

1 Make the following section a part of the Standard Specifications:

2
3 **“SECTION 621 – INVASIVE SPECIES MANAGEMENT**

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5
6 **621.01 Description.** This section describes the best management practices for
7 the prevention, identification, control, eradication, and reporting of invasive plant
8 and animal species (collectively, invasive species). Invasive species impacts can
9 include damage to infrastructure, public health and safety issues, reduction of
10 biodiversity, and reduced cover of desirable native and/or nonnative species. The
11 material found in Section 621 – Invasive Species Management shall be applied to
12 the following sections, as appropriate: Section 201 – Clearing and Grubbing,
13 Sections 202 – Removal of Structures and Obstructions, 203 – Excavation and
14 Embankment, 204 –Excavation and Backfill for Miscellaneous Facilities, 205 –
15 Excavation and Backfill for Bridge and Retaining Structures, and 206 –Excavation
16 and Backfill for Drainage Facilities, which cover various excavations; Section 209
17 – Temporary Water Pollution, Dust, and Erosion Control; Section 619 – Planting;
18 Section 641 – Hydro-Mulch Seeding; Section 642 – Landscape Maintenance; and
19 Section 643 – Maintenance of Existing Landscape Areas.
20

21 **(A) Definitions.** Whenever the following words, terms, or pronouns are
22 used in contract documents, unless otherwise prescribed therein and
23 without regard to the use or omission of uppercase letters, the intent and
24 meaning shall be interpreted as follows:
25

26 **(1) Alien Species.** Any species, including its seeds, eggs,
27 spores, or other biological material capable of propagating that
28 species, that is not native to that ecosystem.
29

30 **(2) Botanist/Arborist.** A person with a minimum of 5 years of
31 experience in the botanical field, including the identification,
32 eradication, control, and reporting of invasive plant species. The
33 CONTRACTOR’s selected botanist/arborist shall be approved by the
34 Engineer.
35

36 **(3) Hawaii Invasive Species Council (HISC).** Inter-
37 departmental collaboration comprised of the Departments of Land &
38 Natural Resources (DLNR), Agriculture (DOA), Health (DOH),
39 Transportation (DOT), Business, Economic Development & Tourism
40 (DBEDT), and the University of Hawaii (UH). The HISC was
41 established in 2003 for the special purpose of providing policy level
42 direction, coordination, and planning among state departments,
43 federal agencies, and international and local initiatives for the control
44 and eradication of harmful invasive species infestations throughout
45 the State and for preventing the introduction of other invasive species
46 that may be potentially harmful.

47 **(4) Invasive Species.** An alien species whose introduction does,
48 or is likely to, cause economic or environmental harm or harm to
49 human health.

50
51 **(5) Invasive Species Committee (ISC).** Committees located in
52 Hawai'i that are island-based partnerships of government agencies,
53 nongovernmental organizations, and private businesses protecting
54 each island from the most threatening invasive weeds and pests.

55
56 **(6) Noxious Weed.** Any plant species that is, or that may be
57 likely to become, injurious, harmful, or deleterious to the agricultural,
58 horticultural, aquacultural, or livestock industry of the state and to
59 forest and recreational areas and conservation districts of the state,
60 as regulated by the Secretary of Agriculture and the federal land
61 management agencies and the State of Hawai'i Department of
62 Agriculture (HDOA) Hawai'i Revised Statutes (HRS) Chapter 152.
63 The HDOA Noxious Weed List can be found in HRS 4:6:68 (Noxious
64 Weed Rules).

65
66 **(7) Pest.** Any insect, rodent, nematode, fungus, weed, or any
67 other form of terrestrial or aquatic plant or animal life or virus,
68 bacteria, or other microorganism (except viruses, bacteria, or other
69 microorganisms on or in living humans or other living animals) that
70 the Engineer declares to be a pest (Federal Insecticide, Fungicide,
71 and Rodenticide Act, Section 2(t)).

72
73 **(8) Physical Construction.** Activities associated with clearing,
74 grubbing, grading, excavating, filling of land, or other similar site work
75 activities and that cause ground disturbance and/or site disturbance.

76
77 **(9) Propagule.** A vegetative structure that can become detached
78 from a plant and give rise to a new plant, e.g., a bud, sucker, or spore.

79
80 **(10) Priority Invasive Plants for the State of Hawai'i**
81 **Department of Transportation Construction Projects.**

82
83 **(a)** Plants and weeds identified in State of Hawai'i
84 Department of Transportation (HDOT) contract specifications.

85
86 **(b)** Plants on the U.S. Department of Agriculture Federal
87 Noxious Weed List and in HRS 4:6:68 (Noxious Weed Rules)
88 *provided that* the HDOA and/or the ISC also recommend that
89 weed as a target.
90

(c) Species identified as targets for the early detection, eradication, or containment and control by the local island ISC in each county, found at the following websites:

1. Hawai'i Island: <https://www.biisc.org/>
2. Kaua'i: <https://www.kauaiisc.org/>
3. Maui: <https://mauiinvasive.org/>
4. O'ahu: <https://www.oahuisc.org/>

(d) Species determined by HDOT to impact roadside maintenance operations, infrastructure, or health and safety of the public (as determined by the Engineer). These species can be found in Chapter 2 of the HDOT Invasive Species Project Prioritization Plan.

(e) Species that are actively controlled by neighboring landowners and agreed upon by the Engineer, as identified during pre-construction consultation with landowners (as applicable).

(11) Priority Pests for the State of Hawai'i Department of Transportation.

(a) Animals and pathogens designated as high-priority invasive species for early detection, eradication, or containment by the ISCs or HDOA in each county.

(b) Animals and pathogens known to impact roadside maintenance operations, infrastructure, or public safety, as determined by HDOT.

(c) Animals and pathogens that are of concern to neighboring landowners and the Engineer agrees should be targets for HDOT.

(12) Weed. Any plant growing where it is not wanted, as determined by the Engineer.

(13) Wildlife Biologist. A person with a minimum of 5 years of experience in the wildlife field, including identification, eradication, control, and reporting of invasive animal species. The CONTRACTOR's selected Wildlife Biologist shall be approved by the Engineer.

137 **621.02 Materials.**

138
139 **(A) Free from Invasive Plants or Pests.** All material, including plant
140 material, gravel, sand, and soil, provided for the project shall be free of
141 invasive plants or pests. Such action is to prevent the introduction of
142 invasive species onto the project site.

143
144 **(B) Plant Material Sources.**

145
146 **(1)** The CONTRACTOR shall buy plants propagated on the island
147 where the plants will be planted. The CONTRACTOR shall provide
148 the Engineer with the names of the nursery or nurseries they will use
149 to provide landscaping plants in accordance with Section 619 –
150 Planting. A Botanist/Arborist and a Wildlife Biologist (collectively,
151 Biologists) shall inspect the nursery for the presence of invasive
152 species on the property and in planting materials destined for the
153 project site within 90 days of planting. Inspection results shall be
154 provided to the Engineer in a report.

155
156 **(2)** Should plants not be available on-island, imported plants from
157 off-island may be used but shall not be brought directly to the project
158 site. State of Hawai'i Plant Quarantine Branch–certified nurseries
159 should be given priority when selecting off-island plant imports (State
160 of Hawai'i Plant Industry Division 2020, available at:
161 <https://hdoa.hawaii.gov/1pi/pq/certified-nurseries/>). These plants
162 shall not be mixed with locally grown plants and shall be first
163 quarantined in a location away from the project site for a period not
164 less than 30 days in an area approved by the Engineer. Biologists
165 shall inspect all plants imported from off-island to ensure that they
166 are free from invasive species, such as coqui frogs
167 (*Eleutherodactylus coqui*), fire ants (*Wasmannia auropunctata* and
168 *Solenopsis geminata*), and weed seedlings, that could arrive
169 inadvertently. The Biologists shall screen out any priority invasive
170 plants or other potentially invasive plants or organisms, including
171 imported plants that appear to be sick or carrying disease. Any plant
172 that appears to be diseased shall be submitted to the University of
173 Hawai'i College of Tropical Agriculture and Humane Resources
174 extension agents for positive identification of the disease. The
175 Biologists may also seek assistance from other organizations,
176 including the State of Hawai'i Department of Land and Natural
177 Resources (DLNR), HDOA, and the local island ISC in the
178 identification or detection of non-plant invasive species. Imported
179 plants shall be planted out only after they have been determined to
180 be free of unwanted weeds or animal pests at the quarantine location
181 determined by the Engineer. All pests or invasive species shall be

reported by calling the Hawai'i Invasive Species Council at 808-643-PEST (7378) to determine appropriate treatment.

(3) In conjunction with Section 641 – Hydro-Mulch Seeding, a botanist/arborist shall inspect seeded areas a minimum of 45 days after hydroseed is applied.

(C) Construction Material.

(1) The Contractor shall make sure all material stockpile sites are free of invasive plants (including seeds and propagules) and animals. Stockpile site surveys shall be included in the Biologists' inventory report.

(2) All imported materials, including gravel, soil, rock, and sand shall be free of invasive species.

(3) All materials shall be stockpiled at a designated staging area to prevent contamination. If possible, permanent containment areas shall be constructed for long-term projects.

(4) Stockpiles of materials such as gravel, soil, rock, and sand shall be inspected every 6 months by the Biologists to ensure that they are not encroached upon by invasive plants or animals (a buffer of 30 feet shall be maintained).

(5) If invasive species are present, the CONTRACTOR shall either chemically or mechanically remove them, as determined by the Engineer.

621.03 Construction.

(A) Responsibility.

(1) Any priority invasive plants and priority pests that establish after notice to proceed and prior to final acceptance by the Engineer that were not present before construction shall be the sole responsibility of the CONTRACTOR to remove or control. Acceptable removal is dependent on the type of species and shall be approved by the Engineer.

(2) The CONTRACTOR shall be responsible for the control or eradication of priority invasive plants and/or priority pests that are already established at a project site before construction begins. CONTRACTOR responsibility is determined by the Engineer. Removal of already established species shall be paid from the force account; see Payment section below.

(3) The CONTRACTOR shall ensure that weed and/or pest removal is carried out in a legal manner, including obtaining all necessary training, licenses, and permits from applicable regulatory agencies for the specific methods proposed for removal and disposal of invasive species.

(B) Inventory of Invasive Species before Physical Construction.

(1) A full list of plant and animal species present at the site (botanical inventory and faunal inventory, respectively) is required for projects that have more than 1 acre or 43,560 square feet of roadside soil or vegetation and which will remain as soil or vegetation at the end of the construction project. The botanical and faunal inventory can either be combined into one report or the floral and faunal inventories can be reported on separately. Biologists shall provide one electronic copy of each inventory report to the Engineer. Botanical and faunal inventories shall be undertaken within 30 days before physical construction activities (e.g., site work, clearing, grubbing, ground disturbance, and/or any other site disturbance) are initiated. The postconstruction botanical and faunal inventories shall be undertaken during the Plant Establishment Period, which extends 9 months from the accepted completion date of the Planting Period. See Section 619 – Planting for definitions on the Planting Period and the Plant Establishment Period. The botanical and faunal inventory of the right-of-way shall be done by Biologists hired by the CONTRACTOR. The botanical inventory report shall include scientific names of plant species and their abundance (area covered and/or number of plants, as appropriate, depending on growth form). For priority invasive plants, the inventory shall provide details on GPS location (NAD 83) and reproductive status: mature (reproductive parts present) or immature. For priority invasive animals, the inventory shall include scientific names of faunal species and shall provide details on GPS location (NAD 83) and individual(s) detected.

(2) The Biologists shall inventory and report any priority invasive plants and/or priority invasive pests within 30 feet of any proposed on-site stockpiles for gravel, sand, and soil that may be sourced for the construction project.

269 **(C) Invasive Species Removal Plan.**

270
271 **(1)** If invasive species are found before physical construction,
272 including within 30 feet of material stockpile locations, the
273 CONTRACTOR shall submit an invasive species removal plan for
274 approval by the Engineer. This plan shall include specific removal
275 methods for all priority invasive species identified by the Engineer,
276 such as physical removal and/or chemical treatments, and a detailed
277 post-removal monitoring plan. The plan should address how to
278 prevent the spread of the invasive species if not removed. A cost to
279 remove and a cost to prevent the spread shall be submitted by the
280 CONTRACTOR. Preparation of the removal plan will be paid for
281 from the force account.

282
283 **(2)** If the invasive species is/are not removed prior to physical
284 construction, the CONTRACTOR shall surround areas of all invasive
285 plants with a protective 4-foot-high, orange plastic mesh or
286 equivalent fence accepted by the Engineer, supported on a minimum
287 6-foot-long steel T-post. The CONTRACTOR shall provide signage
288 on the fence that states "not to disturb or work within the fenced
289 area." Fences shall be erected before removal work begins and shall
290 not be removed until removal work is completed. For trees or shrubs,
291 flagging tape can be used to mark plants. The CONTRACTOR shall
292 contact the local island ISC to determine the best method to contain
293 invasive animals.

294
295 **(D) Removal of Priority Invasive Species Found before Physical**
296 **Construction.**

297
298 **(1)** The CONTRACTOR shall be required to remove invasive
299 plants and/or priority pests present at the site after approval of the
300 removal plan or implement mitigation measures to prevent their
301 spread. Removal of invasive species present prior to construction
302 will be paid from the force account. Removal shall be completed
303 prior to any physical construction at the project site.

304
305 **(2)** The CONTRACTOR shall be responsible for ensuring the
306 plant and animal removal is carried out in a legal manner, including
307 obtaining all necessary training, licenses, and permits from
308 applicable regulatory agencies for the specific methods proposed for
309 clearing and removing invasive species.

311 (3) If pesticides are proposed for use in the removal plan, the
312 CONTRACTOR shall ensure that their application is supervised by a
313 licensed commercial applicator. The labels for pesticides being used
314 must be in the applicator's possession; the applicator shall have
315 proper safety equipment and be prepared to handle chemical spills
316 before they occur. The CONTRACTOR shall use the least toxic
317 chemical that shall achieve the desired results. If a chemical spill
318 occurs, the Engineer must be notified, and the proper authorities
319 shall be notified in accordance with the pesticide label requirements.
320 A record of chemical applications shall be kept by the commercial
321 applicator and submitted to the Engineer.
322

323 (4) Green waste resulting from invasive species removal shall be
324 disposed in a manner that will prevent spread by seeds or regrowth
325 from plant fragments. Material contaminated with invasive species
326 shall be covered and secured during transport to prevent other areas
327 from becoming contaminated. In addition, seeds and fruit shall be
328 placed and secured in bags by the CONTRACTOR. As determined
329 by the Engineer, plant material shall be incinerated or buried in a
330 landfill.
331

332 (E) **Post-removal Monitoring and Inspection.** A Biologist shall carry
333 out post-removal monitoring at least every 6 months to confirm that
334 the removal plan was successfully implemented. The post-removal
335 monitoring is intended to ensure that the treated areas remain free
336 of invasive species during the construction. Before handing the site
337 over to the Engineer, the CONTRACTOR shall perform an inspection
338 of the entire construction site. The Engineer shall determine whether
339 the CONTRACTOR has met the responsibilities for invasive species
340 removal based on the post-removal inspection report.
341

342 (F) **Decontaminating Equipment, Machinery, and Vehicles.**
343

344 (1) **Clean Equipment.**
345

346 (a) All CONTRACTOR equipment and vehicles shall arrive
347 at the work site clean and visibly free of any soil, plants, or
348 plant parts (e.g., seeds); insects and insect eggs; reptiles and
349 amphibians and their eggs; or any other invasive species.
350 Routine clean-down procedures shall be implemented to
351 prevent contaminants from building up using visible inspection
352 and power washing equipment. All equipment cleaning and
353 sanitation shall be incidental to the lump-sum pay items.
354

355 (b) The CONTRACTOR shall certify that equipment is
356 arriving free of soil and debris capable of transporting viable
357 invasive plant parts, seeds, or propagules, or invasive
358 animals. The CONTRACTOR shall provide the Engineer with
359 sequentially numbered decals and an accompanying
360 spreadsheet with the decal numbers indicated in one column
361 and subsequent column headings for the date of inspection
362 and license plate number. Decals shall include the contract
363 number and be consistent with the format supplied by the
364 Engineer. The CONTRACTOR shall place the decal on
365 construction project machinery and vehicles, and the
366 Engineer will initial and date the decal after an inspection
367 determines that the vehicles are acceptably clean. After
368 initialing the decal on the vehicle/ machinery, the Engineer will
369 use the submitted spreadsheet to record the date of
370 inspection and license plate number. The CONTRACTOR
371 shall remove the decal after project completion.
372

373 (c) Vehicles or equipment that are off-site for 1 or more
374 working days shall be cleaned and inspected at least once
375 prior to their arrival at site. For other vehicles left on-site, the
376 CONTRACTOR shall attempt to maintain reasonable
377 standards of vehicle hygiene, and frequency of inspection will
378 be determined by the Engineer.
379

380 (d) All vehicles and equipment brought in for construction
381 work from off-island are required to be thoroughly washed at
382 the port of export before they arrive at the project site. If
383 invasive species are found at the project site, all vehicles that
384 are deemed to be contaminated by the Engineer must be
385 washed before leaving the project site and being returned to
386 its island of origin, or if not feasible or appropriate at the
387 project site, then at an approved alternative site.
388

389 (e) **Cleaning Stations.**
390

- 391 1. The Engineer will designate a cleaning station
392 for the project site. The location of cleaning stations
393 shall be recorded using a GPS unit and provided to the
394 Engineer. The Engineer will consider the following
395 when selecting and approving a cleaning station at the
396 project site:
397

398 **a.** The cleaning stations shall not contribute
399 to further contamination of machinery. To
400 prevent this, gravel or other appropriate material
401 shall be used to minimize contact with mud or
402 dirt, which may contain invasive plant seeds.

403
404 **b.** Cleaning stations shall be located in low-
405 value areas (e.g., away from native vegetation)
406 or off-site.

407
408 **c.** The designated cleaning area must
409 provide an environment for operators to safely
410 undertake clean-down procedures (i.e., is safe
411 for road traffic and personnel).

412
413 **d.** Cleaning station locations must be
414 clearly posted with signs that say: "Cleaning
415 Station."

416
417 **2.** The CONTRACTOR shall only use designated
418 cleaning stations at the project site to decontaminate
419 equipment, machinery, and vehicles. All earthwork
420 equipment shall be cleaned and be completely free of
421 soil, seeds, vegetative matter, or other debris that
422 could contain plant seeds or propagules prior to arrival
423 and/or before leaving the project site. Manual clean-
424 down procedures consist of using hand tools such as
425 brushes, brooms, air compressors, vacuums, and/or
426 high-pressure water guns. If using high-pressure
427 water, apply only as much water as needed to avoid
428 unnecessary run-off. As part of the cleaning, the
429 CONTRACTOR must pay particular attention to key
430 areas such as the chassis and wheels. A clean-down
431 checklist for vehicles shall include the following:

432
433 **a.** Underside: wheels, rollers, tracks, wheel
434 arches, wheel trim, bumpers, mud flaps, tire
435 rims, axle, differentials, and spare tire

436
437 **b.** Digging apparatus, blades, and buckets

438
439 **c.** Interior: foot wells, carpets, and under
440 mats
441

d. Engine bay: radiator, air filters, grille, recess under windscreen wipers, and transmission gearbox

e. Tray and trunk (for soil, seed, and plant material)

3. The CONTRACTOR shall clean and inspect equipment before it arrives at the project site. Equipment shall be considered free of soil, seeds, and other such debris after a visual inspection confirms it. Visual inspection shall include the complete exterior, including undercarriages, tires, wheel wells, and grille. Disassembly of equipment components or specialized inspection tools are not required. The Engineer will maintain a log of vehicle inspections. Earthwork equipment shall not be allowed to operate within the state right-of-way until approved by the Engineer.

4. Priority pests found hitchhiking on equipment shall be reported to HDOA by calling 808-643-PEST (7378).

5. Equipment shall not be sprayed with pesticides as a preventative measure. Spraying equipment with pesticides is not consistent with label specifications. Additionally, many pesticides target a wide range of vegetation and invertebrates and using pesticides in this way may harm nontarget vegetation and invertebrates.

6. The CONTRACTOR shall thoroughly inspect seeding equipment prior to conducting seeding activities to ensure they are free of invasive plant propagules.

(G) Ensuring No Invasive Species Become Established during Construction.

(1) The CONTRACTOR is responsible for keeping the construction site free of invasive species. Monitoring shall be carried out by the CONTRACTOR after removal of invasive species found prior to construction, every 6 months during construction, after physical construction, and after the Plant Establishment Period, before handing the site over to the State. This monitoring shall be undertaken by a Botanist/Arborist for invasive plants and a Wildlife

Biologist for invasive animals who shall provide an inventory report which will include scientific names of plant and animal species and their abundance (e.g., area covered and/or number of plants, as appropriate, depending on growth form; and number of individual animals detected). The invasive species inventory report can either report on invasive plants and animals separately or joined as a single document. The report for priority invasive plants shall provide GPS (NAD 83) locations and reproductive status, and the report for priority invasive pests shall provide GPS (NAD 83) locations and the number of individuals detected. Each Biologist shall provide one electronic copy of each inventory report to the Engineer.

(2) Invasive Species Information Signage at the Project Site. Invasive species and noxious weed signage shall be prominently posted at the CONTRACTOR's workplace and at the project site. Signage shall include one laminated 8.5 x 11-inch color page for each HDOT priority invasive species relevant to the project site. The CONTRACTOR may obtain free digital files with invasive species photographs that shall be printed and laminated for use on the project site; these are available at: <http://www.hawaiiinvasivespecies.org>. All signage shall include "Call 808-643-PEST (7378)."

(3) Training. HDOT and the CONTRACTOR's field staff shall attend a mandatory training by biologists knowledgeable about invasive plants and animals about on-site decontamination protocols, identification of priority invasive species and pests, and reporting procedures, once annually (or prior to any physical construction). The local island ISC should be contacted for training information. Trainers shall record the name and date of training for those individuals that complete the training, which shall be provided to the Engineer upon request.

(4) Unannounced Inspections. The CONTRACTOR shall provide unfettered access to the state right-of-way to any ISC staff, HDOA staff, or anyone else acting for the Engineer for the purpose of detecting or monitoring invasive species.

(H) **Post-Physical Construction Prior to Returning the Site to the State—Post-Construction Inventory.** The CONTRACTOR shall conduct a post-construction invasive species inventory to verify and confirm that the CONTRACTOR maintained the site in the original condition after the initial removal of invasive species was conducted. If additional invasive species are found, the CONTRACTOR would be responsible to develop a removal plan, remove the invasive species found, and conduct post-removal monitoring at their own expense. The removal plan shall be subject to Engineer approval.

621.04 Measurement.

(A) Invasive species control measures during construction, including signage and decontamination training, will be paid on a lump sum basis. Measurement for payment will not apply.

(B) The development of the invasive species removal plan, removal of invasive species established before physical construction and not part of the project's physical construction work, as well as the post-removal monitoring, shall be paid with force account funds. The Engineer will measure invasive species removal planning, removal, and monitoring required and requested by Engineer on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation.

621.05 Payment. The Engineer will pay for the accepted invasive species management on a contract lump-sum basis after the final acceptance of the project. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	Pay Unit
Inventory of Invasive Species before Construction	Lump sum
Invasive Species Removal Plan	Force account
Removal of Plants and Animals Established before Physical Construction or Site Work, Post-removal Monitoring	Force account
Monitoring of Invasive Species during and after Construction	Lump sum
Post-Construction Inventory Prior to Returning the Site to the State	Lump sum

572 An estimated amount for the force account is allocated in the proposal
573 schedule under Existing Invasive Species Removal, which includes the Invasive
574 Species Removal Plan and the Removal of Plants and Animals Established before
575 Physical Construction or Site Work, Post-removal Monitoring. The actual amount
576 to be paid will be the sum shown on accepted force account records, whether this
577 sum is more or less than the estimated amount allocated in the proposal schedule.”

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579
580
581
582 **END OF SECTION 621**