoil. Environmental inspectors will identify and mark these areas prior to grading activities.
- All disturbed areas will be reseeded promptly after final grading, weather and soil conditions permitting, and in consideration of written recommendations from the local soil conservation authorities. Prompt reseeded will ensure that bare soil is not available for exotic or invasive species for an extended period of time. Note: seeding is not required in active agriculture lands unless requested by the landowner.
- As described in the FERC Plan, mulch, consisting of weed-free straw or hay or other erosion-control materials, will be applied if final grading and installation of permanent erosion control measures are not completed within 20 days after the trench is backfilled or seeding cannot be completed properly due to scheduling outside of recommended seeding dates.

- Mowing and maintenance equipment will not be moved from an area where invasive species have been encountered during operation of the Project unless the equipment is cleaned prior to moving.

During construction, cleaning stations will be located along the right-of-way at locations where invasive species are known to occur.

County Mile	post	Cleaning Station Location	Facility Type
Nicholas	Off Right-of-Way	MVP-LY-022	Contractor Yard
Nicholas	Off Right-of-Way	MVP-LY-007	Contractor Yard
Webster	Off Right-of-Way	MVP-LY-023	Contractor yard
Fayette	154.3	Stallworth Pad	Compressor Station Pad
Greenbrier	Off Right-of-Way	Ritter Yard	Contractor Yard
Summers	170.4	ATWS-557	Additional Temporary Work Space
Monroe	194.2	ATWS-1060	Additional Temporary Workspace
Giles	Off Right-of-Way	ATWS-1119	Additional Temporary Workspace
Montgomery	229.25	ATWS-704	Additional Temporary Workspace
Roanoke	Off Right-of-Way	MVP-PY-006	Contractor yard
Franklin	Off Right-of-Way	MVP-PY-005	Contractor yard
Pittsylvania	301.4	Transco IP Pad	Interconnect location

References

- USDA (United States Department of Agriculture). 2015. Natural Resources Conservation Service. Invasive and Noxious Weeds. <http://plants.usda.gov/java/noxiousDriver>. Accessed October 6, 2015.
- VDCR-DNH (Virginia Department of Conservation and Recreation, Division of Natural Heritage). 2015. Virginia Invasive Plant Species List. http://www.dcr.virginia.gov/natural_heritage/invspdflist.shtml. Accessed October 6, 2015.
- WVDNR (West Virginia Department of Natural Resources), Division of Natural Heritage. 2009. Invasive Plants Species of West Virginia. [http://www.wvdnr.gov/wildlife/Handout](http://www.wvdnr.gov/wildlife/Handout%20Invasive%20Plants%20of%20WV%202009.pdf) Invasive Plants of WV 2009.pdf. Accessed October 6, 2015.
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