appendix X

# DMS Site Inventory

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Site Name:** |  | | | | | | | | | | | |
| **Site Address:** |  | | | | | | | | **Site Coordinates:** | | **N** | |
| **Estimated Property Size:** | | | | |  | acres | | | | | **W** | |
| Site Owner: |  | | | | | | | | | | | |
| **Ownership Type:** | | | | Jurisdiction Property | | | | County Property | | Private Property | |  |
| Other (describe) | | |  | | | |  | |  | |  | |
| **Owner Address:** | |  | | | | |  | |  | |  | |
| **Owner Phone:** | |  | | | | |  | |  | |  | |
| **Owner Email:** | |  | | | | |  | |  | |  | |

**Site and Neighboring Properties Characterization**

|  |  |
| --- | --- |
| **Characteristic** | **Comments** |
| Current Use |  |
| Proposed Future Land Use |  |
| Current Land use/Zoning |  |
| Restoration Time Requirements |  |
| Proximity to School, Church, or Community Center |  |
| Property Topography |  |
| Environmental Considerations |  |
| Open Water or Wetlands |  |
| Ground Water Wells |  |
| Within 100-year floodplain |  |
| Soil/Slope Integrity |  |
| Surface Water Drainage |  |
| Suitable for use in wet weather |  |
| Prevailing Wind Direction |  |
| Brownfield Site |  |
| Superfund Site |  |
| Archeological or Historic Properties or Artifacts |  |
| Underground Utilities (water, wastewater, natural gas, electricity) |  |
| Noise Control Buffer |  |
| Adjacent to Airport/Airfield |  |
| Access to Electrical Service |  |
| Access to Water Service |  |
| Access to Sewer Service |  |
| Existing Lighting |  |
| Traffic Ingress/Egress Capacity |  |
| Capable of Accepting Heavy Trucks (site and neighboring roads) |  |
| Proximity to Major Roadway |  |
| Fencing and Other Security Features |  |

**Site Preparation Level of Effort**  High  Medium  Low

**Suitability to Wet Weather**  High  Medium  Low

**Ability to Serve Spatial Area**  High  Medium  Low

**List Jurisdictions that could utilize this site:**

**Closest Landfill Available to This Site:**

**Recommended Uses for This Site:**

C&D

Vegetative

White Goods

Hazardous Waste

Other (describe)

**Reduction Methods Acceptable for This Site:**  Open Burning  Incineration  Grinding

**Site Map:**

Date of Site Survey:

Picture Numbers Taken During Site Survey:

Potential Site Rating  Primary  Secondary  Tertiary

**Locating Additional Debris Management Sites**

When identifying additional DMSs, planning staff should first consider sites that already have solid waste handling permits and, secondly, public lands to avoid costly land leases. Existing disposal or recycling facilities close to lifelines and major access routes are ideal DMSs. Jurisdiction-owned sites that will not require extensive repair costs, such as parks, vacant lots, or sports fields, should be considered as well. State-to-state or county-to-county agreements may provide solutions for public land use; however, if these are not available, planning staff should develop criteria for identifying potential private property locations for the DMSs. Private land easements should be reviewed by the legal staff to avoid extensive damage claims upon site closeout. Additional selection considerations for DMSs include the following:

* Proximity to the sources of disaster debris; as close as possible
* Large enough to accommodate a storage area, a sorting area, and volume reduction operation area
* Hard, preferably non-porous, surface such as a paved parking lot
* Accessible by main transportation routes with good ingress and egress to accommodate heavy truck traffic
* Outside of environmentally sensitive areas, such as wetlands or well-fields
* Reuse and recycling possibilities, including: timber agreements, mulch and chip disposal in the agriculture community and fuel sources for incinerators or heating. Recycling success will depend on the types of debris and the local recycling environment.

Appendix X, Debris Management Site and Neighborhood Collection Site Inventory, should be used to evaluate new debris sites.

#### Site Preparation:

Develop a Memorandum of Understanding, a Memorandum of Agreement, or lease/use agreement, if required. Establish lined temporary storage areas for materials (including ash, household hazardous waste, fuels, and other materials) that can contaminate soils, groundwater, and surface water. When possible, set up plastic liners under stationary equipment, such as generators and mobile lighting plants. This should be included as a requirement in the scope of work if DMS preparation will be contracted out. The topography and soil/substrate conditions should be evaluated to determine the best site layout. When planning for site preparation, the designer should consider ways to make site closure and restoration easier. Upon site closeout, the uncontaminated soil can be re-spread to preserve the integrity of the tillable soils. Operations that modify the landscape, such as substrate compaction and over-excavation of soils when loading debris for final disposal, adversely affect landscape restoration. Identify who would be responsible for updating the initial baseline data and develop an operation layout to include ingress and egress routes.

#### Site Layout

The efficiency and the overall success of the DMS operations are determined by how the site is designed. Significant accumulation of debris should not be allowed to occur at temporary storage sites because of environmental and safety concerns, such as the risk of fire. Moreover, permits for such sites may impose maximum capacity restrictions. While FEMA recommends 100 acres as the minimum size for DMS, this may be altered due to facility availability. Additional debris management sites may be necessary if actual debris quantities flowing into the site are greater than the site storage and processing capacity.

Operational Boundaries

Operational boundaries are the boundaries or areas that clearly define the different use areas on the DMS. In establishing the operational boundaries, the DMS design staff may consider using earthen berms, temporary barriers, or other physical restrictions. This aids traffic circulation and keeps the backlog of debris to a minimum.

Common operational areas include the following:

* Reduction
* Recycling
* Tipping areas (unloading)
* Loading areas for processed debris to go to its final disposition
* Drop-off centers for the public (this may include vegetative, recycling, or construction and demolition debris)
* Household hazardous waste storage
* Monitoring tower and/or scale locations at both the ingress and egress points
* Equipment, fuel, and water storage

Separation of the areas listed above should be clearly delineated and defined. Maximum separation helps to reduce conflicts in use. As operations proceed, these areas may change with the various types of debris. The reduction, recycling, tipping, and loading areas need ample room for large equipment operations. The design should consider the possibility of multiple pieces of equipment engaging in the same activity at one time. Depending on the scale of operations, each debris stream may have its own tipping area and should be designed accordingly.

General public drop-off areas for recycling, reduction, and construction and demolition debris may be included within a DMS. These public use areas should be carefully designed for passenger vehicle traffic and public safety. Account for all weight or volume of materials received from public drop-off to ensure accurate and complete records for all debris received to the site by source.

Household hazardous waste storage should be located in a safe location close to the public drop-off center, yet restricted, so that qualified personnel can process the waste appropriately. The design staff may consider constructing an impermeable lining and earthen berms to contain spills and prevent surface water runoff from leaving the area.

Monitoring towers should be located at ingress and egress points. Monitoring towers should be constructed of durable structural materials. The structures should be designed to withstand active and static loads. A stepladder is not an acceptable monitoring tower.

Equipment and fuel should have a designated storage area and signs posted appropriately. The fuel storage areas need to be designed to contain spills. For dust and fire suppression, water should be readily available throughout the site at all times and must be identified appropriately.

Traffic Patterns

Traffic circulation should be well defined throughout the entire DMS. Although traffic signs and barricades aid in directing traffic, the planning staff may also consider flag personnel to help direct traffic. Drivers unfamiliar with the new environments, routes, and rules will need assistance to safely navigate through the site.

Optimally, the designed traffic pattern should allow trucks to enter and exit through different access points, as long as each is monitored. Haulers are typically paid by the volume or weight of a load. The load is evaluated when entering the site, based on a percentage of the full capacity of the truck. Stationing monitors at ingress and egress points ensures that every truck releases the entire load prior to leaving the site. This prevents debris left in a truck from a previous load from being counted again in a subsequent load. The empty trucks that enter the site to remove the processed (reduced) debris should enter and exit through an access point other than that of all other traffic. This reduces the site management and debris monitor confusion regarding debris being deposited or removed from the site.

#### Environmental Monitoring Program:

Additional data should be collected on a continuous basis during site operations to support site closeout and quality assurance. The data can be compared to the previously established information in order to determine any remediation that may be necessary.

DMS operations may expand, contract, or shift on the site. It is important to track reduction, hazardous waste collection, fuel, and equipment storage in order to sample soil and water for contaminants. Periodically, map or sketch out activity locations so that areas of concern can be pinpointed later for additional sampling and testing.

If the site is also an equipment staging area, monitor fueling and equipment repair to prevent and mitigate spills (e.g., petroleum products and hydraulic fluids). Include clauses in the contract scope of work to require immediate cleanup by the contractor.

#### Site Closure

After the site operations are complete, the property (either jurisdiction-owned or leased) must be restored to its pre-activity environmental state. Restoration of a site involves removing all traces of the operations and possible remediation of any contamination that may have taken place during the operations. Debris, processing equipment, storage tanks, protection berms, and other structures constructed on the site should be removed from the site upon completion of all debris removal and processing operations.

#### Site Evaluation and Restoration

Final restoration of the landscape must be acceptable to the landowner, within reasonable expectations. Therefore, plan the landscape restoration as early as possible, preferably incorporating provisions within the lease.

The final environmental site evaluation is an extension of the environmental monitoring program. Testing, similar to that which is done for the baseline study, should be conducted to confirm that the site has been returned to its pre-activity state. Test samples should be taken at the same locations as those of the initial assessment and monitoring program. However, if warranted, additional test samples may be needed at other locations on, or adjacent to, the site.

Based on the results of the testing, additional remediation may be required before the owner takes final acceptance of the site. The lease agreement should have provisions to release the jurisdiction from future damages when the site is returned to its original condition, or when final acceptance is received from the owner.