SKYLINE LANDFILL

APPENDIX IID

WETLANDS DOCUMENTATION

CONTENTS

NATIONWIDE PERMIT 39

SWF-2009-00138

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

May 29, 2009

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2009-00138

Ms. Megan Claycamp
Halff Associates, Incorporated
1201 North Bowser Road
Richardson, TX 75081-2275

Dear Ms. Claycamp:

Thank you for your letter received March 27, 2009, concerning a proposal by Waste Management, Incorporated to construct a proposed extension to the Skyline Landfill in the Town of Ferris, Dallas and Ellis Counties, Texas. This project has been assigned Project Number SWF-2009-00138. Please include this number in all future correspondence concerning this project. Failure to reference the project number may result in a delay.

We have reviewed this project in accordance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Under Section 404, the U. S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. Our responsibility under Section 10 is to regulate any work in, or affecting, navigable waters of the United States. Based on your description of the proposed work, and other information available to us, we have determined that this project will not involve activities subject to the requirements of Section 10. However, this project will involve activities subject to the requirements of Section 404. Therefore, it will require Department of the Army authorization.

We have reviewed this project under the preconstruction notification (PCN) procedures of Nationwide Permit (NWP) General Condition 27 (Federal Register, Vol. 72, No. 47, Monday, March 12, 2007). We have determined that this project is authorized by NWP 39 for Commercial and Institutional Developments. To use this permit, the person responsible for the project must ensure that the work is in compliance with the specifications and conditions listed on the enclosure, and the special conditions listed below. The special conditions for this permit are as follows:

1. The permittee shall implement and abide by the Mitigation Plan titled "Section 404 Compensatory Mitigation Plan," prepared by Halff Associates, dated March 2009. The permittee shall implement the mitigation plan concurrently with the construction of the project and complete the initial construction and plantings associated with the mitigation work prior to completion of construction of the project. Completion of all elements of this mitigation plan is a requirement of this permit.

2. The permittee shall retain a qualified mitigation specialist (biologist, ecologist or other specialist qualified in wetland restoration, enhancement, and creation work), to oversee project construction to the extent necessary to ensure compliance with all mitigation requirements of this permit. The permittee shall have this mitigation specialist conduct all monitoring and produce any required monitoring reports.

3. The permittee shall ensure that all tree and shrub plantings required by this permit exhibit at least an eighty percent survival rate five years after planting, or the permittee must replant until at least an eighty percent survival rate is achieved for a five year period.

4. The permittee shall provide a map to the USACE including all current and past mitigation, with permit number labels and boundaries for each individual mitigation site, that has occurred at the Ten Mile Creek Mitigation Area.

We have determined that the proposed activity would comply with all of the terms and conditions of nationwide permit 39 and that adverse environmental effects of the proposed project would be minimal both individually and cumulatively. Therefore, we are waiving the 300 linear foot of stream bed loss for this case. Failure to comply with these specifications and conditions invalidates the authorization and may result in a violation of the Clean Water Act.

This NWP is scheduled to expire on March 18, 2012. It is incumbent on you to remain informed of changes to the NWP. The USACE will issue a public notice announcing the changes as they occur. Furthermore, if you commence, or are under contract to commence, the activity before the date the NWP is modified or revoked, you will have 12 months from the date of the modification or revocation to complete the activity under the present terms and conditions of this NWP.

Our review of this project also addressed its effects on threatened and endangered species. Based on the information provided, we have determined that this project will not affect any species listed as threatened or endangered by the U.S. Fish and Wildlife Service within our permit area. However, please note that you are responsible for meeting the requirements of general condition 17 on endangered species.

The permittee must sign and submit to us the enclosed certification that the work was completed in compliance with the nationwide permit. You should submit your certification within 30 days of the completion of work.

This permit should not be considered as an approval of the design features of any activity authorized or an implication that such construction is considered adequate for the purpose intended. It does not authorize any damage to private property, invasion of private rights, or any infringement of federal, state, or local laws or regulations.

The USACE based this decision on a preliminary jurisdictional determination (JD) that there are waters of the United States on the project site. This preliminary JD is valid for a period of no more than five years from the date of this letter unless new information warrants revision of the delineation before the expiration date. It is incumbent upon the applicant to remain informed of changes in the Department of the Army regulations.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please refer to our website at http://www.swf.usace.army.mil/regulatory or contact Mr. Frederick Land at the address above or telephone (817) 886-1729 and refer to your assigned project number.

Please help the Regulatory Program improve its service by completing the survey on the following website: http://per2.nwp.usace.army.mil/survey.html

Sincerely,

for Stephen L. Brooks
Chief, Regulatory Branch

Enclosures

PERMIT COMPLIANCE CERTIFICATION

USACE Project Number:

Name of Permittee:

Date of Issuance:

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Regulatory Branch
CESWF-PER-R
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____ _____

Signature of Permittee Date

NATIONWIDE PERMIT 39
Commercial and Institutional Developments
Effective Date: March 19, 2007
(NWP Final Notice, 72 FR 11188, para. 39)

Commercial and Institutional Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses, new ski areas, or oil and gas wells is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

NATIONWIDE PERMIT GENERAL CONDITIONS

General Conditions: The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. **Navigation**. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements**. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. **Migratory Bird Breeding Areas**. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. **Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. **Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. **Wild and Scenic Rivers**. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ``study river'' for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. **Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. **Endangered Species**. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened authorized under any NWP which ``may affect'' a listed or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity ``may affect'' or will have ``no effect'' to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be

affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their worldwide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

18. **Historic Properties.** (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The di[illegible]engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction n[illegible]ion whether NHPA Section 106 consultation is required. Section 106 consultation is not required w[illegible]Corps determines that the activity does not have the potential to cause effects on historic properti[illegible]o CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the district en[illegible]al notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is com[illegible]ed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 1[illegible] the NHPA, has intentionally significantly adversely affected a historic property to which the permit would rel[illegible]r having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, aft[illegible]consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. **Designated Critical Resource Waters.** Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. **Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. **Water Quality**. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. **Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency

concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. **Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. **Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing, over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. **Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with the nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: ``When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit, and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

(Date)

26. **Compliance Certification**. Each permittee who received the NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or special conditions;

(b) A statement that any required mitigation was completed in accordance with the permit conditions; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

27. **Pre-Construction Notification**. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) If 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is ``no effect" on listed species or ``no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin

the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) District Engineer's Decision: In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either:

(1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit;

(2) That the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or

(3) That the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

28. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.
Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
Discharge: The term "discharge" means any discharge of dredged or fill material and any activity that causes or results in such a discharge.
Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.
Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR Part 60).
Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.
Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.
Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP or other NWP authorization. The threshold value is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.
Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).
Open water: For purposes of the NWPs, an open-water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.
Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).
Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term ``single and complete project'' is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a ``single and complete project'' is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).
Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.
Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

ADDITIONAL INFORMATION

This nationwide permit is effective March 19, 2007, and expires on March 18, 2012.

Information about the U.S. Army Corps of Engineers regulatory program, including nationwide permits, may also be accessed at http://www.swf.usace.army.mil/pubdata/environ/regulatory/index.asp or http://www.usace.army.mil/cw/cecwo/reg

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 26, 2007

Ms. Denise Sloan
U.S. Army Corps of Engineers
Galveston District CESWG-PE-RE
P.O. Box 1229
Galveston, Texas 77553-1229

Re: USACE Nationwide Permits

Dear Ms. Sloan:

This letter is in response to your April 3, 2007, letter requesting Clean Water Act Section 401 certification of the United States Army Corps of Engineers (Corps) Nationwide Permits (NWPs). The Final Notice of Reissuance of Nationwide Permits was published in the Federal Register (Part II, Vol. 72, No. 47, pages 11092-11198) on March 12, 2007. Proposed regional conditions for NWPs in Texas were proposed in an October 12, 2006 public notice.

The Texas Commission on Environmental Quality (TCEQ) has reviewed the Final Notice of Reissuance of Nationwide Permits and the proposed regional conditions. On behalf of the Executive Director and based on our evaluation of the information contained in these documents, the TCEQ certifies that the activities authorized by NWPs 1, 2, 4, 5, 8, 9, 10, 11, 20, 23, 24, 28, 34, 35, and 48 should not result in a violation of established Texas Surface Water Quality Standards as required by Section 401 of the Federal Clean Water Act and pursuant to Title 30, Texas Administrative Code, Chapter 279.

The TCEQ conditionally certifies that the activities authorized by NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, and 50 should not result in a violation of established Texas Surface Water Quality Standards as required by Section 401 of the Federal Clean Water Act and pursuant to Title 30, Texas Administrative Code, Chapter 279. Conditions for each NWP are defined in Enclosure 1 and more detail on specific conditions are discussed below.

The TCEQ understands that a prohibition against the use of NWPs in coastal dune swales will be included in the 2007 Texas Regional Conditions (Regional Conditions) for certain NWPs consistent with the 2002 Texas Regional Conditions. Inclusion of a prohibition of using NWPs in coastal dune swales is a condition of this 401 TCEQ certification.

The prohibition of sidecasting of materials was removed from NWP 41 in the 2007 NWP renewal. In the November 28, 2006 TCEQ comment letter to the Corps regarding the Regional Conditions for NWP 41, the TCEQ requested the prohibition against the permanent sidecasting of excavated materials into waters of the

U.S. be included as a regional condition. The TCEQ recommended that if the sidecasting prohibition is not included in the Regional Conditions, that a limit on the amount of waters of the U.S. that can be impacted by the sidecasting, and a requirement for mitigation of those impacts be included as a regional condition. If the Corps chooses to not include a prohibition against sidecasting material in the Regional Conditions, the TCEQ conditional certification of NWP 41 is that the area impacted by the sidecasting should not exceed 3 acres or 1500 linear feet. For purposes of calculating the threshold one acre of impact is considered equal to 500 linear feet. Inclusion of a prohibition against the permanent sidecasting of material that impacts more then 3 acres or 1500 linear feet under NWP 41 is a condition of this 401 TCEQ certification.

In the November 28, 2006 TCEQ comment letter to the Corps regarding the Regional Conditions for NWP 46 (previously NWP B), the TCEQ requested a regional condition for NWP 46 that contains an upper limit no greater than 1,500 linear feet. Inclusion of a limit no greater than 1,500 linear feet under NWP 46 is a condition of this 401 TCEQ certification.

The TCEQ wants to clarify the application of NWP 16 in Texas. NWP 16 should be limited to the return water from upland contained dredged material disposal areas. It is important to emphasize the intent for dredged material disposal. The TCEQ understands dredged material to be associated with navigational dredging activities, not commercial mining activities. To avoid confusion the TCEQ requests that a regional condition be added that prohibits the use of NWP 16 for activities that would be regulated under Standard Industrial Classification (SIC) codes 1442 and 1446 (industrial and construction sand and gravel mining). This condition is also included as part of the 401 certification of NWP 16.

The final NWP 16 states that the quality of the return water is controlled by the state through the 401 certification procedures. Consistent with previous NWPs certification decisions the TCEQ is conditionally certifying NWP 16 for the return water from confined upland disposal not to exceed a 300 mg/L Total Suspended Solids (TSS) concentration and request the Corps to include this condition in the Regional Conditions. The TCEQ recognizes the usefulness of having an instantaneous method to determine compliance with the 300 mg/L TSS limit. However, existing literature and analysis of paired samples of turbidity and TSS from the Texas Surface Water Quality Data indicate this relationship must be a site specific characterization of the actual sediments to be dredged. To address this approach we have included new language in the NWP 16 conditional certification that allows flexibility to use an instantaneous method in implementing the TSS limit when a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus TSS has been approved by TCEQ. The TCEQ remains interested in working with the Corps in the development of these curves. We encourage the Corps to accept the conditional certification of NWP 16 as a Regional Condition and that we work together to find the best methods to implement this limit.

In evaluating this condition for the Regional Conditions for NWPs the TCEQ encourages the Corps to consider that TSS limits are promulgated as effluent limits under Title 40 of the Code of Federal Regulations. The TCEQ requirement to control return water from confined upland disposal not to exceed a 300 mg/L TSS has also been included in individual 404 permits. It is also important to note that the TCEQ effectively imposes

TSS effluent limits in thousands of wastewater discharge permits issued in Texas under Section 402 of the federal Clean Water Act.

The TCEQ is conditionally certifying NWP General Condition #12 *Soil Erosion and Sediment Controls*, and General Condition #21 *Water Quality*. The conditions address three broad categories of water quality management with specific recommendations for Best Management Practices (BMPs) for each category. These BMPs are intended to enhance the water quality protection of these General Conditions. A list of TCEQ-recommended BMPs is included as Enclosure 2. Enclosure 3 is provided as a quick reference for all NWPs. A detailed description of the BMPs is provided in Enclosure 4. Runoff from bridge decks has been exempted from the requirement for post-construction total suspended solids (TSS) controls under General Condition 21. As stated in our April 3, 2007 letter to the Corps, the TCEQ would like to include these BMPs for the protection of waters in the state specific to each NWP as part of the regional conditions for Texas.

The TCEQ is conditionally certifying NWPs 13, 29, 39, 40, 41, 42, 43 to require the Corps to copy TCEQ on all written approvals of waivers for impacts to ephemeral, intermittent or perennial streams. The TCEQ is conditionally certifying NWP 36 to require the Corps to copy TCEQ on all written waivers for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width. The TCEQ is also conditionally certifying General Condition 20 *Mitigation* to require the Corps to copy TCEQ on any written notification of a mitigation waiver. In addition, TCEQ understands that a regional condition will be added that requires mitigation for streams and special aquatic sites, such as pools/riffles, seagrass, and mudflats that will adequately compensate for their functions and values. The TCEQ is requesting this information to fulfill its responsibility to ensure water of the state is appropriately protected by understanding the impact of waivers being granted in Texas.

This certification decision is limited to those activities under the jurisdiction of the TCEQ. For activities related to the production and exploration of oil and gas a Texas Railroad Commission certification is required as provided in the Texas Water Code §26.131.

The TCEQ has reviewed the Notice of Reissuance of Nationwide Permits for consistency with the goals and policies of the Texas Coastal Management Program (CMP) in accordance with the regulations of the Coastal Coordination Council, 31 TAC §505.30, and has determined that the action is consistent with the applicable CMP goals and policies.

This certification was reviewed for consistency with the CMP's development in critical areas policy {31 TAC §501.14(h)} and dredging and dredged material disposal and placement policy {31 TAC §501.14(j)}. This certification complies with the CMP goals {31 TAC §501.12(1,2,3,5)} applicable to these policies.

The TCEQ reserves the right to modify this certification if additional information identifies specific areas where significant impacts, including cumulative or secondary impacts, are occurring, and the use of these NWPs would be inappropriate.

No review of property rights, location of property lines, nor the distinction between public and private ownership has been made, and this certification may not be used in any way with regard to questions of ownership.

If you require further assistance, please contact Ms. Lori Hamilton, Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-0683.

Sincerely,

L'Oreal W. Stepney, P.E., Director
Water Quality Division
Texas Commission on Environmental Quality

LWS/LH/jp
Enclosures

ccs: U.S. Army Corps of Engineers
Southwestern Division
ATTN: Ms. Vicki Dixon
1100 Commerce Street
Dallas, Texas 75242-0216

U.S. Army Corps of Engineers
Regulatory Branch CESWF-OD-R
ATTN: Mr. Wayne Lea
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Fort Worth, Texas 76102-0300

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1645 South 101 East Avenue
Tulsa, Oklahoma 74128-4609

U.S. Army Corps of Engineers
Albuquerque District
4101 Jefferson Plaza, NE
Albuquerque, New Mexico 87109

Enclosure 1

Conditions of Section 401 Certification for Nationwide Permits and General Conditions

General Condition 12 (Soil Erosion and Sediment Controls)

Erosion control and sediment control BMPs described in Attachment 1 are required with the use of this general condition. If the applicant does not choose one of the BMPs listed in Attachment 1, an individual 401 certification is required.

General Condition 21 (Water Quality)

Post-construction total suspended solids (TSS) BMPs described in Attachment 1 are required with the use of this general condition. If the applicant does not choose one of the BMP's listed in Attachment 1, an individual 401 certification is required. Bridge deck runoff is exempt from this requirement.

General Condition 20 (Mitigation)

Mitigation will be required for streams and special aquatic sites, such as pools/riffles, seagrass, and mudflats, that will adequately compensate for their functions and values unless the Corps provides a project-specific waiver of this requirement. The U.S. Army Corps of Engineers will copy the TCEQ on all mitigation waivers sent to applicants.

NWPs 13, 29, 39, 40, 41, 42, 43

The U.S. Army Corps of Engineers will copy the TCEQ on all written approvals of waivers for impacts to ephemeral, intermittent or perennial streams.

NWPs 7, 12, 14, 15, 17, 18, 19, 22, 25, 29, 30, 31, 32, 33, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46

These NWPs are not authorized for use in coastal dune swales in Texas.

NWP 3 (Maintenance)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 6 (Survey Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 7 (Outfall Structures and Associated Intake Structures)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 12 (Utility Line Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 13 (Bank Stabilization)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 14 (Linear Transportation Projects)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 15 (U.S. Coast Guard Approved Bridges)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 16 (Return Water From Upland Contained Disposal Areas)

Activities that would be regulated under Standard Industrial Classification (SIC) codes 1442 and 1446 (industrial and construction sand and gravel mining) are not eligible for this NWP. Effluent from an upland contained disposal area shall not exceed a TSS concentration of 300 mg/L unless a site-specific TSS limit, or a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus (TSS) has been approved by TCEQ.

NWP 17 (Hydropower Projects)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 18 (Minor Discharges)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 19 (Minor Dredging)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 21 (Surface Coal Mining Operations)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 22 (Removal of Vessels)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 25 (Structural Discharges)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 29 (Residential Developments)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 30 (Moist Soil Management for Wildlife)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 31 (Maintenance of Existing Flood Control Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 32 (Completed Enforcement Actions)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 33 (Temporary Construction, Access and Dewatering)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 36 (Boat Ramps)

The U.S. Army Corps of Engineers will copy the TCEQ on all written waivers for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width. Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 37 (Emergency Watershed Protection and Rehabilitation)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 38 (Cleanup of Hazardous and Toxic Waste)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 39 (Commercial and Institutional Developments)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 40 (Agricultural Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 41 (Reshaping Existing Drainage Ditches)

The area impacted by the sidecasting should not exceed 3 acres or 1500 linear feet. For purposes of calculating the threshold, one acre of impact is considered equal to 500 linear feet of impact. Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 42 (Recreational Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 43 (Stormwater Management Facilities)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 44 (Mining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 45 (Repair of Uplands Damaged by Discrete Events)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 46 (Discharges in Ditches)

The area impacted by discharges in ditches should not exceed 1500 linear feet. Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 47 (Pipeline Safety Program Designated Time Sensitive Inspections and Repairs)

Soil Erosion and Sediment Controls under General Condition 12 are required.

NWP 49 (Coal Remining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

NWP 50 (Underground Coal Mining Activities)

Soil Erosion and Sediment Controls under General Condition 12 are required. Post-construction TSS controls under General Condition 21 are required.

Enclosure 2

Texas Commission on Environmental Quality
401 Water Quality Certification Conditions for Nationwide Permits
Attachment 1

Below are the 401 water quality certification conditions the Texas Commission on Environmental Quality (TCEQ) added to the March 12, 2007 issuance of Nationwide Permits (NWP), as described in the Federal Register (Part II, Vol. 67, No. 10, pages 2020-2095).

Additional information regarding these conditions, including descriptions of the best management practices (BMPs), can be obtained from the TCEQ by contacting the 401 Coordinator, MC-150, P.O. Box 13087, Austin, Texas 78711-3087 or from the appropriate U.S. Army Corps of Engineers district office.

I. Erosion Control

Disturbed areas must be stabilized to prevent the introduction of sediment to adjacent wetlands or water bodies during wet weather conditions (erosion). *At least one* of the following BMPs must be maintained and remain in place until the area has been stabilized for NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, and 50. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required.

- o Temporary Vegetation
- o Mulch
- o Interceptor Swale
- o Erosion Control Compost
- o Compost Filter Berms and Socks
- o Blankets/Matting
- o Sod
- o Diversion Dike
- o Mulch Filter Berms and Socks

II. Sedimentation Control

Prior to project initiation, the project area must be isolated from adjacent wetlands and water bodies by the use of BMPs to confine sediment. Dredged material shall be placed in such a manner that prevents sediment runoff into water in the state, including wetlands. Water bodies can be isolated by the use of one or more of the required BMPs identified for sedimentation control. These BMP's must be maintained and remain in place until the dredged material is stabilized. *At least one* of the following BMPs must be maintained and remain in place until the area has been stabilized for NWPs 3, 6, 7, 12, 13, 14, 15, 17, 18, 19, 21, 22, 25, 27, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, and 50. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required.

- o Sand Bag Berm
- o Silt Fence
- o Triangular Filter Dike
- o Rock Berm
- o Hay Bale Dike
- o Brush Berms

- o Stone Outlet Sediment Traps
- o Sediment Basins
- o Erosion Control Compost
- o Mulch Filter Berms and Socks
- o Compost Filter Berms and Socks

III. Post-Construction TSS Control

After construction has been completed and the site is stabilized, total suspended solids (TSS) loadings shall be controlled by *at least one* of the following BMPs for NWPs 12, 14, 17, 18, 21, 29, 31, 36, 39, 40, 41, 42, 44, 45, 49, and 50. If the applicant does not choose one of the BMPs listed, an individual 401 certification is required. Runoff from bridge decks has been exempted from the requirement for post construction TSS controls.

- o Retention/Irrigation Systems
- o Constructed Wetlands
- o Extended Detention Basin
- o Wet Basins
- o Vegetative Filter Strips
- o Vegetation lined drainage ditches
- o Grassy Swales
- o Sand Filter Systems
- o Erosion Control Compost
- o Mulch Filter Berms and Socks
- o Compost Filter Berms and Socks
- o Sedimentation Chambers*

* Only to be used when there is no space available for other approved BMPs.

IV. NWP 16: Return Water from Upland Contained Disposal Areas

Effluent from an upland contained disposal area shall not exceed a TSS concentration of 300 mg/L unless a site-specific TSS limit, or a site specific correlation curve for turbidity (nephelometric turbidity units (NTU)) versus (TSS) has been approved by TCEQ.

V. NWP 29, 39, 40, and 42, 43

The Corps will copy the TCEQ on all authorizations for impacts of greater than 300 linear feet of intermittent and ephemeral streams.

VI. NWP 13 and 41

The Corps will copy the TCEQ on all authorizations for impacts greater than 500 linear feet in length of ephemeral, intermittent, perennial streams or drainage ditches.

VII. NWP 36

The Corps will copy the TCEQ on all authorizations for discharges greater than the 50 cubic yard limit or boat ramps greater than 20 feet in width.

VIII. NWPs 7, 12, 14, 15, 17, 18, 19, 22, 25, 29, 30, 31, 32, 33, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46

These NWPs are not authorized for use in coastal dune swales in Texas.

Enclosure 3

Table 1
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
1	Aids to Navigation			
2	Structures in Artificial Canals			
3	Maintenance	X	X	
4	Fish and Wildlife Harvesting, Enhancement and Attraction Devices and Activities			
5	Scientific Measurement Devices			
6	Survey Activities	X	X	
7	Outfall Structures and Associated Intake Structures	X	X	
8	Oil and Gas Structures on the Outer Continental Shelf			
9	Structures in Fleeting and Anchorage Areas			
10	Mooring Buoys			
11	Temporary Recreational Structures			
12	Utility Line Activities	X	X	X
13	Bank Stabilization	X	X	
14	Linear Transportation Projects	X	X	X
15	U.S. Coast Guard Approved Bridges	X	X	
16	Return Water From Upland Contained Disposal Areas			
17	Hydropower Projects	X	X	X
18	Minor Discharges	X	X	X
19	Minor Dredging	X	X	
20	Oil Spill Cleanup			
21	Surface Coal Mining Operations	X	X	X
22	Removal of Vessels	X	X	
23	Approved Categorical Exclusions			

Table 1
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
24	Indian Tribe or State Administered Section 404 Programs			
25	Structural Discharges	X	X	
26	[Reserved]			
27	Aquatic Habitat Restoration, Establishment, and Enhancement Activities	X	X	
28	Modifications of Existing Marinas			
29	Residential Developments	X	X	X
30	Moist Soil Management for Wildlife	X	X	
31	Maintenance of Existing Flood Control Facilities	X	X	X
32	Completed Enforcement Actions	X	X	
33	Temporary Construction, Access and Dewatering	X	X	
34	Cranberry Production Activities			
35	Maintenance Dredging of Existing Basins			
36	Boat Ramps	X	X	X
37	Emergency Watershed Protection and Rehabilitation	X	X	
38	Cleanup of Hazardous and Toxic Waste	X	X	
39	Commercial and Institutional Developments	X	X	X
40	Agricultural Activities	X	X	X
41	Reshaping Existing Drainage Ditches	X	X	X
42	Recreational Facilities	X	X	X
43	Stormwater Management Facilities	X	X	
44	Mining Activities	X	X	X

Table 1
Reference to Nationwide Permits Best Management Practices Requirements

NWP	Permit Description	Erosion Control	Sediment Control	Post Construction TSS
45	Repair of Uplands Damaged by Discrete Events	X	X	X
46	Discharges in Ditches	X	X	
47	Pipeline Safety Program Designated Time Sensitive Inspections and Repairs	X	X	
48	Existing Commercial Shellfish Aquaculture Activities			
49	Coal Remining Activities	X	X	X
50	Underground Coal Mining Activities	X	X	X

Enclosure 4

Description of BMPs

EROSION CONTROL BMPs

Temporary Vegetation

Description: Vegetation can be used as a temporary or permanent stabilization technique for areas disturbed by construction. Vegetation effectively reduces erosion in swales, stockpiles, berms, mild to medium slopes, and along roadways. Other techniques such as matting, mulches, and grading may be required to assist in the establishment of vegetation.

Materials:

- The type of temporary vegetation used on a site is a function of the season and the availability of water for irrigation.
- Temporary vegetation should be selected appropriately for the area.
- County agricultural extension agents are a good source for suggestions for temporary vegetation.
- All seed should be high quality, U.S. Dept. of Agriculture certified seed.

Installation:

- Grading must be completed prior to seeding.
- Slopes should be minimized.
- Erosion control structures should be installed.
- Seedbeds should be well pulverized, loose, and uniform.
- Fertilizers should be applied at appropriate rates.
- Seeding rates should be applied as recommended by the county agricultural extension agent.
- The seed should be applied uniformly.
- Steep slopes should be covered with appropriate soil stabilization matting.

Blankets and Matting

Description: Blankets and matting material can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are in channels, interceptor swales, diversion dikes, short, steep slopes, and on tidal or stream banks.

Materials:

New types of blankets and matting materials are continuously being developed. The Texas Department of Transportation (TxDOT) has defined the critical performance factors for these types of products and has established minimum performance standards which must be met for any product seeking to be approved for use within any of TxDOT's construction or maintenance activities. The products that have been approved by TxDOT are also appropriate for general construction site stabilization. TxDOT maintains a web site at http://www.dot.state.tx.us/insdtdot/orgchart/cmd/erosion/contents.httm which is updated as new products are evaluated.

Installation:

- Install in accordance with the manufacturer's recommendations.
- Proper anchoring of the material.
- Prepare a friable seed bed relatively free from clods and rocks and any foreign material.
- Fertilize and seed in accordance with seeding or other type of planting plan.
- Erosion stops should extend beyond the channel liner to full design cross-section of the channel.
- A uniform trench perpendicular to line of flow may be dug with a spade or a mechanical trencher.
- Erosion stops should be deep enough to penetrate solid material or below level of ruling in sandy soils.
- Erosion stop mats should be wide enough to allow turnover at bottom of trench for stapling, while maintaining the top edge flush with channel surface.

Mulch

Description: Mulching is the process of applying a material to the exposed soil surface to protect it from erosive forces and to conserve soil moisture until plants can become established. When seeding critical sites, sites with adverse soil conditions or seeding on other than optimum seeding dates, mulch material should be applied immediately after seeding. Seeding during optimum seeding dates and with favorable soils and site conditions will not need to be mulched.

Materials:

- Mulch may be small grain straw which should be applied uniformly.
- On slopes 15 percent or greater, a binding chemical must be applied to the surface.
- Wood-fiber or paper-fiber mulch may be applied by hydroseeding.
- Mulch nettings may be used.
- Wood chips may be used where appropriate.

Installation:

Mulch anchoring should be accomplished immediately after mulch placement. This may be done by one of the following methods: peg and twine, mulch netting, mulch anchoring tool, or liquid mulch binders.

Sod

Description: Sod is appropriate for disturbed areas which require immediate vegetative covers, or where sodding is preferred to other means of grass establishment. Locations particularly suited to stabilization with sod are waterways carrying intermittent flow, areas around drop inlets or in grassed swales, and residential or commercial lawns where quick use or aesthetics are factors. Sod is composed of living plants and those plants must receive adequate care in order to provide vegetative stabilization on a disturbed area.

Materials:

- Sod should be machine cut at a uniform soil thickness.
- Pieces of sod should be cut to the supplier's standard width and length.
- Torn or uneven pads are not acceptable.
- Sections of sod should be strong enough to support their own weight and retain their size and shape when suspended from a firm grasp.
- Sod should be harvested, delivered, and installed within a period of 36 hours.

Installation:

- Areas to be sodded should be brought to final grade.
- The surface should be cleared of all trash and debris.
- Fertilize according to soil tests.
- Fertilizer should be worked into the soil.
- Sod should not be cut or laid in excessively wet or dry weather.
- Sod should not be laid on soil surfaces that are frozen.
- During periods of high temperature, the soil should be lightly irrigated.
- The first row of sod should be laid in a straight line with subsequent rows placed parallel to and butting tightly against each other.
- Lateral joints should be staggered to promote more uniform growth and strength.
- Wherever erosion may be a problem, sod should be laid with staggered joints and secured.

- Sod should be installed with the length perpendicular to the slope (on the contour).
- Sod should be rolled or tamped.
- Sod should be irrigated to a sufficient depth.
- Watering should be performed as often as necessary to maintain soil moisture.
- The first mowing should not be attempted until the sod is firmly rooted.
- Not more than one third of the grass leaf should be removed at any one cutting.

Interceptor Swale

Interceptor swales are used to shorten the length of exposed slope by intercepting runoff, prevent off-site runoff from entering the disturbed area, and prevent sediment-laden runoff from leaving a disturbed site. They may have a v-shape or be trapezoidal with a flat bottom and side slopes of 3:1 or flatter. The outflow from a swale should be directed to a stabilized outlet or sediment trapping device. The swales should remain in place until the disturbed area is permanently stabilized.

Materials:

- Stabilization should consist of a layer of crushed stone three inches thick, riprap or high velocity erosion control mats.
- Stone stabilization should be used when grades exceed 2% or velocities exceed 6 feet per second.
- Stabilization should extend across the bottom of the swale and up both sides of the channel to a minimum height of three inches above the design water surface elevation based on a 2-year, 24-hour storm.

Installation:

- An interceptor swale should be installed across exposed slopes during construction and should intercept no more than 5 acres of runoff.
- All earth removed and not needed in construction should be disposed of in an approved spoils site so that it will not interfere with the functioning of the swale or contribute to siltation in other areas of the site.
- All trees, brush, stumps, obstructions and other material should be removed and disposed of so as not to interfere with the proper functioning of the swale.
- Swales should have a maximum depth of 1.5 feet with side slopes of 3:1 or flatter. Swales should have positive drainage for the entire length to an outlet.
- When the slope exceeds 2 percent, or velocities exceed 6 feet per second (regardless of slope), stabilization is required. Stabilization should be crushed stone placed in a layer of at least 3 inches thick or may be high velocity erosion control matting. Check dams are also recommended to

reduce velocities in the swales possibly reducing the amount of stabilization necessary.

- Minimum compaction for the swale should be 90% standard proctor density.

Diversion Dikes

A temporary diversion dike is a barrier created by the placement of an earthen embankment to reroute the flow of runoff to an erosion control device or away from an open, easily erodible area. A diversion dike intercepts runoff from small upland areas and diverts it away from exposed slopes to a stabilized outlet, such as a rock berm, sandbag berm, or stone outlet structure. These controls can be used on the perimeter of the site to prevent runoff from entering the construction area. Dikes are generally used for the duration of construction to intercept and reroute runoff from disturbed areas to prevent excessive erosion until permanent drainage features are installed and/or slopes are stabilized.

Materials:

- Stone stabilization (required for velocities in excess of 6 fps) should consist of riprap placed in a layer at least 3 inches thick and should extend a minimum height of 3 inches above the design water surface up the existing slope and the upstream face of the dike.
- Geotextile fabric should be a non-woven polypropylene fabric designed specifically for use as a soil filtration media with an approximate weight of 6 oz./yd^2, a Mullen burst rating of 140 psi, and having an equivalent opening size (EOS) greater than a #50 sieve.

Installation:

- Diversion dikes should be installed prior to and maintained for the duration of construction and should intercept no more than 10 acres of runoff.
- Dikes should have a minimum top width of 2 feet and a minimum height of compacted fill of 18 inches measured form the top of the existing ground at the upslope toe to top of the dike and have side slopes of 3:1 or flatter.
- The soil for the dike should be placed in lifts of 8 inches or less and be compacted to 95 % standard proctor density.
- The channel, which is formed by the dike, must have positive drainage for its entire length to an outlet.
- When the slope exceeds 2 percent, or velocities exceed 6 feet per second (regardless of slope), stabilization is required. In situations where velocities do not exceed 6 feet per second, vegetation may be used to control erosion.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are on steep slopes, swales, diversion dikes, and on tidal or stream banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch Filter Berms and Socks

Description: Mulch filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Mulch filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation, corrective action must be taken. Mulch filter socks may be installed in construction areas and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Mulch filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program

contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Mulch filter berms should be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.
- Mulch filter socks should be in 8 inch, 12 inch or 18 inch or as directed. Sock materials should be designed to allow for proper percolation through.

Compost Filter Berms and Socks

Description: Compost filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, compost filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Compost filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Compost filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation , corrective action must be taken. Compost filter socks may be installed in construction areas and temporality moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Compost filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of compost filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Compost filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 1059. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Compost filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as compost filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant

requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for compost filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 1059.
- Compost filter berms shall be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.
- Compost filter socks shall be in 8 inch, 12 inch or 18 inch or as directed. Sock materials shall be designed allowing for proper percolation through.

SEDIMENT CONTROL BMPS

Sand Bag Berm

Description: The purpose of a sandbag berm is to detain sediment carried in runoff from disturbed areas. This objective is accomplished by intercepting runoff and causing it to pool behind the sand bag berm. Sediment carried in the runoff is deposited on the upstream side of the sand bag berm due to the reduced flow velocity. Excess runoff volumes are allowed to flow over the top of the sand bag berm. Sand bag berms are used only during construction activities in streambeds when the contributing drainage area is between 5 and 10 acres and the slope is less than 15%, i.e., utility construction in channels, temporary channel crossing for construction equipment, etc. Plastic facing should be installed on the upstream side and the berm should be anchored to the streambed by drilling into the rock and driving in "T" posts or rebar (#5 or #6) spaced appropriately.

Materials:

- The sand bag material should be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4 oz/yd 2, mullen burst strength exceeding 300 psi and ultraviolet stability exceeding 70 percent.
- The bag length should be 24 to 30 inches, width should be 16 to 18 inches and thickness should be 6 to 8 inches.
- Sandbags should be filled with coarse grade sand and free from deleterious material. All sand should pass through a No. 10 sieve. The filled bag should have an approximate weight of 40 pounds.
- Outlet pipe should be schedule 40 or stronger polyvinyl chloride (PVC) having a nominal internal diameter of 4 inches.

Installation:

- The berm should be a minimum height of 18 inches, measured from the top of the existing ground at the upslope toe to the top of the berm.
- The berm should be sized as shown in the plans but should have a minimum width of 48 inches measured at the bottom of the berm and 16 inches measured at the top of the berm.
- Runoff water should flow over the tops of the sandbags or through 4-inch diameter PVC pipes embedded below the top layer of bags.
- When a sandbag is filled with material, the open end of the sandbag should be stapled or tied with nylon or poly cord.
- Sandbags should be stacked in at least three rows abutting each other, and in staggered arrangement.
- The base of the berm should have at least 3 sandbags. These can be reduced to 2 and 1 bag in the second and third rows respectively.
- For each additional 6 inches of height, an additional sandbag must be added to each row width.
- A bypass pump-around system, or similar alternative, should be used on conjunction with the berm for effective dewatering of the work area.

Silt Fence

Description: A silt fence is a barrier consisting of geotextile fabric supported by metal posts to prevent soil and sediment loss from a site. When properly used, silt fences can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. If not properly installed, silt fences are not likely to be effective. The purpose of a silt fence is to intercept and detain water-borne sediment from unprotected areas of a limited extent. Silt fence is used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. This fence should remain in place until the disturbed area is permanently stabilized. Silt fence should not be used where there is a

concentration of water in a channel or drainage way. If concentrated flow occurs after installation, corrective action must be taken such as placing a rock berm in the areas of concentrated flow. Silt fencing within the site may be temporarily moved during the day to allow construction activity provided it is replaced and properly anchored to the ground at the end of the day. Silt fences on the perimeter of the site or around drainage ways should not be moved at any time.

Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in 2, ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

- Fence posts should be made of hot rolled steel, at least 4 feet long with Tee or Y-bar cross section, surface painted or galvanized, minimum nominal weight 1.25 lb/ft 2, and Brindell hardness exceeding 140.

- Woven wire backing to support the fabric should be galvanized 2" x 4" welded wire, 12 gauge minimum.

Installation:

- Steel posts, which support the silt fence, should be installed on a slight angle toward the anticipated runoff source. Post must be embedded a minimum of 1 foot deep and spaced not more than 8 feet on center. Where water concentrates, the maximum spacing should be 6 feet.

- Lay out fencing down-slope of disturbed area, following the contour as closely as possible. The fence should be sited so that the maximum drainage area is ¼ acre/100 feet of fence.

- The toe of the silt fence should be trenched in with a spade or mechanical trencher, so that the down-slope face of the trench is flat and perpendicular to the line of flow. Where fence cannot be trenched in (e.g., pavement or rock outcrop), weight fabric flap with 3 inches of pea gravel on uphill side to prevent flow from seeping under fence.

- The trench must be a minimum of 6 inches deep and 6 inches wide to allow for the silt fence fabric to be laid in the ground and backfilled with compacted material.

- Silt fence should be securely fastened to each steel support post or to woven wire, which is in turn attached to the steel fence post. There should be a 3-foot overlap, securely fastened where ends of fabric meet.

<u>Triangular Filter Dike</u>

Description: The purpose of a triangular sediment filter dike is to intercept and detain water-borne sediment from unprotected areas of limited extent. The triangular sediment filter dike is used where there is no concentration of water in a channel or other drainage way above the barrier and the contributing drainage area is less than one acre. If the uphill slope above the dike exceeds 10%, the length of the slope above the dike should be less than 50 feet. If concentrated flow occurs after installation, corrective action should be taken such as placing rock berm in the areas of concentrated flow. This measure is effective on paved areas where installation of silt fence is not possible or where vehicle access must be maintained. The advantage of these controls is the ease

with which they can be moved to allow vehicle traffic and then reinstalled to maintain sediment

Materials:

- Silt fence material should be polypropylene, polyethylene or polyamide woven or nonwoven fabric. The fabric width should be 36 inches, with a minimum unit weight of 4.5 oz/yd, mullen burst strength exceeding 190 lb/in 2 , ultraviolet stability exceeding 70%, and minimum apparent opening size of U.S. Sieve No. 30.

- The dike structure should be 6 gauge 6" x 6" wire mesh folded into triangular form being eighteen (18) inches on each side.

Installation:

- The frame of the triangular sediment filter dike should be constructed of 6" x 6", 6 gauge welded wire mesh, 18 inches per side, and wrapped with geotextile fabric the same composition as that used for silt fences.

- Filter material should lap over ends six (6) inches to cover dike to dike junction; each junction should be secured by shoat rings.

- Position dike parallel to the contours, with the end of each section closely abutting the adjacent sections.

- There are several options for fastening the filter dike to the ground. The fabric skirt may be toed-in with 6 inches of compacted material, or 12 inches of the fabric skirt should extend uphill and be secured with a minimum of 3 inches of open graded rock, or with staples or nails. If these two options are not feasible the dike structure may be trenched in 4 inches.

- Triangular sediment filter dikes should be installed across exposed slopes during construction with ends of the dike tied into existing grades to prevent failure and should intercept no more than one acre of runoff.

- When moved to allow vehicular access, the dikes should be reinstalled as soon as possible, but always at the end of the workday.

Rock Berm

Description: The purpose of a rock berm is to serve as a check dam in areas of concentrated flow, to intercept sediment-laden runoff, detain the sediment and release the water in sheet flow. The rock berm should be used when the contributing drainage area is less than 5 acres. Rock berms are used in areas where the volume of runoff is too great for a silt fence to contain. They are less effective for sediment removal than silt fences, particularly for fine particles, but are able to withstand higher flows than a silt fence. As such, rock berms are often used in areas of channel flows (ditches, gullies, etc.). Rock berms are most effective at reducing bed load in channels and should not be substituted for other erosion and sediment control measures further up the watershed.

Materials:

- The berm structure should be secured with a woven wire sheathing having maximum opening of 1 inch and a minimum wire diameter of 20 gauge galvanized and should be secured with shoat rings.

- Clean, open graded 3- to 5-inch diameter rock should be used, except in areas where high velocities or large volumes of flow are expected, where 5- to 8-inch diameter rocks may be used.

Installation:

- Lay out the woven wire sheathing perpendicular to the flow line. The sheathing should be 20 gauge woven wire mesh with 1 inch openings.
- Berm should have a top width of 2 feet minimum with side slopes being 2:1 (H:V) or flatter.
- Place the rock along the sheathing to a height not less than 18".
- Wrap the wire sheathing around the rock and secure with tie wire so that the ends of the sheathing overlap at least 2 inches, and the berm retains its shape when walked upon.
- Berm should be built along the contour at zero percent grade or as near as possible.
- The ends of the berm should be tied into existing upslope grade and the berm should be buried in a trench approximately 3 to 4 inches deep to prevent failure of the control.

Hay Bale Dike

Description: The purpose of a hay or straw bale dike is to intercept and detain small amounts of sediment-laden runoff from relatively small unprotected areas. Straw bales are to be used when it is not feasible to install other, more effective measures or when the construction phase is expected to last less than 3 months. Straw bales should not be used on areas where rock or other hard surfaces prevent the full and uniform anchoring of the barrier.

Materials:

Straw: The best quality straw mulch comes from wheat, oats or barley and should be free of weed and grass seed which may not be desired vegetation for the area to be protected. Straw mulch is light and therefore must be properly anchored to the ground.

Hay: This is very similar to straw with the exception that it is made of grasses and weeds and not grain stems. This form of mulch is very inexpensive and is widely available but does introduce weed and grass seed to the area. Like straw, hay is light and must be anchored.

- Straw bales should weigh a minimum of 50 pounds and should be at least 30 inches long.
- Bales should be composed entirely of vegetable matter and be free of seeds.
- Binding should be either wire or nylon string, jute or cotton binding is unacceptable. Bales should be used for not more than two months before being replaced.

Installation:

- Bales should be embedded a minimum of 4 inches and securely anchored using 2" x 2" wood stakes or 3/8" diameter rebar driven through the bales into the ground a minimum of 6 inches.
- Bales are to be placed directly adjacent to one another leaving no gap between them.

- All bales should be placed on the contour.
- The first stake in each bale should be angled toward the previously laid bale to force the bales together.

Brush Berms

Organic litter and spoil material from site clearing operations is usually burned or hauled away to be dumped elsewhere. Much of this material can be used effectively on the construction site itself. The key to constructing an efficient brush berm is in the method used to obtain and place the brush. It will not be acceptable to simply take a bulldozer and push whole trees into a pile. This method does not assure continuous ground contact with the berm and will allow uncontrolled flows under the berm.

Brush berms may be used where there is little or no concentration of water in a channel or other drainage way above the berm. The size of the drainage area should be no greater than one-fourth of an acre per 100 feet of barrier length; the maximum slope length behind the barrier should not exceed 100 feet; and the maximum slope gradient behind the barrier should be less than 50 percent (2:1).

Materials:

- The brush should consist of woody brush and branches, preferably less than 2 inches in diameter.
- The filter fabric should conform to the specifications for filter fence fabric.
- The rope should be ¼ inch polypropylene or nylon rope.
- The anchors should be 3/8-inch diameter rebar stakes that are 18-inches long.

Installation:

- Lay out the brush berm following the contour as closely as possible.
- The juniper limbs should be cut and hand placed with the vegetated part of the limb in close contact with the ground. Each subsequent branch should overlap the previous branch providing a shingle effect.
- The brush berm should be constructed in lifts with each layer extending the entire length of the berm before the next layer is started.
- A trench should be excavated 6-inches wide and 4-inches deep along the length of the barrier and immediately uphill from the barrier.
- The filter fabric should be cut into lengths sufficient to lay across the barrier from its up-slope base to just beyond its peak. The lengths of filter fabric should be draped across the width of the barrier with the uphill edge placed in the trench and the edges of adjacent pieces overlapping each other. Where joints are necessary, the fabric should be spliced together with a minimum 6-inch overlap

and securely sealed.

- The trench should be backfilled and the soil compacted over the filter fabric.

- Set stakes into the ground along the downhill edge of the brush barrier, and anchor the fabric by tying rope from the fabric to the stakes. Drive the rope anchors into the ground at approximately a 45-degree angle to the ground on 6-foot centers.

- Fasten the rope to the anchors and tighten berm securely to the ground with a minimum tension of 50 pounds.

- The height of the brush berm should be a minimum of 24 inches after the securing ropes have been tightened.

Stone Outlet Sediment Traps

A stone outlet sediment trap is an impoundment created by the placement of an earthen and stone embankment to prevent soil and sediment loss from a site. The purpose of a sediment trap is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties and rights of way below the sediment trap from sedimentation. A sediment trap is usually installed at points of discharge from disturbed areas. The drainage area for a sediment trap is recommended to be less than 5 acres.

Larger areas should be treated using a sediment basin. A sediment trap differs from a sediment basin mainly in the type of discharge structure. The trap should be located to obtain the maximum storage benefit from the terrain, for ease of clean out and disposal of the trapped sediment and to minimize interference with construction activities. The volume of the trap should be at least 3600 cubic feet per acre of drainage area.

Materials:

- All aggregate should be at lest 3 inches in diameter and should not exceed a volume of 0.5 cubic foot.

- The geotextile fabric specification should be woven polypropylene, polyethylene or polyamide geotextile, minimum unit weight of 4.5 oz/yd 2, mullen burst strength at least 250 lb/in 2, ultraviolet stability exceeding 70%, and equivalent opening size exceeding 40.

Installation:

- Earth Embankment: Place fill material in layers not more than 8 inches in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the material. Compact each layer to 95 percent standard proctor density. Do not place material on surfaces that are muddy or frozen. Side slopes for the embankment are to be 3:1. The minimum width of the embankment should be 3 feet.

- A gap is to be left in the embankment in the location where the natural confluence of runoff crosses the embankment line. The gap is to have a width in feet equal to 6 times the drainage area in acres.

- Geotextile Covered Rock Core: A core of filter stone having a minimum height of 1.5 feet and a minimum width at the base of 3 feet should be placed across the opening of the earth embankment and should be covered by geotextile fabric which should extend a minimum distance of 2 feet in either direction from the base of the filter stone core.

- Filter Stone Embankment: Filter stone should be placed over the geotextile and is to have a side slope which matches that of the earth embankment of 3:1 and should cover the geotextile/rock core a minimum of 6 inches when installation is complete. The crest of the outlet should be at least 1 foot below the top of the embankment.

Sediment Basins:

The purpose of a sediment basin is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties and rights of way below the sediment basin from sedimentation. A sediment basin is usually installed at points of discharge from disturbed areas. The drainage area for a sediment basin is recommended to be less than 100 acres.

Sediment basins are effective for capturing and slowly releasing the runoff from larger disturbed areas thereby allowing sedimentation to take place. A sediment basin can be created where a permanent pond BMP is being constructed. Guidelines for construction of the permanent BMP should be followed, but revegetation, placement of underdrain piping, and installation of sand or other filter media should not be carried out until the site construction phase is complete.

Materials:

- Riser should be corrugated metal or reinforced concrete pipe or box and should have watertight fittings or end to end connections of sections.

- An outlet pipe of corrugated metal or reinforced concrete should be attached to the riser and should have positive flow to a stabilized outlet on the downstream side of the embankment.

- An anti-vortex device and rubbish screen should be attached to the top of the riser and should be made of polyvinyl chloride or corrugated metal.

Basin Design and Construction:

- For common drainage locations that serve an area with ten or more acres disturbed at one time, a sediment basin should provide storage for a volume of runoff from a two-year, 24-hour storm from each disturbed acre drained.

- The basin length to width ratio should be at least 2:1 to improve trapping efficiency. The shape may be attained by excavation or the use of baffles. The lengths should be measured at the elevation of the riser de-watering hole.

- Place fill material in layers not more than 8 inches in loose depth. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the material. Compact each layer to 95 percent standard proctor density. Do not place material on surfaces that are muddy or frozen. Side slopes for the embankment should be 3:1 (H:V).
- An emergency spillway should be installed adjacent to the embankment on undisturbed soil and should be sized to carry the full amount of flow generated by a 10-year, 3-hour storm with 1 foot

of freeboard less the amount which can be carried by the principal outlet control device.

- The emergency spillway should be lined with riprap as should the swale leading from the spillway to the normal watercourse at the base of the embankment.
- The principal outlet control device should consist of a rigid vertically oriented pipe or box of corrugated metal or reinforced concrete. Attached to this structure should be a horizontal pipe, which should extend through the embankment to the toe of fill to provide a de-watering outlet for the basin.
- An anti-vortex device should be attached to the inlet portion of the principal outlet control device to serve as a rubbish screen.
- A concrete base should be used to anchor the principal outlet control device and should be sized to provide a safety factor of 1.5 (downward forces = 1.5 buoyant forces).
- The basin should include a permanent stake to indicate the sediment level in the pool and marked to Indicate when the sediment occupies 50% of the basin volume (not the top of the stake).
- The top of the riser pipe should remain open and be guarded with a trash rack and anti-vortex device. The top of the riser should be 12 inches below the elevation of the emergency spillway. The riser should be sized to convey the runoff from the 2-year, 3-hour storm when the water surface is at the emergency spillway elevation. For basins with no spillway the riser must be sized to convey the runoff from the 10-yr, 3-hour storm.
- Anti-seep collars should be included when soil conditions or length of service make piping through the backfill a possibility.
- The 48-hour drawdown time will be achieved by using a riser pipe perforated at the point measured from the bottom of the riser pipe equal to ½ the volume of the basin. This is the maximum sediment storage elevation. The size of the perforation may be calculated as follows:

$$Ao = \frac{As \times \sqrt{2h}}{Cd \times 980{,}000}$$

Where:
A_o = Area of the de-watering hole, ft 2
A_s = Surface area of the basin, ft 2
C_d = Coefficient of contraction, approximately 0.6
h = head of water above the hole, ft
Perforating the riser with multiple holes with a combined surface area equal to A_o is acceptable.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical

sites during the establishment period of protective vegetation. The most common uses are on steep slopes, swales, diversion dikes, and on tidal or stream banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch Filter Berms and Socks

Description: Mulch filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Mulch filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation, corrective action must be taken. Mulch filter socks may be installed in construction areas and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Mulch filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at

http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Mulch filter berms should be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.
- Mulch filter socks should be in 8 inch, 12 inch or 18 inch or as directed. Sock materials should be designed to allow for proper percolation through.

Compost Filter Berms and Socks

Description: Compost filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, compost filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Compost filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Compost filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation , corrective action must be taken. Compost filter socks may be installed in construction areas and temporality moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Compost filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of compost filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Compost filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 1059. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Compost filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as compost filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety

Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for compost filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 1059.
- Compost filter berms shall be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.
- Compost filter socks shall be in 8 inch, 12 inch or 18 inch or as directed. Sock materials shall be designed allowing for proper percolation through.

POST-CONSTRUCTION TSS CONTROLS

Retention/Irrigation Systems

Description: Retention/irrigation systems refer to the capture of runoff in a holding pond, then use of the captured water for irrigation of appropriate landscape areas. Retention/irrigation systems are characterized by the capture and disposal of runoff without direct release of captured flow to receiving streams. Retention systems exhibit excellent pollutant removal but can require regular, proper maintenance. Collection of roof runoff for subsequent use (rainwater harvesting) also qualifies as a retention/irrigation practice, but should be operated and sized to provide adequate volume. This technology, which emphasizes beneficial use of stormwater runoff, is particularly appropriate for arid regions because of increasing demands on water supplies for agricultural irrigation and urban water supply.

Design Considerations: Retention/irrigation practices achieve 100% removal efficiency of total suspended solids contained within the volume of water captured. Design elements of retention/irrigation systems include runoff storage facility configuration and sizing, pump and wet well system components, basin lining, basin detention time, and physical and operational components of the irrigation system. Retention/irrigation systems are appropriate for large drainage areas with low to moderate slopes. The retention capacity should be sufficient considering the average rainfall event for the area.

Maintenance Requirements: Maintenance requirements for retention/irrigation systems include routine inspections, sediment removal, mowing, debris and litter removal, erosion control, and nuisance control.

Extended Detention Basin

Description: Extended detention facilities are basins that temporarily store a portion of stormwater runoff following a storm event. Extended detention basins are normally used to remove particulate pollutants and to reduce maximum runoff rates associated with development to their pre-development levels. The water quality benefits are the removal of sediment and buoyant materials. Furthermore, nutrients, heavy metals, toxic materials, and oxygen-demanding materials associated with the particles also are removed. The control of the maximum runoff rates serves to protect drainage channels below the device from erosion and to reduce downstream flooding. Although detention facilities designed for flood control have different design requirements than those used for water quality enhancement, it is possible to achieve these two objectives in a single facility.

Design Considerations: Extended detention basins can remove approximately 75% of the total suspended solids contained within the volume of runoff captured in the basin. Design elements of extended detention basins include basin sizing, basin configuration, basin side slopes, basin lining, inlet/outlet structures, and erosion controls. Extended detention basins are appropriate for large drainage areas with low to moderate slopes. The retention capacity should be sufficient considering the average rainfall event for the area.

Maintenance Requirements: Maintenance requirements for extended detention basins include routine inspections, mowing, debris and litter removal, erosion control, structural repairs, nuisance control, and sediment removal.

Vegetative Filter Strips

Description: Filter strips, also known as vegetated buffer strips, are vegetated sections of land similar to grassy swales except they are essentially flat with low slopes, and are designed only to accept runoff as overland sheet flow. They may appear in any vegetated form from grassland to forest, and are designed to intercept upstream flow, lower flow velocity, and spread water out as sheet flow. The dense vegetative cover facilitates conventional pollutant removal through detention, filtration by vegetation, and infiltration.

Filter strips cannot treat high velocity flows, and do not provide enough storage or infiltration to effectively reduce peak discharges to predevelopment levels for design storms. This lack of quantity control favors use in rural or low-density development; however, they can provide water quality benefits even where the impervious cover is as high as 50%. The primary highway application for vegetative filter strips is along rural roadways where runoff that would otherwise discharge directly to

a receiving water passes through the filter strip before entering a conveyance system. Properly designed roadway medians and shoulders make effective buffer strips. These devices also can be used on other types of development where land is available and hydraulic conditions are appropriate.

Flat slopes and low to fair permeability of natural subsoil are required for effective performance of filter strips. Although an inexpensive control measure, they are most useful in contributing watershed areas where peak runoff velocities are low as they are unable to treat the high flow velocities typically associated with high impervious cover.

Successful performance of filter strips relies heavily on maintaining shallow unconcentrated flow. To avoid flow channelization and maintain performance, a filter strip should:

- Be equipped with a level spreading device for even distribution of runoff
- Contain dense vegetation with a mix of erosion resistant, soil binding species
- Be graded to a uniform, even and relatively low slope
- Laterally traverse the contributing runoff area

Filter strips can be used upgradient from watercourses, wetlands, or other water bodies along toes and tops of slopes and at outlets of other stormwater management structures. They should be incorporated into street drainage and master drainage planning. The most important criteria for selection and use of this BMP are soils, space, and slope.

Design Considerations: Vegetative filter strips can remove approximately 85% of the total suspended solids contained within the volume of runoff captured. Design elements of vegetative filter strips include uniform, shallow overland flow across the entire filter strip area, hydraulic loading rate, inlet structures, slope, and vegetative cover. The area should be free of gullies or rills which can concentrate flow. Vegetative filter strips are appropriate for small drainage areas with moderate slopes. Other design elements include the following:

- Soils and moisture are adequate to grow relatively dense vegetative stands
- Sufficient space is available
- Slope is less than 12%
- Comparable performance to more expensive structural controls

Maintenance Requirements: Maintenance requirements for vegetative filter strips include pest management, seasonal mowing and lawn care, routine inspections, debris and litter removal, sediment removal, and grass reseeding and mulching.

Constructed Wetlands

Description: Constructed wetlands provide physical, chemical, and biological water quality

treatment of stormwater runoff. Physical treatment occurs as a result of decreasing flow velocities in the wetland, and is present in the form of evaporation, sedimentation, adsorption, and/or filtration. Chemical processes include chelation, precipitation, and chemical adsorption. Biological processes include decomposition, plant uptake and removal of nutrients, plus biological transformation and degradation. Hydrology is one of the most influential factors in pollutant removal due to its effects on sedimentation, aeration, biological transformation, and adsorption onto bottom sediments.

The wetland should be designed such that a minimum amount of maintenance is required. The natural surroundings, including such things as the potential energy of a stream or flooding river, should be utilized as much as possible. The wetland should approximate a natural situation and unnatural attributes, such as rectangular shape or rigid channel, should be avoided.

Site considerations should include the water table depth, soil/substrate, and space requirements. Because the wetland must have a source of flow, it is desirable that the water table is at or near the surface. If runoff is the only source of inflow for the wetland, the water level often fluctuates and establishment of vegetation may be difficult. The soil or substrate of an artificial wetland should be loose loam to clay. A perennial baseflow must be present to sustain the artificial wetland. The presence of organic material is often helpful in increasing pollutant removal and retention. A greater amount of space is required for a wetland system than is required for a detention facility treating the same amount of area.

Design Considerations: Constructed wetlands can remove over 90% of the total suspended solids contained within the volume of runoff captured in the wetland. Design elements of constructed wetlands include wetland sizing, wetland configuration, sediment forebay, vegetation, outflow structure, depth of inundation during storm events, depth of micropools, and aeration. Constructed wetlands are appropriate for large drainage areas with low to moderate slopes.

Maintenance Requirements: Maintenance requirements for constructed wetlands include mowing, routine inspections, debris and litter removal, erosion control, nuisance control, structural repairs, sediment removal, harvesting, and maintenance of water levels.

Wet Basins

Description: Wet basins are runoff control facilities that maintain a permanent wet pool and a standing crop of emergent littoral vegetation. These facilities may vary in appearance from natural ponds to enlarged, bermed (manmade) sections of drainage systems and may function as online or offline facilities, although offline configuration is preferable. Offline designs can prevent scour and other damage to the wet pond and minimize costly outflow structure elements needed to accommodate extreme runoff events.

During storm events, runoff inflows displace part or all of the existing basin volume and are retained and treated in the facility until the next storm event. The pollutant removal mechanisms are settling of solids, wetland plant uptake, and microbial degradation. When the wet basin is adequately sized, pollutant removal performance can be excellent, especially for the dissolved fraction. Wet basins also help provide erosion protection for the receiving channel by limiting peak flows during larger storm events. Wet basins are often perceived as a positive aesthetic element in a community and offer significant opportunity for creative pond configuration and landscape design. Participation of an experienced wetland designer is suggested. A significant potential drawback for wet ponds in arid climates is that the contributing watershed for these facilities is often incapable of providing an adequate water supply to maintain the permanent pool, especially during the summer months. Makeup water (i.e., well water or municipal drinking water) is sometimes used to supplement the

rainfall/runoff process, especially for wet basin facilities treating watersheds that generate insufficient runoff.

Design Considerations: Wet basins can remove over 90% of the total suspended solids contained within the volume of runoff captured in the basin. Design elements of wet basins include basin sizing, basin configuration, basin side slopes, sediment forebay, inflow and outflow structures, vegetation, depth of permanent pool, aeration, and erosion control. Wet basins are appropriate for large drainage areas with low to moderate slopes.

Maintenance Requirements: Maintenance requirements for wet basins include mowing, routine inspections, debris and litter removal, erosion control, nuisance control, structural repairs, sediment removal, and harvesting.

Grassy Swales

Grassy swales are vegetated channels that convey stormwater and remove pollutants by filtration through grass and infiltration through soil. They require shallow slopes and soils that drain well. Pollutant removal capability is related to channel dimensions, longitudinal slope, and type of vegetation. Optimum design of these components will increase contact time of runoff through the swale and improve pollutant removal rates.

Grassy swales are primarily stormwater conveyance systems. They can provide sufficient control under light to moderate runoff conditions, but their ability to control large storms is limited. Therefore, they are most applicable in low to moderate sloped areas or along highway medians as an alternative to ditches and curb and gutter drainage. Their performance diminishes sharply in highly urbanized settings, and they are generally not effective enough to receive construction stage runoff where high sediment loads can overwhelm the system. Grassy swales can be used as a pretreatment measure for other downstream BMPs, such as extended detention basins. Enhanced grassy swales utilize check dams and wide depressions to increase runoff storage and promote greater settling of pollutants.

Grassy swales can be more aesthetically pleasing than concrete or rock-lined drainage systems and are generally less expensive to construct and maintain. Swales can slightly reduce impervious area and reduce the pollutant accumulation and delivery associated with curbs and gutters. The disadvantages of this technique include the possibility of erosion and channelization over time, and the need for more right-of-way as compared to a storm drain system. When properly constructed, inspected, and maintained, the life
expectancy of a swale is estimated to be 20 years.

Design Considerations:

- Comparable performance to wet basins
- Limited to treating a few acres
- Availability of water during dry periods to maintain vegetation
- Sufficient available land area

The suitability of a swale at a site will depend on land use, size of the area serviced, soil type, slope, imperviousness of the contributing watershed, and dimensions and slope of the swale system. In

general, swales can be used to serve areas of less than 10 acres, with slopes no greater than 5 %. The seasonal high water table should be at least 4 feet below the surface. Use of natural topographic lows is encouraged, and natural drainage courses should be regarded as significant local resources to be kept in use.

Maintenance Requirements:

Research in the Austin area indicates that vegetated controls are effective at removing pollutants even when dormant. Therefore, irrigation is not required to maintain growth during dry periods, but may be necessary only to prevent the vegetation from dying.

Vegetation Lined Drainage Ditches

Vegetation lined drainage ditches are similar to grassy swales. These drainage ditches are vegetated channels that convey storm water and remove pollutants by filtration through grass and infiltration through soil. They require soils that drain well. Pollutant removal capability is related to channel dimensions, longitudinal slope, and type of vegetation. Optimum design of these components will increase contact time of runoff through the ditch and improve pollutant removal rates. Vegetation lined drainage ditches are primarily storm water conveyance systems. They have vegetation lined in the low flow channel and may include vegetated shelves.

Vegetation in drainage ditches reduces erosion and removes pollutants by lowering water velocity over the soil surface, binding soil particles with roots, and by filtration through grass and infiltration through soil. Vegetation lined drainage ditches can be used where:

- A vegetative lining can provide sufficient stability for the channel grade by increasing maximum permissible velocity

- Slopes are generally less than 5%, with protection from sheer stress as needed through the use of BMPs, such as erosion control blankets

- Site conditions required to establish vegetation, i.e. climate, soils, topography, are present

Design Criteria: The suitability of a vegetation lined drainage ditch at a site will depend on land use, size of the area serviced, soil type, slope, imperviousness of the contributing watershed, and dimensions and slope of the ditch system. The hydraulic capacity of the drainage ditch and other elements such as erosion, siltation, and pollutant removal capability, must be taken into consideration. Use of natural topographic lows is encouraged, and natural drainage courses should be regarded as significant local resources to be kept in use. Other items to consider include the following:

- Capacity, cross-section shape, side slopes, and grade

- Select appropriate native vegetation

- Construct in stable, low areas to conform with the natural drainage system. To reduce erosion potential, design the channel to avoid sharp bends and steep grades.

- Design and build drainage ditches with appropriate scour and erosion protection. Surface water should be able to enter over the vegetated banks without erosion occurring.

• BMPs, such as erosion control blankets, may need to be installed at the time of seeding to provide stability until the vegetation is fully established. It may also be necessary to divert water from the channel until vegetation is established or to line the channel with sod.

• Vegetated ditches must not be subject to sedimentation from disturbed areas.

• Sediment traps may be needed at channel inlets to prevent entry of muddy runoff and channel sedimentation.

- Availability of water during dry periods to maintain vegetation
- Sufficient available land area

Maintenance:

During establishment, vegetation lined drainage ditches should be inspected, repaired, and vegetation reestablished if necessary. After the vegetation has become established, the ditch should be checked periodically to determine if the channel is withstanding flow velocities without damage. Check the ditch for debris, scour, or erosion and immediately make repairs if needed. Check the channel outlet and all road crossings for bank stability and evidence of piping or scour holes and make repairs immediately. Remove all significant sediment accumulations to maintain the designed carrying capacity. Keep the vegetation in a healthy condition at all times, since it is the primary erosion protection for the channel. Vegetation lined drainage ditches should be seasonally maintained by mowing or irrigating, depending on the vegetation selected. The long-term management of ditches as stable, vegetated, "natural" drainage systems with native vegetation buffers is highly recommended due to the inherent stability offered by grasses, shrubs, trees, and other vegetation.

Research in the Austin area indicates that vegetated controls are effective at removing pollutants even when dormant. Therefore, irrigation is not required to maintain growth during dry periods, but may be necessary only to prevent the vegetation from dying.

Sand Filter Systems

The objective of sand filters is to remove sediment and the pollutants from the first flush of pavement and impervious area runoff. The filtration of nutrients, organics, and coliform bacteria is enhanced by a mat of bacterial slime that develops during normal operations. One of the main advantages of sand filters is their adaptability; they can be used on areas with thin soils, high evaporation rates, low-soil infiltration rates, in limited-space areas, and where groundwater is to be protected.

Since their original inception in Austin, Texas, hundreds of intermittent sand filters have been implemented to treat stormwater runoff. There have been numerous alterations or variations in the original design as engineers in other jurisdictions have improved and adapted the technology to meet their specific requirements. Major types include the Austin Sand Filter, the District of Columbia Underground Sand Filter, the Alexandria Dry Vault Sand Filter, the Delaware Sand Filter, and peat-sand filters which are adapted to provide a sorption layer and vegetative cover to various sand filter designs .

Design Considerations:

- Appropriate for space-limited areas
- Applicable in arid climates where wet basins and constructed wetlands are not appropriate
- High TSS removal efficiency

Cost Considerations:

Filtration Systems may require less land than some other BMPs, reducing the land acquisition cost; however the structure itself is one of the more expensive BMPs. In addition, maintenance cost can be substantial.

Erosion Control Compost

Description: Erosion control compost (ECC) can be used as an aid to control erosion on critical sites during the establishment period of protective vegetation. The most common uses are on steep slopes, swales, diversion dikes, and on tidal or stream banks.

Materials:

New types of erosion control compost are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Material used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

ECC used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as an ECC, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for ECC to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet

analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Use on slopes 3:1 or flatter.
- Apply a 2 inch uniform layer unless otherwise shown on the plans or as directed.
- When rolling is specified, use a light corrugated drum roller.

Mulch Filter Berms and Socks

Description: Mulch filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, mulch filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Mulch filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Mulch filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation, corrective action must be taken. Mulch filter socks may be installed in construction areas and temporarily moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Mulch filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of mulch filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Mulch filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with current TxDOT specifications. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Mulch filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used for mulch filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ)Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant

requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for mulch filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with current TxDOT specification.
- Mulch filter berms should be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.
- Mulch filter socks should be in 8 inch, 12 inch or 18 inch or as directed. Sock materials should be designed to allow for proper percolation through.

Compost Filter Berms and Socks

Description: Compost filter berms and socks are used to intercept and detain sediment laden run-off from unprotected areas. When properly used, compost filter berms and socks can be highly effective at controlling sediment from disturbed areas. They cause runoff to pond which allows heavier solids to settle. Compost filter berms and socks are used during the period of construction near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The berm or sock should remain in place until the area is permanently stabilized. Compost filter berms should not be used when there is a concentration of water in a channel or drainage way. If concentrated flows occur after installation , corrective action must be taken. Compost filter socks may be installed in construction areas and temporality moved during the day to allow construction activity provided it is replaced and properly anchored at the end of the day. Compost filter berms and socks may be seeded to allow for quick vegetative growth and reduction in run-off velocity.

Materials:

New types of compost filter berms and socks are continuously being developed. The Texas Department of Transportation (TxDOT) has established minimum performance standards which must be met for any products seeking to be approved for use within any of TxDOT's construction or maintenance activities. Compost filter berms and socks used within any TxDOT construction or maintenance activities must meet material specifications in accordance with TxDOT specification 1059. TxDOT maintains a website at http://www.dot.state.tx.us/des/landscape/compost/specifications.htm that provides information on compost specification data. This website also contains information on areas where the Texas Commission on Environmental Quality (TCEQ) restricts the use of certain compost products.

Compost filter berms and socks used for projects not related to TxDOT should also be of quality materials by meeting performance standards and compost specification data. To ensure the quality of compost used as compost filter berms and socks, products should meet all applicable state and federal regulations, including but not limited to the United States Environmental Protection Agency (USEPA) Code of Federal Regulations (CFR), Title 40, Part 503 Standards for Class A biosolids and Texas Natural Resource Conservation Commission (now named TCEQ) Health and Safety Regulations as defined in the Texas Administration Code (TAC), Chapter 332, and all other relevant requirements for compost products outlined in TAC, Chapter 332. Testing requirements required by the TCEQ are defined in TAC Chapter 332, including Sections §332.71 Sampling and Analysis Requirements for Final Products and §332.72 Final Product Grades. Compost specification data approved by TxDOT are appropriate to use for ensuring the use of quality compost materials or for guidance.

Testing standards are dependent upon the intended use for the compost and ensures product safety, and product performance regarding the product's specific use. The appropriate compost sampling and testing protocols included in the United States Composting Council (USCC) Test Methods for the Examination of Composting and Compost (TMECC) should be conducted on compost products used for compost filter berms and socks to ensure that the products used will not impact public health, safety, and the environment and to promote production and marketing of quality composts that meet analytical standards. TMECC is a laboratory manual that provides protocols for the composting industry and test methods for compost analysis. TMECC provides protocols to sample, monitor, and analyze materials during all stages of the composting process. Numerous parameters that might be of concern in compost can be tested by following protocols or test methods listed in TMECC. TMECC information can be found at http://www.tmecc.org/tmecc/index.html. The USCC Seal of Testing Assurance (STA) program contains information regarding compost STA certification. STA program information can be found at http://tmecc.org/sta/STA_program_description.html.

Installation:

- Install in accordance with TxDOT Special Specification 1059.
- Compost filter berms shall be constructed at 1-1/2 feet high and 3 foot wide at locations shown on plans.
- Routinely inspect and maintain filter berm in a functional condition at all times. Correct deficiencies immediately. Install additional filter berm material as directed. Remove sediment after it has reached 1/3 of the height of the berm. Disperse filter berm or leave in place as directed.

- Compost filter socks shall be in 8 inch, 12 inch or 18 inch or as directed. Sock materials shall be designed allowing for proper percolation through.

Sedimentation Chambers (only to be used when there is no space available for other approved BMP's)

Description: Sedimentation chambers are stormwater treatment structures that can be used when space is limited such as urban settings. These structures are often tied into stormwater drainage systems for treatment of stormwater prior to entering state waters. The water quality benefits are the removal of sediment and buoyant materials. These structures are not designed as a catch basin or detention basin and not typically used for floodwater attenuation.

Design Considerations: Average rainfall and surface area should be considered when following manufacturer's recommendations for chamber sizing and/or number of units needed to achieve effective TSS removal. If properly sized, 50-80% removal of TSS can be expected.

Maintenance Requirements: Maintenance requirements include routine inspections, sediment, debris and litter removal, erosion control and nuisance control.

PUBLIC NOTICE

SWF-2009-00371

JULY 2011

US Army Corps
of Engineers
Fort Worth District

Public Notice

Applicant: Waste Management of Texas, Inc.

Permit Application No.: SWF-2009-00371

Date: July 6, 2011

The purpose of this public notice is to inform you of a proposal for work in which you might be interested. It is also to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. We hope you will participate in this process.

Regulatory Program

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources. Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce. An important part of our mission today is the protection of the nation's waterways through the administration of the U.S. Army Corps of Engineers Regulatory Program.

Section 10

The U.S. Army Corps of Engineers is directed by Congress under Section 10 of the Rivers and Harbors of 1899 (33 USC 403) to regulate *all work or structures in or affecting the course, condition or capacity of navigable waters of the United States.* The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

Section 404

The U.S. Army Corps of Engineers is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the *discharge of dredged and fill material into all waters of the United States, including wetlands.* The intent of the law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical and biological integrity.

Contact

Name: Mr. Eric Dephouse, Project Manager

Phone Number: (817) 886-1820

JOINT PUBLIC NOTICE

U. S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

AND

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUBJECT: Application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States associated with the expansion of Skyline Recycling and Disposal Facility (Skyline RDF) in the City of Ferris, Dallas and Ellis Counties, Texas.

APPLICANT: Waste Management of Texas, Inc.
Mr. Walter Hunt
1201 North Central Avenue
Ferris, Texas 75125

APPLICATION NUMBER: SWF-2009-00371

DATE ISSUED: July 6, 2011

LOCATION: The Skyline RDF is located west of Interstate 45 (IH 45), south of Ten Mile Creek, and north of the City of Ferris, in Dallas and Ellis Counties, Texas and is approximately 670 acres in size (Sheet 1 and Sheet 2 of 9). The proposed project would be located approximately at latitude 32.548900 and longitude –96.674636. The site is mapped on the 7.5-minute USGS quadrangle map, Ferris, Texas. The site is in USGS Hydrologic Unit 1203.

OTHER AGENCY AUTHORIZATIONS: Section 401 State Water Quality Certification

PROJECT DESCRIPTION: Waste Management of Texas, Inc. proposes to discharge approximately 60,500 cubic yards of material into 11.29 acres of waters of the United States for the expansion of the Skyline RDF. Construction of the proposed project would impact a total of 15.79 acres of waters of the U.S., including 9.79 acres of non-forested wetlands, 610 linear feet (0.07 acre) of ephemeral stream, and 6.0 acres of open water impoundments near the Ten Mile Creek floodplain. Waste Management of Texas, Inc. would follow established Best Management Practices (BMPs) and standard erosion control measures in order to prevent erosion and sedimentation.

The permitted Skyline RDF dates back over three decades, with a municipal solid waste (MSW) permit issued to Trinity Valley Reclamation (TVR), Inc. in 1976 (MSW 42A). In 1987, TVR was acquired by Waste Management of Texas, Inc., which then developed a landfill permit to expand the landfill operations (MSW 42C). MSW 42C was approved by the Texas Natural Resources Conservation Commission (TNRCC) in 1995. The Applicant is currently seeking to modify and expand the existing landfill operations under MSW 42C through a third MSW permit.

The Skyline RDF provides disposal services for municipal solid waste customers in the Dallas-Fort Worth Metroplex and the north central Texas region in general. As noted above, a TNRCC permit

amendment was authorized in 1995 that upgraded the existing landfill to Subtitle D standards and expanded the landfill permit boundary from 73 acres to approximately 670 acres, and increased the waste disposal footprint to a total of 282.2 acres. The permitted waste disposal footprint of 282.2 acres was developed based on projected waste disposal needs for the north central Texas area as part of the permit process in the 1980's. The purpose of this project is to provide an additional 20 million cubic yards (CY) of usable space within a modified waste disposal footprint of approximately 288.2 acres to meet increased solid waste disposal needs. The current authorized footprint of the facility has a projected life until approximately 2042. The proposed modification would extend the life of the Skyline RDF until approximately 2058.

Currently, sections within the MSW 42C waste disposal footprint are under operation and have already been excavated and filled (Sheet 3 of 9). The project would reduce other sections of the MSW 42C waste disposal footprint within areas that have an irregular boundary and expand into areas that were previously avoided by the MSW 42C permit. Sheet 5 of 9 provides a comparison of the currently authorized MSW 42C waste disposal footprint and the proposed waste disposal footprint. Based on this modification and expansion of the waste disposal footprint, this design would result in an increase of approximately 6.0 acres of useable landfill space for a total area of approximately 288.2 acres.

Approximately 1.2 million CY of material, consisting of native soil and stockpiled soil, would be excavated within the proposed expansion areas. This area would then be incorporated into landfill operations, eventually attaining a height of 688.0 feet National Geodetic Vertical Datum (NGVD), providing an additional 20 million CY of waste volume over the 22.9 acres as shown on Sheet 5 of 9, for a total of 60.2 million CY of waste for the entire landfill operation. Actual landfilling of areas proposed to be impacted would likely begin in 2015 pending approval of all required permits and authorizations.

Drainage swales, similar to those already constructed on the south, west, and east sides of the existing waste disposal footprint, would be constructed at the north base of the expanded footprint, and would serve to collect and direct surface runoff to detention ponds with outlet and sediment control structures before eventually discharging into Ten Mile Creek. Collection of runoff would be designed in a manner so as to not adversely alter existing or permitted drainage patterns. The final waste disposal footprint and grading for the proposed project is shown in Sheet 6 and Sheet 7 of 9. Typical cross-sections of the proposed project are shown in Sheet 8 and Sheet 9 of 9.

In addition to these excavation and filling activities, an existing on-channel impoundment-wetland would be dredged, restoring the original treatment capacity of the pond. Dredged materials from this activity would be disposed of within the landfill. The portions of drainage swale located upstream of this wetland would remain unimpacted and would still provide filtering function.

The Skyline RDF would be permitted in accordance with 30 Texas Administrative Code (TAC) Chapter 330 Municipal Solid Waste Management Regulations. The Texas Commission on Environmental Quality (TCEQ), formerly the TNRCC, is the agency responsible for permitting and regulating municipal solid waste facilities. The TCEQ requires applicants to address waters of the United States, including wetlands, with the United States Army Corps of Engineers (USACE) and coordinate with state and federal agencies regarding Section 404 of the Clean Water Act.

A jurisdictional determination report, dated September 2009, was prepared for the project. Ten Mile Creek, a perennial stream flowing along the northern property boundary, two open water features, five emergent wetlands, four forested wetlands, three scrub/shrub wetlands, one emergent/submergent wetland and three ephemeral streams were identified as waters of the United States within the property boundary (Sheet 3 of 9 and Sheet 4 of 9) for total of 8,200 linear feet (LF) of perennial stream, 6.0 acres of open water, 11.98 acres of emergent wetland, 0.5 acres of forested wetland, 1.95 acres of scrub/shrub wetland, 2,160 LF of ephemeral stream, and 4.81 acres of emergent/submergent wetland. Three upland stock ponds were also identified within the project area.

As part of this project, the applicant proposes to fill two open water features, two emergent wetlands, and an ephemeral stream. It is unlikely that filling the ephemeral stream would result in indirect impacts to wetlands adjacent to Ten Mile Creek, as hydrology supporting the forested wetlands would be maintained by local drainage and overbank flood events from Ten Mile Creek. Impacts to one emergent wetland, EW-5, would be considered temporary. Currently the wetland/pond feature primarily functions as detention and sediment catchment. After dredging to restore the pond to its near-original dimensions, it would continue to function as detention and sediment catchment. Comparison of historical aerial photography with existing sediment-rich conditions of other ponds on the property support that wetland feature EW-5 would revert back to a cattail-dominated community.

Proposed permanent and temporary impacts associated with this project are provided below in Table 1 and are shown on Sheet 7 of 9.

Table 1 - Summary of Impacts to Waters of the United States

Feature ID	Length of Impact (feet)	Area of Impact (acres)	Activity Description	Impact Type
Streams				
Ephemeral Stream (ES-2)	610	0.07	Excavation and backfill	Permanent
Emergent Wetlands				
Emergent Wetland (EW-1)	--	4.77	Excavation and backfill	Permanent
Emergent Wetland (EW-4)	--	0.45	Excavation and backfill	Permanent
Emergent Wetland (EW-5)	--	4.57	Excavation and dredging	Temporary
Open Water				
Open Water (OW-2)	--	4.46	Excavation and backfill	Permanent
Open Water (OW-3)	--	1.54	Excavation and backfill	Permanent

To compensate for unavoidable impacts to waters of the United States, the applicant would purchase credits from the Bunker Sands Mitigation Bank (BSMB) located in the Upper Trinity River Drainage Basin in Kaufman County, Texas. This mitigation bank operates in the USACE Fort Worth District and is part of a contiguous riparian corridor along the East Fork of the Trinity River. Located in Ferris, Texas, the project is well within the primary service area of the BSMB. As noted in Table 1, impacts to waters of the United States are associated with the filling or excavation of on-channel

impoundments classified as open water; impacted emergent wetlands are low-quality cattail wetlands associated with the littoral element of the these open water ponds. Open water ponds with cattail-dominated littoral zones are common in the north central Texas region could be readily constructed on a 1:1 basis. However, mitigation banks such as the BSMB focus on the local watersheds of larger streams and rivers, utilizing a mixture of enhancement, restoration, and creation of aquatic resources conducive to a vegetated, contiguous riparian corridor. This overall approach (as opposed to an aquatic type per aquatic type) should adequately serve to meet the goals of no net loss of aquatic function for any bank user, and in this instance, considering the quality of the impacted resources.

Consistent with the BSMB banking instrument, for the 11.29 acres of low-quality aquatic habitat that would be permanently impacted, the applicant proposes to purchase 13.6 credits (1.2 credits/acre) from the BSMB. For the 4.57 acres of low-quality aquatic habitat that would be temporarily impacted, the applicant proposes to purchase 4.6 credits (1.0 credits/acre) from the BSMB.

ALTERNATIVE SITE LOCATIONS AND ALTERNATIVE LAYOUTS: The proposed location is adjacent to an existing, permitted landfill that has operated at the same location since the 1970s. Construction of a new landfill would require extensive coordination with local governments and landowners, and obtaining authorizations involving a lengthy permitting process with the TCEQ. Additional considerations include the limited availability of new landfill sites combined with a responsibility to meet the disposal needs of the growing north central Texas population, and the North Central Texas Council of Governments (NCTCOG) preference that waste that cannot be reused or recycled must be handled in a safe manner at permitted facilities.

A total of 666.9 acres is located within the landfill permit boundary, purchased by WM, for continued operations and expansion of the Skyline RDF. TCEQ regulations require a minimum buffer distance between the waste disposal area and the landfill permit boundary of 125 feet. Based on this original configuration, the maximum waste disposal footprint could be expanded to 430 acres, which would impact approximately 17 acres of waters of the United States. This impact figure does not include additional impacts associated with required drainage swales or valley storage, since this alternative would also require substantial fill within the 100-year floodplain of Ten Mile Creek. However, through the evaluation and design process, WM has developed a footprint that substantially reduces the impacts to existing waters of the United States, and provides a substantial buffer area between the footprint and Ten Mile Creek. The applicant's preferred alternative serves to balance site development potential while minimizing impacts to other higher quality waters of the United States, such as forested wetlands within the Ten Mile Creek floodplain.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-331, the Regulatory Program of the U. S. Army Corps of Engineers (USACE), and other pertinent laws, regulations, and executive orders. Our evaluation will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including its cumulative effects. Among the factors addressed are conservation,

economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE in determining whether to issue; issue with modifications or conditions; or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

STATE WATER QUALITY CERTIFICATION: This project would result in a direct impact of greater than three acres of waters of the state or 1,500 linear feet of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project. Therefore, Texas Commission on Environmental Quality (TCEQ) certification is required. Concurrent with USACE processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act, and Title 30, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the USACE and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087. The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The complete application may be reviewed in the USACE's office. The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. The proposed project would be located in Dallas and Ellis Counties, where the black-capped vireo (*Vireo atricapilla*), golden-cheeked warbler (*Dendroica chrysoparia*), whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), and piping plover (*Charadrius melodus*) are known to occur or may occur as migrants. The black-capped vireo, whooping crane, golden-cheeked warbler, and interior least tern are listed as an endangered species. The piping plover is listed as a threatened species. It is not anticipated that any of the listed threatened or endangered species would occur within the project area. Therefore, it is not

anticipated that the proposed project would have an adverse effect on threatened or endangered species.

NATIONAL REGISTER OF HISTORIC PLACES: An intensive cultural resources survey and assessment for the Skyline RDF was conducted in 1994 for earlier permitting phases of the project. Four sites were reported in the earlier study, but the survey was conducted prior to the current Texas Historic Commission (THC) survey standards, so survey methods are not known. The Permittee has coordinated with the THC requesting cultural resources clearance or further recommendations, and a "No Historic Properties Affected" opinion was received from THC on January 30, 2009.

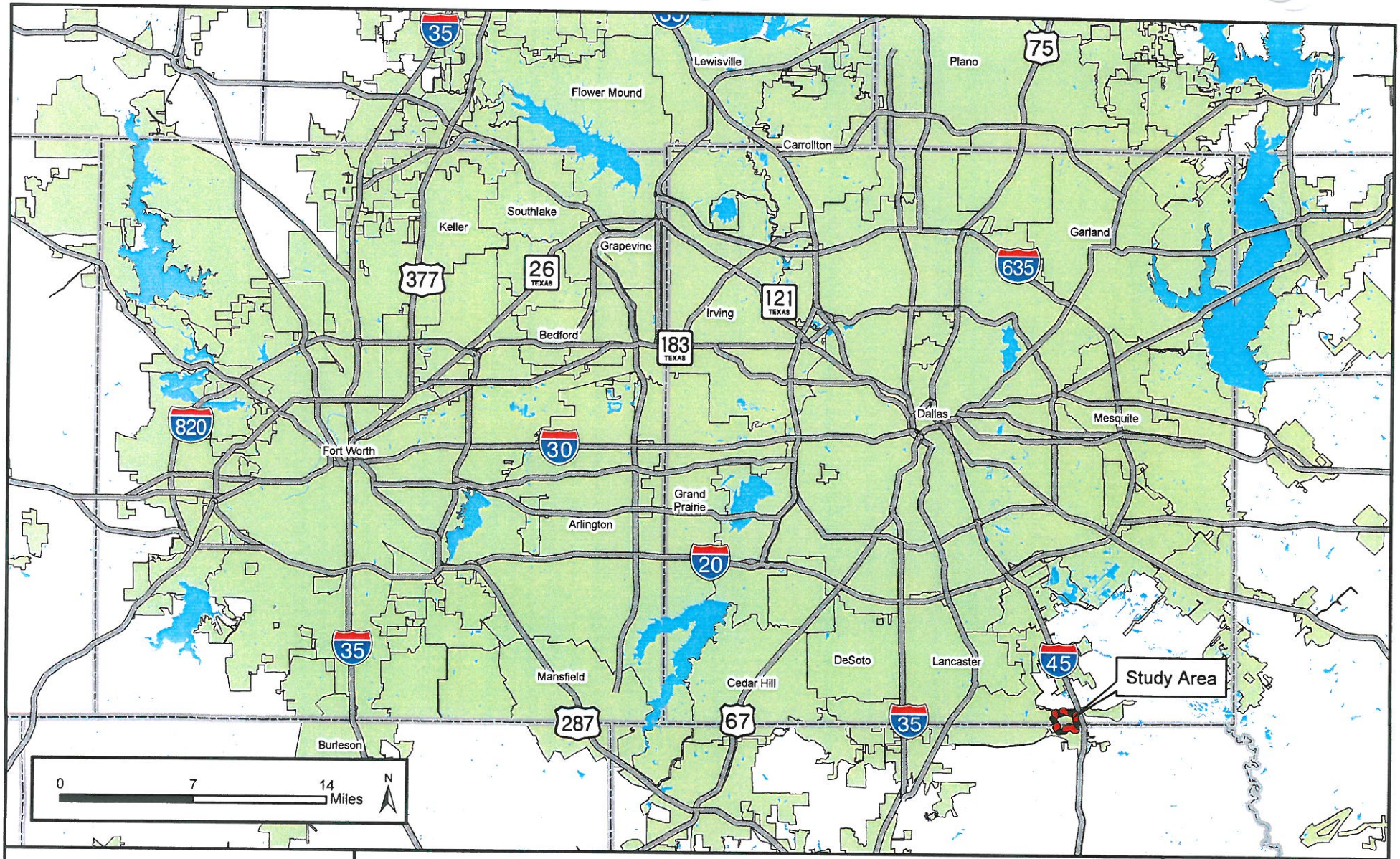
FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

SOLICITATION OF COMMENTS: The public notice is being distributed to all known interested persons in order to assist in developing fact upon which a decision by the USACE may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his permit decision. If a public hearing is warranted, all known interested persons will be notified of the time, date, and location.

CLOSE OF COMMENT PERIOD: All comments pertaining to this Public Notice must reach this office on or before August 5, 2011, which is the close of the comment period. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. If no comments are received by that date, it will be considered that there are no objections. Comments and requests for additional information should be submitted to Mr. Eric Dephouse; Regulatory Branch, CESWF-PER-R; U. S. Army Corps of Engineers; Post Office Box 17300; Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1820. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS



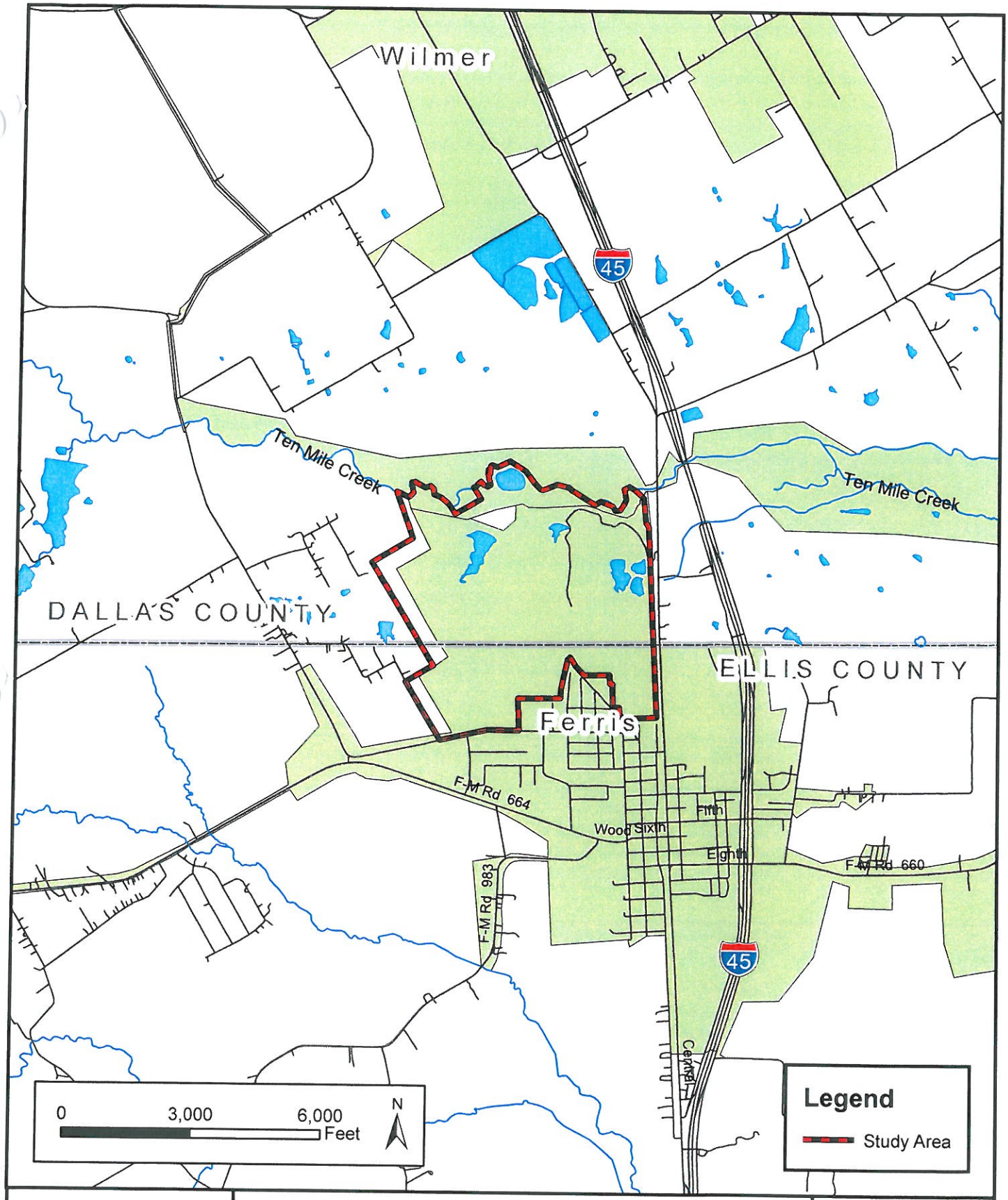
IID-73 HALFF

WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROJECT VICINITY	
Sheet 1 of 9	



HALFF

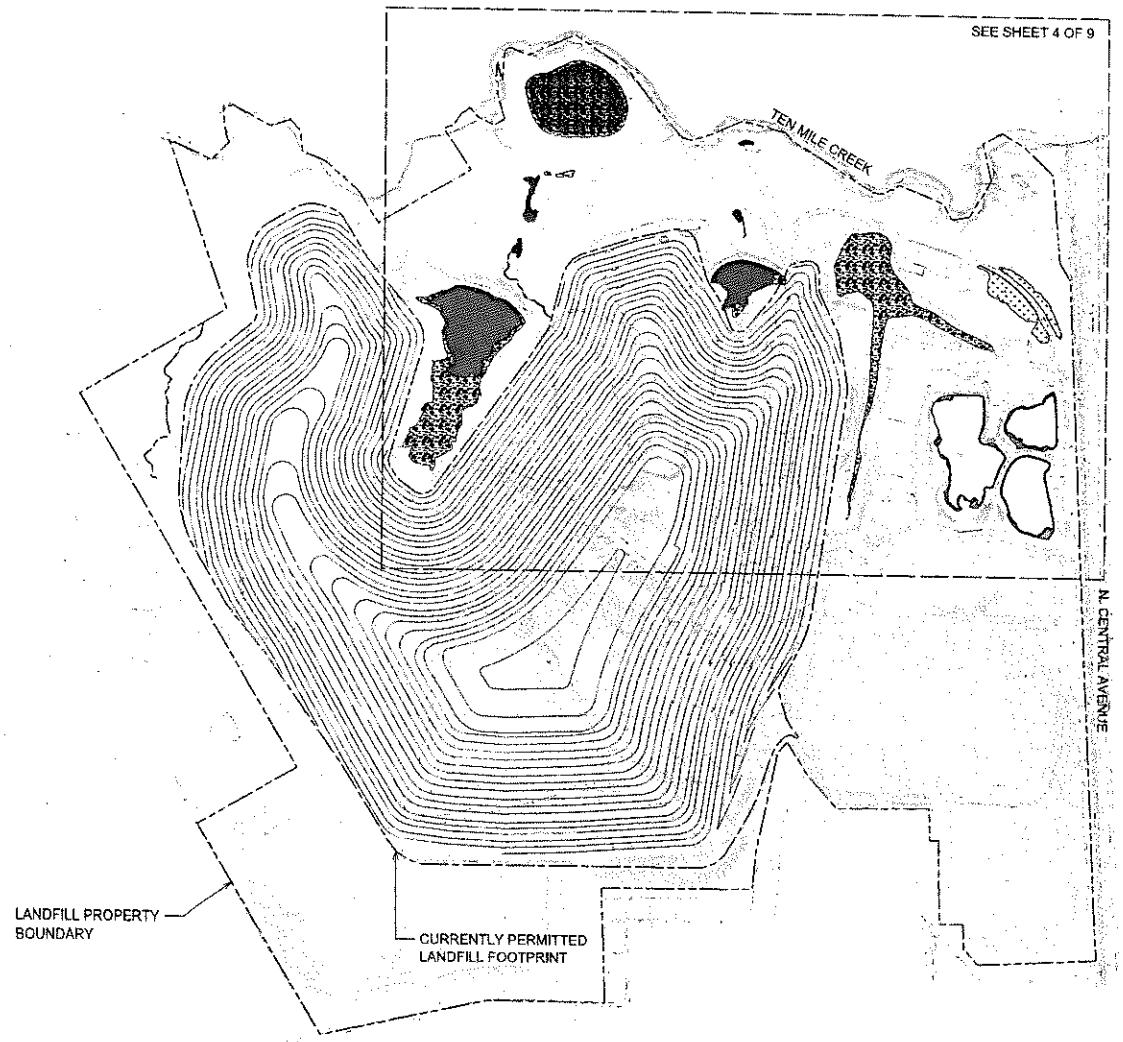
WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #2009000371

Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROJECT LOCATION	
Sheet 2 of 9	
IID-74	



N

0 600 1200 1800 2400

SCALE: 1"=1200'

LEGEND:

- CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA
- CURRENTLY PERMITTED WASTE DISPOSAL FOOTPRINT

NOTE: PLEASE SEE "JURISDICTIONAL DETERMINATION OF WATERS OF THE UNITED STATES" FOR WASTE MANAGEMENT RECYCLING AND DISPOSAL FACILITY, FERRIS TEXAS, FOR DETAILED PRESENTATION OF WATERS OF THE UNITED STATES.

IID-75

HALFF

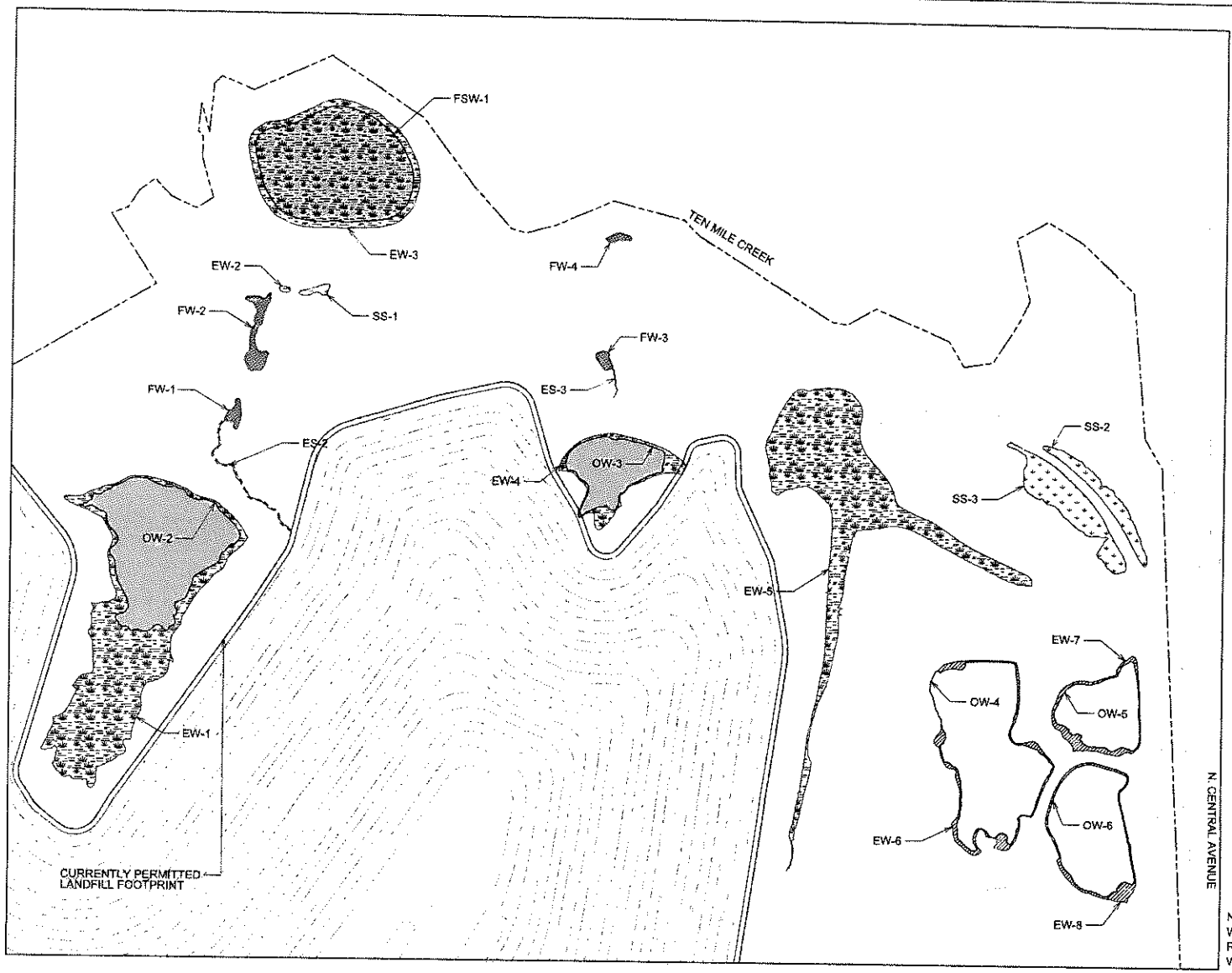
WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371

Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
CURRENT PROJECT	
Sheet 3 of 9	



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0 300 600 900 1200

SCALE: 1"=600'

LEGEND:

- CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA
- CURRENTLY PERMITTED WASTE DISPOSAL FOOTPRINT
- EMERGENT WETLAND (WATER OF THE US)
- SCRUB/SHRUB WETLAND (WATER OF THE US)
- FORESTED WETLAND (WATER OF THE US)
- OPEN WATER (WATER OF THE US)
- FLOATING/SUBMERGENT WETLAND (WATER OF THE US)
- OPEN WATER (NON-WATER OF THE US)
- EMERGENT WETLAND (NON-WATER OF THE US)

NOTE: PLEASE SEE "JURISDICTIONAL DETERMINATION OF WATERS OF THE UNITED STATES" FOR WASTE MANAGEMENT RDF, FERRIS TEXAS, FOR DETAILED PRESENTATION OF WATERS OF THE UNITED STATES.

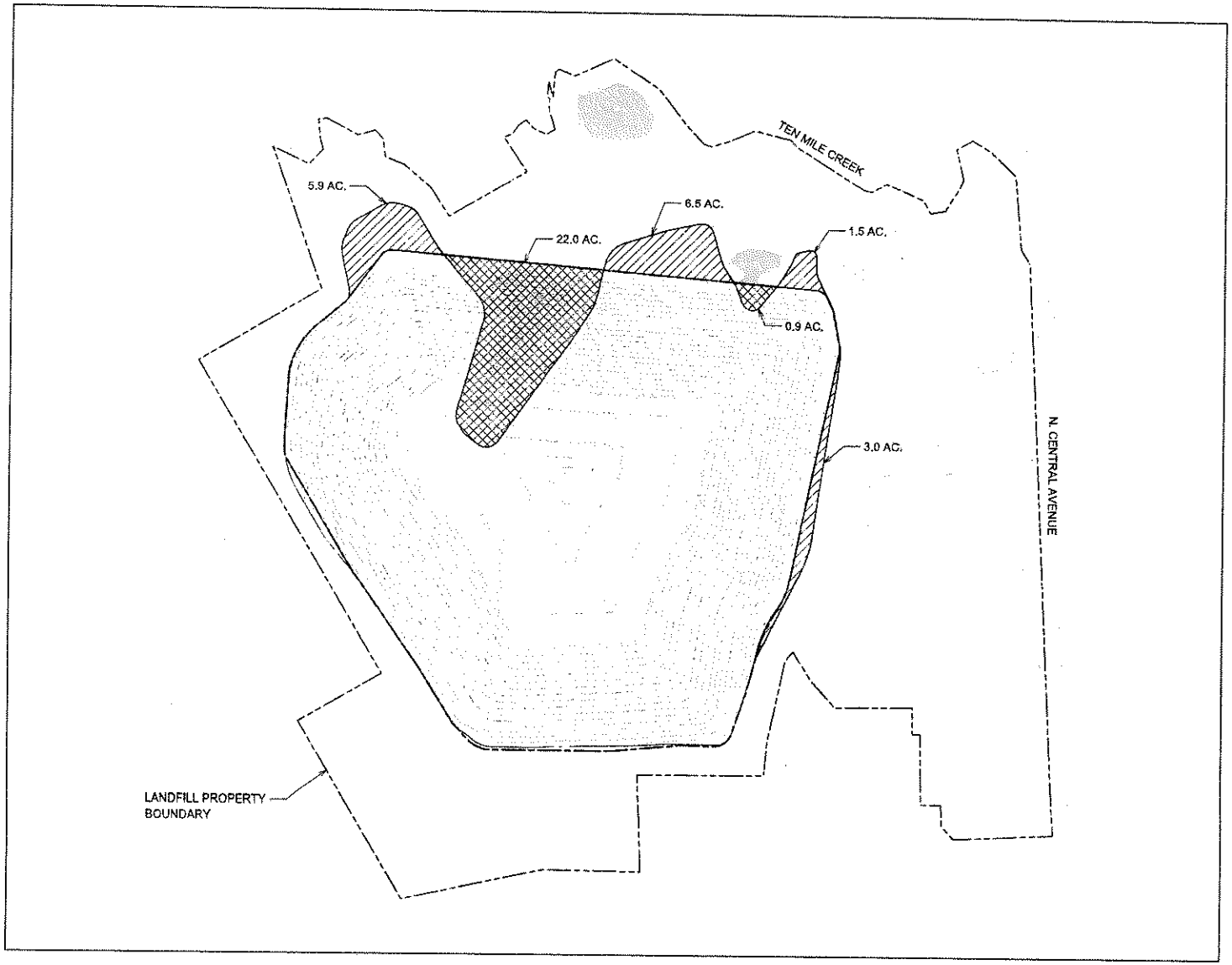
HALFF

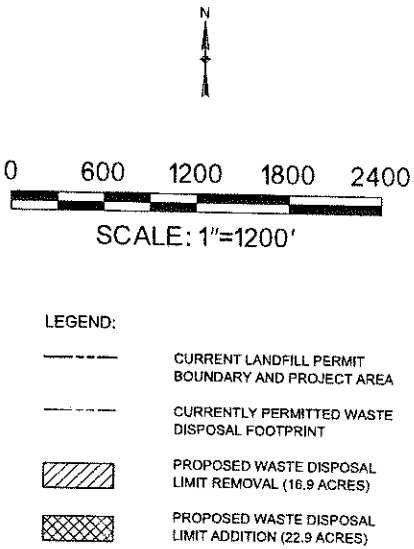
WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
WATERS OF UNITED STATES MAP	
Sheet 4 of 9	





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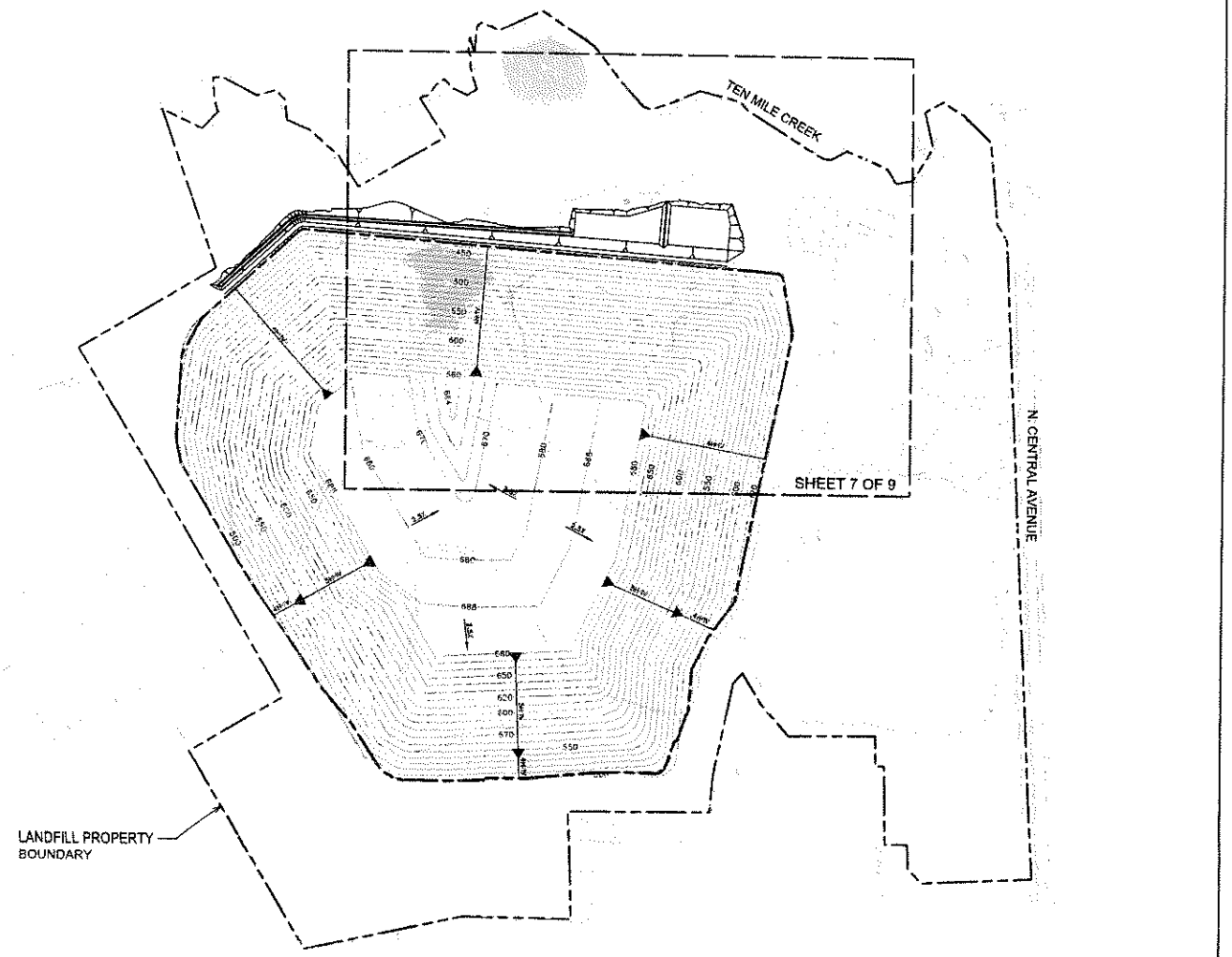
WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
LIMITS OF WASTE DISPOSAL COMPARISON	
Sheet 5 of 9	



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SCALE: 1"=1200'

LEGEND:

CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA

PROPOSED PERMITTED WASTE DISPOSAL FOOTPRINT

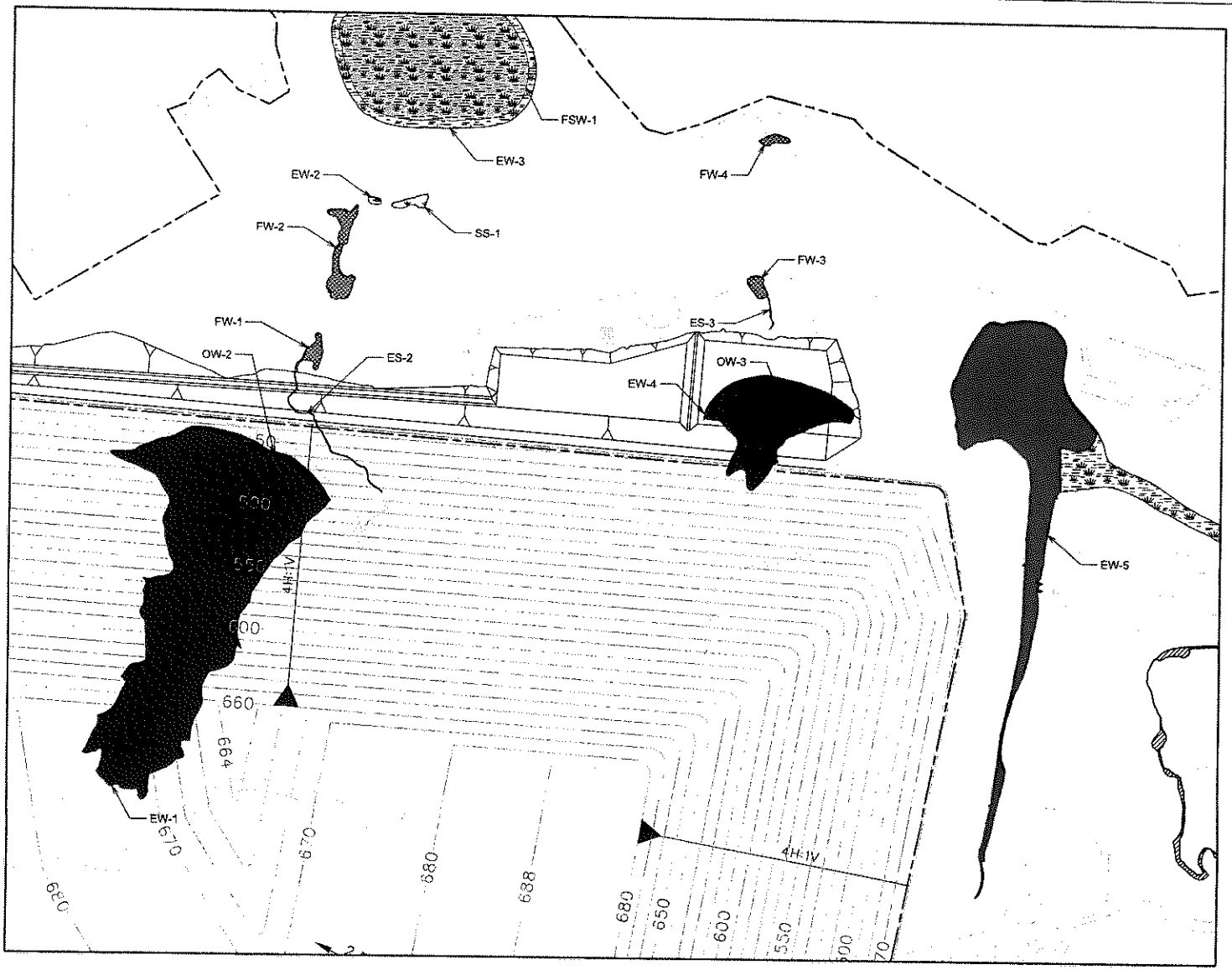
HALFF

WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROPOSED LIMITS OF WASTE DISPOSAL	
Sheet 6 of 9	



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SCALE: 1"=500'

LEGEND:

- CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA
- PROPOSED PERMITTED WASTE DISPOSAL FOOTPRINT
- EMERGENT WETLAND (WATER OF THE US)
- SCRUB/SHRUB WETLAND (WATER OF THE US)
- FORESTED WETLAND (WATER OF THE US)
- FLOATING/SUBMERGENT WETLAND (WATER OF THE US)
- OPEN WATER (NON-WATER OF THE US)
- EMERGENT WETLAND (NON-WATER OF THE US)
- TEMPORARILY IMPACTED WATERS OF THE US
- PERMANENTLY IMPACTED WATERS OF THE US

FEATURE ID	IMPACTS (ACRES)	IMPACT TYPE
EW-1	4.77	PERMANENT
EW-4	0.45	PERMANENT
OW-2	4.46	PERMANENT
OW-3	1.54	PERMANENT
ES-2	0.07	PERMANENT
EW-5	4.57	TEMPORARY

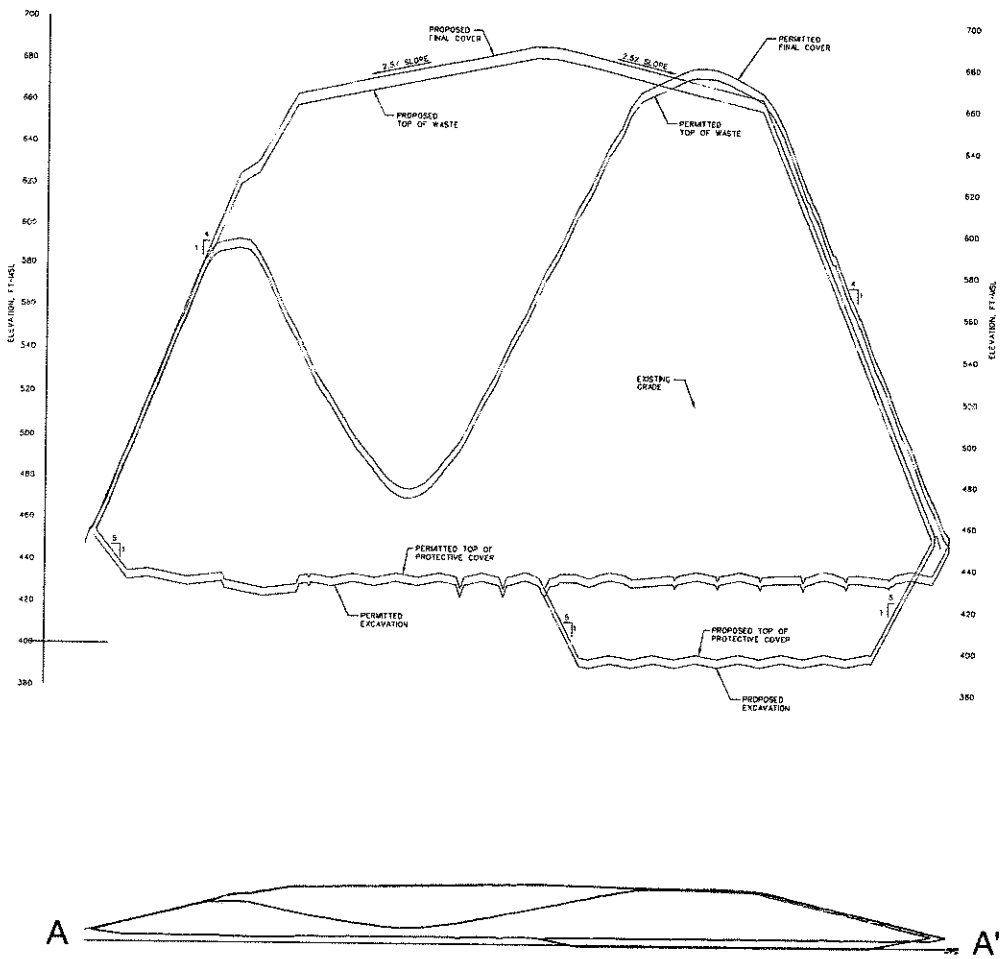
HALFF

WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.: 26404
Issued: MARCH 2011
IMPACTS TO WATERS OF THE U.S.
Sheet 7 of 9



LANDFILL CROSS SECTION A
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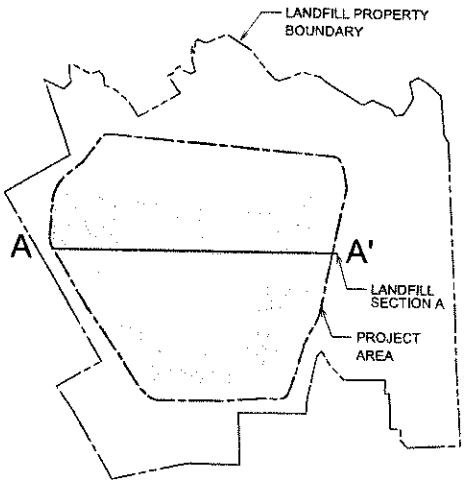


NOTE: LANDFILL CROSS-SECTIONS PROVIDED BY BIGGS & MATTEWS ENVIRONMENTAL.

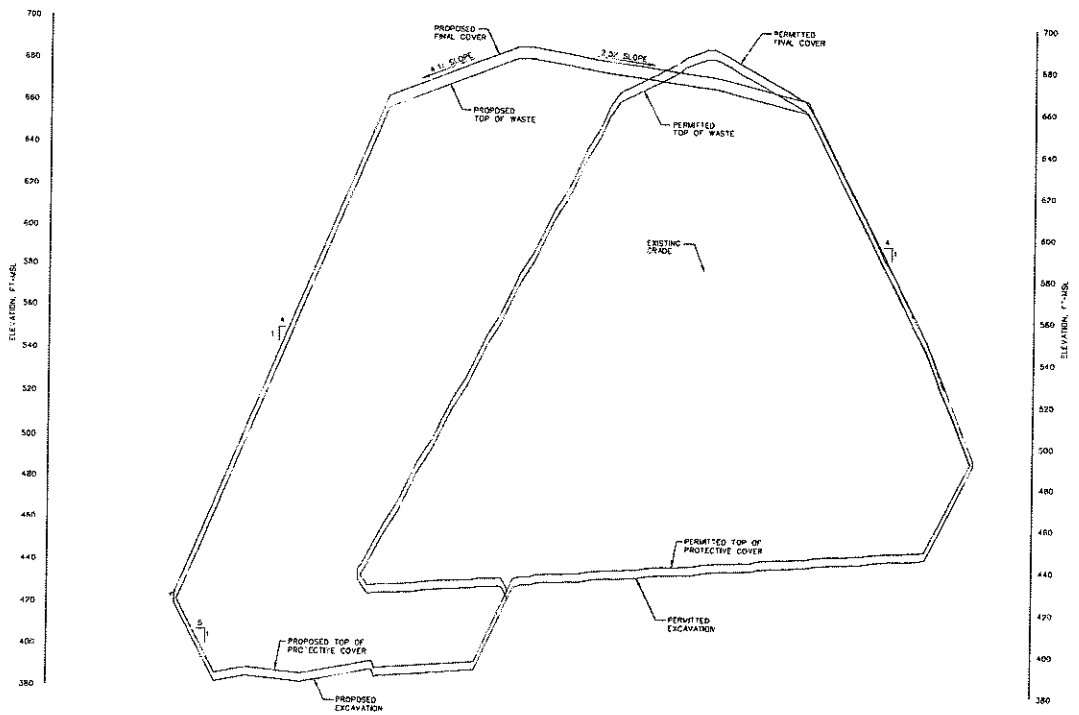
IID-80

HALFF

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
TYPICAL CROSS-SECTION	
Sheet 8 of 9	



LANDFILL CROSS SECTION B
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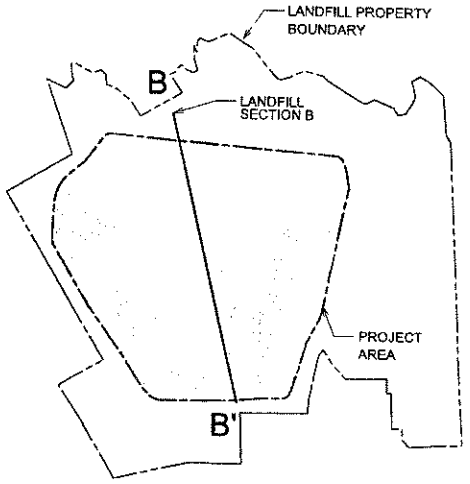

NOTE: LANDFILL CROSS-SECTIONS PROVIDED BY BIGGS & MATTEWS ENVIRONMENTAL.

IID-81

HALFF

WASTE MANAGEMENT SKYLINE RDF
Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
TYPICAL CROSS-SECTION	
Sheet 9 of 9	

RESPONSE TO COE PUBLIC NOTICE COMMENTS

SWF-2009-00371

HALFF

October 21, 2011
AVO 26404 EA03

Mr. Eric Dephouse, Project Manager
U.S. Army Corps of Engineers
Regulatory Branch – CESWF-PER-R
PO Box 17300
Fort Worth, Texas 76102-0300

Re: Permit Application No. SWF-2009-00371
Response to Public Notice Comments
Skyline Recycling and Disposal Facility Expansion
Dallas and Ellis Counties

Dear Mr. Dephouse:

On behalf of Waste Management of Texas, Inc. (WMTX), Halff Associates, Inc. (Halff) appreciates this opportunity to provide responses to the public comments received on the public notice for WMTX's Permit Application No.SWF-2009-00371. For your convenience, copies of the letters and emails received in response to the public notice are located in **Attachment A**.

Comments of the Environmental Protection Agency (EPA):
The EPA replied that they have no comments on the public notice.

Comments of Texas Parks and Wildlife (TPWD):

Comment #1: The Final Rule for Compensatory Mitigation for Losses of Aquatic Resources (33 CFR 332.3(f)(1)) states that appropriate functional or conditional assessment methods should be used if they are available to determine how much compensatory mitigation is required. The applicant has not used a functional or conditional assessment method to justify their classification of the wetlands as low quality.

Response #1: WMTX used the Uniform Mitigation Assessment Method (UMAM) to justify the classification of the wetlands as low quality within the Skyline Recycling and Disposal Facility expansion (Project) area. As noted in the compensatory mitigation plan attached to WMTX's United States Army Corps of Engineers (USACE) permit application and attached hereto as **Attachment B**, an earlier draft of the application submitted in January 2010 proposed the use of on-site compensatory mitigation in lieu of using a local mitigation bank. WMTX coordinated with the USACE Fort Worth District in utilizing the UMAM to evaluate wetland function to determine appropriate on-site mitigation. The UMAM was designed to assess any type of impact and mitigation, including the preservation, enhancement, restoration, and creation of wetlands, as well as

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1201 NORTH BOWSER ROAD
RICHARDSON, TX 75081-2275
TEL (214) 346-6200
FAX (214) 739-0095
WWW.HALFF.COM

the evaluation and use of mitigation banks. The UMAM model is comparable to the Texas Rapid Assessment Method, which was not available at the time WMTX conducted its assessment. Scores from the UMAM for impacted features indicated a high level of impairment which is consistent with a classification of low quality.

Comment #2: TPWD considers the use of credits from Bunker Sands Mitigation Bank (BSMB) to compensate for ephemeral stream impacts to be inappropriate because wetlands hydrology or vegetation improvements do not provide in-kind compensation for ephemeral stream impacts. If out-of-kind mitigation is approved, an increased ratio should be used. If BSMB is allowed to be used despite TPWD objections, the stream plus a 50-foot buffer on each side should be used in calculating the area of impact.

Response #2: For ephemeral stream impacts, WMTX proposes to use the Trinity River Mitigation Bank (TRMB) in Tarrant County, Texas. Debiting for ephemeral stream impacts is on a per linear foot basis, and debit ratios assume a 5-foot wide stream, with a 25-foot wide buffer on each side, and a 2:1 multiplier. Dividing by 43,560 feet yields 0.003 credits per linear foot (rounded). Depending on credit availability, WMTX may also use a different account in the bank at a debit ratio of 0.005 credits per linear foot. Please see **Attachment B,** the revised mitigation plan for additional details.

Comments from the Texas Commission on Environmental Quality (TCEQ):

Comment #1: Please provide more detailed information on what options were considered to minimize impacts and why they were eliminated. Please address the proximity of the expansion to Ten Mile Creek, and provide detailed information regarding safeguards to be implemented to prevent sedimentation and/or impacts to Ten Mile Creek and surrounding waterways from the landfill expansion activities and usage of this expansion area.

Response #1: At the conceptual design level, as noted in the TCEQ Tier II Checklist comparison of alternatives, WMTX could have considered a larger landfill expansion toward Ten Mile Creek. However, WMTX eliminated this alternative because it would result in additional floodplain and Clean Water Act permitting difficulties. The option proposed by WMTX preserves the existing floodplain of Ten Mile Creek with the exception of a small portion of the floodplain as shown in the attached figure (**Drawing 1**) from Biggs and Mathews. As shown, approximately 0.6 acre of the Ten Mile Creek floodplain would be affected, with impacts associated only with valley storage (2,000 cubic yards). Preservation of the existing Ten Mile Creek floodplain in turn preserves several small forested (0.50 acre) and scrub/shrub (0.07 acre) wetland features and an existing compensatory mitigation area (5.8 acres) that, with the rest of the floodplain, serve as a buffer to the creek channel.

The Project has been designed to prevent the discharge of pollutants into waters of the state of Texas or waters of the United States, as defined by the Texas Water Code and the federal Clean Water Act, respectively. WMTX submitted a notice of intent (NOI) to comply with the TPDES General Permit No. TXR050000 relating to stormwater discharge associated with industrial activity (Multi-Sector General Permit) and received Permit No. TXR05U147.

The Project design includes environmental sequencing (avoidance, minimization, compensation) with respect to potential impacts to waters of the United States, including wetlands, as defined in TCEQ regulations. Methods of development avoiding jurisdictional wetlands were analyzed and all wetland areas within the 100-year floodplain will be avoided during this expansion.

During Project implementation, the Applicant will incorporate Best Management Practice (BMP) devices to assist in the control of erosion, sedimentation, and post-construction total suspended soils. A BMP is defined by the USACE as policies, practices, procedures, or structures implemented to mitigate adverse environmental effects on surface water quality resulting from development. BMP devices are categorized as structural or non-structural. In practice, the final landfill footprint will be constructed in phases from the northwest to northeast corners. Phasing of the construction areas will serve to remove vegetation only in areas that are actively under construction. Maintaining vegetation coverage for as long as possible serves to reduce secondary impacts that may occur from erosion of bare ground. As the landfill phasing progresses, BMP devices to be used singularly or in combination will include the construction of barricade fences, silt fences, filter socks, or straw bale dikes. Over the life of the project, the facility surface water drainage design provides for perimeter drainage channels (i.e. vegetated swale) and detention/sediment control ponds for all surface water from the landfill to be routed through these facilities prior to entering the Ten Mile Creek 100-year floodplain or waterway. Also, landfill operations are required to comply with TCEQ requirements included in the facility Site Operating Plan, which addresses operational requirements to provide adequate cover over the waste, and to inspect, maintain, and repair erosion at the site.

Operationally, the remaining landscape between the proposed Project footprint and Ten Mile Creek is an area that is not incorporated into the day-to-day activities of the Skyline Recycling and Disposal Facility ("Skyline RDF"). It is expected that the entrance to the Skyline RDF will remain in its current location, which will serve to isolate the delivery of landfill material and roadway runoff, and minimize the day-to-day interface of landfill material with the floodplain of Ten Mile Creek and other adjacent waters/wetlands.

Comment #2: Please have the applicant provide an appropriate functional analysis of the wetlands to be impacted or otherwise provide detailed information regarding the quality of the wetlands to ensure proper compensation for these wetlands.

Response #2: Please see the response to TPWD Comment #1.

Comments from Ms. Monique Foster:

Comment #1: A public hearing for USACE Permit No. SWF-2009-00371 is requested to afford the requestor the opportunity to participate in a public hearing. The comment letter further states that the permit will allow the facility to expand in height and intake and assert that they will be directly impacted by the decision if this permit is granted.

Response #1: The Joint Public Notice by the USACE and TCEQ is issued for a permit to be issued by the Department of Army under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States associated with the expansion of the Skyline RDF. The proposed Section 404 permit does not authorize WMTX to expand the Skyline RDF. The TCEQ is the only regulatory agency with the authority to approve the Project. Further, the expansion of the Skyline RDF will not increase the currently permitted landfill height, and will not increase the waste acceptance rate over what is currently permitted.

The TCEQ's regulations provide Ms. Foster and other members of the public with an opportunity to participate in a public meeting on the proposed Project. Under 30 TAC Chapter 39 - *Public Notice of Solid Waste Applications*, affected property owners will have opportunities for public involvement. Once the TCEQ finds WMTX's application for the proposed Skyline RDF expansion administratively complete, the TCEQ's rules require that notification of the pending expansion application be sent to landowners within one-quarter mile of the Project and public notice must be published in the local newspaper(s). At that time, governmental officials or members of the public may request a public meeting. This process is repeated once the TCEQ determines the solid waste application is technically complete. Once the TCEQ is ready to issue a draft notice, affected parties have the opportunity to request a Contested Case Hearing on the application for expansion before the State Office of Administrative Hearings. Given that the commenter has not provided substantive information to address or assist in the review and that there will be additional opportunities for public involvement, the WMTX respectfully requests that the USACE find that a hearing is not required at this time and is available at a more appropriate time under the TCEQ's rules.

Halff believes that this submittal, including attachments, has addressed all of the comments received during the public notice. Please feel free to contact me at 214-346-6367 if you have any questions regarding this submittal.

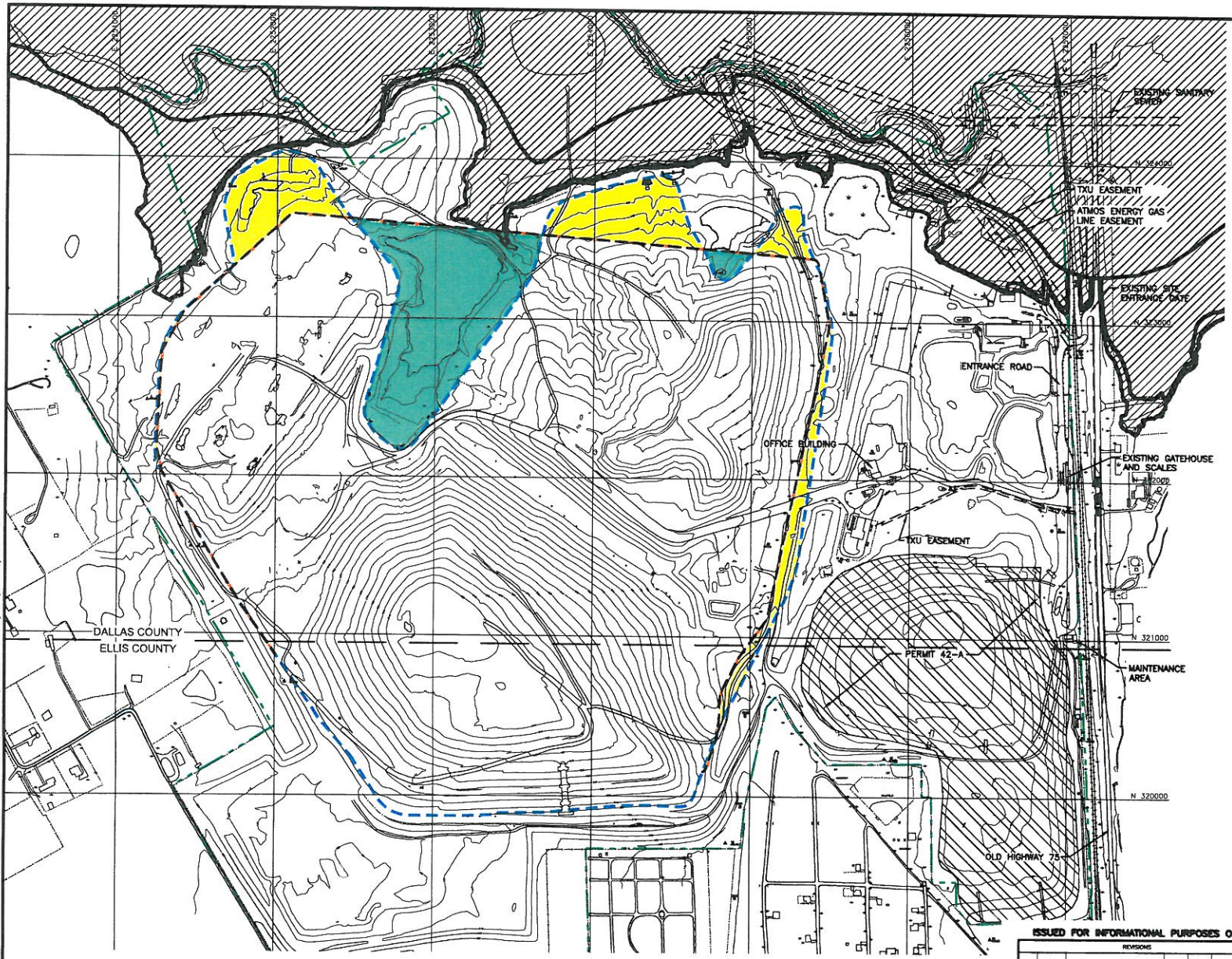
Sincerely,

HALFF ASSOCIATES, INC.

Russell Marusak
Environmental Scientist

Attachments (2)

C: Mr. Walter Hunt, WMTX



0 300 600
SCALE IN FEET

LEGEND

- PERMIT BOUNDARY
- PERMITTED FOOTPRINT
- PROPOSED FOOTPRINT
- 550 EXISTING GROUND CONTOUR
- N 323000 STATE PLANE GRID (NAD 27)
- FOOTPRINT ADDED
- FOOTPRINT REMOVED
- FEMA FLOODPLAIN

NOTES:

1. EXISTING CONTOURS COMPILED BY AEROMETRIC FROM AERIAL PHOTOGRAPHY. FLOWN FEBRUARY 27, 2010. COORDINATE SYSTEM IS BASED ON TEXAS STATE PLANE NAD 27, TEXAS NORTH CENTRAL ZONE, US FEET.

WASTE DISPOSAL FOOTPRINT	
PERMITTED FOOTPRINT	282.2 Ac.
FOOTPRINT REMOVED	(20.1 Ac.)
FOOTPRINT ADDED	22.3 Ac.
PROPOSED FOOTPRINT	284.4 Ac.

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND ARE NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

KENNETH J. WELCH
TEXAS P.E. NO. 60773
DATE: 08/11

GENERAL SITE PLAN

WASTE MANAGEMENT OF TEXAS, INC.
SKYLINE RECYCLING AND DISPOSAL FACILITY
PROPOSED LANDFILL EXPANSION

BIGGS & MATHEWS ENVIRONMENTAL
CONSULTING ENGINEERS
MANSFIELD
DALLAS • WICHITA FALLS
817-563-1144

ISSUED FOR INFORMATIONAL PURPOSES ONLY

REVISIONS						
REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

TBPE FIRM NO. F-256 | TBPG FIRM NO. 50222

DSN. SAB	DATE : 02/11	DRAWING 1
DWN. SRC	SCALE : GRAPHIC	
CHK. KJW	DWG : 1-GenSitePlan.dwg	

J:\101\01\120\Expansion Analysis 2011\1-GenSitePlan.dwg Layout: Layout2 User: scundiff

Attachment A

Agency Comments

From: Donna Mullins
To: Dephouse, Eric SWF
Cc: Sharon Parrish
Subject: Waste Management of Texas, Inc. Public Notice, SWF-2009-00371
Date: Thursday, August 04, 2011 1:04:11 PM

Eric,

Thank you for the opportunity to review the Waste Management, Inc. Public Notice (SWF-2009-00371). We have no comments on the Public Notice. If you have any questions, please call me at 214-665-7576.

Donna

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 5, 2011

Mr. Stephen Brooks, Branch Chief
CESWF-PER-R
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

Attention: Mr. Eric Dephouse

Re: USACE Permit Application Number SWF-2009-00371

Dear Mr. Brooks:

As described in the Joint Public dated July 6, 2011, the applicant Waste Management of Texas, Incorporated proposes to expand their existing landfill. The expansion of the Skyline Recycling and Disposal Facility (RDF) would impact a total of 15.79 acres of waters of the United States, including 9.79 acres of non-forested wetlands, 610 linear feet of ephemeral stream, and 6.0 acres of open water impoundments near the Ten Mile Creek floodplain. The facility is located in the City of Ferris, Dallas and Ellis Counties, Texas.

In addition to the information contained in the Joint Public Notice, the following information is needed for review of the proposed project. Responses to this letter may raise other questions that will need to be addressed before a water quality certification determination can be made.

1. If the aquatic resources cannot be avoided, appropriate and practicable steps should be taken to minimize potential adverse impacts (30 TAC §279.11(c)(2)). Please provide more detailed information on what options were considered to minimize impacts and why they were eliminated. Please have the applicant address the proximity of the expansion area to Ten Mile Creek, and provide detailed information regarding safeguards to be implemented to prevent sedimentation and/or impacts to Ten Mile Creek and surrounding waterways from the landfill expansion activities and usage of this expansion area.

2. Mitigation of impacts is considered for ". . .all unavoidable adverse impacts that remain after all practicable avoidance and minimization has been completed..." (30 TAC §279.11(c)(3)). The applicant states that wetlands to be impacted are of low

quality. Please have the applicant provide an appropriate functional analysis of the wetlands to be impacted or otherwise provide detailed information regarding the quality of the wetlands to ensure proper compensation for these wetlands.

The Texas Commission on Environmental Quality (TCEQ) appreciates the opportunity to comment and looks forward to receiving and evaluating other agency or public comments. Please provide any agency comments, public comments, as well as the applicant's comments, to Mr. Peter Schaefer of the Water Quality Division MC-150, P.O. Box 13087, Austin, Texas 78711-3087. Mr. Schaefer may also be contacted by e-mail at *peter.schaefer@tceq.texas.gov*, or by telephone at (512) 239-4372.

Sincerely,

Charles W. Maguire, Director
Water Quality Division
Texas Commission on Environmental Quality

CWM/PS/gbv

Enclosure

cc: Mr. Walter Hunt, Waste Management of Texas, Inc., 1201 North Central Avenue, Ferris, Texas75125

Tier II 401 Certification Questionnaire and Alternatives Analysis Checklist

Does your project meet Texas' water quality standards?

The Texas Commission on Environmental Quality (TCEQ) must consider this question for all proposed projects seeking a Section 404 dredge and fill permit.

****

One of the requirements for obtaining a Corps of Engineers Section 404 permit is certification from the TCEQ that the permit will comply with State water quality standards. This requirement is authorized by Section 401 of the Federal Clean Water Act, and is therefore referred to as 401 certification.

The attached 401 certification questionnaire must be submitted in order for the TCEQ to determine whether or not a project should be granted 401 certification. Please note that the information requested in this questionnaire is not required in order for a Section 404 application to be considered administratively complete by the Corps of Engineers. However, failure to provide this information (including the Alternatives Analysis Checklist) to the TCEQ (within 30 days of the public notice) may cause your project to be denied 401 certification without prejudice.

What do you need to submit to TCEQ?

1. A completed 401 certification questionnaire

2. A completed Alternatives Analysis Checklist (if your project affects surface water in the State, including wetlands)

3. A map with the location of the project clearly marked (A U.S. Geological Survey (USGS) topographic map strongly recommended)

4. Photographs or a video cassette showing the project area and any associated disposal areas (Map and photos should be numbered to show where the photos were taken and the area covered by each photo)

What is involved in review of Section 401 certifications?

1. Filing an application with the Corps starts both the 404 permit and the 401 certification processes

2. A Joint Public Notice is issued by the Corps and the TCEQ after receipt by the Corps of a completed application to inform the public and other government agencies of the proposed activity

    - A 30 day comment period follows
    - The TCEQ may hold a public hearing to consider the potential adverse impacts of the proposed project on water quality

3. The TCEQ may request additional information from the application, persons submitting comments or requesting a hearing, or other resource agencies

4. A final 401 certification decision will be provided following the end of the comment period.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Tier II
401 Certification Questionnaire

The following questions seek to determine how adverse impacts will be avoided during construction or upon completion of the project. If any of the following questions are not applicable to your project, write NA ("not applicable") and continue.

Please include the applicant's name as it appears on the Corps of Engineers' permit application (and permit number, if known) on all material submitted. The material should be sent to:

Texas Commission on Environmental Quality
Attn: 401 Coordinator (MC-150)
P.O. Box 13087
Austin, TX 78711-3087

I. Impacts to surface water in the State, including wetlands

A. What is the area of surface water in the State, including wetlands, that will be disturbed, altered or destroyed by the proposed activity?

B. Is compensatory mitigation proposed? If yes, submit a copy of the mitigation plan. If no, explain why not.

C. Please complete the attached Alternatives Analysis Checklist.

II. Disposal of waste materials

A. Describe the methods for disposing of materials recovered from the removal or destruction of existing structures.

B. Describe the methods for disposing of sewage generated during construction. If the proposed work establishes a business or a subdivision, describe the method for disposing of sewage after completing the project.

C. For marinas, describe plans for collecting and disposing of sewage from marine sanitation devices. Also, discuss provisions for the disposing of sewage generated from day-to-day activities.

III. Water quality impacts

A. Describe the methods to minimize the short-term and long-term turbidity and suspended solids in the waters being dredged and/or filled. Also, describe the type of sediment (sand, clay, etc.) that will be dredged or used for fill.

B. Describe measures that will be used to stabilize disturbed soil areas, including: dredge material mounds, new levees or berms, building sites, and construction work areas. The description should address both short-term (construction related) and long-term (normal operation or maintenance) measures. Typical measures might include containment structures, drainage modifications, sediment fences, or vegetative cover. Special construction techniques intended to minimize soil or sediment disruption should also be described.

C. Discuss how hydraulically dredged materials will be handled to ensure maximum settling of solids before discharging the decant water. Plans should include a calculation of minimum settling times with supporting data (Reference: Technical Report, DS-7810, Dredge Material Research Program, GUIDELINES FOR DESIGNING, OPERATING, AND MAINTAINING DREDGED MATERIAL CONTAINMENT AREAS). If future maintenance dredging will be required, the disposal site should be designed to accommodate additional dredged materials. If not, please include plans for periodically removing the dried sediments from the disposal area.

D. Describe any methods used to test the sediments for contamination, especially when dredging in an area known or likely to be contaminated, such as downstream of municipal or industrial wastewater discharges.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Tier II
Alternatives Analysis Checklist

I. Alternatives
   A. How could you satisfy your needs in ways which do not affect surface water in the State?
   B. How could the project be re-designed to fit the site without affecting surface water in the State?
   C. How could the project be made smaller and still meet your needs?
   D. What other sites were considered?
      1. What geographical area was searched for alternative sites?
      2. How did you determine whether other non-wetland sites are available for development in the area?
      3. In recent years, have you sold or leased any lands located within the vicinity of the project? If so, why were they unsuitable for the project?
   E. What are the consequences of not building the project?

II. Comparison of alternatives
   A. How do the costs compare for the alternatives considered above?
   B. Are there logistical (location, access, transportation, etc.) reasons that limit the alternatives considered?
   C. Are there technological limitations for the alternatives considered?
   D. Are there other reasons certain alternatives are not feasible?

III. If you have not chosen an alternative which would avoid impacts to surface water in the State, please explain:
   A. Why your alternative was selected, and
   B. What you plan to do to minimize adverse effects on the surface water in the State impacted.

IV. Please provide a comparison of each criteria (from Part II) for each site evaluation in the alternatives analysis.

From:	Beth Bendik
To:	Dephouse, Eric SWF; 401CERTS
Subject:	SWF-2009-00371, the Skyline Recycling and Disposal Facility Expansion
Date:	Wednesday, July 27, 2011 4:27:34 PM
Attachments:	SWF-2009-00371-SkylineRecyclingExpansion-TPWDcomments.pdf

Please find attached TPWD's comments on SWF-2009-00371, the Skyline Recycling and Disposal Facility Expansion. I will mail the hardcopy as well.

Thanks,

Beth Bendik

Conservation Ecologist - Inland Fisheries Division

Texas Parks and Wildlife Dept.

4200 Smith School Rd.

Austin, TX 78744

512-389-8521

beth.bendik@tpwd.state.tx.us

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Fort Worth

Carter P. Smith
Executive Director

July 27, 2011

Mr. Eric Dephouse
Regulatory Branch
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

401 Coordinator
MSC-150
TCEQ
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Application Number SWF-2009-00371
Skyline Recycling and Disposal Facility Expansion, City of Ferris, Dallas and Ellis Counties, TX

TPWD staff has reviewed the public notice for permit application number SWF-2009-00371, dated July 6, 2011, which is a proposed landfill expansion located west of Interstate 45 (IH45), south of Ten Mile Creek, and north of the city of Ferris, Dallas and Ellis Counties, Texas. Construction of the proposed project would adversely impact 15.79 acres (ac) of waters of the U.S., including 9.79 ac of non-forested wetlands, 610 linear feet (0.07 ac) of ephemeral stream, and 6.0 ac of impounded open water near the Ten Mile Creek floodplain. The applicant plans to purchase 18.2 credits from Bunker Sands Mitigation Bank (BSMB), 13.6 for the 11.29 ac of permanent impacts and 4.6 for the 4.57 ac of temporary impacts.

The Final Rule for Compensatory Mitigations for Losses of Aquatic Resources section 33CFR332.3(f)(1) states that appropriate functional or condition assessment methods should be used if they are available to determine how much compensatory mitigation is required. The applicant has not used a functional or conditional assessment method to justify their classification of the wetlands as low quality.

TPWD considers the use of credits from BSMB to compensate for ephemeral stream impacts to be inappropriate because wetland hydrology or vegetation improvements do not provide in-kind compensation for ephemeral stream impacts. If out-of-kind mitigation is approved, an increased ratio should be used.

Stream impacts should be characterized and compensated on a linear foot basis. Acreage is not an adequate representation of the loss of stream functions. If the USACE decides to allow stream mitigation in acres at BSMB despite TPWD objections, the stream plus a 50-foot buffer on each side should be used in calculating the area of impact.

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512.389.4800
www.tpwd.state.tx.us

TPWD staff appreciates the opportunity to provide comments on this proposed project. As proposed, the project includes elements that pose substantial adverse direct, indirect, and cumulative impacts to public aquatic resources. Wetland, stream and open water habitats would be directly impacted. Therefore, the proposed project should not be authorized until appropriate mitigation is fully addressed. Questions can be directed to Beth Bendik in Austin (512-389-8521).

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency on or after September 1, 2009 may be required by state law. For further guidance, please see Texas Parks & Wildlife Code Section 12.0011 at http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm.

Sincerely,

Thomas G. Heger
Watershed Conservation Team Leader

FAX

Date:	8/5/2011
Pages including cover sheet:	2

To:	Eric Dephouse
Phone	
Fax Number	*+1 (817) 886-6493*

From:	Monique Foster
	EduProve
	TX
Phone	*+1 (214) 534-0170*
Fax Number	*(888) 501-0972*

NOTE:	

August 4, 2011

VIA Facsimile # (817)886-6493
Certified Mail#:70093410000091321385

U.S. Army Corps of Engineers
Attn: Eric Dephouse
Regulatory Branch
CESWF-PER-R
P.O. Box 17300
Fort Worth, Texas 76102-0300

RE: Request Public Hearing –SWF-2009-00371

Dear Mr. Dephouse:

I would like to request for your agency to schedule a public hearing considering a public notice for permit no. SWF-2009-00371. As a citizen and property owner of a residence that is within 500 to 800 feet of the Waste Management facility, we have a constitutional right to request a hearing to discuss the propose application and its content. It is our hope that your function and role as a governmental agency is to protect the citizens and their interest. It is my understanding that the proposed permit will allow the requested facility to expand in both height and intake. We will be directly impacted by the decision if this permit is granted; therefore, we are entitled by law to request a public hearing. Please know that, the local government did not post proper notice for citizens who live adjacent to the facility to participate in a public hearing.

Please know that none of the decision makers reside in this area; thus, we can conclude that none of the decision makers will be directly impacted by the proposed permit. Therefore, the undersigned property owners below are requesting for your agency to schedule a public hearing, so that each resident will be afford the opportunity to fairly participate in this process. If we are not afforded the opportunity to participate in a public hearing, then your agency is accepting any and all liability pertaining to this permit application.

Property Owner Name	Address	Signature
Monique Foster and James Foster	1045 Western Hills Dr., Ferris	
Gloria Coumpy	1037 Western Hills Dr. Ferris	
Murriel Coumpy	424 Yellowjacket Dr. Ferris	

Please be advised that the above statements will serve as our formal request. If you have any further questions or concerns, please contact me at (214) 534-0170.

Thank you for your time and attention to this matter.

Respectfully submitted,

Monique Foster

Attachment B

Compensatory Mitigation Plan

SECTION 404 COMPENSATORY MITIGATION PLAN

Conducted for:
Waste Management Skyline Recycling and Disposal Facility
Ferris, Texas
USACE Project #SWF-2009-00371

Prepared for:
Waste Management of Texas, Inc.
1201 North Central Avenue
Ferris, Texas 75125
Attn.: Mr. Walter Hunt

September 2011

AVO 26404/EA03

HALFF ASSOCIATES, INC.

1201 NORTH BOWSER ROAD
RICHARDSON, TX 75081

TEL (214) 346-6200
FAX (214) 739-0095

WWW.HALFF.COM

TABLE OF CONTENTS

TABLES

1.0 INTRODUCTION

This report will serve as a draft mitigation plan for the proposed Skyline Recycling and Disposal Facility ("Skyline RDF") municipal solid waste permit modification expansion project ("Project"). A compensatory mitigation plan designed to offset unavoidable adverse impacts to the aquatic environment created by a proposed project is a requirement for receiving a Section 404 permit from the U.S. Army Corps of Engineers (USACE) for the dredging or filling of waters of the United States, including wetlands.

Halff Associates, Inc. (Halff) has been retained by Waste Management of Texas, Inc. (hereinafter referred to as "Permittee" or "WMTX")) to prepare this document on their behalf. The Permittee is the signatory agent of the permit and will be responsible for implementation of the Project, including construction activities in waters of the United States, including wetlands, associated with the components of the Project. Permittee will also assume the responsibilities of implementing the compensatory mitigation requirements of the Project as outlined in **Section 5.0**.

The Project will be permitted in accordance with 30 Texas Administrative Code (TAC) Chapter 330, the Municipal Solid Waste Regulations. The Permittee must file an application for expansion with the Texas Commission on Environmental Quality (TCEQ), which is the agency responsible for permitting and regulating municipal solid waste facilities. The TCEQ requires an applicant, such as WMTX, to address waters of the United States, including wetlands, with the USACE and coordinating state and federal agencies regarding Section 404 of the Clean Water Act.

The Permittee proposes to modify and expand the existing Skyline RDF operations, which will result in the excavation and subsequent fill of waters of the United Sates. Sections of the Skyline RDF's current permitted waste disposal limits have already been excavated and filled, and other areas are currently accepting waste. The Project would reduce other sections of the Skyline RDF's current waste disposal footprint and expand the footprint to areas that were previously outside the Skyline RDF's currently permitted waste disposal limits. The proposed Project would entail the construction of local drainage swales, similar to what has been constructed on the south and east side of the existing Skyline RDF, at the north base of the waste disposal limit footprint to capture and direct runoff to treatment areas. The proposed

Project also involves a silted-in pond overgrown with emergent vegetation, which is intended to provide stormwater detention that will be dredged to restore treatment capacity.

2.0 BASELINE INFORMATION

2.1 Waters of the United States

Field investigations were conducted in September 2008 to determine the presence of waters of the United States within the Project area. Aquatic resources within the Project area consisted of open waters, emergent wetlands, floating/submergent wetlands, scrub/shrub wetlands, forested wetlands, ephemeral streams, and perennial streams. Aquatic resources identified within the Project area that were deemed waters of the United States are listed in **Table 1**; aquatic resources identified within the project area, that were not deemed waters of the United States, are listed within **Table 2**. These features are mapped on the provided **Sheet 3 of 9** and **Sheet 4 of 9**; "Feature IDs" listed below correspond to these figures.

Table 1 – Summary of Waters of the United States

Feature ID	Classification	Length (feet)	Area (acres)
Ten Mile Creek	Perennial Stream	~8,200	--
OW-2	On-channel, Open Water	--	4.46
EW-1	Adjacent, Emergent Wetland	--	4.77
EW-2	Adjacent, Emergent Wetland	--	0.02
EW-3	Adjacent, Emergent Wetland	--	0.99
FW-1	Adjacent, Forested Wetland	--	0.09
FW-2	Adjacent, Forested Wetland	--	0.29
SS-1	Adjacent, Scrub/shrub Wetland	--	0.07
FSW-1	Adjacent, Floating/Submergent Wetland	--	4.81
ES-1	Ephemeral Stream	1,300	0.11
ES-2	Ephemeral Stream	610	0.08
OW-3	On-channel, Open Water	--	1.54
EW-4	Adjacent, Emergent Wetland	--	0.45
EW-5	Adjacent, Emergent Wetland	--	5.75
FW-3	Adjacent, Forested Wetland	--	0.07
FW-4	Adjacent, Forested Wetland	--	0.05
SS-2	Adjacent, Scrub/shrub Wetland	--	0.59
SS-3	Adjacent, Scrub/shrub Wetland	--	1.29
ES-3	Ephemeral Stream	250	0.01
OW-4	Isolated, Open Water	--	4.73
OW-5	Isolated, Open Water	--	1.76
OW-6	Isolated, Open Water	--	2.84
EW-6	Isolated, Emergent Wetland	--	0.34
EW-7	Isolated, Emergent Wetland	--	0.32
EW-8	Isolated, Emergent Wetland	--	0.47

Table 2 – Summary of Non-waters of the United States

Feature ID	Classification	Area (acres)
OW-4	Isolated, Open Water	4.73
OW-5	Isolated, Open Water	1.76
OW-6	Isolated, Open Water	2.84
EW-6	Isolated, Emergent Wetland	0.34
EW-7	Isolated, Emergent Wetland	0.32
EW-8	Isolated, Emergent Wetland	0.47

The south bank of Ten Mile Creek composes a portion of the Skyline RDF property boundary, as the channel flows in and out of the Skyline RDF property. Other waters of the United States on the Skyline RDF property include unnamed ephemeral tributaries of Ten Mile Creek and a mixture of natural and man-made features. Features classified as non-waters of the United States were classified as such on the basis of their isolated nature and lack of a significant nexus to navigable waters. The sum total of waters of the United States within the Project area included 2,160 linear feet (0.2 acre) of ephemeral stream, 19.24 acres of wetlands, and 6.0 acres of open water.

2.2 Avoidance and Minimization Measures

Several best management practices (BMP) will be implemented to avoid and minimize impacts to waters of the United States during Project construction. The majority of BMPs will be associated with waters of the United States directly impacted by the Project excavation and removal of material. For disturbed areas, soil must be stabilized to prevent the introduction of sediment (i.e. erosion) into adjacent water bodies during wet weather conditions. Permanent Project design components upon completion of grading include erosion control fabrics and temporary rock filter check dams that will be maintained during construction. Silt fences will be employed as needed to control transport of sediment on and off the Skyline RDF site. Temporary measures will be maintained in place until grass cover has been established. The following is a list of additional actions that will be taken to avoid and minimize impacts.

Incremental Grading

Phasing of the construction areas during the Project will serve to remove vegetation only in areas that are actively under construction. Maintaining vegetative cover for as long as possible reduces secondary impacts that may occur from erosion and sedimentation of bare ground.

Incremental grading should also serve to phase the eventual loss of aquatic function associated with the discharge or excavation activities rather than have the loss of aquatic function being absorbed at the Project onset. The compensatory mitigation areas will be planted in conjunction with Project activities and, combined with incremental grading, will serve to reduce the temporal loss of aquatic function that occurs between the loss of waters of the United States and maturation of the mitigation area.

Stormwater Pollution Prevention Plan

Stormwater runoff from construction activities can have a significant impact on water quality. As stormwater flows over a construction site, it may pick up pollutants like sediment, debris, and chemicals and subsequently deposit them in receiving waters, including wetlands. The Project has been designed to prevent the discharge of pollutants into waters of the state of Texas or waters of the United States, as defined by the Texas Water Code and the federal Clean Water Act, respectively. WMTX submitted a notice of intent (NOI) to comply with the TPDES General Permit No. TXR050000 relating to stormwater discharge associated with industrial activity (Multi-Sector General Permit) and received Permit No. TXR05U147. Maintenance of the stormwater prevention plan through the use of various soil stabilization, runoff control procedures, and other BMPs will serve to regulate stormwater runoff from the construction areas thereby minimizing potential indirect impacts to waters of the United States.

Vegetated Buffer

The Permittee has preserved the Ten Mile Creek floodplain since it began landfill practices at its Skyline RDF. The Permittee will continue to maintain a vegetated buffer between the Project and Ten Mile Creek which represents the final receiving water. Any Project runoff during and after construction that is not treated by temporary measures and permanent measures constructed as part of the Project must flow through vegetated buffers prior to entering the mitigation area and Ten Mile Creek.

2.3 Impacts to Waters of the United States

Waters of the United States impacted by the proposed Project include one ephemeral stream and two on-channel impoundments. A littoral fringe emergent wetland is associated with each impoundment. Impacts to waters of the United States would occur primarily by excavation. Approximately 1,200,000 cubic yards of material would be excavated within the proposed

Project expansion areas. This area would then be incorporated into landfill operations, eventually attaining a height to elevation 688.0 feet-msl, providing an additional 20 million cubic yards of waste volume, for a total of 60.2 million cubic yards of waste for the entire remaining Skyline RDF Project. Actual landfilling of the impacted area is anticipated to begin around 2015. None of the non-waters of the United States features identified would be impacted by the Project.

Drainage swales, similar to what has already been constructed on the south, west, and east sides of the existing Skyline RDF waste disposal footprint, will be constructed at the north base of the Project's proposed expanded footprint to capture and direct runoff to treatment areas. For the purposes of the calculating impacts, a 200-foot buffer was created to the north of the Project waste disposal footprint for the proposed drainage. Final drainage plans will be incorporated within the final design.

In addition to these Project related excavation and filling activities, an existing on-channel impoundment wetland would be dredged, restoring the original treatment capacity of the pond. Dredged materials from this action would be disposed of within the Skyline RDF landfill. The upstream drainage swale portions of this wetland would remain untouched and will still provide filtering function.

Table 3 provides a summary of the extents of impacted waters of the United States, and is followed by a brief summary of the impacted water.

Table 3 – Summary of Impacts to Waters of the United States

Feature ID	Length of Impact (feet)	Area of Impact (acres)	Activity Description	Impact Type
Streams				
Ephemeral Stream (ES-2)	610	0.07	Excavation and backfill	Permanent
Emergent Wetlands				
Emergent Wetland (EW-1)	--	4.77	Excavation and backfill	Permanent
Emergent Wetland (EW-4)	--	0.45	Excavation and backfill	Permanent
Emergent Wetland (EW-5)	--	4.57	Excavation and dredging	Temporary
Open Water				
Open Water (OW-2)	--	4.46	Excavation and backfill	Permanent
Open Water (OW-3)	--	1.54	Excavation and backfill	Permanent

Ephemeral Stream (ES-2)

Stream ES-2 is a small headwater tributary in which a discernible ordinary high water mark is no longer evident on its course toward Ten Mile Creek. Drainage from surface runoff eventually collects downstream in forested wetlands adjacent to Ten Mile Creek. It is likely that this stream connected to a previous stream channel to the west that was later impounded (see OW-2 and EW-1). As a headwater stream, the riparian corridor is narrow which is normal. However, a culverted interior access road has fragmented the channel.

Open Water (OW-2)

Review of USGS maps show that OW-2 is an impoundment of the surface tributary system. The open water classification is based on the fact that water is ponded at a sufficient depth and duration so as to preclude the growth of emergent vegetation. Historical aerial photography shows that sedimentation has greatly reduced the original limits of the open water pond, resulting in a dense littoral fringe classified separately as an emergent wetland (EW-1). Impacts to this pond will be associated with the excavation and filling of the Project final landfill footprint.

Emergent Wetland (EW-1)

Wetland EW-1 is an emergent wetland dominated primarily by cattail (*Typha latifolia*) and switchgrass (*Panicum virgatum*). It completely encloses OW-2, with the broadest expanse occurring at the upstream end of the pond. With the exception of scattered black willow (*Salix nigra*) saplings, woody species are all but absent. Impacts to this wetland will be associated with the excavation and filling of the Project final landfill footprint.

Open Water (OW-3)

Review of USGS maps do not suggest that this was an on-channel impoundment, yet field conditions support the presence of a small tributary downstream of the impoundment, that eventually dissipates and eventually overland flows to Ten Mile Creek. The open water classification is based on the fact that water is ponded at a sufficient depth and duration so as to preclude the growth of emergent vegetation. The Project impacts to this pond will be associated with the excavation stormwater detention swales that will parallel the toe of the landfill footprint.

Emergent Wetland (EW-4)

Wetland EW-4 is an emergent wetland dominated primarily by cattail. Similar to EW-1, this littoral fringe wetland encloses OW-3, becoming slightly broader at the upstream end of the pond. Project impacts to this wetland will be associated with the excavation and final grading of stormwater detention swales that will parallel the toe of the landfill footprint.

Emergent Wetland (EW-5)

Wetland EW-5 is an emergent wetland dominated primarily by cattail. Unlike other wetlands impacted by the Project, EW-5 lies within a former detention pond that once would have been classified as an open water feature. Functioning as a catchment basin, sediment has slowly filled the pond to a point where depth of inundation is not sufficient to preclude the growth of emergent vegetation, and hence the classification as an emergent wetland. Project impacts to this wetland will be associated with the excavation and dredging to restore the original catchment capacity of the pond. Although there will be an immediate impact due to the conversion of wetland habitat to open water, there will not be a permanent loss of aquatic resources compared to excavation and fill activities elsewhere on the project. Rather, the pond will be excavated/dredged, and be allowed to progress naturally, eventually re-establishing as an emergent wetland through time. Therefore, impacts to this aquatic feature are temporary.

2.4 Description of the Mitigation Area

To compensate for unavoidable impacts to non-stream waters of the United States, Permittee will purchase credits from the Bunker Sands Mitigation Bank (BSMB) located in the Upper Trinity River Drainage Basin in Kaufman County, Texas. For ephemeral stream impacts, Permittee will purchase credits from the Trinity River Mitigation Bank (TRMB) located in the Upper Trinity River Drainage Basin in Dallas County, Texas. The privately owned and operated BSMB operates in the USACE Fort Worth District and is part of a contiguous riparian corridor along the East Fork of the Trinity River. The BSMB creates an expansive greenway along the East Fork Trinity River floodplain, and is expected to add significant landscape-scale protection to the Trinity River watershed that is increasingly threatened by urbanization. According to the bank website, the BSMB restores and enhances 1,201 acres of bottomland forested wetlands. In contrast, the TRMB consists of multiple tracts along the West Fork Trinity River and Main Stem Trinity River, the majority of which are centrally located in a completely developed urban watershed.

3.0 SITE SELECTION

3.1 Alternative Sites Evaluation

The April 10, 2008 Federal Register, specifically 33 CFR Part 332, established new standards and criteria for all types of compensatory mitigation. The standards generally state that the mitigation should occur within the same watershed as the impact site. The standards also note that the permittee should first consider mitigation bank credits and in-lieu fee program credits over permittee-responsible mitigation. Mitigation bank credits offer large scale consolidation of mitigation under a sponsor entity, and are generally developed with input from professionals experienced in the field of mitigation. From a monitoring perspective, it relieves the permittee and the USACE from multiple post-construction monitoring requirements, and streamlines the permitting process.

Waste Management, Inc. (WM) at the national level has long been involved in environmental projects that preserve and protect wildlife. These habitat and wetland restoration projects have received numerous awards from environmental and government agencies, including international recognition from the Wildlife Habitat Council (WHC). Given this land management philosophy and the scale and availability of resources suitable for restoration, creation, or enhancement on the property, on-site, in-kind mitigation was considered in the Project's preliminary concept stage. A compensatory mitigation plan (dated January 2010) proposing on-site mitigation was submitted in a draft permit application to the USACE.

In September 2010, Halff met via teleconference with the USACE and the Loop 9 Southeast Project Team and Corridor Program Office (Loop 9 Southeast) regarding the status of the Loop 9 Department of Transportation project and its relationship with the Skyline RDF. In the regional metropolitan transportation plan, Loop 9 is proposed as a six-lane new location, tollway facility from I-20 to US 287. Coordination among the Loop 9 Southeast Project Team and the USACE revealed that the proposed Loop 9 corridor alignment would impact existing mitigation areas of the Skyline RDF built in compliance with existing Department of the Army Section 404 permits currently in effect between Permittee and USACE as well as additional mitigation areas proposed by Permittee as part of on-site, in-kind mitigation submitted to the USACE for review in the January 2010 mitigation plan. Although the construction date for the Loop 9 corridor is

still undetermined, the USACE cited the Federal Register standards regarding the preferential use of mitigation banks over permittee-responsible mitigation, and proposed that use of a mitigation bank in this instance would eliminate conflicts with the potential future Loop 9 construction. As a result, Permittee has chosen to purchase credits from BSMB and TRMB as noted in **Section 2.4**.

3.2 Site Compatibility

Located in Ferris, Texas, the proposed Project is well within the primary service area of the BSMB. The proposed Project is also within the service area of the TRMB, which does not distinguish between primary and secondary service areas. As noted in **Table 3**, impacts to waters of the United States are associated with the filling or excavation of on-channel impoundments classified as open water; impacted emergent wetlands are low-quality cattail wetlands associated with the littoral element of the these open water ponds. Open water ponds with cattail-dominated littoral zones are common in the north central Texas region and would be simple to construct and mitigate if acre per acre in-kind mitigation were the goal. However, mitigation banks such as the BSMB and TRMB focus on the local watersheds of larger streams and rivers, utilizing a mixture of enhancement, restoration, and creation of aquatic resources conducive to a vegetated, contiguous riparian corridor. This overall approach (as opposed to an aquatic type per aquatic type) should adequately serve to meet the goals of no net loss of aquatic function for any bank user, and in this instance.

4.0 GOALS AND OBJECTIVES

The goals of this mitigation plan include the avoidance and minimization of impacts to certain aquatic features on-site as outlined in **Section 2.2.1** and compensation via the purchase of credits from the BSMB and TRMB. The acreage of aquatic habitats directly impacted by fill activities would include areas classified as emergent wetland, open water, and ephemeral stream. Aquatic functions, both in-stream and non-stream, that would primarily be impacted include wildlife habitat provided by (1) perennial aquatic habitats associated with impacted open water features and their littoral wetland fringes, and (2) riparian habitats associated with the impacted ephemeral stream. Function types and levels may vary between individual aquatic feature types based on size and proximity to adjacent habitat corridors, but the purchase of

credits from the BSMB and TRMB should serve to comprehensively mitigate for all impacts to waters of the United States.

5.0 MITIGATION WORK PLAN

Mitigation banks within the service area of the Project require a determination of low, medium, or high quality for determining appropriate debit ratios. An earlier draft of the application submitted in January 2010 proposed the use of on-site compensatory mitigation in lieu of using a mitigation bank. The January 2010 mitigation plan identified several functional assessments and their suitability for assessing wetland functions on the Skyline RDF site. Impacted waters of the United States include on-channel impoundments devoid of substantial woody vegetation with a cattail-dominated littoral fringe in close proximity to an active landfill. Sites scored on the low end of the scale indicating a moderate to high level of impairment which is consistent with an assignment of low quality. This quantitative assessment based on observation of Project site characteristics was used to justify low quality debit ratios from a mitigation bank.

Compensatory mitigation through use of the BSMB would be required to mitigate for the Project's loss of aquatic function due to permanent impacts to non-stream waters of the United States as outlined in **Table 3**. The Permittee will purchase 18.1 mitigation bank credits consistent with the BSMB guidance, calculated as follows:

Emergent Wetland EW-1 (4.77 acres) – Low Quality
4.77 acres x 1.2 credits/acre = **5.72 credits**

Emergent Wetland EW-4 (0.45 acres) – Low Quality
0.45 acres x 1.2 credits/acre = **0.54 credits**

Open Water OW-2 (4.46 acres) – Low Quality
4.46 acres x 1.2 credits/acre = **5.35 credits**

Open Water OW-3 (1.54 acres) – Low Quality
1.54 acres x 1.2 credits/acre = **1.85 credits**

Permanent Impacts Total = 13.5 credits

Emergent Wetland EW-5 (4.57 acres) – Low Quality

4.57 acres x 1.0 credits/acre = **4.57 credits**

Temporary Impacts Total = 4.6 credits

The TRMB has credits specifically allocated to mitigate for ephemeral stream impacts which would be used to mitigate for the loss of aquatic function due to permanent impacts to ephemeral streams as outlined in **Table 3**. The Permittee will purchase 3.1 mitigation bank credits consistent with the BSMB guidance, calculated as follows:

Ephemeral Stream ES-2 (610 linear feet)

610 linear feet x 0.005 credits/linear foot = **3.1 credits**

6.0 LONG-TERM MANAGEMENT AND MONITORING

6.1 Implementation Schedule

The Permittee shall retain a qualified mitigation specialist (i.e. biologist, ecologist or other specialist qualified in wetland restoration, enhancement, and creation work), to oversee Project implementation to the extent necessary and to ensure compliance with all mitigation requirements of this USACE permit. Prior to initiation of the mitigation plan, the mitigation specialist will meet with the Permittee and its contractors to verify limits of activities and access areas and to ensure that existing aquatic resources intended to be avoided are not disturbed.

The mitigation specialist will be present at various stages of Project implementation to provide assistance to ensure that the Project is constructed as permitted and that unauthorized activities are not occurring in unauthorized areas. The mitigation specialist shall produce any required documents, acting as an independent third-party contact between the USACE and Permittee, to resolve any compliance or remedial issues should they arise.

6.2 Post-permit Schedule

The Permittee will be responsible for avoiding unauthorized impacts to remaining waters of the United States at Skyline RDF and purchasing mitigation bank credits to compensate for unavoidable impacts to waters of the United States. Permittee shall establish and implement a Project pre-construction program that includes the following actions:

a. designation, in writing, of a responsible party to coordinate with the Regulatory Branch, Fort Worth District, USACE concerning compliance with permit conditions at least 30 days prior to the start of soil-disturbing activities;

b. notification to the USACE of the schedule of activities for each phase of the project at least 30 days prior to the start of soil-disturbing activities;

c. notification to the USACE of the date of the pre-construction meeting held by Permittee to explain to construction contractor(s) the terms and conditions of the permit, provisions of the mitigation plan, and contractor responsibility in ensuring compliance with the permit; and

d. documentation to the USACE that the credit purchase transaction has occurred prior to commencing any ground-disturbing activities within waters of the United States.

COE PERMIT

SWF-2009-00371

JANUARY 2012

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

January 18, 2012

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2009-00371, Skyline Recycling and Disposal Facility Expansion

Mr. Walter Hunt
Waste Management of Texas, Incorporated
1201 North Central Avenue
Ferris, Texas 75125

Dear Mr. Hunt:

You are hereby authorized under Section 404 of the Clean Water Act to discharge dredged and fill material into waters of the United States associated with the expansion of the Skyline Landfill, located in the city of Ferris, Dallas and Ellis Counties, Texas, in accordance with Permit Number SWF-2009-00371. A copy of the permit is enclosed.

To use this permit, the person responsible for the project must ensure that the work is conducted in accordance with the terms and conditions of the permit. We caution you to submit revised drawings to us for approval prior to construction should any changes be found necessary in either the location or plans for the work. Approval of revised plans may be granted if they are found not contrary to the public interest.

This permit should not be considered as an approval of the design features of any structure authorized or an implication that such construction is considered adequate for the purpose intended. It does not authorize any damage to private property, invasion of private rights, or any infringement of federal, state, or local laws or regulations.

We appreciate your interest in our nation's water resources, and your cooperation in complying with our regulatory program. If you have questions in the future, please contact Mr. Eric Dephouse at the address above or telephone (817) 886-1820.

Sincerely,

Jennifer R Walker
FOR Stephen L Brooks
Chief, Regulatory Branch

Enclosure

Copy Furnished (With Enclosure):

Mr. Russell Marusak
Environmental Scientist
Halff Associates, Inc.
1201 North Bowser Road
Richardson, Texas 75081

Mr. Charles Maguire
Director, Office of Water Quality (MC-150)
Water Quality Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Mr. Tom Heger
Resource Protection Division
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

Mr. Thomas J. Cloud, Jr.
Field Supervisor
U.S. Fish and Wildlife Service
2005 NE Green Oaks Blvd., Suite 140
Arlington, Texas 76006

Ms. Sharon Parrish
Chief, Marine and Wetlands Section (6WQ-EM)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, Texas 75202

DEPARTMENT OF THE ARMY PERMIT

Permittee: Waste Management of Texas, Inc.

Permit Number: SWF-2009-00371

Issuing Office: Fort Worth District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below:

Project Description: By Waste Management of Texas, Inc. to discharge dredged and fill material into waters of the United States for the expansion of the Skyline Regional Disposal Facility (RDF).

Project Location: The project is located approximately 0.75-mile north-northwest of Ash Avenue and Ferris Road, in the city of Ferris, Dallas and Ellis Counties, Texas.

Permit Conditions: In accordance with the general conditions and special conditions below, the attached exhibits 1-9 of 9, and Texas Commission on Environmental Quality Water Quality Certification Pages 1-3 of 3.

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2022. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: SEE PAGE 4 (Special Conditions)

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(x) Section 404 of the Clean Water Act of 1972 (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply

with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

7. The USACE based this decision on a preliminary jurisdictional determination (JD) that there are waters of the United States within the project site. It is incumbent upon the applicant to remain informed of changes in the Department of the Army regulations.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE – Waste Management of Texas, Inc.) 01/11/12 (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(FOR THE) 18 Jan 2012 (DATE)
DISTRICT ENGINEER
Richard J. Muraski, Jr.
Colonel, Corps of Engineers

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

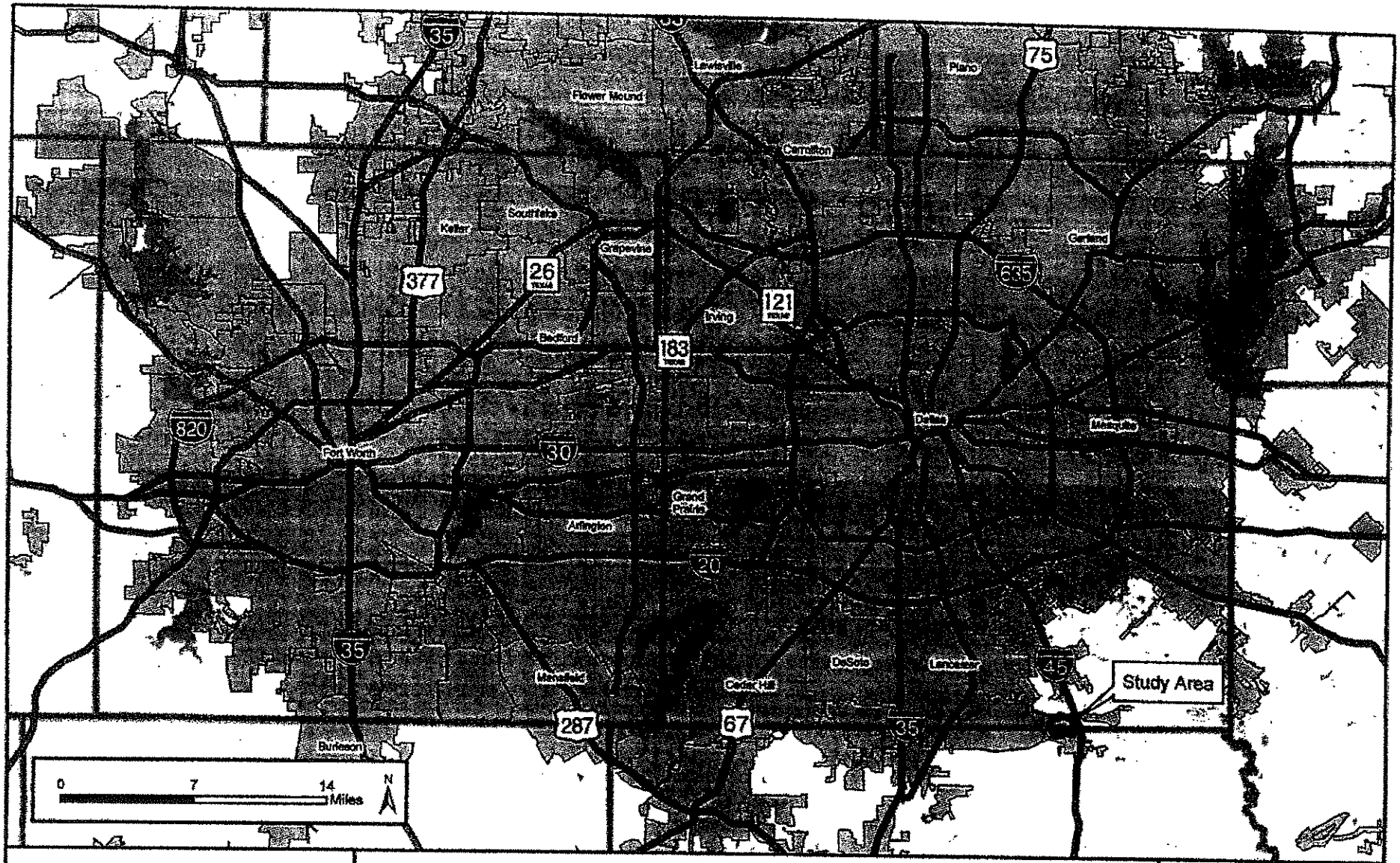
(TRANSFEREE) (DATE)

Special Conditions

Permit Number SWF-2009-371

1. The permittee shall debit 3.1 credits from the Trinity River Mitigation Bank in compliance with the provisions of the "Mitigation Banking Instrument Agreement, Trinity River Mitigation Bank, Ltd., Tarrant County, Texas, Permit Application No.: 199800370," dated February 2001, revised August 2002. This debit shall compensate off-site for unavoidable adverse project impacts that would not be compensated for by on-site mitigation. The permittee shall complete the mitigation bank transaction and provide documentation to the USACE that the transaction has occurred prior to commencing any ground-disturbing activity within waters of the United States.

2. The permittee shall debit 18.1 credits from the Bunker Sands Mitigation Bank in compliance with the provisions of the "Mitigation Banking Instrument, Bunker Sands Mitigation Bank, Kaufman County, Texas," dated April 30, 2008. This debit shall compensate off-site for unavoidable adverse project impacts that would not be compensated for by on-site mitigation. The permittee shall complete the mitigation bank transaction and provide documentation to the USACE that the transaction has occurred prior to commencing any ground-disturbing activity within waters of the United States.



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WASTE MANAGEMENT

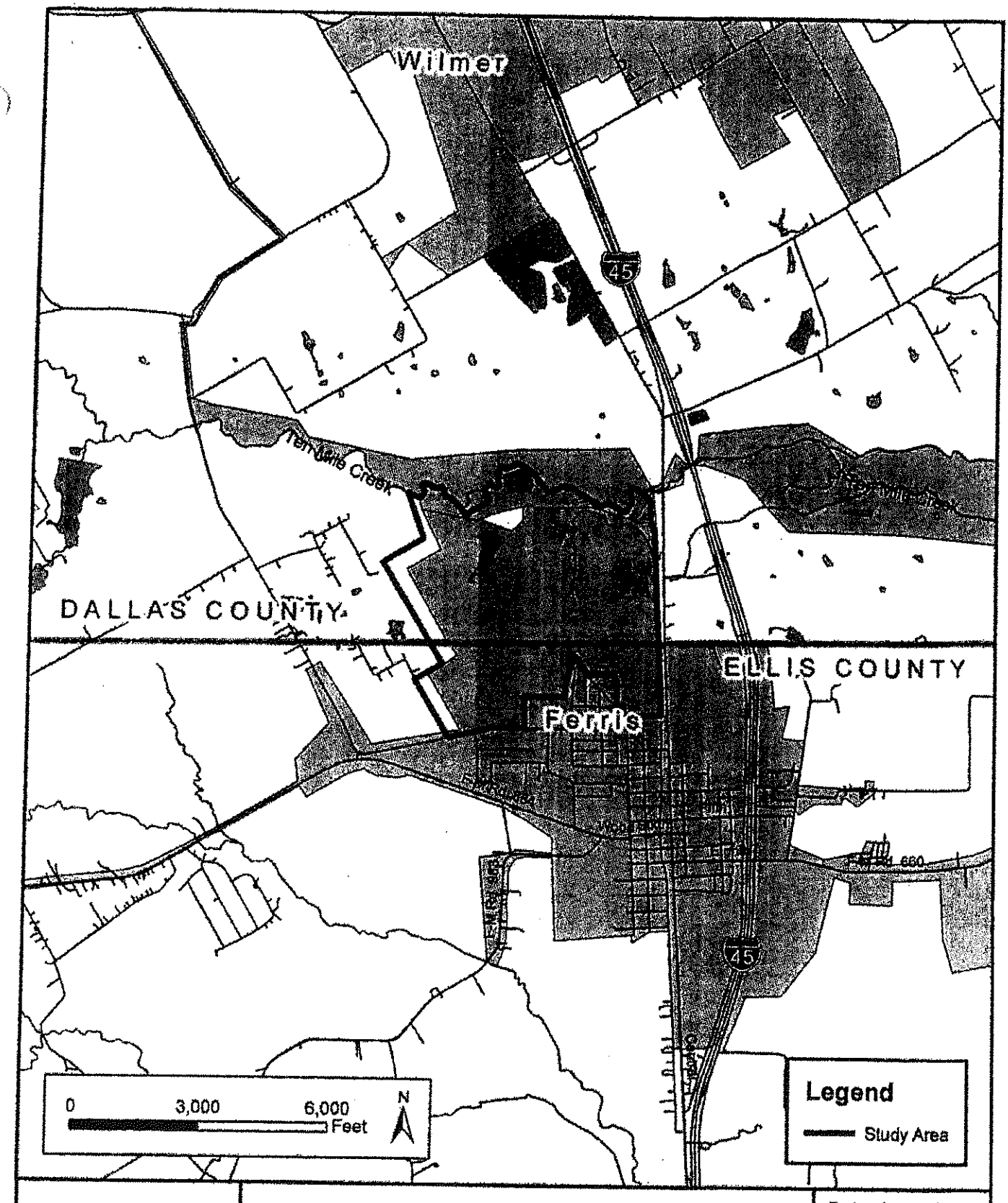
WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371

Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROJECT VICINITY	
Sheet 1 of 9	

IID-121



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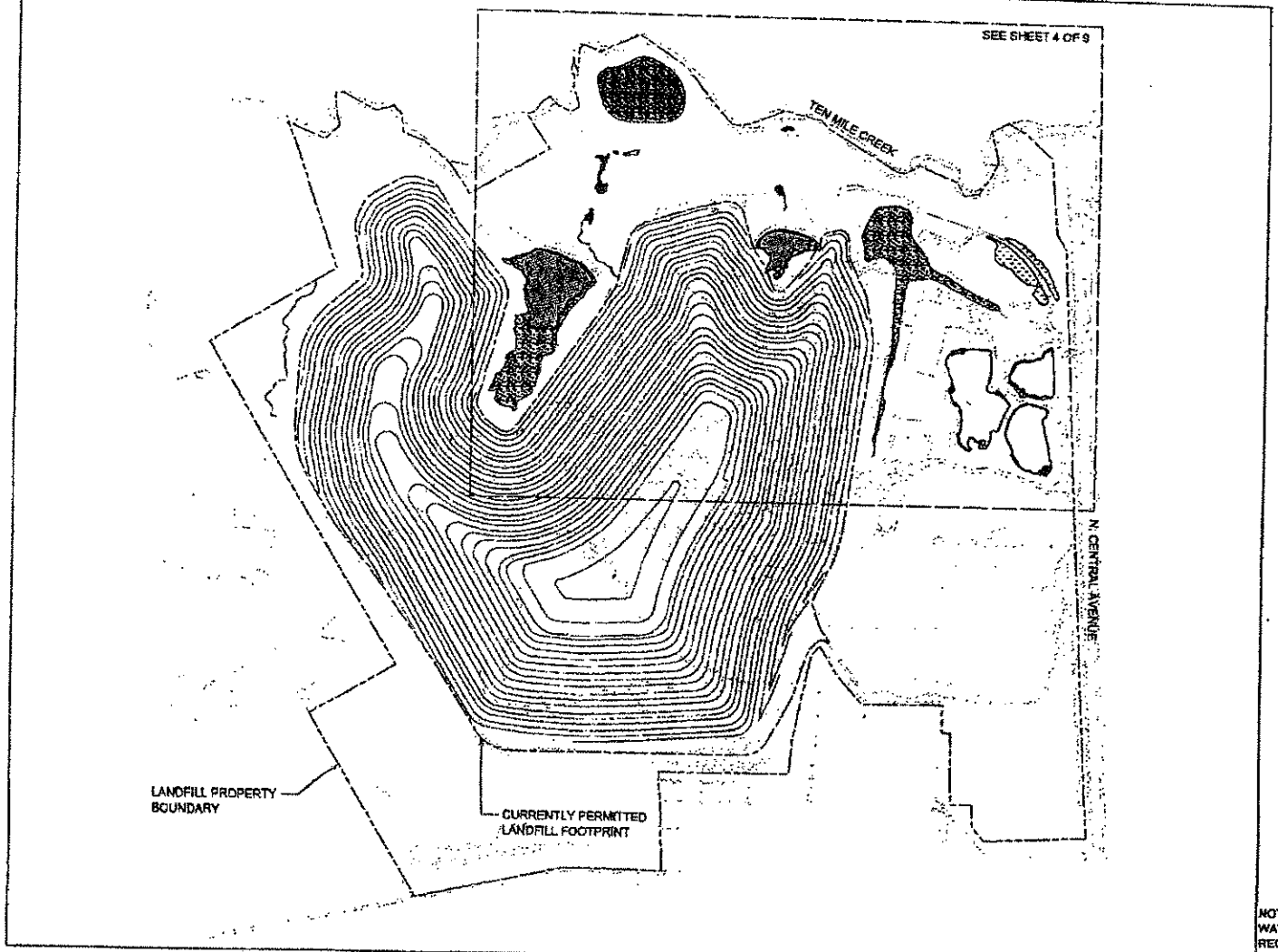
WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF
Individual Permit Application #2009000371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROJECT LOCATION	
Sheet 2 of 9	



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SCALE: 1"=1200'

LEGEND:

- CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA
- CURRENTLY PERMITTED WASTE DISPOSAL FOOTPRINT

NOTE: PLEASE SEE "JURISDICTIONAL DETERMINATION OF WATERS OF THE UNITED STATES" FOR WASTE MANAGEMENT RECYCLING AND DISPOSAL FACILITY, FERRIS TEXAS, FOR DETAILED PRESENTATION OF WATERS OF THE UNITED STATES.

HALFF

WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
CURRENT PROJECT	
Sheet 3 of 9	

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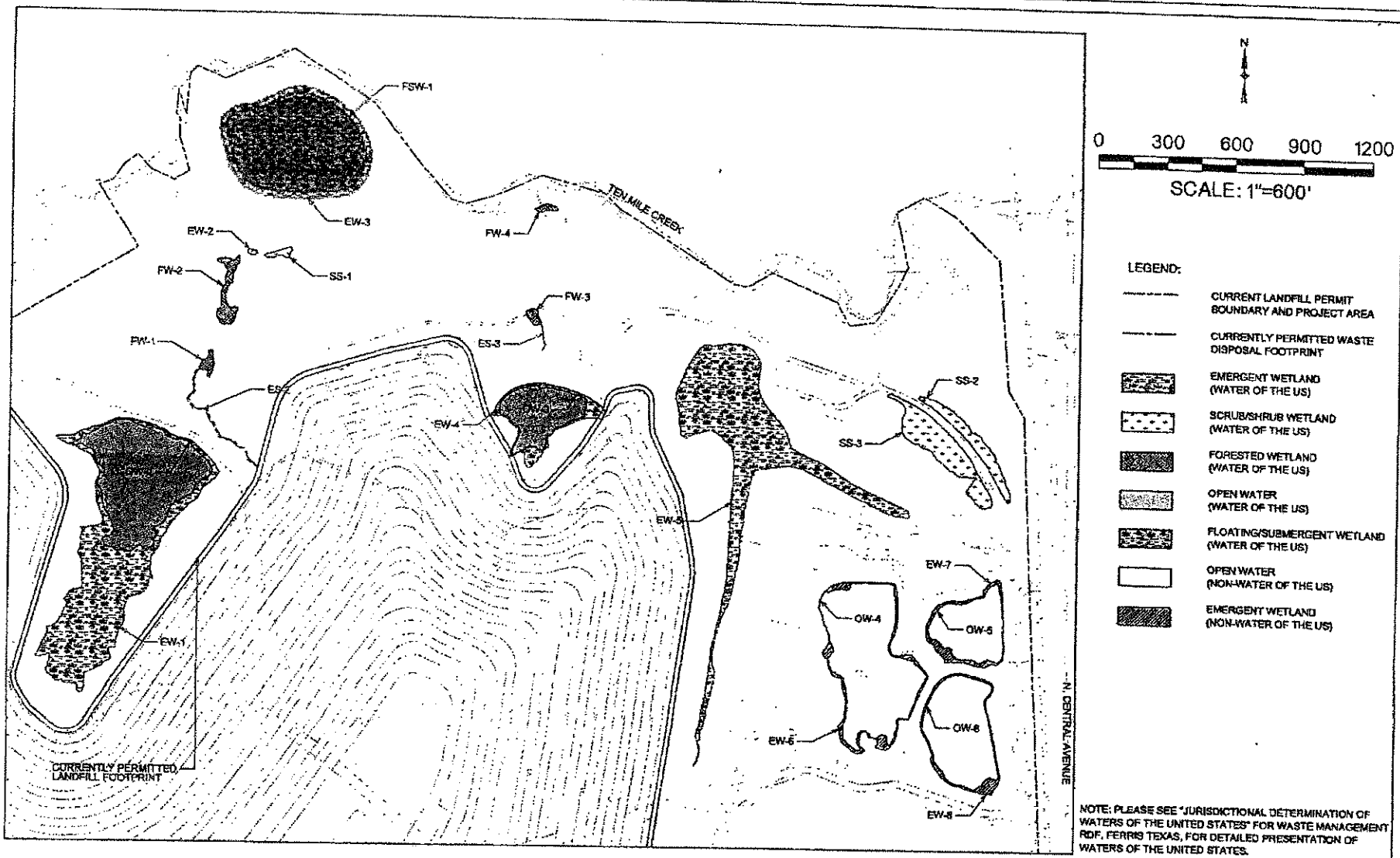

NOTE: PLEASE SEE "JURISDICTIONAL DETERMINATION OF WATERS OF THE UNITED STATES" FOR WASTE MANAGEMENT RDF, FERRIS TEXAS, FOR DETAILED PRESENTATION OF WATERS OF THE UNITED STATES.

HALFF

WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
WATERS OF UNITED STATES MAP	
Sheet 4 of 9	

IID-124

SWF-2009-00371

EXHIBIT 4 of 9

December 21, 2011

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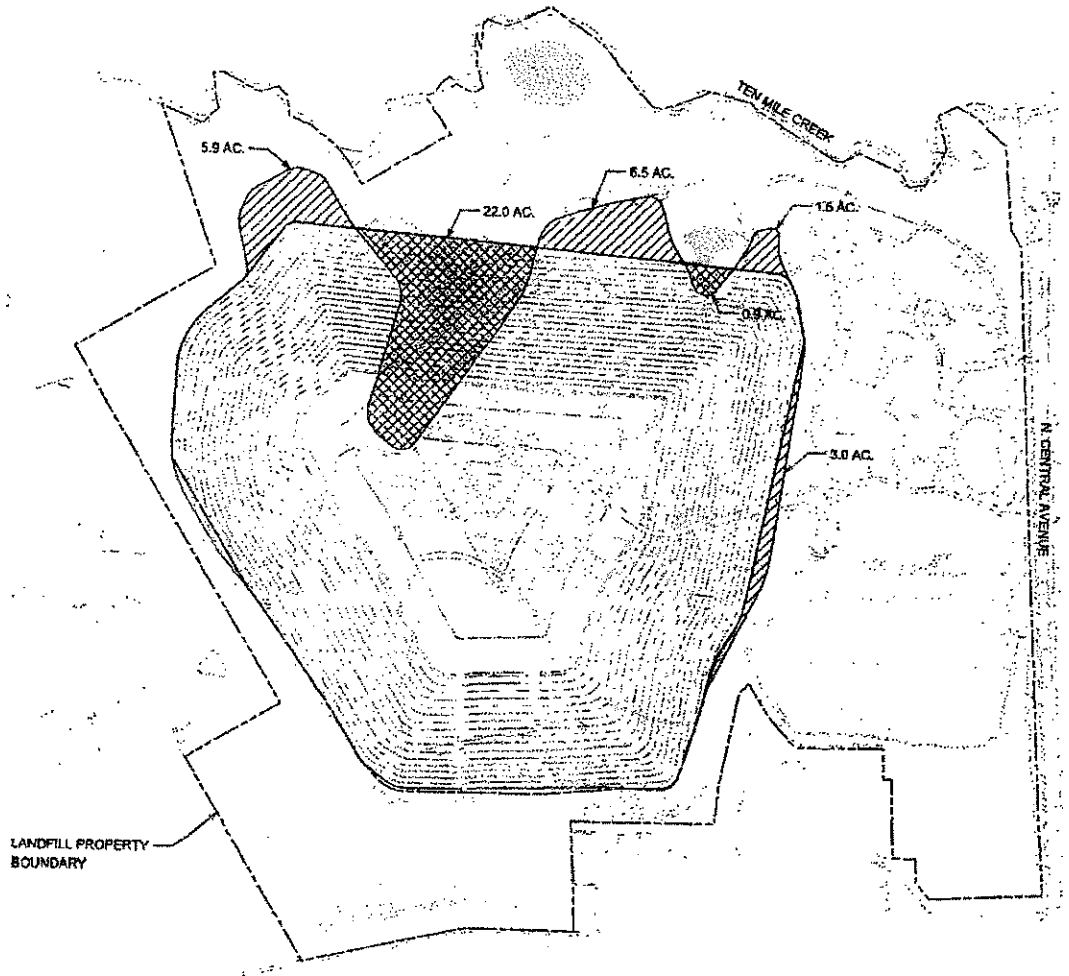

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LEGEND:

- CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA
- CURRENTLY PERMITTED WASTE DISPOSAL FOOTPRINT
- PROPOSED WASTE DISPOSAL LIMIT REMOVAL (16.9 ACRES)
- PROPOSED WASTE DISPOSAL LIMIT ADDITION (22.9 ACRES)

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WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
LIMITS OF WASTE DISPOSAL COMPARISON	
Sheet 5 of 9	

IID-125

SWF-2009-00371

EXHIBIT 5 of 9

December 21, 2011

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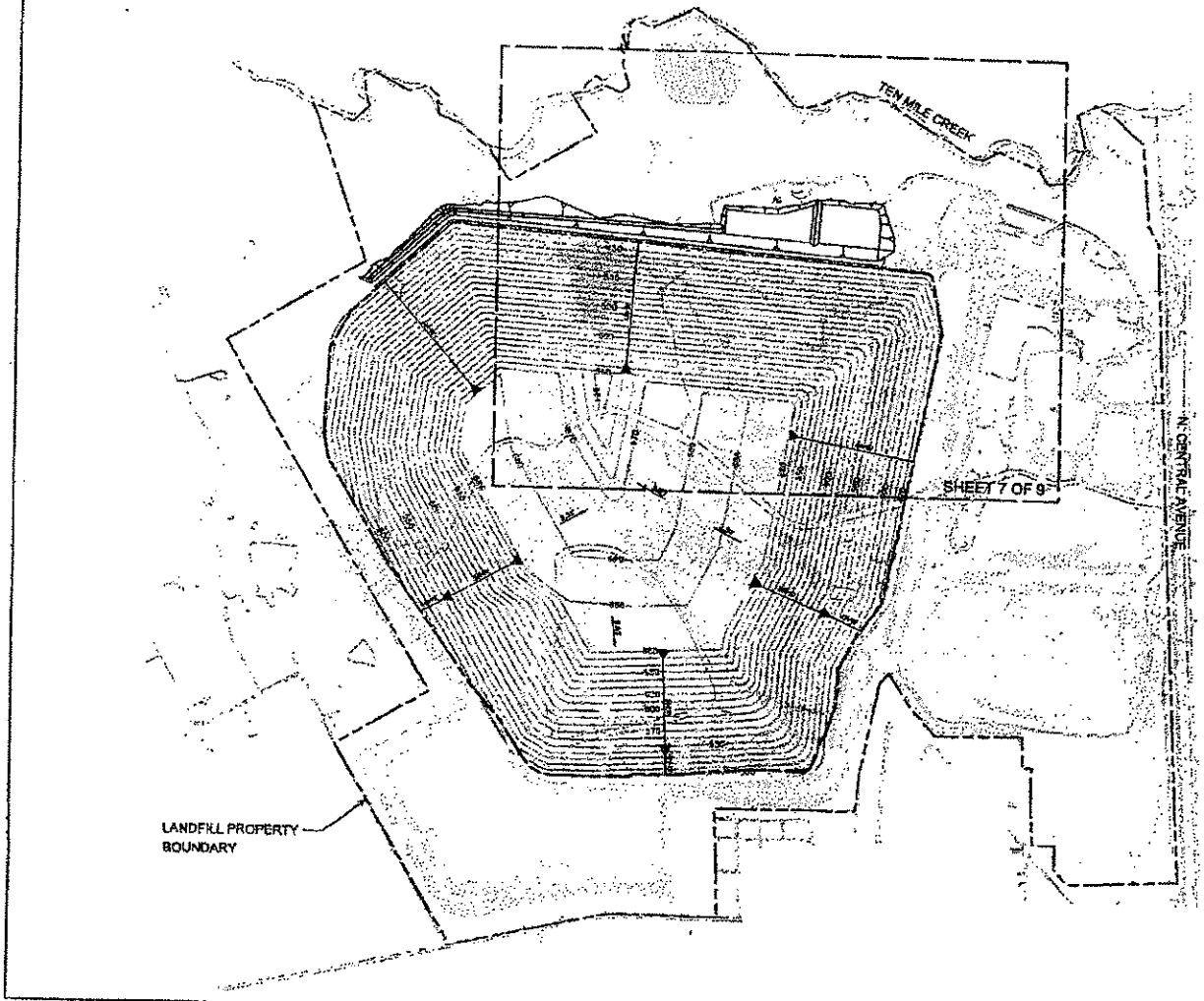

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LEGEND:

CURRENT LANDFILL PERMIT BOUNDARY AND PROJECT AREA

PROPOSED PERMITTED WASTE DISPOSAL FOOTPRINT

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WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
PROPOSED LIMITS OF WASTE DISPOSAL	
Sheet 6 of 9	

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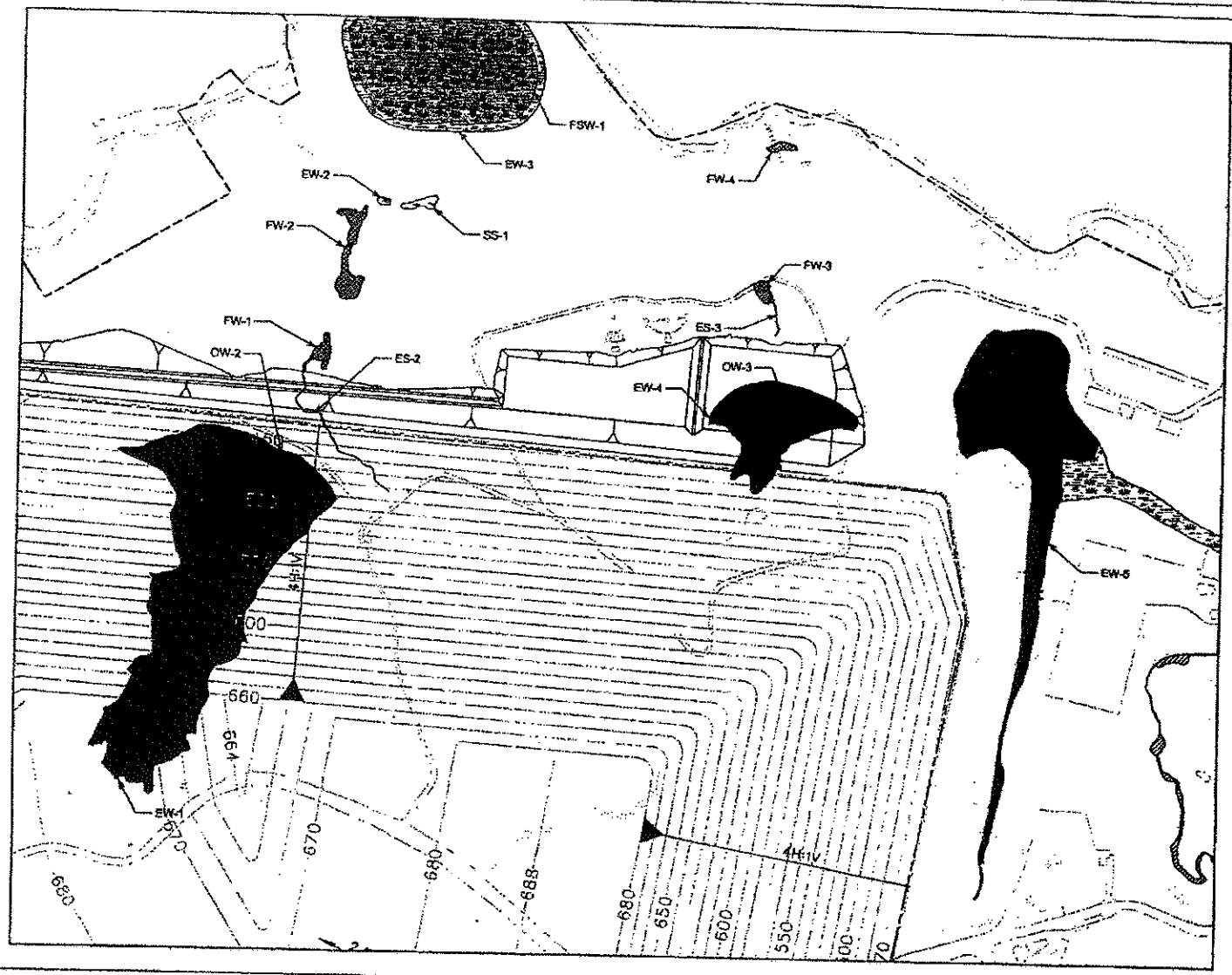

FEATURE ID	IMPACTS (ACRES)	IMPACT TYPE
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EW-4	0.45	PERMANENT
OW-2	4.46	PERMANENT
OW-3	1.54	PERMANENT
ES-2	0.07	PERMANENT
EW-5	4.57	TEMPORARY

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WASTE MANAGEMENT

WASTE MANAGEMENT SKYLINE RDF

Individual Permit Application #200900371
Ferris, Texas

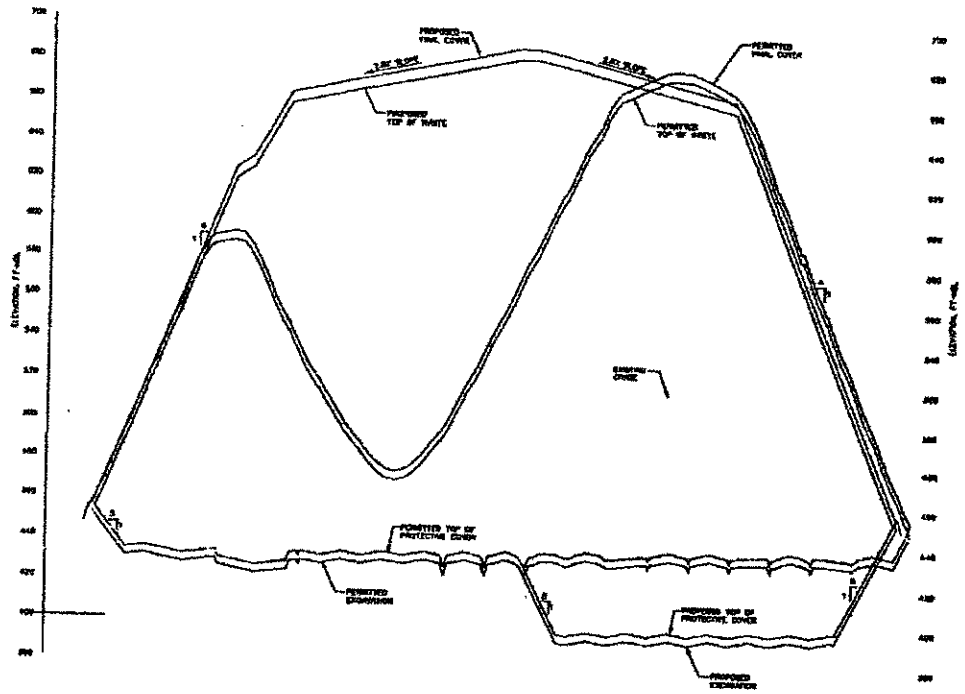
Project No.: 26404
Issued: MARCH 2011
IMPACTS TO WATERS OF THE U.S.
Sheet 7 of 9

IID-127

SWF-2009-00371

EXHIBIT 7 of 9

December 21, 2011



LANDFILL CROSS SECTION A
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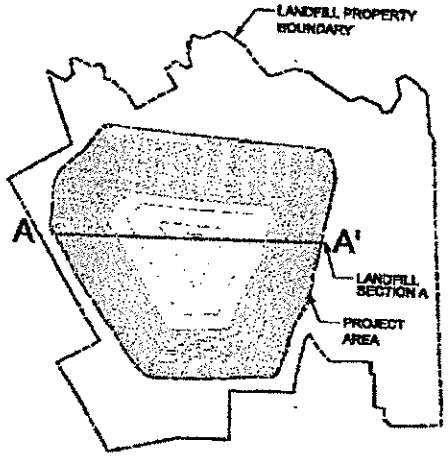


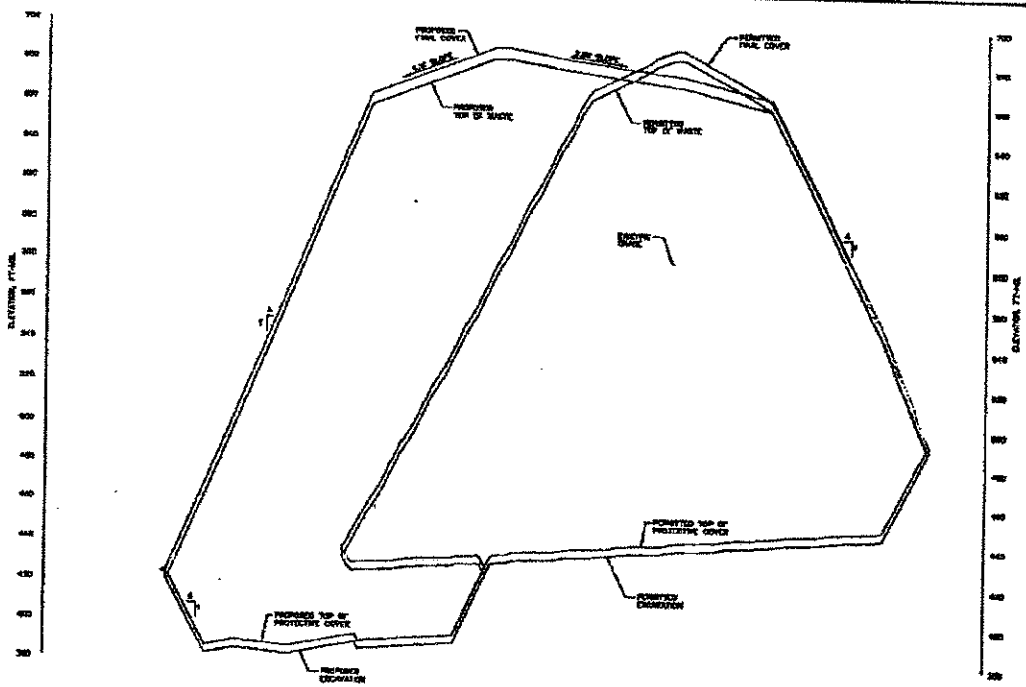
NOTE: LANDFILL CROSS-SECTIONS PROVIDED BY SIGGS & MATTEWS ENVIRONMENTAL.

HALFF

WASTE MANAGEMENT SKYLINE RDF
Individual Permit Application #2009003?1
Ferris, Texas

Project No.: 26404
Issued: MARCH 2011
TYPICAL CROSS-SECTION
Sheet 8 of 9

IID-128



LANDFILL CROSS SECTION B
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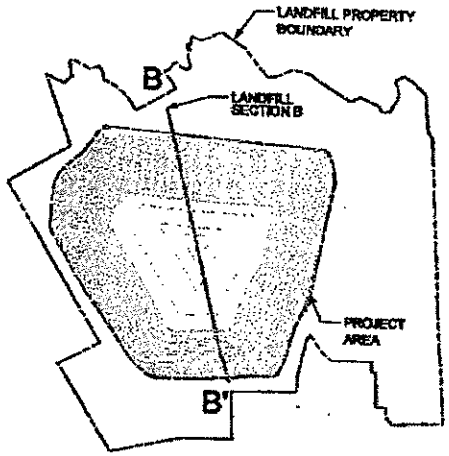

NOTE: LANDFILL CROSS-SECTIONS PROVIDED BY BIGGS & MATTHEWS ENVIRONMENTAL.

HALFF

WASTE MANAGEMENT SKYLINE RDF
Individual Permit Application #2200900371
Ferris, Texas

Project No.:	26404
Issued:	MARCH 2011
TYPICAL CROSS-SECTION	
Sheet 9 of 9	

WORK DESCRIPTION: As described in the public notice dated July 6, 2011, and the November 23, 2011, Environmental Assessment and Statement of Findings.

SPECIAL CONDITIONS: None

GENERAL: This certification, issued pursuant to the requirements of Title 30, Texas Administrative Code, Chapter 279, is restricted to the work described in the November 23, 2011, Environmental Assessment and Statement of Findings and shall be concurrent with the Corps of Engineers (COE) permit. This certification may be extended to any minor revision of the COE permit when such change(s) would not result in an impact on water quality. The Texas Commission on Environmental Quality (TCEQ) reserves the right to require full joint public notice on a request for minor revision. The applicant is hereby placed on notice that any activity conducted pursuant to the COE permit which results in a violation of the state's surface water quality standards may result in an enforcement proceeding being initiated by the TCEQ or a successor agency.

STANDARD PROVISIONS: These following provisions attach to any permit issued by the COE and shall be followed by the permittee or any employee, agent, contractor, or subcontractor of the permittee during any phase of work authorized by a COE permit.

1. The water quality of wetlands shall be maintained in accordance with all applicable provisions of the Texas Surface Water Quality Standards including the General, Narrative, and Numerical Criteria.

2. The applicant shall not engage in any activity which will cause surface waters to be toxic to man, aquatic life, or terrestrial life.

3. Permittee shall employ measures to control spills of fuels, lubricants, or any other materials to prevent them from entering a watercourse. All spills shall be promptly reported to the TCEQ by calling the State of Texas Environmental Hotline at 1-800-832-8224.

4. Sanitary wastes shall be retained for disposal in some legal manner. Marinas and similar operations which harbor boats equipped with marine sanitation devices shall provide state/federal permitted treatment facilities or pump out facilities for ultimate transfer to a permitted treatment facility. Additionally, marinas shall display signs in appropriate locations advising boat owners that the discharge of sewage from a marine sanitation device to waters in the state is a violation of state and federal law.

5. Materials resulting from the destruction of existing structures shall be removed from the water or areas adjacent to the water and disposed of in some legal manner.

6. A discharge shall not cause substantial and persistent changes from ambient conditions of turbidity or color. The use of silt screens or other appropriate methods is encouraged to confine suspended particulates.

7. The placement of any material in a watercourse or wetlands shall be avoided and placed there only with the approval of the Corps when no other reasonable alternative is available. If work within a wetland is unavoidable, gouging or rutting of the substrate is prohibited. Heavy equipment shall be placed on mats to protect the substrate from gouging and rutting if necessary.

8. Dredged Material Placement: Dredged sediments shall be placed in such a manner as to prevent any sediment runoff onto any adjacent property not owned by the applicant. Liquid runoff from the disposal area shall be retained on-site or shall be filtered and returned to the watercourse from which the dredged materials were removed. Except for material placement authorized by this permit, sediments from the project shall be placed in such a manner as to prevent any sediment runoff into waters in the state, including wetlands.

9. If contaminated spoil that was not anticipated or provided for in the permit application is encountered during dredging, dredging operations shall be immediately terminated and the TCEQ shall be contacted by calling the State of Texas Environmental Hotline at 1-800-832-8224. Dredging activities shall not be resumed until authorized by the Commission.

10. Contaminated water, soil, or any other material shall not be allowed to enter a watercourse. Noncontaminated storm water from impervious surfaces shall be controlled to prevent the washing of debris into the waterway.

11. Storm water runoff from construction activities that result in a disturbance of one or more acres, or are a part of a common plan of development that will result in the disturbance of one or more acres, must be controlled and authorized under Texas Pollutant Discharge Elimination System (TPDES) general permit TXR150000. A copy of the general permit, application (notice of intent), and additional information is available at: http://www.tceq.state.tx.us/nav/permits/wq_construction.html or by contacting the TCEQ Storm Water & Pretreatment Team at (512) 239-4671.

12. Upon completion of earthwork operations, all temporary fills shall be removed from the watercourse/wetland, and areas disturbed during construction shall be seeded, riprapped, or given some other type of protection to minimize subsequent soil erosion. Any fill material shall be clean and of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters.

13. Disturbance to vegetation will be limited to only what is absolutely necessary. After construction, all disturbed areas will be revegetated to approximate the pre-disturbance native plant assemblage.

14. Where the control of weeds, insects, and other undesirable species is deemed necessary by the permittee, control methods which are nontoxic to aquatic life or human health shall be employed when the activity is located in or in close proximity to water, including wetlands.

15. Concentrations of taste and odor producing substances shall not interfere with the production of potable water by reasonable water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the water, or otherwise interfere with reasonable use of the water in the state.

16. Surface water shall be essentially free of floating debris and suspended solids that are conducive to producing adverse responses in aquatic organisms, putrescible sludge deposits, or sediment layers which adversely affect benthic biota or any lawful uses.

17. Surface waters shall be essentially free of settleable solids conducive to changes in flow characteristics of stream channels or the untimely filling of reservoirs, lakes, and bays.

18. The work of the applicant shall be conducted such that surface waters are maintained in an aesthetically attractive condition and foaming or frothing of a persistent nature is avoided. Surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.

19. This certification shall not be deemed as fulfilling the applicant's/permittee's responsibility to obtain additional authorization/approval from other local, state, or federal regulatory agencies having special/specific authority to preserve and/or protect resources within the area where the work will occur.