STATE OF FLORIDA

DEPARTMENT

OF

ENVIRONMENTAL PROTECTION

Conditions of Certification

Orlando Utilities Commission

Curtis H. Stanton Energy Center

PA 81-14N

September 1, 2026

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SECTION A: GENERAL CONDITIONS

I. SCOPE

A. Pursuant to the Florida Electrical Power Plant Siting Act (PPSA), Sections 403.501-518, Florida Statutes (F.S.), and Chapter 62-17, Florida Administrative Code (F.A.C).; this certification is issued to Orlando Utilities Commission, Florida Municipal Power Agency, Kissimmee Utility Authority and Southern-Florida, LLC (referred to hereinafter collectively as OUC) as joint owners, operators and licensees of the Curtis H. Stanton Energy Center (CHSEC). Subject to the requirements contained in these Conditions of Certification (Conditions), OUC, as the Licensee of this certification, will operate a 945 MW (nominal) facility consisting of two coal-fired units known as Units No. 1 and No. 2, and ancillary equipment; a 633 MW gas-fired combined cycle unit known as Combined Cycle Unit A, a 300-MW dual-fueled (natural gas/No.2 fuel oil) unit known as Combined Cycle Unit B., and associated facilities as described in the site certification application (SCA), the final order of certification, the conditions in this certification, post-certification submittals, post-certification amendments, or modifications. The CHSEC is located on a 3,286-acre property within Sections 12, 13, 14, 23, and 24 of Township 23 South, Range 31 East, and Sections 7, 18, and 19 of Township 23 South, Range 32 East in Orange County, Florida. The UTM coordinates are: Zone 17, 483.61 km East; 3151.1 km North. The latitude and longitude are: 28°29’11” North and 81°10’03” West, respectively. The Department does not intend, solely by the incorporation of the General Conditions, to require retrofitting of the existing certified facilities.

B. The Certified Facility includes but is not limited to the generating units and the following major associated facilities;

<u>Onsite Facilities</u>

Coal Storage and Handling Facility
Fly Ash Storage and Handling Facility
Limestone Storage and Handling Facility
Bottom Ash Storage and Handling Facility
Cooling Water Makeup Pond
Combustion Waste Landfill or Storage Area
Combustion Waste Processing Facility
Lined Ponds System
Brine Concentrator Plant
Onsite Transmission Lines and Substations
Stormwater Management Ponds
Innovation Way (2.3-mile road link within CHSEC)
50.4 Acre OUC Stanton Solar Energy Project (2011)

<u>Offsite Facilities</u>

Transmission Lines

- CHSEC to Mud Lake (within Railroad ROW)
- CHSEC to Pershing
- CHSEC to Duke Energy Curry Ford Substation

Railroad Corridor
Natural Gas Pipeline (within Railroad ROW)

Cooling Water Makeup Pipeline
Alternate Plant Access Road
Magnolia Ranch North Substation
Landfill Gas Pipeline Blower/Flare Station
Landfill Gas Pipeline

C. These Conditions, unless specifically amended or modified, are binding upon the Licensee and shall apply to the construction, operation and maintenance of the certified facilities. Should a conflict occur between the design criteria of the certified facilities and the Conditions, the conditions shall prevail unless amended or modified. Should a conflict occur between any of these Conditions, the more specific condition shall govern.

D. Within 60 days after completion of construction of the electrical power plant as defined by 403.503(14), F.S., but excluding off-site linear and non-linear associated facilities, the Licensee shall provide to the Department in pdf format: a survey map signed by a professional land surveyor, or acceptable equivalent documentation such as an official legal description, delineating the boundaries of the site as defined by Section 403.503(28), F.S., and an aerial photograph delineating the boundaries of the site. The survey map and aerial photograph shall be identified as the Site Delineation and attached hereto as part of Attachment A (Maps).

The Licensee shall notify the Department of any change to the site boundary depicted in the Site Delineation in Attachment A (Maps). The notification shall be accompanied by an updated land survey map (or legal description) and aerial photograph delineating the new boundaries of the site for review by the Department. Absent the above description/delineation of the site, the Department will consider the perimeter fence line of the property on which the electrical power plant's generating facility and on-site support facilities are located to be the boundaries of the site.

E. If both certified and uncertified facilities lie within the boundaries of the site, the Licensee shall also comply with the requirements of this paragraph. Within 60 days after completion of construction of the plant and on-site associated facilities, but excluding any off-site linear and non-linear associated facilities, the Licensee shall provide to the Department an acceptable documentation (e.g., an aerial photograph) in pdf format delineating the boundaries of the certified areas within the site. The boundaries of the certified areas within the site shall include both the certified electrical power plant's generating facilities as defined in Section 403.503(28), F.S., and its on-site certified associated facilities (including on-site linear facilities) as defined by Section 403.503(7), F.S. The document is known as the Delineation of the Certified Area of the Site and attached hereto as part of Attachment A (Maps).

F. Within 120 days after completion of construction of any off-site associated non-linear facilities, the Licensee shall provide the following documents in pdf format to the Department: (i) a survey map signed and sealed by a professional land surveyor, or an acceptable equivalent documentation such as an official legal description, delineating the boundaries of the certified areas for each off-site non-linear certified facility; and (ii) an aerial photograph delineating the boundaries of the certified area for each off-site non-linear certified facility. The survey maps and aerial photographs are known as Delineation of the Certified Areas of the Offsite Non-linear Facilities and are attached hereto as part of Attachment A (Maps).

G. Within 180 days after completion of construction of any new off-site associated linear facilities, as defined by Section 403.503(7), F.S., the Licensee shall provide; aerial

photographs or maps at a scale of at least 1:400, or an acceptable equivalent documentation (e.g., an official legal description or survey maps signed and sealed by a professional land surveyor), delineating the boundaries of the certified area for the linear facilities, following acquisition of all necessary property interests and the corridor narrowing as described in Section 403.503(11), F.S., which is known as the Delineation of Certified Off-Site Linear Facilities and attached as part of Attachment A (Maps).

H. Following any post-certification approvals that require a change to the boundaries of the certified area(s) depicted in the Delineation of Certified Off-Site Linear Facilities in Attachment A (Maps), the Licensee shall submit an updated aerial photograph or map, a survey map or a legal description.

[Sections 403.511,403.5113, F.S.; subsections 62-4.160(1-2) and 62-17.205(2), F.A.C.]

II. APPLICABLE DEPARTMENT RULES

The construction, operation, and maintenance of the certified facility shall be in accordance with all applicable non-procedural provisions of the Florida Statutes and Florida Administrative Code, including, but not limited to, the applicable non-procedural portions of the following regulations, except to the extent a variance, exception, exemption or other relief is granted in the final order of certification or in a subsequent modification to the Conditions, under any federal permit, or as otherwise provided under Chapter 403:

Florida Administrative Codes:
18-2 (Management of Uplands Vested in the Board of Trustees)
18-14 (Administrative Fines for Damaging State Lands or Products Thereof)
18-20 (Florida Aquatic Preserves)
18-21 (Sovereign Submerged Lands Management)
62-4 (Permits)
62-17 (Electrical Power Plant Siting)
62-25 (Regulation of Stormwater Discharge)
62-40 (Water Resource Implementation Rule)
62-150 (Hazardous Substance Release Notification)
62-160 (Quality Assurance)
62-204 (Air Pollution Control-General Provisions)
62-210 (Stationary Sources-General Requirements)
62-212 (Stationary Sources-Preconstruction Review)
62-213 (Operation Permits for Major Sources of Air Pollution)
62-214 (Requirements for Sources Subject to the Federal Acid Rain Program)
62-256 (Open Burning)
62-296 (Stationary Sources-Emission Standards)
62-297 (Stationary Sources-Emission Monitoring)
62-302 (Surface Water Quality Standards)
62-304 (Total Maximum Daily Loads)
62-312 (Dredge and Fill Activities)
62-330 (Environmental Resource Permitting)
62-340 (Delineation of the Landward Extent of Wetlands and Surface Waters)
62-341 (Noticed General Environmental Resource Permits)
62-343 (Environmental Resource Permit Procedures)

62-345 (Uniform Mitigation Assessment Method)
62-520 (Groundwater Classes, Standards and Exemptions)
62-522 (Ground Water Permitting and Monitoring Requirements
62-528 (Underground Injection Control)
62-531 (Water Well Contractor Licensing Requirements)
62-532 (Water Well Permitting and Construction Requirements)
62-550 (Drinking Water Standards, Monitoring and Reporting)
62-555 (Permitting, Construction, Operation, and Maintenance of Public Water Systems)
62-560 (Requirements for Public Water Systems That Are Out of Compliance)
62-600 (Domestic Wastewater Facilities)
62-601 (Domestic Wastewater Treatment Plant Monitoring)
62-604 (Collection Systems and Transmission Facilities)
62-610 (Reuse of Reclaimed Water and Land Application)
62-620 (Wastewater Facility and Activities Permitting)
62-621 (Generic Permits)
62-650 (Water Quality Based Effluent Limitations)
62-660 (Industrial Wastewater Facilities)
62-672 (Minimum Requirements for Earthen Dams Used in Phosphate Mining and Beneficiation Operations and for Dikes Used in Phosphogypsum Stack System Impoundments)
62-699 (Treatment Plant Classification and Staffing)
62-701 (Solid Waste Management Facilities)
62-710 (Used Oil Management)
62-730 (Hazardous Waste)
62-737 (The Management of Spent Mercury-Containing Lamps and Devices Destined For Recycling)
62-740 (Petroleum Contact Water)
62-761 (Underground Storage Tank Systems)
62-762 (Aboveground Storage Tank Systems)
62-769 (Florida Petroleum Liability and Restoration Insurance Program)
62-777 (Contaminant Cleanup Target Levels)
62-780 (Contaminated Site Cleanup Criteria)
62-807 (Natural Gas Transmission Pipeline Siting)
62-814 (Electric and Magnetic Fields)
64E-6 (Standards for Onsite Sewage Treatment and Disposal Systems)

40C-2 (Consumptive Uses of Water)
SJRWMD "Applicant's Handbook, Consumptive Uses of Water, April 10, 2002" (hereinafter "A.H.")
40C-3 (Water Wells)

III. REVISIONS TO DEPARTMENT STATUTES AND RULES

A. The Licensee shall comply with rules adopted by the Department subsequent to the issuance of this certification under the PPSA which prescribe new or stricter criteria, to the extent that the rules are applicable to electrical power plants. Except when express variances,

exceptions, exemptions, or other relief have been granted, subsequently adopted Department rules which prescribe new or stricter criteria shall operate as automatic modifications to the certification.

B. Upon written notification to the Department, the Licensee may choose to operate the certified electrical power plant in compliance with any rule subsequently adopted by the Department which prescribes criteria more lenient than the criteria required by the terms and conditions in the certification which are not site-specific.

[Section 403.511(5)(a) and (b), F.S; subsection 62-4.160(10), F.A.C.]

IV. DEFINITIONS

The meaning of terms used herein shall be governed by the applicable definitions contained in Chapters 253, 373, 379, and 403, F.S., and any regulations adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these Conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statutes or regulations or, in the alternative by the use of the commonly accepted meaning. As used herein, the following definitions shall apply:

A. "Application" or "SCA" as defined in Section 403.503(6), F.S. For purposes of this license, "Application" shall also include materials submitted for post-certification amendments and petitions for modification to the Conditions of Certification, as well as supplemental applications.

B. "Associated Facilities" is defined by Section 403.503(7), F.S.

C. "Certified Area" refers to the area within the site in which the certified facilities are located. For off-Site nonlinear associated facilities, this term refers to the area within which the certified off-Site associated facility is located. For off-Site liner facilities, this term refers to the area encompassed by the boundaries of the certified corridors, until such time as all property interests required for ROWs have been acquired, after which time the term shall include only the area within the final ROWs, in accordance with Section 403.503(11), F.S.

D. "Certified Facilities" means the certified electrical power generation facilities and all on- or off-site associated structures and facilities identified or described in the Application, in the final order of certification, or in a post-certification amendment or modification.

E. "County" means Orange County.

F. "DEO" means the Florida Department of Economic Opportunity.

G. "DEM" shall mean the Florida Division of Emergency Management.

H. "DEP" or "Department" means the Florida Department of Environmental Protection.

I. "DHR" means the Florida Department of State, Division of Historical Resources.

J. "DOT" means the Florida Department of Transportation.

K. "Emergency conditions" or "Emergency reporting" means urgent circumstances involving potential adverse consequences to human life or property as a result of weather conditions or other calamities.

L. "Feasible" or "Practicable" means reasonably achievable considering a balance of land use impacts, environmental impacts, engineering constraints, and costs.

M. "FWC" means the Florida Fish and Wildlife Conservation Commission.

N. "Licensee" means Orlando Utilities Commission (OUC), Florida Municipal Power Agency, and Southern-Florida, LLC, to which this certification is issued.

O. "NPDES permit" means a National Pollutant Discharge Elimination System permit issued by DEP in accordance with the federal Clean Water Act.

P. "Post-Certification Submittal" means a submittal made by the Licensee pursuant to this certification.

Q. "PSD permit" means a Prevention of Significant Deterioration air emissions permit issued by DEP in accordance with the federal Clean Air Act.

R. "ROW" means the right-of-way to be selected by the Licensee within the certified corridor in accordance with the Conditions of Certification and as defined in Section 403.503(27), F.S.

S. "Site" as defined in Section 403.503(28).

T. "SCO" means the Siting Coordination Office.

U. "Surface Water Management System" or "SWMS" means a stormwater management system as defined in Section 373.403(10), F.S. It includes, but not limited to, areas of dredging or filling, as those terms are defined in Sections 373.403(13) and (14), F.S.

V. "State Water Quality Standards" shall mean the numerical and narrative criteria applied to specific water uses or classifications set forth in Chapters 62-302 and 62-520, F.A.C.

W. "SJRWMD" and "SFWMD" means St. Johns River Water Management District and South Florida Water Management District, respectively.

X. "Title V permit" means a permit issued by DEP in accordance with Title V provisions of the federal Clean Air Act.

Y. "Wetlands" means those areas meeting the definition set forth in Section 373.019(27), F.S., as delineated pursuant to Chapter 62-340, F.A.C.

V. DEPARTMENT PERMITS UNDER FEDERAL PROGRAMS

This certification is not a waiver of any other Department approval that may be required under federally delegated or approved programs. The provisions of the following federal permits shall be conditions of this certification to the extent the provisions of those permits apply to the certified facilities. The Licensee shall comply with the applicable provisions and limitations set forth in the permits listed below, and as those provisions may be modified, amended, or renewed in the future by the Department. The Department may consider a violation of any of these permits as a violation of this license.

A. Air

All Air Construction Permits and Title V Air Operation Permits in force for the certified facilities are incorporated by reference herein as part of these Conditions. The Air Construction Permits and Title V Air Operation Permits can be found at this web link using the facility ID number 0950137: http://webapps.dep.state.fl.us/DepNexus/public/search-portal.

[Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297, F.A.C.]

B. Water

1. NPDES Industrial Wastewater Discharge

All NPDES Permits in force for the certified facilities are incorporated by reference herein as part of these Conditions. The NPDES Permits can be found at this web link using the facility ID number 0681661: http://webapps.dep.state.fl.us/DepNexus/public/search-portal.

[Chapter 62-620, F.A.C.]

2. Underground Injection Control

The Licensee currently has no active UIC permits. Any future construction or operation of injection wells shall be in accordance with all applicable provisions of the UIC program as well as any subsequent modifications, amendments and/or renewals. UIC permits can be found at http://webapps.dep.state.fl.us/DepNexus/public/search-portal.

[Chapter 62-528, F.A.C.]

3. NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities (CGP)

Any storm water discharges associated with construction activities on the site shall be in accordance with all applicable provisions of Chapter 62-621, F.A.C. Prior to commencing construction activities on the site, a Generic Permit for Stormwater Discharge from Large and Small Construction Activities shall be obtained as applicable.

[Section 403.0885, F.S.; Rule 62-621.300, F.A.C.]

4. NPDES Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity.

Any storm water discharges associated with industrial activity on the site shall be in accordance with all applicable provisions of Chapter 62-621, F.A.C.

[Section 403.0885, F.S.; Rule 62-621.300, F.A.C.]

5. NPDES Generic Permits for Discharge of Ground Water from Dewatering Operations

Prior to discharge of produced groundwater from any non-contaminated site activity which discharges by a point source to surface waters of the State, as defined in Chapter 62-620, F.A.C., the Licensee must first obtain coverage under the Generic Permit for Discharge of Produced Ground Water From Dewatering Operations.

Similarly, if the activity involves a point source discharge of ground water from a petroleum contaminated site, the Licensee must obtain coverage under the Generic Permit for Discharges from Petroleum Contaminated Sites. Before discharge of ground water can occur from petroleum contaminated sites, analytical tests on samples of the proposed untreated discharge water shall be performed as required by Rule 62-621.300, F.A.C., to determine if the activity can be covered by either permit.

If the activity cannot be covered by either generic permit, the Licensee shall apply for an individual wastewater permit at least ninety (90) days prior to the date discharge to surface waters of the State is expected. No discharge to surface water is permitted without a valid permit.

6. NPDES Generic Permit for Discharges from Concrete Batch Plants

Prior to discharges from concrete batch plants which meet the criteria specified in DEP Document 62-621.300(3)(a), (excluding Part III when using any new batch plants and excluding Part II when using any existing batch plants) the Licensee must first obtain coverage under the Generic Permit for Discharges from Concrete Batch Plants. This generic permit also constitutes authorization to construct and operate closed loop recycling vehicle/equipment washing facilities at concrete batch plants. New and existing concrete batch plants that do not qualify for coverage or do not choose to be covered under this generic permit shall apply for an individual wastewater permit on the appropriate form listed in Rule 62-620.910, F.A.C. and in the manner established in Chapter 62-620, F.A.C. DEP Document number 62-621.300(3)(a) contains specific design and operating requirements for discharges from wastewater and stormwater management systems at concrete batch plants.

[Section 403.0885, F.S.; Rule 62-621.300, F.A.C.]

VI. DESIGN AND PERFORMANCE CRITERIA

The conditions in this certification are predicated upon preliminary designs, concepts, and performance criteria described in the SCA or in testimony and exhibits in support of certification. Final engineering design shall be consistent and in substantial compliance with the preliminary information described in the SCA or as explained at the certification hearing (if any). Conformance to those criteria, unless specifically modified in accordance with Sections 403.516, F.S., and Rule 62-17.211, F.A.C., is binding upon the Licensee in the design, construction, operation and maintenance of the certified facility.

[Sections 403.511 (2)(a), 403.516, F.S.; Rules 62-4.160(2) and 62-17.211, F.A.C.]

VII. NOTIFICATION

A. If, for any reason, the Licensee does not comply with or will be unable to comply with any condition or limitation specified in this license, the Licensee shall immediately provide the Department with the following information:

1. A description of and cause of non-compliance; and

2. The period of non-compliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The Licensee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this certification.

All notifications that are made in writing shall also be immediately provided to the SCO via email at SCO@dep.state.fl.us.

[subsection 62-4.160(8), F.A.C.]

B. The Licensee shall promptly notify the SCO in writing (email acceptable) of any previously submitted information concerning the certified facilities that is later discovered to be inaccurate.

[subsection 62-4.160(15), F.A.C.]

C. Within 60 days after certification of an associated linear facility the Licensee shall file a notice of the certified route with the Department's Office of General Counsel and the clerk of the circuit court for each county through which the corridor will pass.

The notice shall consist of maps or aerial photographs in the scale of 1:24,000 which clearly show the location of the certified route and shall state that the certification of the corridor will result in the acquisition of rights-of-way within the corridor. The Licensee shall certify to the Department and the Clerk(s) of the Circuit Court(s) that all lands required for the transmission line rights-of-way within the corridor have been acquired within such county.

[Section 403.5112, F.S.]

VIII. REPLACEMENT FOR RESTORATION OF SYSTEM INTEGRITY AND EMERGENCY CONDITIONS

If the Licensee is temporarily unable to comply with any of the conditions of the License as a result of breakdown of equipment or destruction by hazards of fire, wind or following an emergency as defined by Sections 252.34(3), (6), (7) or (9), F.S., the Licensee shall immediately notify the DEP Central District Office and the Siting Coordination Office. Notification shall include pertinent information as to the cause of the problem, and what steps are being taken to correct the problem and to prevent its recurrence, and where applicable, the Licensee's intent toward re-construction of destroyed facilities. Such notification does not release the Licensee from any liability for failure to comply with applicable Department rules. Any exceedances and/or violations recorded during emergency conditions shall be reported as such, but the Department acknowledges that it intends to use its enforcement discretion during this timeframe. Any acknowledgement by the Department does not constitute a waiver or variance from any requirements of any federal permit. Relief from any federal agency must be sought by the Licensee separately.

[Section 62-4.130, F.A.C.]

IX. CONSTRUCTION PRACTICES

A. Local Building Codes

Subject to the conditions set forth herein, this certification constitutes the sole license of the state and any agency as to the approval of the location of the site and any associated facility and the construction and operation of any certified facility. The Licensee is not required to obtain building permits for certified facilities. However, this certification shall not affect in any way the right of any local government to charge appropriate fees or require that construction of installations used by the electric utility that are not an integral part of a generating plant, substation, or control center (such as, office buildings, warehouses, garages,

machine shops, and recreational buildings) be in compliance with applicable building construction codes. Such fees and compliance with such construction codes are outside the scope of this certification.

[Section 403.511(1) and (4), F.S.]

B. Open Burning

Prior to open burning in connection with land clearing, the Licensee shall seek authorization from the Florida Forest Service in accordance with the requirements of Chapters 62-256 and 5I-2, F.A.C.

[Chapters 5I-2 and 62-256, F.A.C.]

C. Vegetation

For areas located in any Florida Department of Transportation (DOT) ROW, Chapter 7 of the Florida DOT *Utility Accommodation Manual* available on the DOT website (http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/710020001/Chapter-7.pdf) shall serve as guidelines for best management practices.

D. Existing Underground Utilities

The Licensee shall follow all applicable provisions of the Underground Facility Damage Prevention and Safety Act, Chapter 556, F.S. The Licensee shall provide the affected local government and the SCO with copies of valid tickets obtained from Sunshine State One Call of Florida upon request. Tickets shall be available upon request until the underground work is completed in the affected areas.

[Chapter 556, F.S.]

E. Electric and Magnetic Fields (EMF)

Any associated transmission lines and electrical substations shall comply with the applicable requirements of Chapter 62-814, F.A.C.

[Chapter 62-814, F.A.C.]

F. Existing Wells

Any existing wells to be impacted in the path of construction that will no longer be used shall be abandoned by a licensed well contractor. All wells shall be abandoned in accordance with subsection 62-532.500(5), F.A.C., or with the rules of the authorizing agency.

[subsections 62-532.400 and 62-532.500(5), F.A.C.]

G. Abandonment of Existing Septic Tanks

Any existing septic tanks to be impacted by construction and that will no longer be used shall be abandoned in accordance with Rule 64E-6.011, F.A.C.

[Chapter 64E-6, F.A.C.]

X. RIGHT OF ENTRY

A. Upon presentation of credentials or other documents as may be required by law, the Licensee shall allow authorized representatives of the Department or other agencies with

jurisdiction over any portion of the certified facilities and any authorized off-site mitigation/compensation or otherwise associated areas:

1. At reasonable times, to enter upon the certified facilities in order to monitor activities within their respective jurisdictions for purposes of assessing compliance with this certification; or

2. During business hours, to enter the Licensee's premises in which records are required to be kept under this certification; and to have access to and copy any records required to be kept under this certification.

B. When requested by the Department, on its own behalf or on behalf of another agency with regulatory jurisdiction, the Licensee shall within 10 business days, or a longer period as may be mutually agreed upon between the Department and the Licensee, furnish any information required by law that is needed to determine compliance with the certification.

[paragraph 62-4.160(7)(a) and subsection 62-4.160(15), F.A.C.]

XI. DISPUTE RESOLUTION

A. General

If a situation arises in which mutual agreement between either the Department and the Licensee, or the Department and another agency with substantive regulatory jurisdiction over a matter cannot be reached, the Department can act as a facilitator in an attempt to resolve the issue. If the dispute cannot be resolved in an initial informal meeting, the Licensee may request a second informal meeting in which both the Licensee and the agency with substantive regulatory jurisdiction over the matter at issue can participate in an attempt to resolve the issue. If, after such meetings, a mutual agreement cannot be reached between the parties, then the matter shall be referred to the Division of Administrative Hearings (DOAH) for disposition in accordance with the provisions of Chapter 120, F.S. The Licensee or the Department may request DOAH to establish an expedited schedule for the processing of such a dispute. Any filing with DOAH shall state with specificity the project and geographic location to which the dispute relates. Work unrelated to the specific project and in areas other than the location at which the dispute occurs shall not be affected by the dispute.

B. Modifications

If written objections are filed regarding a modification, and the objections address only a portion of a requested modification, then the department shall issue a Final Order approving the portion of the modification to which no objections were filed, unless that portion of the requested modification is substantially related to or necessary to implement the portion to which written objections are filed.

C. Post-Certification Submittals

If it is determined, after assessment of a post-certification submittal, that compliance with the Conditions will not be achieved for a particular portion of a submittal, the Department may make a separate assessment of other portions of the submittal, unless those portions of the submittal are substantially related to or necessary to implement that portion for which it has been determined that compliance with the Conditions will not be achieved.

[Sections 120.57, F.S. and Rule 62-17.211, F.A.C.]

XII. SEVERABILITY

The provisions of this certification are severable, and if any provision of this certification or the application of any provision of this certification to any circumstance is held invalid, the remainder of the certification or the application of such provision to other circumstances shall remain in effect.

XIII. ENFORCEMENT

A. The terms, conditions, requirements, limitations, and restrictions set forth in these Conditions are binding and enforceable pursuant to Sections 403.141, 403.161, 403.514, 403.727, and 403.859 through 403.861, F.S., as applicable. Any non-compliance by the Licensee with these Conditions constitutes a violation of Chapter 403, F.S., and is grounds for enforcement action, license termination, license revocation, or license revision. The Licensee is placed on notice that the Department may review this certification periodically and may initiate enforcement action for any violation of these Conditions.

B. All records, notes, monitoring data, and other information relating to the construction or operation of the certified facilities that are submitted to the Department may be used by the Department as evidence in any enforcement case involving the certified facilities and arising under the Florida Statutes or Department rules, subject to the restrictions in Sections 403.111 and 403.73, F.S. During enforcement actions, the retention period for all records shall be extended automatically unless otherwise stipulated by the Department. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

[Sections 403.121, 403.131, 403.141, 403.151, 403.161, and 403.514, F.S.; subsections 62-4.160(1) and 62-4.160(9), F.A.C.]

XIV. REVOCATION OR SUSPENSION

The certification shall be final unless revised, revoked or suspended pursuant to law. This certification may be suspended or revoked pursuant to Sections 403.512, F.S. This certification is valid only for the specific processes and operations identified in the SCA and approved in the final order of certification and indicated in the testimony and exhibits in support of certification, or approved in subsequent amendments or modifications of the certification. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this approval may constitute grounds for revocation and enforcement action by the Department. Any enforcement action, including suspension and revocation, shall only affect the portions of the certified facilities that are the cause of such action, and other portions of the certified facilities shall remain in effect.

[Sections 403.512, F.S.; subsection 62-4.160(2), F.A.C.]

XV. REGULATORY COMPLIANCE

As provided in Sections 403.087(7) and 403.722(5), F.S., except as specifically provided in the final order of certification, subsequent modifications or amendments, or these conditions, the issuance of this license does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This license is not a waiver of or approval of any other Department license/permit that may be required for

other aspects of the certified facility that are not addressed in this license. This license does not relieve the Licensee from liability for harm or injury to human health or welfare, animal, or plant life, or public or private property caused by the construction or operation of the certified facilities, or from penalties therefore.

[subsections 62-4.160(3) and 62-4.160(5), F.A.C.]

XVI. CIVIL AND CRIMINAL LIABILITY

Except to the extent a variance, exception, exemption or other relief is granted in the final order of certification, in a subsequent modification to these Conditions, or as otherwise provided under Chapter 403, F.S, this certification does not relieve the Licensee from civil or criminal penalties for non-compliance with any condition of certification, applicable rules or regulations of the Department, or any other applicable state statutes or regulations which may apply.

[Sections 403.141, 403.161, 403.511, F.S.]

XVII. USE OF STATE LANDS

A. Except as specifically provided in the final order of certification or the conditions, the issuance of this license conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

B. If any portion of the certified facility is located on sovereign submerged lands, state-owned uplands, or within an aquatic preserve, then the Licensee must comply with the applicable portions of Chapters 18-2, 18-20, and 18-21, F.A.C., and Chapters 253 and 258, F.S. Except as otherwise provided in the final order of certification or the conditions, if any portion of the certified facility is located on sovereign submerged lands, the Licensee must submit section G of the Joint Application for Environmental Resource Permits to the Department prior to construction. If any portion of the certified facility is located on state-owned uplands, the Licensee must submit an Upland Easement Application to the Department prior to construction.

C. If a portion of the certified facility is located on sovereign submerged lands or state-owned uplands owned by the Board of Trustees of the Internal Improvement Trust Fund, pursuant to Article X, Section 11 of the Florida Constitution, then the proposed activity on such lands requires a proprietary authorization. Under such circumstances, the proposed activity is not exempt from the need to obtain a proprietary authorization. Unless otherwise provided in the final order of certification or the conditions, the Department has the responsibility to review and take action on requests for proprietary authorization in accordance with Rules 18-2.018 or 18-21.0051, F.A.C.

D. The Licensee is hereby advised that Florida law states: "No person shall commence any excavation, construction, or other activity involving the use of sovereign or other state lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund or the Department of Environmental Protection under Chapter 253, F.S., until such person has received from the Board of Trustees of the Internal Improvement Trust Fund the required lease, license, easement, or other form of consent authorizing the proposed use." Pursuant to Chapter 18-14, F.A.C., if such work is done without consent, or if a

person otherwise damages state land or products of state land, the Board of Trustees may levy administrative fines of up to $10,000 per offense.

E. The terms, conditions, and provisions of any required lease or easement issued by the State shall be met. Any construction activity associated with the certified facility shall not commence on sovereign submerged lands or state owned uplands, the title to which is held by the Board of Trustees of the Internal Improvement Trust Fund, until all required lease or easement documents have been executed.

[Chapters 253 and 258, and Sections 403.511, F.S.; Chapter 3.1.1. of the B.O.R.; Chapters 18-2, 18-14, 18-21, 62-340, and subsections 62-343.900(1) and 62-4.160(4), F.A.C.; Upland Easement Application and Section G of the Environmental Resource Permit Application Form.]

XVIII. PROCEDURAL RIGHTS

Except as specified in Chapter 403, F.S., or Chapter 62-17, F.A.C., no term or condition of certification shall be interpreted to preclude the post-certification exercise by any party of whatever procedural rights it may have under Chapter 120, F.S., including those related to rule-making proceedings.

[Sections 403.511(5)(c), F.S.]

XIX. AGENCY ADDRESSES FOR POST-CERTIFICATION SUBMITTALS AND NOTICES

If a condition requires post-certification submittals and/or notices to be sent to a specific agency, the following agency addresses shall be used unless the Conditions specify otherwise or unless the Licensee and the Department are notified in writing of an agency's change in address for such submittals and notices:

Florida Department of Environmental Protection
Siting Coordination Office, MS 5500
2600 Blair Stone Rd.
Tallahassee, Florida 32399-3900
SCO@dep.state.fl.us

Florida Department of Environmental Protection
Central District Office
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767
DEP_CD@dep.state.fl.us

Florida Department of Economic Opportunity
Office of the Secretary
107 East Madison St.
Tallahassee, Florida 32399-2100

Florida Fish & Wildlife Conservation Commission
Office of Conservation Planning Services
620 South Meridian Street
Tallahassee, Florida 32399-1600

FWCConservationPlanningServices@myfwc.com

Florida Department of Transportation
District Administration
605 Suwannee Street
Tallahassee, Florida 32399-0450

Florida Department of Agriculture and Consumer Services
Florida Forest Service
3125 Conner Boulevard
Tallahassee, Florida 32399-1650

East Central Florida Regional Planning Council
Office of the Executive Director
309 Cranes Roost Blvd. Suite 2000
Altamonte Springs, Florida 32701

St. Johns River Water Management District
Office of General Counsel
P.O. Box 1429
Palatka, Florida 32178-1429
ApplicationSupport@sjrwmd.com

South Florida Water Management District
Office of General Counsel
3301 Gun Club Road
West Palm Beach, Florida 33406

Florida Department of State
Permitting and Compliance
Bureau of Historical Preservation
Division of Historical Resources
500 S. Bronough Street
Tallahassee, Florida 32399-0250

Orange County
Orange County Attorney's Office
P.O. Box 1393
Orlando, Florida 32802-1393

[Section 403.511, F.S.]

XX. PROCEDURES FOR POST-CERTIFICATION SUBMITTALS

A. Purpose of Submittals

Conditions which provide for the post-certification submittal of information to DEP or other agencies by the Licensee are for the purpose of facilitating the agencies'

monitoring of the effects arising from the locations of the certified facilities and the construction and maintenance of the certified facilities. This monitoring is for DEP to assure, in consultation with other agencies with applicable regulatory jurisdiction, continued compliance with these Conditions, without further agency actions. A submittal of information or determination of compliance pursuant to a post-certification submittal under this certification does not provide a point of entry for a third party.

B. Filings

All post-certification submittals of information by the Licensee are to be filed with the DEP Central District Office and any other agencies that are entitled to receive a submittal pursuant to these Conditions. The SCO shall be copied on all post-certification submittals in pdf format only, unless otherwise requested, via email to SCO@dep.state.fl.us. Each submittal shall clearly identify the Licensee, the certified facilities, and this certification. As required by Section 403.5113(2), F.S., each post-certification submittal shall be reviewed by each agency with regulatory authority over the matters addressed in the submittal on an expedited and priority basis.

[Section 403.5113, F.S., subsection 62-17.191(3), F.A.C.]

C. Completeness

DEP shall review each post-certification submittal for completeness. This review may include consultation with the other agencies receiving the post-certification submittal with regulatory jurisdiction over the matter addressed in the submittal. DEP's finding of completeness shall specify the area of the certified facility affected, and shall not delay further processing of the post-certification submittal for non-affected areas.

If any portion of a post-certification submittal is found to be incomplete, the Licensee shall be so notified. Failure to issue such a notice within 30 days after filing of the submittal shall constitute a finding of completeness. Subsequent findings of incompleteness, if any, shall address only the newly filed information.

[subparagraph 62-17.191(1)(c) 2, F.A.C.]

D. Inter-Agency Meetings

DEP may conduct an inter-agency meeting with other agencies that received a post-certification submittal. The purpose of such an inter-agency meeting shall be for the agencies with regulatory jurisdiction over the matters addressed in the post-certification submittal to discuss whether compliance with these Conditions has been provided. Failure of DEP to conduct an inter-agency meeting or failure of any agency to attend an inter-agency meeting shall not be grounds for DEP to withhold a determination of compliance with these Conditions nor to delay the timeframes for review established by these Conditions. At DEP's request, a field inspection may be conducted with the Licensee and the agency representatives in conjunction with the inter-agency meeting.

E. Determination of Compliance

DEP shall give written notification within 90 days, to the Licensee and the other agencies to which the post-certification information was submitted of DEP's determination of whether there is demonstration of compliance with these Conditions. If it is determined that compliance with the Conditions has not been provided, the Licensee shall be notified with

particularity of the deficiencies and possible corrective measures suggested. Failure to notify Licensee in writing within 90 days of receipt of a complete post-certification submittal shall constitute a determination of compliance. A post-certification compliance review may be the basis for initiating modifications to the relevant Condition or to other related Conditions.

F. Commencement of Construction

If DEP does not object within the time period specified in paragraph E. above, the Licensee may begin construction pursuant to the terms of these Conditions and the subsequently submitted construction details.

G. Revisions to Design Previously Reviewed for Compliance

If revisions to site-specific designs occur after submittal, the Licensee shall submit revised plans prior to construction for review in accordance with the post-certification process specified in this Condition.

[Sections 120.569, 373.413, 373.416, 403.511, F.S.; Rules 62-17.191 and 62-17.205, F.A.C.]

XXI. POST-CERTIFICATION SUBMITTAL REQUIREMENTS SUMMARY

Within 90 days after certification, and within 90 days after any subsequent modification or certification, the Licensee shall provide the SCO a complete summary of those post-certification submittals that are identified in these Conditions when due-dates for the information required of the Licensee have been identified. A summary shall be provided as a separate document for each transmission line, if any. Such submittals shall include, but are not limited to, monitoring reports, management plans, wildlife surveys, etc. The summary shall be provided to the SCO, in a sortable spreadsheet, electronically, in the format shown below or equivalent. For subsequent modifications and certifications, a Post-Certification Submittal Requirements Summary shall be required for only those resulting in new or altered post-certification requirements.

Condition Number	Requirement and Timeframe	Due Date	Name of Agency or Agency Subunit to whom the submittal is required to be provided

[Section 403.5113, F.S.; Subsection 62-17.191(3), F.A.C.]

XXII. POST CERTIFICATION AMENDMENTS

If, subsequent to certification, the Licensee proposes any material change to the SCA and revisions or amendments thereto, as certified, the Licensee shall submit a written request for

amendment and a description of the proposed change to the SCA to the Department. Within 30 days after the receipt of a complete request for an amendment, the Department shall determine whether the proposed change to the SCA requires a modification to the Conditions.

A. If the Department concludes that the change would not require a modification to the Conditions, the Department shall provide written notification of the approval of the proposed amendment to the Licensee, all agencies, and all other parties to the certification.

B. If the Department concludes that the change would require a modification to the Conditions, the Department shall provide written notification to the Licensee that the proposed change to the SCA requires a request for modification pursuant to Section 403.516, F.S.

[Section 403.5113, F.S]

XXIII. MODIFICATION OF CERTIFICATION

The conditions of this certification may be modified in the following manner:

A. The licensee shall comply with rules, adopted by the Department subsequent to the issuance of the certification, which prescribe new or stricter criteria to the extent that the rules are applicable to electric power plants. Except where express variances, exceptions, exemptions, or other relief have been granted, subsequently adopted rules which prescribe new or stricter criteria shall operate as automatic modifications to the certification.

B. The licensee may choose to operate in compliance with any rule subsequently adopted by the Department which prescribes criteria more lenient than the criteria required by the terms and conditions in the certification which are not site specific.

C. The Siting Board hereby delegates to the Secretary of the Department of Environmental Protection the authority to modify, after notice and opportunity for hearing, any conditions pertaining to monitoring or sampling and conditions of Certification pertaining to consumptive use of water, monitoring, sampling, specification of control equipment, related time schedules, effluent or emission standards or limitations, groundwater, mixing zones, zones of discharge, leachate, control programs, railroad spur, transmission lines, access roads or pipeline construction, source of treated effluent cooling water, mitigation, transfer or assignment of the Certification or related federally delegated permits, or any special studies conducted, as necessary to attain the objectives of Chapter 403, F.S.

[Section 403.516, F.S.; Rule 62-17.211, F.A.C.]

XXIV. COASTAL ZONE CONSISTENCY

Pursuant to Sections 373.428 and 403.511, F.S., certification of the facility constitutes the State's concurrence that the licensed activity or use is consistent with the federally approved program under the Florida Coastal Management Act.

[Sections 373.428, 380.23 and 403.511(7), F.S.]

XXV. TRANSFER OF CERTIFICATION

A. This certification is transferable in whole or in part, upon Department approval, to an entity determined to be able to comply with these Conditions. A transfer of certification of all or part of the certified facilities may be initiated by the Licensee's filing of a Notice of Intent to Transfer Certification with the Department's Siting Coordination Office. The notice of intent

shall: identify the intended new certification holder or Licensee; identify current and new entity responsible for compliance with the certification; and include a written agreement from the intended Licensee to abide by all Conditions of Certification, as well as applicable laws and regulations. Upon receiving a completed notice of intent, the transfer shall be approved by the Department unless the Department objects to the transfer on the grounds that the new Licensee will be unable to comply with the Conditions of Certification, specify in writing the reasons for its objections, and gives notice and an opportunity to petition and administrative hearing pursuant to Section 120.57, F.S. Upon approval, the Department will initiate a modification to the Conditions to reflect the change in ownership in accordance with Rule 62-17.211, F.A.C.

B. In the event of the dissolution of the Licensee, the Department may transfer certification to successor entities that are determined to be competent to construct, operate and maintain the certified facilities in accordance with the conditions of certification and that are proper applicants as defined by the PPSA. Upon determination that such a successor entity complies with the requirements for transfer of certification, the Department will initiate a modification to the Conditions to reflect the change in ownership in accordance with Rule 62-17.211, F.A.C.

[Chapter 120, F.S.; Rule 62-17.211, F.A.C]

XXVI. LABORATORIES AND QUALITY ASSURANCE

Chemical, physical, biological, microbiological and toxicological data collected as a requirement of these Conditions shall be reliable, and collected and analyzed by scientifically sound procedures. Unless otherwise specified in these Conditions, the Licensee shall adhere to the minimum field and laboratory quality assurance, methodological and reporting requirements of the Department as set forth in Chapter 62-160, F.A.C. Standard Operating Procedures can be downloaded from the following website: http://www.dep.state.fl.us/labs/library/lab_sops.htm

[Chapter 62-160, F.A.C.]

XXVII. ENVIRONMENTAL RESOURCES

A. General

1. Submittals for Construction Activities

a. Prior to the commencement of construction of new facilities and/or associated facilities, the Licensee shall provide to the DEP Central District, as well as a copy to the SCO, for review, all information necessary for a complete *Joint Application for Environmental Resource Permit* (ERP), DEP Forms 62-330.060, F.A.C. Information may be submitted by discrete portions of the certified facilities for a determination of compliance with these COC.

This form may: a) be submitted concurrently with a SCA; b) be submitted as part of an amendment request or a petition for modification; or c) be submitted as a post-certification submittal following approval of a project through certification, modification, or amendment. Such ERP submittals, once received, shall be reviewed in accordance with the non-procedural standards and criteria for issuance of an ERP, including all the provisions related to reduction and elimination of impacts, conditions for issuance, additional conditions for issuance, and mitigation contained in Chapters 62-330, F.A.C., as applicable unless otherwise stated in these Conditions. While the information is provided for review via submittal of the

Environmental Resources Permit form, pursuant to section 403.511, Florida Statutes, issuance of a separate Environmental Resources Permit is not required for certified facilities.

Those forms submitted as part of a SCA, an amendment, or modification, shall be processed concurrently with, and under the respective certification, amendment, or modification procedures. Those forms submitted as a post-certification submittal (after certification, modification, or amendment and prior to construction) shall be processed in accordance with Section A, General Conditions, Condition XX, Procedures for Post-Certification Submittals.

No construction shall commence on a Project feature, or in a particular segment for a linear facility, until the Department has determined that there is a demonstration of compliance with these Conditions. For post-certification submittal reviews, the Department's determination is governed by Section A. General Conditions, Condition XX. Procedures for Post-Certification Submittals.

b. Concurrent with submittal of the DEP form required in Subparagraph A.1.a. above, and pursuant to 62-330.201, F.A.C., the Licensee shall submit, as applicable, a survey of wetland and surface water areas as delineated in accordance with Chapter 62-340, F.A.C., and verified by appropriate agency staff for Department compliance review. Available DEP-approved wetland and surface water delineations within the boundaries of a certified site or a portion thereof may be used and reproduced for this delineation submittal and verification.

[Section 373.416, F.S.; Chapters 62-330 and 62-340, F.A.C.]

2 Construction, operation, and maintenance of the proposed project (including any access roads and structures constructed within wetlands and other surface waters, and/or associated facilities) shall satisfy any applicable non-procedural requirements in the Department rules.

[Section 373.414(1)(a), F.S.]

3. Any delineation of the extent of a wetland or other surface water submitted as part of the DEP ERP Application Form required by Subparagraph A.1.a. above, including plans or other supporting documentation, shall not be considered binding on the Department unless a specific condition of this Certification or a formal wetlands jurisdictional determination under Section 373.421(2), F.S., provides otherwise.

[Sections 373.421, 403.504, F.S.]

B. Surface Water Management Systems

1. Information regarding surface water management systems (SWMS) will be reviewed for consistency with the applicable non-procedural requirements of Part IV of Chapter 373, F.S., following submittal of Form 62-330.060(1) F.A.C., to the DEP Central District Office.

2. All construction, operation, and maintenance of the SWMS(s) for the certified facilities shall be as set forth in the plans, specifications and performance criteria contained in the SCA and other materials presented during the certification proceeding, post-certification submittals, and as otherwise approved. If specific requirements are necessary for construction, operation, and/or maintenance of an approved SWMS, those requirements shall be incorporated into

a SWMS Plan for that system and included in Attachment B (Surface Water Management System Plans). Any alteration or modification to the SWMS Plan or the SWMS as certified requires prior approval from the Department.

3. To allow for stabilization of all disturbed areas, immediately prior to construction, during construction, and for the period of time after construction of the SWMS, the Licensee shall implement and maintain erosion and sediment control best management practices, such as silt fences, erosion control blankets, mulch, sediment traps, polyacrylamide (PAM), temporary grass seed, permanent sod, and floating turbidity screens to retain sediment on-site and to prevent violations of state water quality standards. These devices shall be installed, used, and maintained at all locations where the possibility exists of transferring suspended solids into the receiving water body due to the licensed work, and shall remain in place at all locations until construction in that location is completed and soils are permanently stabilized. All best management practices shall be in accordance with the guidelines and specifications described in *the State of Florida Erosion and Sediment Control Designer and Reviewer Manual* (Florida Department of Transportation and Florida Department of Environmental Protection, by HydroDynamics Incorporated in cooperation with Stormwater Management Academy, June 2007) unless a project-specific erosion and sediment control plan is approved as part of this License. If project-specific Conditions require additional measures during any phase of construction or operation to prevent erosion or control sediments beyond those specified in the approved erosion and sediment control plan, the Licensee shall implement additional best management practices as necessary, in accordance with the guidelines and specifications in *the State of Florida Erosion and Sediment Control Designer and Reviewer Manual*. The Licensee shall correct any erosion or shoaling that causes adverse impacts to the water resources as soon as feasible. Once project construction is complete in an area, including the re-stabilization of all side slopes, embankments and other disturbed areas, and before conversion to the operation and maintenance phase, all silt screens and fences, temporary baffles, and other materials that are no longer required for erosion and sediment control shall be removed.

4. The Licensee shall complete construction of all aspects of the SWMS described in the ERP Application Form, submitted as part of a post-certification submittal, amendment, modification, or certification application including water quality treatment features, and discharge control facilities prior to use of the portion of the certified facility being served by the SWMS.

5. At least 48 hours prior to the commencement of construction of any new SWMS for any part of the certified facility authorized by this certification, the Licensee shall submit to the Department a written notification of commencement using an "Environmental Resource Permit Construction Commencement Notice" (DEP Form 62-330.350(1), F.A.C.), indicating the actual start date and the expected completion date.

6 Each phase or independent portion of the approved system must be completed in accordance with the submitted DEP Form prior to the operation of the portion of the certified facility being served by that portion or phase of the system.

7. Within 30 days, or such other date as agreed to by DEP and the Licensee, after completion of construction of any new portions of the SWMS, the Licensee shall submit to the DEP Central District Office, and copy the SCO, a written statement of completion and certification by a registered professional engineer (P.E.), or other appropriate registered

professional, as authorized by law, utilizing the required "As-Built Certification and Request for Conversion to Operation Phase" (DEP Form 62-330.310(1), F.A.C.). Additionally, if deviations from the approved drawings are discovered, the As-Built Certification must be accompanied by a copy of the approved drawings with deviations noted.

8. Any substantial deviation from the approved drawings, exhibits, specifications or Conditions, may constitute grounds for revocation or enforcement action by the Department.

9. The operation phase of any new SWMS approved by the Department shall not become effective until the Licensee has complied with the requirements of the conditions herein, the Department determines the system to be in compliance with the approved plans, and the entity approved by the Department accepts responsibility for operation and maintenance of the system.

10. The DEP Central District must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must be submitted to and approved by the Department prior to such dewatering activity. Additional authorizations may be required for certain dewatering activities, such as, an NPDES dewatering generic permit per 62-621.300, F.A.C. (See Condition V. DEPARTMENT PERMITS UNDER FEDERAL PROGRAMS, B.5)

[Section 373.414, F.S.; Chapters 62-25, 62-302, 62-330, and Rule 62-4.242, F.A.C.]

C. Wetland and Other Surface Water Impacts

1. All certified facilities shall be constructed in a manner which will eliminate or reduce adverse impacts to on-site and/or adjacent wetlands or other surface waters to the extent practicable or otherwise comply with substantive criteria for elimination or reduction. When impacts to wetlands will occur as a result of a future amendment, modification, or certification, and cannot be practicably eliminated or reduced, the Licensee may propose and the Department or Board shall consider mitigation to offset otherwise unpermittable activities under the Environmental Resource Permit review process pursuant to Condition A.1. above.

2. Proposed mitigation plans submitted with the DEP ERP Application forms required in Condition A.1.a. above, or submitted and approved as part of an amendment, modification, or certification, and that are deemed acceptable by DEP, shall include applicable construction conditions, success criteria and monitoring plans, and shall be incorporated into these Conditions as Attachment C (Mitigation Plans).

[Sections 373.413, 373.414, 373.4145, 403.511, and 403.814(6), F.S.; Chapters 62-312, 62-330, 62-340, 62-342, and 62-345, F.A.C.]

XXVIII. THIRD PARTY IMPACTS

The Licensee is responsible for maintaining compliance with these Conditions even when third party activities authorized by the Licensee occur in or on the certified sites or areas. Such third party activities authorized by the Licensee may include but are not limited to mining, hunting, and timbering.

[Sections 403.506(1), F.S.]

XXIX. FACILITY OPERATION

The Licensee shall properly operate and maintain the certified facility and systems of treatment and control (and related appurtenances) that are installed and used by the Licensee to achieve compliance with these Conditions, as required by the final order of certification, these Conditions, or a post-certification amendment or modification. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the final order of certification, these Conditions, or a post-certification amendment or modification. Further, the Licensee shall take all reasonable steps to minimize any adverse impact resulting from non-compliance with any limitation specified in this certification, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying event.

[subsection 62-4.160(6), F.A.C.]

XXX. RECORDS MAINTAINED AT THE FACILITY

A. These Conditions or a copy thereof shall be kept at the Site.

B. The Licensee shall hold at the site, or other locations designated by these Conditions, records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation required by these Conditions, copies of all reports required by these Conditions, and records of all data used to complete the SCA for this approval. These materials may be maintained in electronic formats and shall be retained at least three (3) years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

C. Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;
3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used; and,
6. the results of such analyses.

[subsection 62-4.160(12) and paragraph 62-4.160(14)(b), F.A.C.]

XXXI. WATER DISCHARGES

A. Discharges

1. Except as otherwise authorized by a permit issued by the Department under a federally delegated or approved program or to the extent a variance, exception, exemption, or other relief is granted or authorized by this certification, the Licensee shall not discharge to surface or ground waters of the State wastes in concentrations, which alone or in combination with other substances or components of discharges (whether thermal or non-thermal), are carcinogenic, mutagenic, teratogenic, or toxic to human beings or to significant locally occurring wildlife or aquatic species (unless specific criteria are established for such components in Rule 62-520.400, F.A.C.) or are acutely toxic to indigenous species of

significance to the aquatic community within surface waters affected by the groundwater at the point of contact with surface waters.

2. Except as otherwise authorized by a permit issued by the Department under a federally delegated or approved program or to the extent a variance, exception, exemption or other relief is granted or authorized by this certification, all discharges and activities must be conducted so as to not cause a violation of the water quality standards set forth in Chapters 62-4, 62-302, 62-520, and 62-550, 62-620, F.A.C., including the provisions of Rules 62-4.243, 62-4.244, and 62-4.246, F.A.C., the anti-degradation provisions of paragraphs 62-4.242(1)(a) and (b), F.A.C., subsections 62-4.242(2) and (3), F.A.C., and Rule 62-302.300, F.A.C., and any special standards for Outstanding Florida Waters and Outstanding National Resource Waters set forth in subsections 62-4.242(2) and (3), F.A.C.;

3. Except as otherwise authorized by a permit issued by the Department under a federally delegated or approved program or to the extent a variance, exception, or exemption, or other relief is granted or authorized by this certification, all dewatering discharges must be in compliance with Rule 62-621.300, F.A.C.

[Chapters 62-4, 62-302, 62-520, 62-550, and 62-620, F.A.C., and Rule 62-621.300, F.A.C.]

B. Wastewater Incident Reporting

1. The Licensee shall report to the DEP Central District Office any non-compliance with industrial wastewater requirements which may endanger health or the environment. Any information shall be provided verbally within 24 hours from the time the Licensee becomes aware of the circumstances.

The Licensee shall provide the following information, to the extent known, to the DEP Central District Office in the 24-hour verbal report:

a. Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,

b. Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,

c. Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and

d. Any unauthorized discharge to surface or ground waters.

A written submission shall also be provided to the DEP Central District Office within five days of the time the Licensee becomes aware of the circumstances. The written submission shall contain a description of the non-compliance and its cause; the period of non-compliance including exact dates and time, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.

2. For unauthorized releases or spills of treated or untreated wastewater reported that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, verbal reports shall be provided to the Department by calling the STATE WARNING POINT NUMBER (800) 320-0519, as soon as

practical, but no later than 24 hours from the time the Licensee becomes aware of the discharge. The Licensee, to the extent known, shall provide the following information to the State Warning Point:

a. Name, address, and telephone number of person reporting;

b. Name, address, and telephone number of Licensee or responsible person for the discharge;

c. Date and time of the discharge and status of discharge (ongoing or ceased);

d. Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);

e. Estimated amount of the discharge;

f. Location or address of the discharge;

g. Source and cause of the discharge;

h. Whether the discharge was contained on-site, and cleanup actions taken to date;

i. Description of area affected by the discharge, including name of water body affected, if any; and

j. Other persons or agencies contacted.

3. If the verbal report has been received within 24 hours, the non-compliance has been corrected, and the non-compliance did not endanger health or the environment, the Department shall waive the written report.

[Chapter 403, F.S.; subsection 62-620.610(20), F.A.C.]

XXXII. SOLID AND HAZARDOUS WASTES

A. Solid Waste

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-701, F.A.C., for any solid waste generated within the certified facility during construction, operation, maintenance, closure, and post closure.

[Chapters 62-701, F.A.C.]

B. Hazardous Waste and Used Oil

The Licensee shall comply with all applicable non-procedural provisions of DEP Chapter 62-730, F.A.C., for any hazardous waste generated within the certified facility. An EPA identification number must be obtained before beginning hazardous waste activities unless the facility is a Conditionally Exempt Small Quantity Generators (CESQGs). CESQGs generate no more than 100 kg (220 lbs) of hazardous waste in any month.

The Licensee shall comply with all applicable non-procedural provisions of DEP Chapter 62-710, F.A.C., for any used oil and used oil filters generated within the certified facility.

The Licensee shall comply with all applicable non-procedural provisions of DEP Chapter 62-737, F.A.C., for any spent mercury-containing lamps and devices generated within the certified facility.

[Chapters 62-710, 62-730 and 62-737, F.A.C.]

C. Hazardous Substance Release Notification

1. Any owner or operator of a facility who has knowledge of any release of a hazardous substance from a certified facility in a quantity equal to or exceeding the reportable quantity in any 24-hour period shall notify the Department by calling the STATE WATCH OFFICE, (800) 320-0519, as soon as possible, but not later than one working day of discovery of the release.

2. Releases of mixtures and solutions are subject to these notification requirements only where a component hazardous substance of the mixture or solution is released in a quantity equal to or greater than its reportable quantity.

3. Notification of the release of a reportable quantity of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is not required if the mean diameter of the particles released is larger than 100 micrometers (0.004 inches).

[Chapter 62-150, F.A.C.]

D. Used Oil, Petroleum Contact Water and Spent Mercury

The Licensee shall comply with all applicable provisions of Chapter 62-710, F.A.C., for any used oil including oil filters, Chapter 62-740, F.A.C., for any petroleum contact water, and Chapter 62-737, F.A.C., for any spent mercury containing lamps and devices generated within the certified facility during construction and operation.

[Chapters 62-710, 62-737, and 62-740, F.A.C.]

E. Contaminated Site Cleanup

The Licensee shall comply with all applicable non-procedural provisions of Chapter 62-780, F.A.C., for any violations of relevant provisions of Chapter 376 or 403, F.S., that result in legal responsibility for site rehabilitation pursuant to those chapters. This responsibility for site rehabilitation does not affect any activity or discharge permitted or exempted pursuant to Chapter 376 or 403, F.S., or rules promulgated pursuant to Chapter 376 or 403, F.S.

[Chapter 62-780, F.A.C.]

XXXIII. STORAGE TANK SYSTEMS

Registration, construction, installation, operation, maintenance, repair, closure, and disposal of storage tank systems within the certified areas that store regulated substances shall be in accordance with Chapters 62-761 and 62-762, F.A.C., in order to minimize the occurrence and environmental risks of releases and discharges. Mineral acid storage tank systems are subject only to Rule 62-762.891, F.A.C.

A. Incident Notification Requirements.

Notification of the discovery of the loss of a regulated substance from a storage tank system exceeding 100 gallons on impervious surfaces, other than secondary containment, such as driveways, airport runways, or other similar asphalt or concrete surfaces, provided that the loss does not come in contact with pervious surfaces; or of the discovery of any other incident listed in subsections 62-761.450(2) or 62-762.451(2), F.A.C., shall be made to the County on Incident Notification Form 62-761.900(6) within 24 hours or before the close of the County's next business day.

B. Discharge Reporting Requirements

Upon discovery of an unreported discharge of a regulated substance, the Licensee shall report to the County on Discharge Report Form 62-761.900(1) within 24 hours or before the close of the County's next business day those items listed in paragraph 62-761.450(3)(a), F.A.C., including a spill or overfill event of a regulated substance to soil or another pervious surface, equal to or exceeding 25 gallons, unless the regulated substance has a more stringent reporting requirement specified in C.F.R. Title 40, Part 302.

C. Discharge Cleanup

If a discharge of a regulated substance occurs at a certified facility, actions shall be taken immediately to contain, remove, and abate the discharge under all applicable Department rules. The Licensees is advised that other federal, state, or local requirements may apply to these activities. If the contamination present is subject to the provisions of Chapter 62-780, F.A.C., corrective action, including free product recovery, shall be performed in accordance with that Chapter.

D. Out of Service and Closure Requirements

Storage tank systems shall be taken out-of-service and/or closed as necessary in accordance with Rules 62-761.800 and 62-762.801, F.A.C., as applicable.

[Chapters 62-761 and 62-762, F.A.C.]

SECTION B. SPECIFIC CONDITIONS

I. DEPARTMENT OF ENVIRONMENTAL PROTECTION

A. Groundwater Monitoring

Groundwater shall be monitored and reports submitted to the Department as specified in the Monitoring Plan Implementation Schedule (MPIS) incorporated herein as Attachment F. A violation of the MPIS shall be a violation of the Conditions.

1. The Site's Solid Waste and Industrial Wastewater groundwater monitoring requirements will be contained in the MPIS.

a. Groundwater monitoring is required for all solid waste disposal sites described in the SCA and the MPIS. The Licensee shall install and maintain a groundwater monitoring well network around each solid waste disposal site to monitor the quality of the groundwater in accordance with applicable provisions of Chapters 62-701, and 62-520, F.A.C.

b. Groundwater monitoring is required around all industrial wastewater sites described in the SCA and the MPIS. The Licensee shall install and maintain a groundwater monitoring well network around each industrial wastewater site to monitor the quality of the groundwater in accordance with Chapter 62-520, F.A.C.

c. During the period of operation authorized by this Site Certification, the Licensee shall conduct groundwater monitoring at the specified monitor wells for the parameters and frequency identified in the MPIS, in accordance with the applicable non-procedural provisions of Rules 62-520 and 62-701, F.A.C., and the MPIS.

d. For any approved new or revised solid waste disposal area, a revised MPIS shall be submitted to the SWPP@dep.state.fl.us and to SCO@DEP.state.fl.us for review at least 90 days prior to operation of a new or revised site or such other date as the Licensee and DEP agree.

e. For any approved new or revised industrial wastewater site, the Licensee shall submit a revised MPIS to the DEP CD office at DEP_CD@dep.state.fl.us and to SCO@DEP.state.fl.us for review at least 90 days prior to operation of a new or revised solid waste disposal area or such other date as the Licensee and DEP agree. The revised MPIS shall be developed in accordance with the applicable requirements of Rule 62-520.600, F.A.C.

f. Revisions to the MPIS shall be submitted in accordance with Section A, Condition XX. Procedures for Post-Certification Submittals unless otherwise determined by the Department.

g. Revisions Requiring Modification to the Conditions of Certification

At a minimum, projects which involve any one of the following shall be reviewed for a determination on the requirement of a modification to these Conditions and if a modification is required, it shall be processed in accordance with Section 403.516(1)(c), F.S., and Rule 62-17.211, F.A.C., as applicable:

(1) new major sources of wastewater;

(2) new wastewater treatment facilities or improvements made to existing wastewater treatment facilities, including those which provide for a new or expanded land application system;

(3) pollutants not addressed in the MPIS or these Conditions resulting from a change in the solid waste disposal facility or the industrial wastewater facility; and

(4) other projects that cause or may cause changes to the quantity and/or quality of discharges to groundwater as a result of solid waste disposal or industrial wastewater treatment.

2. Leachate

a. Zone of Discharge

Leachate from the lined pond system; combustion waste run-off ponds; coal storage runoff ponds; wastewater pond; collection pond (Recycle Basin) and future pond expansions; combustion waste landfill; and decant cell shall not contaminate waters of the State in excess of the limitations of Chapters 62-302 and 62-520, F.A.C., beyond the boundary of the zone of discharge shown on the location map of ground water monitoring sites included in the MPIS.

b. Corrective Action

When the detection wells of the groundwater monitoring system indicate an exceedance of the applicable groundwater quality standards of Chapter 62-520, F.A.C., actions outlined in the MPIS and applicable provisions of 62-780, F.A.C. will be taken to assure the Department that no violation of the groundwater standards will occur beyond the boundary of the zone of discharge.

When the compliance wells of the groundwater monitoring system indicate an exceedance of the applicable groundwater quality standards of Chapter 62-520, F.A.C., corrective action will be taken to resolve the violation in accordance with the applicable provisions of Chapters 62-701.510(6)(c) and 62-780, F.A.C.).

In addition, contaminated leachates shall be addressed in accordance with applicable Department rules and the MPIS.

[Chapters 62-302, 62-520, 62-701, and 62-780 F.A.C.]

B. Domestic Wastewater

The domestic wastewater treatment and disposal facilities shall be designed and operated in accordance with all applicable provisions of Chapters 62-600, 62-602, 62-604, 62-610, 62-620, 62-640, and 62-699, F.A.C., and the approved Summary of Specific Domestic Wastewater Facility Information and Associated Requirements (SSDWFIAR) incorporated herein as Attachment G. A violation to the SSDWFIAR shall be a violation of the Conditions.

Projects which involve any one of the following shall be reviewed for a determination on the requirement of a modification to these Conditions and if a modification is required, it shall be processed in accordance with Section 403.516(1)(c), F.S., and Rule 62-17.211, F.A.C., as applicable:

1. changes to capacity

2. changes to effluent limits

[Chapters 62-600, 62-602, 62-604, 62-610, 62-620, 62-640, and 62-699, F.A.C.]

C. Cooling Tower

1. Makeup Water Constituency

The CHSEC shall utilize treated sewage effluent, treated wastewater, onsite re-use water, dewatering effluent, lined pond underdrain flow, stormwater runoff, direct precipitation to the makeup water supply storage pond, and water from Orange County Utilities as cooling tower makeup water. Prior to use in the tower, the sewage effluent shall have received sufficient treatment such as, a sewage treatment plant, but as a minimum, secondary treatment. Use of waters other than those listed above will require a modification of this certification pursuant to Condition XXIII in Section A.

2. Chlorination

Chlorine Residual in the reclaimed water, supplied pursuant to the agreement between Orange County and Orlando Utilities Commission, shall be maintained in accordance with FDEP rules in Chapter 62-610, F.A.C., for reclaimed water use for non-public access application in industrial facilities. Applicable USEPA and Department sampling, analytical, and reporting procedures shall be followed.

3. Special Studies

Upon satisfactory demonstration to the Department that the number of viruses entering the towers in the effluent makeup can be reduced to an undetectable level with the use of a lesser amount of chlorination or alternative treatment, the above requirement may be altered. This demonstration may occur through performance of special studies approved by the Department. Alteration of the chlorination requirements must still insure adequate treatment for the control of bacteria or viruses in the cooling water.

D. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter 62-555, F.A.C. Information as required in 62-4 and 62-555, F.A.C., shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapters 62-555.350, 62-602.400, and 62-699, F.A.C.

[Chapters 62-5, 62-555, 62-602, and 62-699, F.A.C.]

E. Combustion Waste Landfill

1. Operations and Maintenance

The licensee shall operate the combustion waste landfill and associated leachate collection ponds in accordance with the approved Landfill Operations and Maintenance Plan herein after incorporated as Attachment H. Any violation to Attachment H shall be a violation to these Conditions. Any revisions or updates to this plan shall be submitted to SWPP@dep.state.fl.us and to SCO@dep.state.fl.us as appropriate for review and notification of compliance as a post-certification submittal, in accordance with Section A, Condition XX. Procedures for Post-Certification Submittals.

2. Revisions to Landfill Facilities

Prior to the commencement of construction of expanded landfill areas and/or associated leachate collection ponds, the Licensee shall provide to the DEP Division of Waste Management, as well as a copy to the SCO, for review, all applicable information necessary for a complete *Landfill Permit*, DEP Forms 62-701.900, F.A.C.

This form may: a) be submitted concurrently with a SCA; b) be submitted as part of an amendment request or a petition for modification; or c) be submitted as a post-certification submittal following approval of a project through certification, modification, or amendment. Such Landfill submittals, once received, shall be reviewed in accordance with the non-procedural standards and criteria for issuance of Landfill Permit, including all the provisions contained in Chapter 62-701, F.A.C., as applicable unless otherwise stated in these Conditions. While the information is provided for review via submittal of the Landfill Permit form, pursuant to section 403.511, Florida Statutes, issuance of a separate Landfill Permit is not required for certified facilities.

Those forms submitted as part of a SCA, an amendment, or modification, shall be processed concurrently with, and under the respective certification, amendment, or modification procedures. Those forms submitted as a post-certification submittal (after certification, modification, or amendment and prior to construction) shall be processed in accordance with Section A, General Conditions, Condition XX, Procedures for Post-Certification Submittals.

No construction shall commence on a Project feature until the Department has determined that there is a demonstration of compliance with these Conditions. For post-certification submittal reviews, the Department's determination is governed by Section A. General Conditions, Condition XX. Procedures for Post-Certification Submittals.

a. Landfill Additions or Revisions

(1) Prior to construction of the approved combustion waste landfill or any expansion thereof commences, Karst features interfering with the hydrogeological integrity of the site in the vicinity of the combustion waste landfill shall be adequately stabilized both physically and hydraulically against, respectively, collapse and unusual downward transport of groundwater.

(2) Prior to the commencement of operation of the approved combustion waste landfill or expansion thereof, the following shall be submitted to the Solid Waste Section of the DEP Division of Waste Management for review and approval consistent with other conditions of this certification:

i. Plot Plan - must be drawn on a scale not greater than 200 feet to the inch showing the following:

- Dimensions and legal description of the site
- Locations of soil borings
- Proposed trenching plan
- Cover stockpiles
- Fencing or other measures to restrict access

- Cross sections showing both original and proposed fill elevation
- Locations, depths, and construction details of monitoring wells or ditch monitoring points

ii. Design Drawings and Maps - may be combined with plot plan and must be drawn on a scale no greater than 200 feet to the inch showing the following:

- Topographic map with five-foot contour intervals
- Proposed fill areas
- Borrow area
- Access roads
- Grades required for proper drainage
- Typical cross sections of disposal site including lifts, borrow areas and drainage controls
- Special drainage devices

iii. Soil map, Interpretive Guide Sheets and a report giving the suitability of the site for such an operation.

iv. Operation plans to direct and control the use of the site.

v. An indication by discussion or drawings or both of how the site is designed to meet water quality standards of Chapter 62-302 and 62-520, F.A.C, at the waste site boundary or the boundary of the zone of discharge. Adequate indications above would include discussion of each mitigative water quality control measure that will be employed, including but not limited to: liners, chemical fixation process, compaction, under drains and chemical treatment facilities, impermeable clay caps, as well as soil and grass communities.

vi. Based on the Department's review of the above, revisions of the overall monitoring program may be required for monitoring of runoff, groundwaters, and surface waters which may be affected by the various land filling operations.

vii. The Department shall indicate its approval or disapproval of the submitted plans, drawings, maps, analyses and contingency plans in accordance with the associated modification, amendment, or post-certification submittal.

b. Lined Pond Additions or Revisions

(1) Prior to the commencement of operation of new approved lined ponds in the Lined Pond System or expansion thereof that have not been previously approved, the following shall be submitted to the Solid Waste Section of the DEP Division of Waste Management for review and approval consistent with other conditions of this certification:

i. Plot Plan - must be drawn on a scale not greater than 200 ft. to the inch showing the following:

- Dimensions and legal description of the site
- Locations and depths of soil borings
- Fencing or other measures to restrict access

- Cross sections showing both original and proposed final elevations
- Locations, depths, and construction details of monitoring wells or ditch monitoring points

ii. Design Drawings and Maps - may be combined with plot plan and must be drawn on a scale no greater than 200 feet to the inch showing the following:

- Topographic map with five-foot contour intervals
- Proposed expansion areas
- Detailed Design drawings and specifications
- Access roads
- Grades required for proper drainage
- Special drainage devices

iii. Soil map, Interpretive Guide Sheets and a report giving the suitability of the site for such an operation.

iv. Operation plans to direct and control the use of the site.

v. An indication by discussion or drawings or both of how the site is designed to meet water quality standards of Chapter 62-302 and 62-520, F.A.C., at the pond site boundary or the boundary of the zone of discharge. Adequate indications above would include discussion of each mitigating water quality control measure that will be employed, including but not limited to: liners, chemical fixation process, compaction, underdrains and chemical treatment facilities, and impermeable clay layers.

vi. Based on the Department's review of the above, revisions to the overall monitoring program may be required for monitoring of groundwaters, and surface waters which may be affected by the various industrial wastewater storage operations.

vii. The Department shall indicate its approval or disapproval of the submitted plans, drawings, maps, analyses and contingency plans in accordance with the associated modification, amendment, or post-certification submittal.

[Chapter 62-302, 62-520, and 62-701, F.A.C.]

F. Solid Wastes

The Licensee shall manage the solid wastes in accordance with the approved Landfill Operations and Maintenance Plan (Attachment H) and applicable regulations of Chapter 62-701, F.A.C.

[Chapter 62-701, F.A.C.]

G. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary to connect any CHSEC Unit to existing transmission and distribution system shall be constructed in such a manner as to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

H. Transmission Lines, Access Road, Natural Gas Pipeline and Rail Spur

1. Construction Activities

a. Maintenance roads under control of the licensee shall be planted with native species to prevent erosion and subsequent water quality degradation

b. Good environmental practices such as those described in Environmental Criteria for Electric Transmission Systems as published by the U.S. Department of Interior and the U.S. Department of Agriculture shall be followed to the extent practicable.

c. Compliance with the most recent version of the National Electric Safety Code adopted by the Public Service Commission is required.

d. Fences running parallel to the transmission line which may become conductive shall be grounded at appropriate intervals; fences running perpendicular to the line shall be grounded at the edge of the right-of-way.

e. Field reconnaissance for rare and endangered species shall be performed in order to minimize impacts on these species.

2. Maintenance

Vegetative clearing and associated vegetation burning operations for maintenance purposes may be carried out within the ROW corridor. Selective clearing of vegetation is preferred over clearing and grubbing or clear cutting.

I. Coal Pile

The coal pile and future expansions shall be lined with a geomembrane or an earthen material with a permeability not greater than 1x10 -7cm/sec or the leachate shall be controlled to prevent violation of water quality criteria beyond the zone of discharge. The liner shall be protected at all times and shall be repaired as soon as possible in the event of any damage.

J. Pond Perimeter Berms

Construction of the water storage pond perimeter berms shall be in conformance with the provisions of Chapter 62-672, F.A.C., regarding earthen dams, and should be inspected regularly by a licensed engineer.

[Chapter 62-672, F.A.C.]

K. Wetland Vegetation

A non-disturbed area shall be maintained around the oak hardwood swamp area of Hart Branch for a distance of 300 feet during the construction and operating phase of the CHSEC Plant.

[Original Certification, 12/15/82]

L. Screening

The Licensee shall provide screening of the site to the extent feasible through the use of aesthetically acceptable structures, vegetated earthen berms, and/or existing or planted vegetation.

[Original Certification, 12/15/82]

II. DEPARTMENT OF TRANSPORTATION

A. Best Management Practices

Traffic control will be maintained during construction and maintenance activities in compliance with the standards contained in the Manual of Uniform Traffic Control Devices; Chapter 14-94, Statewide Minimum Level of Service Standards, F.A.C; Florida Department of Transportation's Roadway and Traffic Design Standards; Florida Department of Transportation's Standard Specifications for Road and Bridge Construction; and, the Department's Utility Accommodation Manual, whichever is more stringent.

[Chapter 14-94, F.A.C.]

B. Access Management to the State Highway System

If new access is proposed, access permitting as defined in Chapters 14-96, State Highway System Connection Permits, Administrative Process, and 14-97, Access Management Classification System and Standards, F.A.C., will be required. The Manual on Uniform Traffic Control Devices, Florida Department of Transportation's Roadway and Traffic Design Standards, the Florida Department of Transportation's Standard Specifications for Road and Bridge Construction, and pertinent sections of the Florida Department of Transportation's Project Development and Environment Manual will be adhered to in all circumstances involving the State Highway System and other transportation facilities.

[Chapters 14-96 and 14-97, F.A.C.]

C. Drainage

Any drainage onto State of Florida right of way and transportation facilities will be subject to the requirements of Chapter 14-86, Drainage Connections, F.A.C.

[Chapter 14-86, F.A.C.]

D. Overweight/Overdimensional Vehicles

Operation of overweight/overdimensional vehicles by the applicant on State transportation facilities during construction and operation of the utility facility will be subject to the requirements of Chapter 316, F.S., and Chapter 14-26, Safety Regulations and Permitting Fees for Overweight and Overdimensional Vehicles, F.A.C.

[Chapter 14-26, F.A.C.; Chapter 316, F.S.]

E. Use of Air Space

Any newly proposed structure or alteration of an existing structure will be subject to the requirements of Chapter 333, F.S., and Rule 14-60.009, Airspace Protection, F.A.C. Additionally, notification to the Federal Aviation Administration (FAA) is required prior to beginning construction, if the structure exceeds notification requirements of 14 CFR Part 77, Objects Affecting Navigable Airspace, Subpart B, Notice of Construction or Alteration. Notification will be provided to FAA Southern Region Headquarters using FAA Form 7460-1, Notice of Proposed Construction or Alteration in accordance with instructions therein. A subsequent Determination by the FAA stating that the structure exceeds any federal obstruction standard of 14 CFR Part 77, Subpart C for any structure that is located within a 10-nautical-mile

radius of the geographical center of a public-use airport or military airfield in Florida will be required to submit information for an Airspace Obstruction Permit from the Florida Department of Transportation or variance from local government depending on the entity with jurisdictional authority over the site of the proposed structure. The FAA Determination regarding the structure serves only as a review of its impact on federal airspace and is not an authorization to proceed with any construction. However, FAA recommendations for marking and/or lighting of the proposed structure are made mandatory by Florida law. For a site under Florida Department of Transportation jurisdiction, application will be made by submitting Florida Department Transportation Form 725-040-11, Airspace Obstruction Permit Application, in accordance with the instructions therein.

[Section 14-60.009, F.A.C.; Chapter 333, F.S.]

F. Use of State of Florida Right of Way or Transportation Facilities

Any use of State of Florida right of way and certain activities on State transportation facilities will be subject to the requirements of the Department of Transportation's Utility Accommodation Manual (Document 710-020-001), Chapter 14-46, Utilities Installation or Adjustment, F.A.C., and Section 337.403, F.S.

[Chapter 14-46, F.A.C.; Section 337.403, F.S.]

III. ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

A. Water Shortages

Nothing in this certification shall be construed to limit the authority of the SJRWMD to declare a water shortage and issue orders pursuant to Section 373.175, F.S., or to formulate a plan for implementation during periods of water shortage, pursuant to Section 373.246, Florida Statutes. In the event of a water shortage, as declared by the SJRWMD Governing Board, the Licensees must adhere to reductions in water withdrawals as specified by the SJRWMD. Pursuant to Section 403.516, F.S., in the event of a water shortage as declared by the SJRWMD governing board, DEP may seek a modification of the terms and conditions of this certification to implement the water shortage declaration and the licensees must adhere to reductions in water withdrawals as specified by SJRWMD.

B. Well Construction, Modification, Or Abandonment

Prior to the construction, modification, or abandonment of an on-site well, the Licensees shall submit a completed application form for a Water Well Construction Permit to DEP and SJRWMD. All construction, modification, or abandonment of water wells must be conducted under the supervision of a licensed water well contractor and must be performed in accordance with Chapter 40C-3, F.A.C. Construction of a well may require modification or amendment of the certification when such construction is other than that specified and described in the Site Certification Application. Prior to modification or abandonment of a well, the Licensees must file an amendment to the site certification application with DEP and SJRWMD. Upon completion of the construction, modification or abandonment of each well, the Licensee must submit to SJRWMD and DEP a completion report for the well.

[Paragraphs 16.0(c); 10.3(b)(d)(h)(j), SJRWMD "Applicant's Handbook, Consumptive Uses of Water, April 10, 2002" (hereafter "A.H.")]

C. Well Maintenance

Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to put the system back in an operative condition acceptable to the SJRWMD. Failure to make such repairs will be cause for deeming the well abandoned in accordance with Part II of chapter 373, F.S., and chapter 40C-3, F.A.C., and the rules promulgated thereunder.

[Paragraphs 16.0(d); 10,3(b)(d)(h)(i), A.H.]

D. Mitigation of Withdrawal Impacts On Existing Legal Users

Licensees must mitigate any adverse impact caused by withdrawals permitted herein on legal uses of water existing at the time of the initial application for the Stanton Energy Center. DEP has the right to curtail permitted withdrawal rates or water allocations if the withdrawals of water cause an adverse impact on legal uses of water which existed at the time of application. Adverse impacts are exemplified by but not limited to:

1. Reduction of water levels in an adjacent surface water body resulting in a significant impairment of the use of water in that water body;

2. Saline water intrusion or introduction of pollutants into the water supply of an adjacent water use resulting in a significant reduction of water quality; and,

3. Change in water quality resulting in either impairment or loss of use of a well or water body.

[Paragraphs 9.2; 10.3(b)(d)(h)(j), A.H.]

E. Mitigation of Impacts On Adjacent Land Uses

Licensee must mitigate any adverse impact caused by withdrawals permitted herein on an adjacent land use which existed at the time of Supplemental Site Certification Application for Stanton 2 and any subsequent unit. DEP has the right to curtail permitted withdrawal rates or water allocations unless the impacts can be mitigated by the Licensee. Adverse impacts are exemplified by, but not limited to:

1. Significant reduction in water levels in an adjacent surface water body;

2. Significant potential for land collapse or subsidence off-site caused by a reduction in water levels; or

3. Damage to crops, wetlands and other types of off-site vegetation.

[Paragraphs 9.4.3; 10.3(b)(d)(g)(h)(i), A.H.]

F. Identification Tags

A SJRWMD-issued identification tag must be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, head-gate, valve or other withdrawal facility as provided by Section 40C-2.401, F.A.C. Licensee must notify the SJRWMD in the event that a replacement tag is needed

[Paragraphs 16.0(h); 10.3(b)(d)(g)(h)(i), A.H.]

G. Maximum Annual Withdrawals

Maximum annual groundwater withdrawals from the Floridan Aquifer for demineralizer/steam cycle makeup, general service water, heat recovery steam generation, wash-down, injection and power augmentation, and domestic uses combined must not exceed 321.2 million gallons per year.

[Paragraphs 10.3(a)(b)(c)(e)(f)(g), A.H.]

H. Maximum Daily Withdrawals

Maximum daily groundwater withdrawals from the Floridan Aquifer for demineralizer/steam cycle makeup, general service water, heat recovery steam generation, wash-down, injection and power augmentation, and domestic uses combined must not exceed 2.00 million gallons per day.

[Paragraphs 10.3(a)(b)(c)(e)(f)(g), A.H.]

I. Dewatering

All withdrawals from the surficial aquifer for dewatering associated with construction activities, e.g., the lined pond expansion or replacement projects, and groundwater from facility pond liner drainage systems associated with groundwater suppression may be used as cooling tower makeup water. The Licensee must mitigate any adverse impact caused by dewatering associated with construction activities, e.g., the lined pond expansion or replacement projects, or as a result of groundwater depression associated with facility pond liner drainage systems on adjacent land uses or legal uses of water existing at the time of petition for modification of site certification.

Adverse impacts include but are not limited to:

1. Reductions of well water levels resulting in a reduction of 10% in the ability of an adjacent well to produce water;
2. Reductions of water levels in an adjacent surface water body resulting in a significant impairment of the use of water in that water body;
3. Saline water intrusion;
4. Change in water quality resulting in either impairment or loss of use of a well or water body;
5. Land collapse or subsidence caused by a reduction in water levels;
6. Damage to crops and other types of vegetation; and
7. Harmful hydrologic alterations to natural systems, including wetlands and other surface waters, that cause an unmitigated adverse impact to such systems.

[Paragraphs 7.3.3, 10.3, A.H.]

J. Well Water Quality Sampling

Water quality samples must be taken in April and October of each year from each production well. The samples must be analyzed for the following parameters:

- Field: pH, temperature, specific conductivity;
- Laboratory: Calcium, Chloride, Magnesium, Sodium, Potassium, Bi-carbonate Alkalinity, Carbonate Alkalinity and Total Dissolved Solids.

Wells must be purged in accordance with the appropriate Florida Department of Environmental Protection Standard Operating Procedures as necessary to evaluate water from the well column and induce groundwater representative of the hydrogeologic formation into the well prior to sampling. All major ion analyses must be checked for anion-cation balance (equivalent concentration) and must not exceed 5% difference. The sample analyses must be submitted to the SJRWMD by May 15 and November 15 of each year.

[Paragraphs 9.4.2, 10.3 (d)(h)(j), A.H.]

K. Water Flow Monitoring

1. The Licensee shall maintain the continuous recorder of water levels in the Floridan Aquifer observation well. Copies of the previous year (12 months) recorder charts must be forwarded to the SJRWMD on a yearly basis. The charts must be submitted by January 31 of each year. Well Nos. 1 and 2 and all reclaimed water and stormwater delivery points must have in-line totalizing flow meters installed prior to use (not including well development). The totalizing flow meters must maintain 95% accuracy, be verifiable, and be installed according to manufacturer specifications. Documentation of proper installation of flow meters (e.g., photograph) shall be submitted to the SJRWMD within 30 days of meter placement. A site visit by SJRWMD staff can also fulfill this documentation requirement.

2. Total withdrawal from well nos. 1 and 2 and all reclaimed water and stormwater delivery points, as listed on the application, must be recorded continuously, totaled monthly, and reported to DEP and SJRWMD at least every six months using SJRWMD Form No. EN-50. The reporting dates each year will be as follows:

Reporting Period	Report Due Date
January - June	July 31
July - December	January 31

[Paragraphs 6.7.1.1; 6.7.1.2; 6.7.1.8.1, 10.3(a)(b), A.H.]

L. Conservation Plans

The Licensee shall implement the conservation plan submitted to the SJRWMD in accordance with the schedule contained therein.

[Paragraphs 4.6(d), 12.3.2.1, A.H]

M. Maintenance and Calibration of Flow Meters

1. The Licensee shall maintain the flow meters. In case of failure or breakdown of any meter, DEP and SJRWMD must be notified in writing within 5 days of its discovery. A defective meter must be repaired or replaced within 30 days of its discovery.

[Paragraphs 6.7.1; 10.3(a)(b), A.H.]

2. The Licensee shall have all flow meters calibrated once every 3 years within 30 days of the anniversary date of certification issuance, and re-calibrated if the difference between the actual flow and the meter reading is greater than 5%. SJRWMD form EN-51 must be submitted to DEP and SJRWMD within 10 days of the inspection and calibration.

[Paragraphs 6.7.1; 6.7.1.8.1; 10.3(a)(b), A.H.]

N. Use of Lowest Quality Water

The lowest quality water source, such as reclaimed water and surface/storm water, must be used when deemed feasible pursuant to District rules and applicable state law.

[Paragraphs 10.3(f)(g), A.H.]

IV. FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

A. Listed-species Conditions

The following table contains state and federally listed species that occur in the State of Florida and are likely to occur within the certified facility. The table contains species that are potentially impacted by the activities proposed within the certified facility. This certification applies to the species listed in the table that are found within the certified areas.

Listed Species Occurring or Potentially Occurring in the Certified Area as of May 2017[1]

Common Name	*Scientific Name*	Status
American alligator	*Alligator mississippiensis*	FT (S/A)
Bald eagle	*Haliaeetus leucocephalus*	*
Florida burrowing owl	*Athene cunicularia floridana*	ST
Audubon's crested caracara	*Polyborus plancus audubonii*	FT
Eastern indigo snake	*Drymarchon corais couperi*	FT
Florida black bear	*Ursus americanus floridanus*	**
Florida pine snake	*Pituophis melanoleucus mugitus*	ST
Florida sandhill crane	*Antigone canadensis pratensis*	ST
Florida scrub-jay	*Aphelocoma coerulescens*	FT
Gopher tortoise	*Gopherus polyphemus*	ST
Little blue heron	*Egretta caerulea*	ST
Red-cockaded woodpecker	*Picoides borealis*	FE
Sand skink	*Neoseps reynoldsi*	FT
Sherman's fox squirrel	*Sciurus niger shermani*	SSC
Short-tailed snake	*Stilosoma extenuatum*	ST
Southeastern American kestrel	*Falco sparverius paulus*	ST
Tricolored heron	*Egretta tricolor*	ST
Wood stork	*Mycteria americana*	FE

[1]Species' legal statuses are subject to change. The Licensee shall refer to the law in effect at the time it begins an activity subject to being affected by listed species regulations.

SSC = State Species of Special Concern
ST = State Threatened
FE = Federally Endangered
FT = Federally Threatened
FT (S/A) = Federally Threatened due to Similarity of Appearance

*The bald eagle has been removed from the state's Endangered and Threatened Species Rule and the federal Endangered Species Act; however, the species is still governed by the state Bald Eagle Management Plan and the federal Bald and Golden Eagle Protection Act.

**The Florida black bear has been removed from the state's Endangered and Threatened Species Rule; however, the species is still governed by the Florida Black Bear Management Plan and protected by the Florida Black Bear Conservation rule, Chapter 68A-4.009, F.A.C.

B. General Listed Species Survey

1. The Licensee shall coordinate with the Florida Fish and Wildlife Conservation Commission (FWC) to obtain and follow the current survey protocols for all listed species that may occur within the certified facility and accessible appropriate buffers as defined by the listed species survey protocols, prior to conducting detailed surveys.

2. Surveys shall be conducted prior to clearing and construction in accordance with the survey protocols. The results of those detailed surveys shall be provided to FWC in a report, and coordination shall occur with the FWC on appropriate impact mitigation methodologies.

[Article IV, Sec. 9, Fla. Constitution; Section 379.2291, F.S., Sections 403.507 and 403.5113(2), F.S., and Chapter 68A-27, F.A.C.]

C. Specific Listed Species Surveys

Before land clearing and construction activities within a certified facility occur, the Licensee shall conduct an assessment for listed species which shall note all habitat, occurrence or evidence of listed species. Listed species to be included in this survey shall include the bald eagle and those species listed as endangered, threatened, or of special concern by the FWC or those listed as endangered or threatened by U.S. Fish and Wildlife Service (USFWS). Wildlife surveys shall be conducted in the reproductive or "active" season for each species that falls before the projected clearing activity schedule unless otherwise approved by the FWC or USFWS. For species that are difficult to detect, the Licensee may make the assumption that the species is present and plan appropriate avoidance/mitigation measures after consultation with FWC. The Licensee will submit avoidance/mitigation measures for FWC post certification review.

1. This survey shall be conducted in accordance with USFWS/FWC guidelines and methodologies by a person or firm that is knowledgeable and experienced in conducting flora and fauna surveys for each potentially occurring listed species.

2. This survey shall identify any wading bird colonies within the project that may be affected.

3. This survey shall identify locations of breeding sites, nests, and burrows for listed wildlife species. Nests and burrows may be recorded with GPS coordinates, identified on an aerial photograph, and submitted with the final listed species report. Although nests and burrows may be recorded individually with GPS, the FWC prefers that any applicable protection radii surrounding groups of nest sites and burrows be included, rather than around individual

nests and burrows, and be physically marked so that clearing and construction shall avoid impacting them.

4. This survey shall include an estimate of the acreage and percent cover of each existing vegetation community (Florida Land Use, Cover and Forms Classification System, or FLUCFCS, at the third degree of detail) including a wildlife-based habitat classification scheme such as Florida's State Wildlife Action Plan (FWC 2012), Descriptions of Vegetation and Land Cover Types (FWC 2004), or Natural Communities Guide (FNAI 2010) of each community that is contained within the certified corridor prior to land clearing and construction activities using GIS.

[Article IV, Sec. 9, Fla. Constitution; Sections 379.2291, 403.526 and 403.5317, F.S.; and Chapters 68A-27, 68A-4, 68A-16, F.A.C.]

D. Listed Species Locations

1. Where any suitable habitat or evidence is found of the presence of listed species within the certified facility, the Licensee shall report those locations to, and confer with, the appropriate regulatory agencies for possible additional pre-clearing surveys, including those specified in E-F below, and to identify potential mitigation, or avoidance recommendations. If pre-clearing surveys are required, they shall be timed to be reasonably compatible with the construction schedule, considering the anticipated date for the start of construction within a certified facility. The Licensee shall not construct in areas where evidence of listed species was identified during the initial survey until the particular listed species issues have been resolved as follows: If listed wildlife species are found, their presence shall be reported to the DEP Siting Coordination Office, the FWC, the appropriate WMD, the appropriate local government(s), the USFWS, and the National Park Service as applicable.

2. If avoidance of state-listed wildlife species is not feasible, the Licensee shall consult with the FWC to determine the steps appropriate for the species involved to avoid, minimize, mitigate, or otherwise appropriately address potential impacts. For wildlife species, these steps shall be documented in a Wildlife Management Plan and submitted to the FWC.

[Article IV, Sec. 9, Fla. Constitution; Sections 379.2291, 403.526 and 403.5113(2), F.S.; and Chapter 68A-27, F.A.C.]

E. Gopher Tortoise

1. The Licensee shall conduct surveys for gopher tortoises (Gopherus polyphemus), in accordance with the FWC-approved Gopher Tortoise Management Plan (as revised) and the FWC-approved Gopher Tortoise Permitting Guidelines, or subsequent FWC-approved versions of the Plan or Guidelines. A burrow survey covering a minimum of 15% of the potential gopher tortoise habitat to be impacted by development is required in order to apply for a relocation permit. Immediately prior to capturing tortoises for relocation, a 100% survey is required to effectively locate and mark all potentially occupied tortoise burrows and to subsequently remove the tortoises. Burrow survey methods are outlined in Appendix 4 of the Gopher Tortoise Permitting Guidelines, "Methods for Burrow Surveys on Development (Donor) and Recipient Sites". Surveys must be conducted within 90 days prior to a post-certification submittal of the online gopher tortoise relocation permit application to the FWC, as described in E.3 below. Surveys shall not be conducted within 28 days of any ground disturbance or clearing

activities on the donor site. All surveys completed by the Licensee or its authorized agents are subject to field verification by the FWC.

2. FWC is not required to provide a monitoring compliance assessment for activities that occur more than 25 feet from a gopher tortoise burrow entrance, provided that such activities do not harm gopher tortoises or violate rules protecting gopher tortoises. Examples of such violations noted in the past by the FWC include, but are not limited to, killing or injuring a tortoise more than 25 feet away from its burrow; harassing a tortoise by blocking access to its burrow, and altering gopher tortoise habitat to such an extent that resident tortoises are taken.

3. The Licensee shall coordinate with the FWC and provide a detailed gopher tortoise relocation permit application in accordance with the FWC-approved Gopher Tortoise Management Plan and Gopher Tortoise Permitting Guidelines as a post-certification submittal. This permit application shall provide details on the location for on-site recipient areas and any off-site FWC-approved temporary contiguous habitat, as well as appropriate mitigation contributions per tortoise, as outlined in the Gopher Tortoise Permitting Guidelines.

4. Any commensal species observed during the burrow excavations that are listed by the FWC shall be relocated in accordance with the applicable guidelines for that species in accordance with Appendix 9 of the Gopher Tortoise Permitting Guidelines.

5. To the maximum extent practicable or feasible, all staging and storage areas shall be sited to avoid impacts to gopher tortoise burrows and habitat.

[Article IV, Sec. 9. Fla. Const.; Section 403.526. F.S. and Rule 62-17.660. F.A.C.; Section 379.2291. F.S.; Chapter 68A-27. F.A.C.]

F. Red-cockaded Woodpecker

1. All lands depicted as detailed in Figure 7 of the Red-cockaded Woodpecker Management Plan titled "The Curtis H. Stanton Energy Center, Red-cockaded Woodpeckers Habitat Management Plan," dated July 8, 2005, except for the area specifically identified as "construction impact of proposed generating Units 1, 2, 3, and 4" constitute the red-cockaded woodpecker management area subject to the Management Plan. An updated map of the red-cockaded woodpeckers impact area with more detail is included in Attachment D.

2. With regard to the red-cockaded woodpecker management area, in addition to Section B.in Condition IV.D.2.

a. The Licensee may conduct activities within the red-cockaded woodpecker management area which are provided for in the Siting Board's certification orders for Units 1 and 2, including without limitation the execution of habitat restoration, enhancement, and creation that are required as mitigation.

b. The Licensee may conduct management, including maintenance in their existing configuration and condition, of existing unpaved private roads utilized by the Licensee, maintenance of existing water and sewer lines, of existing transmission lines and substation, and other maintenance and management activities which are consistent with its purposes, within the red-cockaded woodpecker management area.

c. The Licensee shall take appropriate actions to manage the red-cockaded woodpecker management area to achieve the purposes required by Section B, Condition IV.D.2., above, with regard to the red-cockaded woodpecker, and in general to

preserve the natural conditions of the area, including other protected species of native wildlife, vegetation, wetlands, and particularly the tributaries and headwaters of the Econlockhatchee River. The Licensee may act to implement the Red-cockaded Woodpecker Management Plan, to monitor its effectiveness, and to react to fire, flood, or other unforeseeable natural or manmade disturbances. Any reports generated by the Licensee concerning activities within or management of the red-cockaded woodpecker management area shall be provided to the Florida Fish and Wildlife Conservation Commission.

d. The Licensee shall allow only those activities of others within the red-cockaded woodpecker management area that are consistent with its management in a natural state. Such activities shall be limited to environmental restoration, scientific research, habitat management (such as, controlled burning), grazing, and nature study.

e. Unless specifically authorized by an order of the Siting Board, dredging, filling, construction of buildings, roadways, dumping of debris, excavation, and clearing of native vegetation shall be prohibited in the area defined by Section B, Condition V.D.2 above. Notwithstanding the provisions of Sections 403.516(1)(a) and (b), F.S., the Licensee agrees that any activity prohibited in this paragraph within the area described in the red-cockaded woodpecker management area shall be authorized only by affirmative vote of the Siting Board.

f. The Licensee hereby stipulates as a factual matter, which shall be binding on it and all of its officers, agents, attorneys, and employees, that the "alternate access road" authorized by this supplemental certification completes the necessary roadway access for Units 1 and 2, to allow the full development thereof. Any additional access for electric power generation and any additional facilities necessary for the construction of Units 3 and 4 will be the subject of a comprehensive Supplemental Certification Application or applications for Units 3 and 4.

g. If the Licensee determines to pursue a modification of its certification with regard to the easement recorded December 30, 1987, at ORB 3946, Page 3187, Orange County, Florida, it shall do so as a ministerial act only and shall not actively utilize its resources, funds, or personnel to support such an application.

4. The Red-cockaded Woodpecker Management Plan is incorporated into this certification as Attachment D (attached). A 2017 list of Florida invasive species for exotic vegetation control, as required by the Red-Cockaded Woodpecker Management Plan and other mitigation plans, is included in Attachment E.

V. DEPARTMENT OF STATE – DIVISION OF HISTORICAL RESOURCES

A. Prior to new construction in areas not previously surveyed, the Licensee shall conduct a survey of sensitive cultural resource areas, as determined in consultation with the Department of State, Division of Historical Resources (DHR). A qualified cultural resources consultant will identify an appropriate work plan for this project based on a thorough review of the certified facility. Prior to beginning any field work, the work plan shall be reviewed in consultation with DHR. Upon completion of the survey, the results shall be compiled into a report for submittal to DHR. If feasible, sites considered to be eligible for the National Register shall be avoided during construction of the project and access roads, and subsequently during

maintenance. If avoidance of any discovered sites is not feasible, impact shall be mitigated through archaeological salvage operations or other methods acceptable to DHR, as appropriate.

B. If historical or archaeological artifacts or features are discovered at any time within the certified facility, the Licensee shall notify the DEP Central District Office, the SCO, and the DHR, R.A. Gray Building, 500 S. Bronough Street, Rm 423, Tallahassee, Florida 32399-0250, telephone number (850) 245-6333, and shall consult with DHR to determine appropriate actions.

[Sections 267.061, 403.531, and 872.02, F.S.]

VI. DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

Only herbicides registered by the U.S. Environmental Protection Agency and the Florida Department of Agriculture and Consumer Services shall be used at the certified facilities. Herbicide applications will be in accordance with label directions and shall be carried out by a licensed applicator, in compliance with all federal, state, and local regulations. Herbicide applications shall be selectively applied to targeted vegetation. Broadcast application of herbicide shall not be used unless effects on non-targeted vegetation are minimized.

[Chapter 487, F.S.]

VII. ORANGE COUNTY

A. Building and Construction Requirements

The Licensee shall comply with the building and construction requirements of Chapter 9, Orange County Code. The licensee shall pay all appropriate fees for required building and construction permits, including inspection fees.

[Sections 9-6, 16-21, 37-3, 37-4, 37-5, and 37-6, Orange County Code]

B. Noise

Construction noise shall not exceed the noise criteria or any applicable requirements of Orange County. The licensee shall notify area residents in advance of the onset and anticipated duration of the steam blowout of the facility's heat recovery steam generator and steam lines. Such steam blowout shall be conducted between 7:00 A.M. and sunset.

[Sections 15-177, 15-183, and 15-184, Orange County Code]

C. Flood Protection Control

The certified facilities shall be constructed in such a manner as to comply with the Orange County flood protection requirements.

[Sections 19-6, 19-8, 19-41, 19-42, 19-66, 19-69, 19-91 through 19- 94, and Sections 34-226 through 34-228, Orange County Code]

D. Conservation Area

Prior to initiating any impacts to wetlands or other surface waters, the Licensee shall have a conservation area determination approved by Orange County. Any activities within or immediately adjacent to any wetland that would materially affect in an adverse way any wetland which has been determined to be a conservation area must comply with the applicable provisions of Article X of Chapter 15 of the Orange County Code.

[Sections 15-376 and 15-382, Orange County Code]

E. Public Works Impacts

1. Prior to performing any works that may affect traffic, the Licensee agrees to submit to the Orange County Public Works Department a certified maintenance of traffic plan prepared by a Florida-licensed Professional Engineer in a form that complies with the rules, regulations, standards and criteria of the County.

2. The Licensee and its contractors must adhere to applicable Florida Department of Transportation and Orange County regulations when transporting materials and equipment to the site.

[Section 21-236, Orange County Code]

F. Cooling Water

Licensee will accept Cooling Water from Orange County in accordance with that agreement entitled "Second Amendment to and Restatement of the Substitute Agreement Between Orange County, Florida and Orlando Utilities Commission Relating To Cooling Water Supply" signed by Licensee on October 31, 2008, and signed by Orange County on December 17, 2008 as it may be amended by mutual agreement of the Parties to that Agreement.

[Applicant Agreement]

G. Open Burning

Prior to open burning in connection with land clearing, the Licensee shall seek authorization from the Florida Forest Service in accordance with the requirements of Chapters 62-256 and 5I-2, F.A.C. No additional permits shall be required, but the Orange County Environmental Protection Division shall be notified prior to burning. Open burning shall not occur if the Florida Forest Service has issued a ban on burning due to fire hazard conditions.

[Sections 15-95 through 15-104, Orange County Code]

H. Air

Licensee and Orange County agree to identify community-based projects that will provide environmentally beneficial NOx, greenhouse gas and/or toxic emission reductions within Orange County. Licensee agrees to co-sponsor with the County these mutually agreed upon community-based projects and fund these projects in the amount of $1,000,000.00 contributed in an amount no less than $100,000.00 annually until such time Licensee has contributed a total of One Million Dollars toward the community-based projects. The ten-year period will begin on January 1, 2008, or the start of construction of Unit B, whichever occurs first.

Licensee agrees to co-sponsor with Orange County mutually agreed upon qualified Renewable Energy projects within Orange County. These projects will be mutually agreed upon and Licensee agrees to fund $1,000,000 over a ten-year period for this purpose. The ten-year period will begin January 2007 or upon receipt of regulatory approval for the project, whichever occurs first.

[Applicant Agreement]

VIII. EMERGENCY MANAGEMENT

The Licensee shall review and, if necessary, update the comprehensive hurricane preparation and recovery plan every 5 years or whenever an additional electrical generating unit is brought into commercial service at the CHSEC, and shall submit these updated plans to the Orange County Office of Emergency Management.

If the Orange County Office of Emergency Management deems the plan or any of its periodic updates not to be in compliance with the requirements of this condition, it may petition the Department for enforcement of this condition pursuant to the Florida Electrical Power Plant Siting Act.

HISTORY

Certification for Unit 1 issued 12/15/82; signed by Governor Graham
Certification for Unit 2 issued 12/17/91; signed by Governor Chiles
Modified (A) 04/05/93; signed by Secretary Wetherell
Modified (B) for Alafaya Trail Extension 07/24/95; signed by Governor Chiles
Modified (C) to merge certification for Unit 1 & 2 12/24/97; signed by Secretary Wetherell
Modified (D) 08/07/98; signed by Secretary Wetherell
Supplemental Certification for Unit A 09/21/01; signed by Governor Bush
Modified (E) 02/24/03; signed by Siting Administrator Oven
Modified (F) 07/20/06; signed by Siting Administrator Oven
Supplemental Certification for Unit B 08/17/06; Signed by Secretary Castille
Modified (G) 01/17/07; signed by Siting Administrator Oven
Modified (H) 10/03/07; signed by Siting Administrator Halpin
Modified (I) 02/06/08; signed by Siting Administrator Halpin
Modified (J) 02/20/08; signed by Siting Administrator Halpin
Modified (K) 7/24/08; signed by Siting Administrator Halpin
Modified (L) 03/08/16; signed by Siting Administrator Mulkey
Modified (M) 08/30/17; signed by Siting Administrator Mulkey
Modified (N) 09/01/26; signed by Environmental Administrator Robertson

Attachment A – Certified Site/Areas/Facilities Delineation Map(s)

(to be incorporated per requirements of Section A. Condition I. Scope)

Attachment A

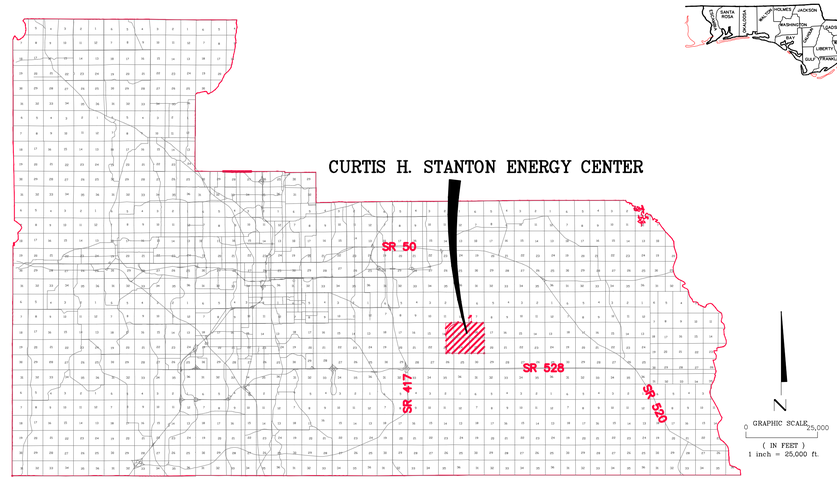
Certified Site/Areas/Facilities Delineation Maps

BOUNDARY SURVEY OF

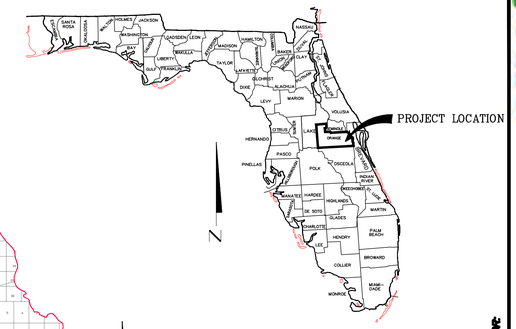
CURTIS H. STANTON ENERGY CENTER

LOCATED IN

SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA



ORANGE COUNTY, FLORIDA



LEGAL DESCRIPTION:

All of Section 18, Township 23 South, Range 32 East, Orange County, Florida;
plus the West 990 feet of the Southwest 1/4 of Section 7, Township 23 South, Range 32 East, Orange County, Florida.

less: Right-of-Way Agreement (Official Records Book 3537, page 1156)

Together with:

All of Section 19, Township 23 South, Range 32 East, Orange County, Florida.

Together with:

All of Section 24, Township 23 South, Range 31 East, Orange County, Florida.

Together with:

All of Section 13, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The East 1/2 of Section 23, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The East 1/2 of Section 14, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The South 200' of the SW 1/4 of Section 12, Township 23 South, Range 31 East, Orange County, Florida

LEGEND:

(C)	=	Calculated
℄/L	=	Centerline
CHD	=	Chord Distance
CB	=	Chord Bearing
(D)	=	Deed
Δ	=	Delta Angle
(F)	=	Field
L	=	Length
R	=	Radius
ORB	=	Official Records Book
PC	=	Point of Curvature
PT	=	Point of Tangent
PI	=	Point of Intersection
CM	=	Concrete Monument
id	=	Identification
—ϟ—	=	Line Not to Scale
— · —	=	Section line
▬	=	Boundary line
ROW	=	Right of Way
AKA	=	also known as
±	=	more or less

SURVEYOR'S NOTES:

1. This Boundary Survey is not valid without the signature and original raised Seal of a Florida Licensed Surveyor and Mapper.

2. Bearings shown hereon are relative to the Florida State Plane Coordinate System, Transverse Mercator Projection, Florida East Zone (FL E 0901), North American Datum of 1983/2007 adjustment based on the North line of the Northeast Quarter of Section 18, Township 23 South, Range 32 East as being South 89°58'05" West.

3. The lands described hereon were not abstracted for ownership, easements, rights-of-way or other matters of title by this firm nor were any such documents provided by the client.

4. The Legal Description shown hereon was prepared by the surveyor based upon a review of the Orange County Property Appraisers records.

5. Interior improvements were not located.

6. Underground improvements, if any, such as foundations and utilities, were not located.

7. This Boundary Survey certified to the Orlando Utilities Commission.

8. Lands surveyed contain acres:

3138.36 acres ± lying South and East of Alafaya Trail Extension
21.92 acres ± lying Southwest of Alafaya Trail Extension
125.38 acres ± lying North and West of Alafaya Trail Extension

3285.66 acres ± total

ROBERT M. JONES
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA REGISTRATION NUMBER: PLS 4201

UNLESS IT BEARS THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING, SKETCH, PLAT OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAST DATE IN FIELD: August 24, 2011

PREPARED BY:

MACTEC
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Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6989

PREPARED FOR:

ORLANDO UTILITIES COMMISSION
5971 Perishing Avenue
Orlando, Florida 32822
Phone: 407-384-4077

The Reliable One

DATE	REVISION	DATE	REVISION

COUNTY: Orange County, Florida
FIELD BOOK/PAGE: N/A/N/A
OFF. NO.: 637411 0514
DWG. NAME: Stanton Energy Center Boundary.dwg
DWG. DATE: August 10, 2011
PHOTO DATE: 2010
DRAWN BY: P.E.W.
CHECKED BY: R.M.J.

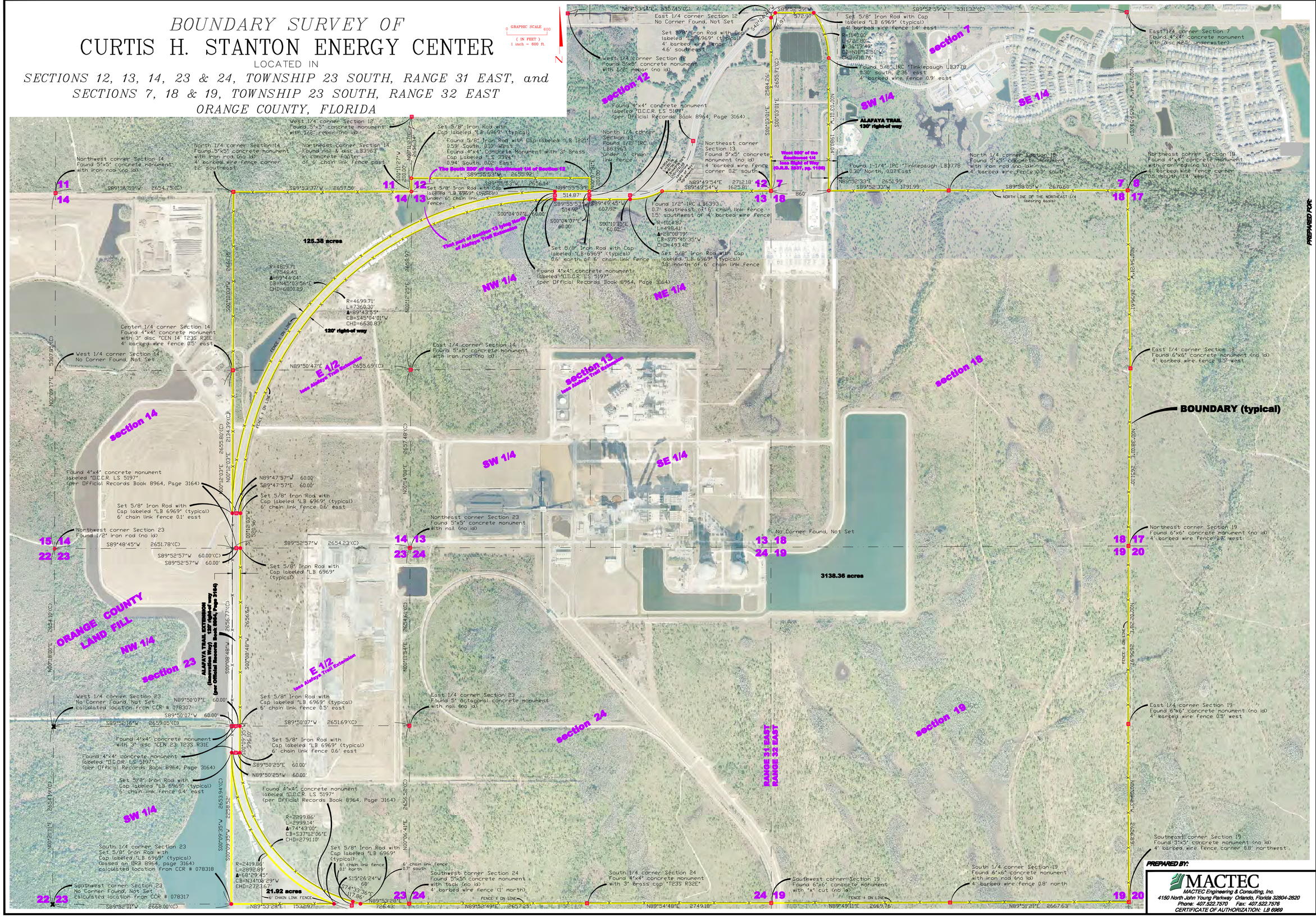
PROJECT TITLE:
BOUNDARY SURVEY OF
CURTIS H. STANTON ENERGY CENTER
LOCATED IN
SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA

SHEET NO.
1 OF 2

BOUNDARY SURVEY OF
CURTIS H. STANTON ENERGY CENTER

LOCATED IN

SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA



PREPARED FOR:

ORLANDO UTILITIES COMMISSION
5971 Perishing Avenue
Orlando, Florida 32822
Phone: 407-384-4077

OUC The Reliable One

REVISION	DATE	REVISION	DATE

COUNTY:Orange County, Florida	DWG. DATE: August 10, 2011
FIELD BOOK/PAGE: BK 119/5,58 BK 119/46,48	PHOTO DATE: 2010
OFF. NO.: 6374110514	DRAWN BY: P.E.W.
DWG. NAME: Stanton Energy Center Boundary.dwg	CHECKED BY: R.M.J.

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LOCATED IN
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SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA

SHEET NO.
2 OF 2

PREPARED BY:

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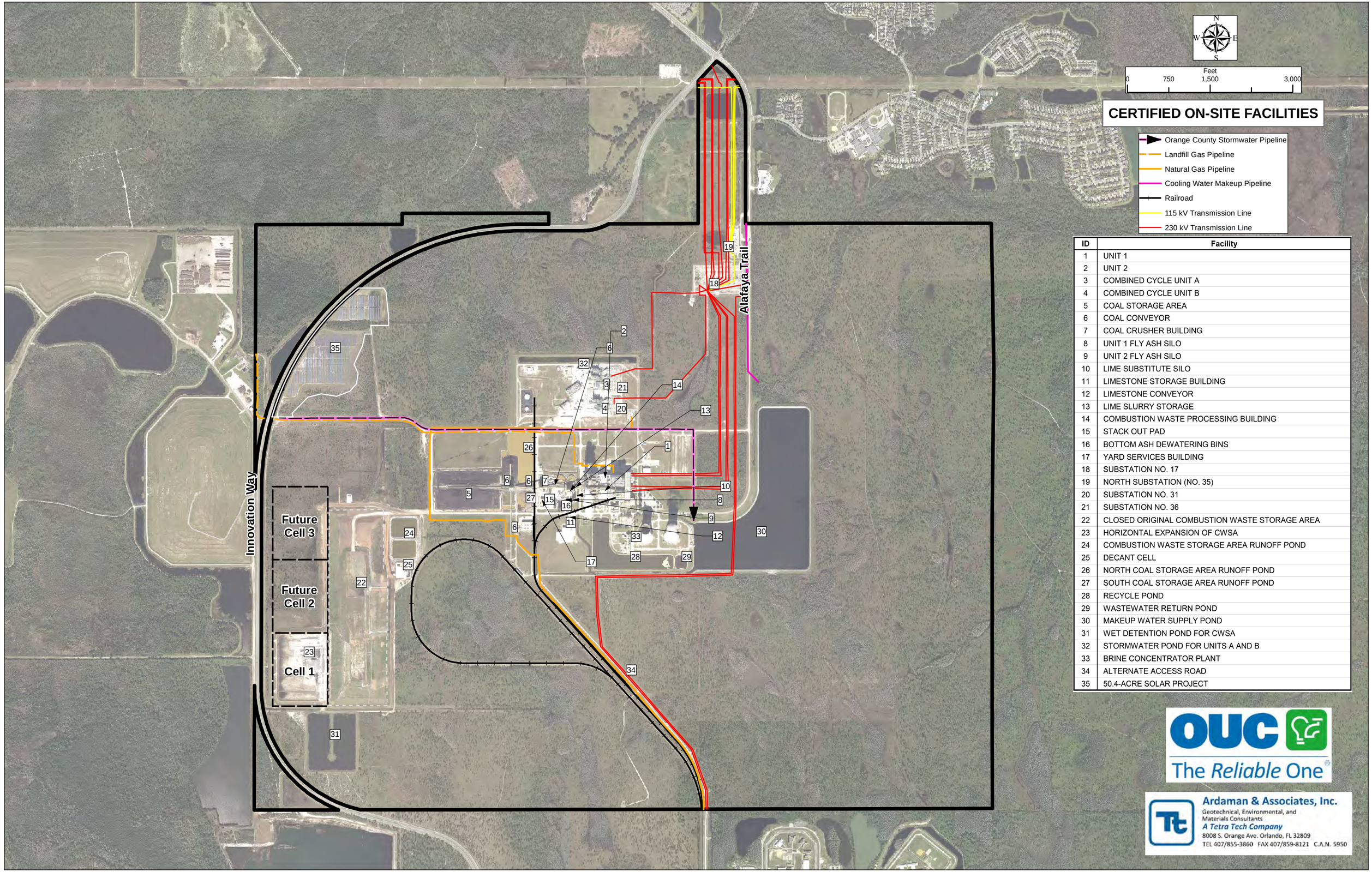
Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6969



CERTIFIED ON-SITE FACILITIES

ID	Facility
1	UNIT 1
2	UNIT 2
3	COMBINED CYCLE UNIT A
4	COMBINED CYCLE UNIT B
5	COAL STORAGE AREA
6	COAL CONVEYOR
7	COAL CRUSHER BUILDING
8	UNIT 1 FLY ASH SILO
9	UNIT 2 FLY ASH SILO
10	LIME SUBSTITUTE SILO
11	LIMESTONE STORAGE BUILDING
12	LIMESTONE CONVEYOR
13	LIME SLURRY STORAGE
14	COMBUSTION WASTE PROCESSING BUILDING
15	STACK OUT PAD
16	BOTTOM ASH DEWATERING BINS
17	YARD SERVICES BUILDING
18	SUBSTATION NO. 17
19	NORTH SUBSTATION (NO. 35)
20	SUBSTATION NO. 31
21	SUBSTATION NO. 36
22	CLOSED ORIGINAL COMBUSTION WASTE STORAGE AREA
23	HORIZONTAL EXPANSION OF CWSA
24	COMBUSTION WASTE STORAGE AREA RUNOFF POND
25	DECANT CELL
26	NORTH COAL STORAGE AREA RUNOFF POND
27	SOUTH COAL STORAGE AREA RUNOFF POND
28	RECYCLE POND
29	WASTEWATER RETURN POND
30	MAKEUP WATER SUPPLY POND
31	WET DETENTION POND FOR CWSA
32	STORMWATER POND FOR UNITS A AND B
33	BRINE CONCENTRATOR PLANT
34	ALTERNATE ACCESS ROAD
35	50.4-ACRE SOLAR PROJECT

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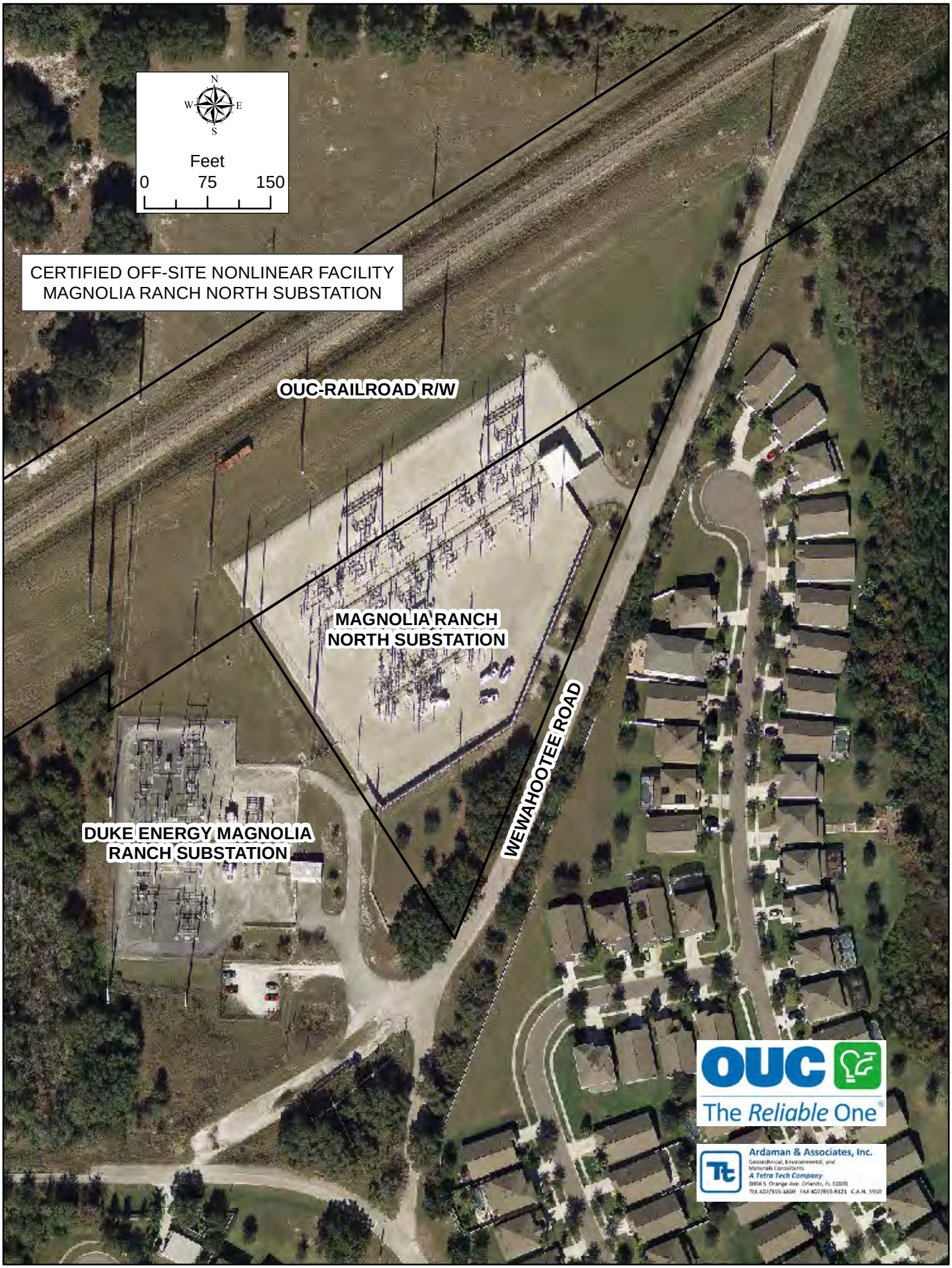
Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950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CERTIFIED OFF-SITE NONLINEAR FACILITY
MAGNOLIA RANCH NORTH SUBSTATION
OUC-RAILROAD R/W
MAGNOLIA RANCH
NORTH SUBSTATION
WEWAHOOTEE ROAD
DUKE ENERGY MAGNOLIA
RANCH SUBSTATION
OUC
The Reliable One
Ardaman & Associates, Inc.
Geotechnical, Environmental, and
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A Tetra Tech Company
3908 S. Orange Ave. Orlando, FL 32809
TEL 407/855-1860 FAX 407/855-8121 C.A.N. 5950

N
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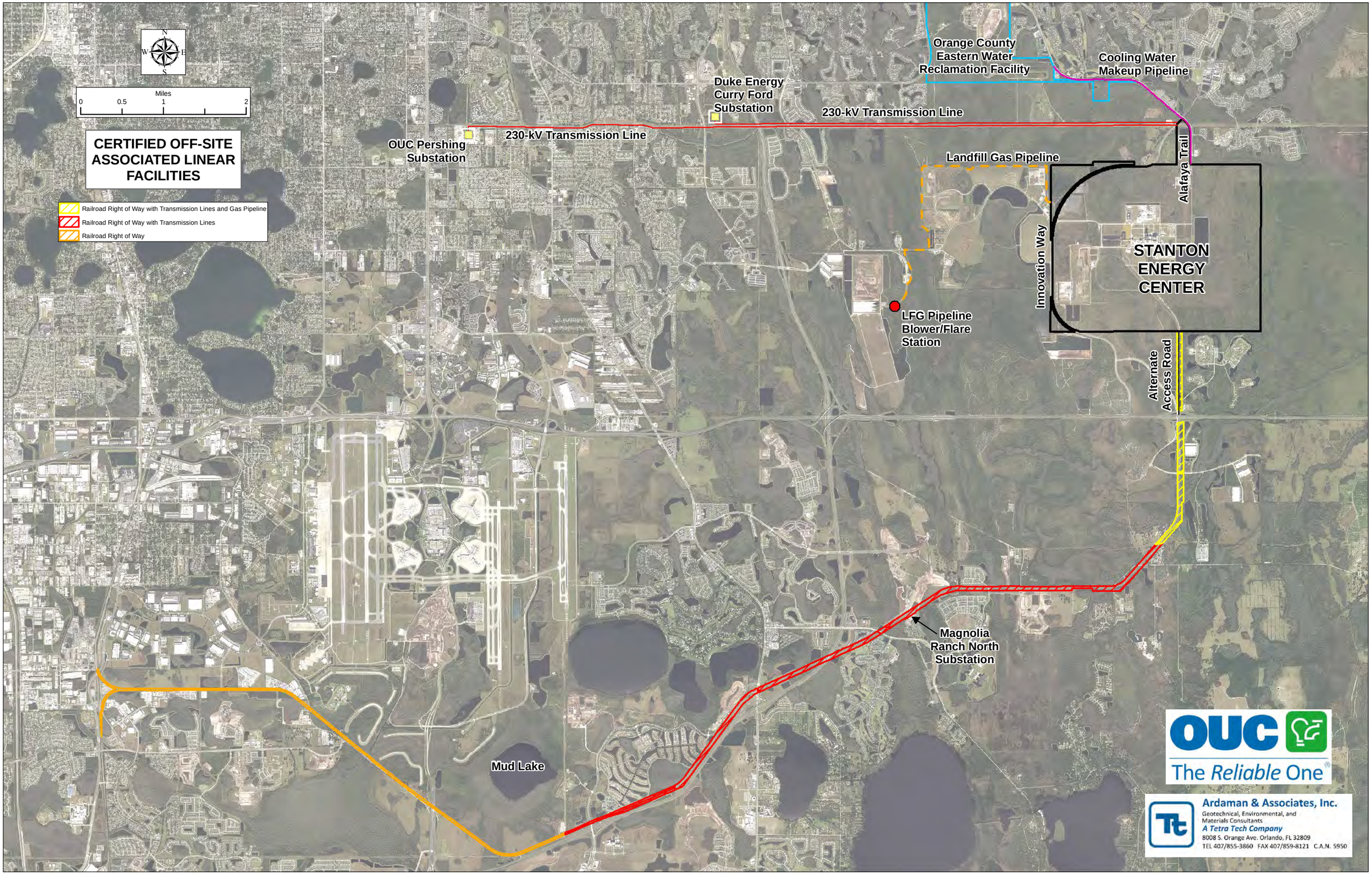
80
CERTIFIED OFF-SITE NONLINEAR FACILITY
ORANGE COUNTY LFG PIPELINE BLOWER/FLARE STATION
OUC
The Reliable One
Ardaman & Associates, Inc.
Geotechnical, Environmental, and
Materials Consultants
A Tetra Tech Company
3908 S. Orange Ave. Orlando, FL 32809
TEL 407/855-1860 FAX 407/855-8121 C.A.N. 5950



Y:\Projects\2014\113-14-13-0140 -OUC\ArcGIS\ArcLayouts\20170508 Certified Offsite Linear Facilities 11x17.mxd

Attachment B - Surface Water Management System Plan(s)

ATTACHMENT B: Surface Water Management System Operation and Maintenance Requirements

1. In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all stormwater management systems, dams, impoundments, reservoirs, appurtenant works, or works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity. The operation and maintenance shall be in accordance with the designs, plans, calculations, and other specifications that are submitted with any amendment or modification and approved by the Department.

2. A registered professional must perform inspections annually after conversion of the project to the operation and maintenance phase to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of the stormwater management system or other surface water management systems that may endanger public health, safety, or welfare, or the water resources, and to ensure that systems are functioning as designed and approved. Within 30 days of the inspection, a report shall be submitted electronically or in writing to the Department using Form 62-330.311(1), "Operation and Maintenance Inspection Certification".

3. If deficiencies are found, the SEC will be responsible for correcting the deficiencies so that the project is returned to the operational functions as designed and approved. The corrections must be done a timely manner to prevent compromises to flood protection and water quality.

4. If the operational maintenance and corrective measures are insufficient to enable the systems to meet the performance standards of this chapter, the SEC must either replace the systems or construct an alternative design.

5. The SEC shall provide for periodic inspections in addition to the annual inspections, especially after heavy rain. It must maintain a record of each inspection, including the date of inspection, the name and contact information of the inspector, whether the system was functioning as designed and approved, and make such record available upon request of the Department. Within 30 days of any failure of any system or deviation from these requirements, a report shall be submitted electronically or in writing to the Department using Form 62-330.311(1), "Operation and Maintenance Inspection Certification," describing the remedial actions taken to resolve the failure or deviation.

6. The SEC shall immediately notify the Department by telephone whenever a serious problem occurs at this facility. Notification shall be made to the Central District Office at (407) 897-4100. Within 30 days of telephone notification, a report shall be submitted electronically or in writing to the Department using Form 62-330.311(1), "Operation and Maintenance Inspection Certification," describing the extent of the problem, its cause, the remedial actions taken to resolve the problem.

7. The following operational maintenance activities shall be performed on approved systems on a regular basis or as needed:

(1) Removal of trash and debris from the surface water management systems,

(2) Inspection of culverts, culvert risers, pipes and screwgates for damage, blockage, excessive leakage or deterioration, if applicable,

(3) Inspection of stormwater berms, if applicable,

(4) Inspection of pipes for evidence of lateral seepage,

(5) Inspection of flapgates for excessive backflow or deterioration, if applicable,

(6) Removal of sediments when the storage volume or conveyance capacity of the surface water management system is below design levels,

(7) Stabilization and restoration of eroded areas,

(8) Inspection of pump stations for structural integrity and leakage of fuel or oil to the ground or surface water, if applicable, and

(9) Inspection of monitoring equipment, including pump hour meters and staff gauges, for damage and operational status, if applicable.

8. In addition to the practices listed above, specific operational maintenance activities are required, if applicable, depending on the type of approved system, as follows:

(1) Overland flow systems shall include provisions for:

a. Mowing and removal of clippings, and

b. Maintenance of spreader swales and overland flow areas to prevent channelization.

(2) Spray irrigation systems for reuse/disposal shall include provisions for:

a. Inspection of the dispersal system, including the sprayheads or perforated pipe for damage or clogging, and

b. Maintenance of the sprayfield to prevent channelization.

(3) Treatment systems which incorporate isolated wetlands shall include provisions for:

a. Stabilization and restoration of channelized areas, and

b. Removal of sediments which interfere with the function of the wetland or treatment system.

Attachment C – Mitigation Plan(s)

ATTACHMENT C – Mitigation Plan

Project	Impacts	Mitigation	Status	Project Completed
Mod B – Alafaya Trail Extension	First 2 Lanes: 10.78 Cypress, .3 Pond Pine, 5.75 Wet Prairie	37.31 ac wetland creation and upland enhancement or Conservation Easement with $430,000 contribution inclusive of monitoring reports	Road constructed.	Yes
Mod E - Alafaya Trail Extension	First 2 Lanes: 10.78 Cypress, .3 Pond Pine, 5.75 Wet Prairie	37.31 ac wetland creation and upland enhancement or Conservation Easement with $430,000 contribution inclusive of monitoring reports	Road constructed.	Yes
Mod G – Magnolia Ranch	2.6 acres of forested wetland impacts	2.6 Credits TM-Econ MB	Credits purchased	Yes
Mod H - Rail Car	5.67 acres of fill in herbaceous wetlands, 13.19 acres of clearing in forested wetlands		Project cancelled	No
Mod I - North Substation	.42 acres of isolated wetlands filled, .41 acres of forested filled, .85 acres of forested wetlands cleared	1.2 Credits TM -Econ Mitigation	Credits purchased	Yes
Mod L – Stormwater Ponds	No wetland impacts			Yes
Unit 2 Supplemental SCA – Included the Stanton to Mud Lake (Lake Nona) Transmission Line (14 miles) and alternate access road	20.3 acres of forested wetlands cleared, 3.7 acres filled for transmission lines, 2.5 acres filled for alternate access road	Joint Agency Mitigation and Monitoring Plan (June 1993)	Mitigation successful	Yes
Unit A Supplemental SCA – Included Stanton A to Stanton Switchyard Transmission Line (.6miles) and a natural gas pipeline (4.5 miles)	Impacts for the Transmission line included 0.4 acres of clearing of forested wetlands, .57 acres of herbaceous wetlands filled, .23 acres of other surface waters filled. Impacts for the gas pipeline included .23 acres of fill (temporary) in forested wetlands. No wetlands were impacted by the construction of the Stanton A power block	30.448 acres of wetlands placed under a conservation easement at the NW Boundary of SEC property	Conservation Easement has been recorded	Yes

Unit B Supplemental SCA – Included the Stanton Unit B Transmission Line	no natural surface water systems within the proposed footprint of the Unit B project, transmission line impacts included 0.12 acre of cypress strand, 3.83 acres of hydric pine savanna, and 0.02 acre of roadside ditch (i.e., a combined wetland area of 3.97 acres	5.9 credits TM-Econ Mitigation Bank, Phases I-III	Credits Purchased	Yes

Mods C, D, F, J, K, and M did not authorize any construction.

The proposed mitigation plan submitted to SJRWMD by OUC for the Curtis H. Stanton Energy Center, Unit 2, dated June 21, 1991, July 20, 1991, September 11, 1991, September 18, 1991, and September 19, 1991 is incorporated as a condition of this certification except where specifically superseded by certification conditions.

Proposed Mitigation Plan for the Curtis H. Stanton Energy Center, Unit 2

Prepared by

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2444 Northeast First Boulevard
Gainesville, Florida 32609

Prepared for

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2.2 Construction Phase Mitigation Methods	2
3.0 Mitigation Areas	3
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1.0 Introduction

The objective of this plan is to provide an innovative balanced conceptual approach to mitigation for compensation of limited impacts on wetlands and to provide a positive offset for any impacts associated with the supplemental certification application. The impacts associated with the Stanton Unit 2 transmission line and intermittent access roads for the poles are minimal. The enclosed plan will provide sufficient mitigation based on the criteria of avoidance, minimization, restoration, and creation.

Prior to final design for pole placement, field inspections were conducted with the assistance of South Florida Water Management District personnel to locate poles in areas to avoid wetlands. Pole design was selected to give a minimal footprint. Wherever possible, pole access roads will be located adjacent to railroad grade in order to avoid wetlands. The pole access road segments will utilize existing roadways and access wherever possible to minimize the need for new construction.

Due to the limited acreage available along the corridor, wetland creation/ expansion in conjunction with existing wetlands within the transmission line corridor will be the primary objective.

2.0 Methods

A three member team including a wetland ecologist/botanist, an environmental scientist, and a wildlife biologist developed the mitigation plan. Team members conducted a site review consisting of a screening process to select areas that provided maximum mitigation potential with minimal disturbance to the area.

2.1 Design Phase Mitigation Methods

Design phase mitigation emphasized the placement of the corridor and transmission line poles in areas of least possible environmental impact. A site review was conducted in conjunction with SFWMD personnel to field-verify chosen

placement of poles. The following criteria were used to avoid or minimize impacts during the design phase:

1. Position the transmission line in the certified corridor immediately adjacent to an existing corridor (OUC railroad) to minimize edge effect impacts of clearing forested wetland.
2. Construct a discontinuous access road, to be located only in those areas necessary to guarantee access to each pole.
3. Position poles in a manner to span wetlands. Use a minimal footprint pole design.

   Impacts have been kept to the minimum amount possible. Those areas which will undergo unavoidable impacts (such as access road fill and clearing of forested wetlands) are addressed in Paragraph 2.2, Construction Phase Mitigation Methods.

2.2 Construction Phase Mitigation Methods

Certain unavoidable impacts to wetlands will occur in the certified corridor during the construction of the proposed project. These impacts will be restricted to filling less than an estimated two acres of disturbed herbaceous swales and removing trees from approximately 20 acres of forested wetlands within the transmission line corridor.

In order to mitigate these impacts, mitigation team members performed a screening process to select areas within the corridor that provide a maximum mitigation potential with a minimal disturbance to the area.

The following eight overall criteria were used from an ecological perspective:

1. Create and expand wetlands immediately adjacent to areas to be filled for pole access road construction.
2. Hand clear forested wetlands in the corridor in order to maintain soil and root mat structure.
4. Hand cleared forested wetlands beneath the transmission line will be allowed to undergo natural succession into an herbaceous marsh condition. It will be maintained in this state by the Orlando Utilities Commission (OUC).
5. Silt screens or their equivalent will be used as turbidity control until herbaceous vegetation has sprouted sufficiently enough to prevent erosion.

6. Areas suitable for the expansion of wetlands are depicted on the enclosed maps.
7. Wetlands will be created with the goal of no net loss of wetland acreage.
8. Minimize impact to areas known to be utilized by sandhill cranes.

3.0 Mitigation Areas

Each mitigation/expansion area will be approached in a similar consistent fashion.

Preliminary estimates (Table 6.1-1) show a total of 1.87 acres of wetlands to be filled.

Each creation/expansion area will be constructed as close as possible to an area to be filled. To accommodate a no net loss of wetland acreage, upland pasture area within the corridor will be utilized where possible. The remaining areas will be located within the railroad corridor. At the wetland creation area, topsoils will be removed and stockpiled in the immediate area. Topsoils containing natural seed stocks will be replaced in the wetland so that the natural seed bank will form the initial herbaceous wetland stock.

Subsoil for use in road fill will then be removed from the created/expanded wetland area to construct the road.

The approximately .58 acre marsh with the nesting sandhill crane will be addressed using the following procedure:

1. Transmission line poles will be positioned to span the marsh.
2. Construction will be scheduled to avoid the sandhill crane's nesting season.
3. The marsh will not be disturbed.
4. The access road will be located in the swale adjacent to the railroad rather than in the marsh.

4.0 Conclusions

The plan is based upon the mitigation criteria of avoidance, minimization, restoration, and creation. By locating wetland creation/enhancement sites adjacent to fill areas, OUC will maintain existing drainage patterns.

Poles have been placed in nonwetlands wherever possible. Several additional poles were incorporated into the design to provide spacing necessary to avoid pole placement in wetlands.

The corridor location was positioned adjacent to an existing corridor to minimize unavoidable impacts to forested areas.

Pole access roads will be built only in those areas which have no alternative access to transmission line poles.

Herbaceous wetlands will be created/enhanced to replace those existing disturbed herbaceous wetlands which will be filled for required access roads.

The mitigation plan for the Stanton Energy Center, Unit 2 provides a balanced program to maintain wetland function and provide a no net loss of wetland acreage within the SFWMD.

SFWMD JURISDICTIONAL WETLANDS WITHIN THE TRANSMISSION LINE CORRIDOR

Within SFWMD jurisdiction, the proposed transmission line/pole access road corridor contains three general types of wetlands:

(1) Forested Wetlands.

The majority of the 23 acres of cypress domes and mixed hardwood/cypress wetlands within the corridor are connected to the Crosby Island Marsh System. The dominant canopy species include the following:

Taxodium ascendens:	pond cypress.
Gordonia lasianthus:	loblolly bay.
Persea palustris:	swamp bay.
Acer rubrum:	red maple.
Nyssa sylvatica:	black gum.
Pinus serotina:	pond pine.

Subcanopy and shrub vegetation at the periphery of the forested wetlands is dominated by the following:

Myrica cerifera:	wax myrtle.
Lyonia lucida:	fetterbush.
Ilex glabra:	gallberry.
Ilex cassine:	dahoon holly.

Scattered ground cover is mainly restricted to the periphery of the forested wetlands and is dominated by the following species:

Dichromena latifolia:	white-top sedge.
Lachnocaulon spp.:	bog-buttons.
Xyris spp.:	yellow-eyed grass.
Woodwardia virginica:	Virginia chain fern.

(2) Manmade Herbaceous Wetlands Swales.

The majority of the existing railroad corridor contains manmade swales with a disturbance-tolerant herbaceous plant community dominated by the following species:

Bacopa caroliniana:	blue-eyed hyssop.
Bidens alba:	begger-ticks.
Cyperus brevifolius:	flat sedge.
Cyperus esculentus:	yellow nut grass.
Hypericum sp.:	St. John's wort.
Juncus marginatus:	rush.
Juncus elliottii:	rush.
Rhynchospora fascicularis:	horned rush.

Less than two acres of these forested wetlands function as stormwater control areas. Hand clearing of the tree canopy within the transmission line corridor will not remove this functional role. Herbaceous wetland vegetation will be allowed to colonize the cleared wetlands from nearby seed sources.

(3) Herbaceous Marshes.

A small amount of herbaceous marsh is located within the proposed transmission line corridor, primarily in pastures. These low diversity disturbed marshes contain the following herbaceous plants and low shrubs as dominants:

Cyperus spp.:	flat sedges.
Juncus spp.:	rushes.
Xyris spp.	yellow-eyed grass.
Bacopa caroliniana:	blue-eyed hyssop.
Centella asiatica:	coinwort.
Hydrocotyl umbellata:	water pennywort.
Mikania scandens:	climbing hempweed.

TABLE 6.1-1

ORLANDO UTILITIES COMMISSION

STANTON – MUD LAKE 230 KV TRANSMISSION LINE

SUMMARY OF DESIGN DATA AND LAND USE

LOCATION				ACCESS ROAD SUMMARY				CLEARING SUMMARY WETLAND CLEARING		FOUNDATION EXCAVATION
						WETLAND FILLING				
FROM STRUCTURE NUMBER	TO STRUCTURE NUMBER	R/W WIDTH (FT) (1)	SPAN (FT)	LENGTH (FT)	FILL (CUYDS)	STATE (AC)	FEDERAL (AC)	STATE (AC) (2)	FEDERAL (AC) (2)	WETLAND (CU YDS)
101	102	120	930	0	0.0	0.00	0.00	0.00	0.00	0.0
102	103	120	950	0	0.0	0.00	0.00	0.00	0.00	0.0
103	104	120	950	0	0.0	0.00	0.00	0.00	0.00	0.0
104	105	120	950	0	0.0	0.00	0.00	0.00	0.52	0.0
105	106	120	960	800	1866.7	0.50	0.50	1.65	1.98	0.0
106	107	120	900	0	0.0	0.00	0.00	0.00	1.81	0.0
107	108	120	850	0	0.0	0.00	0.00	0.00	1.76	0.0
108	109	120	830	0	0.0	0.00	0.00	0.00	1.71	0.0
109	110	120	800	0	0.0	0.00	0.00	0.00	0.52	0.0
110	111	120	940	0	0.0	0.00	0.00	0.00	0.00	0.0
111	112	120	940	0	0.0	0.00	0.00	0.00	0.00	0.0
112	113	120	940	0	0.0	0.00	0.00	0.00	0.00	0.0
113	114	120	940	0	0.0	0.00	0.00	0.00	0.00	0.0
114	115	120	940	250	583.3	0.15	0.15	0.52	0.52	0.0
115	116	120	940	220	513.3	0.14	0.14	0.45	0.45	0.0
116	117	120	940	0	0.0	0.00	0.00	0.00	0.00	0.0
117	118	120	940	150	350.0	0.00	0.00	0.00	0.00	0.0
118	119	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
119	120	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
120	121	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
121	122	120	900	200	466.7	0.12	0.12	0.41	0.41	0.0
122	123	120	900	150	350.0	0.09	0.09	0.31	0.31	0.0
123	124	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
124	125	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
125	126	120	900	0	0.0	0.00	0.00	0.00	0.21	0.0
126	127	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
127	128	120	800	200	466.7	0.12	0.12	0.00	0.00	0.0
128	129	120	800	50	116.7	0.03	0.03	0.10	0.10	31.4
129	130	120	900	0	0.0	0.00	0.00	1.24	1.76	0.0
130	131	120	900	0	0.0	0.00	0.00	0.00	0.00	0.0
131	132	120	900	0	0.0	0.00	0.00	0.41	0.83	0.0
132	133	120	850	0	0.0	0.00	0.00	0.00	0.10	0.0
133	134	120	850	0	0.0	0.00	0.00	0.00	0.00	0.0
134	135	120	820	450	1050.0	0.28	0.28	1.14	1.14	0.0

(1) TOTAL WIDTH INCLUDING PORTIONS THAT MAY EXTEND OVER OTHER RIGHTS-OF-WAY.

(2) WETLAND CLEARING ACREAGE INCLUDES ACCESS ROAD IMPACT AREA.

TABLE 6.1-1

ORLANDO UTILITIES COMMISSION

STANTON – MUD LAKE 230 KV TRANSMISSION LINE

SUMMARY OF DESIGN DATA AND LAND USE

LOCATION				ACCESS ROAD SUMMARY				CLEARING SUMMARY		FOUNDATION EXCAVATION
						WETLAND FILLING		WETLAND CLEARING		
FROM STRUCTURE NUMBER	TO STRUCTURE NUMBER	R/W WIDTH (FT) (1)	SPAN (FT)	LENGTH (FT)	FILL (CUYDS)	STATE (AC)	FEDERAL (AC)	STATE (AC) (2)	FEDERAL (AC) (2)	WETLAND (CU YDS)
135	136	120	850	0	0.0	0.00	0.00	0.00	0.00	0.0
136	137	120	850	0	0.0	0.00	0.00	0.00	0.00	0.0
137	138	120	850	350	816.7	0.22	0.22	0.62	1.14	0.0
138	139	120	850	0	0.0	0.00	0.00	0.56	0.72	0.0
139	140	120	850	0	0.0	0.00	0.00	0.00	0.00	0.0
140	141	120	910	0	0.0	0.00	0.00	0.00	0.00	0.0
141	142	120	910	0	0.0	0.00	0.00	0.00	0.00	0.0
142	143	120	910	0	0.0	0.00	0.00	0.00	0.00	0.0
143	144	120	910	350	816.7	0.22	0.22	0.41	0.72	31.4
144	145	120	910	0	0.0	0.00	0.00	1.03	1.88	31.4
145	146	120	910	0	0.0	0.00	0.00	0.00	1.18	0.0
146	147	120	750	0	0.0	0.00	0.00	0.62	1.14	0.0
147	148	120	910	0	0.0	0.00	0.00	0.00	0.48	31.4
148	149	120	910	0	0.0	0.00	0.00	0.00	1.57	0.0
149	150	120	840	0	0.0	0.00	0.00	0.00	0.00	0.0
150	151	120	840	0	0.0	0.00	0.00	0.00	0.00	0.0
151	152	120	840	0	0.0	0.00	0.00	0.00	0.00	0.0
152	153	120	830	0	0.0	0.00	0.00	0.00	0.10	0.0
153	154	120	800	0	0.0	0.00	0.00	0.00	0.00	0.0
SUBTOTAL			46990	3170	7396.7	1.87	1.87	9.48	23.05	125.6
(SOUTH FLORIDA WATER MANAGEMENT DISTRICT JURISDICTION)			8.9							

(1) TOTAL WIDTH INCLUDING PORTIONS THAT MAY EXTEND OVER OTHER RIGHTS-OF-WAY.

(2) WETLAND CLEARING ACREAGE INCLUDES ACCESS ROAD IMPACT AREA.

TABLE 6.1-1

ORLANDO UTILITIES COMMISSION

STANTON – MUD LAKE 230 KV TRANSMISSION LINE

SUMMARY OF DESIGN DATA AND LAND USE

LOCATION				ACCESS ROAD SUMMARY				CLEARING SUMMARY WETLAND CLEARING		FOUNDATION EXCAVATION
						WETLAND FILLING				
FROM STRUCTURE NUMBER	TO STRUCTURE NUMBER	R/W WIDTH (FT) (1)	SPAN (FT)	LENGTH (FT)	FILL (CUYDS)	STATE (AC)	FEDERAL (AC)	STATE (AC) (2)	FEDERAL (AC) (2)	WETLAND (CU YDS)
153	154	120	800	0	0.0	0.00	0.00	0.00	0.97	31.4
154	155	120	950	0	0.0	0.00	0.00	0.17	1.96	31.4
155	156	120	960	400	933.3	0.25	0.25	0.79	1.98	31.4
156	157	120	960	0	0.0	0.00	0.00	0.54	1.01	0.0
157	158	120	960	0	0.0	0.00	0.00	0.00	0.00	0.0
158	159	120	960	0	0.0	0.00	0.00	0.00	0.00	0.0
159	160	120	1000	0	0.0	0.00	0.00	0.00	0.00	0.0
160	161	120	870	0	0.0	0.00	0.00	0.00	0.00	0.0
161	162	120	1050	0	0.0	0.00	0.00	0.00	0.00	0.0
162	163	120	750	0	0.0	0.00	0.00	0.30	1.87	0.0
163	164	120	900	0	0.0	0.00	0.00	0.91	2.48	31.4
164	165	120	900	0	0.0	0.00	0.00	0.07	2.48	31.4
165	166	120	850	0	0.0	0.00	0.00	1.09	2.34	0.0
166	167	120	850	0	0.0	0.00	0.00	1.38	2.34	0.0
167	168	120	850	0	0.0	0.00	0.00	1.24	2.34	0.0
168	169	120	800	0	0.0	0.00	0.00	0.33	2.20	0.0
169	170	120	850	0	0.0	0.00	0.00	0.74	2.34	0.0
170	171	100	900	0	0.0	0.00	0.00	0.00	0.00	0.0
171	172	100	665	0	0.0	0.00	0.00	0.00	0.00	0.0
172	173	100	665	0	0.0	0.00	0.00	0.00	0.00	31.4
173	174	100	660	0	0.0	0.00	0.00	0.00	0.04	0.0
174	175	100	660	0	0.0	0.00	0.00	0.00	0.04	31.4
175	176	100	660	0	0.0	0.00	0.00	0.00	0.08	31.4
176	177	100	660	660	415.6	0.26	0.26	0.05	0.08	31.4
177	178	100	660	660	415.6	0.26	0.26	0.07	0.08	31.4
178	179	100	660	660	415.6	0.26	0.26	0.03	0.08	0.0
179	180	100	725	725	456.5	0.28	0.28	0.12	1.00	31.4
180	181	100	725	725	456.5	0.28	0.28	0.34	1.00	31.4
181	182	100	600	600	377.8	0.23	0.23	0.00	0.83	31.4
182	183	100	600	600	377.8	0.23	0.23	0.00	0.83	31.4
183	184	100	520	520	327.4	0.20	0.20	0.00	0.72	31.4

(1) TOTAL WIDTH INCLUDING PORTIONS THAT MAY EXTEND OVER OTHER RIGHTS-OF-WAY.

(2) WETLAND CLEARING ACREAGE INCLUDES ACCESS ROAD IMPACT AREA.

TABLE 6.1-1

ORLANDO UTILITIES COMMISSION

STANTON – MUD LAKE 230 KV TRANSMISSION LINE

SUMMARY OF DESIGN DATA AND LAND USE

LOCATION				ACCESS ROAD SUMMARY				CLEARING SUMMARY		
						WETLAND FILLING		WETLAND CLEARING		
FROM STRUCTURE NUMBER	TO STRUCTURE NUMBER	R/W WIDTH (FT) (1)	SPAN (FT)	LENGTH (FT)	FILL (CUYDS)	STATE (AC)	FEDERAL (AC)	STATE (AC) (2)	FEDERAL (AC) (2)	FOUNDATION EXCAVATION IN WETLAND (CU YDS)
184	185	100	780	780	491.1	0.30	0.30	0.00	0.00	31.4
185	186	100	670	220	309.6	0.12	0.12	0.09	0.03	31.4
186	187	140	650	0	0.0	0.00	0.00	0.00	1.79	31.4
187	188	140	690	0	0.0	0.00	0.00	0.00	1.90	31.4
188	189	140	500	0	0.0	0.00	0.00	0.00	0.55	0.0
SUBTOTAL			27110	6550	4976.7	2.68	2.68	8.26	32.37	565.2
(ST JOHNS WATER MANAGEMENT DISTRICT JURISDICTION)			5.1							
TOTALS			74100 14.0	9720	12373.3	4.55	4.55	17.74	55.42	690.8

(1) TOTAL WIDTH INCLUDING PORTIONS THAT MAY EXTEND OVER OTHER RIGHTS-OF-WAY.

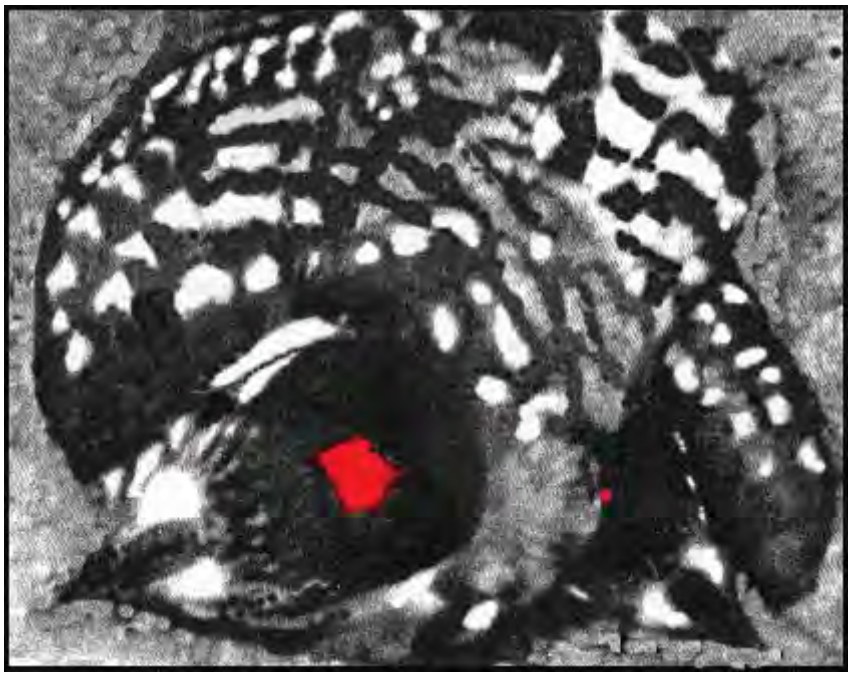
(2) WETLAND CLEARING ACREAGE INCLUDES ACCESS ROAD IMPACT AREA.

Attachment D – Red Cockaded Woodpecker Management Plan

Attachment D

Red-Cockaded Woodpecker Management Plan

THE CURTIS H. STANTON ENERGY CENTER, RED-COCKADED WOODPECKERS HABITAT MANAGEMENT PLAN



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July 8, 2005

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EXECUTIVE SUMMARY

The red-cockaded woodpecker (*Picoides borealis*), a state listed species of special concern and federally listed endangered species, was first observed on the proposed Curtis H. Stanton Energy Center (SEC site) in 1980. During the early 1980s, nine occupied clusters (roosting habitat) were found on the SEC site while 16 occupied clusters occurred in other areas north of the Bee Line Expressway. Presently, there are 13 occupied clusters remaining north of the Bee Line Expressway plus 10 other occupied clusters located on the TM-Ranch about 4 miles southeast of the SEC site. Six occupied clusters currently remain on the SEC site.

Orlando Utilities Commission (OUC) prepared and implemented a red-cockaded woodpecker management plan and monitoring program in 1981 to improve the chances of long-term survival of the species on the SEC site. The 1981 plan plus updates in the 1993 plan, consisted of both a regular prescribed burning program and monitoring activities studying red-cockaded woodpecker habitat use and demographics (DeLotelle and Guthrie and Black & Veatch, 1993 and DeLotelle and Epting 2000). In 1993 as part of the mitigation program for Unit II construction, the original 1981 Red-cockaded Woodpecker Management Plan was revised to incorporate new developments in management strategies for the mesic longleaf pine ecosystem (Black & Veatch and DeLotelle and Guthrie, Inc., 1992). The 1993 management plan contained most elements of the 1981 plan with additional plans for wetland restoration and planting of cypress trees (*Taxodium distichum*) in selected areas. Longleaf pine (*Pinus palustris*) was planted in selected upland areas for future foraging habitat. The revised monitoring plan of 1993 called for evaluating red-cockaded woodpecker survival, fledging success, and other demographic factors.

The following mitigation and enhancement plan is proposed to offset losses in mitigation areas from the gas pipeline installation in the southern utilities corridor and from the removal of planted pine along the northern transmission line corridor between the substation and Pope Road. OUC will be implementing additional measures above the practices outlined the 1981 and 1993 reports to aid in increasing the number of red-cockaded woodpecker clusters on the SEC site and ultimately to enhance the viability of the Orange County red-cockaded population. These actions include a cluster creation

project, exotic species removal, and bird translocation. Cluster creation will consist of constructing three artificial clusters each with four artificial cavities plus augmentation in each of six occupied clusters as needed. The artificial clusters will be developed in historic cluster sites and will have enhanced habitats after the removal of nuisance plants and mid-story shrubs. If natural dispersal is unsuccessful, bird translocations will be performed.

1.0 INTRODUCTION

As part of the Conditions of Unit I Site Certification Agreement (SCA), specifically conditions XXXI, Orlando Utilities Commission (OUC), Florida Municipal Power Agency (FMPA), and Kissimmee Utility Authority (KUA), agreed to manage approximately 2,000 acres of the Curtis H. Stanton Energy Center (SEC) for the benefit of the on-site, red-cockaded woodpeckers (*Picoides borealis*). These conditions were carried forward as a condition for the construction of Unit II. OUC prepared and implemented a management plan and monitoring program in 1981 and updated it in 1993, namely The Red-cockaded Woodpecker Management Plan, to improve the chances of long-term survival of the species on the SEC site (OUC, 1981 and 1993 update). In addition, OUC funded planting programs; as detailed in The Joint Agency Mitigation and Monitoring Plan (JAMMP), which were designed to mitigate wetland and upland impacts associated with the construction of the Unit II transmission line and alternate access road.

Since the development of these plans, advances have been made in the knowledge of on-site and regional red-cockaded woodpecker populations as a result of studies primarily supported by OUC. Other knowledge gained about the species requirements have led to changes in some management practices, e.g., the Red-cockaded Woodpecker (*Picoides borealis)* Recovery Plan: Second Edition, 2003. Accordingly, the 1981 and 1993 Red-cockaded Woodpecker Management Plan will be revised to reflect these new management practices.

This following update reflects recent changes in red-cockaded woodpecker management strategies and addresses the mitigation requirements of the Unit 2 Conditions of Certification (COC) as provided in the JAMMP. This plan will also detail compensation measures for the loss of the mitigation pine planting areas of longleaf pine both in the certified north/south, associated, facilities corridor and under the transmission line between the substation and Pope Road. These actions include:

(1) a statement of the habitat function and description provided for the managed area;

(2) a schedule of fire management utilizing a Florida State Certified Burn Specialist, that includes a description of burn conditions, burn frequency, and measures taken to avoid the spread of wildfire;

(3) measures to eradicate exotic vegetation from both wetlands and uplands;

(4) other enhancement activities such as ground cover enhancement, artificial cavity augmentation, and bird translocations; and

(5) persons and/or the company responsible for the management plan.

1.1 Overall Project History

Certification studies commencing in 1980 for the SEC site included the evaluation of endangered and threatened wildlife species. Several endangered and threatened wildlife species including the red-cockaded woodpecker occurred on-site and in surrounding habitats. During the initial field surveys, nine occupied clusters were observed on-site with an additional 16 occupied clusters located off-site in the northern area of the Big Econlockhatchee Basin (Big Econ). Prior to the initial SCA in 1982, red-cockaded woodpeckers were not known to occur in the area. In response to discussions with the Florida Fish and Wildlife Conservation Commission (FFWCC, formerly Florida Game and Fresh Water Fish Commission [FGFWFC]) and the U. S. Fish and Wildlife Service (FWS), a management plan and long-term monitoring program for red-cockaded woodpeckers were developed as part of the informal review for SEC I (DeLotelle and Newman 1981). Because of mitigation actions and new developments in management strategies for the mesic longleaf pine ecosystem, the original 1981 Red-cockaded Woodpecker Management Plan was revised in 1993 during the certification process for SEC II. On-site groups were studied continuously as part of the monitoring program with additional groups in surrounding areas studied during the certification process for SEC I & II and for other projects in the Big Econ basin.

1.2 Unit I History

OUC initiated discussions with the FGFWFC and FWS in 1980 to develop mitigation and management options that minimized impacts of Unit I construction on red-cockaded woodpeckers. OUC made major siting changes during the site design phase including both the 1) relocation of the make-up water supply pond and solid waste disposal area and 2) a complete rotation of the entire power block and associated facilities from a north to south orientation to an east-west alignment. These mitigation procedures were implemented to avoid cavity trees and to protect the higher quality pine habitat. Such actions resulted in increased cost; but, less impact on the red-cockaded woodpecker habitat.

In addition, the 1981 Red-cockaded Woodpecker Management Plan was developed in consultation with the FGFWFC and FWS as part of the Unit I SCA for the Florida Department of Environmental Regulation (FDER). The objectives of the 1981 management plan were to:

(1) identify the distribution and abundance of red-cockaded woodpeckers in the area;

(2) map and determine the status of existing clusters and cavity trees on-site as well as in the surrounding areas;

(3) map potential cluster sites and foraging habitats on-site;

(4) develop a fire management schedule for the mesic longleaf pine flatwoods ecosystem in the undeveloped portions of the site; and

(5) propose a long-term monitoring plan for the site's red-cockaded woodpeckers.

As stipulated in Condition XXXI for the Certification of Unit I, the Red-cockaded Woodpecker Management Plan will be implemented for the life of the facility on about 2,000 acres of longleaf pine flatwoods. The life of the SEC site can be expected to extend well into this century. Approximately, 1100 acres of the site was dedicated to power plant related activities, including additional Units II, III, and IV.

1.3 Unit II Project Description

Unit II at the SEC site involved the construction of an additional coal-fired, steam electric generating unit and associated facilities. Unit II required nine acres of previously cleared and graded land located immediately north of the SEC Unit I facility. Unit II also included a 14-mile long, 230 kV transmission line and a two-mile long, alternate access road. Both the transmission line and alternate access road were located in the certified north/south associated facilities corridor. The selected route was chosen specifically to have as little impact as possible on both upland and wetland communities. The transmission line runs south from the on-site substation, parallels the northern, eastern and southern side of the make-up water supply pond, extends south across a cleared area, and then proceeds southeasterly along the railroad spur within the certified associated facilities corridor. The alternate access road parallels the eastern side of the existing railroad from the southern edge of the power block near the coal handling facility to the Bee Line Expressway, about 2 miles to the south.

The alternate access road was constructed first and had minor impacts on red-cockaded woodpecker habitat (DeLotelle and Guthrie, Inc and Black & Veatch, 1993). Together, the transmission line and alternate access road impacted about 80 longleaf pine trees in red-cockaded woodpecker territories on the SEC site; however, none of the impacts were to cavity trees.

As a result of anticipated impacts from Unit II construction to uplands and wetlands, the JAMMP was developed to enhance wetland and upland areas in the managed area on the SEC site (Black and Veatch and DeLotelle and Guthrie, Inc., 1992). The plan called for extensive planting of longleaf pine in upland habitats, planting of slash pine (*P.elliotii*) in the associated facilities corridor, and planting of pond cypress (*Taxodium distichum*) in wetlands. Longleaf pines were to be planted in selected areas to promote flight corridors for passage across cleared transmission line/railroad corridors. Ditch filling, contouring, and other restoration efforts restored the historical hydroperiods of several wetland systems. Several dirt roads were maintained to improve access to the mitigation sites. These mitigation access roads were selected so as not to impact mitigation sites, cavity trees, or the flatwoods ecosystem and ran along existing woods roads. Monitoring of the mitigation activities specified in the JAMMP was performed annually by OUC.

1.4 Unit II Impacts and Further Habitat Loss

Mitigation lands for Unit II construction included planting areas for longleaf pine and pond cypress, as well as ditch plugging areas for wetland enhancement on the SEC site. Mitigation for red-cockaded woodpeckers in the form of pine tree planting occurred in several areas, including strips along the transmission line corridor to the north and the access corridor south of the main facility at the SEC site (Figure 1). These tree-planting areas were created to provide pine habitat for crossing the access corridor by red-cockaded woodpeckers and other wildlife. Several of these pine tree-planting areas were removed during the construction of a permitted gas pipeline along the southern access corridor and (see Figures 2 and 4) all planted pine trees under the transmission line in the northern corridor were removed or are planned for removal. In the north corridor, the planted trees had grown to a height where OUC viewed the failure of the transmission line as imminent and had OUC maintenance department remove, on an emergency basis, several patches of planted trees that were the greatest threat. OUC determined that all planted pines along the northern corridor are potential hazards to the transmission lines and are to be removed. These areas were planted as a result of mitigation for loss of natural pine habitat from the construction activities for Unit II. The following update and enhancement activities are proposed to offset losses in mitigation areas from the existing and pending removal of planted pine in both the gas pipeline and the northern transmission line corridors.

1.5 Land Management Perspective

During the early-to-late 1900's the SEC site was managed for cattle, timber, and hunting. During this period, the local landowners or lessees conducted winter prescribed burns, including the years of 1980 and 1982. OUC's fire management schedule for the SEC site was implemented after construction of Unit I and included control burns over the entire site continuing through 2004. Six controlled burns have been conducted during this monitoring period by OUC. Since the property was purchased by OUC, other activities in most of the management area have generally been restricted; thus, good conditions have been maintained for continued development of the longleaf pine ecosystem and enhancement of red-cockaded woodpecker habitat.

Although still a problem during fire activities, saw palmetto (*Serenoa repens*) seems to be less abundant and the wiregrass community more extensive than during pre-construction monitoring. As a result of the fire management practices, several good recruitment classes have occurred since 1982 and longleaf pine regeneration in the managed area is greater than prior to 1984. Many former sparsely treed areas now include a well established, younger-age class of longleaf pine. Other areas on-site still have a much-reduced density of longleaf pine from historical timber management practices. Habitat conditions on the SEC site appear to be similar to other non-disturbed portions of the Big Econ basin (Brown et al., 1989); however, the site includes a much greater percentage of older aged longleaf pine than most of the surrounding areas. The TM-Ranch, about eight miles to the southeast, is the obvious exception and includes many old longleaf pines and consequently a red-cockaded woodpecker population similar to the SEC site.

In addition to habitat management, numerous monitoring studies have been conducted on the SEC site since 1980. To date, the following studies have been conducted:

(1) reproductive studies, annually 1980-2004;

(2) area wide population monitoring studies in addition to the above in 1981, 1983, 1986, 1988, and 1995-2004;

(3) home range, habitat evaluation and use, and territory size studies in 1981-84 and 1986-87;

(4) population turnover studies, annually from 1980-2004; and

(5) cavity tree use studies, annually 1980-2004.

(6) population status in areas north of the Beeline Expressway was determined through 2004.

FIGURE 1. Location of Red-cockaded Woodpecker Clusters in East Orange County, OUC, Orlando, Florida, 2005

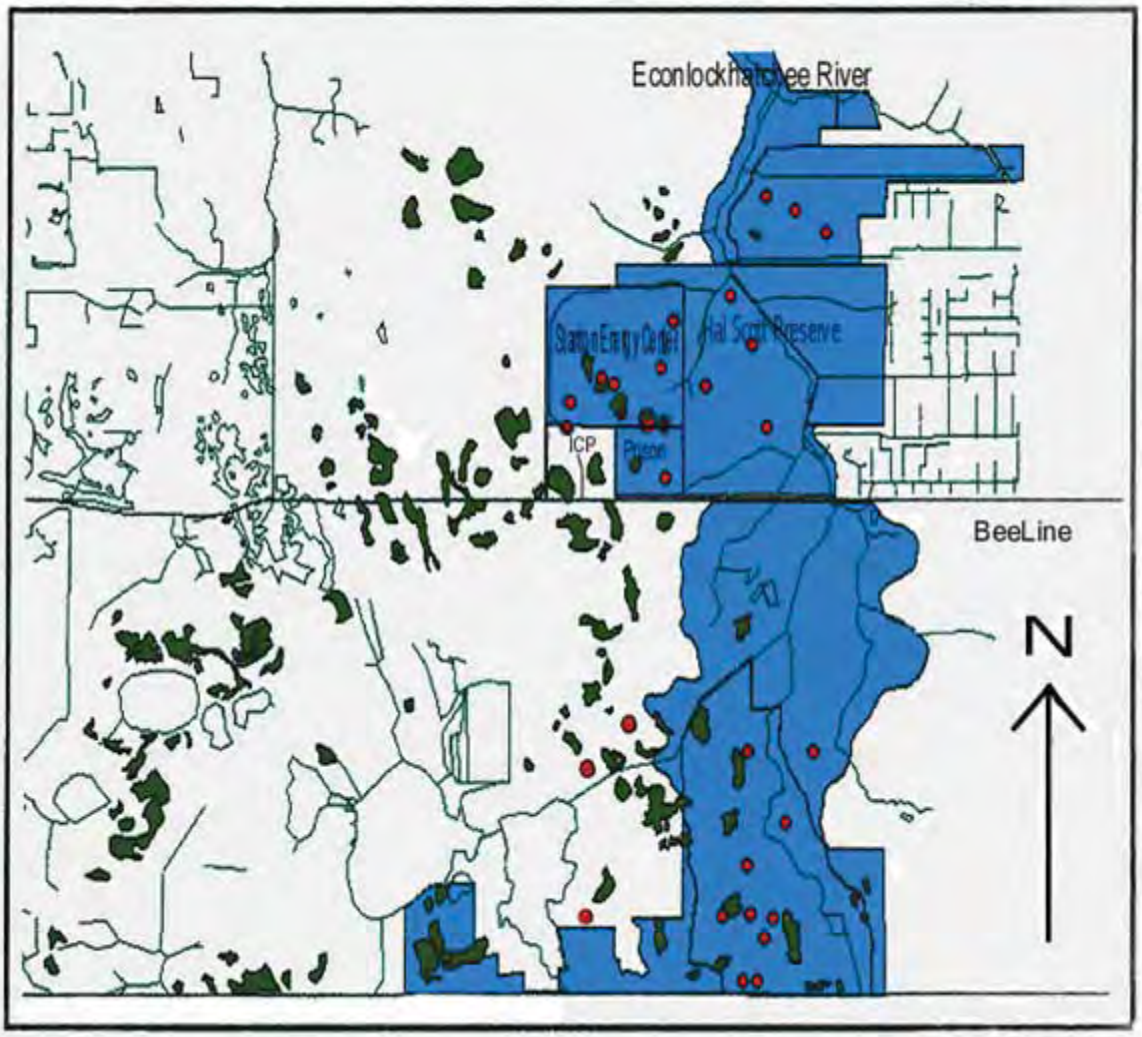
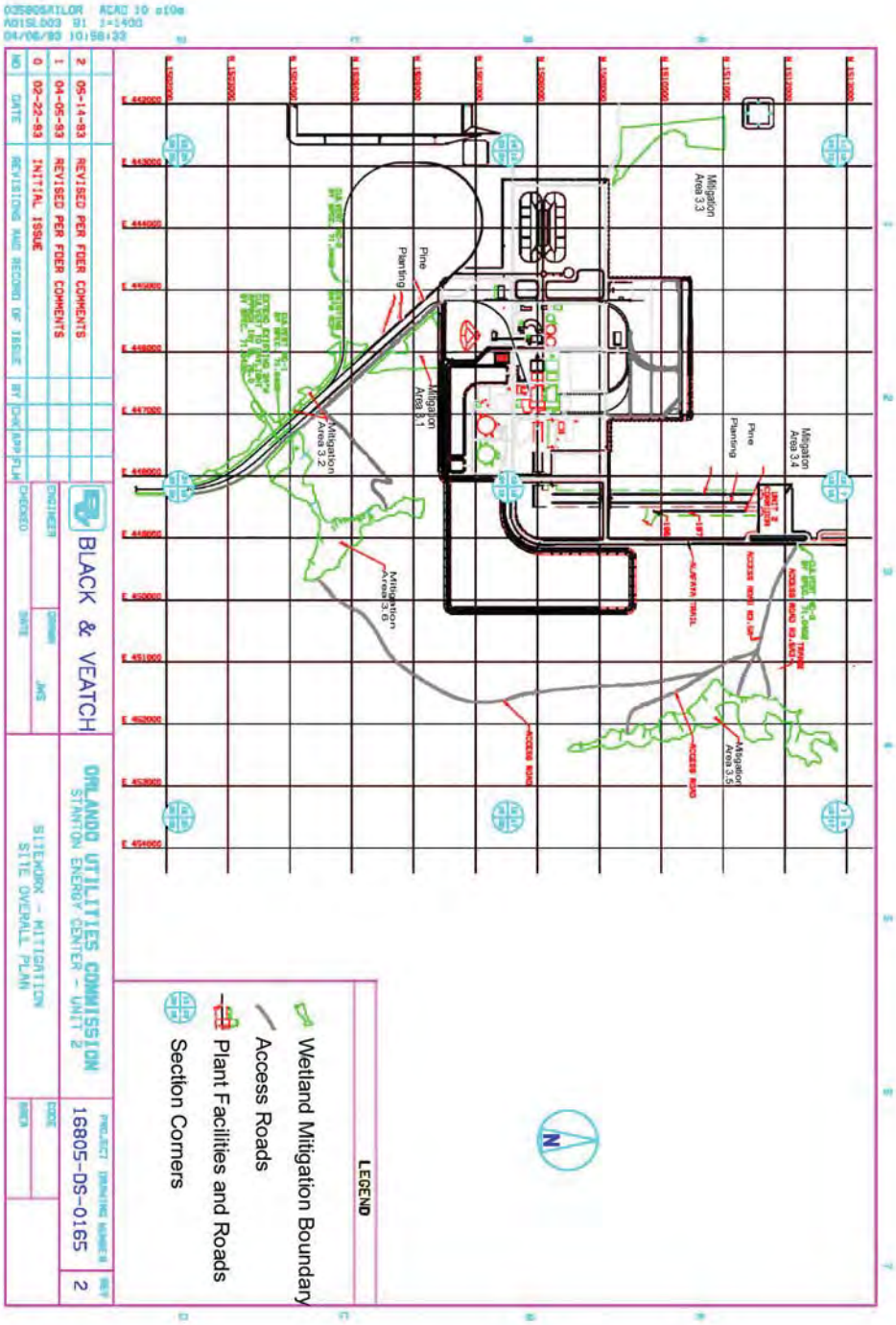


Figure 2. Location of Mitigation Areas and Pine Tree Planting Areas for Unit II Construction, SEC, OUC, Orlando, Florida, 2005



Data from these studies have contributed substantially to the knowledge of the biology and habitat requirements of the red-cockaded woodpecker. The findings and published literature from these studies have been used for development strategies on other projects in the area and by the FWS in the producing habitat protection guidelines for the red-cockaded woodpecker in the southeast United States and central Florida (See Red-cockaded Woodpecker Recovery Plan, 2003).

2.0 HABITAT AND POPULATION STATUS

The primary goal of the management and enhancement plan as described in Sections 3.0 and 4.0 of this report is to maintain and improve conditions capable of supporting red-cockaded woodpeckers on the SEC site. The following section describes the habitat within the red-cockaded woodpecker management area and provides a broad overview of the current population status on the SEC site in relation to the total red-cockaded woodpecker population in the area.

2.1 Habitat

Habitat within the red-cockaded woodpecker management area on the SEC site consists of mesic longleaf pine flatwoods, cypress domes and strands, bayheads, wet prairies and xeric oak scrub. Mesic longleaf pine flatwoods occur throughout north and central Florida southward to near Lake Okeechobee. Uplands within the management area have an overstory dominated by longleaf pine. The overstory in the wetter habitats often includes pond pine (*P. serotina*) and a few slash pines in scattered areas. The shrub layer in the flatwoods consists of saw palmetto, stagger bush (*Lyonia fruticosa*), fetterbush (*L.lucida*) and gallberry (*Ilex glabra*). The open pine canopy allows the development of a rich savannah-like ground cover of herbaceous species (Myers and Ewel, 1990) including wiregrass species (*Aristida stricta* and *A. spiciformis*), beakrush (*Rhynchospora fascicularis*), and bluestem (*Andropogon virginicus*) (DeLotelle and Guthrie 2000).

Longleaf pine density is generally low within the management area, averaging about 10,051 stems per territory (Table 1). Nesting home ranges contain a mean of 4,237 pine stems, with a mean diameter-at-breast-height (dbh) of 9 inches. Pine stands in territories average 50 stems/acre with a weighted mean age of 55 years. The average pine basal area per territory is 2,961 square feet, which includes about 3,401 stems with a minimal 9-inch, dbh. Tree heights reach up to 50 feet with those over 90 years-of-age averaging 38.4 feet. The most abundant age class (30-40 years) averages 31.5 feet in height. Although the data has been partially updated since 1980, no complete sampling of pine stand densities and age profiles has been conducted recently.

TABLE1. Population and Habitat Characteristics for Eleven Groups of Red-cockaded Woodpeckers on the 2,000-acre management area at the SEC site, Florida, 2005

Group ID	Group Size*	Mean Reproduction All Years	Mean Reproduction 2000-2004	N =Years	Pine Basal Area (FT^2)	Total Pine Stems**	Territory Size (Acres)
+A	2	1.33	0.00	3	3,551	14,709	383
+B	2	1.00	0.00	1	3,131	13,547	363
++C	3	0.80	0.00	4	2,195	8,818	251
++D	3	1.00	0.00	5	2,593	8,733	261
C/D	3	0.95	2.00	19	3,195	8,366	236
E	3	0.92	2.25	24	4,333	13,490	299
F	2	1.00	1.25	24	3,177	10,418	255
G	2	1.00	1.00	24	2,673	6,452	215
H	3	1.00	1.00	24	2,465	6,317	234
+I	3	1.30	0.00	9	3,778	10,961	239
#X	2	0.93	0.25	19	2,163	10,237	398
On-Site Average	2.55	1.02	1.38	14.3	3,023	10,211	285
Off-Site 13Groups	2.44	1.11	1.34	6.1 45 Group Years	-	-	-

** Predominant group size during the breeding season for the study period.*
*** Includes all pine stems more than three inches in diameter at breast height in each territory.*
+ Territories were abandoned prior to the end of the study period.
++ Territories and groups combined during 1986.
 # Territory abandoned in 1981 and occupied again in 1986.

2.2 Study Area

The OUC site is approximately 3,280 acres and is located 8.5 miles southeast of Orlando, Florida in the Floridian section of the Atlantic Coastal Plain. Approximately 1100 acres are dedicated to power generation and associated facilities while the remaining 2000 acres are set-aside for the RCW management area. Situated in eastern Orange County, the site is in the Big Econ Basin between the Little and Big Econ Rivers and south of U.S. Highway 50. The Big Econ Basin is approximately 950 square miles. The Big Econ flows from south to north and water quality is good while that of the Little Econ is poor (Brown *et al*. 1989). Surface drainage of the SEC site flows easterly toward the Big Econ via the Hart and Cowpen Branches and an unnamed tributary (Figure 3). These are head water streams to the Big Econ and have had portions of their drainage impacted by pre-SEC construction of swells, ditches, and fire lanes to promote more rapid drainage and to control both wild and prescription fires. Uplands

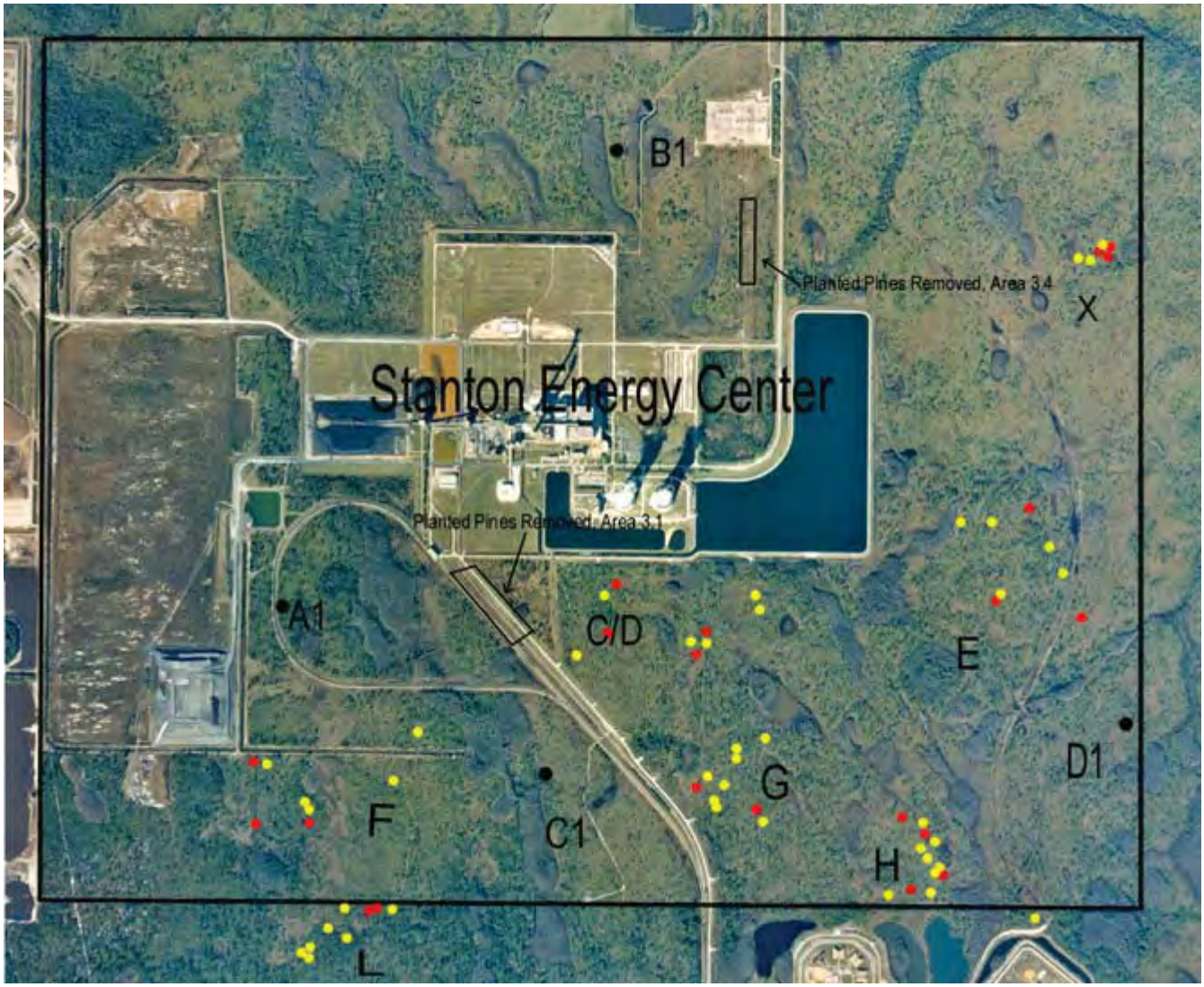
account for about 87 % and wetlands (Figure 4) about 13% of the 2000-acre red-cockaded woodpecker management area on the SEC site.

The 2000-acre management area on the SEC site occurs in the mesic longleaf pine flatwoods within the Big Econ Basin. Most central Florida flatwoods have lower pine densities than north Florida flatwoods (Shapiro 1983, DeLotelle *et al*. 1983, Bowman *et al*. 1997, Myers and Ewel 1990). Because of the flat topography and the underlying organic hardpan, these central Florida flatwoods often have standing water during most of the wet season. Numerous shallow depressions that retain much of the rainfall during the summer months are present. These interconnected depressions, aligned in a north-south direction provide natural drainage for the Basin during the wet season, although they are usually dry during the spring and fall. Hydroperiods of these depressions are sufficient to have allowed cypress (*Taxodium distichum var. nutans*) forests and wet prairie vegetation to develop. Scrubby flatwoods also occur in the Basin on slightly elevated ridges. These interspersed mesic longleaf pine and scrubby flatwoods along with scrub-oak communities are found in a southeasterly direction along an unnamed sand ridge from just past Yeehaw Junction down to within several miles of Fort Drum, Florida.

The over-story of these flatwoods consists almost entirely of longleaf pine. Many age classes are represented in the Econ Basin with several trees greater than 170 years of age. A few pond and slash pines occur near wetlands. The shrub layer includes saw palmetto, stagger bush, fetterbush, and gallberry. The open pine canopy promotes the development of a rich savannah-like ground cover of herbaceous species (Myers and Ewel, 1990) including wiregrass, lopsided Indian grass (*Sorghastrum secundum*), beakrush, and bluestem. The scrubby flatwoods includes a shrub layer of myrtle oak (*Quercus myrtifolia*), sand live oak (*Q. geminata*), and tarflower (*Befaria racemosa*) while the ground cover contains many of the same species as the pine flatwoods.

Figure 3. Aerial Photograph Showing Waterways on the SEC and Surrounding Areas, OUC, Orlando, Florida, 2005.

Figure 4. Aerial Photograph Showing Cluster and Artificial Cluster Locations and Major Vegetation types on the SEC and Surrounding Areas, OUC, Orlando, Florida, 2005.



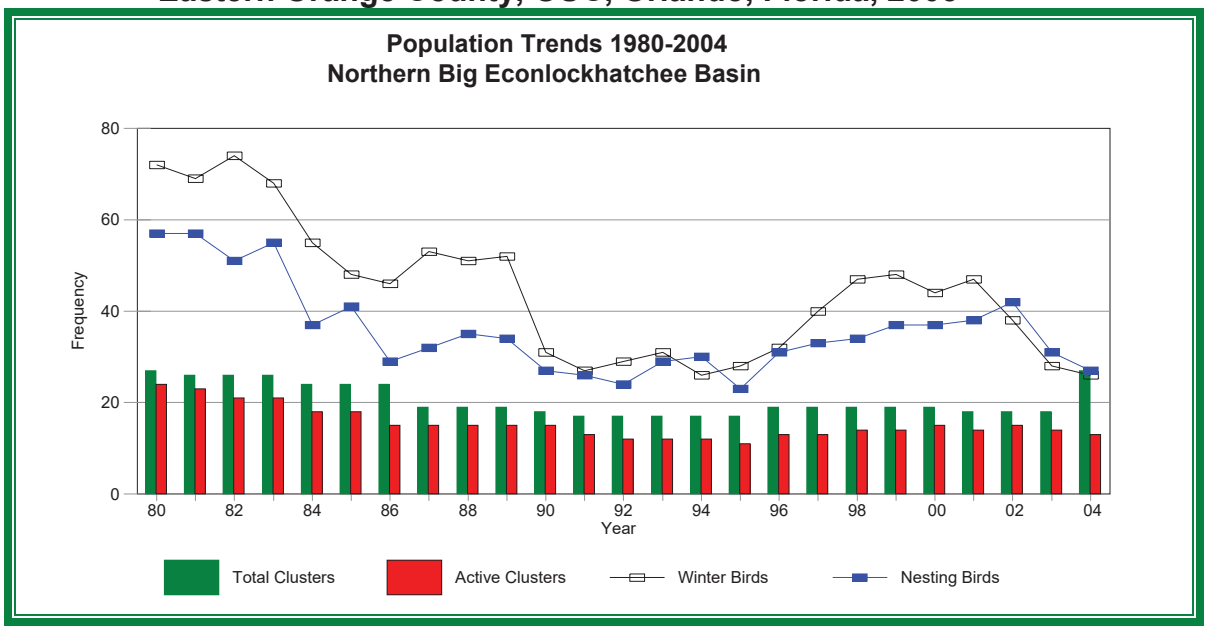
These central Florida flatwoods were historically used for timber, turpentine production, and cattle grazing (Myers and Ewel 1991). These activities had a profound and lasting affect on this ecosystem, mainly as a result of the alteration of natural fire regimes and removal of pine seed sources. Fires were set in the fall and winter to stimulate growth of herbaceous plants for the cattle. This fire schedule, used until the development of the SEC site and purchases of the Hal Scott Preserve by the St. Johns River Water Management District and Orange County, affected pine recruitment in two ways. First, fall and winter burns often destroyed the pine seeds before they germinated or killed the young seedlings prior to development of their fire-resistant grass stage. Second, pine seeds require bare soil to germinate; however, the fall and winter fires cleared the herbaceous ground cover when pines were not dropping seeds. These alterations apparently caused some areas to experience slow pine regeneration. One upland area in the northwest section of the SEC site has had little pine recruitment since 1969 and has maintained a very low pine density; however, this may be due to other agricultural and industrial activities on the site. In other sections, densities in unlogged areas ranged up to about 500 trees per acre near riparian areas with density generally reduced away from wetlands and in logged areas. Prior to power plant construction, winter burns were set during 2-to-3 year intervals for range management purposes.

2.3 Population Status

The core population north of the Bee Line Expressway, which includes the red-cockaded woodpeckers on the SEC site, declined from 25 occupied clusters in 1980 to 11 by 1995, increased to 15 by 2000, and declined to 13 occupied clusters by 2004 (Figure 5). On the SEC site only three clusters were abandoned during this period; a reduction from nine occupied clusters in 1980 to six occupied clusters in 1993. Of the eight clusters north of the Bee Line Expressway that were abandoned, five were clear-cut or the foraging habitat was eliminated, and three were abandoned. Three of the most recent abandonment's apparently resulted from demographic factors, namely low reproduction and high adult turnover. Excluding the recent addition of artificial clusters on the Hal Scott Preserve, the ratio of occupied to abandoned clusters in the entire core population north of the Beeline Expressway has declined from 92% in 1980 to 72% by 2004.

The number of red-cockaded woodpecker groups in the northern Basin (Figure 4) declined (54.4%) from the early 1980s through the mid-1990s, increased in the late 1990s, but has declined precipitously since 2001 (Figure 5). The midwinter population including adults, fledglings, floaters, and helpers, declined by 64% from 1982-1991, increased during the late 1990s, but likewise declined during the early 2000s. Territories in these down years primarily contained mostly the resident breeders. Reductions in the number of breeding groups occurred during most of these down years: in the mid-1980s, the early 1990s, and the early 2000s.

Figure 5. Population Trends in the Red-cockaded Woodpecker Population in Eastern Orange County, OUC, Orlando, Florida, 2005

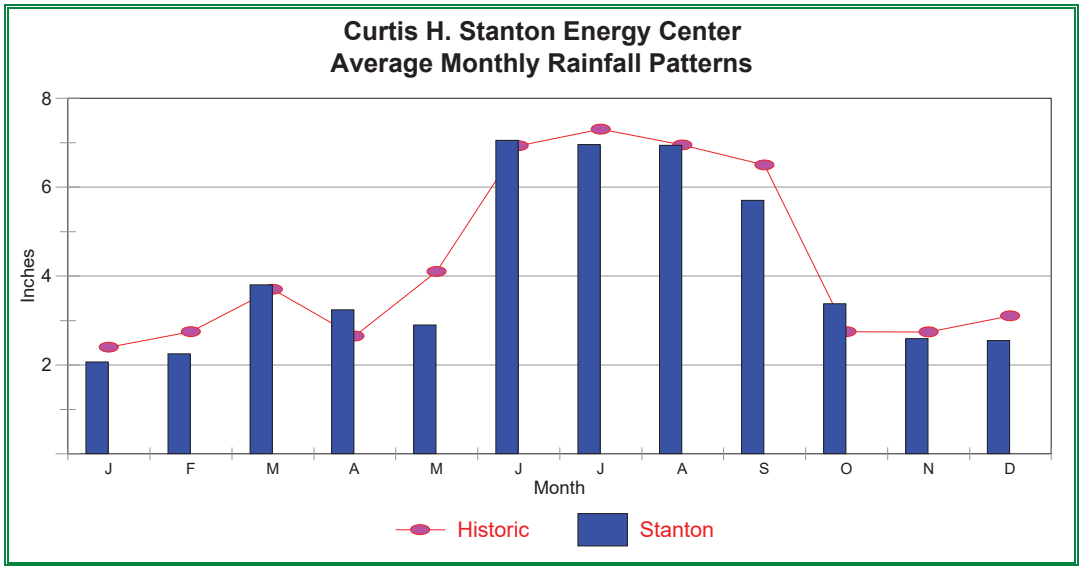


2.4 Weather

Central Florida has a humid, subtropical climate with an average rainfall of 51.2 inches per year. The interior, mid-peninsula of Florida often has more dry periods than north, south, or coastal areas (Jordan 1984). Yearly rainfall on the SEC site varied (range 37.4 to 64.5 inches per year) over the last 21 years averaging slightly less (50.03 inches) than the long-term yearly average. Ten of the 21 years were above the long-term average while 11 years were below historic averages. Slightly drier conditions (47.9 inches per year) existed from 1979 to 1990 while slightly wetter conditions

prevailed after 1990 (53.9 inches per year). Extremely dry years occurred in 1990 and 1993, and very wet years occurred in 1994 and 1997. More than half the annual rainfall (27.2 inches for the historic average and 27.0 inches for the SEC site) fell during the rainy season from June through September (Figure 6). Drought conditions often occurred during the early spring months (January through May, 14.5 inches of rain). Reviewing historic averages reveals the month of May was the most deficient in rainfall with April and October having the greatest surplus (Figure 6).

Figure 6. Summary of Average Monthly Rainfall on the SEC and Surrounding Areas, OUC, Orlando, Florida, 2005.



3.0 MANAGEMENT PRACTICES AND IMPLEMENTATION

3.1 Introduction

For the red-cockaded woodpeckers, restoration of good quality habitat is vital to the recovery of the species. Loss of habitat was primary among the original causes of decline. Generally, optimum habitat conditions for red-cockaded woodpeckers occur in open woodlands, which in the pine flatwoods of Central Florida equates to longleaf pine flatwoods/wire grass communities. The longleaf pine ecosystem is famous for its highly diverse groundcovers. In fact, this fire-dependent habitat contains nearly one quarter of all the plant species in North America. As the vegetation approaches the climax stage, the hardwood encroachment eventually results in the abandonment of clusters and population decline or extirpation. The longleaf pine ecosystem is a fire sub-climax stage maintained by regular fire intervals; frequent burning, regardless of the season, is paramount for continued maintenance of this community. Early to mid-growing season burning is optimum as it 1) promotes wiregrass, herbaceous flowering and seeding, and longleaf pine recruitment; 2) tends to decrease the abundance of hardwoods and shrub mid-story; and 3) has less damage to the herbaceous layer and soils than mechanical clearing. Late growing season (Oct. to Nov.) fire may have detrimental impacts on over-story pines and is not as effective in reducing mid-story rootstock or promoting native groundcovers as the early to mid-growing season burns. In fact, some research suggests that late dormant season (mid-Nov. to Jan.) burns may be more effective than late growing season burns in reducing hardwoods and restoring herbaceous groundcovers. When considering the establishment of the longleaf-wiregrass sere, it should be noted that as fuel loads accumulate, the intensity of the fire increases and optimum burning times are shifted towards the winter where cooler air temperatures and steadier weather patterns prevail thereby providing maximum fire control and minimal longleaf pine mortality.

This revision of the management procedures for the SEC site red-cockaded woodpecker management area is similar to the 1981 and 1993 management plans in that it focuses on protecting existing clusters and provides acceptable foraging areas within red-cockaded woodpecker habitats. The major activity necessary to promote a healthy red-cockaded woodpecker population is a burning program that maintains a vegetative structure of low grasses and herbaceous layer, little midstory, and a canopy

of longleaf pine. Exotic vegetation such as cogon grass (*Imperata cylindrica*) needs direct intervention for removal using herbicidal control. A species-specific control method will be developed to deal with the elimination of cogon grass and a report provided at the end of the second year of treatment. Patches with taller growth of saw palmetto will be controlled by mechanical means in selected areas and by a shortened burn rotation interval. A pine stand and habitat map will be developed based on aerial and field reconnaissance as described below. Following this assessment, an evaluation will be conducted every five years to assess all described habitat conditions and exotic species control. A yearly report on the red-cockaded woodpecker population and a five-year report will be provided to the agencies.

The habitat enhancement plan will be accomplished by implementing the following:

(1) a burning program with a goal of maintaining a sub-climax stage of vegetation consisting of a wiregrass and herbaceous understory, a diminished shrub midstory, and an open canopy of longleaf pine;

(2) an exotic species control program that consists of determining the distribution of the exotic encroachments and the ensuing eradication of the exotics by the application of applicable herbicide treatments; and

(3) a saw palmetto control program consisting of the roller chopping or mowing of areas with excessive growth of saw palmetto.

3.2 Timber Management Goals

Timber management practices described in the 1981 plan and the planting program, described in the JAMMP have allowed pine stem density to increase in many portions of the management area; however, some areas still have low stem counts. Pine regeneration via natural recruitment should substantially increase during the next 20 to 30 years.

The 2003 USFWS Red-cockaded Woodpecker Recovery Plan (p. 188) describes optimum habitat as having the following longleaf pine densities: 1) longleaf pine greater than or equal to 14” dbh should have a minimum of 20 ft^2/acre, 2) longleaf pine greater than or equal to 10” dbh and less than 14” dbh should have a maximum of 40 ft^2/acre,

and 3) longleaf pine less than 10” dbh should have a maximum of 10 ft^2/acre with less than 20 stems/acre. The burning program as detailed in this document, is intended to establish and maintain these densities for the longleaf pine-wiregrass community. Timber surveys will be performed on a 5-year period to assess the longleaf pine/wiregrass densities and determine the effectiveness of the burning program.

Criteria that are more applicable to central Florida are under review and development to reflect conditions of the region (Costa and DeLotelle, unpublished analysis). To meet central Florida standards or achieve the minimum managed stability criteria and manage toward the desired future conditions for red-cockaded woodpecker habitat within the property, i.e., central Florida habitats, management activities will be undertaken as follows.

(1) For the home range habitat, provide each group of red-cockaded woodpeckers a minimum of 3,000 ft^2 of pine basal area (BA), counting only those pine stands in suitable habitat that, for this standard only, have each of the following characteristics:

a) at least 2,000 ft^2 of BA in trees 9 in dbh or larger;

b) at least 1,000 ft^2 of BA in trees larger than four and less than nine inches dbh; and

c) open recruitment stands of pine. Dense stands of recruitment pine will be reduced should they become a problem; however, it is expected that the frequent burning program will naturally provide adequate thinning of small dbh pine.

(2) Provide a minimum of 75 acres of foraging habitat. This minimum requires at least 40 ft^2 of BA/acre to achieve a total of 3,000 ft^2 of BA; however, if the BA per acre is less than 40 ft^2, additional acreage/territory (foraging partition) will be required to achieve 3,000 ft^2 total BA with the caveat that no more than 300 acres/red-cockaded woodpecker group may be designated as foraging habitat.

(3) Pine stands that are suitable for foraging habitat must have all of the following characteristics:

a) longleaf pine with 2,000 ft^2 BA for trees with an 9 inch minimum dbh, i.e., at least 30 years old; however, up to 1,000 ft^2 of BA of the total stand may be in trees 4 to less than 9 inches dbh (20-29 years old).
b) an average pine BA of all 4-inch dbh and larger trees between 40 and 70 ft^2. Currently, stand BA in some areas of the south-central Florida Recovery Unit average less than 40 square feet of BA/acre in 4 to 9 dbh pines; with some as low as 10 ft^2 BA/acre. These low BA conditions are primarily a result of poor recruitment, i.e., few good seed crops and inadequate (frequency and season) prescribed burning programs. Even in good conditions, control fires may jump into the crown, which results in higher tree mortality than desired. During the past 15 years, several recruitment classes have become established, and sites with adequate prescribed burning stand BA are increasing throughout the region.
c) no hardwood midstory or if a hardwood midstory is present it is sparse and less than 7 feet in height: the midstory will be controlled by fire or mechanical means.
d) after the larger dbh class trees reach the optimum habitat levels as defined in the 2003 USFWS RCW Recovery Plan (p. 188), total stand BA above 100 ft^2/acre will be reduced to a minimum 70 ft^2/acre by the thinning of trees primarily with a dbh of 9 inches or less.
e) foraging habitat stands will be within 0.50 miles of the cluster center and preferably within 0.25 miles. Foraging habitat stands cannot be separated from one another by more than 200 feet of non-foraging habitat, e.g., rights-of-way, clear-cut or forest stands less than 30 years of age, hardwood dominated stands, agricultural fields, etc.
f) frequent prescribed burning of foraging habitat during the growing season will be applied. The development and protection of a herbaceous groundcover will facilitate the prescribed burning and will greatly benefit the red-cockaded woodpeckers.

The habitat characteristics that have been described, support a large meta-population of red-cockaded woodpeckers in the Big Econ Basin and additional isolated

populations throughout the central Florida area (DeLotelle *et al.* in press and Bowman *et al.* 1997). Research to date supports the designation of foraging habitat that will result in stable or increasing populations, as described above. The SEC site would be a further test of the applicability of these guidelines to expand existing populations with intensive cluster management. The RCW Recovery Plan stresses the importance of adequate stand structure. Pine stands cannot be considered suitable as foraging habitat unless they have an "open" character. A pine stand that is 20 years in age with open structure will qualify as suitable foraging habitat. If such a stand has not been prescribed burned or otherwise treated to control the hardwood mid-story and has not been thinned to a basal area of 70 ft^2/acre or less, it will not satisfy the "open" condition criterion. At present, dense stands of young pine and pine/hardwood do not occur on-site and thus are not an issue of concern. Stand quality, as measured by an open structure, is a critical factor in determining the suitability and use of foraging habitat.

The desired future condition for red-cockaded woodpeckers foraging habitat stands is for the 3,000 ft^2 BA to be composed of 9-inch dbh tree and larger. Management activities should be implemented to achieve this goal. Most sites will be capable of growing trees this size, at least at moderate stand densities, e. g., 30-60 ft^2 BA /acre. In addition to the longleaf pine stands, foraging studies indicate that cypress domes constitute an important habitat for on-site red-cockaded woodpeckers. Prior to the construction of Unit I at the SEC site, wildfires sporadically resulted in extensive burning in the cypress domes. These hot fires made some cypress domes unsuitable as foraging sites for extended periods; however, now that a controlled fire program is in effect and natural site drainage has been restored in selected areas, the detrimental effects of the hot cypress dome burning have been reduced. Measures to restore natural site drainage in selected areas were described in the 1993 JAMMP and are now complete.

This revised management plan is expected to provide conditions favorable to maintaining a mesic longleaf pine ecosystem and thereby provide optimum habitat conditions for the red-cockaded woodpeckers as well as other wildlife that is characteristic of this habitat type.

3.3 Red-cockaded Woodpecker Management Area

The Red-cockaded Woodpecker Management Area consists of approximately 2,000 acres of undeveloped lands on the SEC site. The management area is defined, as stipulated in the SEC Unit II Conditions of Certification, as all lands depicted on Figure 4.2 of the August 1981 Red-cockaded Woodpecker Management Plan, except for the area specifically identified as "construction impact of proposed Units I, II, III, and IV. Figure 7 of this plan is identical to Figure 4.2 of the August 1981 Red-cockaded Woodpecker Management Plan. The roads shown in Figure 7 will be maintained for dry and wet season travel along with the access road to the Hall Scott Preserve on the east side and the weather station on the south end of the SEC site. These roads are necessary for access and fire control.

The Red-cockaded Woodpecker Management Area will continue to be managed for the benefit of the red-cockaded woodpecker, in accordance with Condition XXXI of the SCA granted to OUC by the FDER Sitting Board on December 14, 1982. If additional uses of the management area are required for the operation of the power plant, these uses will be approved in accordance with the procedures identified in the Florida Power Plant Siting Act and by the FWS prior to their implementation.

3.4 Management Objectives

OUC will implement the management activities described in Section 3.2 to achieve the following objectives:

(1) prohibit unnecessary disturbances in areas managed for red-cockaded woodpeckers;

(2) protect all existing, both occupied and abandoned, and new cavity trees;

(3) protect clusters, including surrounding trees, to ensure future replacement cavity trees and to serve as a buffer zone to disturbances;

(4) ensure that each occupied cluster has at least four suitable roost cavities;

(5) where necessary, protect each nest cavity from climbing predators;

(6) provide for future clusters in the remaining forest stands through appropriate timber management

(7) maintain or improve foraging habitat through appropriate timber management and a controlled fire program;

(8) provide contiguous habitat between clusters and foraging habitat with habitat breaks no larger than presently exist;

(9) conduct a regular, prescribed burning program;

(10) maintain the perimeter firebreak system to control prescribed burns and to prevent the spread of wildfire;

(11) establish an exotic weed control program for the elimination of cogon grass, other exotic plant species, and possible future contamination by other exotic species;

(12) allow all previously disturbed areas (those associated with pre-construction activities) not scheduled for tree planting within the management area to reseed naturally with pine;

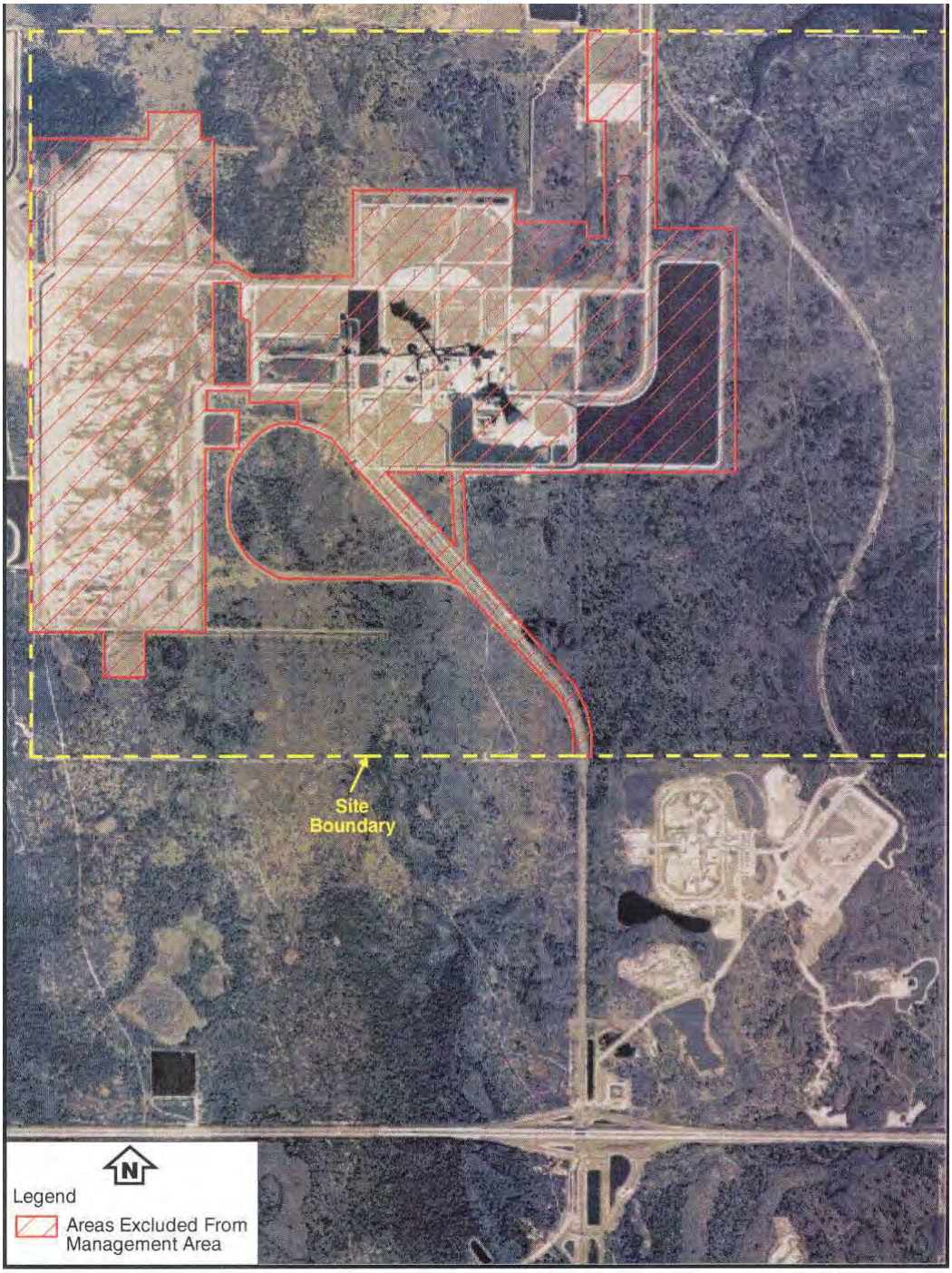
(13) conduct on-site monitoring of red-cockaded woodpecker survivorship, population status, and fledgling success; and

(14) establish an enhancement plan for providing ground cover improvement by reducing tall patches of saw palmetto growth.

3.5 Implementation

OUC will be responsible for implementing the management practices discussed below. Qualified biologists will be retained to monitor the red-cockaded woodpecker population in accordance with the 2003 Red-cockaded Woodpecker Recovery Plan and monitor the success of the management plan and practices.

Figure 7. The Red-cockaded Woodpecker Management Area and Projected Development Areas, including Units 3 and 4 for the SEC, OUC, Orlando, Florida, 2005.



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RED-COCKADED WOODPECKER MANAGEMENT AREA

3.5.1 Controlling Disturbance

Construction contractors will be briefed as required on their legal obligations under the Endangered Species Act and regulations of the FGFWFC. This briefing will include information on the limits of construction, activities required to comply with stated construction plans, and construction constraints as described in the Mitigation Plan Construction Constraints (Appendix E of the JAMMP). OUC or their consultant will monitor construction activities.

All cluster areas and buffer zones will be conspicuously marked prior to any construction. Cavity trees close to construction activities will be fenced and marked with endangered species posters. Where possible, a 200-foot buffer zone will be established around each cavity tree close to construction activities. Some cavity trees are located immediately adjacent to unimproved dirt roads that will be used during mitigation activities or population monitoring; no adverse impacts are expected to occur. There are no known construction activities expected to occur within 200 feet of any RCW clusters on the Stanton site.

3.5.2 Timber Control

No timber will be harvested within the management area, unless required for improving habitat for the red-cockaded woodpeckers. Pine trees will be allowed to reach senescence and die. Any harvesting will be approved by the FGFWFC and FWS prior to the harvest.

Potential replacement cavity trees and cluster sites, as well as younger pines within each cluster area will be retained. Young pines may be removed to keep cavities clear of obstruction. Currently all cavity trees are located in open stands of pine with relatively few hardwoods; thus, there is no immediate need for stand improvement thinning in cluster sites. Abandoned cavity trees and snags in the management area will be retained to provide roosting and nesting sites for kleptoparasites. The burning program outlined in this document should promote pine regeneration by natural recruitment.

3.5.3 Fire Management

The burning program that will be implemented on the red-cockaded woodpecker management area is outlined in this section. It includes a description of the schedule, frequency of burns, burn conditions, and means of controlling wildfire. Burns, which have been conducted every three to five years, occurred in the mid 1980s, 1990-91, 1993, 1998, and 2003.

3.5.3.1 Burn Schedule and Frequency. The red-cockaded woodpecker management area will be divided into areas and alternately burned on a two-year rotation to reduce saw palmetto growth and provide optimum habitat conditions. Since the seasonality of the burn has an impact on the vegetation, Table 2 is provided to indicate the burn season preference. Burning will usually be performed during the optimum season as shown in the Table 2; however, some intentional variation will occur and other factors, e.g., short and long-term weather conditions, fuel loading, etc., may dictate burns during seasons other than the optimum listed above. New pine planting areas or recruitment areas will be burned on the same schedule as the remaining portions of the management area. Burns will be by ground ignition, primarily using backing fires to minimize vegetation mortality; however, variable conditions may dictate flanking or in extreme cases, head firing techniques.

Table 2. Burn Preference According to Rank Order for Effects on Habitat Condition and Red-cockaded Woodpeckers, SEC, 2005.

Burn Season Rating	Rank	Months	Comments
Optimum	1	February to April	Wiregrass & longleaf pine response is best in spring
Preferred	2	May to June	RCW nesting season[1]
Satisfactory	3	July to September	High water and heat
Least Satisfactory	4	October to mid-November	High stress on longleaf pines
Special Conditions	N/A	Mid-November to January	Heavy fuel loads

Note: Burning during the nesting season requires additional clearing around the cavity trees.

3.5.3.2 Burn Conditions and Control of Wildfire. A Florida State Certified Burn Specialist will conduct prescribed burns. Two of the most important factors that ensure a successful cool summer burn are soil moisture and relative humidity. Fuel moisture is a function of relative humidity, rainfall, and temperature (Mobeley et al. 1978). Burns will not be conducted when soils and leaf litter are completely dry. When possible, burns will be conducted as soon as possible (one to three days) following a storm event, preferably one producing a 0.5 to 1 inch rainfall. Likewise, relative humidity should be moderate to high and not lower than 20 percent. A moderate breeze is also desired to prevent the fire from reaching the tree crown. After initiation of this frequent burning program, fuel loads should be sufficiently reduced such that a cooler and more controllable burn is more easily achieved.

A fire break of about 20 feet in width, completely encircling the red-cockaded woodpecker management area and adjacent to the SEC site perimeter fence, is presently maintained by OUC. This firebreak will be disked annually and immediately prior to any controlled burn. Other unimproved roads exist within the interior of the management area and may serve as additional firebreaks. Because of drainage concerns, plantings within the Riparian Habitat Protection Areas, described in the JAMMP, will not be protected with firebreaks. Other measures, such as backfires, may be used to prevent seedling mortality in these areas. All vegetation around cavity trees will be mowed to a height of no greater than 1 foot for a radial distance of 20 feet. If the control burn is set during the nesting season, the clearing will be for a radial distance of 50 feet. All clearing will be performed by hand or by a low impact mower towed with a rubber-tired tractor.

3.5.4 Exotic Vegetation Control

Herbicides and pesticides toxic to wildlife will not be used in any part of the red-cockaded woodpecker territories. Spot applications of an approved herbicide may be used in the areas of pine tree plantings or wetlands, if necessary, to remove or control exotic or undesired invasive species.

The extensive invasion of cogon grass will ultimately replace most native ground cover species. Cogon grass occurs initially as spots of 1 meter or more in size, but later may occupy much larger areas as the plant spreads throughout the herbaceous ground

layer. The species out competes most other herbaceous species and promotes very hot fires when burned. To eliminate this exotic species, a program will be instituted to delineate, map, and eradicate the plants with appropriate herbicides. To determine major areas of cogon grass, a qualified biologist will review a recent aerial photograph of the site and follow-up with a field examination to refine the locations of this invasive grass. A finial map will then be developed and a contractor will be retained to eliminate this species. The initial treatments during the first year will be made in the fall, if possible, with periodic treatments as needed. Inspections of each spot or area will be made to determine the necessity for retreatments during the second year. Annual inspections will occur until the species is eliminated; thereafter, re-inspections will be conducted every five years to further assess the success of the elimination plan. Retreatments will be conducted, if needed and a determination will be made as to the best assessment interval; however, the assessment interval will not be longer than every five years. At the end of the second year of treatment a report will be provided to the respective agencies. The five-year sampling and assessment report will include results and recommendation from the cogon grass evaluation.

Presently, to control cogon grass contractors will apply arsenal at 1% by volume from a low volume spray unit. This concentration is well under the max label rate of 6 pints per acre. In the thickest areas, 4 pints per acre max may be used. For the Chinese tallow and the Brazilian pepper (should it occur on-site), 79% high-grade oil, 20% Garlon 4, 1% Stalker will be used as a basal bark treatment.

3.5.5 Population Monitoring Studies

OUC will also continue the yearly red-cockaded woodpecker monitoring study using the guidelines established in the 2003 Red-cockaded Woodpecker Recovery Plan. Monitoring studies will include annual winter banding of all unbanded adults and juveniles that remain within the population. Annual inspections will also be made of nest trees each week during the nesting season to assess nesting and fledgling success. Nestlings will be banded at this time. Nest trees with low or insufficient resin flow will be wrapped with material to protect against climbing snakes. Population estimates will be determined for the winter and nesting season. Cavity trees and cavities will also be inspected to determine the number of suitable cavities in each

cluster. The location and status will be recorded using GPS coordinates. Based on these inspections, the consultant will determine the need for population enhancement translocations and the necessity for additional cavity inserts in these existing clusters. At least four usable cavities will be maintained in each cluster using artificial cavities, if necessary. Translocations of young birds to the site will be conducted as described below in Chapter 4.0.

3.5.6 Pine Habitat Condition Monitoring

An assessment of the habitat conditions on the entire site has not been made since the mid-1980s (DeLotelle et al 1987). Habitat conditions will be evaluated to determine pine stand age and densities across the management area using previously applied techniques (DeLotelle et al 1987, DeLotelle et al 1995, also see Hooper et al 1982). An aerial photograph will be used to determine new pine stands and will be compared to historic conditions (1980) of pine stands. Once the pine stands and other habitats are determined from aerial photographs for the SEC site, a field evaluation will be made. Data will be collected by placing one to five plots in each stand with the number of plots per stand based on the stand size. A 100 by 100 foot plot will be laid out to count all pine stems and take diameter measurements on 10% of the trees over three inches in diameter. Seedlings will be counted separately. Five increment cores will be taken in mature pines to evaluate age and ten-year growth of pines. This will be used to develop a report and pine stand map for the SEC site and provided to Florida Department of Environmental Protection (FDEP), USFWS, and FFWCC. This evaluation and report will be updated every five years and provided to these agencies.

3.5.7 Ground Cover Enhancement Plan

Overall, habitat conditions for the Red-cockaded Woodpecker have improved with the implementation of the fire management program and the addition of several recruitment classes of longleaf pine on the SEC site. While the ground cover on the SEC site is in reasonably good condition, it has deteriorated over the last 10-15 years compared to historic conditions. A healthy and extensive herbaceous ground cover is important for the support of the insect fauna. In order to maintain and improve conditions for red-cockaded woodpeckers several activities should be undertaken to enhance the ground cover conditions. The largest activity will be the establishment of an intensive fire program to maintain the seral longleaf pine and wiregrass community. Mechanical control of the saw palmetto will also be required, as the overgrowth and continued expansion of saw palmetto will diminish these aspects of the forest ecosystem.

The primary focus of the plan on mechanical control of palmetto growth will be to develop a map with the occurrence of problem areas, which will be treated as appropriate. These areas will be located on aerial photographs and followed-up with on-site inspections. All existing and artificial clusters will be inspected for palmetto growth. A map will be produced to denote each area that does not meet the criteria listed below and will then be used to evaluate the necessity of roller chopping the various pine habitats. It is recommended that an 18-inch diameter by 5.5 feet long roller chopper be used (Outcault, pers.comm. 2005). No tandem choppers will be used on-site. A heavy-duty bush hog may be employed in place of the roller chopper provided there are no stumps. The initial treatment could include roller chopping or bush hogging in selected areas followed by a fire interval of every two years to reduce the buildup of saw palmetto. A suggested route for roller chopping will be provided that will involve the least damage to grasses and other components of the ground cover.

Mechanical control should occur in the fall of the year with one small roller chop as described above. A bush hog operation or cutover with a large mower behind a tractor should be undertaken in cluster areas with problems. No treaded equipment will be allowed in any cavity tree areas. Roller chopping or bush hogging in the remaining areas may be employed to reduce palmetto growth and promote the herbaceous growth. This is best accomplished in the fall or winter when conditions are relatively dry

in the foraging habitat areas. The path of the roller chopper should be circular or rounded at the ends so as not to damage ground cover by plowing into topsoil. Sharp angle turns must not be used in ground cover areas. Once again, conditions must be dry to meet this objective.

3.5.8 Vegetation Delineation, Mapping, and Eradication

The various habitats essential for the red-cockaded woodpeckers will be surveyed to determine the extent of encroachment by undesirable vegetation. First, an inventory of the management area (review of aerial photographs followed by field verification) will be undertaken to determine the locations and extent of the areas that require corrective action. Although not a major problem at this point, any areas with popcorn tree (*Sapium sebiferum*) should also be noted for elimination. Once the location and extent of the various encroaching species is determined, elimination and suppressing measures will be implemented. The height of saw palmetto in the various habitats will be the determining factor for its suppression as outlined in Table 3 below.

a) Cavity Tree Cluster areas:

prior to initiating ground surveys, aerial photographs of all areas will be reviewed, and then cavity tree cluster areas will be verified in the field to determine the extent of exotics and saw palmetto. Problem areas will be mapped and corrective action noted.

b) Foraging areas:

an approach similar to that used in cavity tree cluster sites will be employed in foraging habitat areas as well. Areas with a number of dead pines will be of particular interest and will be investigated.

c) Wetland fringes in Upland Habitats:

wetland fringe areas, which often have particularly high growth of saw palmetto, will also be investigated. If the areas are not extensive, no corrective action will be undertaken but a few areas are expected to need improvement.

d) Remainder of Property:

the remainder of the flatwoods will be treated in a similar fashion to the wetland fringe areas above.

Table 3. Criteria for the Institution of Mechanical Control of Saw Palmetto in Red-cockaded Woodpecker Habitats on the SEC Site

AREA	Maximum Stem Growth of Palmetto Above Ground Surface	Treatment Method
Cluster Areas	1.5 feet	Hand or bush hog
Foraging Areas	1.5 to 2 feet	Roller chopping
Wetland Fringe	2 to 3 feet	Roller chopping or fire frequency
Remainder of Property	2 to 3 feet	Roller chopping or fire frequency

4.0 POPULATION ENHANCEMENTS AND CLUSTER CREATION

The east Orange County red-cockaded woodpecker population was one of four within Florida identified by the FGFWFC as needing a conservation plan to ensure further protection (Cox *et al*., 1995). The action described below will aid in increasing the number of groups on the SEC site and ultimately in enhancing the viability of the Orange County red-cockaded woodpecker population. This plan first includes a portion for the creation of a recruitment cluster followed by a translocation program with sub-adult birds. A comprehensive plan for the enhancement of foraging habitat was described in section 3.0 and will require a number of years to be successful. Other additional enhancement aspects of the management plan are intended to mitigate for losses of the planted pine trees associated with both the construction of the gas pipeline along the alternate access road corridor to the south and the transmission line maintenance operations in the corridor to the north between the substation and Pope road.

4.1 Cluster Creation for Recruitment of Sub-adults

Three cluster sites (A1, B1, and D1) will be provisioned each with four artificial cavities, in different segments of the population (Figure 1). Within each artificial cluster area, four cavity inserts will be installed in proximity to each other in trees ranging in age between 50 and 150 years and with a diameter of 14 inches or more (Table 4). These clusters will be inspected during seasonal surveys and any required maintenance will be performed. All recruitment cluster sites, except the C1 area, are abandoned clusters that were occupied by red-cockaded woodpeckers through the 1980s. These artificial cluster sites were selected based on the proximity of the surrounding groups of red-cockaded woodpeckers and the availability of potential cavity trees, i.e., those with diameters of 14 inches or more. Each cluster and the surrounding foraging habitat have been evaluated to determine if enough foraging resources were present to meet the needs of central Florida red-cockaded woodpeckers (See DeLotelle and Epting 1992 and DeLotelle et al. 1995, also see guidelines in Section 3.2). Additional artificial

cavities may be placed in any natural cluster that is deficient in usable cavities. Although four cluster sites are available only three were chosen: A1, B1, and D1, for artificial cavity augmentation.

Table 4. Artificial Cluster Sites for Cavity Inserts and Description of Surrounding Foraging Habitat, SEC, Orlando, Florida, 2003.

Cluster ID and Description	***Old Trees****	***Number of 60 to 80 Year Old Trees*****	***Age/Density of Foraging Habitat***	***Number of Pines and Basal Area in 200 Acres***	***Management Needed in Cluster Areas***
A1 Artificial Site	Numerous old trees	6@14" dbh or larger trees	58 years & 59 per acre	12,400 pine trees 6,550 ft^2	Bush-hog near all cavity trees
B1 Artificial Site	14/ Many in 50 to 80 age class	12@14" dbh or larger trees	48 years & 82 per acre	13,400 pine trees 6,130 ft^2	Bush-hog near several cavity trees
C1 Abandoned Site	Numerous old trees	7@14" dbh or larger trees	39 years & 52 per acre	8,500 pine trees 3,682 ft^2	Hand clean around all cavity trees
D1 Abandoned Site	Numerous old trees	7@14" dbh or larger trees	41 years & 71 per acre	11,700 pine trees 5,082 ft^2	Bush-hog some pf cluster area, Hand clean remainder

**Old-remnant trees are easily identified by the presence of large flattop crown and few if any limbs on the bole of the tree. All trees exceed 100 years of age based on numerous increment core bores taken from these type trees in the Big Econ Basin.*
*** This is the primary age and size class of live pine trees used for artificial cavity inserts in the Big Econ Basin and other central Florida Flatwoods sites.*

4.2 Monitoring Activities.

Annual monitoring studies and reproductive success will be used to assess the status of the existing red-cockaded woodpeckers groups. These studies will continue over the life of the facility. The monitoring studies will include periodic inspections to determine if dispersing red-cockaded woodpeckers are using any of the artificial clusters as roosting sites. Artificial cavities will also be inspected to ensure that there are no leaks and to clean any undesired nest material. If solitary birds are found living

in these recruitment clusters, other red-cockaded woodpeckers of the opposite sex will be translocated to potentially form a new breeding group in these clusters.

It is anticipated the new dispersing birds that take residency in these artificial clusters will primarily be young males; thus, a young female would be translocated to these sites. The bird will be placed in the new cavity on the night of its capture or free-released if captured and released on the same morning. Other combinations of translocation activities over the intervening monitoring years may occur. No more than two birds from the surrounding area will be translocated in any one year. No translocations from surrounding groups will occur during years of low reproduction. The three artificial cluster sites and cavities will be visited at least twice during each nesting season to determine occupancy, reproductive status, and reproductive success. Cluster creation and occupation shall be considered a success when a pair of red-cockaded woodpeckers have occupied the site for one complete year or have reproduced successfully. Reproduction is successful when eggs, nestlings, or fledglings from the new group are observed.

4.3 Translocation Activities

If at the end of the first year, no dispersals have occurred into the three artificial clusters, attempts will be made to obtain birds for translocation from other populations of red-cockaded woodpeckers in the southeast by attending the translocation meeting in Tallahassee, Florida with the purpose of securing bird(s) for translocation. Birds to be translocated will be placed in artificial cavities, screened, and released in the morning. If a bird is obtained for translocation, monitoring will occur as detailed in Section 4.2.

4.4 Implementation Schedule for Artificial Cavity Installations

The following schedule for artificial cluster sites is proposed to implement the procedures outlined above. Recruitment clusters with inserts will be constructed in three locations as previously described. All shrubs, including palmetto and wax-myrtle (*Myrica cenifera),* will be mowed for a minimum radius of 50 feet around all cavity trees within the artificial sites and all dead limbs or other dying vegetation will be removed from the vicinity of these cavity trees to ensure a low flame height during control burns. The following activities should be performed:

(1) prescribed burns in these red-cockaded woodpeckers habitats should be conducted on a regular basis as in the remaining forest management fire schedule;

(2) monitoring of artificial cavities to determine their continued suitability as roost sites for red-cockaded woodpeckers;

(3) monitoring of remaining red-cockaded woodpeckers groups on the SEC site for reproduction and possible translocation of young-of-the-year;

(4) annual monitoring and translocation activities until successful occupation and reproduction in the artificial cluster sites has occurred; and

(5) inspection for debris, predators, or competitors of the roost cavities occupied by the breeding males and females prior to each year's inspections of artificial cavities during the spring.

5.0 REPORTS

The following reports will be provided for the duration of the plant. Copies will be furnished to each of the respective agencies as shown in Table 5.

Table 5 Report Schedule for Management Plan Activities for the next Five-Years and Beyond, Curtis H. Stanton Energy Center, 2005

Report Name	Frequency	Due Date	Duration	Comments
RCW monitoring	Annual	August 2005	Life of Plant	Demographics-reproduction, etc.
Exotic species Control	Annual[1]	July 2007	Two years, as needed	Success of control, reapplication
Habitat Survey	Five Year Intervals	March 2006	Updated Every 5 years	Comparison with historic data
Saw palmetto reduction	One-two year	July 2007	Two years, as needed	As needed
Five Monitoring	Every 5 years	August, 2010	Covers all data collected	Summary of all completed studies
Fish & Wildlife Annual Monitoring Report	Annually	January 31, each year	Life of Facility	Required

Notes:

A five-year summary report will cover red-cockaded woodpecker demographics, the status of exotic and nuisance plant or animal species, and pine habitat characteristics. This report will include a recommendation to maintain eradication of exotic species over the next five years.

1) Report frequency will be annual until exotics are eradicated; thereafter, frequency will be on a five-year interval.

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Updated Figure 7 - Curtis H. Stanton Energy Center
Red-Cockaded Woodpecker Management Area

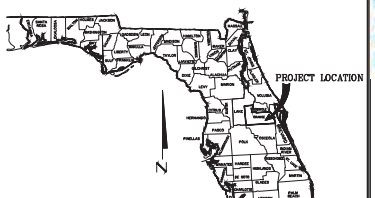
MAP OF RCW SET ASIDE HABITAT

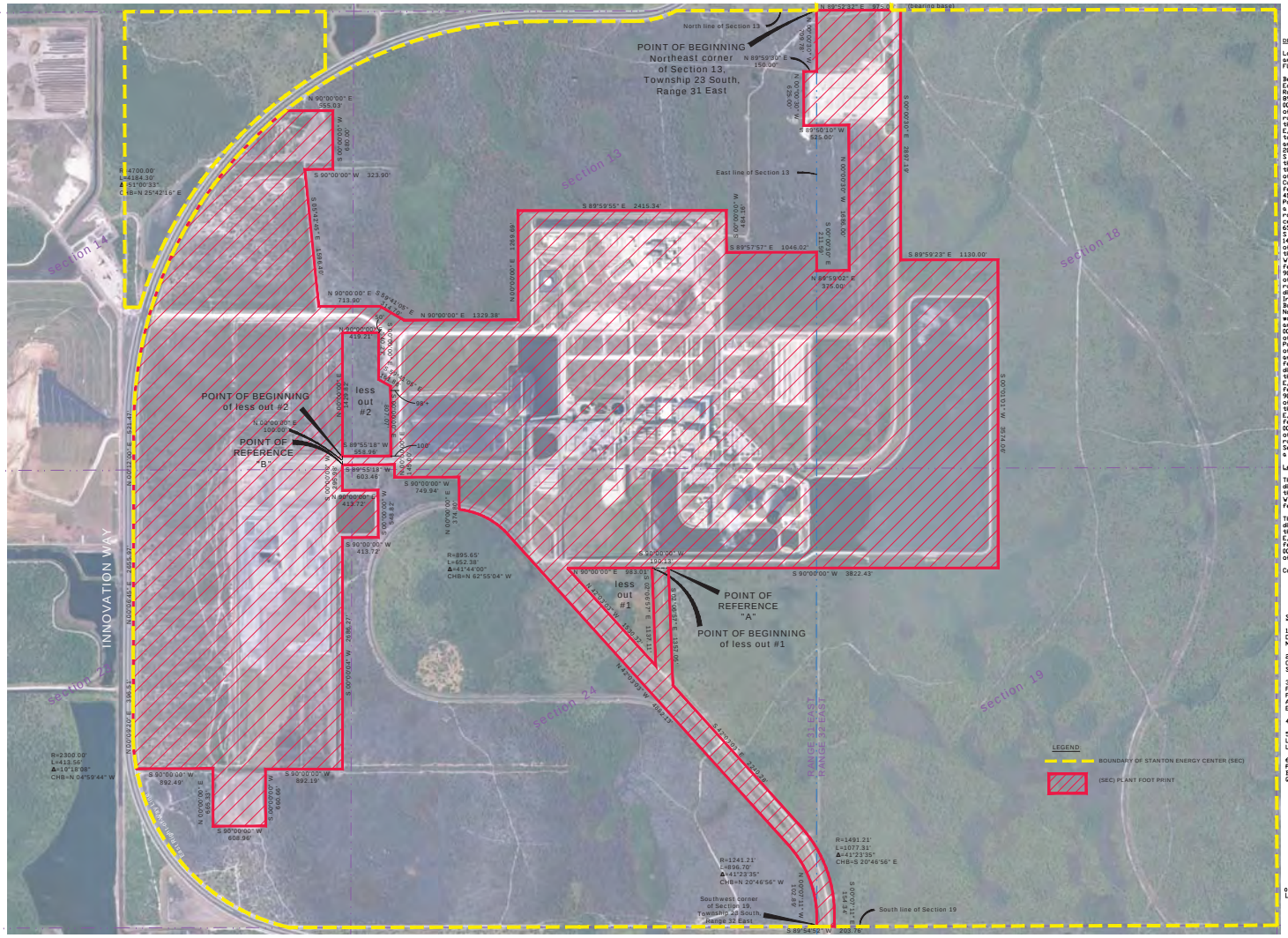
A PORTION OF

CURTIS H. STANTON ENERGY CENTER (SEC)

LOCATED IN

SECTIONS 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTION 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA





DESCRIPTION of Plant Footprint:

Lands lying in Sections 13, 14, 23 & 24, Township 23 South, Range 31 East and Sections 18 & 19, Township 23 South, Range 32 East, Orange County, Florida, being more particularly described as follows:

Begin at the Northeast corner of Section 13, Township 23 South, Range 31 East, also being the Northeast corner of Section 18, Township 23 South, Range 32 East; thence run along the North line of said Section 18, N 89°52'32" E, a distance of 975.00 feet; thence leaving said North line, run S 00°00'30" E, a distance of 2897.19 feet; thence run S89°59'23" E, a distance of 1130.00 feet; thence run S 00°00'01" W, a distance of 357.46 feet; thence run S 90°00'00" W, a distance of 3822.43 feet to a Point of Reference "A"; thence run S 02°06'57" E, a distance of 1357.05 feet; thence run S 42°03'03" E, a distance of 2240.28 feet to a Point of Curvature, of a curve concave to the Southwest, having a radius of 1491.21 feet; thence run along the arc of said curve through a central angle of 41°23'35" and chord bearing S 20°46'56" E, a distance of 1077.31 feet to a Point of Tangency; thence run S 00°27'11" E, a distance of 154.34 feet to the South line of said Section 19; the run along said South line, S 89°54'52" W, a distance of 203.76 feet to the Southwest corner of said Section 19; thence run along the West line of said Section 19, N 00°27'11" W, a distance of 1028.9 feet to a Point of Curvature, of a curve concave to the Southwest, having a radius of 1241.21 feet; thence run along the arc of said curve through a central angle of 41°23'35" and chord bearing N 20°46'56" W; a distance of 896.70 feet to a Point of Tangency; thence run N 42°03'03" W, a distance of 4882.13 feet to a Point of Curvature, of a curve concave to the Southwest, having a radius of 895.65 feet; thence run along the arc of said curve through a central angle of 41°14'00" and chord bearing N 62°55'04" W, a distance of 652.38 feet; thence run N 00°00'00" E, a distance of 374.80 feet; thence run S 90°00'00" W, a distance 749.94 feet; thence run N 00°00'00" E, a distance of 145.00 feet; thence run S89°55'18" W, a distance of 603.46 feet to a Point of Reference "B"; thence run S 00°00'00" W, a distance of 295.98 feet; thence run N 90°00'00" E, a distance of 413.72 feet; thence run S 00°00'00" W, a distance of 548.82 feet; thence run S 90°00'00" W, a distance of 413.72 feet; thence run S 00°00'04" W, a distance of 2686.27 feet; thence run S 90°00'00" W, a distance of 892.19 feet; thence run S 00°00'01" W, a distance of 660.66 feet; thence run S 90°00'00" W, a distance of 608.96 feet; thence run N 00°00'00" E, a distance of 665.33 feet; thence run S 90°00'00" W, a distance of 892.49 feet to a point on the East Right of Way Line of Innovation Way (aka Alafaya Trail extension) as recorded in Official Records Book 8964, at Page 3164, said point lying on a curve, concave to the Northeast, having a radius of 2300.00 feet; thence run along said right of way line, along the arc of said curve through a central angle of 10°18'08" and chord bearing N 04°59'44" W, a distance of 413.56; thence run N 00°09'00" E, a distance of 396.01 feet; thence run N 00°06'45" E, a distance of 2635.97 feet; thence run N 00°12'00" E, a distance of 521.47 feet to a Point of Curvature, of a curve concave to the Southeast, having a radius of 4700.00 feet; thence run along the arc of said curve through a central angle of 91°00'33" and chord bearing N 25°42'16" E, a distance of 4184.30 feet; thence leaving said East Right of Way Line, run N 90°00'00" E, a distance of 555.03 feet; thence run S 00°00'00" W, a distance of 680.00 feet; thence run S 90°00'00" W, a distance of 383.90 feet; thence run S 05°42'45" E, a distance of 1596.40 feet; thence run N 90°00'00" E, a distance of 713.90 feet; thence run S 59°41'05" E, a distance of 314.70 feet; thence run N 90°00'00" E, a distance of 1329.38 feet; thence run N 00°00'00" E, a distance of 1269.69 feet; thence run N 89°59'55" E, a distance of 2415.34 feet; thence run S 00°00'00" W, a distance of 484.16 feet; thence run S 89°57'57" E, a distance of 1046.02 feet; thence run S 00°00'30" E, a distance of 211.59 feet; thence run N 89°59'02" E, a distance of 375.00 feet; thence run N 00°00'30" W, a distance of 1686.00 feet; thence run S 89°50'10" W, a distance of 525.00 feet; thence run N 00°00'30" W, a distance of 625.00 feet; thence run N 89°59'30" E, a distance of 150.00 feet to the East line of said Section 13; thence run along the East line of said Section 13, N 00°00'30" W, a distance of 709.78 feet to the Point of Beginning

Less and Except:

Thence return to said Point of Reference "A", thence run S 90°00'00" W, a distance of 190.13 feet to for the Point of Beginning of the "less out #1"; thence run S 02°06'57" E, a distance of 1137.11 feet; thence run N 42°03'03" W, a distance of 1530.32 feet; thence run N 90°00'00" E, a distance of 983.01 feet to the Point of Beginning of the "less out #1".

Thence return to said Point of Reference "B", thence run N 00°00'00" E a distance of 100.00 feet to for the Point of Beginning of the "less out #2"; thence run N 00°00'00" E, a distance of 1429.82 feet; thence run N 90°00'00" E, a distance of 419.21 feet; thence run S 00°00'00" E, a distance of 548.27 feet; thence run S 89°55'18" E, a distance of 161.88 feet; thence run S 00°00'00" E, a distance of 80.707 feet; thence run S 89°55'18" W, a distance of 558.96 feet to the Point of Beginning of the "less out #2".

Containing 1034 acres more or less.

LAST DAY IN FIELD: n/a

SURVEYOR'S NOTES:

1) THIS MAP OF DESCRIPTION IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF THE SIGNING FLORIDA LICENSED SURVEYOR AND MAPPER.

2) THE CONFIGURATION OF THE LANDS DESCRIBED HEREON WAS PROVIDED BY THE CLIENT. DIMENSIONS PRIMARILY DEVELOPED BY SCALING AND PROTRACTING FROM SOURCE AERIAL IMAGERY.

3) THE BEARINGS AND DISTANCES SHOWN ON THIS SURVEY ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, TRANSVERSE MERCATOR PROJECTION, FLORIDA EAST ZONE (FL E 0901), NORTH AMERICAN DATUM OF 1983/2007 ADJUSTMENT WITH THE NORTH LINE OF SECTION 18, TOWNSHIP 23SOUTH, RANGE 31 EAST BEING N 89°52'32" E.

4) THIS IS NOT A BOUNDARY SURVEY.

5) THIS MAP OF DESCRIPTION DOES NOT ADDRESS THE IDENTIFICATION OR LOCATION OF JURISDICTIONAL WETLANDS OR SOVEREIGN LANDS (IF ANY) THAT MAY LIE WITHIN OR ADJACENT TO THE LANDS DESCRIBED.

6) SOURCE OF AERIAL IMAGERY: THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF STATE LANDS, BUREAU OF SURVEY AND MAPPING, LAND BOUNDARY INFORMATION SYSTEM WEBSITE, (labins.org), DIGITAL ORTHOGRAPHIC QUARTER QUAD, DATED 2008.

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE No. LS 4201

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OUC The Reliable One

REVISION	DATE
added less out #2	01/08/10
revised title & boundary	06/18/15

DATE

COUNTY: ORANGE | DWG. DATE: 08.15.09
Field Books: n/a | PHOTO DATE:
OPP. NO.: 6374080365 | DRAWN BY: P.E.W.
DWG. NAME: Bal-Cuckoo.dwg | CHECKED BY: R.M.J.

PROJECT TITLE: *MAP OF DESCRIPTION* A PORTION OF CURTIS H. STANTON ENERGY CENTER *SECTIONS 13, 14, & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and SECTION 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST ORANGE COUNTY, FLORIDA*

SHEET NO. 1 OF 1

Attachment E - 2015 Florida List of Invasive Species

CATEGORY II (continued)

Scientific Name**	Common Name	Gov. List	Zone
Tradescantia spathacea (*Rhoeo spathacea, Rhoeo discolor*)	oyster plant		C, S
Tribulus cistoides	puncture vine, burr-nut		N, C, S
Vitex trifolia	simple-leaf chaste tree		C, S
Washingtonia robusta	Washington fan palm		C, S
Wisteria sinensis	Chinese wisteria		N, C
Xanthosoma sagittifolium	malanga, elephant ear		N, C, S

Recent changes to plant names

Old Name	New Name
Aleurites fordii	*Vernicia fordii*
Aristolochia littoralis	*Aristolochia elegans*
Brachiaria mutica	*Urochloa mutica*
Hibiscus tiliaceus	*Talipariti tiliaceus*
Macfadyena unguis-cati	*Dolichandra unguis-cati*
Melaleuca viminalis	*Callistemon viminalis*
Panicum maximum	*Urochloa maxima*
Phymatosorus scolopendria	*Microsorum grossum*
Sapium sebiferum	*Triadica sebifera*
Wedelia trilobata	*Sphagneticola trilobata*

Current nomenclature can be found at
florida.plantatlas.usf.edu

**Plant names are those published in "Guide to Vascular Plants of Florida Third Edition." Richard P. Wunderlin and Bruce F. Hansen. University of Florida Press. 2011. Plant names in parentheses are synonyms or misapplied names that have commonly occurred in the literature and/or indicate a recent name change. Not all synonyms are listed.

For more information on invasive exotic plants, including links to related web pages, visit www.fleppc.org

FLEPPC List Definitions: **Exotic** – a species introduced to Florida, purposefully or accidentally, from a natural range outside of Florida. **Native** – a species whose natural range includes Florida. **Naturalized exotic** – an exotic that sustains itself outside cultivation (it is still exotic; it has not "become" native). **Invasive exotic** – an exotic that not only has naturalized, but is expanding on its own in Florida native plant communities.

Abbreviations: **Government List (Gov. List):** Possession, propagation, sale, and/or transport of these plants is regulated by: F=Florida Department of Agriculture and Consumer Services; U=United States Department of Agriculture

Zone: **N** = north, **C** = central, **S** = south, referring to each species' general distribution in regions of Florida (not its potential range in the state). Please refer to the adjacent map.

Citation example

FLEPPC. 2017. List of Invasive Plant Species. Florida Exotic Pest Plant Council. Internet: www.fleppc.org

Daniel F. Austin and Daniel B. Ward

Daniel F. Austin (2015) and Daniel B. Ward (2016) recently passed away. Both Dans were instrumental in maintaining, managing, and providing insight into Florida's many invasive plants. They first volunteered for this effort before it was even formalized as the FLEPPC, participating from that beginning through retirement. Their sage comments and wit are missed.

The 2017 list was prepared by the FLEPPC Plant List Committee

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Florida Exotic Pest Plant Council's 2017 List of Invasive Plant Species

*The mission of the **Florida Exotic Pest Plant Council** is to support the management of invasive exotic plants in Florida's natural areas by providing a forum for the exchange of scientific, educational and technical information.*
www.fleppc.org

Note: The FLEPPC List of Invasive Plant Species is not a regulatory list. Only those plants listed as Federal Noxious Weeds, Florida Noxious Weeds, Florida Prohibited Aquatics Plants, or in local ordinances are regulated by law.

Purpose of the List

To provide a list of plants determined by the Florida Exotic Pest Plant Council to be invasive in natural areas of Florida and to routinely update the list based on information of newly identified occurrences and changes in distribution over time. Also, to focus attention on –

- the adverse effects exotic pest plants have on Florida's biodiversity and native plant communities,
- the habitat losses in natural areas from exotic pest plant infestations,
- the impacts on endangered species via habitat loss and alteration,
- the need for pest-plant management,
- the socio-economic impacts of these plants (e.g., increased wildfires or flooding in certain areas),
- changes in the severity of different pest plant infestations over time,
- providing information to help managers set priorities for research and control programs.

www.fleppc.org

CATEGORY I

Invasive exotics that are altering native plant communities by displacing native species, changing community structures or ecological functions, or hybridizing with natives. *This definition does not rely on the economic severity or geographic range of the problem, but on the documented ecological damage caused.*

Scientific Name**	Common Name	Gov. List	Zone
Abrus precatorius	rosary pea	F	C, S
Acacia auriculiformis	earleaf acacia		C, S
Albizia julibrissin	mimosa, silk tree		N, C
Albizia lebbeck	woman's tongue		C, S
Ardisia crenata	coral ardisia	F	N, C, S
Ardisia elliptica	shoebutton ardisia	F	C, S
Asparagus aethiopicus (*A. sprengeri*, *A. densiflorus*)	asparagus-fern		N, C, S
Bauhinia variegata	orchid tree		C, S
Bischofia javanica	bishopwood		C, S
Calophyllum antillanum (*C. calaba*)	Santa Maria, mast wood		S
Casuarina equisetifolia	Australian-pine	F	N, C, S
Casuarina glauca	suckering Australian-pine	F	C, S
Cinnamomum camphora	camphor tree		N, C, S
Colocasia esculenta	wild taro		N, C, S
Colubrina asiatica	lather leaf	F	S
Cupaniopsis anacardioides	carrotwood	F	C, S
Deparia petersenii	Japanese false spleenwort		N, C
Dioscorea alata	winged yam	F	N, C, S
Dioscorea bulbifera	air-potato	F	N, C, S
Eichhornia crassipes	water-hyacinth	F	N, C, S
Eugenia uniflora	Surinam cherry		C, S
Ficus microcarpa (*F. nitida* and *F. retusa* var. *nitida*)[1]	laurel fig		C, S
Hydrilla verticillata	hydrilla	F, U	N, C, S
Hygrophila polysperma	green hygro	F, U	N, C, S
Hymenachne amplexicaulis	West Indian marsh grass		N, C, S
Imperata cylindrica	cogon grass	F, U	N, C, S
Ipomoea aquatica	water-spinach	F, U	C
Jasminum dichotomum	Gold Coast jasmine		C, S
Jasminum fluminense	Brazilian jasmine		C, S
Lantana camara (*L. strigocamara*)	lantana, shrub verbena		N, C, S
Ligustrum lucidum	glossy privet		N, C
Ligustrum sinense	Chinese privet	F[3]	N, C, S
Lonicera japonica	Japanese honeysuckle		N, C, S
Ludwigia hexapetala	Uruguay waterprimrose		N, C
Ludwigia peruviana	Peruvian primrosewillow		N, C, S
Lumnitzera racemosa	black mangrove		S
Luziola subintegra	tropical American watergrass		S
Lygodium japonicum	Japanese climbing fern	F	N, C, S
Lygodium microphyllum	Old World climbing fern	F, U	N, C, S
Macfadyena unguis-cati (*Dolichandra unguis-cati*)	catclawvine		N, C, S
Manilkara zapota	sapodilla		S
Melaleuca quinquenervia	melaleuca, paper bark	F, U	C, S
Melinis repens (*Rhynchelytrum repens*)	Natal grass		N, C, S
*Microstegium vimineum**	Japanese stiltgrass,		N
Mimosa pigra	catclaw mimosa	F, U	C, S
Nandina domestica	nandina, heavenly bamboo		N, C
Nephrolepis brownii (*N. multiflora*)	Asian sword fern		C, S
Nephrolepis cordifolia	sword fern		N, C, S
Neyraudia reynaudiana	Burma reed	F	S
Nymphoides cristata	crested floating heart	F	C, S
Paederia cruddasiana	sewer vine	F	S
Paederia foetida	skunk vine	F	N, C, S
Panicum repens	torpedo grass		N, C, S
Pennisetum purpureum	Napier grass, elephant grass		N, C, S
Phymatosorus scolopendria (*Microsorum grossum*)	serpent fern, wart fern		S
Pistia stratiotes	water-lettuce	F	N, C, S
Psidium cattleianum (*P. littorale*)	strawberry guava		C, S
Psidium guajava	guava		C, S
Pueraria montana var. *lobata*	kudzu	F	N, C, S
Rhodomyrtus tomentosa	downy rose-myrtle		C, S
Ruellia simplex[2]	Mexican-petunia		N, C, S
Salvinia minima	water spangles		N, C, S
Sapium sebiferum (*Triadica sebifera*)	popcorn tree, Chinese tallow tree		N, C, S
Scaevola taccada (*S. sericea*, *S. frutescens*)	half-flower, beach naupaka		N, C, S
Schefflera actinophylla (*Brassaia actinophylla*)	schefflera, Queensland umbrella tree		C, S
Schinus terebinthifolius	Brazilian-pepper	F	N, C, S
Scleria lacustris	Wright's nutrush		C, S
Senna pendula var. *glabrata*	Christmas cassia, Christmas senna		C, S
Solanum tampicense	wetland nightshade	F, U	C, S
Solanum viarum	tropical soda apple	F, U	N, C, S
Sporobolus jacquemontii (*S. indicus* var. *pyramidalis*)	West Indian dropseed		C, S
Syngonium podophyllum	arrowhead vine		N, C, S
Syzygium cumini	Java-plum		C, S
Tectaria incisa	incised halberd fern		S
*Thelypteris opulenta**	jeweled maiden fern		S
Thespesia populnea	seaside mahoe		C, S
Tradescantia fluminensis	small-leaf spiderwort		N, C
Urena lobata	Caesar's weed		N, C, S
Urochloa mutica (*Brachiaria mutica*)	para grass		N, C, S
Vitex rotundifolia	beach vitex		N

CATEGORY II

Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. *These species may become ranked Category I if ecological damage is demonstrated.*

Scientific Name**	Common Name	Gov. List	Zone
Adenanthera pavonina	red sandalwood		S
Agave sisalana	sisal hemp		C, S
Aleurites fordii (*Vernicia fordii*)	tung-oil tree		N, C
Alstonia macrophylla	devil tree		S
Alternanthera philoxeroides	alligator-weed	F	N, C, S
Antigonon leptopus	coral vine		N, C, S
Ardisia japonica	Japanese ardisia		N
Aristolochia littoralis (*A. elegans*)	elegant Dutchman's pipe, calico flower		N, C, S
Asystasia gangetica	Ganges primrose		C, S
Begonia cucullata	wax begonia		N, C, S
Broussonetia papyrifera	paper mulberry		N, C, S
Bruguiera gymnorhiza	large-leaved mangrove		S
Callistemon viminalis (*Melaleuca viminalis*)	bottlebrush		C, S
Callisia fragrans	inch plant, spironema		C, S
Casuarina cunninghamiana	Australian-pine	F	C, S
Cecropia palmata	trumpet tree		S
Cestrum diurnum	day jessamine		C, S
Chamaedorea seifrizii	bamboo palm		S
Clematis terniflora	Japanese clematis		N, C
Cocos nucifera	coconut palm		S
Crassocephalum crepidioides	redflower ragleaf, Okinawa spinach		C, S
Cryptostegia madagascariensis	rubber vine		C, S
Cyperus involucratus (*C. alternifolius*)	umbrella plant		C, S
Cyperus prolifer	dwarf papyrus		C, S
Dactyloctenium aegyptium	Durban crowfoot grass		N, C, S
Dalbergia sissoo	Indian rosewood, sissoo		C, S
Elaeagnus pungens	silverthorn, thorny olive		N, C
Elaeagnus umbellata	silverberry, autumn olive		N
Epipremnum pinnatum cv. *Aureum*	pothos		C, S
Eulophia graminea	Chinese crown orchid		C, S
Ficus altissima	false banyan, council tree		S
Flacourtia indica	governor's plum		S
Hemarthria altissima	limpo grass		C, S
Heteropterys brachiata	red wing, Beechey's withe		S
Hyparrhenia rufa	jaragua		N, C, S
Ipomoea carnea ssp. *fistulosa* (*I. fistulosa*)	shrub morning-glory	F	C, S
*Kalanchoe x houghtonii**	mother-of-millions		N, C, S
Kalanchoe pinnata (*Bryophyllum pinnatum*)	life plant		C, S
Koelreuteria elegans	flamegold tree		C, S
Landoltia punctata	spotted duckweed		N, C, S
Leucaena leucocephala	lead tree	F	N, C, S
Limnophila sessiliflora	Asian marshweed	F, U	N, C, S
Livistona chinensis	Chinese fan palm		C, S
Macroptilium lathyroides	phasey bean		N, C, S
Melia azedarach	Chinaberry		N, C, S
Melinis minutiflora	molasses grass		C,S
Merremia tuberosa	wood-rose		C, S
Mikania micrantha	mile-a-minute vine	F, U	S
Momordica charantia	balsam apple		N, C, S
Murraya paniculata	orange-jessamine		S
Myriophyllum spicatum	Eurasian water-milfoil	F	N, C, S
Panicum maximum (*Urochloa maxima*)	Guinea grass		N, C, S
Passiflora biflora	two-flowered passion vine		S
Pennisetum setaceum	green fountain grass		S
*Pennisetum polystachion** (*Cenchrus polystachos*)	mission grass, West Indian Pennisetum		C, S
Phoenix reclinata	Senegal date palm		C, S
Phyllostachys aurea	golden bamboo		N, C
Pittosporum pentandrum	Taiwanese cheesewood		S
*Platycerium bifurcatum**	common staghorn fern		S
Praxelis clematidea	praxelis		C
Pteris vittata	Chinese brake fern		N, C, S
Ptychosperma elegans	solitaire palm		S
Richardia grandiflora	large flower Mexican clover		N, C, S
Ricinus communis	castor bean		N, C, S
Rotala rotundifolia	roundleaf toothcup, dwarf Rotala, redweed		S
Ruellia blechum (*Blechum brownei*)	green shrimp plant, Browne's blechum		N, C, S
Sansevieria hyacinthoides	bowstring hemp		C, S
Sesbania punicea	rattlebox		N, C, S
*Sida planicaulis**	mata-pasto		C, S
Solanum diphyllum	two-leaf nightshade		N, C, S
Solanum torvum	turkeyberry	F, U	N, C, S
Spermacoce verticillata	shrubby false buttonweed		C, S
Sphagneticola trilobata (*Wedelia trilobata*)	wedelia, creeping oxeye		N, C, S
Stachytarpheta cayennensis (*S. urticifolia*)	nettle-leaf porterweed		S
Syagrus romanzoffiana (*Arecastrum romanzoffianum*)	queen palm		C, S
Syzygium jambos	Malabar plum, rose-apple		N, C, S
Talipariti tiliaceum (*Hibiscus tiliaceus*)	mahoe, sea hibiscus		C, S
Terminalia catappa	tropical-almond		C, S
Terminalia muelleri	Australian-almond		C, S

continued

[1]Does not include *Ficus microcarpa* subsp. *fuyuensis*, which is sold as "Green Island Ficus"
[2]Many names are applied to this species in Florida because of a complicated taxonomic and nomenclatural history. Plants cultivated in Florida, all representing the same invasive species, have in the past been referred to as *Ruellia brittoniana*, *R. tweediana*, *R. caerulea*, and *R. simplex*.
[3]Chinese privet is a FLDACS Noxious Weed except for the cultivar 'Variegatum'
*Added to the FLEPPC List of Invasive Plant Species in 2017
**Plant names are those published in "Guide to Vascular Plants of Florida Third Edition." Richard P. Wunderlin and Bruce F. Hansen. University of Florida Press. 2011. Plant names in parentheses are synonyms or misapplied names that have commonly occurred in the literature or indicate a recent name change. Not all synonyms are listed.

Attachment F - Monitoring Plan Implementation Schedule

Attachment F to the Conditions of Certification - MPIS

Stanton Energy Center Combustion Waste Landfill

WACS Facility: 97663

WATER QUALITY MONITORING PLAN IMPLEMENTATION SCHEDULE (MPIS)

1/6/2017

GENERAL

The Department of Environmental Protection Central District's Industrial Wastewater (IWW) and Solid Waste (SW) programs developed this Monitoring Plan Implementation Schedule (MPIS) to incorporate groundwater monitoring requirements into the Licensee's Conditions of Certification. The MPIS applies to the following units and associated ponds and areas.

- Units A and B
  - make-up pond (unlined)
  - wastewater pond (lined)
  - recycle pond (lined)
- Units 1 and 2
  - stormwater pond (unlined)
  - coal storage area runoff pond (lined)
  - combustion waste area runoff pond (lined)
  - coal storage area
  - combustion waste storage area

The Department's Central District IWW and SW programs are responsible for reviewing and approving all revisions to this document in accordance with Section A, Condition XX (Procedures for Post-Certification Submittals), unless otherwise determined by the Department, and Section B, Specific Condition I.A. (Groundwater Monitoring) of these Conditions.

At a minimum, projects which involve any one of the following shall be reviewed for a determination on the requirement of a modification to these Conditions and if a modification is required, it shall be processed in accordance with Section 403.516(1)(c), F.S., and Rule 62-17.211, F.A.C., as applicable:

- new major sources of wastewater
- new wastewater treatment facilities or improvements made to existing wastewater treatment facilities, including those which provide for a new or expanded land application system;
- pollutants not addressed in the MPIS or these Conditions resulting from a change in the solid waste disposal facility or the industrial wastewater facility; or
- other projects that cause or may cause changes to the quantity and/or quality of discharges to groundwater as a result of solid waste disposal or industrial wastewater treatment.

1. The MPIS is effective immediately. **(62-701.510(1)(b) & (c), 62-520.600(5), F.A.C.)**

2. The field testing, sample collection, and preservation and laboratory testing, including quality control procedures, shall be in accordance with Chapter 62-160, F.A.C. Approved methods as published by the

Department or as published in Standard Methods, ASTM, or EPA Methods shall be used. **(62-701.510(2)(b), F.A.C.)**

3. The organization collecting samples for this Licensee must use the Field and Laboratory Standard Operating Procedures (DEP-SOP-001/01) referenced in Chapter 62-160, F.A.C. Sampling personnel must have a copy of the SOP for purging and sampling in the field when sampling and must be knowledgeable of its contents, procedures and forms. The laboratory designated to conduct the chemical analyses must be certified by the Florida Department of Health Environmental Laboratory Certification Program (DoH ELCP). This Certification must be for the test method and analyte(s) that are reported. **(62-160.210(1), 62-160.300(1), F.A.C.)**

   NOTE: DEP-SOP-001/01 can be accessed at: http://www.dep.state.fl.us/water/sas/sop/index.htm

4. If, at any time, analyses detect parameters which are significantly above background water quality, or which are at levels above the Department's water quality standards or criteria specified in Chapter 62-520, F.A.C., in the detection wells or at the edge of the Zone of Discharge, the Licensee shall provide notification of the exceedances in writing to the Department at DEP_CD@dep.state.fl.us within 14 days of receipt of the sampling data and indicate:

   - whether the original data will be accepted as representative of current ground water conditions, or
   - whether resampling will be accomplished to confirm the data.

   If the Licensee chooses to resample the well, it shall do so within thirty (30) days of receipt of the original sampling data. Should the Licensee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility.

   If the resampling event detects parameters which are significantly above background water quality, or which are at levels above the Department's water quality standards or criteria specified in Chapter 62-520, F.A.C., the Licensee shall:

   - provide notification of the exceedances in writing to the Department at DEP_CD@dep.state.fl.us within 14 days of receipt of the resampling data.
   - submit the confirmed data to the Department at DEP_Cd@dep.state.fl.us within 60 days from the lab analyses date
   - use "CONF" (for confirmation data) in the report type column.

   Upon notification by the Department, the Licensee shall initiate evaluation monitoring in accordance with Rule 62-701.510(6) F.A.C.

GROUND WATER QUALITY MONITORING

5. Zone of Discharge. The zone of discharge for this facility shall be a three-dimensional volume described below. It is shown in Attachment B of the MPIS (drawing dated 12/20/2013). Class G-II water quality standards must be as Description of Revised ZOD – Stanton Energy Center
   a. West side: a line parallel to 100 feet west of the edge of the "Area Designated for Solid Waste Management" (landfill area) or the property boundary, whichever is closer to the landfill.

b. North side:
   i. a straight line 100 feet north of and parallel to the landfill area to the northeast corner of landfill area, then
   ii. a straight line to MW-23
c. East side: an arc connecting MW-23 to MW-25 to MW-26
d. South side:
   i. A straight line from MW-26 to MW-20
   ii. A straight line to 100 feet south of the southeast corner of the landfill area.
   iii. A straight line 100 feet south of and parallel to the landfill area to the southwest corner of the landfill completing the perimeter of the ZOD.
e. Vertical Dimension: To the depth of each well. Compliance will be monitored by MW-3D and MW-11D.

6. The twenty-two (22) active ground water monitoring wells and two (2) piezometers designated for water quality testing and water level measurements are listed on **Attachment A** of the MPIS and shown on **Attachment B** of the MPIS. **(62-701.510(3)(d)2 & 3, F.A.C.)**

7. Semi-annual samples from the ground water monitoring well shall be collected in April and October. The samples shall be analyzed for the following Ground Water Monitoring Parameters. **(62-701.510(5)(c)**

Field Parameters	**Laboratory Parameters**
1. Static water level in wells before purging	1. Chloride
2. Dissolved oxygen	2. Nitrate
3. pH	3. Sulfate
4. Specific conductivity	4. Total Dissolved Solids
5. Temperature	5. Arsenic
6. Turbidity	6. Barium
	7. Cadmium
	8. Lead
	9. Manganese
	10. Mercury
	11. Molybdenum
	12. Nickel
	13. Sodium
	14. Vanadium
	15. Gross Alpha (pCi/L)
	16. Ra 226 if gross alpha > 15 pCi/L
	17. Ra 228 if gross alpha >15 pCi/L

8. Turbidity and Dissolved Oxygen Concentrations
    a. The requirements of the current version of FS_2212, Well Purging Techniques, shall be met. If the field parameter criteria (Turbidity ≤ 20 NTU and Dissolved Oxygen ≤ 20% saturation) cannot be met, the sample logs must indicate the samples met the alternate criteria in Section 3.5 of FS_2212.
    b. Monitoring wells that in recent history have had turbidity values >20 NTU are MW-2, MW-16, MW-18, MW-19 and MW-26. These wells will continue to be sampled and reported to the Department regardless of the turbidity values.
    c. Other site monitoring wells, not listed in 8.b., above, whose turbidity values are greater than 20 NTU during the sampling event, will be sampled at the higher turbidity value. The sample logs shall document the individual occurrences, as described in 8.a., above. After the third consecutive instance of field turbidity values greater than 20 NTU from a monitoring well not listed in 8.b, Licensee shall contact the Department for further discussion. The discussion will be to review the sampling protocol and data, and then discuss and agree on a course of action.
    d. If a contaminant's concentration is greater than criteria and Licensee claims the exceedance is due to turbidity, then further evaluation, redevelopment, reinstallation or remediation of the well(s) must be considered.
    e. All water quality analyses submitted to the FDEP in compliance with the COC shall be performed on unfiltered samples unless filtering has been approved by the Department.

9. Please confer with your consultant and analytical laboratory prior to sampling to ensure the analytical method is capable of achieving detection limits at or below the Groundwater Cleanup Target Levels (GCTLs) in Table I, Chapter 62-777, F.A.C. except those listed in Table C of the "FDEP Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits dated 10/12/2004". GCTLs that are not water quality standards are used as screening tools and interim guidelines for ground water minimum criteria until standards are promulgated.

MONITORING WELL REQUIREMENTS

10. If a monitoring well or piezometer becomes damaged or inoperable, the Licensee shall notify the Department at DEP_CD@dep.state.fl.us within seven (7) days. The written report shall describe what problem has occurred and the remedial measures that have been taken to prevent a recurrence. The Department can require the replacement of inoperable monitoring wells or piezometers. **(62-4.070(3), F.A.C.)**

11. New or replacement monitoring well design or placement must be approved by the Department. Either:
    a. Proposed well construction details based on site-specific borings must be submitted with all supporting data (grain size distribution analyses, in-situ hydraulic conductivity testing, depth to water, etc.) for the Department's approval prior to well installation, OR,

       The Department approves in advance of installation that the anticipated lithology and the proposed well construction is similar to close wells in the MPIS and that the final determination of this information (grain size distribution analyses, in-situ hydraulic conductivity testing, depth to water, etc.) can be evaluated by an engineer or geologist at the time of well installation and submitted with the well completion information.

    b. Use of hollow stem auger equipment is recommended. Other drilling methods must be approved by the Department prior to well installation. **(62-520.600(3), F.A.C.)**

12. All wells and piezometers shall be clearly and permanently labeled and the well site maintained so that the well is visible at all times. Unless otherwise authorized by the Department, new monitoring wells, and existing monitoring wells at the time of permit renewal, shall have protective bollards or other devices installed around them if they are located in areas of high traffic flow to prevent damage from passing vehicles. **(62-701.510(3)(d)5, F.A.C.)**

13. An abandonment plan for abandoning any well that is unsuitable for ground water monitoring or for any piezometer must be approved by the Department prior to abandonment. **(62-701.510(3)(d)6, F.A.C.)**

REPORTING REQUIREMENTS

FIELD ACTIVITIES

14. The Department must be notified at DEP_CD@dep.state.fl.us at least fourteen (14) days prior to the installation and/or sampling of any monitoring well(s). **[62-701.510(8)(a), F.A.C.]**

MONITORING WELL COMPLETION

One (1) electronic copy (Adobe pdf format) of **Attachment C-Monitoring Well Completion Report** of the MPIS (as modified by the Central District) and required Attachments (for example, construction diagram and lithologic log), must be submitted to the Department at DEP_CD@dep.state.fl.us within thirty (30) days after installation of any new or replacement monitoring well(s). In addition, as-built well construction diagrams and soil boring logs that cover the entire depth of the monitoring well(s) must be submitted to the Department at DEP_CD@dep.state.fl.us.

NOTE: The top of casing elevation of each well, to an accuracy of 0.01 feet, and the latitude and longitude of each well in degrees, minutes and seconds, to two (2) decimal places, with an accuracy of 15 feet, must be determined and certified by a Florida Licensed Surveyor and Mapper and provided on the form. **(62-701.510(3)(d)1 & 62-532.410, F.A.C.)**

SURVEYING

15. One (1) electronic copy (Adobe pdf format) of a drawing must be submitted to the Department at DEP_CD@dep.state.fl.us within thirty (30) days following monitoring well installation showing the location of all monitoring sites (active, abandoned, and Evaluation Monitoring), piezometers, water bodies and waste filled areas. The location of features on the drawing must be horizontally and vertically located by standard surveying techniques. The drawing shall include all monitoring well locations, each monitoring well name and identification (WACS) number, the top of casing, pad elevation, permanent benchmark(s) and/or corner monument marker(s) referenced to NGVD 1929 with an accuracy of 0.01 feet. The latitude and longitude of each well in degrees, minutes and seconds, to two (2) decimal places, with an accuracy of 15 feet, must be determined and provided on the drawing. The survey shall be conducted and certified by a Florida Licensed Surveyor and Mapper. **(62-701.510(1)(c)&(3)(d)1, F.A.C.)**

16. If a monitoring well is being replaced or new wells are being added to this ground water monitoring plan, only the new wells need to be surveyed as long as all other monitoring wells in the MPIS have been surveyed and certified by a Florida Licensed Surveyor and Mapper and there is no reason to believe that the elevations have

changed. The location and elevation determinations and the certification must be provided with the Monitoring Well Completion Form for the new well.

SEMI-ANNUAL SAMPLING

17. Required monitoring reports must be submitted to the Department within sixty (60) days from completion of laboratory analyses. Requirements for submitting the report are outlined in **Attachment D (ADaPT electronic reporting requirement)** of the MPIS. **(62-701.510(8), F.A.C.)**

WATER ELEVATIONS

18. Water levels in all monitoring wells, whether sampled or not, all piezometers and all surface water sites must be measured to the nearest 0.01 foot. The depth to water shall be converted to feet NGVD 1929 and this elevation shall be reported semi-annually.

19. All water level measurements must be made within a one-day period.

20. These measurements should be reported in a table that includes well name, date water level measured, measuring point elevation referenced to NGVD 1929, depth to water and calculated water level elevation referenced to NGVD 1929. The ground water and surface water elevations shall be reported in the ADaPT data format for the upload into WACS. **(62-701.510(8)(a)8, F.A.C.)**

GROUND WATER CONTOUR MAPS

21. Ground water elevation contour map(s) must be submitted semi-annually to the Department. Ground water elevation contour map(s) should include monitoring well and piezometer locations, ground water elevation at each monitoring well or piezometer location referenced to NGVD 1929, a bar scale, north arrow, ground water contour interval, date of measurement and ground water flow direction. The map(s) must incorporate adjacent and on-site surface water elevations where appropriate. These maps shall be signed and sealed pursuant to Florida Statutes (F.S.) Chapters 471 and 492. These statutes require that documents requiring the practice of professional engineering or professional geology, as described in Chapter 471 or 492, F.S., to be signed and sealed by the professional(s) who prepared or approved them. This certification must be made by a licensed professional who is able to demonstrate competence in this subject area. **(62-701.510(8)(a)9, F.A.C.)**

REQUIREMENTS for ELECTRONIC REPORTING of WATER QUALITY DATA

22. Required water quality monitoring reports and all ground water, and surface water analytical results shall be submitted as described in **Attachment D (ADaPT electronic reporting requirement)** of the MPIS. Required monitoring reports must be submitted to the Department within sixty (60) days from completion of laboratory analyses. **(62-160.240 and 62-160.340, F.A.C.)**

TECHNICAL REPORT

23. A technical report, signed and sealed by a professional geologist or professional engineer with experience in hydrogeologic investigations, shall be submitted to the Department at DEP_CD@dep.state.fl.us approximately every two and one-half years during the active life of the facility, and every five years during the long-term care

period. The report shall summarize and interpret the water quality monitoring results and water level measurements collected since the last Technical Report. The report shall contain, at a minimum, the following **[62-701.510(8)(b), F.A.C.]:**

a) Tabular displays of any data which shows that a monitoring parameter has been detected, and graphical displays of any leachate key indicator parameters detected (such as pH, specific conductance, TDS, TOC, sulfate, chloride, sodium and iron), including hydrographs for all monitor wells;
b) Trend analyses of any monitoring parameters consistently detected;
c) Comparisons among shallow, middle, and deep zone wells;
d) Comparisons between background water quality and the water quality in detection and compliance wells;
e) Correlations between related parameters such as total dissolved solids and specific conductance;
f) Discussion of erratic and/or poorly correlated data;
g) An interpretation of the ground water contour maps, including an evaluation of ground water flow rates; and
h) An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

24. An electronic copy (Adobe pdf format) of the Technical Report shall be submitted to the Department at DEP_CD@dep.state.fl.us on the following schedule: **[62-701.510(8)(b), F.A.C.]**

Report	Sampling Periods Covered	Number of Semi-annual Sampling Events in Report	Date Technical Report Due
1	Second Semi-Annual Event 2015 through Second Semi-Annual Event 2017	5	March 31, 2018
2	First Semi-Annual Event 2018 through First Semi-Annual Event 2020	5	August 31, 2020
3	Second Semi-Annual Event 2020 through Second Semi-Annual Event 2022	5	March 31, 2023
4	First Semi-Annual Event 2023 through First Semi-Annual Event 2025	5	August 31, 2025
5	Second Semi-Annual Event 2025 through Second Semi-Annual Event 2027	5	March 31, 2028
6	First Semi-Annual Event 2028 through First Semi-Annual Event 2030	5	August 31, 2030
7	Second Semi-Annual Event 2030 through Second Semi-Annual Event 2032	5	March 31, 2033
8	First Semi-Annual Event 2033 through First Semi-Annual Event 2035	5	August 31, 2035
9	Second Semi-Annual Event 2035 through Second Semi-Annual Event 2037	5	March 31, 2038
10	First Semi-Annual Event 2038 through First Semi-Annual Event 2040	5	August 31, 2040

Attachment F to the Conditions of Certification - MPIS

List of Attachments to Attachment F of the Conditions

Attachment A – Monitoring Well Lists

Attachment B – Location Map of Ground Water Monitoring Sites

Attachment C – Monitoring Well Completion Report Form

Attachment D – ADaPT Electronic Reporting Requirements

Attachment E –Water Quality Monitoring Certification Form

Attachment F – Water Sampling Log

ATTACHMENT A

STANTON ENERGY CENTER COMBUSTION WASTE LANDFILL

WACS_FACILITY: 97663

MONITORING SITES

	Monitoring Site Number	WACS Well	Well Type	Program	GW/SW Class	WACS Report Type
Ground Water						
1.	MW-1	23173	DE	IW	G-II	SEMGW
2.	MW-2	23174	DE	IW	G-II	SEMGW
3.	MW-3	23175	DE	IW	G-II	SEMGW
4.	MW-3D	26320	CO	IW	G-II	SEMGW
5.	MW-4	23176	DE	IW	G-II	SEMGW
6.	MW-5	23177	DE	IW	G-II	SEMGW
7.	MW-7	23179	DE	IW/SW	G-II	SEMGW
8.	MW-10	23182	CO	SW	G-II	SEMGW
9.	MW-11	23183	DE	SW	G-II	SEMGW
10.	MW-11D	26321	CO	SW	G-II	SEMGW
11.	MW-14	23186	DE	IW	G-II	SEMGW
12.	MW-16	26322	BG	SW	G-II	SEMGW
13.	MW-17	26323	DE	SW	G-II	SEMGW
14.	MW-18	26324	DE	SW	G-II	SEMGW
15.	MW-19	26325	DE	SW	G-II	SEMGW
16.	MW-20	26326	CO	SW	G-II	SEMGW
17.	MW-21	26327	DE	IW	G-II	SEMGW
18.	MW-22	27472	DE	IW	G-II	SEMGW
19.	MW-23	29023	CO	IW	G-II	SEMGW
20.	MW-24	29024	DE	IW	G-II	SEMGW
21.	MW-25	29025	CO	IW	G-II	SEMGW
22.	MW-26	29026	CO	IW/SW	G-II	SEMGW
Piezometers						
1.	MW-6	23178	PZ	IW/SW	G-II	SEMGW
2.	MW-9R	23662	PZ	SW	G-II	SEMGW

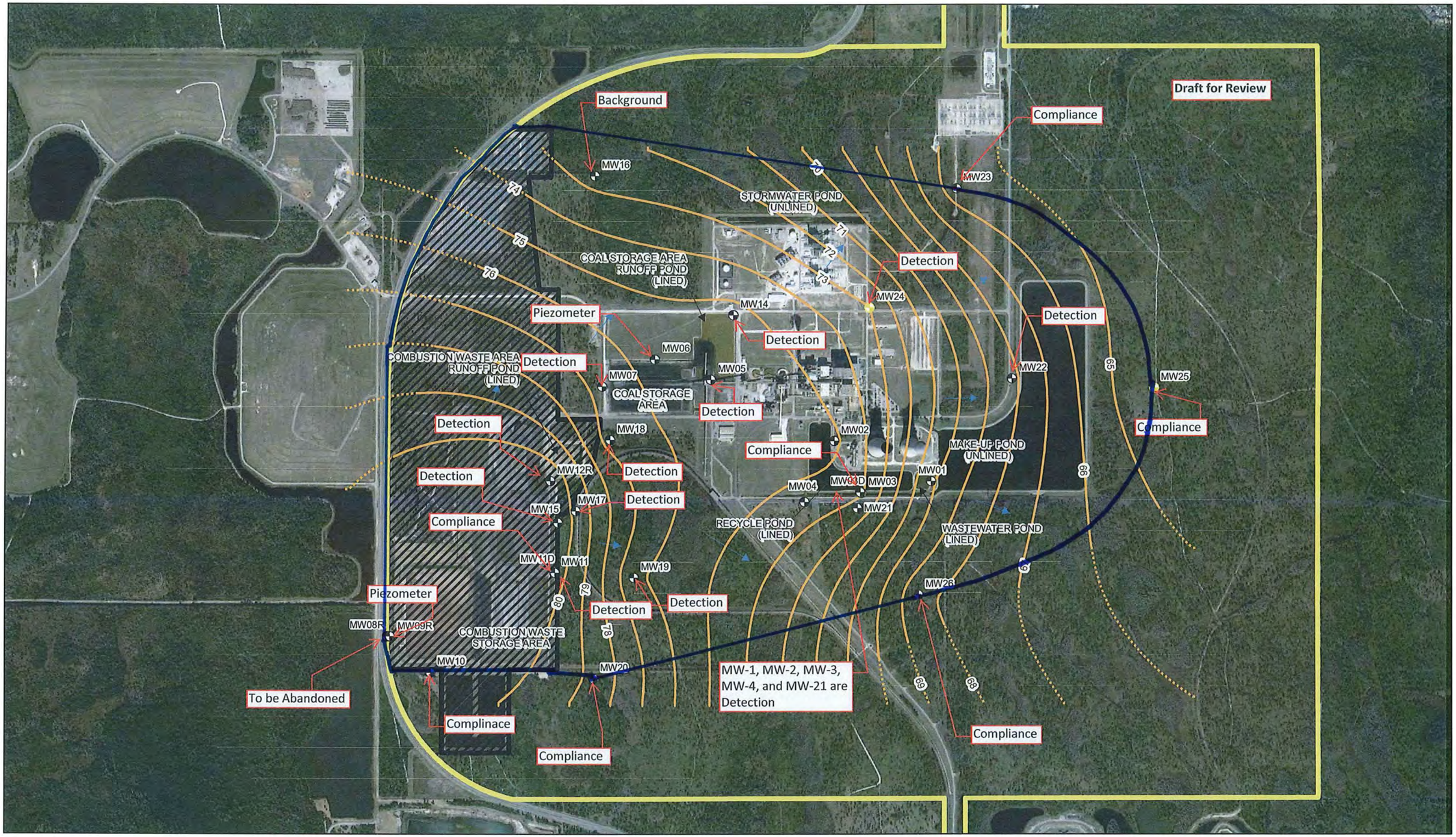
Well Type Codes

(BG) Background (CO) Compliance (DE) Detection (PZ) Piezometer

Program Codes

(IW) Industrial Wastewater (SW) Solid Waste

Attachment B



0 625 1,250
Feet

Imagery: © 2013 Google; 1/22/2013

Monitoring Well
New Monitoring Well Location
Groundwater Elevation Contours - Dashed Where Inferred (Feet, NAVD88)
Groundwater Flow Direction
Area Designated for Solid Waste Management
Site Property Boundary

Zone of Discharge at OUC Stanton Energy Center
December 20, 2013

CH2MHILL

ATTACHMENT C

Florida Department of Environmental Protection

3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767

MONITORING WELL COMPLETION REPORT FORM

Facility Name: **Stanton Energy Center Combustion Waste Landfill**		Date:
DEP Permit No.:	WACS Facility ID #:**97663**	
WACS Monitoring Site ID #:	WACS Monitoring Site Name:	
Well Type: ❑ Background ❑ Detection ❑ Compliance ❑ Other_____		
LATITUDE AND LONGITUDE (See Next Page For Requirements):		
Coordinate Accuracy:	Datum:	Elevation Datum:
Collection Method:	Collection Date:	
Collector Name:	Collector Affiliation:	
Aquifer Monitored:		
Drilling Method:	Date Installed:	
Installed By:		
Bore Hole Diameter:	Total Depth:(BLS)	
Casing Type:	Casing Diameter:	Casing Length:
Screen Type:	Screen Slot Size:	Screen Length:
Screen Diameter:	Screen Interval: _____ To_____(BLS)	
Filter Pack Type:	Filter Pack Grain Size:	
Filter Interval Covered:	Filter Interval: _____ To_____(BLS)	
Sealant Type:	Sealant Interval: _____ To_____(BLS)	
Grout Type:	Grout Interval: _____ To_____(BLS)	
Top Of Casing Elev. (NGVD):	Ground Surface Elev. (NGVD):	
Post Development Water Level Elev. (NGVD):	Date And Time Measured:	
Describe Well Development:		
Remarks:		
Name Of Person Preparing Report:		
Organization:	Phone Number:	

NOTE Attach As-Built Mw Construction Diagram, Lithologic Log, And Survey Drawing (See Next Page).
(NGVD)=National Geodetic Vertical Datum of 1929 (BLS) = Below Land Surface

Attachment F to the Conditions of Certification - MPIS

Additional Survey Notes:

1. Latitude and Longitude Requirements and Definitions:

   a. **Latitude** must be measured in degrees, minutes and seconds, to at least two (2) decimal places.

   b. **Longitude** must be measured in degrees, minutes and seconds, to at least two (2) decimal places.

   c. **Eastings and northings** (State Plane Coordinates) **must** be converted to latitude and longitude.

   d. **Coordinate Accuracy:** the measured, estimated degree of correctness of the measurement. An accuracy of 15 feet or 5 meters is required.

   e. **Datum:** the horizontal reference for measuring locations on the Earth's surface. NAD83-North American Datum of 1983 is preferred.

   f. **Elevation Datum:** the reference datum from which elevation measurements are made. NGVD29 (National Geodetic Vertical Datum of 1929 is required.

   g. **Collection Method:** the method or mechanism used to derive the measurements, e.g. GPS, map, aerial photo, etc.

   h. **Collection Date:** the date and time on which the measurements were taken.

   i. **Collector Name:** the name of the person taking the measurement.

   j. **Collector Affiliation:** the agency or company for whom the collector works.

2. As specified in the MPIS, a drawing must be submitted within thirty (30) days following monitoring well installation in electronic format to DEP_CD@dep.state.fl.us The drawing must show the location of all monitoring wells (active and abandoned), water bodies and waste filled areas. The location of features on the drawing must be horizontally and vertically located by standard surveying techniques. The drawing shall include all monitoring well locations, each monitoring well name and identification (WACS) number, the top of casing, pad elevation, permanent benchmark(s) and/or corner monument marker(s) referenced to NGVD with an accuracy of 0.01 feet. The latitude and longitude of each well in degrees, minutes and seconds, to two (2) decimal places, with an accuracy of 15 feet, must be determined and provided on the drawing. The survey shall be conducted and certified by a Florida Licensed Surveyor and Mapper. [***62-701.510(1)(c)&(3)(d)1, F.A.C.***]

3. If a monitoring well is being replaced or new wells are being added to an existing ground water monitoring plan, only the new wells needs to be surveyed as long as all other monitoring wells in the MPIS have been surveyed and certified by a Florida Licensed Surveyor and Mapper and there is no reason to believe that the elevations have changed. This location and elevation determinations and the certification must be provided with the Monitoring Well Completion Form for the new well.

Attachment D

Guidance for Submitting Electronic Water Quality Data

1/6/2017

I General Information

Water quality monitoring reports and all groundwater, surface water, and leachate (when required) analytical results for the Solid Waste Program shall be submitted to the Department electronically via email, FTP site, compact disc, or flash drive media readable by Microsoft Windows.
(Rules 62-160.240 and 62-160.340, F.A.C.)

Water quality monitoring reports shall be submitted in Adobe pdf format. The water quality Electronic Data Deliverable (EDD) shall be compatible with software called Florida DEP Automated Data Processing Tool (ADaPT) --unless otherwise approved by the Department.

ADaPT has been developed to evaluate and upload water quality data into the Department's Water Assurance Compliance System (WACS) database. A copy of this ADaPT software with installation instructions and EDD specifications can be downloaded from the following website address:
http://www.dep.state.fl.us/waste/ADaPT/

II. Monitoring Report

The groundwater monitoring report shall be submitted in Adobe PDF format, with the EDDs as an attachment. The report shall include the following items:

1. Cover letter;
2. Summary of exceedances and sampling issues (if any, for example, variation from SOP field criteria);
3. Conclusions and recommendations;
4. Groundwater contour maps;
5. Chain of custody forms;
6. Water levels, water elevation table;
7. Groundwater Monitoring Report Certification, using the appropriate Department form **(Attachment E**);
8. Appropriate sampling information on Form FD 9000-24 (DEP-SOP-001/01) (**Attachment F);**
9. Laboratory EDDs and associated Lab EDD Error Logs, Field EDDs that are compatible with ADaPT software and ADaPT export file(s).

(NOTE: You no longer have to complete or submit the DEP Form 62-522.900(2), Parameter Monitoring Report.)

The monitoring report (including ADaPT EDDs) shall be emailed to the Department using the following email address: ADaPT.EDDs.and.Reports@dep.state.fl.us.

Submit all ADaPT files in a single zip file named as follows:
12345_200811_swldd.zip

Submit the monitoring report in a single (text, no scanned content) PDF file named as follows:
12345_200811_swgwmr.pdf

Please do not submit multiple documents for the monitoring report; combine all documents in a single PDF document. Less preferable, zip these documents into a single zip file named as follows:
12345_200811_swgwmr.zip

(Note: refer to Section III below for details of file nomenclature.)

If attachments are too large to email, monitoring reports may also be transmitted to the Department's Solid Waste program using the following FTP site: ftp://ftp.dep.state.fl.us/pub/WACS-ADaPT/EDDS_and_Reports

Note: When submitting files to the FTP site, please combine all ADaPT EDDs and the groundwater monitoring report into a single zip file (sw_12345_200811_gwmr.zip).

Please email us at ADaPT.EDDs.and.Reports@dep.state.fl.us informing us of what files were transmitted via FTP for which facility sampling event.

If you are unable to submit the groundwater monitoring report electronically via email or FTP, it can also be sent by regular mail to:

Florida Department of Environmental Protection
Solid Waste Section, MS 4565
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

III. ADaPT EDDs

The ADaPT EDD consists of two electronic deliverables:
(1) a Laboratory EDD, identified as swldd.txt; and
(2) a Field EDD identified as swfdd.txt.

The Laboratory EDD shall be submitted in a comma separated (csv format) text file using the .txt filename extension. The Laboratory EDD file name format shall be:
[WACS Facility I.D] underscore [Begin Sampling Year and Month (yyyymm)] underscore SWldd.txt
For example, with WACS Facility I.D. # 12345 where sampling started in November and ended in December of 2008, the Laboratory EDD file name should be: 12345_200811_swldd.txt

The Field EDD shall be submitted in the same comma separated (.csv format) text file as the Laboratory EDD. The Field EDD file name format shall be:
[WACS Facility I.D.] underscore [Begin Sampling Year and Month (yyyymm)] underscore swfdd.txt
For example, with WACS Facility I.D. # 12345 where sampling started in November and ended in December of 2008, the file name should be: 12345_200811_swfdd.txt

For confirmation sampling, add the term “conf” to the EDD filenames as follows:
12345_200811_conf_swldd.txt for the Laboratory EDD or
12345_200811_conf_swfdd.txt for the Field EDD.

For radiochemistry results, add the term “_rad” similar to confirmation sampling indicated above.

IV. Signatures Required

Water quality monitoring reports and interpretative documents (such as recommendations about exceedances and/or contour maps) shall be signed and sealed by a Florida registered professional geologist or professional engineer with experience in hydrogeological investigations.

An electronic signed and sealed signature page may be submitted with the report provided a stamped seal is used. If a raised seal is used, ensure that the seal is legible (gray the embossed seal and scan). Otherwise, you must separately mail the signed and sealed page.

V. Process Required

Three steps are generally required.

First, the Laboratory EDD, in comma separated text format, must be submitted by the laboratory. In order to validate the QA/QC aspects of the Laboratory EDD, the Licensee shall ensure the laboratory processes the Laboratory EDD through ADaPT using both their laboratory specific library and the Department's Division of Waste Management Master library and corrects all critical errors and explains all non-critical errors prior to submittal.

Second, the appropriate entity (laboratory, consultant, or Licensee) shall process the Field EDD through ADaPT and correct all Field EDD errors prior to submittal.

Third, as a completeness check, the laboratory, licensee or consultant shall process both the Laboratory EDD and the Field EDD through ADaPT and confirm a successful export to disk and submit the ADaPT generated export file (ADaPTYYYYMMDDHHMMSS.txt).

VI. Resources

In the event help is needed to prepare these EDDs, or monitoring testsite information needs updating in the WACS Oracle database, or if you need help in submitting the groundwater monitoring report, please contact the Department's Central District office:

Florida Department of Environmental Protection
Central District Office
Waste and Air Resource Programs
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
DEP_CD@dep.state.fl.us

You can also receive assistance by Clark Moore, clark.b.moore@dep.state.fl.us, (850) 245-8739 or by emailing ADaPT.EDDs.and.Reports@dep.state.fl.us.

Attachment E - Certification

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(31), F.A.C
Form Title: Water Quality Monitoring Certification
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(9), F.A.C.

WATER QUALITY MONITORING CERTIFICATION

PART I GENERAL INFORMATION

(1) Facility Name Stanton Energy Center Combustion Waste Landfill

Address _____

City _____ Zip _____ County _____

Telephone Number (_____) _____

(2) WACS Facility ID 97663

(3) DEP Permit Number _____

(4) Authorized Representative's Name _____ Title _____

Address _____

City _____ Zip _____ County _____

Telephone Number (_____) _____

Email address (if available) _____

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submission of false information including the possibility of fine and imprisonment.

_____ _____
(Date) (Owner or Authorized Representative's Signature)

PART II QUALITY ASSURANCE REQUIREMENTS

Sampling Organization _____

Analytical Lab NELAC / HRS Certification # _____

Lab Name _____

Address _____

Phone Number (_____) _____

Email address (if available) _____

Attachment F
WATER SAMPLING LOG

DEP-SOP-001/01 FS 2200 Groundwater Sampling

Form FD 9000-24

FACILITY NAME Stanton Energy Center Combustion Waste Landfill WACS I.D. 97663	FACILITY LOCATION:	
MONITORING_SITE_NUM:	WACS_WELL:	DATE:

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY
only fill out if applicable)
= (feet – feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)
= gallons + (gallons/foot X feet) + gallons = gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µmhos/cm or µS/cm)	DISSOLVED OXYGEN (circle mg/L or % saturation)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.16; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): **1/8"** = 0.0006; **3/16"** = 0.0014; **1/4"** = 0.0026; **5/16"** = 0.004; **3/8"** = 0.006; **1/2"** = 0.010; **5/8"** = 0.016

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
PUMP OR TUBING DEPTH IN WELL (feet):	SAMPLE PUMP FLOW RATE (mL per minute):	TUBING MATERIAL CODE:	
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: ____ µm Filtration Equipment Type: _____	DUPLICATE: Y N	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		

REMARKS:

MATERIAL CODES: **AG** = Amber Glass; **CG** = Clear Glass; **PE** = Polyethylene; **PP** = Polypropylene; **S** = Silicone; **T** = Teflon; **O** = Other (Specify)

SAMPLING/PURGING EQUIPMENT CODES: **APP** = After Peristaltic Pump; **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP =** Peristaltic Pump **RFPP** = Reverse Flow Peristaltic Pump; **SM** = Straw Method (Tubing Gravity Drain); **VT** = Vacuum Trap; **O** = Other (Specify)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Attachment G – Summary of Specific Domestic Wastewater Facility Information and Operation Requirements

ATTACHMENT G
Summary of Specific Domestic Wastewater Facility Information and Associated Requirements

TREATMENT FACILITIES:

This is an existing 0.034 million gallons per day (MGD) annual average daily flow (AADF) capacity domestic wastewater facility. The treatment plant is an extended aeration facility with influent screening, aeration, clarification, chlorination and an aerated biosolids holding tank.

REUSE AND LAND APPLICATION SYSTEM:

This is an existing land application and reuse system, R-001, that consists of a 93-acre unlined cooling water make-up pond. The pond receives water from this facility and from the OCUD/Eastern WRF

Samples shall be taken at the monitoring site locations as described below:

Monitoring Location Site Number	Description of Monitoring Location
FLW-1	Elapsed Time Meters on lift station pumps
EFA-1	Final Effluent after chlorination
INF-1	Raw Influent to treatment plant

GROUND WATER MONITORING:

The Licensee is required to monitor groundwater as specified in Section B.I.A of the Conditions.

BIOSOLIDS MANAGEMENT:

The method of biosolids management by this facility is transport to a DEP permitted Biosolids Treatment Facility or disposal in a Class I or II solid waste landfill.

OPERATOR STAFFING AND RECORDKEEPING:

In accordance with Chapter 62-699, F.A.C., this facility is a Category III, Class C facility and, at a minimum, operators with appropriate certification must be on the site as follows:

Staffing by Class C or higher operator: 1/2 hour/day for 5 days/week and one visit each weekend

An operator meeting the lead operator classification level of the plant shall be available during all periods of plant operation. “Available” means able to be contacted as needed to initiate the appropriate action in a timely manner.

The Licensee shall maintain records and make them available for inspection as specified in Section A.X of the Conditions.

REPORT DUE DATES:

Type of Report	DEP Form No.	Due Date
Discharge Monitoring Reports (DMRs)	See attached DMR	28th day of the month following the reporting month

Additional requirements that apply to this facility are shown on the following pages 2-5.

Part I. Reclaimed Water Requirements

A. Reclaimed Water Limitations

1. The Licensee is authorized to direct reclaimed water to the reuse system. Such reclaimed water shall be limited and monitored by the Licensee as specified below:

			Reclaimed Water Limitations			
Parameter	Units	Max./Min.	Annual Average	Monthly Average	Weekly Average	Single Sample
Flow	MGD	Maximum	See 5. below			
Percent Capacity, (TMADF/Capacity) x 100	%	Maximum	-	Report (Mo.Total)	-	-
BOD, Carbonaceous 5 day, 20C (Influent)	MG/L	Maximum	-	Report	-	-
Solids, Total Suspended (Influent)	MG/L	Maximum	-	Report	-	-
BOD, Carbonaceous 5 day, 20C (Effluent)	MG/L	Maximum	20.0	30.0	45.0	60.0
Solids, Total Suspended (Effluent)	MG/L	Maximum	20.0	30.0	45.0	60.0
Coliform, Fecal	See 6. Below					
pH	SU	Range	-	-	-	6.0-8.5
Total Residual Chlorine (For Disinfection)	MG/L	Minimum	-	-	-	1.0*
Nitrogen, Nitrate, Total (as N)	MG/L	Maximum	-	-	-	12.0
*A minimum chlorine residual of 1.0 mg/L in the reclaimed water is required due to the use as cooling-water, in lieu of providing high level disinfection, as allowed by Rule 62-610.668, FAC.						

2. Monitoring frequencies shall be in accordance with Chapter 62-600, F.A.C., and **the DMR**.
3. Sample types shall be in accordance with Chapter 62-600F.A.C., and **the DMR**.
4. Samples shall be taken at the monitoring site locations described in Reuse and Land Application System on page 1 of **Attachment G** and identified **on the DMR.**
5. Elapsed time meters on lift station pumps shall be calibrated at least annually. *[62-600.200(25)]*
6. The arithmetic mean of the monthly fecal coliform values collected during an annual period shall not exceed 200 per 100 mL of reclaimed water sample. The geometric mean of the fecal coliform values for a minimum of 10 samples of reclaimed water, each collected on a separate day during a period of 30 consecutive days (monthly), shall not exceed 200 per 100 mL of sample. No more than 10 percent of the samples collected during a period of 30 consecutive days shall exceed 400 fecal coliform values per 100 mL of sample. Any one sample shall not exceed 800 fecal coliform values per 100 mL of sample. The effluent limitation for the monthly geometric mean for fecal coliform is only applicable if 10 or more values are reported. If fewer than 10 values are reported, the monthly geometric mean shall be calculated and reported on the Discharge Monitoring Report to be used to calculate the annual average
7. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow.
8. Parameters shall be analyzed in accordance with Rule 62-620.610(18), F.A.C.
9. The Licensee shall provide safe access points for obtaining representative influent, reclaimed water, and effluent samples.

10. Grab samples shall be collected during periods of minimal treatment plant pollutant removal efficiencies or maximum hydraulic and/or organic loading.
11. PFAS samples shall be analyzed using EPA Method 1633A (EPA 820-R-24-007) or a Department-approved equivalent analytical method having a method sensitivity equal to or greater than EPA method 1633A. Results shall be reported on the permittee's Discharge Monitoring Report in accordance with Condition B.I.B. [62-600.660(4)(a), 403.086, F.S.]

B. Land Application Requirements

1. Routine aquatic weed control and regular maintenance of storage pond embankments and access areas are required.
2. Overflows from emergency discharge facilities on storage ponds or on absorption fields or on infiltration ponds, basins, or trenches shall be reported as an abnormal event to the Department within 24 hours of an occurrence. The provisions of Rule 62-610.800(9), F.A.C., shall be met.

Part II. Biosolids Management Requirements

Monitoring Location Site Number	Description of Monitoring Location
RMP-P	Treatment plant digester

1. The Licensee shall be responsible for proper treatment, management, and disposal of its biosolids.
2. Disposal in a Class I or II solid waste landfill shall be in accordance with Chapter 62-701, F.A.C.
3. Storage of biosolids or other solids at CHSEC shall require prior written notification to the Department if:
   a. Storage provisions were not addressed in the facility's preliminary design report, or
   b. Storage lasts longer than 30 days.
4. The Licensee shall not be held responsible for treatment, management, use, or land application violations that occur after its biosolids have been accepted by a permitted biosolids management facility with which the source facility has an agreement in accordance with Rule 62-640.880(1)(c), F.A.C., for further treatment, management, use or land application.
5. The Licensee shall keep records to track the transport of its biosolids to a biosolids management facility or to another permitted facility for treatment and disposal. The records shall contain the following information:
   a. Date and Time Shipped
   b. Amount of Biosolids Shipped
   c. Degree of Treatment (if applicable)
   d. Name and ID Number of Biosolids Management Facility or Another Treatment Facility
   e. Signature of Responsible Party at Source Facility
   f. Signature of Hauler and Name of Hauling Firm

   These records shall be kept for five years and shall be made available for inspection upon request by the Department. A copy of the information shall be provided upon delivery of the biosolids to the biosolids management facility or treatment facility.
6. Biosolids shall be monitored for PFAS by the Licensee as specified in the table below. Results shall be reported on the Licensee's Discharge Monitoring Report in accordance with Condition B.I.B. The sample(s) shall be representative of the facility's primary biosolids use or disposal method based on quantity and shall be taken after final treatment of the biosolids (if any) but before use or disposal. EPA Method 1633A (EPA 820-R-24-007) or a Department-approved equivalent analytical method having a method sensitivity equal to or greater than EPA method 1633A, shall be used to analyze the sample.

Part III - Other Requirements

1. The Licensee shall report to the Department any noncompliance which may endanger health or the environment in accordance with Rule 62-620.610(20), F.A.C.

2. The Licensee shall maintain the following records and make them available for inspection as specified in Section A.X of the Conditions:

   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation and a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;

   b. Copies of all reports required by Attachment G for at least three years from the date the report was prepared;

   c. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.; d.

      A copy of the facility record drawings;

   e. Copies of the licenses of the current certified operators; and

   f. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and certification number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities; tests performed and samples taken; and major repairs made. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed.

3. If the Licensee wishes to make a minor modification to the wastewater facility, the Licensee shall provide a description of the proposed modification, including any reports, plans, and specifications which have been developed to implement the modification. Requests for minor modifications shall be submitted as specified in Section A. XXIII. of the Conditions, and using DEP Form 62-620.910(9).

4. Florida water quality criteria and standards shall not be violated as a result of land application of reclaimed water from this facility.

5. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be taken by the Licensee. Other corrective action may be required to ensure compliance with rules of the Department.

6. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62610.472, F.A.C.

7. Collection/transmission system overflows shall be reported to the Department in accordance with Rule 62- 604.550(2)(a), F.A.C.

8. The operating authority of a collection/transmission system and the Licensee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding 40°C or otherwise inhibiting treatment; or

e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems.

9. The treatment facility, storage ponds, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons.

10. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit.

11. The Licensee shall provide adequate notice to the appropriate office of the Department of the following:

a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the application and known to be discharging at the time the Conditions was issued.

Adequate notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

12. All of the General Conditions found in Rule 62-620.610, FAC, shall apply.

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed submit this report to: Department of Environmental Protection, 3319 Maguire Blvd, Suite 232, Orlando, FL 32803-3767

PERMITTEE NAME:	Orlando Utilities Commission	PERMIT NUMBER:	FLA010867	**DMR effective date:**	September 1, 2026
MAILING ADDRESS:	5100 S Alafaya Trl Orlando, Florida 32831	LIMIT:	Final	**Expiration date:**	See Siting Permit
		CLASS SIZE:	N/A	REPORT FREQUENCY:	Monthly
FACILITY:	Curtis Stanton Energy Center WWTF	MONITORING GROUP NUMBER:	R-001	PROGRAM:	Domestic
LOCATION:	5100 S Alafaya Trl Orlando, Florida 32831	MONITORING GROUP DESCRIPTION:			
		RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Orange	MONITORING PERIOD From:	_____ To: _____		
OFFICE:	Central District				

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement										
PARM Code 50050 Y Mon. Site No. FLW-1	Permit Requirement	0.034 (An.Avg.)		MGD						5 Days/Week	Elapsed Time Measurement on Pump
Flow	Sample Measurement										
PARM Code 50050 1 Mon. Site No. FLW-1	Permit Requirement	Report (Mo.Avg.)		MGD						5 Days/Week	Elapsed Time Measurement on Pump
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 Y Mon. Site No. EFA-1	Permit Requirement				20.0 (An.Avg.)			mg/L		Monthly	Grab
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 A Mon. Site No. EFA-1	Permit Requirement				Report (Mo.Avg.)	60.0 (Max.)		mg/L		Monthly	Grab
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 Y Mon. Site No. EFA-1	Permit Requirement				20.0 (An.Avg.)			mg/L		Monthly	Grab
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 A Mon. Site No. EFA-1	Permit Requirement				Report (Mo.Avg.)	60.0 (Max.)		mg/L		Monthly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

ISSUANCE/REISSUANCE DATE: July 31, 2026
DMR EFFECTIVE DATE: September 1, 2026– permit expiration date

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
pH	Sample Measurement										
PARM Code 00400 A Mon. Site No. EFA-1	Permit Requirement				6.0 (Min.)	8.5 (Max.)		s.u.		5 Days/Week	Grab
Coliform, Fecal	Sample Measurement										
PARM Code 74055 Y Mon. Site No. EFA-1	Permit Requirement				200 (An.Avg.)			#/100mL		Monthly	Grab
Coliform, Fecal	Sample Measurement										
PARM Code 74055 A Mon. Site No. EFA-1	Permit Requirement				Report (Mo.Geo.Mn.)	800 (Max.)		#/100mL		Monthly	Grab
Chlorine, Total Residual (For Disinfection)	Sample Measurement										
PARM Code 50060 A Mon. Site No. EFA-1	Permit Requirement				1.0 (Min.)			mg/L		5 Days/Week	Grab
Flow	Sample Measurement										
PARM Code 50050 P Mon. Site No. FLW-1	Permit Requirement	0.034 (An.Avg.)		MGD						5 Days/Week	Meter
Flow	Sample Measurement										
PARM Code 50050 Q Mon. Site No. FLW-1	Permit Requirement	Report (Mo.Avg.)		MGD						5 Days/Week	Meter
BOD, Carbonaceous 5 day, 20C (Influent)	Sample Measurement										
PARM Code 80082 G Mon. Site No. INF-1	Permit Requirement				Report (Mo.Avg.)			mg/L		Monthly	Grab
Solids, Total Suspended (Influent)	Sample Measurement										
PARM Code 00530 G Mon. Site No. INF-1	Permit Requirement				Report (Mo.Avg.)			mg/L		Monthly	Grab

ISSUANCE/REISSUANCE DATE: July 31, 2026
DMR EFFECTIVE DATE: September 1, 2026– permit expiration date

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed submit this report to: Department of Environmental Protection, 3319 Maguire Blvd, Suite 232, Orlando, FL 32803-3767

PERMITTEE NAME:	Orlando Utilities Commission	PERMIT NUMBER:	FLA010867	**DMR effective date:**	September 1, 2026
MAILING ADDRESS:	5100 S Alafaya Trl Orlando, Florida 32831	LIMIT:	Final	**Expiration date:**	See Siting Permit
		CLASS SIZE:	N/A	REPORT FREQUENCY:	Quarterly
FACILITY:	Curtis Stanton Energy Center WWTF	MONITORING GROUP NUMBER:	R-001	PROGRAM:	Domestic
LOCATION:	5100 S Alafaya Trl Orlando, Florida 32831	MONITORING GROUP DESCRIPTION:			
		RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Orange	MONITORING PERIOD From:	_____ To: _____		
OFFICE:	Central District				

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorooctanoic acid (PFOA) (335-67-1)	Sample Measurement										
PARM Code 51521 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorobutanoic acid (PFBA) (375-22-4)	Sample Measurement										
PARM Code 51522 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorooctanesulfonamide (PFOSA) (754-91-6)	Sample Measurement										
PARM Code 51525 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoropentanoic acid (PFPeA) (2706-90-3)	Sample Measurement										
PARM Code 51623 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorohexanoic acid (PFHxA) (307-24-4)	Sample Measurement										
PARM Code 51624 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoroheptanoic acid (PFHpA) (375-85-9)	Sample Measurement										
PARM Code 51625 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorononanoic acid (PFNA) (375-95-1)	Sample Measurement										
PARM Code 51626 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorodecanoic acid (PFDA) (335-76-2)	Sample Measurement										
PARM Code 51627 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoroundecanoic acid (PFUnA) (2058-94-8)	Sample Measurement										
PARM Code 51628 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorododecanoic acid (PFDoA) (307-55-1)	Sample Measurement										
PARM Code 51629 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorotridecanoic acid (PFTrDA) (72629-94-8)	Sample Measurement										
PARM Code 51630 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorotetradecanoic acid (PFTeDA) (376-06-7)	Sample Measurement										
PARM Code 51631 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE) (1691-99-2)	Sample Measurement										
PARM Code 51641 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE) (24448-09-7)	Sample Measurement										
PARM Code 51642 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamidoacetic acid(NEtFOSAA) (2991-50-6)	Sample Measurement										
PARM Code 51643 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamidoacetic acid (2355-31-9)	Sample Measurement										
PARM Code 51644 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorobutanesulfonic acid (PFBS) (375-73-5)	Sample Measurement										
PARM Code 52602 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorodecanesulfonic acid (PFDS) (335-77-3)	Sample Measurement										
PARM Code 52603 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoroheptanesulfonic acid (PFHpS) (375-92-8)	Sample Measurement										
PARM Code 52604 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorohexanesulfonic acid (PFHxS) (355-46-4)	Sample Measurement										
PARM Code 52605 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorooctanesulfonic acid (PFOS) (1763-23-1)	Sample Measurement										
PARM Code 52606 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) (757124-72-4)	Sample Measurement										
PARM Code 52607 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) (27619-97-2)	Sample Measurement										
PARM Code 52608 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) (39108-34-4)	Sample Measurement										
PARM Code 52609 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoropentanesulfonic acid (PFPeS) (2706-91-4)	Sample Measurement										
PARM Code 52610 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorononanesulfonic acid (PFNS) (68259-12-1)	Sample Measurement										
PARM Code 52611 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Hexafluoropropylene oxide dimer acid (HFPO-DA) (13252-13-6)	Sample Measurement										
PARM Code 52612 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) (151772-58-6)	Sample Measurement										
PARM Code 52626 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) (113507-82-7)	Sample Measurement										
PARM Code 52629 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluorododecanesulfonic acid (PFDoS) (79780-39-5)	Sample Measurement										
PARM Code 52632 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)	Sample Measurement										
PARM Code 52636 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamide (NMeFOSA) (31506-32-8)	Sample Measurement										
PARM Code 52641 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamide (NEtFOSA) (4151-50-2)	Sample Measurement										
PARM Code 52642 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
3-Perfluoropropyl propanoic acid (3:3 FTCA) (356-02-5)	Sample Measurement										
PARM Code PF001 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoro-3-methoxypropanoic acid (PFMPA) (377-73-1)	Sample Measurement										
PARM Code PF002 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (756426-58-1)	Sample Measurement										
PARM Code PF003 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (763051-92-9)	Sample Measurement										
PARM Code PF004 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
3-Perfluoroheptyl propanoic acid (7:3 FTCA) (812-70-4)	Sample Measurement										
PARM Code PF005 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
Perfluoro-4-methoxybutanoic acid (PFMBA) (863090-89-5)	Sample Measurement										
PARM Code PF006 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA) (914637-49-3)	Sample Measurement										
PARM Code PF007 A Mon. Site No. EFA-1	Permit Requirement						Report (Max.)	ng/L	0	Quarterly	Grab

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed submit this report to: Department of Environmental Protection, 3319 Maguire Blvd, Suite 232, Orlando, FL 32803-3767

PERMITTEE NAME:	Orlando Utilities Commission	PERMIT NUMBER:	FLA010867	**DMR effective date:**	September 1, 2026
MAILING ADDRESS:	5100 S Alafaya Trl Orlando, Florida 32831	LIMIT:	Final	**Expiration date:**	See Siting Permit
		CLASS SIZE:	N/A	REPORT FREQUENCY:	Quarterly
FACILITY:	Curtis Stanton Energy Center WWTF	MONITORING GROUP NUMBER:	R-001	PROGRAM:	Domestic
LOCATION:	5100 S Alafaya Trl Orlando, Florida 32831	MONITORING GROUP DESCRIPTION:	Biosolids		
		RE-SUBMITTED DMR: ☐			
		NO DISCHARGE FROM SITE: ☐			
COUNTY:	Orange	MONITORING PERIOD From:	_____ To: _____		
OFFICE:	Central District				

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorooctanoic acid (PFOA) (335-67-1)	Sample Measurement										
PARM Code 51521 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorobutanoic acid (PFBA) (375-22-4)	Sample Measurement										
PARM Code 51522 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorooctanesulfonamide (PFOSA) (754-91-6)	Sample Measurement										
PARM Code 51525 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoropentanoic acid (PFPeA) (2706-90-3)	Sample Measurement										
PARM Code 51623 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorohexanoic acid (PFHxA) (307-24-4)	Sample Measurement										
PARM Code 51624 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoroheptanoic acid (PFHpA) (375-85-9)	Sample Measurement										
PARM Code 51625 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorononanoic acid (PFNA) (375-95-1)	Sample Measurement										
PARM Code 51626 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorodecanoic acid (PFDA) (335-76-2)	Sample Measurement										
PARM Code 51627 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoroundecanoic acid (PFUnA) (2058-94-8)	Sample Measurement										
PARM Code 51628 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorododecanoic acid (PFDoA) (307-55-1)	Sample Measurement										
PARM Code 51629 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorotridecanoic acid (PFTrDA) (72629-94-8)	Sample Measurement										
PARM Code 51630 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorotetradecanoic acid (PFTeDA) (376-06-7)	Sample Measurement										
PARM Code 51631 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE) (1691-99-2)	Sample Measurement										
PARM Code 51641 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE) (24448-09-7)	Sample Measurement										
PARM Code 51642 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamidoacetic acid(NEtFOSAA) (2991-50-6)	Sample Measurement										
PARM Code 51643 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamidoacetic acid (2355-31-9)	Sample Measurement										
PARM Code 51644 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Perfluorobutanesulfonic acid (PFBS) (375-73-5)	Sample Measurement										
PARM Code 52602 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorodecanesulfonic acid (PFDS) (335-77-3)	Sample Measurement										
PARM Code 52603 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoroheptanesulfonic acid (PFHpS) (375-92-8)	Sample Measurement										
PARM Code 52604 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorohexanesulfonic acid (PFHxS) (355-46-4)	Sample Measurement										
PARM Code 52605 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorooctanesulfonic acid (PFOS) (1763-23-1)	Sample Measurement										
PARM Code 52606 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) (757124-72-4)	Sample Measurement										
PARM Code 52607 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) (27619-97-2)	Sample Measurement										
PARM Code 52608 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) (39108-34-4)	Sample Measurement										
PARM Code 52609 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoropentanesulfonic acid (PFPeS) (2706-91-4)	Sample Measurement										
PARM Code 52610 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorononanesulfonic acid (PFNS) (68259-12-1)	Sample Measurement										
PARM Code 52611 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Hexafluoropropylene oxide dimer acid (HFPO-DA) (13252-13-6)	Sample Measurement										
PARM Code 52612 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) (151772-58-6)	Sample Measurement										
PARM Code 52626 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA) (113507-82-7)	Sample Measurement										
PARM Code 52629 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluorododecanesulfonic acid (PFDoS) (79780-39-5)	Sample Measurement										
PARM Code 52632 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)	Sample Measurement										
PARM Code 52636 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-methyl perfluorooctanesulfonamide (NMeFOSA) (31506-32-8)	Sample Measurement										
PARM Code 52641 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
N-ethyl perfluorooctanesulfonamide (NEtFOSA) (4151-50-2)	Sample Measurement										
PARM Code 52642 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
3-Perfluoropropyl propanoic acid (3:3 FTCA) (356-02-5)	Sample Measurement										
PARM Code PF001 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoro-3-methoxypropanoic acid (PFMPA) (377-73-1)	Sample Measurement										
PARM Code PF002 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (756426-58-1)	Sample Measurement										
PARM Code PF003 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Curtis Stanton Energy Center WWTF

MONITORING GROUP NUMBER: R-001

PERMIT NUMBER: FLA010867

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (763051-92-9)	Sample Measurement										
PARM Code PF004 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
3-Perfluoroheptyl propanoic acid (7:3 FTCA) (812-70-4)	Sample Measurement										
PARM Code PF005 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
Perfluoro-4-methoxybutanoic acid (PFMBA) (863090-89-5)	Sample Measurement										
PARM Code PF006 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA) (914637-49-3)	Sample Measurement										
PARM Code PF007 + Mon. Site No. RMP-P	Permit Requirement						Report (Max.)	ng/g	0	Quarterly	Grab

DAILY SAMPLE RESULTS - PART B

Permit Number: FLA010867 Facility: Curtis Stanton Energy Center WWTF
Monitoring Period From: _____ To: _____

	BOD, Carbonaceous 5 day, 20C mg/L	Coliform, Fecal #/100mL	Nitrogen, Nitrate, Total (as N) mg/L	pH s.u.	Solids, Total Suspended mg/L	Chlorine, Total Residual (For Disinfection) mg/L	Flow MGD	BOD, Carbonaceous 5 day, 20C (Influent) mg/L	Solids, Total Suspended (Influent) mg/L	Chlorine, Total Residual After Contact mg/L
Code	80082	74055	00620	00400	00530	50060	50050	80082	00530	
Mon. Site	EFA-1	EFA-1	EFA-1	EFA-1	EFA-1	EFA-1	FLW-1	INF-1	INF-1	EFA-1
1										
2										
3										
4										
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24										
25										
26										
27										
28										
29										
30										
31										
Total										
Mo. Avg.										

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

INSTRUCTIONS FOR COMPLETING THE WASTEWATER DISCHARGE MONITORING REPORT

Read these instructions before completing the DMR. Hard copies and/or electronic copies of the required parts of the DMR were provided with the permit. All required information shall be completed in full and typed or printed in ink. A signed, original DMR shall be mailed to the address printed on the DMR by the 28th of the month following the monitoring period. Facilities who submit their DMR(s) electronically through eDMR do not need to submit a hardcopy DMR. The DMR shall not be submitted before the end of the monitoring period.

The DMR consists of three parts--A, B, and D--all of which may or may not be applicable to every facility. Facilities may have one or more Part A's for reporting effluent or reclaimed water data. All domestic wastewater facilities will have a Part B for reporting daily sample results. Part D is used for reporting ground water monitoring well data.

When results are not available, the following codes should be used on parts A and D of the DMR and an explanation provided where appropriate. Note: Codes used on Part B for raw data are different.

CODE	DESCRIPTION/INSTRUCTIONS
ANC	Analysis not conducted.
DRY	Dry Well
FLD	Flood disaster.
IFS	Insufficient flow for sampling.
LS	Lost sample.
MNR	Monitoring not required this period.

CODE	DESCRIPTION/INSTRUCTIONS
NOD	No discharge from/to site.
OPS	Operations were shutdown so no sample could be taken.
OTH	Other. Please enter an explanation of why monitoring data were not available.
SEF	Sampling equipment failure.

When reporting analytical results that fall below a laboratory's reported method detection limits or practical quantification limits, the following instructions should be used, unless indicated otherwise in the permit or on the DMR:

1. Results greater than or equal to the PQL shall be reported as the measured quantity.
2. Results less than the PQL and greater than or equal to the MDL shall be reported as the laboratory's MDL value. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.
3. Results less than the MDL shall be reported by entering a less than sign ("<") followed by the laboratory's MDL value, e.g. < 0.001. A value of one-half the MDL or one-half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limitation.

PART A -DISCHARGE MONITORING REPORT (DMR)

Part A of the DMR is comprised of one or more sections, each having its own header information. Facility information is preprinted in the header as well as the monitoring group number, whether the limits and monitoring requirements are interim or final, and the required submittal frequency (e.g. monthly, annually, quarterly, etc.). Submit Part A based on the required reporting frequency in the header and the instructions shown in the permit. The following should be completed by the permittee or authorized representative:

Resubmitted DMR: Check this box if this DMR is being re-submitted because there was information missing from or information that needed correction on a previously submitted DMR. The information that is being revised should be clearly noted on the re-submitted DMR (e.g. highlight, circle, etc.)
No Discharge From Site: Check this box if no discharge occurs and, as a result, there are no data or codes to be entered for all of the parameters on the DMR for the entire monitoring group number; however, if the monitoring group includes other monitoring locations (e.g., influent sampling), the "NOD" code should be used to individually denote those parameters for which there was no discharge.
Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Sample Measurement: Before filling in sample measurements in the table, check to see that the data collected correspond to the limit indicated on the DMR (i.e. interim or final) and that the data correspond to the monitoring group number in the header. Enter the data or calculated results for each parameter on this row in the non-shaded area above the limit. Be sure the result being entered corresponds to the appropriate statistical base code (e.g. annual average, monthly average, single sample maximum, etc.) and units. Data qualifier codes are not to be reported on Part A.
No. Ex.: Enter the number of sample measurements during the monitoring period that exceeded the permit limit for each parameter in the non-shaded area. If none, enter zero.
Frequency of Analysis: The shaded areas in this column contain the minimum number of times the measurement is required to be made according to the permit. Enter the actual number of times the measurement was made in the space above the shaded area.
Sample Type: The shaded areas in this column contain the type of sample (e.g. grab, composite, continuous) required by the permit. Enter the actual sample type that was taken in the space above the shaded area.
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comment and Explanation of Any Violations: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation. If more space is needed, reference all attachments in this area.

PART B - DAILY SAMPLE RESULTS

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Daily Monitoring Results: Transfer all analytical data from your facility's laboratory or a contract laboratory's data sheets for all day(s) that samples were collected. Record the data in the units indicated. Table 1 in Chapter 62-160, F.A.C., contains a complete list of all the data qualifier codes that your laboratory may use when reporting analytical results. However, when transferring numerical results onto Part B of the DMR, only the following data qualifier codes should be used and an explanation provided where appropriate.

CODE	DESCRIPTION/INSTRUCTIONS
<	The compound was analyzed for but not detected.
A	Value reported is the mean (average) of two or more determinations.
J	Estimated value, value not accurate.
Q	Sample held beyond the actual holding time.
Y	Laboratory analysis was from an unpreserved or improperly preserved sample.

To calculate the monthly average, add each reported value to get a total. For flow, divide this total by the number of days in the month. For all other parameters, divide the total by the number of observations.
Plant Staffing: List the name, certificate number, and class of all state certified operators operating the facility during the monitoring period. Use additional sheets as necessary.

PART D - GROUND WATER MONITORING REPORT

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Date Sample Obtained: Enter the date the sample was taken. Also, check whether or not the well was purged before sampling.
Time Sample Obtained: Enter the time the sample was taken.
Sample Measurement: Record the results of the analysis. If the result was below the minimum detection limit, indicate that. Data qualifier codes are not to be reported on Part D.
Detection Limits: Record the detection limits of the analytical methods used.
Analysis Method: Indicate the analytical method used. Record the method number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Sampling Equipment Used: Indicate the procedure used to collect the sample (e.g. airlift, bucket/bailer, centrifugal pump, etc.)
Samples Filtered: Indicate whether the sample obtained was filtered by laboratory (L), filtered in field (F), or unfiltered (N).
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comments and Explanation: Use this space to make any comments on or explanations of results that are unexpected. If more space is needed, reference all attachments in this area.

SPECIAL INSTRUCTIONS FOR LIMITED WET WEATHER DISCHARGES

Flow (Limited Wet Weather Discharge): Enter the measured average flow rate during the period of discharge or divide gallons discharged by duration of discharge (converted into days). Record in million gallons per day (MGD).
Flow (Upstream): Enter the average flow rate in the receiving stream upstream from the point of discharge for the period of discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Actual Stream Dilution Ratio: To calculate the Actual Stream Dilution Ratio, divide the average upstream flow rate by the average discharge flow rate. Enter the Actual Stream Dilution Ratio accurate to the nearest 0.1.
No. of Days the SDF > Stream Dilution Ratio: For each day of discharge, compare the minimum Stream Dilution Factor (SDF) from the permit to the calculated Stream Dilution Ratio. On Part B of the DMR, enter an asterisk (*) if the SDF is greater than the Stream Dilution Ratio on any day of discharge. On Part A of the DMR, add up the days with an "*" and record the total number of days the Stream Dilution Factor was greater than the Stream Dilution Ratio.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in duration of discharge.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in duration of discharge.
Actual Rainfall: Enter the actual rainfall for each day on Part B. Enter the actual cumulative rainfall to date for this calendar year and the actual total monthly rainfall on Part A. The cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this DMR contains data.
Rainfall During Average Rainfall Year: On Part A, enter the total monthly rainfall during the average rainfall year and the cumulative rainfall for the average rainfall year. The cumulative rainfall for the average rainfall year is the amount of rain, in inches, which fell during the average rainfall year from January through the month for which this DMR contains data.
No. of Days LWWD Activated During Calendar Year: Enter the cumulative number of days that the limited wet weather discharge was activated since January 1 of the current year.
Reason for Discharge: Attach to the DMR a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

Attachment H – Operation Plan for Combustion Waste Management Areas

LANDFILL OPERATION AND MAINTENANCE PLAN

FILE NUMBER: 13-13-0166

Prepared for:

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

February 3, 2017

Prepared by:

Ardaman & Associates, Inc.
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Landfill Operation and Maintenance Plan
Orlando Utilities Commission
Stanton Energy Center
Orange County, Florida

February 3, 2017

Prepared by

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1.0 INTRODUCTION

The "Management Plan for the Combustion Waste Storage Area of Orlando Utilities Commission Stanton Energy Center," prepared by Conversion Systems, Inc. (CSI) during the site certification process prior to operation of the first unit at the Stanton Energy Center (SEC), was issued in March 1987. A document titled "Operation Plan for Combustion Waste Management Areas, Orlando Utilities Commission Stanton Energy Center, Orange County, Florida," dated May 5, 2011, was prepared by Tetra Tech to update the CSI Management Plan and respond to comments by the Florida Department of Environmental Protection (FDEP). The May 5, 2011 Operation Plan was approved by FDEP in a letter to the Orlando Utilities Commission (OUC) dated November 1, 2011.

The May 5, 2011 Operation Plan covered the operations of the original 90-acre combustion waste storage area (CWSA) and the combustion waste processing facility/area, which were collectively referred to as "combustion waste management areas" (CWMAs). The Operation Plan provided some background information and described waste materials handled at the SEC, development of the CWSA to-date, and procedures for operation of the CWMAs through a transitional period until design and permitting of the horizontal expansion of the CWSA was complete. It also included water quality monitoring, quality control, and recordkeeping programs.

The design of the 90-acre lined horizontal expansion of the CWSA, which comprises Cells 1, 2, and 3, was approved by FDEP on March 16, 2012. Construction of Cell 1 was completed on December 31, 2012. The certification of construction completion report prepared by Tetra Tech was submitted to the Siting Coordination Office on October 16, 2013, and approved by FDEP on October 7, 2015. The purpose of this document is to update the Operation Plan for the CWMAs to include changes that have occurred since landfilling commenced in the lined Cell 1 of the CWSA horizontal expansion on May 28, 2015.

The Landfill Operation and Maintenance Plan (Landfill O&M Plan) should be reviewed and updated every 5 years or whenever significant operational changes take effect. The protocols described in the Landfill O&M Plan should be followed for waste handling, processing, and disposal at the SEC.

2.0 BACKGROUND INFORMATION

2.1 Site Location

The SEC is located in southeastern Orange County, Florida in the watershed of the Econlockhatchee River, about 12 miles southeast of downtown Orlando and 6 miles northeast of Orlando International Airport. The location of the SEC site is shown in Figure 1. The site is located within Sections 13, 14, 23, and 24 of Township 23 South, Range 31 East, and Sections 7, 18, and 19 of Township 23 South, Range 32. The address of the facility is 5100 South Alafaya Trail, Orlando, Florida. Alafaya Trail ends at the site entrance. The site is north of the Beach Line Expressway (State Road 528) and east of Innovation Way, which provides access from Alafaya Trail to State Road 528. The site boundary shown on the survey in Appendix 1 encompasses an area of approximately 3,290 acres.

2.2 Facility Description

Figure 2 is an annotated January 2016 aerial photograph of the SEC site. The SEC includes two coal-fired generating units, designated Unit 1 and Unit 2, with capacities of 480 and 468 megawatts (MW), respectively, and two natural gas-fired combined cycle units designated Unit A

and Unit B, with capacities of 633 and 300 MW, respectively. The coal-fired units are equipped with a wet flue gas desulfurization (FGD) system for air pollution control. A solar farm consisting of a 35-acre array of photovoltaic panels, which generates approximately 6 MW, was dedicated at the SEC site in December 2011.

Fixated coal combustion products (CCPs) and other plant wastes have been landfilled in the CWSA since the start of commercial operation of Unit 1 in 1987. As shown in Figure 2, the CWSA and the lined horizontal expansion are located near the western boundary of the site. Until the lined Cell 1 started to receive waste on May 28, 2015, landfilling of fixated combustion waste occurred in the original CWSA and the vertical expansion on top of the original CWSA.

Runoff that comes in contact with coal combustion waste is directed to the CWSA Runoff Pond from which it is conveyed by a 24-inch diameter pipeline to the lined Recycle Pond and used for FGD system makeup water. In conjunction with the 2014 expansion of the CWSA Runoff Pond, a Decant Cell was constructed south of the CWSA Runoff Pond and is used for dewatering (1) CCP materials that are unable to pass the Paint Filter Liquids Test, (2) sediments excavated from onsite ponds, and (3) miscellaneous wet waste materials. The footprints of the expanded CWSA Runoff Pond and the Decant Cell are shown in Figure 2.

SEC obtains its makeup water for cooling purposes primarily from the Orange County Eastern Water Reclamation Facility and stormwater from the adjacent Orange County Class I Landfill site. The SEC is operated as a zero liquid discharge facility.

2.3 Conditions of Certification

Construction and operation of the SEC are governed by the Conditions of Certification (COC) approved under the Electrical Power Plant Siting Act (403.501-403.518, Florida Statutes) in accordance with the supporting regulations contained in 62-17, Part I, F.A.C. The certification supersedes and encompasses all state and local permits and approvals, but does not supersede the federal permitting processes. SEC Unit 1 was certified on December 15, 1982 and Unit 2 was granted a supplemental certification on December 17, 1991. The Conditions of Certification have been modified or supplemented a number of times since the original certification. The latest version is “Conditions of Certification, Orlando Utilities Commission Curtis H. Stanton Energy Center, PA 81-14M.”

The COC cover construction and operation of the CWSA area, which is referred to as the “solid waste landfill.” Previous versions of the COC required at least one of the following mitigation measures for protecting groundwater quality beneath the landfill:

- Use of an adequate chemical fixation process on the solid wastes to achieve a uniform layer at least 18 inches thick across the cell bottom with a permeability of $1x10^{-7}$ cm/sec or less.

- Use of an adequate chemical fixation process on the solid wastes to achieve a permeability of $5x10^{-6}$ cm/sec or less. The top of each completed cell shall be constructed with a slope of 0.75 percent and an effort will be made to decrease the permeability of the top layer of fixed FGD material to less than $5x10^{-6}$ cm/sec.

Use of an adequate chemical fixation process on the solid wastes to achieve a uniform layer at least 18 inches thick across the cell bottom with a permeability of $1x10^{-7}$ cm/sec or less is the mitigation measure that has been used for the original CWSA. In PA 81-14 Modification M the

permeability and associated testing requirements have been eliminated for wastes that are placed within the lined horizontal expansion of the CWSA. However, the operator should continue to fixate the waste so that the wastes can be hauled from the processing facility to the landfill.

2.4 Original Landfill Design and Operation/Management Plan

The original design and management plan for the combustion waste storage area, including recommended operating procedures and sequencing/phasing, were presented in the March 1987 management plan prepared by CSI. The management plan included six drawings to depict landfilling sequences and phases, the final grading plan, cross sections, and details.[1] Copies of the six drawings are included in Appendix 2. The CWSA was referred to as the "Combustion Waste Storage Landfill" in the CSI drawings.

Per the CSI drawings, the ultimate limit of the landfill occupies an area of approximately 312 acres. The proposed landfill area measures approximately 6,910 feet in the north-south direction by 1,970 feet in the east-west direction.

According to the CSI management plan:

- Prior to landfill construction, the southern three-quarters of the entire landfill area was cleared and grubbed and used as a borrow area for construction of the plant.

- The borrow area was surrounded by dikes varying from 5 to 8 feet in height.

- After the borrow operation, the area had been graded from a high of elevation +84 feet mean sea level (MSL) along the west edge to a low of elevation +80 feet (MSL) at or near the northeastern corner of the prepared area.

- At the time of initial landfill construction, drainage channels extended around the perimeter of the landfill, outside of the earth dikes, to direct stormwater runoff around the landfill, and to lower the groundwater level inside the solid waste disposal area.

- The landfill area within the dikes was designed to drain to one of four outlets: 1) an outlet channel at approximately three-quarters of the planned landfill length north of the southeastern corner, 2) pipes leading to the CWSA Runoff Pond, 3) an outlet channel near the northeastern corner of the planned landfill area, and 4) an outlet channel near the southeastern corner of the original landfill area. A drainage channel along the western side of the landfill area conveyed water to the outlet channel in the northeastern corner of the planned landfill area. These channels are highlighted on Drawing Number F198T-L01 in Appendix 2

The CSI management plan was based on landfilling primarily fixated flue gas desulfurization (FGD) sludge, which consists of raw FGD sludge mixed with fly ash and lime. This material was referred to by CSI as fixated waste, Poz-O-Tec, or P-O-T, and is currently referred to as ProMat. The management of bottom ash, brine residues[2], and other miscellaneous power plant wastes were also discussed in the plan.

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[1] The CSI drawings are referenced to the Florida State Plane Coordinate System, North American Datum of 1927 (NAD27).

[2] Brine concentrator and crystallizer solids from the brine plant.

The final grading plan for the landfill (CSI Drawing No. F198T-L01) showed the top of the landfill divided into 16 cells with typical dimensions of approximately 785 feet from north to south by 665 feet from east to west and an area of approximately 12 acres. The top area of all but one of the cells was proposed to be surrounded on all four sides by a 20-foot wide soil berm at an elevation of +155 feet (MSL)[3] to control runoff. The design concept shown on the drawings was for these 15 cells to be graded at a slope of 1 percent to an elevation of approximately +149 feet (MSL) at an outside corner of the cell inside the berm. After the cell was capped with 2 feet of soil cover and seeded, runoff was proposed to be conveyed from the low point of the cell down the slope to the perimeter drainage channel via fabriform-lined flumes. In order to provide for a permanent access/maintenance road at a grade of 8 percent to the top of the landfill, the remaining cell does not have a berm on its east side and its eastern side slope is flatter than 4H:1V.

The cross sections (CSI Drawing No. F198T-L06) show final landfill side slopes of 4 horizontal to 1 vertical (4H:1V) with a 24-foot wide bench at average elevations of approximately +120 to +122 feet (MSL). Based on the final grading plan, the benches were proposed to slope into the landfill with invert elevations of +118 to +124 feet (MSL) and to be graded at a slope of 0.5 percent along the bench toward the points where the fabriform flumes would intercept the runoff from the bench. The fabriform was designed to be anchored into the fixated waste under the soil cover.

In the CSI management plan, a distinction is made between “contact runoff,” which is stormwater runoff from the surface of fixated and non-fixated waste in active disposal areas, and “non-contact runoff,” which is runoff from natural ground and non-landfilled areas and from landfilled areas with temporary or final soil cover in place. According to the management plan, non-contact runoff would be directly discharged to natural surface water bodies, but contact runoff would be conveyed in ditches lined with fixated waste to the CWSA Runoff Pond.

The phasing plan presented on CSI Drawing Nos. F198T-L02 through L05 was based on limiting the active disposal operations to an area of approximately 10 acres. According to the phasing plan, preparation of a new disposal area was supposed to begin with a base layer of fixated material approximately 5 feet thick with a hydraulic conductivity no greater than 5×10^{-6} cm/sec. The interceptor channels of the surface water runoff collection system were to be constructed in this base layer. The active disposal area was to be closed by capping with soil cover and vegetation as a new disposal area was being prepared and the closed areas would then be directed toward natural drainage.

According to CSI Drawing No. F198T-L02, development of the landfill was supposed to begin with an area at the southwestern corner of the landfill. A haulway/drainageway constructed of fixated waste was proposed to connect this area to the haul road on the eastern side of the landfill and convey stormwater runoff to the CWSA Runoff Pond. Once a temporary or final soil cover was placed on the outside slopes, runoff from these areas could be discharged to natural drainage and would not have to be routed to the CWSA Runoff Pond. The initial development plan also included a 200 foot by 400 foot start-up area lined with soil cement or a mix of fly ash and lime, and a temporary brine residue storage facility lined with soil cement. The temporary brine residue storage facility was only needed until there was sufficient disposal area available to incorporate the brine residue disposal. A soil diversion berm was proposed to be constructed to divert non-contact runoff from the undeveloped landfill area that drains toward the lined drainageway, the start-up area, and the temporary brine residue storage facility.

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[3] The mean sea level datum used by CSI in their management plan of 1987 is approximately equivalent to the National Geodetic Vertical Datum of 1929 (NGVD). Elevations relative to NGVD are 1.05 feet higher than elevations relative to NAVD88.

Phase 1 of the CSI development plan (Drawing No. F198T-L03) expanded the landfill to the east and north contiguous to the initial development area until it covered the southernmost four cells. Cells were to be closed progressively as the landfill expanded and closed areas were connected to the perimeter ditch via fabriform flumes. Four such flumes, two draining to the south and one each draining to the east and west would be in place at the end of Phase 1. As for the initial development plan, temporary soil cover and soil diversion berms were proposed to minimize the amount of contact runoff.

Phase 2 of the CSI development plan (Drawing No. F198T-L04) further expanded the landfill to the east and north contiguous to Phase 1 until the landfill covered a total area extending to the north of the southernmost eight cells. As for Phase 1, cells were to be closed progressively as the landfill reached final grade and closed areas were connected to the perimeter ditch via fabriform flumes. Nine flumes, two draining to the south, three draining to the east, and four draining to the west would be in place at the end of Phase 2. The start-up area and the temporary brine residue storage facility, constructed as part of the initial development, are incorporated into the landfill during this phase. Because the pre-development ground surface sloped to the north and east and the cells were to be developed from west to east and south to north, the soil diversion berms from previous phases would no longer be needed as the landfill advanced to the north of the CWSA Runoff pond. Temporary soil cover was proposed to minimize the amount of contact runoff that had to be handled.

Phase 3 of the CSI development plan (Drawing No. F198T-L05) expanded the landfill to the remaining cells. At the end of Phase 3 as shown on the drawing, all but three of the 16 cells would be complete. The remaining three cells would still need to achieve final closure grades and two fabriform flumes and the permanent access/maintenance road would have to be constructed to complete the landfill.

According to the CSI management plan, the original CWSA Runoff Pond was designed to retain stormwater runoff from a 15-acre active disposal area from a 100-year frequency storm of 24-hour duration.

2.5 Actual Sequence of Landfilling

CSI was responsible for landfill operation from the spring of 1987 through approximately May 1995 at which time VFL took over landfill operations. Headwaters Resources (Headwaters) bought out VFL in April 2004. According to Headwaters, the actual sequence of landfilling operations differed from the original (CSI) management plan. The placement of waste and cover material is currently recorded on a site grid diagram, which is included in the monthly reports submitted to OUC. Based on the reports and information provided by Headwaters, the sequence of landfilling started with base lifts placed in the southeastern corner of the landfill around November 1987 and proceeded along the eastern tier of cells from south to north as follows:

- Prior to the lined horizontal expansion, waste was only placed in the four southernmost cells of the eastern tier.

- The northernmost of the four cells was initially split into north and south fill areas with a west to east stormwater conveyance channel and culverts under the haul road to allow contact runoff to flow to the CWSA Runoff Pond. This channel was filled in June 2010, and this division no longer exists.

- Filling of unstabilized brine concentrator/crystallizer solids (BCCS) was discontinued in the late 1990s. Initially, BCCS, which result from the treatment of the cooling tower blowdown, were stored within the area of the third and fourth cells. BCCS were placed on an area lined with at least 5 feet of fixated material and were covered daily with fixated material.

- Parts of the three southeasternmost cells had received final cover and vegetation by September 2009. The cover on the top of the landfill was removed in stages to allow the top of the landfill to be raised to the permitted design elevation and to facilitate a possible vertical expansion.

2.6 Vertical Expansion of Original CWSA

OUC met with representatives of the FDEP Central District Waste Program on March 17, 2010 to discuss the need for a vertical expansion to provide additional landfill airspace for ongoing operation while OUC planned, permitted, and prepared the next cell within the original landfill footprint to receive waste. The engineering approach was also discussed at this meeting. On September 10, 2010, Golder Associates, Inc., on behalf of OUC, submitted a request for a post-certification amendment to the Conditions of Certification to the Program Administrator of the FDEP Office of Siting Coordination. The request was submitted in accordance with Section 403.5113 of the Florida Statutes and Rule 62-17.205 of the Florida Administrative Code. The purpose of the amendment was to allow OUC to expand the CWSA vertically by approximately 20 feet to a maximum elevation of +175 feet (NAVD88). The report, “Slope Stability Analyses for Vertical Expansion of Coal Combustion Product Landfill,” dated August 2, 2010, prepared by Tetra Tech, was submitted with the request for amendment of the Conditions of Certification. A document titled “Responses to FDEP Comments on Amendment Request for Vertical Expansion of the Combustion Waste Storage Area,” dated March 7, 2011 was submitted by OUC in response to FDEP comments on the amendment request. The responses included a revised version of the slope stability analyses report, dated March 7, 2011.

The landfill development plan for the vertical expansion, which was approved by FDEP on April 8, 2011, is included in Appendix 3. The landfill development plan shows the extent and grading of the vertical expansion, sequencing of fill, and flow paths for contact and noncontact water for each development sequence.

2.7 Design of Horizontal Expansion

Selected construction drawings for the horizontal expansion of the CWSA Cell 1 are included in Appendix 4. The latest version of the drawings and the as-built drawings are available on site for reference. The proposed construction for future Cells 2 and 3 is similar to that for Cell 1.

2.7.1 Design of Bottom Liner System

Although a bottom liner system for the horizontal expansion of the CWSA was not specifically required by the COC, OUC provided a bottom liner system with leachate collection and leak detection components, both with leachate removal systems. This is consistent with applicable requirements of Rule 62-701, F.A.C., which governs design, construction, and operation of solid waste management facilities in Florida.

Under Rule 62-701, F.A.C., all Class I landfills are required to have a composite liner or a double liner system, as well as a leachate collection and removal system. A composite liner system consists of a geomembrane liner on top of a compacted soil liner. A double liner system consists

of two geomembrane liners with a leak detection system between the primary (top) and secondary (bottom) geomembrane liners, and either a soil subbase or a GCL below the secondary geomembrane liner. A double liner system was selected to be the bottom liner design alternative for the proposed horizontal landfill expansion. Because laboratory testing performed by Ardaman on selected GCL products indicated that the bentonite in the GCL was not compatible with the landfill leachate at the SEC, a 6-inch thick compacted soil subbase was selected as the bottom component of the double liner system. For waste disposal on top of the side slope of an existing unlined landfill, 62-701, F.A.C., requires the installation of a single geomembrane slope liner, along with a leachate collection and removal system.

Based on 62-701, F.A.C., requirements and discussions with OUC, Tetra Tech selected the following bottom liner and leachate collection system for the base of the horizontal landfill expansion area. The system consists of the following key components in descending order:

- A 2-foot thick layer of drainage sand with a minimum saturated hydraulic conductivity of 1.0×10^{-4} cm/sec to provide protection for the liners and drainage for the leachate.

- A geocomposite to provide conveyance for the leachate and to reduce the leachate head on top of the primary liner.

- A 60-mil thick textured HDPE geomembrane liner to serve as the primary seepage barrier.

- A geocomposite or geonet to detect and convey any leachate that passes through any defects in the primary HDPE liner and to minimize the leachate head on top of the secondary liner.

- A 60-mil thick textured HDPE geomembrane liner to serve as the secondary seepage barrier.

- A 6-inch thick layer of compacted soil subbase with a maximum saturated hydraulic conductivity of 1.0×10^{-5} cm/sec to further curtail migration of any leachate that may pass through the secondary HDPE liner. (Based on construction quality assurance results, the soil subbase has a hydraulic conductivity of less than 1.0×10^{-7} cm/sec.)

- A prepared liner subgrade that is free of deleterious materials and meets the compaction requirements in the technical specifications.

The drainage sand and geosynthetic drainage layer in the leachate collection system are designed to limit the hydraulic head on the primary HDPE liner to less than 12 inches, and the geosynthetic drainage layer in the leak detection layer is designed to limit the hydraulic head on the secondary HDPE liner to less than 1 inch. The liner subgrade is designed to allow positive gravity drainage of leachate to the collection sumps, with minimum post-settlement slopes of 1.0 percent for areas that drain to the leachate collection pipe trench and 0.3 percent along the leachate collection pipe trench into the sumps.

To provide increased frictional resistance against sliding along the bottom liner system by eliminating “plastic to plastic” interface, the geocomposite in the leachate collection system consists of a double-sided geocomposite beneath the projected side slope area for a distance of approximately 250 feet from the toe of the landfill with a single-sided geocomposite within more interior portions of the landfill. For the same reason, a double-sided geocomposite was used

beneath the side slope area in the leak detection system, whereas a geonet was used in the more interior portions of the landfill.

The liner system on the west slope of the original CWSA consists of the following key components in descending order:

- A 2-foot thick layer of drainage sand with a minimum saturated hydraulic conductivity of 1.0×10^{-4} cm/sec to provide protection for the liners and drainage for the leachate.
- A double-sided geocomposite to provide conveyance for the leachate and to reduce the leachate head on top of the slope liner.
- A 60-mil thick textured HDPE geomembrane liner to serve as the seepage barrier.
- An 18-inch thick bedding soil layer that is free of deleterious materials and meets the compaction requirements in the technical specifications.

The Cell 1 expansion area was not activated immediately after construction completion. Therefore, a rain tarp was installed to cover the entire side slope cover/drainage sand in order to limit erosion due to storm events. The location of the rain tarp along with the wind ballast is shown on Drawing Number CS-7A, which is included in Appendix 4. The rain tarp was removed shortly after waste was placed in the Cell 1 expansion area, and 6 inches of topsoil was placed over the entire slope and hydroseeded to reduce erosion.

2.7.2 Design of Landfill Cells

Based on the July 2011 topographic survey, the land surface elevations along the west and east sides of the landfill expansion area were typically at +83 and +82 feet (NAVD88), respectively. The seasonal high water table elevations were judged to be close to land surface elevations.

Cells 1 through 3 in the horizontal expansion area are each divided into four subcells each with its own leachate collection sump. The cells are designed to have liner base grade elevations (i.e., the bottom elevations of the 6-inch thick, 1×10^{-7} cm/sec compacted soil subbase) that vary from approximately +81 feet (NAVD88) just outside the leachate collection sumps located on the west side of each landfill cell to approximately +89 feet (NAVD88) along the toe of the west slope of the original CWSA. The liner base grade elevation at the bottom of each leachate collection sump is established at approximately +77.5 feet (NAVD88).

Cells 1 through 3 are surrounded by a containment dike with a crest width of 20 feet and a crest elevation of +97 feet (NAVD88). A stormwater runoff ditch with a bottom width of 10 feet on the north and west and 5 feet on the south, and an invert elevation of +85 feet (NAVD88) was constructed outside the containment dike and inside an outermost perimeter dike with a crest width of 18 feet and a crest elevation of +93 feet (NAVD88). The containment and perimeter dikes have side slopes of 3.0H:1.0V. Cells 1 through 3 will be separated by divider dikes with a crest width of 25 feet and a crest elevation of +97 feet (NAVD88).

Cells 1 through 3 are proposed to be raised using a side slope of 3H:1.0V to a maximum crest elevation of +175 feet (NAVD88), with one 20-foot wide setback at an approximate elevation of +140 feet (NAVD88). The top of the landfill will be surrounded by an approximately 5-foot high and 20-foot wide perimeter berm. The top of the landfill will have an average grade of

approximately 0.65 percent to promote surface drainage towards the lined flume. At final design elevation, Cells 1 through 3 will have an average height of approximately 90 feet above natural grade.

Parts of the landfill at final grade will be closed with a 6-inch soil buffer layer, a geomembrane liner, and 2 feet of protective cover soil including 6 inches of topsoil or amended soil.

2.8 Landfill Topographic Surveys

The pre-construction topography of the landfill area, based on a topographic survey prepared by Tetra Tech Geomatic Technologies, Inc., is shown on Drawing Number G-5 in Appendix 4. The topography was obtained by photogrammetric methods from aerial photography acquired on July 19, 2011. The locations, dimensions, and invert elevations of ditches, culverts and other features and additional spot elevations were added based on field surveys performed by Tetra Tech Orlando and MACTEC. The coordinate system for the surveys is Florida State Plane Coordinates, 2007 adjustment to the North American Datum of 1983. Elevations are relative to the North American Vertical Datum of 1988 (NAVD88).

Mikon Corporation performs an annual topographic survey[4] of the combustion waste storage area, which they refer to as the “ash landfill,” for OUC. The survey is limited to the actual extent of the active and closed landfill areas. The Mikon surveys for 2013, 2014, 2015, and 2016 are presented in Appendix 5. The series of annual topographic surveys prepared by Mikon Corporation shows the original landfill footprint had areas of 61.4 acres in October 2004, 65.7 acres in September 2005, 75.2 acres in September 2006, 84.7 acres in September 2007, 86.5 acres in September 2008, and 90.8 acres in 2009 through 2014. The series of topographic maps also shows a ramp for access to the top of the landfill that shortened as the landfill advanced to the north and successive areas achieved their final elevations. The Mikon survey, dated December 10-12, 2015 shows a total landfilled area of 106.4 acres, 93.4 acres of which Mikon classified as “belonging to the vertical expansion area, and 13.0 acres of which they classified as belonging to the horizontal expansion area. The latest Mikon survey, dated September 12, 2016, covers only the horizontal expansion.

3.0 RESPONSIBILITIES FOR OPERATION AND MAINTENANCE

The OUC-approved contractor operates and maintains the combustion waste processing facility/area and the combustion waste storage area (landfill). The combustion waste processing facility has historically been referred to as the FGD sludge conditioning facility. Overall management of operations for the contractor is performed by the Plant Director and the Operations Manager. The landfill contractor is responsible only for the equipment involved in the flue gas scrubber sludge stabilization process. This includes all fly ash conveying equipment (screw conveyors) on the discharge side of the silos, all vacuum filtration equipment, belts for conveying dewatered scrubber sludge and final product, all pug mill mixers and associated dust collectors, and equipment used in the loading of the fly ash into tanker trucks for sale. Operation hours for the combustion waste processing facility/area are based on the operation of the power plant units and vary from week to week. Because of the almost around-the-clock operation of the SEC, there are two daytime supervisors and two nighttime supervisors for the combustion waste processing facility. Landfill operations are directed and overseen by the OUC Engineer. Landfill operation hours vary with the plant operations; typically, Tuesday, Wednesday, Friday, and

[4] The vertical datum is NGVD and the Florida State Plane Coordinate System horizontal datum is NAD27.

Saturday from 6:30 am to 4:30 pm. The landfill contractor has a senior technician in charge of sampling and quality control testing.

In addition to the power generating units, OUC owns and is responsible for maintenance of (i) earthmoving equipment used in the landfill and Stack Out Pad operations, (ii) the ball mills for pulverizing limestone for use in the FGD system, and (iii) the bottom ash dewatering equipment. Dewatering is initiated at the request of OUC and is usually performed two times per week.

In addition, OUC is responsible for environmental monitoring and compliance of the SEC facility, including the combustion waste storage area/landfill and the combustion waste processing facility/area.

4.0 WASTE STREAMS

The major coal combustion wastes that are generated by the SEC and disposed of in the on-site landfill consist of fly ash and FGD sludge. In addition, significant quantities of bottom ash and brine concentrator/crystallizer solids (BCCS) are generated. Unsold bottom ash and BCCS are disposed in the landfill. In addition to the major coal combustion wastes, miscellaneous power plant wastes in relatively smaller quantities are also disposed of in the on-site landfill.

The quantity and characteristics of fly ash and FGD sludge generated by the SEC depend primarily on the properties of coal that is burned. The average ash and sulfur contents of the coal vary; therefore, specific operating ratios are developed for the coal that is actually used in the generating plant.

The fly ash from SEC Unit 1 and Unit 2 and lime or other suitable alkaline stabilization reagent are combined with the FGD sludge in the FGD sludge conditioning facility prior to disposal in the landfill. The resulting fixated FGD sludge or ProMat is the primary waste product that is disposed of in the landfill.

4.1 SEC Fly Ash

The amount of fly ash produced is directly related to the ash content of the coal. Electrostatic precipitators are used to remove fly ash to conform to current air quality emission standards. With pulverized coal firing, about 85 to 92 percent of the total ash is collected as fly ash. The remainder is collected as bottom ash.

4.2 Imported Fly Ash/Lime Substitute

OUC imports high lime content fly ash from a number of generation facilities, e.g., Jacksonville Electric Authority (JEA), and Georgia Pacific. Presently, OUC is importing the fly ash from JEA. The fly ash from these facilities is used as a lime substitute in the FGD sludge conditioning process. The JEA generating facility utilizes circulating fluidized bed (CFB) combustion and produces a product referred to as EZ-Sorb®-Fly with a typical residual lime content of 18 to 25 percent. Lime substitute is trucked to the site and is pneumatically conveyed into the lime silo. Use of the imported material allows OUC to sell some of the fly ash generated at the SEC and avoid having to dispose of it in the horizontal expansion.

4.3 FGD Sludge

FGD sludge is produced in the wet scrubbers used to remove sulfur oxides from air emissions. FGD sludge is composed of primarily silt-sized particles. Historically, calcium sulfite hemihydrate ($CaSO_3 \cdot ½H_2O$) and calcium sulfate dihydrate or gypsum ($CaSO_4 \cdot 2H_2O$) comprised about 90 percent of the solids in the sludge. Calcium sulfite forms fragile crystals which are responsible for the thixotropic nature of the sludge, i.e., it tends to liquefy when vibrated or otherwise disturbed. OUC implemented forced oxidation in both units in May 2014 so that the calcium sulfite would be converted to synthetic gypsum.

In the sludge conditioning system, bleed from the FGD scrubbers is pumped to thickeners, and then to vacuum filters for further dewatering. The resulting filter cake contains approximately 55 to 70 percent solids. The filtrate is returned to the scrubbers.

The quantity of FGD sludge is determined by the amount of sulfur in the coal and the efficiency of the chemical reaction in the FGD system where limestone is used to remove sulfur dioxide.

4.4 Bottom Ash

Bottom ash is the heavier ash fraction produced from combustion of coal in the boilers. It constitutes approximately 8 to 15 percent of the ash generated. Bottom ash is quenched with water and sluiced to the bottom ash dewatering system. If possible, the bottom ash is sold directly as it comes from the dewatering system. Bottom ash that cannot be sold immediately is temporarily stockpiled in the CWSA for sale at a later date. Bottom ash that cannot be sold is disposed of in the CWSA.

4.5 Brine Concentrator and Crystallizer Solids

The brine concentrator and crystallizer solids (BCCS) are dewatered solids from the cooling tower blowdown treatment system. They consist of the concentrated constituents originally contained in the makeup water supply, which includes stormwater and treated wastewater. These solids are primarily the chloride and sulfate salts of calcium, magnesium, and sodium.

4.6 Miscellaneous Power Plant Wastes

In addition to wastes described above, other wastes that are disposed of in the landfill include:

- FGD recirculation tank sludge (FGD sludge fines carryover to recirculation tank)
- Scrubber sludge blowdown (reaction vessel FGD sludge residual out of sump)
- Cooling tower sludge (cooling tower clean-out during outages)
- Stack cleanout residue (sulfur oxide solids from inner stack exterior)
- Scrubber residuals (calcium carbonate)
- Waste coal (unusable coal from coal pile)
- Coal pulverizer rejects

- Lined pond cleanouts (waste pond sediments) and soils that have contacted process water
- Spent cation exchange resin used in the onsite water treatment system
- Various power plant sump cleanouts
- Ditch cleaning wastes that do not include vegetative matter

4.7 Construction and Demolition Debris

In addition to the above wastes, limited quantities of construction and demolition (C&D) debris, primarily concrete and asphalt, are used for road base during landfill deposition operations or directly deposited in the landfill.

4.8 Disposal of Waste from Other OUC Sites

OUC intends to dispose of non-hazardous waste from other OUC facilities (e.g., soil from substations and water plants) within the double-lined horizontal landfill expansion. OUC will provide documentation of the acceptability of waste from other sites that is proposed to be disposed of in the CWSA.

5.0 WASTE RECORDS

Currently, the weights of the following materials are recorded on a daily basis:

- Fly ash (or other lime substitute) delivered to the site
- Fly ash (or other lime substitute) discharged from the lime silo and used for mixing with the FGD sludge to produce the ProMat
- SEC fly ash from Silos 1 and 2 that is used for mixing with the FGD sludge to produce the ProMat
- ProMat that is produced (wet weight basis)
- Fly ash from Silos 1 and 2 that is sold
- Bottom ash that is sold
- ProMat that is diverted to the nearby Orange County Class I Landfill

The lime substitute delivered and the OUC bottom ash and fly ash that are sold are weighed with truck scales. Lime substitutes are weighed either at their place of origin or at SEC on Truck Scale No. 1, which is located on the west side of the Stack Out Pad. OUC bottom ash that is sold is also weighed on Truck Scale No. 2. All OUC fly ash that is sold is weighed on Truck Scale No. 2, which is located directly under Silo 2. Weight tickets are used to track fly ash and bottom ash coming into and going out of the SEC. The weights of the other materials above are calculated from totalizer readings on electronic scales upstream of the feeders and conveyors.

The quantities of FGD sludge used in the production of ProMat are calculated as the difference, adjusted for moisture content, between the quantity of ProMat produced and the quantities of SEC fly ash and lime substitute incorporated in the ProMat. The contractor performs laboratory testing of the solids and lime contents of the ProMat and the solids content of the FGD sludge filter cake. The laboratory testing results are used in the mass balance calculations.

The BCCS and the miscellaneous power plant wastes that are landfilled are delivered to the Stack Out Pad by OUC. The contractor maintains a record of the number of truckloads of these materials delivered to the landfill each day.

6.0 CONTROL OF ACCESS AND DISPOSAL

Access to the SEC site, and thus to the CWSA is controlled by fencing, gates, or other barriers as well as signs and facility security personnel. There are two gate houses manned 24 hours per day, which act as checkpoints for anyone entering the facility. There is no public access to the CWSA, which is designated for disposal of coal combustion products and related industrial waste. Fly ash (lime substitute) materials from other generation facilities are delivered to the site in pneumatic tankers that must pass through the controlled access points. Other than these ash deliveries, only waste generated at the SEC facility or any other waste approved by the FDEP is disposed of in the CWSA. Waste is only placed in the CWSA by OUC-approved contractors.

7.0 MONITORING OF WASTE

With the exception of ash delivered from other generation facilities, other lime substitutes, and nonhazardous waste from other OUC facilities, all wastes disposed of in the CWSA are generated on site, under the control of OUC and OUC approved contractors. Because no municipal solid waste is disposed of in the facility, OUC and the contractor have complete knowledge of the waste placed in the landfill; therefore, no spotters or screening of waste is required.

The CWSA does not accept liquid waste or waste containing free liquids. The Paint Filter Liquid Test (EPA Method 9095) is performed on samples of BCCS and other wastes to confirm that they do not contain free liquids.

8.0 COMBUSTION WASTE PROCESSING

The facilities used in combustion waste processing and other nearby facilities are identified on a January 2016 aerial photograph in Figure 3. Based on observations by Ardaman personnel and conversations with Headwaters personnel, the combustion waste processing operations are performed as follows:

- Fly ash from SEC Units 1 and 2 is pneumatically conveyed to Silos 1 and 2 (Facility Nos. 1 and 2 in Figure 3). Each silo has a nominal capacity of 2,000 tons or approximately 83,000 cubic feet. Fly ash that meets the end user specification for loss on ignition (LOI) may be sold as a supplement to Portland cement in concrete production. Fly ash that is sold is loaded from a silo directly into a pneumatic tanker below the silo.

- High lime content fly ash from power plants or other lime substitutes are trucked to the site and pneumatically conveyed into the lime silo (Facility No. 3 on Figure 3).

- SEC fly ash from Silo 1 is discharged through rotary airlock or pinch valve feeders A, B, and C to covered screw conveyors 5A, 5B, and 5C, respectively. Silo 2 fly ash can be added

through the use of the D feeder and conveyor 5D, which discharges into conveyor 5C from Silo 1. Fly ash or other lime substitute stored in the lime silo can be discharged through the A, B, and C feeders, which discharge to conveyors 7A, 7B, and 7C, respectively. Conveyor 7A discharges into conveyor 5A, conveyor 7B discharges into conveyor 7C, and conveyor 7C discharges into conveyors 5B and 5C. Figure 4 shows a schematic diagram of the flow on conveyors through the waste processing system.

- The combined SEC fly ash and lime substitutes in conveyors 5A, 5B, and 5C is discharged into conveyors 6A, 6B, and 6C, respectively, which are located inside the FGD sludge conditioning building (Facility No. 4 on Figure 3) on the same level as the rotary vacuum filters. As shown on Figure 4, conveyors 6A and 6B can discharge via chutes to mixers 3A, 3B, or 3C, while conveyor 6C can only discharge to mixers 3B and 3C. The mixers are located on a level below the vacuum filters

- To reduce sulfur oxide emissions, OUC uses wet flue gas scrubbers. These scrubbers convert sulfur dioxide into calcium sulfite and sulfate sludge, which must then be disposed of. The FGD scrubber sludge is piped to one of three thickeners, designated A, B, and C (Facility Nos. 15, 16, and 17 on Figure 3), where polymer is added to encapsulate the particles of scrubber sludge and cause the flocs to sink to the bottom of the thickener. A rake rotates in the thickener drawing the material towards the center where it is picked up by the underflow pump.

- The underflow pumps deliver the sludge to one of six rotary vacuum filters, designated 2A through 2F, where it is dewatered to a typical solids content on the order of 55 to 60 percent. The resulting filter cake drops from the rotating drum into an open belt conveyor, which transports it to a chute leading to one of the three mixers on the mezzanine level below. Conveyor 1A serves vacuum filters 2A and 2D and carries the filter cake to mixer 3A. Conveyor 1B serves vacuum filter 2B and carries the filter cake to mixer 3A or 3B. Conveyor 1C serves vacuum filter 2C and carries the filter cake to mixer 3B or 3C. Conveyor 1D serves vacuum filters 2E and 2F and carries the filter cake to mixer 3C. Operation of the vacuum filters requires one vacuum pump and one vacuum receiver for each rotary filter. This equipment is located on the ground level of the FGD sludge conditioning building.

- In normal operations, the SEC fly ash, the fly ash containing lime or other lime substitute, and the dewatered FGD sludge/filter cake are combined in one of three pug mill mixers to produce a fixated FGD sludge, which is referred to as ProMat. The fly ash is essentially dry and the only water in the mixture is the water in the filter cake. Water is added or taken away based on the target percent solids for the mix, which is generally determined by the percentage of lime in the material. The lime content and moisture content of the mixture are tested every 4 hours during plant operation and adjustments to the mixture are made as necessary. This test is known as a "production test" or "run test."

- Occasionally, a mixture containing only SEC fly ash and lime substitute is produced, in which case, water from the recirculation tanks (Facility Nos. 18 and 19 on Figure 3) is added., A mixture containing only SEC fly ash and filter cake will not set up without increasing the lime content.

- After the material leaves the mixer it is fed onto one of two conveyor systems. The "A" side, which consists of the 3A and 4A conveyers, is generally used. Conveyor 4A is a movable radial stacking conveyor (Facility No. 8 on Figure 3), which spreads the material evenly back and forth onto the Stack Out Pad beyond a circular concrete retaining wall, where it is

stockpiled until it is ready to be hauled to the landfill. If there is a problem with the "A" conveyors, the "B" side, which consists of the 3B and 4B conveyors, can be run as an alternative. Conveyor 4B (Facility No. 9 on Figure 3) is a fixed position stacker that is only able to place the material in one position on the Stack Out Pad.

All waste processing operations can be monitored and controlled from the control room on the second floor of the combustion waste processing facility. An Emerson Ovation™ distributed control instrumentation system provides real time data displays of the conditions in the waste processing facilities. Examples of display screens from the control room are presented in Appendix 6. There is an in-house training program with which all operating personnel are trained before they begin work at the combustion waste processing facility.

The fixated FGD sludge/ProMat has to meet the specified quality control criteria. Enhanced ProMat has a higher lime content (3 to 3.5 percent). About 90 percent of the ProMat produced is enhanced.

In addition to the FGD sludge stabilization processing equipment operated by the contractor, the combustion waste processing building contains three ball mills and associated limestone storage and conveyor facilities operated by OUC. The ball mills are used to pulverize limestone delivered by the limestone conveyor (Facility No. 5 on Figure 3). The resulting limestone slurry for use in the wet FGD scrubbers is sent to the wet FGD system directly or stored in tanks (Facility Nos. 6 and 7 on Figure 3) adjacent to the combustion waste processing facility.

9.0 OPERATIONS PERFORMED ON STACK OUT PAD

The area to the west of the combustion waste processing building is underlain by a reinforced concrete pad that encompasses an area approximately 356 feet by 385 feet (3.15 acres). However, only about 1.6 acres of this pad (as shown on Figure 3) that are useable for stockpiling and waste stabilization are considered to be the Stack Out Pad. A survey of the Stack Out Pad area performed by Tetra Tech is included in Appendix 7. Fixated FGD sludge (ProMat) is deposited on the Stack Out Pad by one of the conveyors, most often the radial stacking conveyor. The radial stacker stockpile on the Stack Out Pad is managed to provide adequate initial conditioning time. Radial stacker positioning is controlled to identify the various age materials, thus allowing controlled removal. The Landfill Supervisor establishes conditioning time based on visual inspection in comparison to quality control test results (primarily moisture, solids, and lime contents). These results are coordinated with the FGD sludge processing facility supervisory personnel for positioning the radial stacker to achieve optimal conditioning. If the backup conveyor system is used, the stockpiled materials are moved to different places on the Stack Out Pad and the conditioning time for each area of the stockpile is tracked as with the radial stacking conveyor.

After sufficient initial conditioning, fixated material is loaded and hauled to the landfill for disposal. Adequate stockpile conditioning is determined by experience with the amount of time required for the material to obtain a sufficient initial set to permit transport and placement of the material in the landfill and by observation of the consistency of the material. The stockpile conditioning time varies depending on ambient weather conditions, solids content, and the amount of lime present in the mix. Normal conditioning time is typically on the order of 24 to 48 hours although, in some cases, the ProMat is ready to landfill as it comes off the conveyor belt. The ProMat needs to be removed from the Stack Out Pad before it becomes difficult to excavate from the stockpile and load into trucks. If ProMat is anticipated to be on the pad for a longer period of time than desirable, the lime content is reduced during production.

The concrete pad facilitates loading and minimizes infiltration of surface water runoff into groundwater. Surface runoff from the Stack Out Pad is directed to one of two sumps (shown on Figure 3) from which it is gravity fed in a 30-inch diameter pipe to the South Coal Storage Area Runoff Pond (Facility No. 26 on Figure 3). Water collected in the South Coal Storage Area Runoff Pond flows to the Recycle Pond in two 32-inch diameter HDPE pipes.

Bottom ash is sluiced to two dewatering bins (Facility Nos. 10 and 11 on Figure 3) located near the Stack Out Pad. The contractor requests OUC to dewater bottom ash approximately 2 days per week. OUC performs the dewatering between approximately midnight and 1:00 a.m. The bottom ash is collected in a dump truck via a chute from the bottom of the dewatering bin on the same day that it is dewatered and the dewatered ash is stockpiled against a concrete retaining wall on the Stack Out Pad. The water removed from the bottom ash is conveyed to one of three settling tanks (Facility Nos. 12, 13, and 14 on Figure 3). Bottom ash that can be sold is loaded directly into over-the-road dump trucks for transport to the purchaser. The remaining bottom ash is temporarily stockpiled on the Stack Out Pad. Bottom ash that is expected to be sold in the future is hauled to a designated area of the landfill. Bottom ash that is not sold is disposed of in the landfill.

BCCS and miscellaneous waste without free liquids are mixed with ProMat, fly ash, or filter cake on the Stack Out Pad using the loader to achieve a consistency that allows the waste material to be transported to the landfill in dump trucks. Miscellaneous wastes and sludges that have free liquids are contained within temporary dikes constructed of ProMat on the Stack Out Pad or are placed in the Decant Cell south of the CWSA Runoff Pond. The liquids within the temporary dikes are allowed to drain to one of the sumps adjacent to the Stack Out Pad. Once sufficient drainage has occurred, the waste material is combined with ProMat or filter cake and ash to achieve a consistency that allows it to be transported to and disposed of in the landfill.

Dump trucks used to haul waste materials are washed out daily using a water cannon located on the northwestern side of the Stack Out Pad.

10.0 OPERATIONS PERFORMED IN DECANT CELL

As shown in the drawings in Appendix 4, the Decant Cell (see Figure 2) consists of two compartments underlain by a single HDPE liner system covered by 18 inches of soil and 10 inches of reinforced concrete. Each compartment has a sump protected by a gravel filter. The collection pipes beneath the sumps in the east and west compartments of the Decant Cell convey decanted liquid into the north and south compartments of the CWSA Runoff Pond. The solid material from which the liquid has been decanted is then landfilled or, in the case of bottom ash, potentially sold.

Liquids, sediment, and sludges collected in vacuum trucks and sediment removed from the lined ponds that cannot be stabilized in place are transported to the Decant Cell and discharged into one of its compartments. Liquids and sludges that are managed on the Stack Out Pad, as described above, can also be transported to the Decant Cell for dewatering. The Decant Cell can also be used for temporary storage of bottom ash that is destined for sale. OUC intends to provide facilities for truck washing in the Decant Cell.

11.0 EQUIPMENT AND OPERATION FEATURES

11.1 Landfill and Stack Out Pad Operating Equipment

The following equipment, which is owned by OUC, is used for landfill construction and the loading, transport, and placement of the processed materials:

- three Caterpillar 735 articulated trucks with tailgates having a tailgate heaped capacity of approximately 27 cubic yards and a rated payload capacity of approximately 36 tons
- a Caterpillar D6 LGP (low ground pressure) track-type tractor
- a Caterpillar CS-563E vibratory soil compactor
- a Caterpillar 980 wheel loader
- a John Deere motor grader

OUC owns and operates a water truck on site. The contractor owns and operates a Schwarze DST-6 sweeper. OUC has arrangements in place to rent or lease additional heavy equipment from local dealers as needed.

The articulated trucks are used to haul stabilized waste from the Stack Out Pad to the CWSA. The trucks are also used to haul bottom ash from the dewatering facility to a temporary stockpile on the Stack Out Pad, when necessary. Historically, three trucks have been adequate to haul the total volume of ProMat and other wastes placed in the CWSA along with any soil cover material.

The D6 tractor/bulldozer is used to spread waste in layers, place it in the CWSA, and perform some initial compaction. The CS-563E compactor is used to compact the waste to the specified density.

The 980 wheel loader is used to load ProMat and other waste from stockpiles on the Stack Out Pad into the articulated trucks and also to load bottom ash for sale and transport offsite from stockpiles into trucks provided by others.

The motor grader is used to grade roads and the top of the landfill.

The sweeper is used for site cleanup and roadway sweeping.

OUC hauls BCCS and other miscellaneous wastes from the brine plant to the Stack Out Pad for stabilization and disposal by the contractor. The BCCS are hauled in a 17-ton over-the-road dump truck.

OUC uses contracted services for vacuum trucks to clean out ponds, sumps, trenches, etc.

11.2 Haul Roads

As part of the site development work for the original CWSA, a haul road, as shown on Figure 2, was constructed from the Stack Out Pad to the landfill. The haul road consists of a stabilized base and a durable wearing surface (reclaimed asphalt or limestone) to achieve efficient hauling of conditioned waste materials to the landfill in all weather conditions. The haul road is

continuously maintained to minimize any adverse effects to the hauling operation. The locations of the haul roads within the landfill are adjusted as required by the progress of the active landfill area. The design of the haul road within the landfill includes a surface drainage system to remove stormwater runoff from the road. When available, recycled concrete from the SEC site is used to construct or stabilize the roads into and out of work zones within the landfill.

In order to deliver waste to the lined Cell 1 of the horizontal expansion, the previously existing haul road has been extended. The alignment for the northern haul road, which extends from the previously existing haul road to the northern containment/divider dike for Cell 1, is shown on Figure 5. . In addition to the northern haul road, the perimeter road on the east and south sides of the original CWSA, which is labeled as the "southern haul road" in Figure 5, is used to transport waste to Cell 1 or for return trips to the Stack Out Pad. A soil access ramp was constructed from the southern haul road into Cell 1 at the location shown in Figure 5. A 36-inch diameter culvert was installed under the access ramp to convey stormwater perimeter ditch flows from the east side to the west side of the ramp.

11.3 **Communications**

Communication between the landfill operator's office, which is located in the FGD sludge conditioning building, and the Landfill Supervisor is primarily by cellular telephone. The office has a direct view of the Stack Out Pad operations and is a short distance from the control room for the FGD sludge conditioning facility. The Landfill Supervisor can contact landfill equipment operators by radio. The contractor contacts OUC personnel by telephone extension within the SEC and by cellular telephone outside the SEC.

12.0 **LANDFILL DISPOSAL OPERATION**

As described previously, the four predominant types of waste that are disposed of in the CWSA are:

- Fixated waste material/ProMat
- Bottom ash
- BCCS
- Miscellaneous power plant wastes

Occasionally, C&D debris generated on-site is landfilled in the CWSA. The handling and placement procedures for each of these wastes are described in the following sections.

12.1 **Handling and Placement of Fixated Material**

Fixated material (ProMat), which is a mixture of FGD sludge, fly ash, and lime, is delivered to the CWSA from the Stack Out Pad already mixed, properly cured, and ready for placement. Fixated material is delivered to the landfill in open dump trucks with tailgates.

All fixated material is spread, graded, and compacted in layers varying from 18 to 30 inches in depth (loose material thickness), depending on consistency of the material. The materials are then compacted. Field density tests are performed to verify compaction to a minimum of 94

percent of the maximum dry density as determined by a Standard Proctor compaction test. Compaction seals the surface to reduce potential infiltration during periods of rainfall and the potential for dusting during dry periods.

Only ProMat with sufficient lime, fly ash, and solids content to produce test cylinders with a monthly average 30-day unconfined compressive strength of 80 psi and a minimum 30-day unconfined compressive strength of 40 psi is to be placed within 260 feet of the outside toe of the landfilled waste. Once a mixture of fly ash, lime substitute, and FGD sludge filter cake has been demonstrated to consistently achieve the required strength, testing of cylinders will no longer be required. ProMat that does not set up after curing on the Stack Out Pad is not allowed to be placed within this limit. In addition, in order to reduce erosion and infiltration, enhanced ProMat, is to be used for outside slopes and final closeout elevations in the landfill.

12.2 Handling and Placement of Bottom Ash

Bottom ash normally is delivered to the CWSA twice a week in open articulated dump trucks. Unsold bottom ash was disposed of in the original CWSA and the vertical expansion using the macroencapsulation method. Macroencapsulation is no longer necessary for disposal of bottom ash in a lined cell; however, it shall not be placed within 260 feet of the outside toe of the landfilled waste. The GPS or surveyed coordinates of areas in which bottom ash is placed are to be noted on the daily operating logs. The bottom ash is spread in 18- to 24-inch lifts, depending on consistency, and compacted. Bottom ash should be compacted to a minimum of 95 percent of the Standard Proctor maximum dry density or to a relative density greater than 60 percent.

In addition, bottom ash is used to construct haul roads within the CWSA. If bottom ash is anticipated to be sold, it is temporarily stored in a designated area.

12.3 Handling and Placement of Brine Concentrator and Crystallizer Solids

BCCS result from the treatment of the cooling tower blowdown in the wastewater treatment facility (brine plant). The BCCS emerging from the treatment process are deposited in one of two covered areas of the brine plant with concrete walls on three sides and an open fourth side. From these areas, they are periodically hauled by OUC to the Stack Out Pad. As described previously, the BCCS are stabilized on the Stack Out Pad prior to being transported to the landfill. At the landfill, the stabilized BCCS goes directly to the active landfill cell for placement. Once it has reached the active landfill cell, it is placed in a depression or lens (pit) that is created in the previously placed layer of ProMat. The stabilized BCCS is placed in 18-inch to 30-inch loose lifts and compacted with the tractor/dozer. After the stabilized BCCS is placed, it is covered with fixated material. As soon as it is stable enough for heavy equipment, it is tracked in, thus macroencapsulating it. This minimizes exposure of the stabilized BCCS to surface precipitation.

The location of stabilized BCCS placement changes to enhance the overall landfill stability by not concentrating it in a specific area. The GPS or surveyed coordinates of the stabilized BCCS placement are to be noted on the daily operating logs and the locations are to be shown on a site map that is updated monthly. BCCS is not to be placed in the bottom 5 feet or top 3 feet of the landfill in order to provide a pure fixated material base and cap. BCCS is not to be placed within 260 feet of the outside toe of the landfilled waste.

12.4 Handling and Placement of Miscellaneous Power Plant Wastes

Disposal of miscellaneous power plant wastes is performed within the active landfill area. Other than spent water treatment resin, the miscellaneous power plant wastes described in Section 4.6 are transported by vacuum trucks or dump trucks to the Stack Out Pad or Decant Cell. Drainage and stabilization of these wastes are described in Sections 9 and 10.

Stabilized miscellaneous power plant wastes delivered to the active landfill area are placed in the same manner as described for BCCS in Section 12.3. The location of miscellaneous waste placement changes to enhance the overall landfill stability by not concentrating it in a specific area. GPS or surveyed coordinates of miscellaneous power plant waste placement are to be noted on the daily operating logs and the locations are to be shown on a site map that is updated monthly. These wastes are not to be encapsulated in the bottom 5 feet or top 3 feet of the landfill or placed within 260 feet of the outside toe of the landfilled waste.

12.5 Handling and Placement of Spent Water Treatment Resin

Ion exchange resin is used in the demineralizers to treat water for use in the boilers at the SEC. The resin is a polymer of styrene and another chemical in the form of white to yellow beads. When the resin is no longer effective, the resin beads are washed and placed on Visqueen fabric and the water is allowed to evaporate. The dry beads are then hauled to the landfill in a vacuum truck. There are eight resin beds in the water treatment facility ranging in size from approximately 100 to 200 cubic feet. Spent resin is generated at a rate of approximately 1,300 cubic feet every 6 years. OUC has a material safety data sheet (MSDS) for the resin on file at the SEC. GPS or surveyed coordinates of spent water treatment resin placement are to be noted on the daily operating logs.

12.6 Disposal of C&D Debris

C&D debris generated on-site, which consists primarily of concrete and asphalt, is placed in thin lifts, covered with ProMat, and compacted to minimize voids and zones of higher permeability in the landfill. The disposal of C&D debris with type and estimated or weighed quantities is recorded in the daily logs, and the GPS or surveyed locations in which C&D debris is placed are noted on the landfill reports and diagrams. No C&D debris will be disposed within 4 feet vertically of the top of the drainage sand in the lined expansion.

12.7 Sequence of Waste Placement

12.7.1 Original CWSA

The historic sequence of landfilling in the original CWSA is described in Section 2.5. A 24-foot wide bench has been constructed at approximately elevation +124 to +128 feet (NAVD88) on the eastern and southern side slopes to control surface drainage and erosion due to runoff. The existing bench is sloped toward the toe of the slope above on a grade of approximately 15 percent. A bench was not proposed to be constructed on the western side slope, which is an interim slope that will be covered with additional waste in the future. A fabriform-lined flume has been constructed to convey water from the top of the southernmost cell down the southern slope of the cell to the non-contact/clean water ditch. A new ditch was established by OUC above the current toe ditch to divert clean runoff from covered areas to the wet detention pond.

At the start of landfilling in each of the cell areas, a minimum of 5 feet of enhanced ProMat was placed and compacted at the base elevation for that cell. Waste placement to the base of the vertical expansion took place within cell areas that already had a prepared base.

12.7.2 Vertical Expansion

Prior to starting the vertical expansion, the eastern side slope of the original CWSA to a point approximately 1,280 feet north of its southeast corner was completed and closed by covering it with 2 feet of cover soil and vegetation. Enhanced ProMat was used for all side slopes and closeout elevations. Soil cover and vegetation were already in place on the southern slope and were completed on the western and northern side slopes of the original landfill.

The vertical expansion includes 20-foot wide berms at elevations of +158 and +175 feet (NAVD88) with a runoff collection ditch inside the berm at +158 feet (NAVD88). The berms and ditch were constructed to prevent runoff from the vertical expansion area from discharging to the slopes. The approximately 16-acre area inside the berm at +175 feet (NAVD88) is divided into three separate areas, identified as Sequences 1 through 3.

Landfilling in the vertical expansion started with Sequence 1, the southernmost cell. In order to minimize the quantity of leachate directed to the CWSA Runoff Pond, while Sequence 1 is active, Sequences 2 and 3 were temporarily closed/capped with 2 feet of soil cover. As Sequence 1 reached final elevations, Sequence 2 was uncovered and become the active cell, while Sequence 1 was closed and capped. This process was repeated for activation of Sequence 3. Part of the area of the original CWSA north of Sequence 3 was maintained as a wet weather operation/laydown area.

Waste was delivered to the vertical expansion area via an existing 50-foot wide access ramp constructed of ProMat that originally had a slope of 6.8 percent. The access ramp was shortened and steepened to allow construction of Sequence 3 to its full proposed extent. The materials deposited in the landfill each day were spread, graded and compacted to provide positive drainage away from the working face. Adequate working surface slopes to prevent surface ponding and to facilitate surface drainage were maintained at all times. The waste was placed at a maximum final side slope of 3H:1V[5].

At closure, each sequence was covered with 2 feet of soil that sloped to the south and east at a grade of 1 percent to a low point at an elevation of approximately +169 feet (NAVD88) at which point two 36-inch diameter HDPE drainage culverts convey the runoff to the runoff collection ditch inside the lower berm. Elevations and slopes were controlled by a surveyed and staked reference grid, which is used to record the placement of waste by date. The runoff collection ditch conveys runoff from the vertical expansion area to a fabriform-lined flume draining to the clean water ditch. As shown in Figure 9, once the entire area was closed, the runoff flows via a landfill perimeter ditch to the wet detention pond for treatment prior to discharge to surface water.

A liner and leachate collection system have been constructed on the western side slope of the vertical expansion and have been joined to the slope liner and leachate collection system for Cell 1 at an elevation of approximately +150 feet (NAVD88). The liner and leachate collection system extend to the top of the vertical expansion at approximately +175 feet (NAVD88).

[5] Temporary and interim slopes may, in some cases, have been steeper than 3H:1V.

12.7.3 Lined Horizontal Expansion Cell 1

Cell 1 of the horizontal expansion of the CWSA occupies an area of approximately 30 acres and is subdivided into four subcells. From south to north, the subcells, which are each approximately 300 feet wide, are designated as Subcells 1A through 1D. As shown on Drawing Number CS-7 in Appendix 4, the drainage sand layer at the bottom of Cell 1 is graded so that there is a drainage divide between subcells from where the drainage sand layer slopes toward the centerline of the subcell at a grade of approximately 1 to 2 percent.

As shown on Drawing Number M-1 in Appendix 4:

- Each subcell has its own leachate collection sump with a dedicated pump that enables leachate collected in the sump to be pumped via a force main to the CWSA Runoff Pond.

- Each sump has a separate pump and piping for leachate collected in the leak detection system.

Landfilling inside Cell 1 started with construction of the access road and an adjacent working pad through the cell using ProMat with a minimum compacted thickness of 2 feet over the 24-inch thick drainage sand/protective cover. The access road and working pad were sloped at 1 percent to the west from an elevation of +94.5 feet (NAVD88) on the east side of the access road to an elevation of +93.5 feet (NAVD88) on the west side of the working pad. From the west edge of the working pad, the ProMat was graded at a slope of 6H:1V to meet the existing top of drainage sand elevation. The access road construction created a swale with a bottom width of approximately 40 to 60 feet between the access road and the lined eastern slope of Cell 1 (i.e., the western slope of the original CWSA). Construction of the access road through the cell was performed with waste delivered via the northern and southern haul roads.

, All wastes deposited on the Stack Out Pad will be delivered to the CWSA via either the northern or southern haul road. The access road to the landfill will gradually steepen as each succeeding lift of waste is placed. When the grade of the access road reaches 10 percent, wastes will be sloped around the access road so that the grade can be maintained or the access road alignment will be modified to provide a flatter transition between lifts. The access road will have a low point and drainage improvements inside the lined containment dike so that runoff from the access road is contained within the cell.

The following paragraphs describe the proposed sequence of landfilling. At the discretion of the OUC, modifications of this sequence to adjust for field conditions are permitted.

As shown on Drawing Number OP-1 in Appendix 8, following completion of the access road and working pad through the cell, an initial layer of ProMat will be placed over the entire bottom of the cell except for the following areas:

- within a 40-foot setback from the inside toe of the western containment dike in order to allow drainage to the leachate collection sumps

- the interior side slopes of the northern and southern containment dikes

- between the access road and the lined eastern slope of Cell 1

ProMat will be placed at a slope of approximately 1 percent downward to the west, starting at the elevation of the working pad and proceeding from south to north and east to west. Transition slopes from the ProMat to the drainage sand will be 3H:1V on all sides.

Following placement of the initial layer of ProMat within the prescribed limits, a ProMat cover with a minimum thickness of 2 feet and a slope of 5H:1V will be placed over the entire western piggyback slope of the original CWSA up to elevation +158 feet (NAVD88). The ProMat will be placed and compacted in layers with a maximum compacted thickness of 2 feet. Covering of the slope will proceed from south to north and from lower elevations to higher elevations.

Following covering of the side slope, Cell 1 will be divided into three staging areas. From south to north, the staging areas are designated A, B, and C. Staging Area A will be within Subcells 1A and 1B, which have a combined width of approximately 600 feet; while Staging Areas B and C will be within Subcells 1C and 1D, respectively, which each have a width of approximately 300 feet.

Waste will be placed sequentially in the three areas in approximately 10-foot thick lifts as follows:

- The 40-foot uncovered setback for the sump area will be maintained for each staging area.
- The lifts will be placed in layers with a maximum compacted thickness of 2 feet.
- Lifts will be sloped at a grade of 1 percent to the west.
- Outside slopes of each lift will be constructed at a maximum slope of 3H:1V.
- Staging Area A will be landfilled so that it is always at least one lift higher than Staging Area B, which will always be at least one lift ahead of Staging Area C.
- At the start of each lift, a 10-foot high berm with an inside slope of 6H:1V will be constructed along the outside of the lift. For Staging Area A, the berm will be constructed on the southern, western, and northern sides. For Staging Areas B and C, the dike will only have to be constructed on the western and northern sides, because the previous lift of the adjacent staging area will provide containment on the southern side. For Staging Area A. the berm on the southern side should be constructed first, followed by the berm on the western side. For Staging Areas B and C, the berm on the western side should be constructed first.
- When the lift has been filled to within 3 feet of the top of the berm surrounding the lift, filling should proceed to the next lift, so that adequate storage for runoff is maintained on top of the lift.

Cross sections illustrating the conceptual sequence of filling are shown on Drawing Number OP-1 in Appendix 8. Lifts are numbered in the sequence of filling, and the various staging areas are indicated by different colors and a heavy line between adjacent lifts. As shown, the first two lifts are placed in Staging Area A, followed by Lift 3 in Staging Area B. Filling then proceeds in the sequence A, B, C through Lift 15. Lifts 16 and 18 will be placed across Staging Areas A and B.

Drawing Number OP-2 in Appendix 8 shows schematic plan views at completion of various stages of filling.

After completion of the southern side slope of the landfill to the elevation of the bench at approximately +140 feet (NAVD88), which occurs in Lift 10, the remaining airspace on the side slope will be filled. This fill operation will proceed from east to west in approximately 10-foot lifts. The top of each lift will be graded so that contact runoff from uncovered waste slopes above is conveyed into the lined cell. Filling will proceed at a rate such that exposed waste on the outside slope of the lift will be covered with 18 inches of intermediate soil cover within 1 week of placement. Contact runoff from temporarily exposed waste slopes will be collected and directed into the lined cell.

A similar sequence will be followed after the northern side slope in Staging Area C reaches the bench elevation in Lift 17.

When the entire landfill reaches approximately 2.5 feet below final elevation, waste will begin to be placed within the 40-foot setback. Landfilling within the setback area will proceed from south to north in approximately 10-foot lifts. The top of each lift will be graded so that contact runoff from uncovered waste slopes above is directed to the inside and conveyed into the remaining uncovered sump area of the lined cell. As each lift reaches the western limit of the area, 18 inches of intermediate soil cover will be placed on the outside slope. As for the northern and southern side slopes, filling will proceed at a rate such that exposed waste on the outside slope of the lift will be covered with 18 inches of intermediate cover soil within 1 week of placement. Contact runoff from temporarily exposed waste slopes will be collected and directed into the remaining uncovered sump areas of the lined cell.

12.8 **Placement of Intermediate Soil Cover**

As each lift is completed, at least 18 inches of intermediate soil cover will be placed on the outside slope and compacted to at least 90 percent of the Standard Proctor maximum dry density.

Cover soils will continue to be obtained from both on-site borrow areas and off-site sources. All off-site soil materials brought to the CWSA will be tested for compliance with applicable regulations prior to being used at the site. Specific parameters to be analyzed will be selected by OUC based on the source. "Clean" soil can be contaminated soil that has been properly treated or soil from a site with no known contamination. Soils from a contaminated site that have been treated and which meet the direct exposure residential and leachability soil cleanup target levels of 62-777, F.A.C., are considered to be "clean" soil.

At the discretion of the operator, temporary soil cover, consisting of at least 6 inches of soil, may be placed in areas of Cell 1 that are exposed to the elements and are anticipated to be inactive for a substantial period of time. Depending on the length of time the area is to be inactive, a temporary vegetative cover may also be necessary to limit the potential for erosion.

13.0 **WATER QUALITY MONITORING**

The water quality monitoring program for the SEC, including surface water and groundwater, is conducted by OUC. The approved Monitoring Plan Implementation Schedule (MPIS) for the Stanton Energy Center Combustion Waste Landfill is included as Attachment F to the latest COC. Some of the requirements in the MPIS pertain to other parts of the site beyond the combustion waste management areas.

In accordance with NPDES Permit FL0681661-002, OUC is required to monitor the following surface water points:

- Surface Water Discharge D-001: An existing discharge of makeup pond overflow to Cowpen Branch and thence to the Econlockhatchee River. This monitoring point is designated EFF-1.

- Surface Water Discharge D-002: An existing discharge of non-contaminated groundwater from the drainage system below the Recycle Pond liner to Cowpen Branch and thence to the Econlockhatchee River. This monitoring point is designated EFF-2.

- Surface Water Discharge D-003: An existing discharge from the North Coal Runoff Pond liner drainage system to Hart Branch and thence to the Econlockhatchee River. This monitoring point is designated EFF-3.

- Internal Outfall I-004: A new internal discharge at the emergency overflow from the Recycle Pond to an adjacent stormwater swale, and thence to the makeup pond. This monitoring point is designated OUI-4.

The locations of these monitoring points are shown on Figure 6. Surface Water Discharges D-002 and D-003 will no longer occur at their current locations when proposed modifications to the Recycle and Coal Storage Area Runoff Ponds and the associated underdrains are completed. The monitoring point locations will have to be revised accordingly.

The parameters to be sampled and the required sampling frequency are specified in the NPDES permit.

Stormwater discharges are also required to be monitored in accordance with the NPDES Multisector General Permit for Stormwater Discharge Associated with Industrial Activity.

14.0 LEACHATE MANAGEMENT

14.1 Leachate Generation

Leachate is generated by stormwater runoff in contact with the surface of the waste and by rainwater that infiltrates the surface of the waste material and percolates through the waste. Leachate is generated from the CWSA and from waste materials on the Stack Out Pad and in the Decant Cell.

14.2 Leachate Collection

The lined horizontal expansion of the CWSA includes a leachate collection and removal system and a leak detection system. The leachate collection system and leak detection system for Cell 1 of the lined horizontal expansion are shown in Drawing Numbers CS-6 and D-2 in Appendix 4. Leachate infiltrating through the 2-foot thick drainage sand layer is collected in a geocomposite drainage layer on top of the primary liner and conveyed through leachate collection piping to a geotextile-wrapped, gravel-filled sump at a low point on the west side of the subcell. A geocomposite between the primary and secondary liners comprises the leak detection system. Any water collected in the geocomposite drains to a leak detection sump. Each landfill sump is

equipped with a 5-HP Sligo pump with a capacity of 110 gpm for the leachate collection system and a 0.5-HP Sligo pump with a capacity of 10 gpm for the leak detection system. From the sumps, leachate is pumped through a 3-inch diameter pipe to an 8-inch diameter HDPE force main, which discharges into the CWSA Runoff Pond. The alignment of this force main is shown in Drawing Number G-9 in Appendix 4 and in Figure 7.

14.3 Leachate Flow Measurement

As shown in Drawing Numbers M-1 and M-2 in Appendix 4, each of the leachate collection and leak detection sumps is instrumented for pressure, flow, and water level. The readings are transmitted wirelessly to a central data recording station from where it can be accessed by OUC. Leachate flows are calculated from the totalizer readings for the individual flow meters.

14.4 Leachate Storage

The CWSA Runoff Pond acts as a leachate surface impoundment, which, in accordance with 62-701.400(6)(b)5, must maintain a minimum 2-foot freeboard in a 25-year, 24-hour storm event. Management of the lined ponds on the SEC site, including the CWSA Runoff Pond, is covered under the Lined Ponds Operation Plan, dated November 27, 2012. The expanded CWSA Runoff Pond was designed with enough capacity to handle the 100-year, 24-hour storm event for a 55-acre watershed.

Expansion of the CWSA Runoff Pond was completed in January 2015. The expanded CWSA Runoff Pond consists of two compartments each with a 6-inch thick clay base and double-lined with HDPE geomembranes, covered by an 18-inch thick compacted soil cover and 8 inches of soil cement and is surrounded by a soil-bentonite cut-off wall. The pond has an underdrain system and air/gas vents around the top of the liner. Discharge from the underdrain system, which is minimal, is pumped into the CWSA Runoff Pond. Discharge from the CWSA Runoff Pond, which includes inflows from the Decant Cell, is through two 24-inch diameter HDPE discharge pipes, one from each compartment, to the lined Recycle Pond.

The CWSA Runoff Pond has a storage capacity of approximately 55 acre-feet from the minimum operating water level of +75.5 feet (NAVD88) to the maximum operating water level of +85 feet (NAVD88) and a storage capacity of approximately 70 acre-feet from the minimum operating water level of +75.5 feet (NAVD88) to the top of liner at +87 feet (NAVD88).

14.5 Leachate Treatment

Leachate discharges from each compartment of the CWSA Runoff Pond flow through a 24-inch diameter pipe to the lined Recycle Pond from where it is used as makeup water for the FGD scrubber system. The alignment of this pipe is shown on Figure 7. Leachate generated from the Stack Out Pad drains to the South Coal Storage Area Runoff Pond, from where it gravity flows to the Recycle Pond and is used for makeup water for the FGD scrubber system. Part of the makeup water is evaporated in the FGD scrubber system and the remaining water is contained in the FGD sludge. The dewatered FGD sludge is incorporated in the ProMat and disposed of in the landfill. The water removed from the FGD sludge by the rotary vacuum filters is recirculated. The SEC is a zero liquid discharge facility and thus no contact or process water is discharged from the site.

14.6 Leachate Sampling

Historically, the quality of water in the CWSA Runoff Pond has been tested periodically by OUC. Leachate collected in the CWSA Runoff Pond has been analyzed annually for the following parameters:

pH	Arsenic	Iron	Selenium
Conductivity	Barium	Lead	Silver
Chloride	Beryllium	Manganese	Sodium
Nitrate	Cadmium	Mercury	Zinc
Sulfate	Calcium	Molybdenum	Gross Alpha
Total Dissolved Solids	Chromium	Nickel	Radium-226 (If Gross Alpha is >15 pCi/L)
Aluminum	Copper	Potassium	

In accordance with the latest (June 11, 2015) version of 62-701.510, F.A.C., leachate sampling and analysis are not required by FDEP for solid waste management facilities.

14.7 Leachate Collection System Maintenance

Operation and monitoring of the leachate collection and removal system by on-site operations personnel should include the following activities:

- Daily recording of rainfall and other on-site meteorological data
- Daily recording of water levels in the CWSA Runoff Pond
- Daily review and recording of all sensor and totalizer readings
- Daily inspection of the system to detect leaks or unusual operating conditions
- Daily inspection of the active cell for ponded water
- Visual inspection of gravity leachate headers if flow records suggest a potential blockage of flow

In addition, the landfill is inspected weekly for conditions which are disrupting or have the potential to disrupt the operation or safety of the landfill in accordance with § 257.84 of the EPA Coal Combustion Residuals (CCR) rule (40 CFR 257).

The gravity leachate collection system piping inside the waste disposal cells should be thoroughly inspected using video equipment every 5 years and jet cleaned if necessary.

Maintenance of the electrical and mechanical components of the leachate collection and removal system is the responsibility of OUC. This includes preventive maintenance of pumps and control systems as well as repairs to pumps, valves, control equipment, and force mains when needed. Operation and maintenance of pumps, valves, and other mechanical equipment should be performed in strict accordance with the manufacturer's recommendations. Operation and maintenance manuals for all major pieces of mechanical equipment are kept on file at the SEC site.

15.0 STORMWATER MANAGEMENT/EROSION CONTROL

15.1 Stormwater Management

Because it was not required by the Conditions of Certification at the time of initial construction, there is no management and storage of surface water (MSSW) or environmental resources permit (ERP) for the original CWSA and CWSA Runoff Pond. According to the 1987 CSI management plan, non-contact runoff could be discharged to natural surface water bodies without treatment, but contact runoff had to be treated or reused.

According to the CSI management plan, the CWSA Runoff Pond was originally designed to retain the runoff from a 15-acre active working area from a 100-year frequency storm of 24-hour duration, which is 10.5 inches[6]. Considering a curve number of 90 for active landfill areas as assumed by CSI, this is approximately 11.6 acre-feet of runoff. Based on the topographic survey, the original CWSA Runoff Pond had an area of approximately 4.5 acres and a storage volume of approximately 11.9 acre-feet between the maximum and minimum operating water levels of +80.9 and +78 feet (NAVD88), respectively. The top of bank for the CWSA Runoff Pond had an elevation of approximately +84 feet (NAVD88). The original CWSA Runoff Pond is no longer used for stormwater management. The original CWSA Runoff Pond was replaced by a double-lined, two-cell pond with a much larger storage capacity. Stormwater runoff from the landfill is controlled and diverted to a wet detention pond as further described below.

As part of the design for the lined horizontal expansion of the CWSA, Ardaman prepared a hydrologic and hydraulic report[7] that considered stormwater management requirements for the ultimate buildout of a 250-acre CWSA. The stormwater conceptual design is presented in Figure 8. On the figure, the original CWSA and the currently approved lined horizontal expansion are indicated by cross-hatching, and the extent of the landfill at future buildout is indicated by tan shading on the side slopes and brown shading on the top of the landfill. The resulting 22.5-acre wet detention pond, which has been designed to meet FDEP requirements, is shown on Drawing Number P-1 in Appendix 4 and on Figure 9. Construction of the wet detention pond was completed in December 2012. The as-built survey is included in Appendix 4.

Subsequent to the construction of the wet detention pond, additional ditches and culverts have been designed and approved for the northeastern corner and the eastern and southern sides of the landfill, and for the northern haul road to convey stormwater runoff to the wet detention pond. Stormwater drainage for the landfill area is shown in Figure 9. Runoff from the original 90 acre-CWSA, the vertical expansion, Cell 1, and the landfill haul roads and perimeter roads is conveyed to the wet detention pond for treatment and then discharged to the existing stormwater ditch to the southeast of the landfill area.

The stormwater management system should be operated in accordance with the latest Stormwater Pollution Prevention Plan for the SEC.

The stormwater management system for the CWSA should be inspected by operation personnel at least quarterly and after storm events with more than 2 inches of rainfall in 24 hours using the procedures and checklist in Appendix 9. An annual stormwater management system inspection

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[6] The St. Johns River Water Management District criteria and the requirements of 62-701, F.A.C., for a stormwater management system are based on a 25-year, 24-hour storm event.

[7] "Hydrologic and Hydraulic Report, Proposed Horizontal Expansion of Coal Combustion Waste Landfill, Orlando Utilities Commission, Stanton Energy Center, Orange County, Florida," dated November 3, 2011.

should be performed by a licensed professional engineer and a signed and sealed report of inspection should be submitted to FDEP.

Routine maintenance for the stormwater management system includes the following activities:

- Mowing of ditches and wet detention pond above water level.
- Clearing/cleaning drainage swales and channels when accumulated debris is obstructing flow.
- Periodic replacement of topsoil and grass seeding for drainage swale/ditch/pond banks to reestablish lost vegetation.
- Regrading or reconstruction of ditches to promote surface water flow and discourage ponding.
- Clearing/cleaning all inflow and outfall structure grates of accumulated dead grass.
- Clearing the bleed down orifices for outlet structures
- Clearing/cleaning inlets and outlets of all culverts and discharge pipes of accumulated dead grass and silt.
- Clearing/cleaning ditches, structures, and pond of accumulated silt.

15.2 Erosion and Sedimentation Control

Erosion is monitored by the Landfill Supervisor and erosion and sedimentation issues are brought to the attention of the Site Manager, who also performs periodic inspections of the landfill area. Once it is placed and compacted, the fixated waste is relatively erosion resistant. Cover soils are seeded as soon as possible after placement. A soil berm is provided around the top of the landfill and the landfill side slopes have benches that collect eroded soil from the overlying slope. Areas of cover soil erosion are restored and reseeded as soon as practical. If necessary, erosion control mats will be used to reduce erosion from steeper slopes until vegetation is established.

As part of stormwater management system maintenance, sediment is removed from ditches, culverts, and ponds by the landfill operator as necessary and as directed by OUC. Sediment that has currently accumulated in the lined ponds will be removed as part of the ongoing Lined Ponds Modification Project. As part of this project, the existing South Coal Storage Area Runoff Pond, which is located west of the Stack Out Pad, will be converted to a sedimentation pond Procedures for sediment control and removal from the lined ponds, including the CWSA Runoff, are covered in a separate document and are not part of the landfill operator's responsibilities.

15.3 Fugitive Dust Control

Fugitive dust control for the landfill, road, and other CCR management and material handling activities ,as required by § 257.80 of the EPA CCR Rule, is performed in accordance with the Fugitive Dust Control Plan in Appendix 10.

16.0 CLOSURE PLANS

16.1 Landfill Closure

The management plan for the CWSA, dated April 7, 1987, prepared by CSI as part of the COC, requires that final closure of the original CWSA be provided with a minimum 24-inch thick compacted soil cover. Furthermore, the final cover shall be vegetated with a viable community of grasses to limit the potential for erosion. The COC requires that the top of each completed cell be constructed with a slope of 0.75 percent (or steeper). The COC also requires that the original CWSA be provided with an adequate perimeter toe ditch and interceptor ditch system to control rainfall runoff within the CWSA.

Waste disposal within the original CWSA, including the vertical expansion, ceased on August 28, 2015. Final closure of the original CWSA was substantially completed in January 2016 and with additional punch list items completed on March 11, 2016. As part of closure, a minimum of 2 feet of soil cover was placed on top of the closeout layer of enhanced ProMat. Ardaman prepared a report titled Certification of Closure of Original Combustion Waste Storage Area at the Orlando Utilities Commission, Stanton Energy Center, dated March 12, 2016, to document the closure construction. The closure drawings from this report are provided in Appendix 11.

The lined horizontal expansion area will be closed sequentially as parts of the landfill reach final elevations. As shown on Drawing Number CS-9 in Appendix 4, the proposed closure design includes, in ascending order:

- a 6-inch thick soil bedding layer on top of the waste
- a 40-mil textured HDPE liner
- a double-sided geocomposite drainage layer, and
- a 2-foot thick protective soil cover.

Monitoring and maintenance of the closed areas of the landfill will be handled by OUC or a designated contractor.

16.1.1 Specifications for Seeding of the Landfill Cells at Closure

After the final cover soil have been placed and compacted, a vegetation program will be implemented to stabilize the cover soils and to minimize erosion. The vegetation program will commence as soon as weather permits seed bed preparation, and when seasonal conditions are suitable for the type of vegetation to be sown.

The contractor will provide a written seeding and mulching plan that will be reviewed by the OUC engineer. The contractor will not be allowed to perform any seeding or mulching of the site until the OUC engineer provides written approval of the contractor seeding and mulching plan.

Seed Requirements and Application Rate

The following seed mixes will be applied to the area to be seeded:

1) Seed Application Rate Per Acre

Winter Mix *September 1st – January 31st*

40 pounds Argentine Bahia (scarified)
20 pounds Winter Oats
20 pounds of Gulf Annual Ryegrass

Summer Mix *February 1st –August 31st*

40 pounds Argentine Bahia (scarified)
40 pounds Japanese Millet

2) Seed Requirements

a. The separate types of seed used shall be thoroughly dry-mixed immediately before sowing. The seed will meet the following specifications:

1) All seed shall meet the requirements of the Florida Department of Agriculture and Consumer Services and all applicable State laws, and shall be approved by OUC before being sown. The seed shall have been harvested from the previous year's crop. All seed will be labeled in accordance with the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act in effect at the time of purchase.
    a. Seed which has become wet, moldy, or otherwise damaged will not be used. Seed used will be less than 2 years old.
    b. Each of the species or varieties of seed shall be furnished and delivered to the site in separate labeled bags.
    c. During handling and storing, the seed shall be cared for in such a manner that it will be protected from damage by heat, moisture, rodents, and other causes of damage.
    d. All permanent and temporary grass seed shall have been tested within a period of 6 months of the date of planting, and shall have a minimum percent of purity and germination as follows:
        i. Bahia grass seed shall have a minimum pure seed content of 98 percent with a minimum total germination of 88 percent.
        ii. Rye grass seed (for planting between September 1st and January 31st) shall have a minimum pure seed content of 95 percent with a minimum total germination of 90 percent.
        iii. Millet seed (for planting between February 1st and August 31st) shall be the Japanese or Brown Top varieties with a minimum pure seed content of 90 percent with a minimum total germination of 88 percent.

2) All areas that are seeded will be mulched with native grass hay with the following requirements:
    a. The hay will be Bahia with a maximum weed percentage of 5%.
    b. No hay mulch will be allowed on the SEC site until the OUC engineer inspects the hay and provides written approval.

c. The mulch will be approximately 4 to 6 inches in length and crimped in place.

3) All seeded areas will be maintained by refilling of rain-washed gullies, reseeding, mulching, and watering.

Grass will be applied by conventional seeding methods or hydroseeding in accordance with FDOT Specifications Section 570 or as otherwise directed or approved by OUC.

16.2 Closure of the Combustion Waste Processing Facility/Area

Unless there are significant changes to power plant operations, closure of the waste processing facility and the Stack Out Pad are only possible after the coal-fired generating units are no longer in service. This is not anticipated to occur for many years.

If the combustion waste processing facility is no longer required, OUC will notify FDEP in writing prior to ceasing operations and specify a closing date. No waste will be received or processed by the facility after the closing date. Within 30 days after receiving the last combustion waste or other waste materials, OUC will remove all waste materials from the combustion waste processing facility and the Stack Out Pad and dispose of them in the on-site landfill or other permitted facility in accordance with applicable regulation*s*. The Stack Out Pad and related pipes and sumps will be cleaned and all leachate will be properly disposed. Closure will be completed within 180 days after receiving the last combustion waste. When closure is completed, OUC will certify in writing to the FDEP that closure is complete.

16.3 Closure of the CWSA Runoff Pond

The CWSA Runoff Pond previously received both leachate and stormwater. According to the CSI management plan, after 2 feet of final soil cover was placed on the area that drains to the CWSA Runoff Pond, stormwater runoff from the CWSA would no longer be considered leachate. Under the current stormwater management plan, OUC intends to direct all runoff from closed areas of the CWSA to the wet detention pond for treatment prior to discharge. The CWSA Runoff Pond is a dedicated leachate impoundment that would remain active as long as leachate is being generated from the horizontal expansion.

17.0 EMERGENCY RESPONSE PROCEDURES AND CONTINGENCY OPERATIONS

17.1 Emergency Response Procedures

OUC is responsible for emergency response on the SEC site including the landfill, the FGD sludge conditioning facility, and the Stack Out Pad. All OUC employees and contractors are trained in OUC safety and emergency procedures for the SEC. Excerpts of the SEC Contractor Orientation Information Guide, revised June 4, 2015 are included in Appendix 12.

The document, “OUC Operational Guide, Emergency Plan Procedures,” revised August 2010, provides information for all OUC facilities. Excerpts of this document are included in Appendix 13. Pages 6 through 10 describe the scope and structure of the emergency plan. Pages 40 through 42 describe the responsibilities and emergency procedures for Electric and Water Production, which includes the SEC. Appendix E of the emergency plan document contains the SEC Hurricane Preparedness Plan. In the event of a medical, fire, chemical, or other plant

emergency, the SEC Control Room is to be notified using the SEC emergency telephone number (3111). This activates the emergency plan procedures.

The OUC Electric and Water Production Emergency Response Team (ERT) are trained and equipped to provide an immediate but limited response to emergencies that occur at the Stanton Energy Center and Indian River Plant. New member and refresher training are designed to meet the specifications established by the entities that oversee those types of emergencies anticipated (medical, fire, hazardous material, and rescue). Coordination of training and equipment in support of the ERT is the responsibility of the Safety and Training Organization. OUC's Safety Director (407- 434-3097) has overall responsibility for these activities.

The SEC has fire emergency procedures, which are included in Appendix 14. All wastes handled in the combustion waste processing facility and the CWSA are non-combustible. Dust control equipment is provided for the silos and throughout the FGD sludge conditioning facility. Fuel and equipment represent the greatest risk of fire. In the event of a fire, all personnel have been instructed to call the SEC emergency telephone number (3111).

The ERT has standard operating procedures (SOP) for incipient fires and free burning fires, which are included in Appendix 14. For free burning fires and other emergencies that cannot be addressed by the ERT and on-site personnel, the ERT calls 911 for the Orange County Fire Rescue Department. Orange County Fire Station #85, which is located at 13801 Townsend Drive, approximately 2.1 miles from the entrance to the SEC, is the closest Orange County Fire Rescue Department facility.

17.2 **Contingency Operations**

Contingency operations covered by this management plan include:

- Wet weather operation of the landfill, the Stack Out Pad, and the Decant Cell
- High water levels in the CWSA Runoff Pond
- Unscheduled downtime in the combustion waste processing facility
- Landfill and Stack Out Pad equipment breakdowns and maintenance
- Interruptions of discharge to the wastewater treatment facility

17.2.1 Wet Weather Operation

In the event of severe weather or other emergency that might temporarily prohibit the placement of wastes in the CWSA, the contractor has the ability to temporarily suspend waste processing and/or store waste on the Stack Out Pad or in the Decant Cell. The Stack Out Pad has the capacity to store approximately 5,000 cubic yards of processed waste/ProMat and unprocessed waste (bottom ash, BCCS, etc.), which is equivalent to approximately 3 days of waste generation with both Unit 1 and Unit 2 in operation. The Decant Cell has the capacity to store approximately 2,000 cubic yards per compartment or 4,000 cubic yards for the two compartments.

17.2.2 High Water Levels in the CWSA Runoff Pond

The top of dike in the CWSA Runoff Pond at elevation +89 feet (NAVD88) is 2 feet above the crest of the overflow weir between the North and South Compartments. There is also an emergency overflow pipe on the north side of the North Compartment with an invert elevation of +87 feet (NAVD88) that discharge to the liner Recycle Pond. When heavy rainfall is anticipated and the CWSA Runoff Pond water level is already high, the potential for the pond to overflow is reduced by monitoring the pond staff gauge and discharging or pumping water from the CWSA Runoff Pond to the Recycle Pond to draw down the CWSA Runoff Pond water level. The pre-storm water level can also be managed by removing accumulated sediment from the pond periodically to increase its storage capacity. Management of water levels in the CWSA Runoff Pond is addressed in the Lined Ponds Operation Plan for the SEC.

17.2.3 Unscheduled Downtime in Combustion Waste Processing Facility

Scheduled preventive maintenance and equipment replacement is coordinated with power generation activities to minimize the amount of unscheduled downtime. The processing equipment in the combustion waste processing facility has sufficient capacity and redundancy to meet the processing requirements under most circumstances using part of the equipment operating for part of the day. For example, there are six rotary vacuum filters and three mixers and the normal waste stream can be handled with two or three vacuum filters and one mixer operating. Depending on the solids content of the FGD slurry, processing 10,400 tons per week with this equipment would take between 70 and 149 hours. The waste materials accumulated during downtime can be processed by bringing additional equipment on line or by additional hours of operation. Capacity for fly ash storage is provided in the silos and capacity for FGD sludge storage is provided in the thickeners. This storage acts as a buffer during equipment downtime.

17.2.4 Landfill and Stack Out Pad Equipment Breakdowns and Maintenance

OUC has arrangements in place to rent or lease additional heavy equipment from local equipment dealers as needed. There is a backup conveyor for stacking ProMat on the Stack Out Pad.

17.2.5 Interruptions of Discharge to the Wastewater Treatment Facility

Leachate from the CWSA Runoff Pond and the Stack Out Pad is recycled through the FGD scrubber makeup water system, where it is evaporated or contained in the FGD scrubber sludge. Purge water from the FGD sludge dewatering system is recirculated. Leachate is not directed to the on-site wastewater treatment facility. If the FGD scrubber system is not operating at a level that uses all of the leachate that is generated, the remaining leachate would have to be temporarily stored in lined ponds or tanks, treated onsite using mobile treatment equipment, or trucked off site for treatment.

17.2.6 Leachate Accumulation in Lined Cells

Because the fixated waste (ProMat) has a low permeability, much of the rainfall during a heavy rainfall will run off the surface rather than infiltrating. In addition, as the drainage sand layer in the lined cell is covered with waste, the infiltration area for the leachate collection system is reduced. If a major storm event occurs when the infiltration area is greatly reduced, leachate may not be removed quickly enough using the pumps installed in the sump risers. The potential impacts are partially mitigated by not covering a 40-foot wide base area including the sumps in Cell 1 and by temporarily ponding water over ProMat within the cell. During such a situation, OUC

will deploy additional surface pumps to remove the water from the cell to the CWSA Runoff Pond via the force main. Intakes for additional pumps would be located in areas of ponded water. The required supplementary pump capacity to remove 3 inches of runoff from the 37-acre watershed in approximately 2 days is approximately 1,000 gpm. The quantity of leachate pumped to the force main using the auxiliary pump(s) will be metered and recorded by date.

17.3 Notification Requirements

62-701, F.A.C., requires certain notifications of the implementation of emergency procedures. In the event of a fire in the waste management facility, OUC will notify FDEP of the fire and of the fire control plan being implemented. If the fire is beyond the incipient stage and cannot be extinguished or controlled by the ERT, OUC's standard operating procedure is to notify the Orange County Fire Rescue Department (407-836-9061) immediately and seek its assistance.

62-701, F.A.C. also requires that erosion control measures be employed to correct any erosion that exposes waste or causes malfunction of the stormwater management system within 3 days of occurrence. If the erosion cannot be corrected within 7 days of occurrence OUC will notify FDEP and propose a correction schedule.

Notification requirements relative to water quality monitoring are addressed in the SEC water quality monitoring plan.

18.0 QUALITY CONTROL TESTING

The quality control program is used to indicate the in-place properties of the processed materials. It is also used to determine the best handling technique for placement of a particular material consistency produced by the FGD sludge conditioning facility. Such items as length of stockpile conditioning time, lift thickness, and compaction effort required to achieve the desired final properties are determined through the landfill quality control (QC) program. The landfill quality control program is coordinated with the FGD sludge conditioning facility quality control program. The characteristics of the material produced by the FGD sludge conditioning facility are monitored in conjunction with the landfill quality control program to document the effectiveness of the fixation system.

18.1 Initial Operation Testing Program

The initial operation testing program commenced once steady state FGD sludge conditioning facility operating conditions were achieved. This program ran for about 1 month in 1987 to define the conditioning plant operating parameters. The initial operation testing program was designed to provide the input required to evaluate the proper placement procedures and landfill material characteristics for the range of materials produced by the FGD sludge conditioning facility. The data gathered during the initial operation period were used to insure that a consistent product was being produced, to indicate the physical parameters of the processed materials within the landfill and to define the operating criteria for the long term. Parts of this initial operating testing are used to re-establish process and material parameters when significant changes to the process or materials occur.

18.2 **Long-Term Testing Program**

The objective of the long-term quality control testing program is to continuously monitor the physical properties of the processed materials placed in the landfill. The following testing program is utilized to monitor the quality of fixated waste/ProMat:

Property	Frequency of Testing
Moisture Content and Lime Content	Every 4 hours during plant operation
In-Place Density	Minimum of four tests every 2 weeks
Unconfined Compressive Strength	Six tests per month with two cylinders each tested at 30, 60, and 90 days

Weekly test results are reported to OUC monthly. The testing results are stored on the OUC and contractor computer networks.

18.2.1 Stockpiled Processed Material

An evaluation of the effect of stockpile conditioning time on the ability to load, truck, and place the fixated material is required for the material produced by the FGD sludge conditioning plant. Also, the effect of stockpile conditioning time on final product characteristics (e.g., unconfined compressive strength, permeability, leaching, etc.) is determined by the testing program.

These tests, in conjunction with actual field placement trials, provide indicators for handling processed material at its optimum condition. The frequency of sampling depends on the variability of the material produced by the FGD sludge conditioning facility.

Representative samples of conditioned, stockpiled processed material are obtained on the day that it is placed in the landfill. Samples are tested for moisture content, and lime content. Specific methods used for testing are described in Appendix 15.

18.2.2 In-Place Density Testing

An in-place density testing program is necessary to determine if the minimum density to achieve the required physical and environmental properties is being obtained. The frequency of testing depends on the variability of the processed material placed in the landfill but at least four tests are performed for every 2 weeks using the methods in Appendix 15. The results of the in-place density tests are compared to the Standard Proctor compaction test maximum dry density. Based on historic test results, the target in-place density has been set at 94 percent of the Standard Proctor maximum dry density. Based on previous QC testing results, the typical in-place dry density of ProMat is 69 to 78 pounds per cubic foot (pcf) with a mean value of approximately 72 pcf. Core borings through the landfill were performed by Ardaman in January and February 2010. Laboratory analyses of the cores samples indicated a dry density ranging from 62 to 84 pcf with a mean of about 74 pcf, which is consistent with but slightly higher than the mean indicated by the QC testing results.

19.0 RECORDKEEPING

19.1 Regulatory Records

OUC maintains a record of the certification, permitting, and compliance history of the SEC including the CWSA.

19.2 Waste Quantities and Landfill Operation Records

The contractor prepares a daily activity sheet for landfill operation that lists the weather conditions, load counts for each truck, the types of waste hauled and landfilled, estimated tonnage hauled, the landfill equipment and operators utilized, and comments. The information from the daily activity sheet is transferred into a log book.

OUC provides the quantities of coal fired and the as-received and as-fired ash percentages for Unit 1 and Unit 2 to the contractor. The approximate quantities of fly ash and bottom ash are estimated from the relative percentages of fly ash and bottom ash, which are currently about 92 percent fly ash and 8 percent bottom ash. The estimated quantities are reconciled with the actual fly ash quantities at year end to derive the actual percentages of fly ash and bottom ash, which are reflected in an adjusted report. The adjusted year-end percentages are used as the initial estimate of the relative quantities of fly ash and bottom ash for the following year.

Headwaters provides a month-end detailed report (MEDR) to OUC, which includes:

- A month-end reconciled comparison report (MERCR), which summarizes for the year to-date the monthly quantities from the mass balance; the ash availability reports; and the monthly quantities of ProMat, fly ash and bottom ash sold.

- A mass balance report, which summarizes the weighed quantities of ProMat, fly ash, and lime substitute; and the calculated quantities of ProMat and FGD sludge filter cake on a dry weight basis, and FGD sludge filter cake on a wet weight basis.

- Ash availability reports for Unit 1 and Unit 2, which summarize the daily coal burned, the as-fired percent ash, the estimated quantities of fly ash and bottom ash produced, the ash incorporated in ProMat, the fly ash sold, and the percent sulfur in the coal.

- A quality assurance/quality control (QA/QC) report, which summarizes the test results for percent solids; percent lime; fly ash to filter cake ratio; in-place dry density; hydraulic conductivity (permeability) at 30 and 90 days; and compressive strength at 30, 60, and 90 days of the ProMat; and percent solids of the filter cake.

- Landfill report and diagrams, which depict in graphic and tabular form where and at what elevation waste has been placed in the CWSA during the month using GPS/surveyed locations relative to the Florida State Plane Coordinate System. These diagrams also show where BCCS, bottom ash, and miscellaneous wastes, have been placed.

- A maintenance report, which lists equipment maintenance performed during the month.

An example of the MEDR for December 2014 is provided in Appendix 16.

Summaries of the monthly and annual waste quantities from the mass balance reports from January 2005 through October 2016 are presented in Appendix 17. Based on the quantities in Appendix 17, the amount of ProMat produced for the period of record varied from 200,000 to 565,000 tons per year on a wet weight basis (wwb), which is equivalent to 140,000 to 392,000 tons per year on a dry weight basis (dwb). The lowest annual tonnage was recorded in 2012 and represented a significant decline in waste generation. The highest annual waste generation since 2012 was 335,000 tons in 2014. The annual average ProMat solids content ranged from 66.75 to 72.81 percent and averaged 69.72 percent.

At the start of the period of record in 2005 through 2007 most of the bottom ash generated at the SEC was sold. Starting in November 2008, bottom ash sales have been essentially zero and, by the end of October 2016, a total of 106,500 tons of bottom ash had been landfilled.

19.3 On-Site Rainfall Data

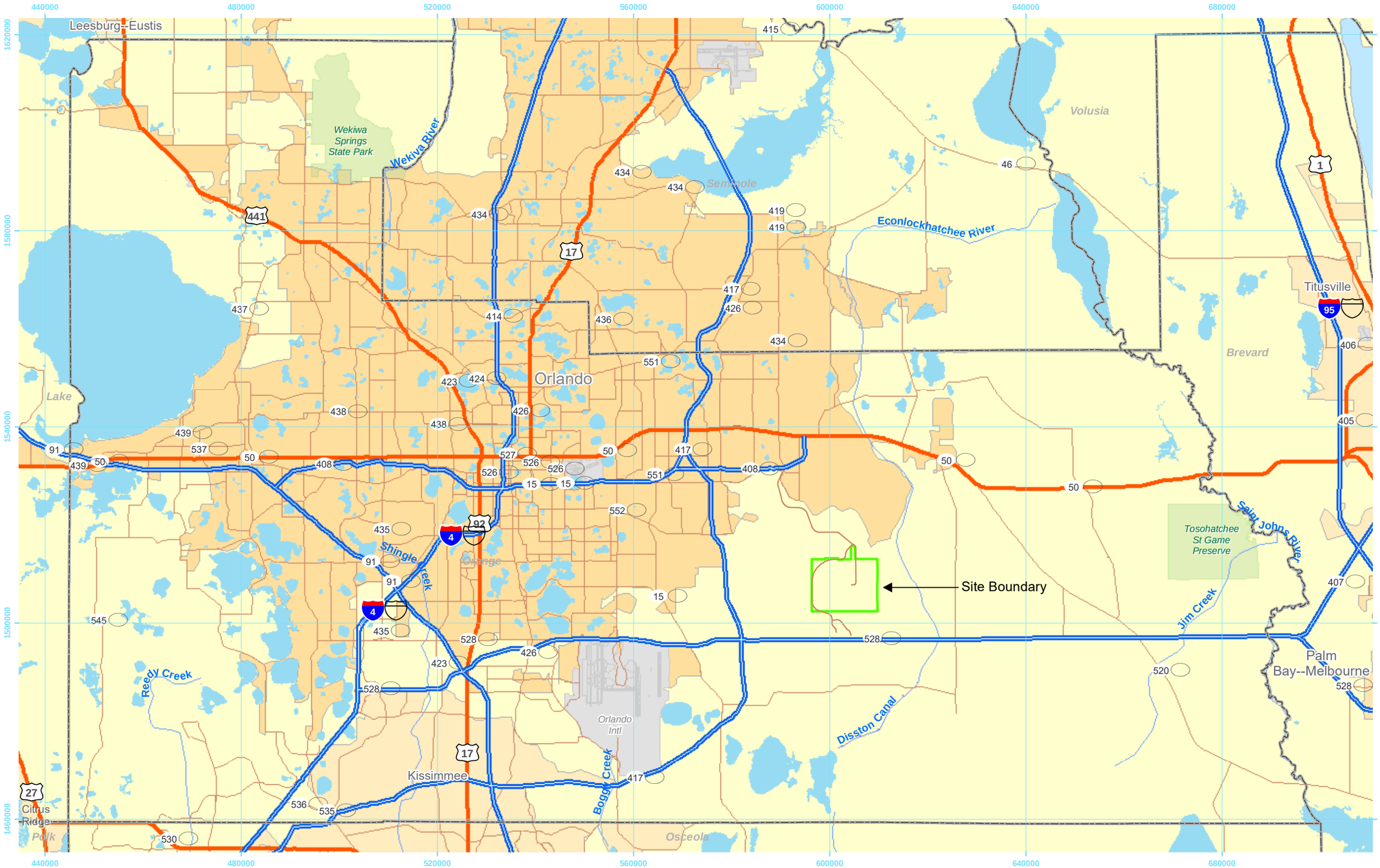
OUC has three rain gauges at the SEC: one at the meteorological station, one near the Makeup Water Supply Pond, and one near the horizontal expansion. . Starting in July 2009, OUC has been taking daily readings at all three gauges manually. OUC maintains a record of on-site rainfall data dating back to 1996.

19.4 Leachate Quantities

In accordance with 62-701.500(8)(f), F.A.C., Landfill Operation Requirements, quantities of leachate collected by the leachate collection and removal system will be recorded in gallons per day, and will be included with the operating record. Leachate quantities will be recorded separately for the leachate collection and leak detection systems for each subcell sump and will be summarized in monthly totals. Any leachate diversions by emergency pumps or other means will be noted.

19.5 Landfill Capacity and Life

An annual topographic survey of the combustion waste storage area/landfill is typically performed in September. By the end of each calendar year, OUC will provide an annual estimate of remaining landfill capacity and life to FDEP. The remaining landfill capacity will be based on the difference between the surveyed landfill elevations and vertical expansion or Cell 1 final waste grades. The remaining landfill life is estimated based on waste quantities and in-place density determined by testing.



OUC The Reliable One

Figure 1

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 07-06-15	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by:	Modified:
File: \\2013\113-13-13-0166\ArcGIS\ArcLayouts\20150706\Road_Map.mxd		

SITE LOCATION MAP

OUC STANTON ENERGY CENTER

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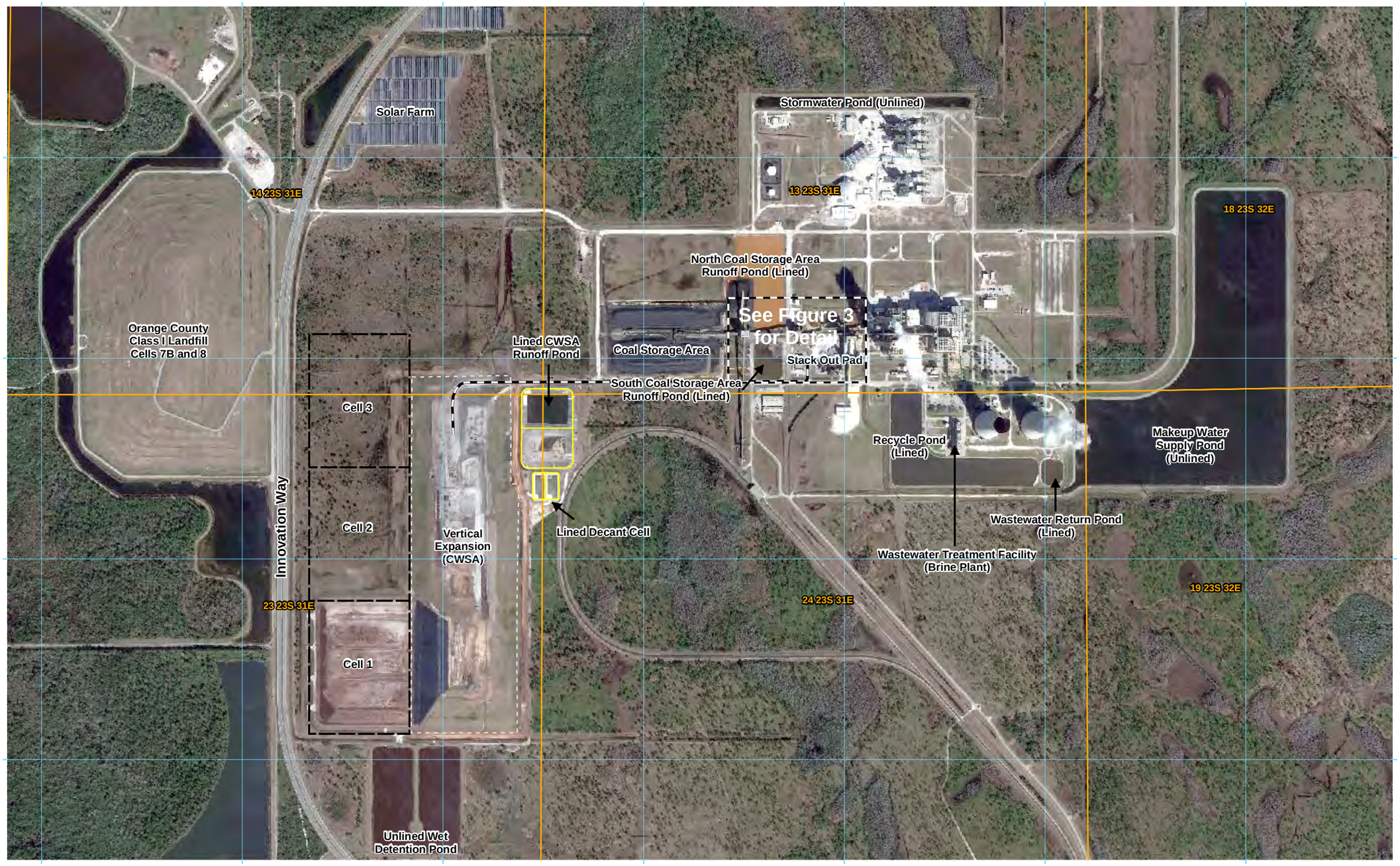
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950



N
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Feet

Scale: 1" = 1,000'

Existing Haul Road

Horizontal Expansion of CWSA

PLSS

Imagery Orange County Property Appraiser 2016

OUC The Reliable One

Figure 2

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by:	Modified:
File: \\113-13-13-0166-OUC\ArcGIS\ArcLayouts\20161223\Site Plan.mxd		

SITE PLAN

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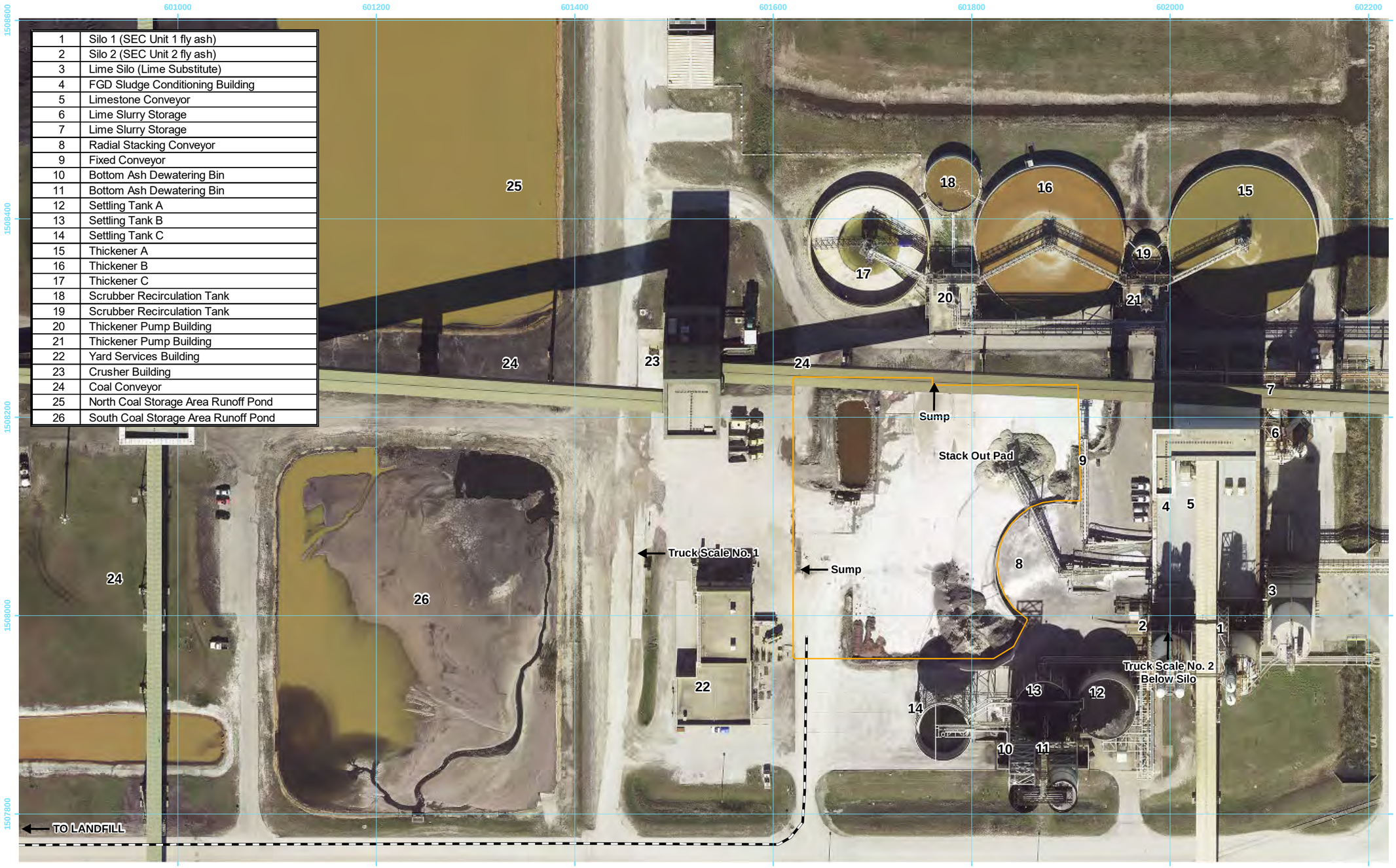

1	Silo 1 (SEC Unit 1 fly ash)
2	Silo 2 (SEC Unit 2 fly ash)
3	Lime Silo (Lime Substitute)
4	FGD Sludge Conditioning Building
5	Limestone Conveyor
6	Lime Slurry Storage
7	Lime Slurry Storage
8	Radial Stacking Conveyor
9	Fixed Conveyor
10	Bottom Ash Dewatering Bin
11	Bottom Ash Dewatering Bin
12	Settling Tank A
13	Settling Tank B
14	Settling Tank C
15	Thickener A
16	Thickener B
17	Thickener C
18	Scrubber Recirculation Tank
19	Scrubber Recirculation Tank
20	Thickener Pump Building
21	Thickener Pump Building
22	Yard Services Building
23	Crusher Building
24	Coal Conveyor
25	North Coal Storage Area Runoff Pond
26	South Coal Storage Area Runoff Pond

N
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Feet

Scale: 1" = 100'

Imagery Orange County Property Appraiser 2016

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Figure 3

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by: SG	Modified:
File: \\2013\113-13-13-0166-OUC\ArcGIS\ArcLayouts\20161223\Site_Map.mxd		

COMBUSTION WASTE PROCESSING FACILITY/AREA SITE PLAN

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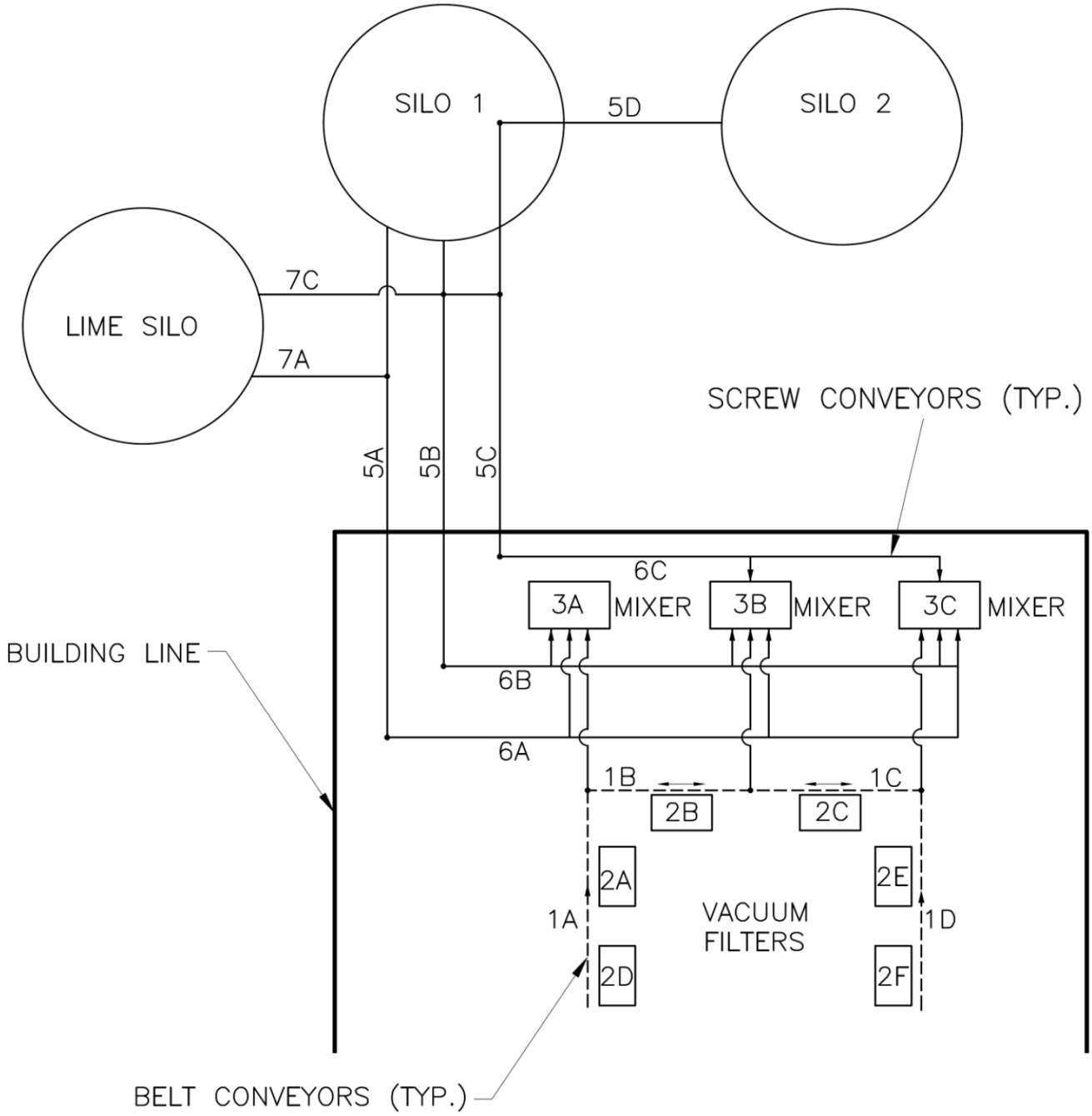

SCHEMATIC OF MATERIAL FLOWS IN THE FGD COMBUSTION WASTE PROCESSING FACILITY
OUC STANTON ENERGY CENTER

OUC The Reliable One®

Figure 4

Project: 10-13-0249	Date: 03-15-13	Created by: TJC
Horizontal Datum: N/A		Vertical Datum: N/A
Projection: N/A		
File: W:\Projects\2010\10-0249\ArcGIS_ArcLayouts\20130315\Schematic.mxd		

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0 300 600
Feet

Scale: 1" = 600'

<all other values>
Northern Haul Road
Southern Haul Road
Existing Haul Road

Imagery Orange County Property Appraiser 2016

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Figure 5

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by:	Modified:
File: \\ArcGIS\ArcLayouts\20161223\Alignment of Haul Road Cell 1.mxd		

ALIGNMENTS OF HAUL ROADS FOR CELL 1

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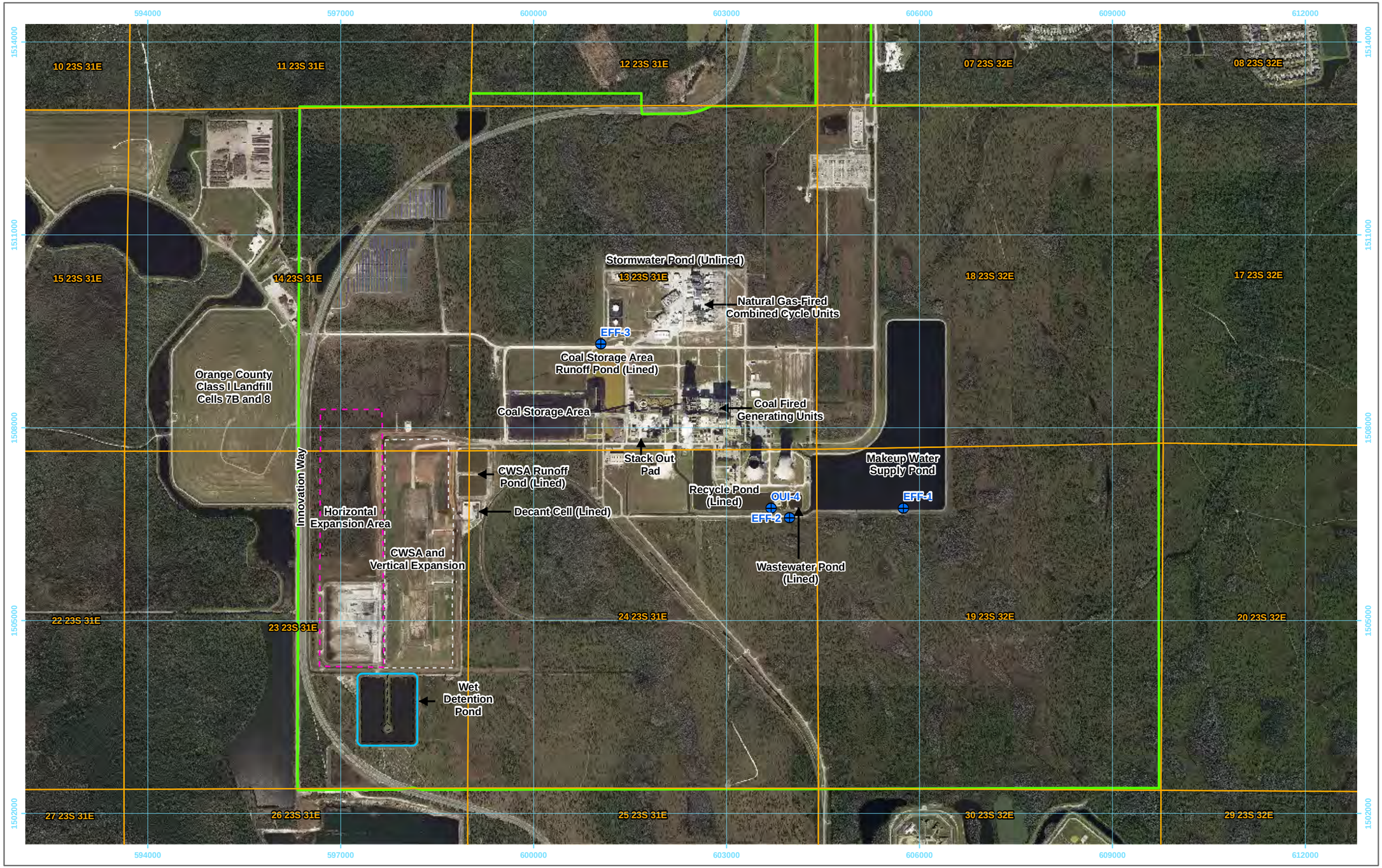

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Feet

Scale: 1" = 1,500'

Surface Water Monitoring Points
Expansion Area
PLSS
SEC Property Boundary

OUC The Reliable One

Figure 6

SURFACE WATER MONITORING LOCATIONS

OUC STANTON ENERGY CENTER

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: NGVD29
Prepared by: TJC	Modified by:	Modified:
File: \\113-13-13-0166-OUC\ArcGIS\ArcLayouts\20161223\SWM_Locations.mxd		

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Feet

Scale: 1" = 600'

- Outlet Structure
- Inlet Structure
- 8" PIPE
- 12" PIPE
- 24" PIPE
- 32" PIPE

Imagery Orange County Property Appraiser 2016

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Figure 7

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by:	Modified:
File: \\ArcGIS\ArcLayouts\20161223\Wastewater Piping Plan.mxd		

WASTEWATER PIPING PLAN

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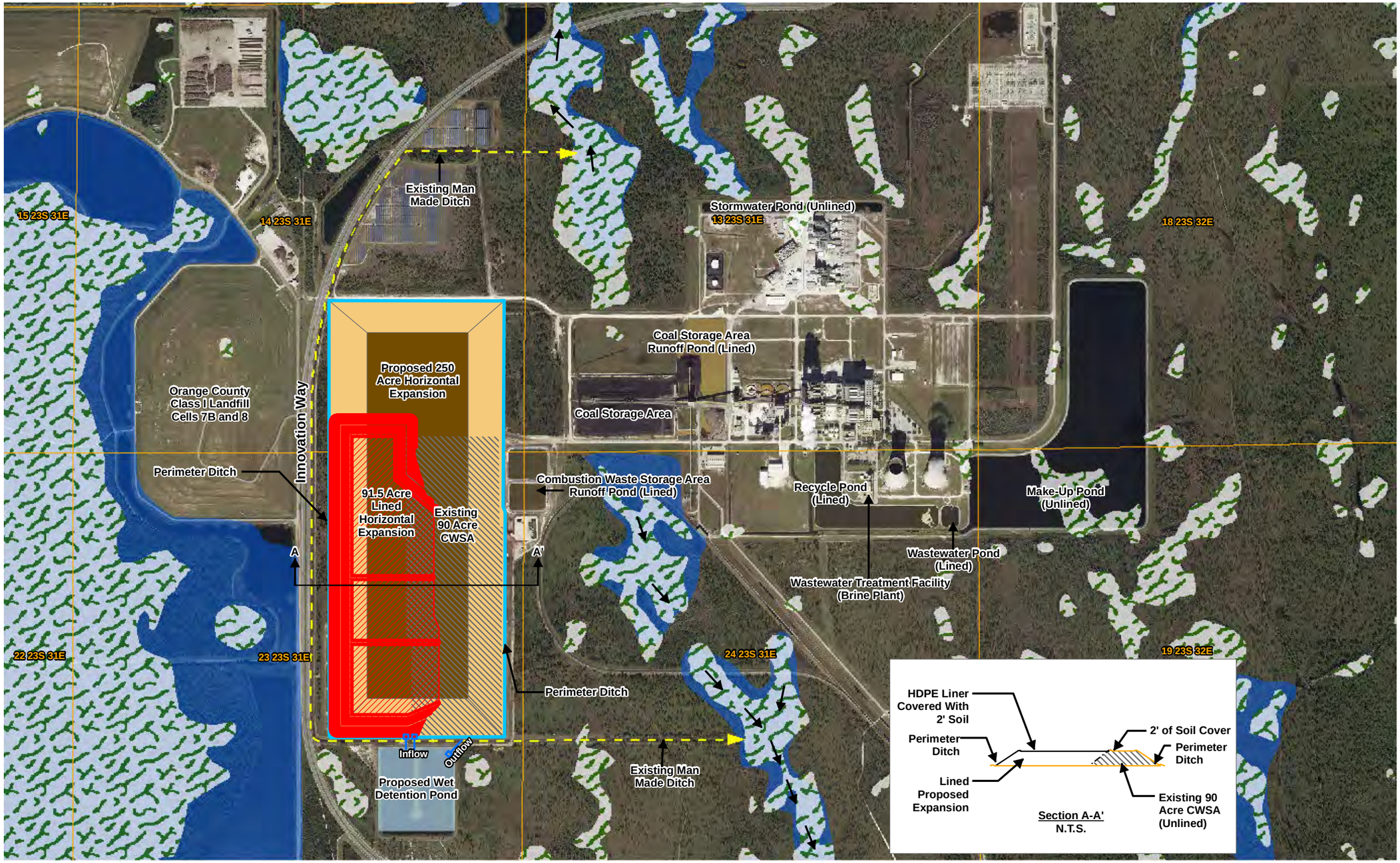

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0 600 1,200
Feet

Scale: 1" = 1,200'

- Proposed Landfill Ditch
- Existing CWSA
- Side Slopes
- Top of Landfill
- PLSS
- National Wetlands Inventory
- FEMA Flood Zone A

Imagery	Orange County Property Appraiser	2016
FEMA	Orange County	2009

OUC The Reliable One

Figure 8

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by: TJC	Modified:
File: \\ArcGIS_ArcLayouts\20161223\Stormwater Conceptual Design.mxd		

STORMWATER CONCEPTUAL DESIGN

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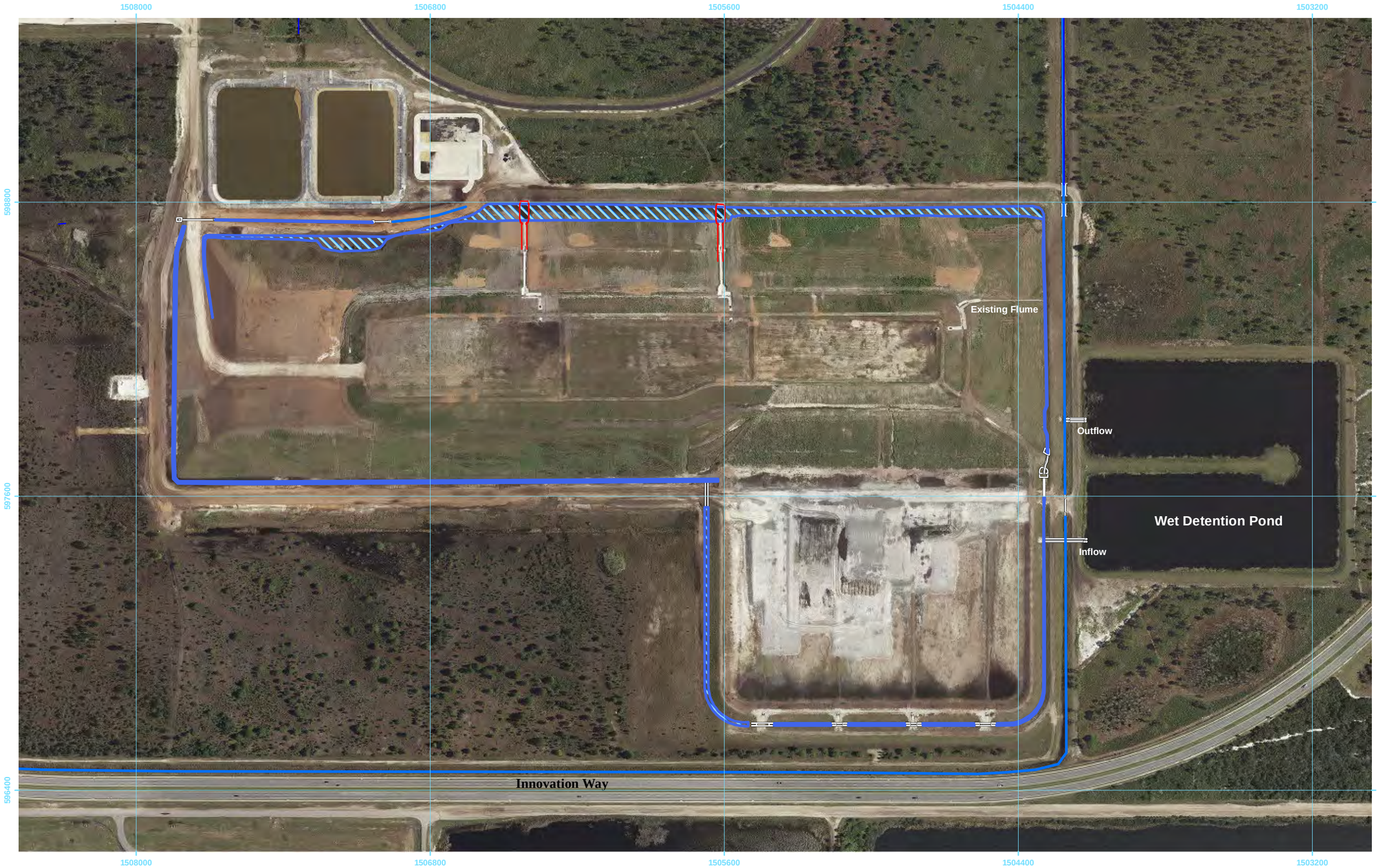

N E S W

0 200 400
Feet

Scale: 1" = 400'

Non-Contact Water Drainage
Flume
Ditch
Culvert

Imagery Orange County Property Appraiser 2016

OUC The Reliable One

Figure 9

Project: 13-13-0166	Projection: State Plane Florida East	
Prepared: 12-23-16	Horizontal Datum: NAD83	Vertical Datum: N/A
Prepared by: TJC	Modified by:	Modified:
File: \\ArcGIS\ArcLayouts\20161223\Flow Drainage.mxd		

STORMWATER DRAINAGE FOR LANDFILL AREA

OUC STANTON ENERGY CENTER

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A Tetra Tech Company
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TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

Appendix 1

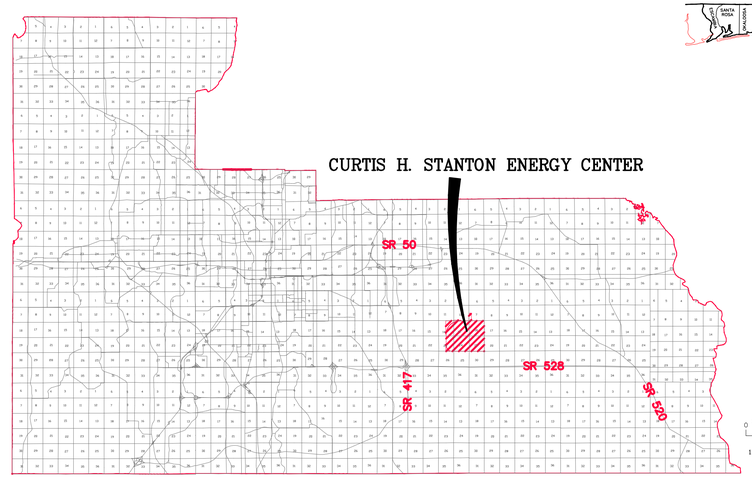
Boundary Survey of Curtis H. Stanton Energy Center

BOUNDARY SURVEY OF

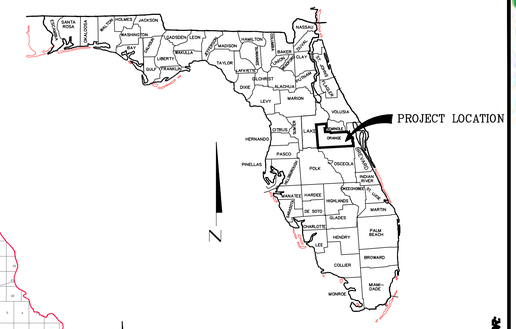
CURTIS H. STANTON ENERGY CENTER

LOCATED IN

SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA



ORANGE COUNTY, FLORIDA



LEGAL DESCRIPTION:

All of Section 18, Township 23 South, Range 32 East, Orange County, Florida;
plus the West 990 feet of the Southwest 1/4 of Section 7, Township 23 South, Range 32 East, Orange County, Florida.

less: Right-of-Way Agreement (Official Records Book 3537, page 1156)

Together with:

All of Section 19, Township 23 South, Range 32 East, Orange County, Florida.

Together with:

All of Section 24, Township 23 South, Range 31 East, Orange County, Florida.

Together with:

All of Section 13, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The East 1/2 of Section 23, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The East 1/2 of Section 14, Township 23 South, Range 31 East, Orange County, Florida,
less: Right-of-Way for Alafaya Trail Extension. (Official Records Book 8964 at Page 3164)

Together with:

The South 200' of the SW 1/4 of Section 12, Township 23 South, Range 31 East, Orange County, Florida

LEGEND:

(C)	=	Calculated
℄/L	=	Centerline
CHD	=	Chord Distance
CB	=	Chord Bearing
(D)	=	Deed
Δ	=	Delta Angle
(F)	=	Field
L	=	Length
R	=	Radius
ORB	=	Official Records Book
PC	=	Point of Curvature
PT	=	Point of Tangent
PI	=	Point of Intersection
CM	=	Concrete Monument
id	=	Identification
—⌇—	=	Line Not to Scale
— · —	=	Section line
▬	=	Boundary line
ROW	=	Right of Way
AKA	=	also known as
±	=	more or less

SURVEYOR'S NOTES:

1. This Boundary Survey is not valid without the signature and original raised Seal of a Florida Licensed Surveyor and Mapper.

2. Bearings shown hereon are relative to the Florida State Plane Coordinate System, Transverse Mercator Projection, Florida East Zone (FL E 0901), North American Datum of 1983/2007 adjustment based on the North line of the Northeast Quarter of Section 18, Township 23 South, Range 32 East as being South 89°58'05" West.

3. The lands described hereon were not abstracted for ownership, easements, rights-of-way or other matters of title by this firm nor were any such documents provided by the client.

4. The Legal Description shown hereon was prepared by the surveyor based upon a review of the Orange County Property Appraisers records.

5. Interior improvements were not located.

6. Underground improvements, if any, such as foundations and utilities, were not located.

7. This Boundary Survey certified to the Orlando Utilities Commission.

8. Lands surveyed contain acres:

3138.36 acres ± lying South and East of Alafaya Trail Extension
21.92 acres ± lying Southwest of Alafaya Trail Extension
125.38 acres ± lying North and West of Alafaya Trail Extension

3285.66 acres ± total

ROBERT M. JONES
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA REGISTRATION NUMBER: PLS 4201

UNLESS IT BEARS THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER THIS DRAWING, SKETCH, PLAT OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.

LAST DATE IN FIELD: August 24, 2011

PREPARED BY:

MACTEC
MACTEC Engineering & Consulting, Inc.
4150 North John Young Parkway Orlando, Florida 32804-2620
Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6989

PREPARED FOR:

ORLANDO UTILITIES COMMISSION
5971 Perishing Avenue
Orlando, Florida 32822
Phone: 407-384-4077

DATE	REVISION	DATE	REVISION

COUNTY:Orange County, Florida	DWG. DATE: August 10, 2011
FIELD BOOK/PAGE: N/A/N/A	PHOTO DATE: 2010
OFF. NO.: 637411 0514	DRAWN BY: P.E.W.
DWG. NAME: Stanton Energy Center Boundary.dwg	CHECKED BY: R.M.J.

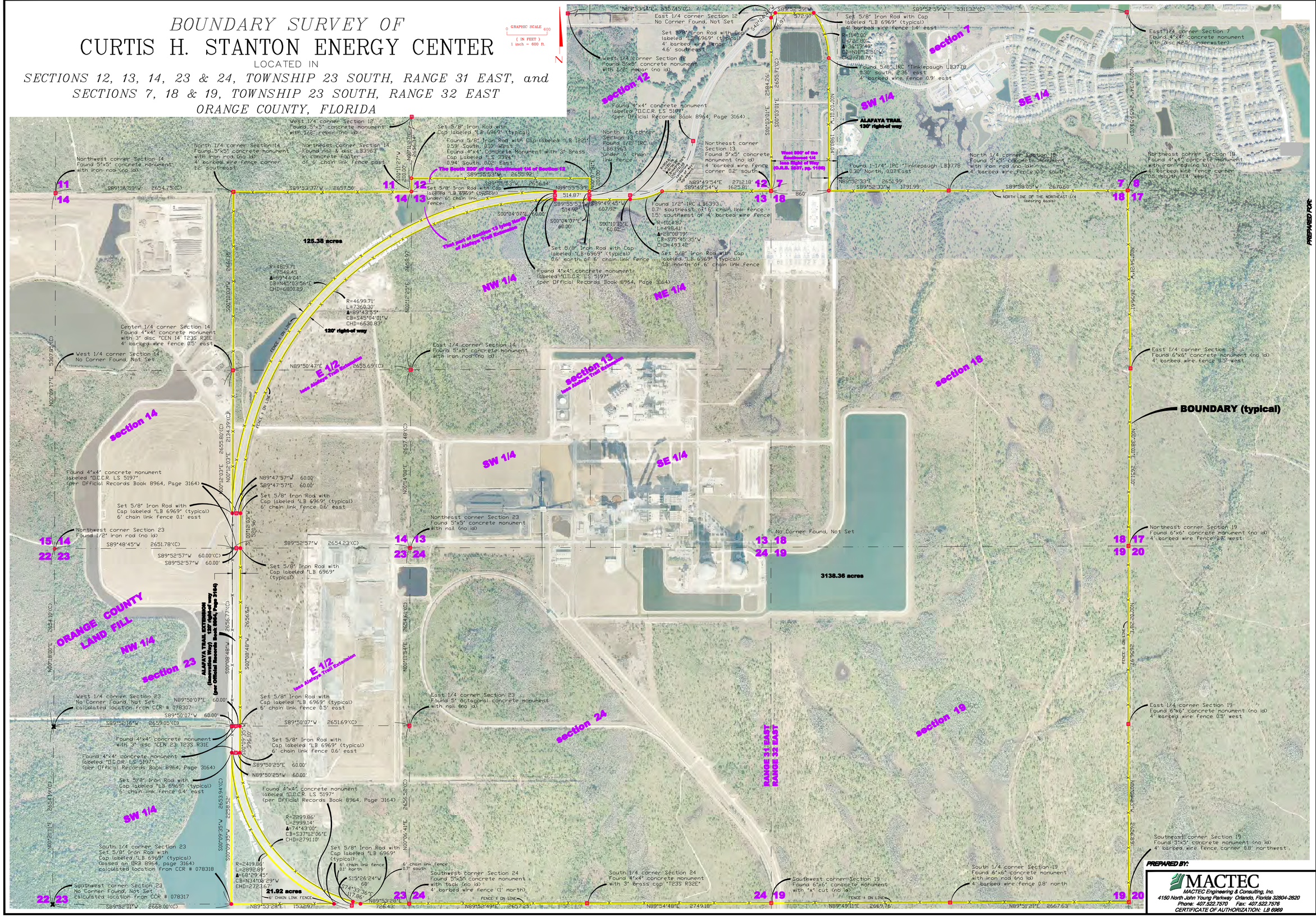
PROJECT TITLE:
BOUNDARY SURVEY OF
CURTIS H. STANTON ENERGY CENTER
LOCATED IN
SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA

SHEET NO. 1 OF 2

BOUNDARY SURVEY OF
CURTIS H. STANTON ENERGY CENTER

LOCATED IN

SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and
SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA



PREPARED FOR:

ORLANDO UTILITIES COMMISSION
5971 Perishing Avenue
Orlando, Florida 32822
Phone: 407-384-4077

OUC The Reliable One

REVISION	DATE	REVISION	DATE

COUNTY: Orange County, Florida	DWG. DATE: August 10, 2011
FIELD BOOK/PAGE: BK 119/5,58 BK 119/46,48	PHOTO DATE: 2010
OFF. NO.: 637411 0514	DRAWN BY: P.E.W.
DWG. NAME: Stanton Energy Center Boundary.dwg	CHECKED BY: R.M.J.

PROJECT TITLE:
BOUNDARY SURVEY OF
CURTIS H. STANTON ENERGY CENTER
LOCATED IN
SECTIONS 12, 13, 14, 23 & 24, TOWNSHIP 23 SOUTH, RANGE 31 EAST, and SECTIONS 7, 18 & 19, TOWNSHIP 23 SOUTH, RANGE 32 EAST
ORANGE COUNTY, FLORIDA

SHEET NO.
2 OF 2

PREPARED BY:

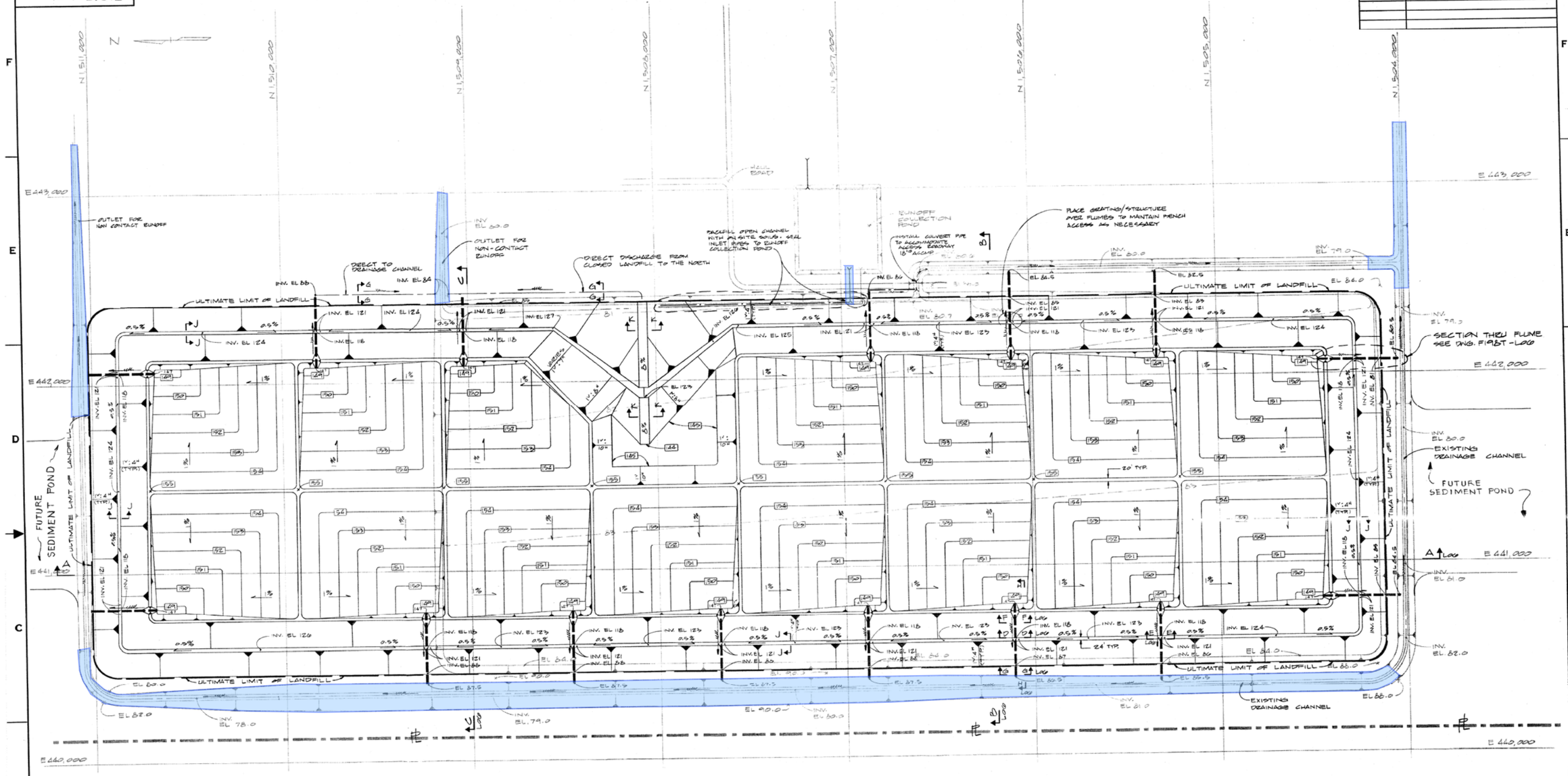
MACTEC
MACTEC Engineering & Consulting, Inc.
4150 North John Young Parkway Orlando, Florida 32804-2620
Phone: 407.522.7570 Fax: 407.522.7576
CERTIFICATE OF AUTHORIZATION: LB 6969

Appendix 2

Conversion Systems, Inc. (CSI) 1987 Drawings for Combustion Waste Storage Landfill

F198T-L01

REFERENCE DRAWINGS	
DWG. NO.	TITLE



LEGEND

- TOP OF SLOPE - PROPOSED
- TOE OF SLOPE - PROPOSED
- 82 — EXISTING GROUND SURFACE CONTOURS
- 98 — PROPOSED GROUND SURFACE CONTOURS
- CULVERT
- FLUME
- 0.5 — DIRECTION OF GRADING AND PERCENT
- FLOW DIRECTION
- EXISTING FEATURES
- B-1 — TEST BORING LOCATION (APPROX.) AND NUMBER

LIST OF DRAWINGS

F198T-L01	FINAL GRADING PLAN
F198T-L02	INITIAL DEVELOPMENT PLAN
F198T-L03	PHASE 1 DEVELOPMENT PLAN
F198T-L04	PHASE 2 DEVELOPMENT PLAN
F198T-L05	PHASE 3 DEVELOPMENT PLAN
F198T-L06	CROSS SECTIONS

GENERAL NOTES

1) WORK DRAWINGS F198T-L01 THROUGH F198T-L06 WITH "MANAGEMENT PLAN FOR THE COMBUSTION WASTE STORAGE AREA"

2) ALL ELEVATIONS IN FEET WITH DATUM AT MEAN SEA LEVEL.

3) TOPOGRAPHY AND EXISTING FEATURES TAKEN FROM B&V DWGS. 8927-55-0027 & 0028

REV.	BY	CHK'D	DESCRIPTION	PROJ ENGR	INST ENGR	ELEC ENGR	MECH ENGR	PROJ ENGR
				DISC MGR	DISC MGR	DISC MGR	DISC MGR	PROJ MGR
0			ISSUED TO CLIENT					
A			ISSUE FOR REVIEW	–	–	–	–	
–				–	–	–	–	–

DATE DATE DATE

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT
B&V FILE 8927-62-0202-22

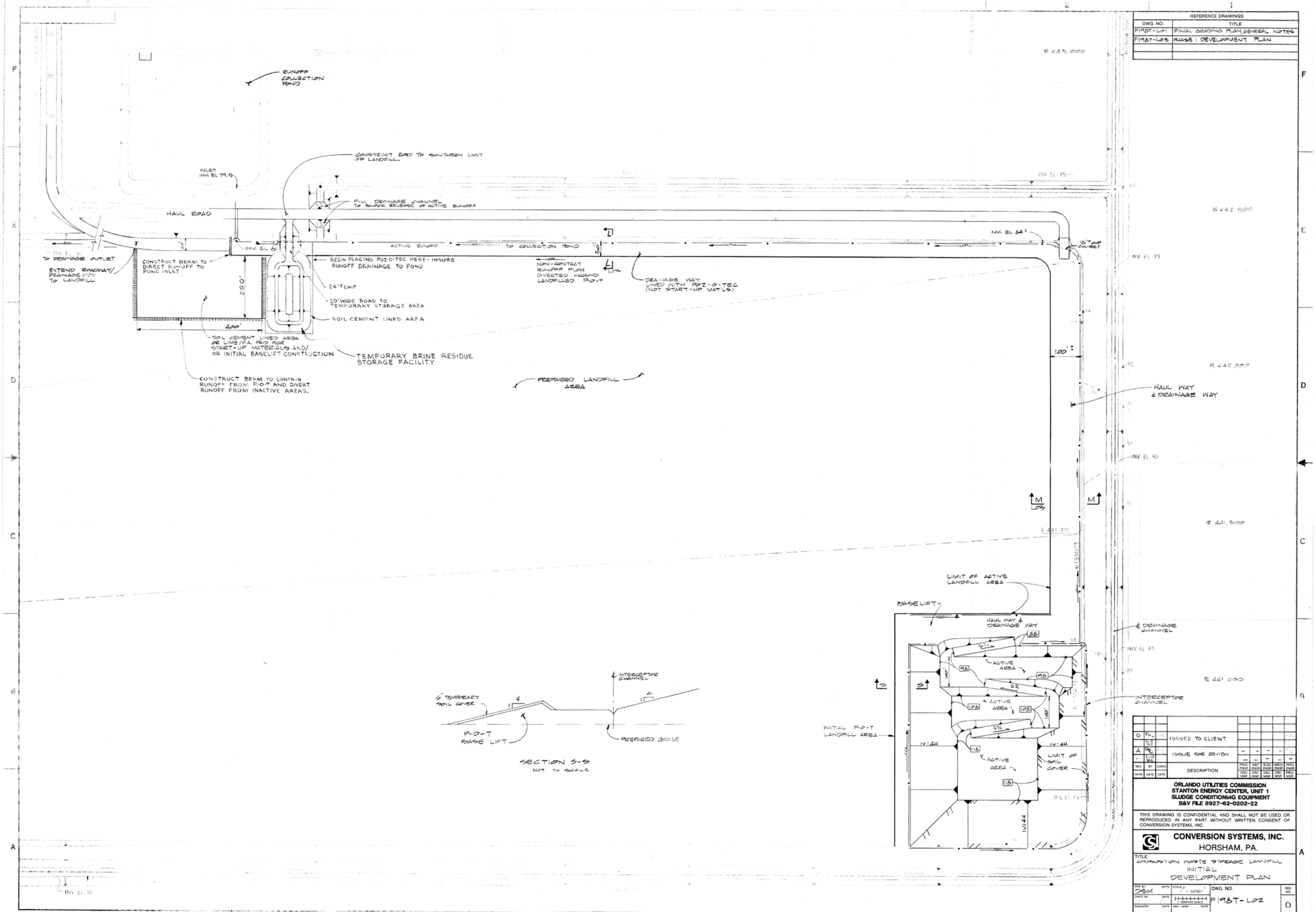
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF CONVERSION SYSTEMS, INC.

CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE: COMBUSTION WASTE STORAGE LANDFILL FINAL GRADING PLAN, LEGEND GENERAL NOTES & LIST OF DWGS.

DRN. BY: DBM	DATE	SCALE: 1" = 200'	DWG. NO. F198T-L01
CHK'D BY: JWC	DATE	1" DRAWING SCALE	REV. NO. 0
ENGINEER: JWC	DATE	PROJ. MGR.	DATE

REFERENCE DRAWINGS	
DWG. NO.	TITLE
F198T-L01	FINAL GRADING PLAN, GENERAL NOTES
F198T-L03	PHASE I DEVELOPMENT PLAN



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A	DRN 3-12-86		ISSUE FOR REVIEW	–	–	–	–	–
–				–	–	–	–	–
DATE	DATE	DATE		PROC ENGR DISC MGR	INST ENGR DISC MGR	ELEC ENGR DISC MGR	MECH ENGR DISC MGR	PROJ ENGR DISC MGR

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT
B&V FILE 8927-62-0202-22

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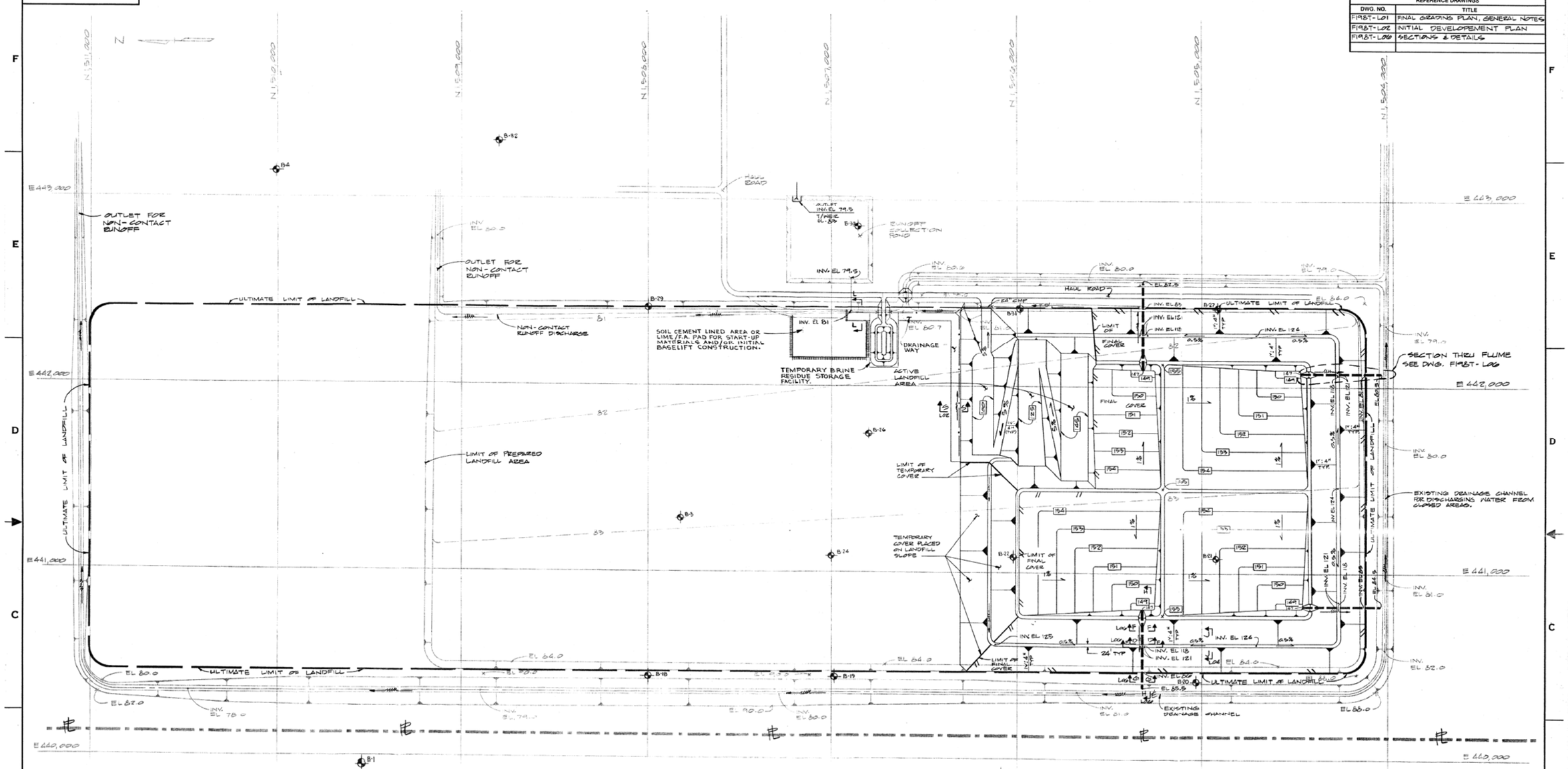
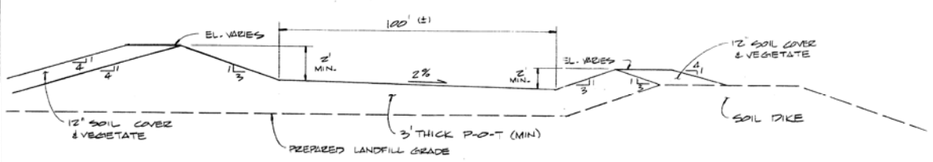
CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE: COMBUSTION WASTE STORAGE LANDFILL
INITIAL
DEVELOPMENT PLAN

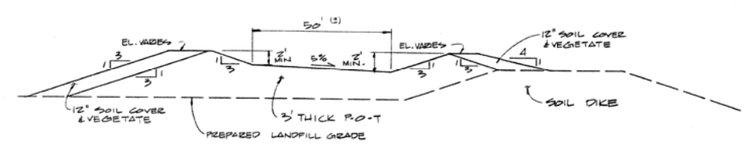
DRN BY	DATE	SCALE	DWG. NO.	REV. NO.
DSM		1" = 100'	F198T-L02	O
CHKD BY	DATE	GRAPHIC SCALE		
ENGINEER	DATE	PROJ. MGR.	DATE	

REFERENCE DRAWINGS	
DWG. NO.	TITLE
F198T-L01	FINAL GRADING PLAN, GENERAL NOTES
F198T-L02	INITIAL DEVELOPEMENT PLAN
F198T-L06	SECTIONS & DETAILS





SECTION M-M
HAULWAY & DRAINAGEWAY



SECTION L-L
DRAINAGEWAY

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A	EMM	5/27/97	ISSUE FOR REVIEW	–	–	–	–	–
–		5/13/97		–	–	–	–	–
DATE	DATE	DATE		DISC MGR	DISC MGR	DISC MGR	DISC MGR	PROJ MGR

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT
B&V FILE 8927-62-0202-22

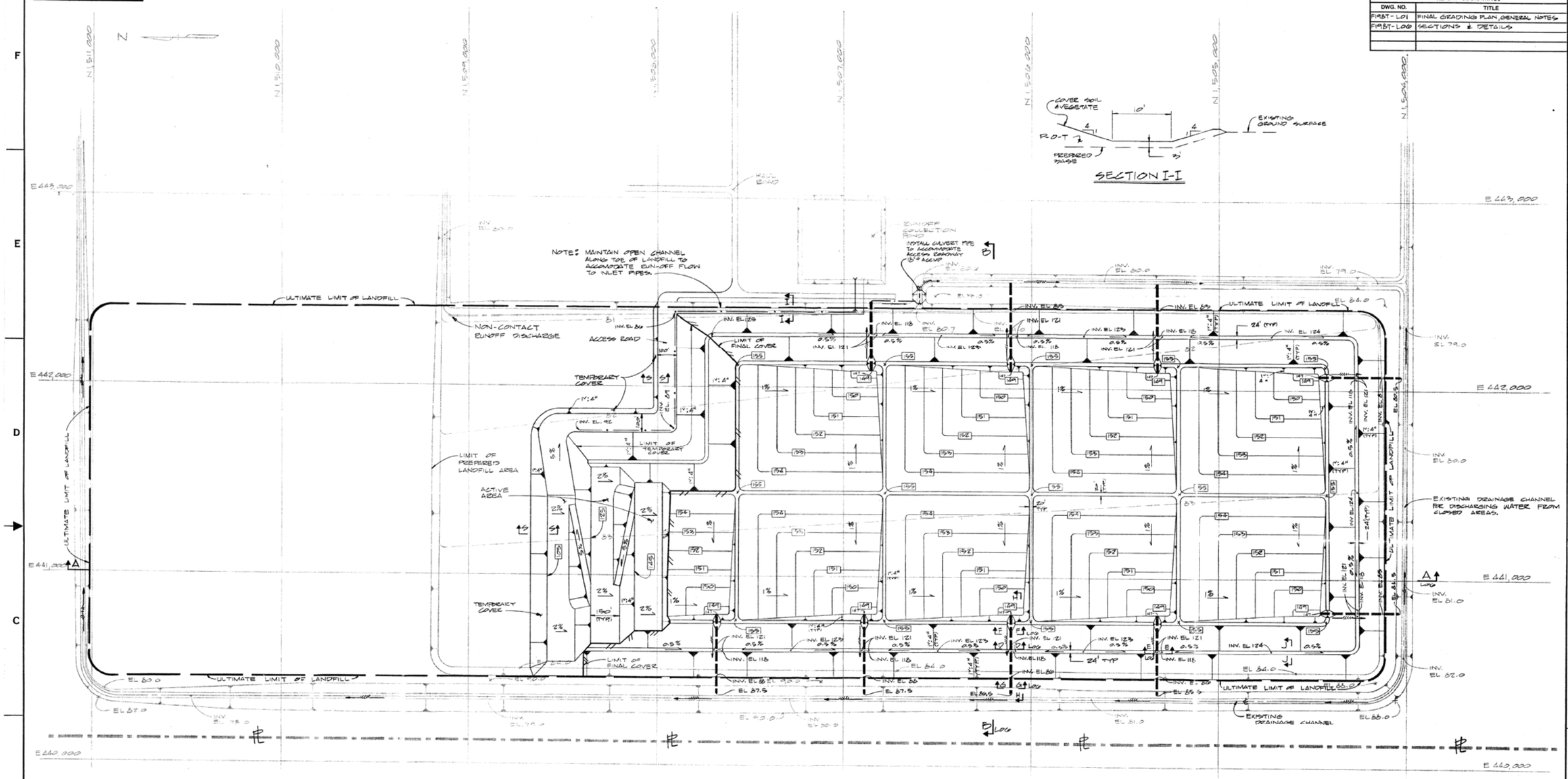
THIS DRAWING IS CONFIDENTIAL AND SHALL NOT BE USED OR REPRODUCED IN ANY PART WITHOUT WRITTEN CONSENT OF CONVERSION SYSTEMS, INC.

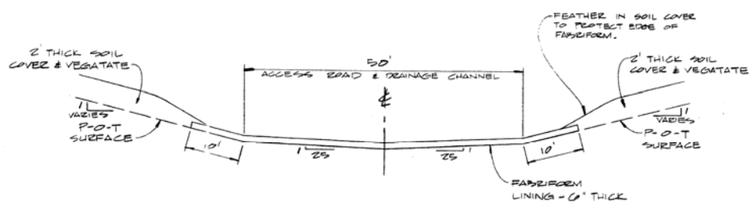
CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE:
COMBUSTION WASTE STORAGE LANDFILL
PHASE 1
DEVELOPMENT PLAN

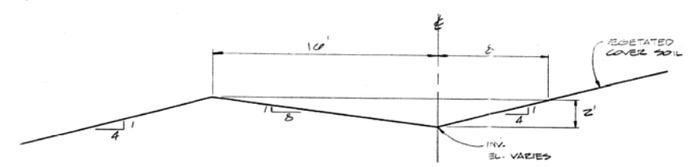
DRN. BY	DATE	SCALE	DWG. NO.	REV. NO.
DSM		1" = 200'	F198T-L03	0
CHKD. BY	DATE	1" GRAPHIC SCALE		
ENGINEER	DATE	PROJ. MGR.	DATE	

DWG. NO.	TITLE
F198T-L01	FINAL GRADING PLAN, GENERAL NOTES
F198T-L06	SECTIONS & DETAILS





SECTION K-K
ACCESS ROAD & DRAINAGE CHANNEL



SECTION J-J
BENCH DRAINAGE CHANNEL

REV.	BY	CHKD	DATE	DATE	DATE	DESCRIPTION	PROJ ENGR	INST ENGR	ELEC ENGR	MECH ENGR	PROJ ENGR
O						ISSUED TO CLIENT					
A						ISSUE FOR REVIEW	–	–	–	–	–
–							–	–	–	–	–
							DISC MGR	DISC MGR	DISC MGR	DISC MGR	PROJ MGR

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT
B&V FILE 8927-62-0202-22

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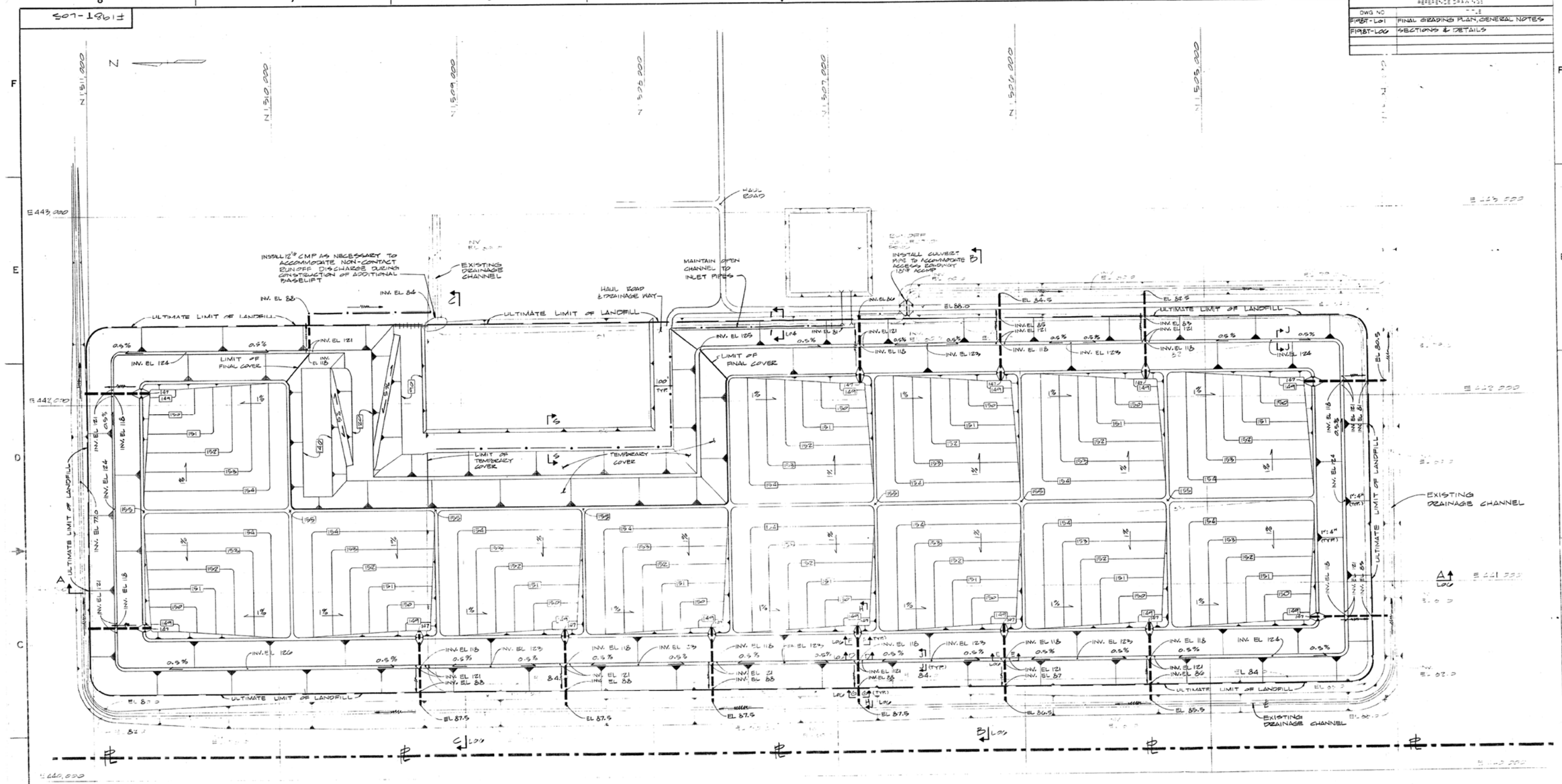
CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE: COMBUSTION WASTE STORAGE LANDFILL
PHASE 2
DEVELOPMENT PLAN

DWN. BY: TMM | DATE | SCALE: 1" = 200' | DWG. NO. F198T-L04 | REV. NO. O
CHKD. BY: JWK | DATE 3-1-01 | 1" GRAPHIC SCALE
ENGINEER: JWK | DATE 3-1-01 | PROJ. MGR. | DATE

MAE 10 1283 8-92 4C0001

REFERENCE DRAWINGS	
DWG NO	TITLE
F198T-L01	FINAL GRADING PLAN, GENERAL NOTES
F198T-L00	SECTIONS & DETAILS



REV	BY	CHKD	DESCRIPTION	PROJ ENGR	MECH ENGR	ELEC ENGR	INSTR ENGR	PROJ MGR
DATE	DATE	DATE						
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A	RMB	7/1/88	ISSUE FOR REVIEW	-	-	-	-	-
-	RMB	7-11-88		-	-	-	-	-

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT
B&V FILE 8927-62-0202-22

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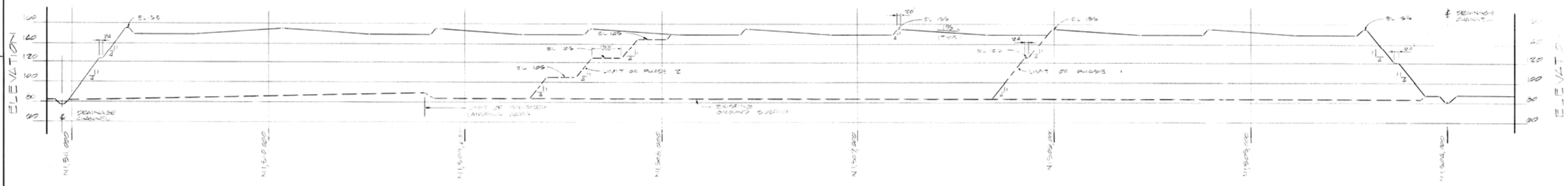
CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE:
COMBUSTION WASTE STORAGE LANDFILL
PHASE 3
DEVELOPMENT PLAN

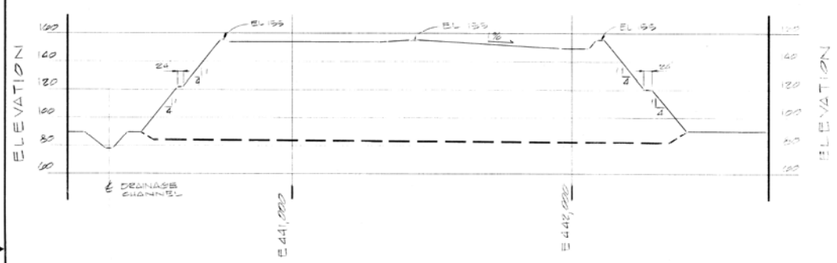
DRW BY DSM DATE SCALE 1" = 200'
CHKD BY DATE
ENGINEER DATE MECH MGR DATE
DWG. NO. F198T-L05
REV 0

F198T-L06

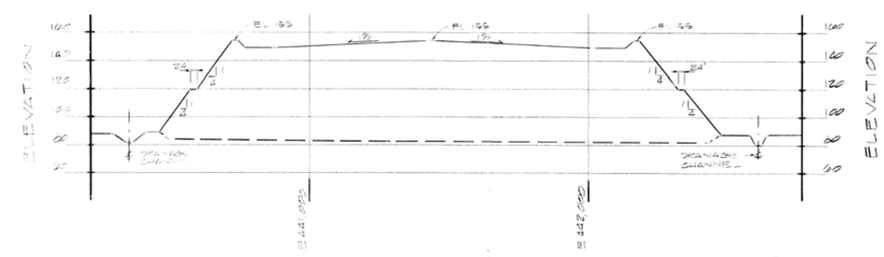
REFERENCE DRAWINGS	
DWG. NO.	TITLE
F198T-L01	FINAL GRADING PLAN GENERAL NOTES
F198T-L02	INITIAL DEVELOPMENT PLAN
F198T-L03	PHASE 1 DEVELOPMENT PLAN
F198T-L04	PHASE 2 DEVELOPMENT PLAN
F198T-L05	PHASE 3 DEVELOPMENT PLAN



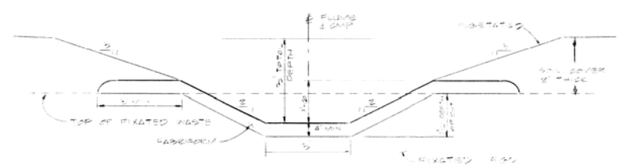
SECTION A-A ALONG E 641,000 (LOOKING EAST)



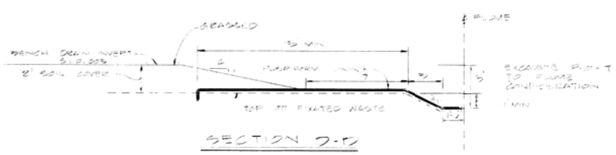
SECTION C-C ALONG N 1,509,000 (LOOKING NORTH)



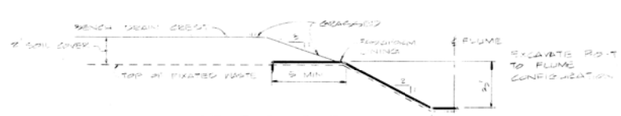
SECTION D-D ALONG N 1,506,000 (LOOKING NORTH)



SECTION F-F



SECTION D-D



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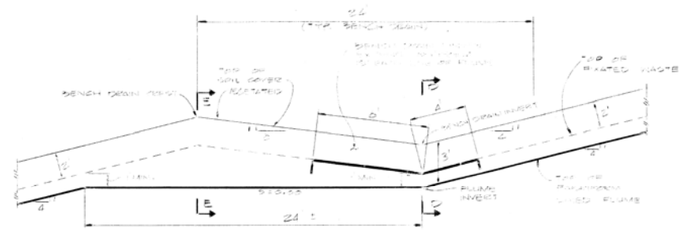
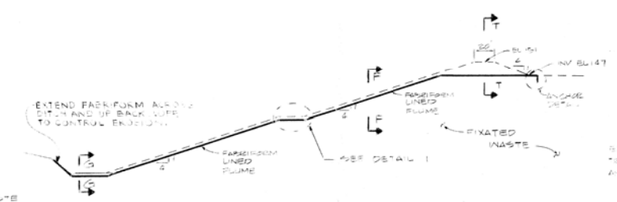


DETAIL 1



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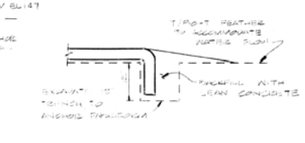
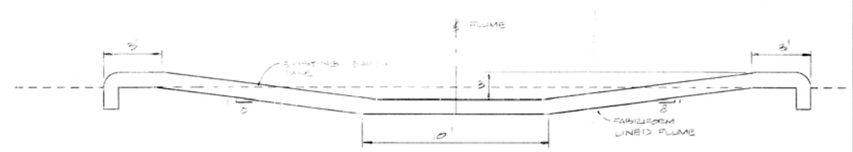
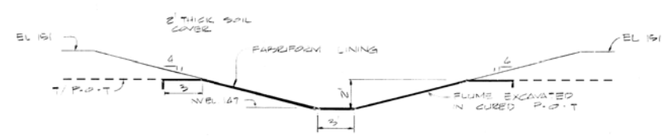


ANCHOR DETAIL
TYPICAL



SECTION G-G



SECTION T-T

REV	BY	CHKD	DESCRIPTION	PROJ ENGR	ASST ENGR	ELEC ENGR	MECH ENGR	PROJ ENGR
0			ISSUED TO CLIENT					
A			ISSUE FOR REVIEW	—	—	—	—	—
				—	—	—	—	—
DATE	DATE	DATE		DISC MGR	DISC MGR	DISC MGR	DISC MGR	PROJ MGR

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER, UNIT 1
SLUDGE CONDITIONING EQUIPMENT

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CONVERSION SYSTEMS, INC.
HORSHAM, PA.

TITLE:
COMBUSTION WASTE STORAGE LANDFILL
SECTIONS & DETAILS

DRN. BY	DATE	SCALE	DWG. NO.	REV. NO.
CBM		1" GRAPHIC SCALE	F198T-L06	0
CHKD. BY	DATE			
ENGINEER	DATE	PROJ. MGR. DATE		

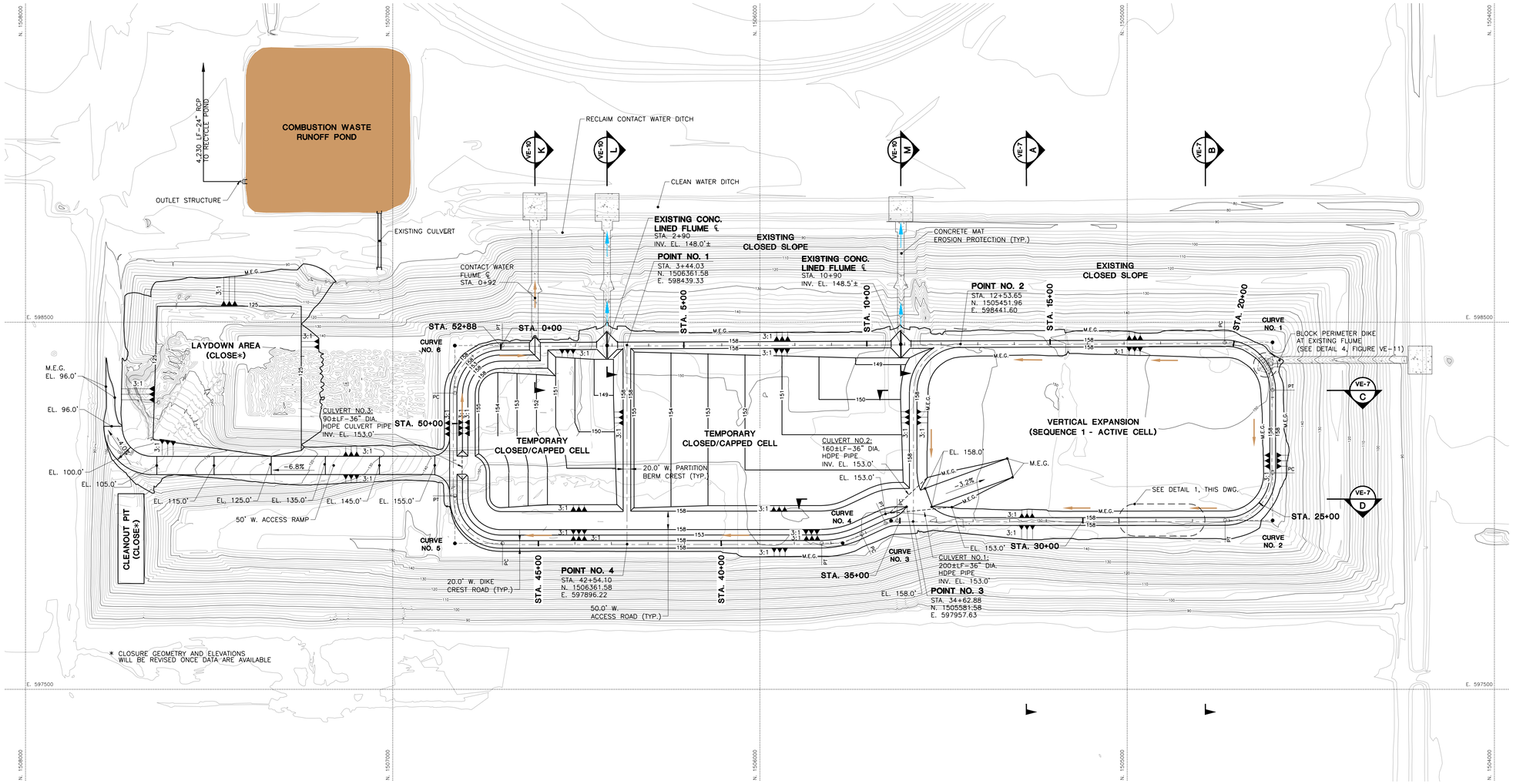
Appendix 3

Landfill Development Plan for Vertical Expansion of Combustion Waste Storage Area

Index of Drawings Included in This Appendix

Figure Number	Title
VE-1	Vertical Expansion Grading Sequence 1 During Construction
VE-2	Vertical Expansion Grading Sequence 1 After Construction
VE-3	Vertical Expansion Grading Sequence 2 During Construction
VE-4	Vertical Expansion Grading Sequence 2 After Construction
VE-5	Vertical Expansion Grading Sequence 3 During Construction
VE-6	Vertical Expansion Grading Sequence 3 After Construction
VE-7	Typical Perimeter Dike Detail and Cross Sections A, B, C and D
VE-8	Cross Sections E, F and G
VE-9	Cross Sections H, I and J
–	Storm Water Ditch Design Full Site Layout*

*Shows revised design of access road to the top of the vertical expansion.



N

0 150 300

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC. FLIGHT DATE: 07/19/2011

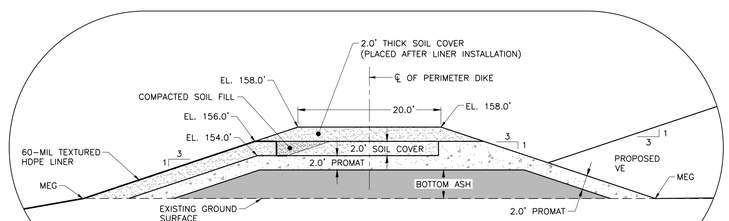
DATUM: NAVD88

STATION POINT DATA

STATION NO.	NORTHING	EASTING	ELEVATION (ft) NAVD88
STA. 0+00	N. 1506705.53	E. 598437.37	158.00'
STA. 5+00	N. 1506205.61	E. 598439.04	158.00'
STA. 10+00	N. 1505705.61	E. 598440.74	158.00'
STA. 15+00	N. 1505205.61	E. 598442.44	158.00'
STA. 20+00	N. 1504705.75	E. 598441.86	158.00'
STA. 25+00	N. 1504631.66	E. 598002.11	158.00'
STA. 30+00	N. 1505118.70	E. 597957.63	158.00'
STA. 35+00	N. 1505618.70	E. 597957.63	158.00'
STA. 40+00	N. 1506107.48	E. 597896.22	158.00'
STA. 45+00	N. 1506607.48	E. 597896.22	158.00'
STA. 50+00	N. 1506835.53	E. 598223.97	158.00'

CULVERT LAYOUT DATA

CULVERT NO.	ELEV. (ft) NAVD88	DOWNSTREAM		UPSTREAM	
		NORTHING	EASTING	NORTHING	EASTING
CULVERT NO.1	153.00'	N. 1505643.70	E. 597979.57	N. 1505451.58	E. 597982.63
CULVERT NO.2	153.00'	N. 1505644.24	E. 597982.52	N. 1505543.64	E. 598074.62
CULVERT NO.3	153.00'	N. 1506810.53	E. 598152.45	N. 1506810.53	E. 598072.70



1 VE-1 TYPICAL PERIMETER DIKE DETAIL AROUND SEQUENCE-1

SCALE: 1" = 10'

DIKE CREST BASELINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
CURVE NO. 1	130.00'	205.11'	N. 1504599.58	E. 598444.98	STA. 19+75.12	STA. 21+80.24	130.91'	90°24'01"
CURVE NO. 2	130.00'	204.20'	N. 1504599.58	E. 597957.63	STA. 24+06.68	STA. 26+10.88	130.00'	90°00'00"
CURVE NO. 3	75.00'	32.58'	N. 1505642.96	E. 597957.63	STA. 35+07.71	STA. 35+40.29	16.55'	24°53'30"
CURVE NO. 4	260.00'	112.96'	N. 1505775.30	E. 597896.22	STA. 36+12.24	STA. 37+25.20	57.38'	24°53'30"
CURVE NO. 5	130.00'	204.20'	N. 1506835.53	E. 597896.22	STA. 45+98.04	STA. 48+02.25	130.00'	90°00'00"
CURVE NO. 6	130.00'	204.20'	N. 1506835.53	E. 598437.37	STA. 50+83.40	STA. 52+87.60	130.00'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				P2	08/29/11	GENERAL REVISIONS; ADD JULY 2011 TOPOGRAPHY	
				P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MAH	07/13/11	CHECKED BY	MAH	07/13/11
DRAWN BY	AAD	08/29/11	CHECKED BY	TSI	08/26/11
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

TETRA TECH

Ardaman & Associates, Inc.
Geotechnical, Environmental and Materials Consultants
8008 S. Orange Ave., Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

LANDFILL DEVELOPMENT PLAN

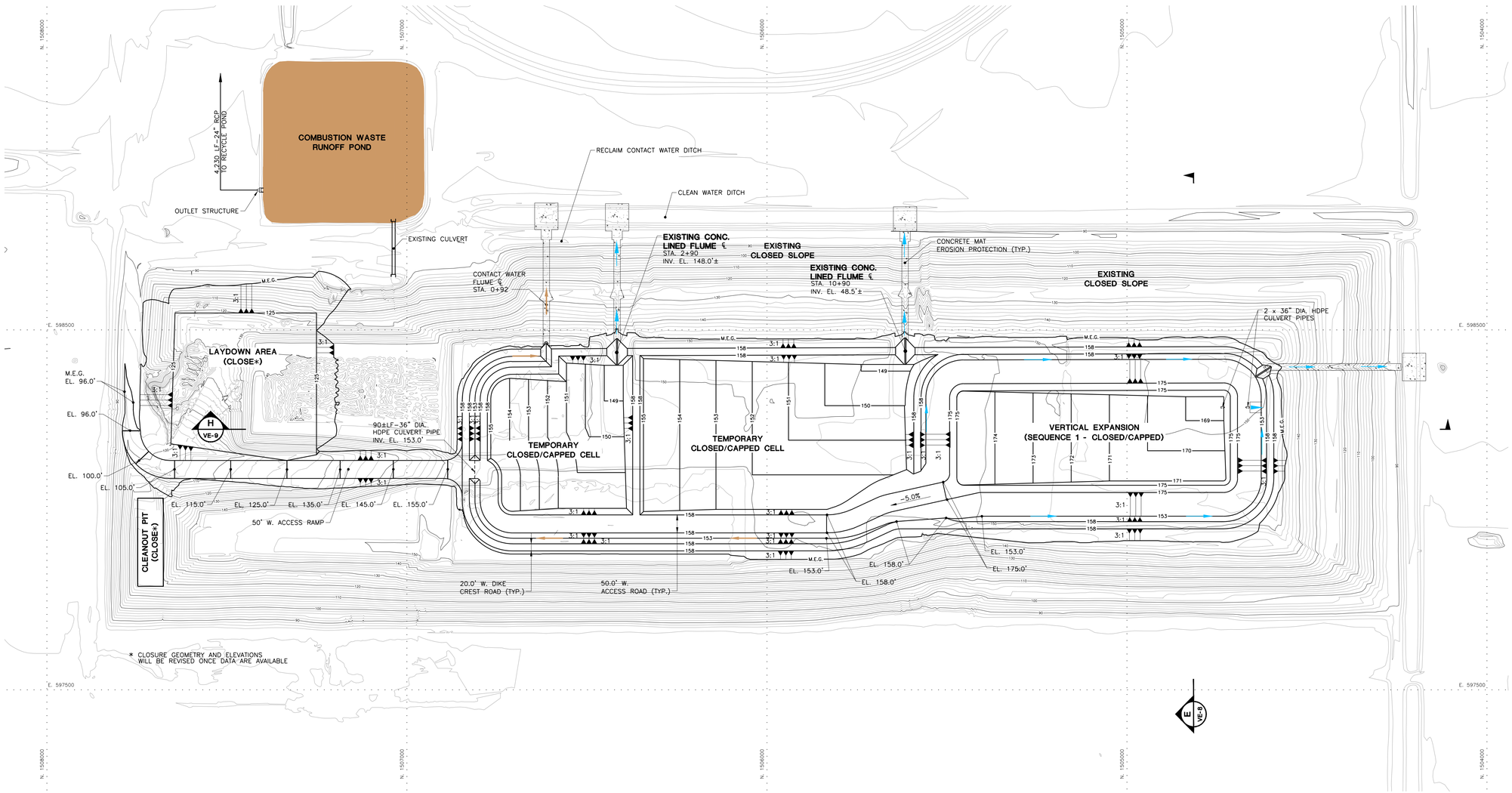
OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 1 DURING CONSTRUCTION

FIGURE NO.

VE-1

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-1 PROPOSED VERTICAL EXPANSION GRADING SEQ 1 - DC.dwg 4/04/2012 5:55:40 PM, ahmed.zaghloul



N

0 150 300

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC.
FLIGHT DATE: 07/19/11

DATUM: NAVD88

REVISION	DATE	DESCRIPTION	APPR'D
P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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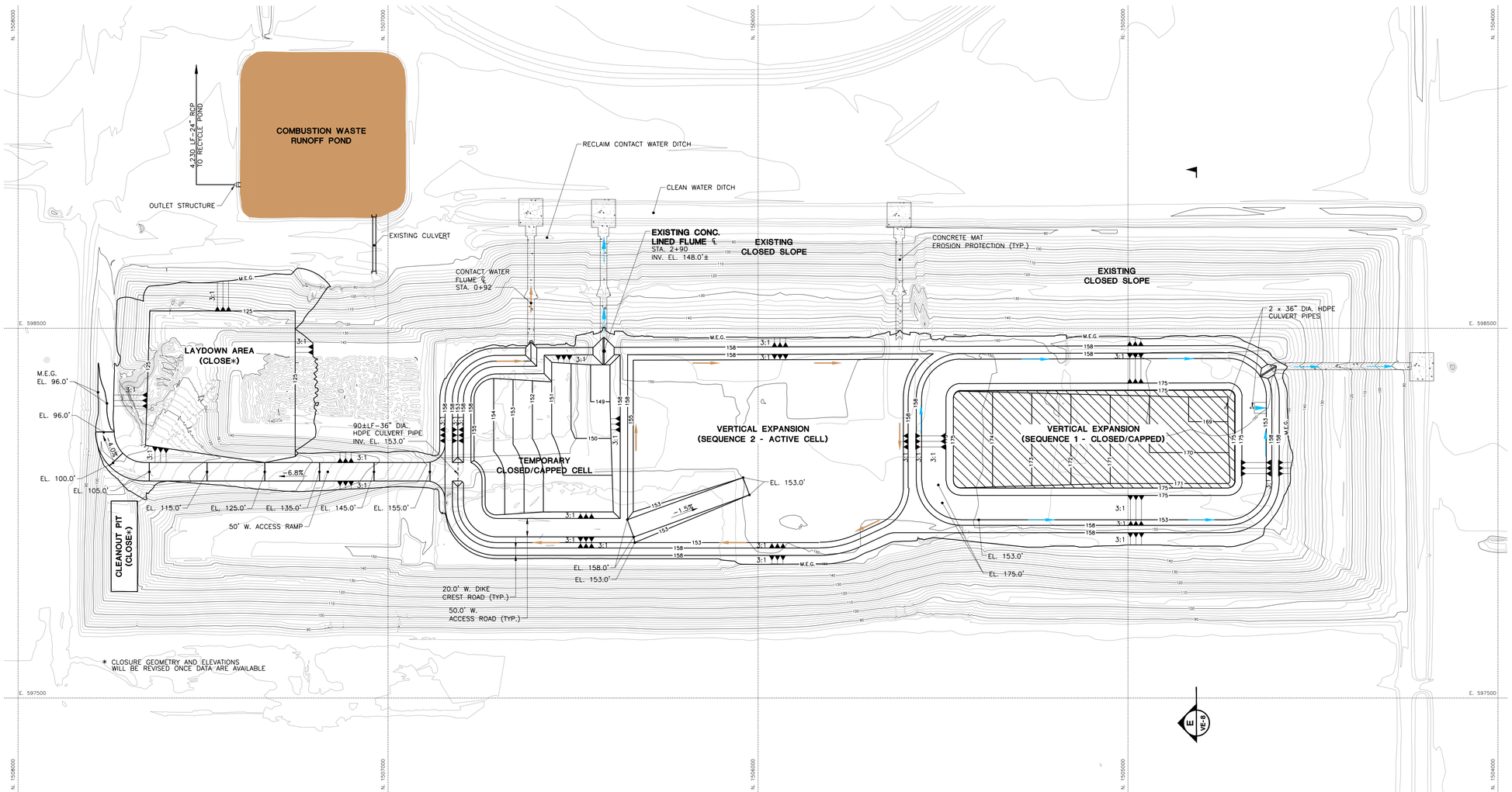
LANDFILL DEVELOPMENT PLAN

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 1 AFTER CONSTRUCTION

FIGURE NO.
VE-2

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-2 PROPOSED VERTICAL EXPANSION GRADING SEQ 1 - AC.dwg 4/04/2012 5:56:10 PM, ahmed.zoghloul



N

0 150 30

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC.
FLIGHT DATE: 07/19/11

DATUM: NAVD88

LEGEND

AREA THAT MAY BE USED FOR BRINE DISPOSAL

REVISION	DATE	DESCRIPTION	APPR'D
P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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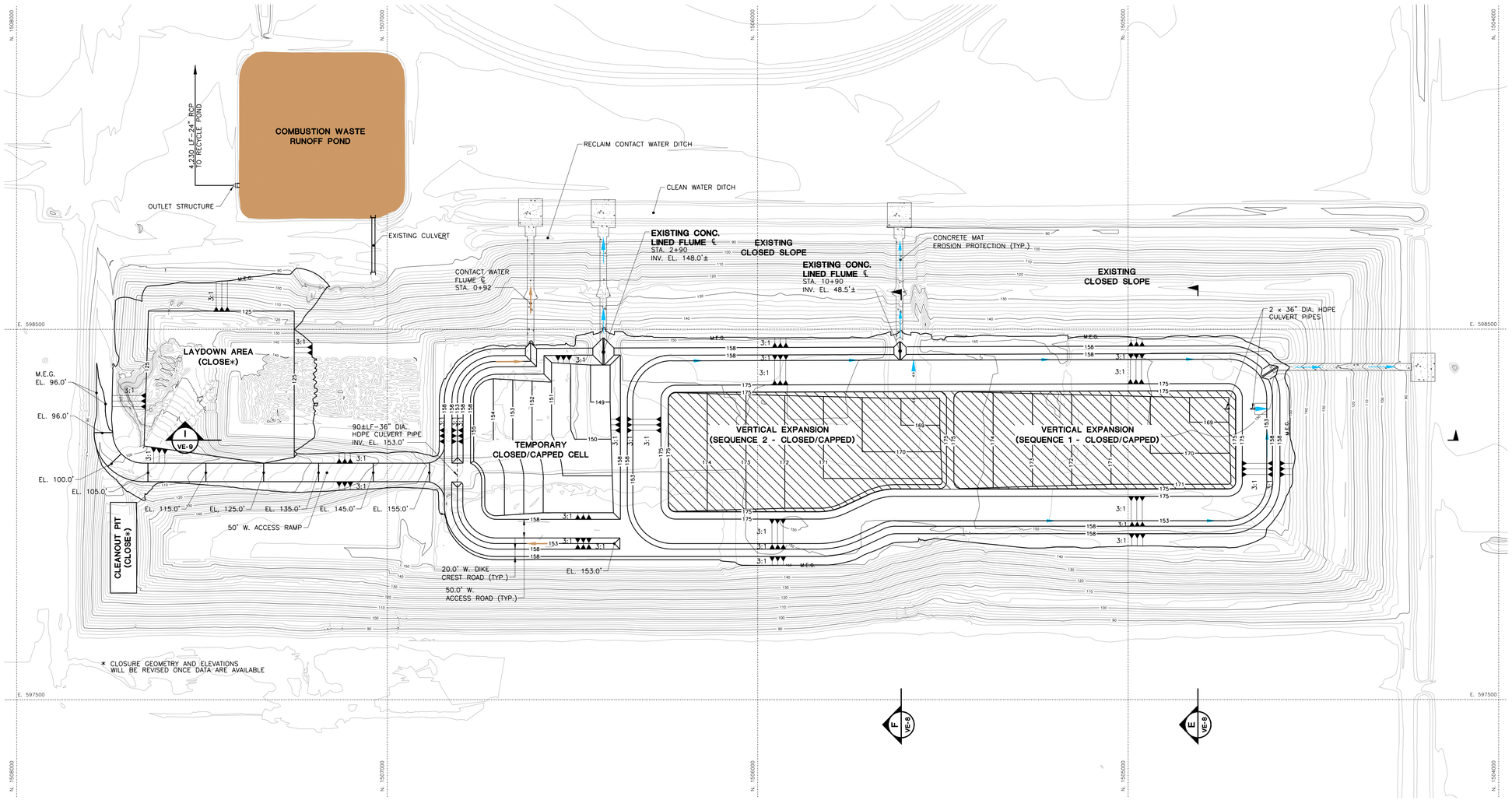
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 2 DURING CONSTRUCTION

FIGURE NO.
VE-3

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-3 PROPOSED VERTICAL EXPANSION GRADING SEQ 2 - DC.dwg 4/04/2012 5:56:37 PM, ahmed.zaghloul



N

0 150 300

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC.
FLIGHT DATE: 07/19/11

DATUM: NAVD88

LEGEND

AREA THAT MAY BE USED FOR BRINE DISPOSAL

REVISION	DATE	DESCRIPTION	APPR'D
P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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LANDFILL DEVELOPMENT PLAN

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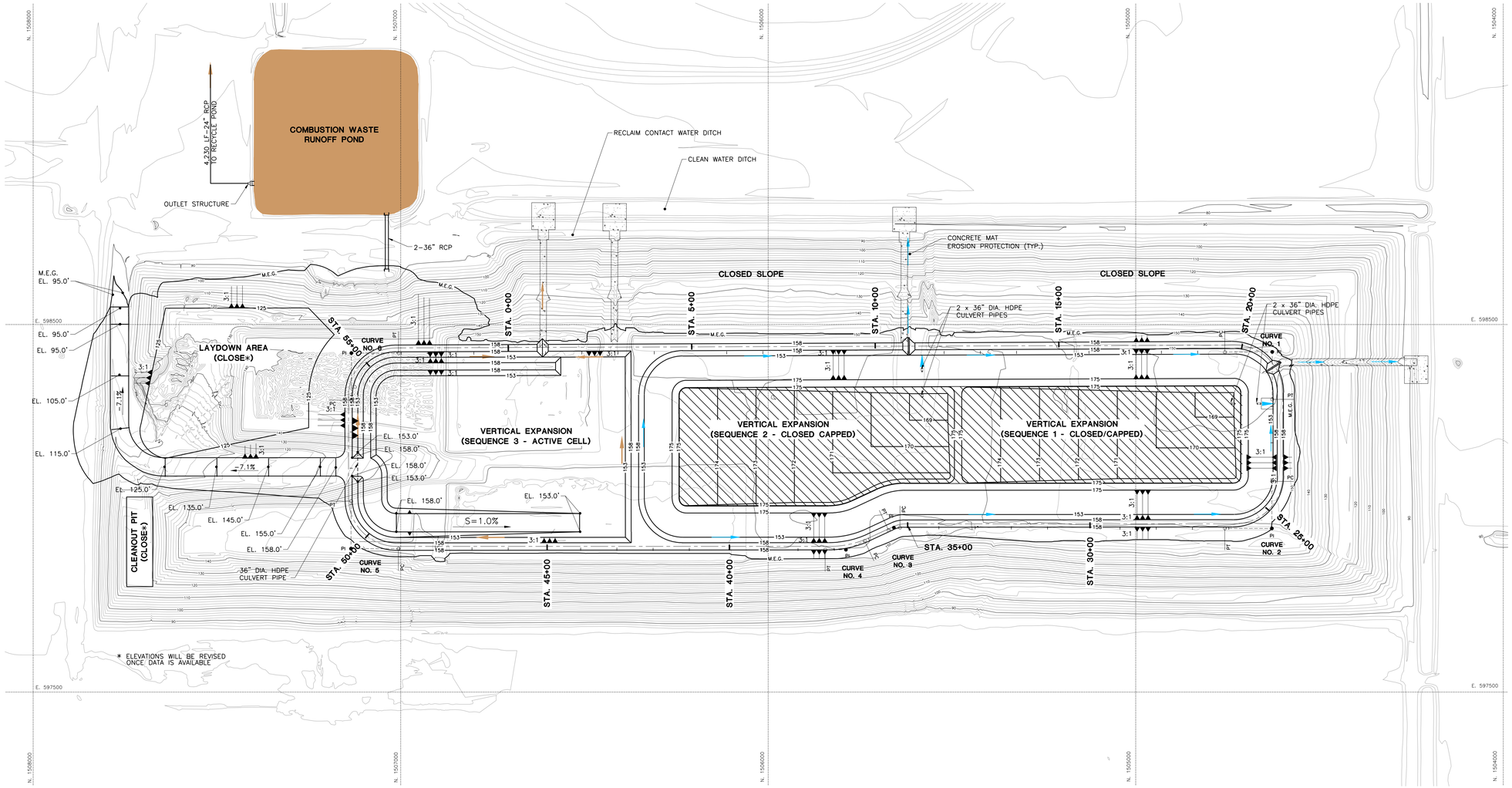
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 2 AFTER CONSTRUCTION

FIGURE NO.
VE-4

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-4 PROPOSED VERTICAL EXPANSION GRADING SEQ 2 - AC.dwg 4/04/2012 5:57:14 PM, dimeo.zaghloul



N

0 150 300

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC. FLIGHT DATE: 07/19/11

DATUM: NAVD88

LEGEND

AREA THAT MAY BE USED FOR BRINE DISPOSAL

STATION POINT DATA

STATION NO.	NORTHING	EASTING	ELEVATION (ft) NAVD88
STA. 0+00	N. 1506705.53	E. 598437.37	158.00'
STA. 5+00	N. 1506205.61	E. 598439.04	158.00'
STA. 10+00	N. 1505705.61	E. 598440.74	158.00'
STA. 15+00	N. 1505205.61	E. 598442.44	158.00'
STA. 20+00	N. 1504705.75	E. 598441.86	158.00'
STA. 25+00	N. 1504631.66	E. 598002.11	158.00'
STA. 30+00	N. 1505118.70	E. 597957.63	158.00'
STA. 35+00	N. 1505618.70	E. 597957.63	158.00'
STA. 40+00	N. 1506107.48	E. 597896.22	158.00'
STA. 45+00	N. 1506607.48	E. 597896.22	158.00'
STA. 50+00	N. 1507098.94	E. 597930.52	158.00'
STA. 55+00	N. 1507096.19	E. 598405.06	158.00'

DIKE CREST BASELINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
CURVE NO. 1	130.00'	205.11'	N. 1504599.58	E. 598444.98	STA. 19+75.05	STA. 21+80.16	130.91'	90°24'01"
CURVE NO. 2	130.00'	204.20'	N. 1504599.58	E. 597957.63	STA. 24+06.60	STA. 26+10.80	130.00'	90°00'00"
CURVE NO. 3	75.00'	32.58'	N. 1505642.96	E. 597957.63	STA. 35+07.63	STA. 35+40.21	16.55'	24°53'30"
CURVE NO. 4	260.00'	112.95'	N. 1505775.30	E. 597896.22	STA. 36+12.17	STA. 37+25.12	57.38'	24°53'30"
CURVE NO. 5	131.04'	205.83'	N. 1507141.58	E. 597896.22	STA. 49+02.98	STA. 51+08.82	131.04'	90°00'00"
CURVE NO. 6	129.94'	204.12'	N. 1507141.61	E. 598436.32	STA. 53+87.93	STA. 55+92.05	129.95'	90°00'14"

REVISION	DATE	DESCRIPTION	APPR'D
P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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LANDFILL DEVELOPMENT PLAN

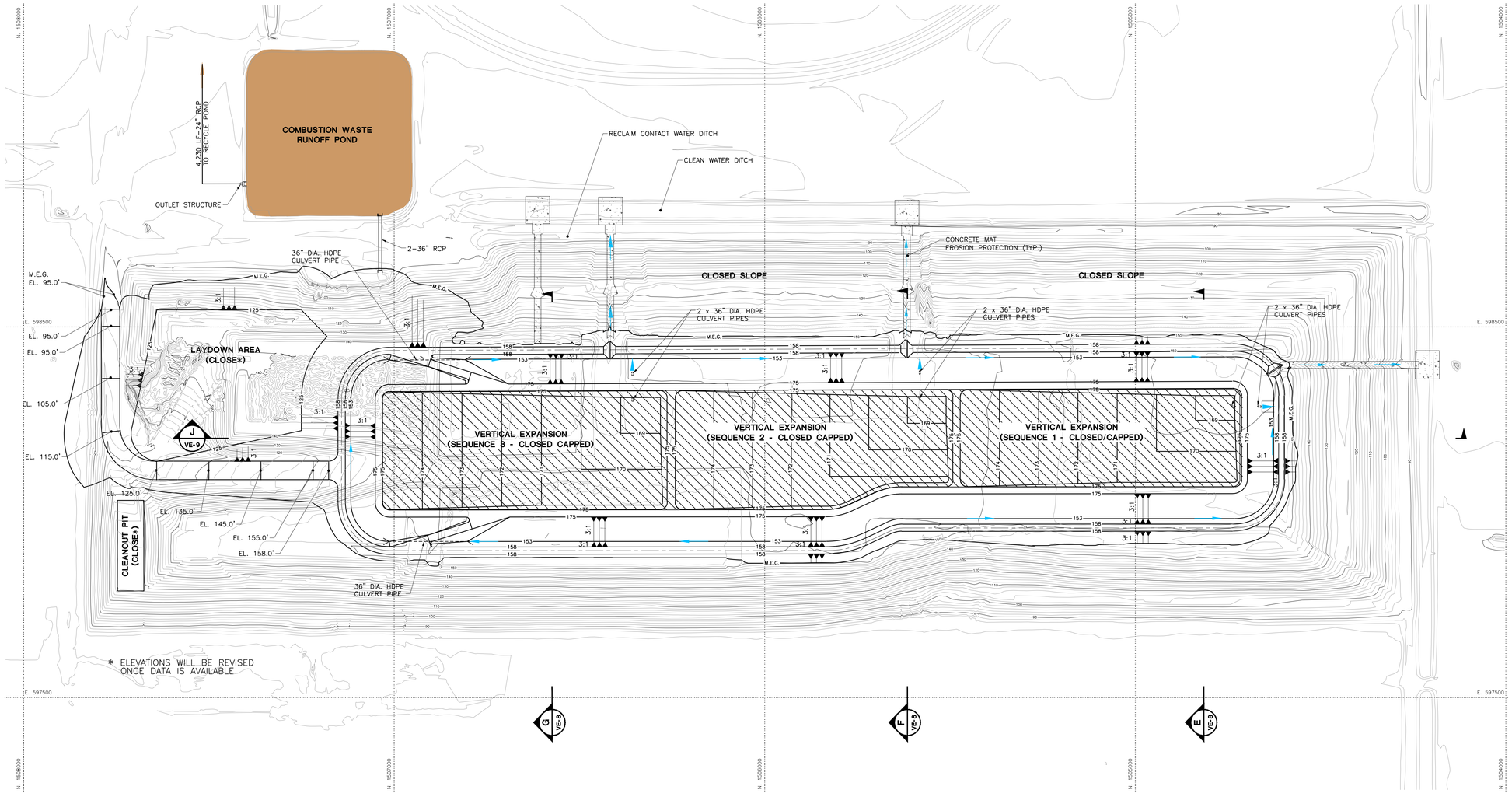
OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 3 DURING CONSTRUCTION

FIGURE NO.

VE-5

T:\Corporate\10\10-0009\LANDFILL DEVELOPMENT PLAN\VE-5 PROPOSED VERTICAL EXPANSION GRADING SEQ 3 - DC.dwg 4/04/2012 5:57:42 PM, ahmed.zaghloul



N

0 150 300

SCALE: 1"=150'

AERIAL PHOTOGRAPH PERFORMED BY I.F. ROOKS AND ASSOCIATES, INC. FLIGHT DATE: 07/19/11

DATUM: NAVD88

LEGEND

AREA THAT MAY BE USED FOR BRINE DISPOSAL

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
				P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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LANDFILL DEVELOPMENT PLAN

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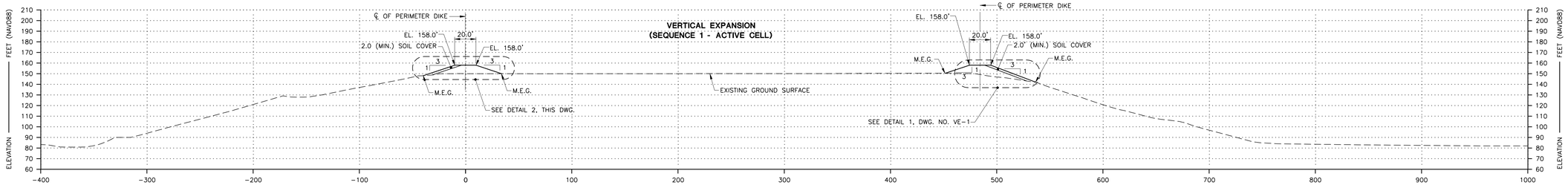
ORANGE COUNTY, FLORIDA

COAL COMBUSTION PRODUCT LANDFILL VERTICAL EXPANSION GRADING SEQUENCE 3 AFTER CONSTRUCTION

FIGURE NO.

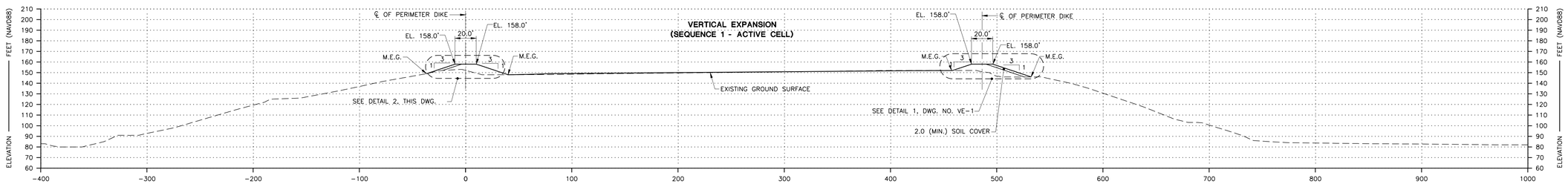
VE-6

T:\Corporate\1\0\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-6 PROPOSED VERTICAL EXPANSION GRADING SEQ 3 - AC.dwg 4/04/2012 5:58:10 PM, ahmed.zaghloul



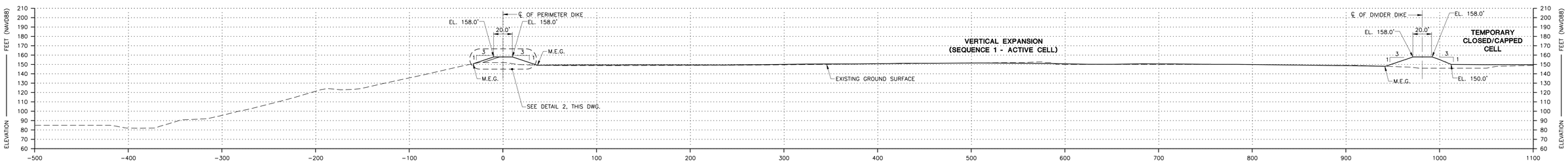
A / VE-1 CROSS SECTION A

SCALE: 1" = 50'



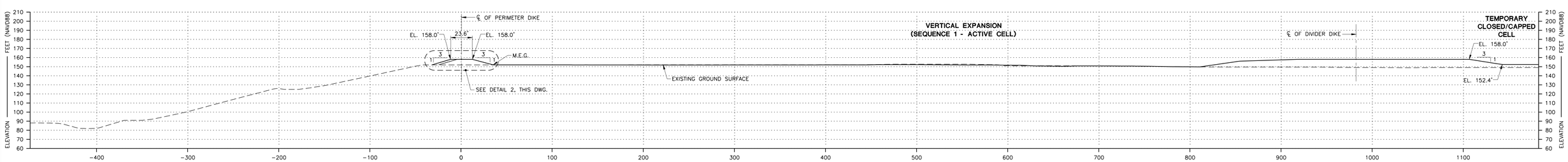
B / VE-1 CROSS SECTION B

SCALE: 1" = 50'



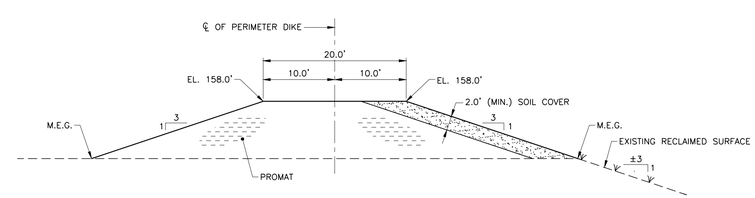
C / VE-1 CROSS SECTION C

SCALE: 1" = 50'



D / VE-1 CROSS SECTION D

SCALE: 1" = 50'



2 / VE-7 TYPICAL PERIMETER DIKE DETAIL

SCALE: 1" = 10'

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				P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
				P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY			CHECKED BY		
DRAWN BY			CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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LANDFILL DEVELOPMENT PLAN

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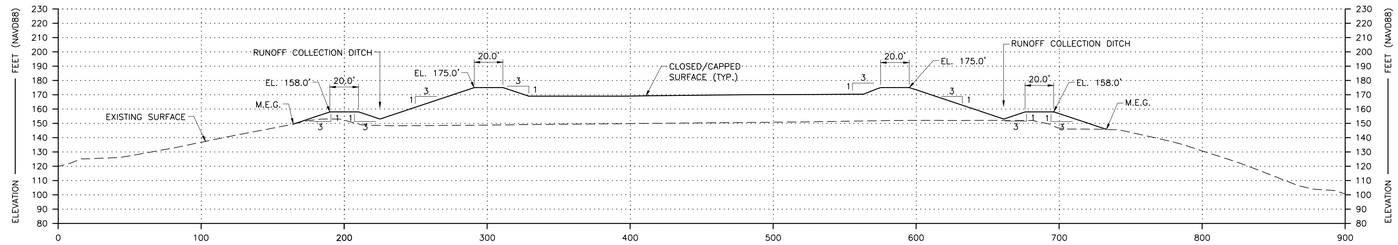
ORANGE COUNTY, FLORIDA

TYPICAL PERIMETER DIKE DETAIL AND CROSS SECTIONS A, B, C AND D

FIGURE NO.
VE-7

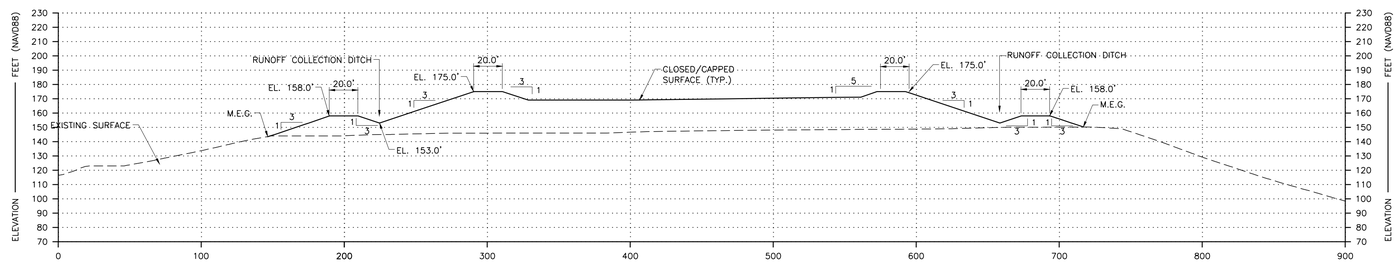
T:\Corporate\10\10-0009\LANDFILL DEVELOPMENT PLAN\VE-7 TYPICAL PERIMETER DIKE DETAIL AND CROSS SECTIONS A, B, C AND D.dwg 4/04/2012 5:58:40 PM, ahmed.zaghloul



E | VE-2 | VE-4 | VE-6

CROSS SECTION E

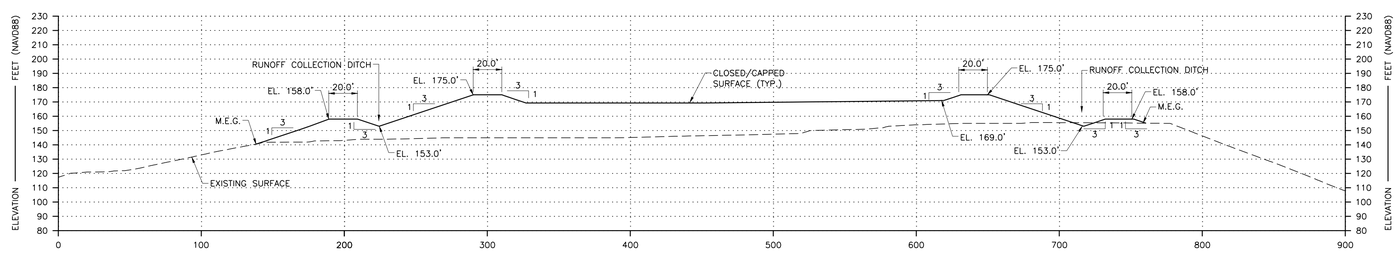
SCALE: 1" = 50'



F | VE-4 | VE-6

CROSS SECTION F

SCALE: 1" = 50'



G | VE-6

CROSS SECTION G

SCALE: 1" = 50'

REVISION	DATE	DESCRIPTION	APPR'D
P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/26/10	CHECKED BY	JM	
DRAWN BY	AAD	04/26/10	CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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LANDFILL DEVELOPMENT PLAN

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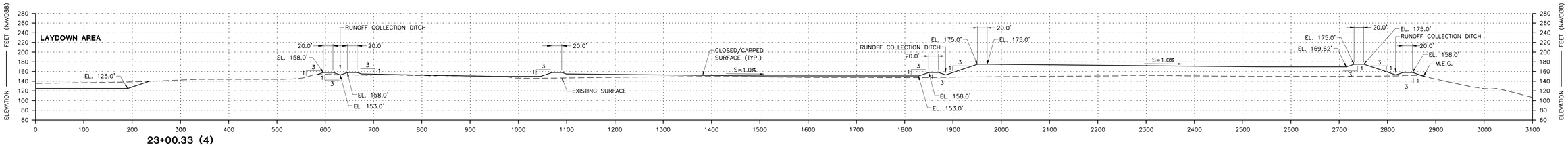
ORANGE COUNTY, FLORIDA

CROSS SECTIONS E, F AND G

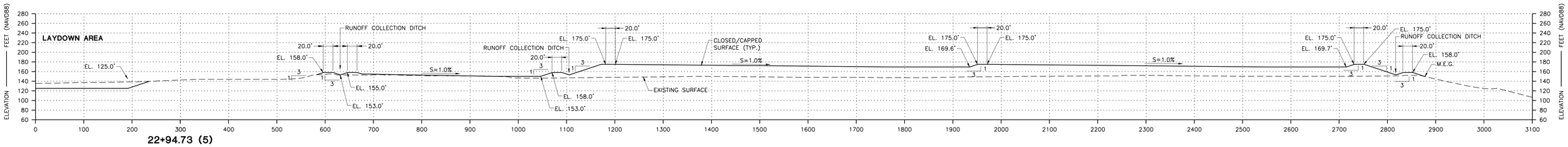
FIGURE NO.
VE-8

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-8 CROSS SECTIONS E, F AND G.dwg 4/24/2012 5:59:06 PM, ahmed.zaghloul



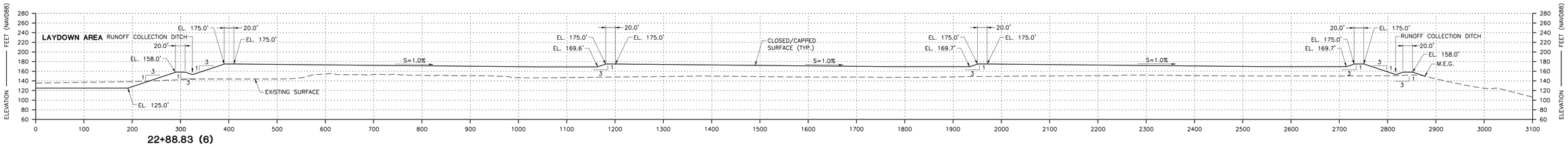
H VE-2 **CROSS SECTION H**

SCALE: 1" = 100'



I VE-4 **CROSS SECTION I**

SCALE: 1" = 100'



J VE-6 **CROSS SECTION J**

SCALE: 1" = 100'

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				P2	08/23/11	REVISED W/ JULY 2011 TOPOGRAPHY	
				P1	07/13/11	ISSUED FOR REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/26/10	CHECKED BY	JM	
DRAWN BY	AAD	04/26/10	CHECKED BY		
FILE NO.: 10-13-0009			SCALE: AS SHOWN		
APPROVED BY:					

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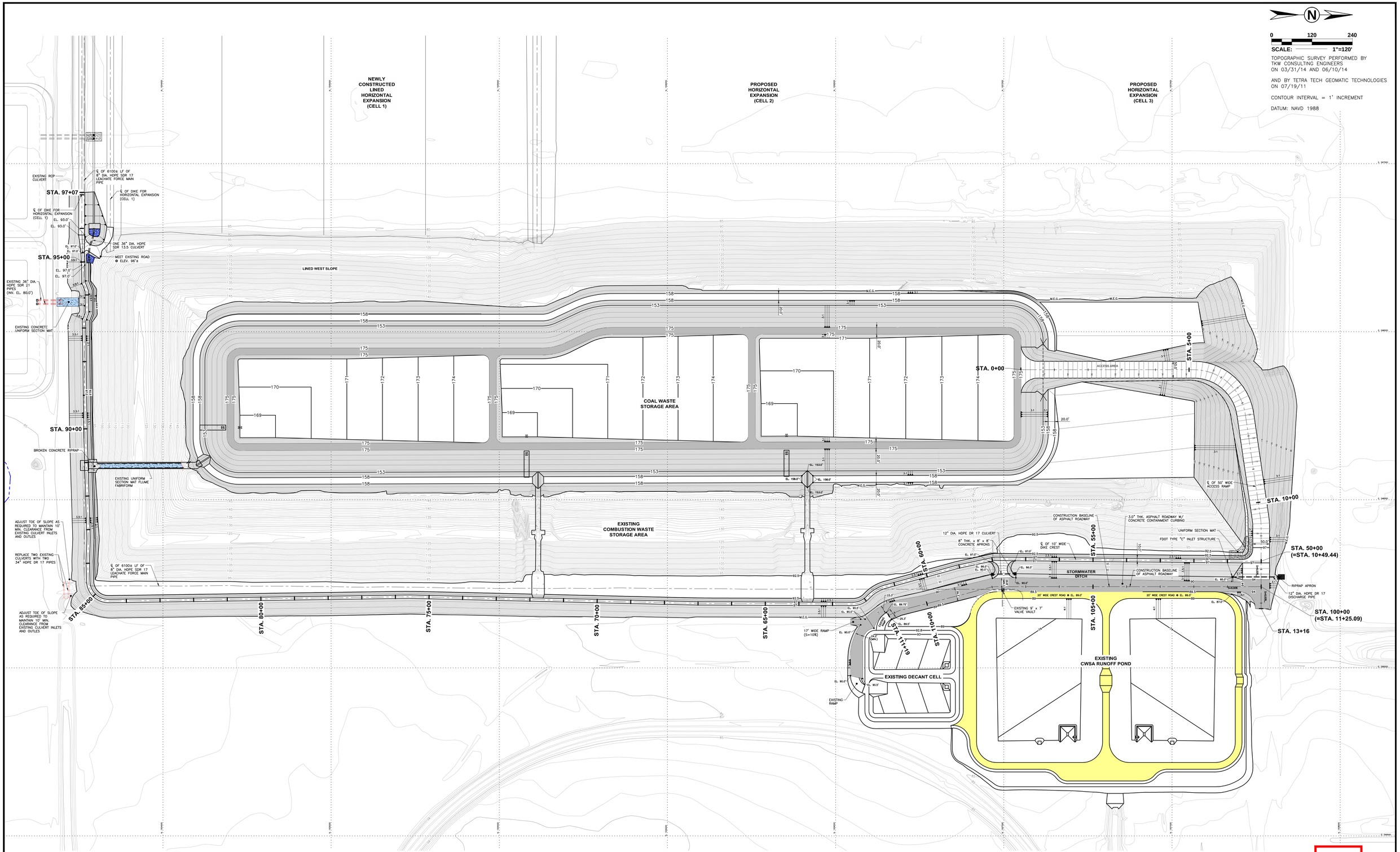
LANDFILL DEVELOPMENT PLAN

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

CROSS SECTIONS H, I AND J

FIGURE NO. **VE-9**

T:\Corporate\10\10-0009\10-13-0009\LANDFILL DEVELOPMENT PLAN\VE-9 CROSS SECTIONS H, I AND J.dwg 4/04/2012 5:59:30 PM, ahmed.zaghloul



REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	02/12/15	CHECKED BY	DTC	02/12/15
DRAWN BY	PS	02/12/15	CHECKED BY		
FILE NO.: 12-13-0120B			SCALE: AS SHOWN		
APPROVED BY:					

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STORMWATER DITCH DESIGN AT NORTHEAST CORNER OF CWSA

OUC STANTON ENERGY CENTER
ORANGE COUNTRY, FLORIDA

STORM WATER DITCH DESIGN FULL SITE LAYOUT

DRAWING NO. -

\\Corporate\12\12-13-0120B\STORMWATER DITCH DESIGN AT NORTHEAST CORNER OF CWSA_Current Sheet Set\FULL VERTICAL EXPANSION SITE.dwg 2015/07/13 4:22 PM, Soto, Paula

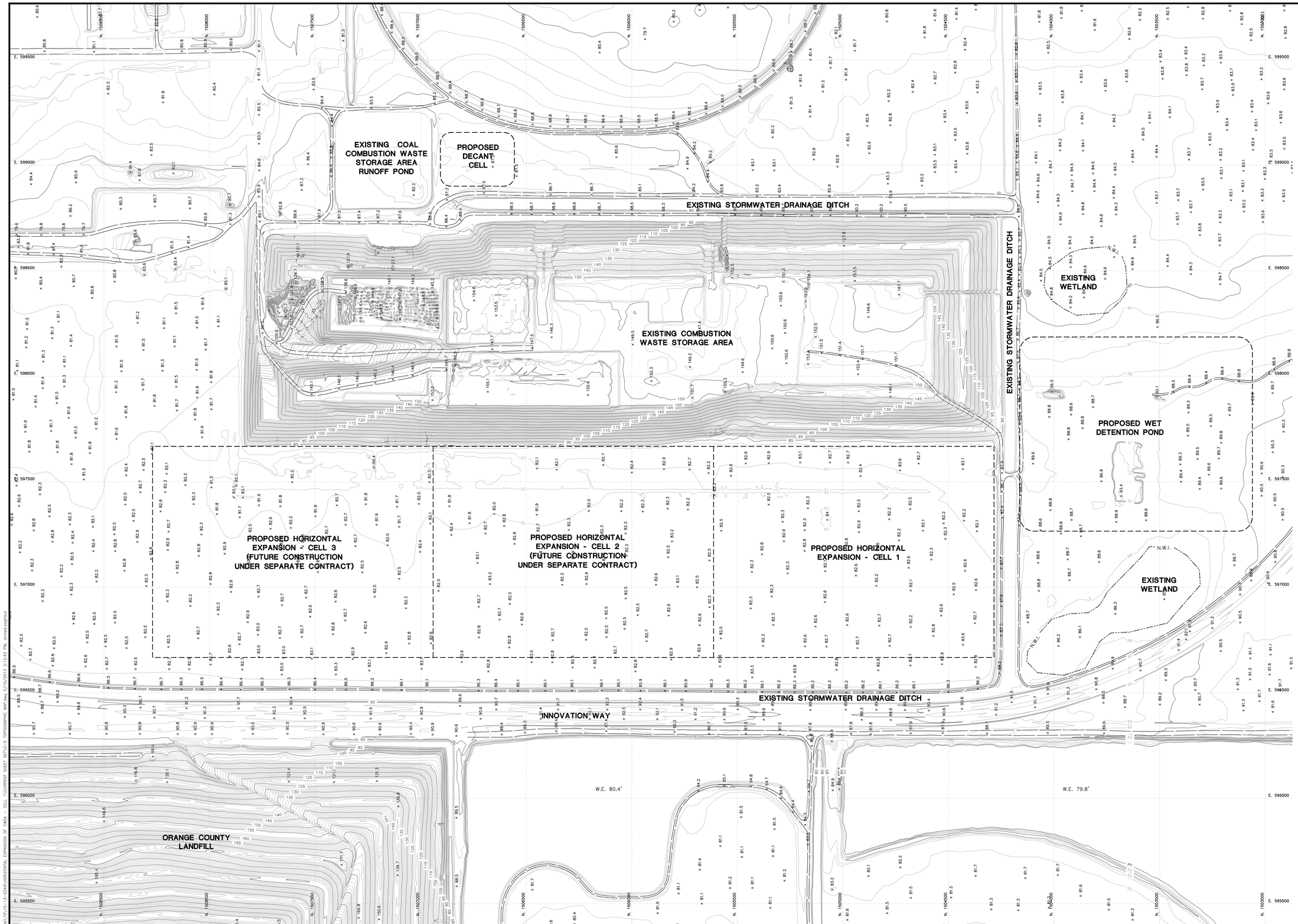
Appendix 4

Selected Construction Drawings for Horizontal Expansion of Combustion Waste Storage Area Cell 1, CWSA Runoff Pond, and Decant Cell

Index of Drawings Included in This Appendix

Drawing Number	Title
G-5	Topographic Map
G-9	Force Main Pipeline Plan
CS-6	Leachate Collection System Plan
CS-7	Final Grading Plan*
CS-7A	Rain Tarp Plan for Piggyback
CS-8	Final Configuration - Conceptual Closure Plan
CS-9	Final Configuration - Cross Sections
P-1	Proposed Wet Detention Pond Plan and Details
3-16	As-Built Survey of Wet Detention Pond
D-2	Sump Details and Cross Sections
M-1	Leachate Collection Pump and Piping P&ID Diagram
M-2	Leachate Collection Pump and Piping Typical Details
CS-9	CWSA Runoff Pond Soil Cement Final Grading Plan
CS-14	CWSA Runoff Pond Soil Cement Final Grading Cross Sections
DC-7	Decant Cell Plan and Gravel Filter Details
DC-10	Decant Cell Final Grading Cross Sections

*For bottom liner/leachate collection system/drainage sand



0 200 400
SCALE: 1"=200'

TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA.
SURVEY DATE: 07/19/2011
DATUM: NAVD (1988)

TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

REVISION	DATE	DESCRIPTION	APPR'D
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0	01/27/12	ISSUED FOR CONSTRUCTION	MH
P3	01/26/12	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	MH
P2	12/01/11	ISSUED FOR PERMITTING	MH
P1	11/16/11	ISSUED FOR CLIENT REVIEW	MH

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/11	CHECKED BY	FKC	12/01/11
DRAWN BY	AZ	10/06/11	CHECKED BY	DTC	12/20/11
FILE NO.: 10-13-0249			SCALE: 1" = 200'		

APPROVED BY:

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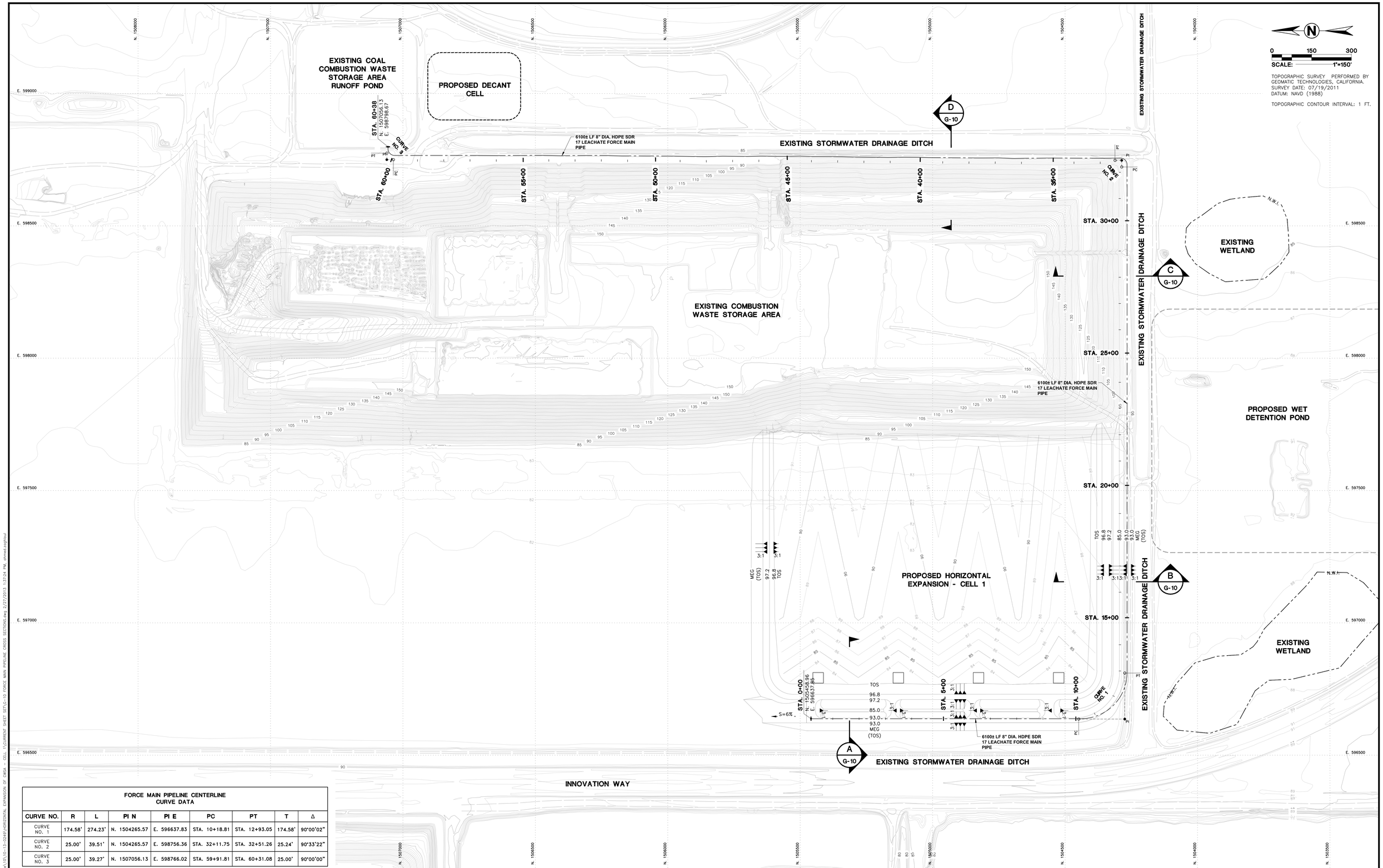
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

TOPOGRAPHIC MAP

DRAWING NO.
G-5

\\Ardaman2\cad\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\G-5 TOPOGRAPHIC MAP.dwg 5/15/2013 2:12:43 PM, ahmed.zaghloul



FORCE MAIN PIPELINE CENTERLINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
CURVE NO. 1	174.58'	274.23'	N. 1504265.57	E. 596637.83	STA. 10+18.81	STA. 12+93.05	174.58'	90°00'02"
CURVE NO. 2	25.00'	39.51'	N. 1504265.57	E. 598756.36	STA. 32+11.75	STA. 32+51.26	25.24'	90°33'22"
CURVE NO. 3	25.00'	39.27'	N. 1507056.13	E. 598766.02	STA. 59+91.81	STA. 60+31.08	25.00'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D
0	1/27/2012	ISSUED FOR CONSTRUCTION	
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: 1" = 150'		

APPROVED BY:

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

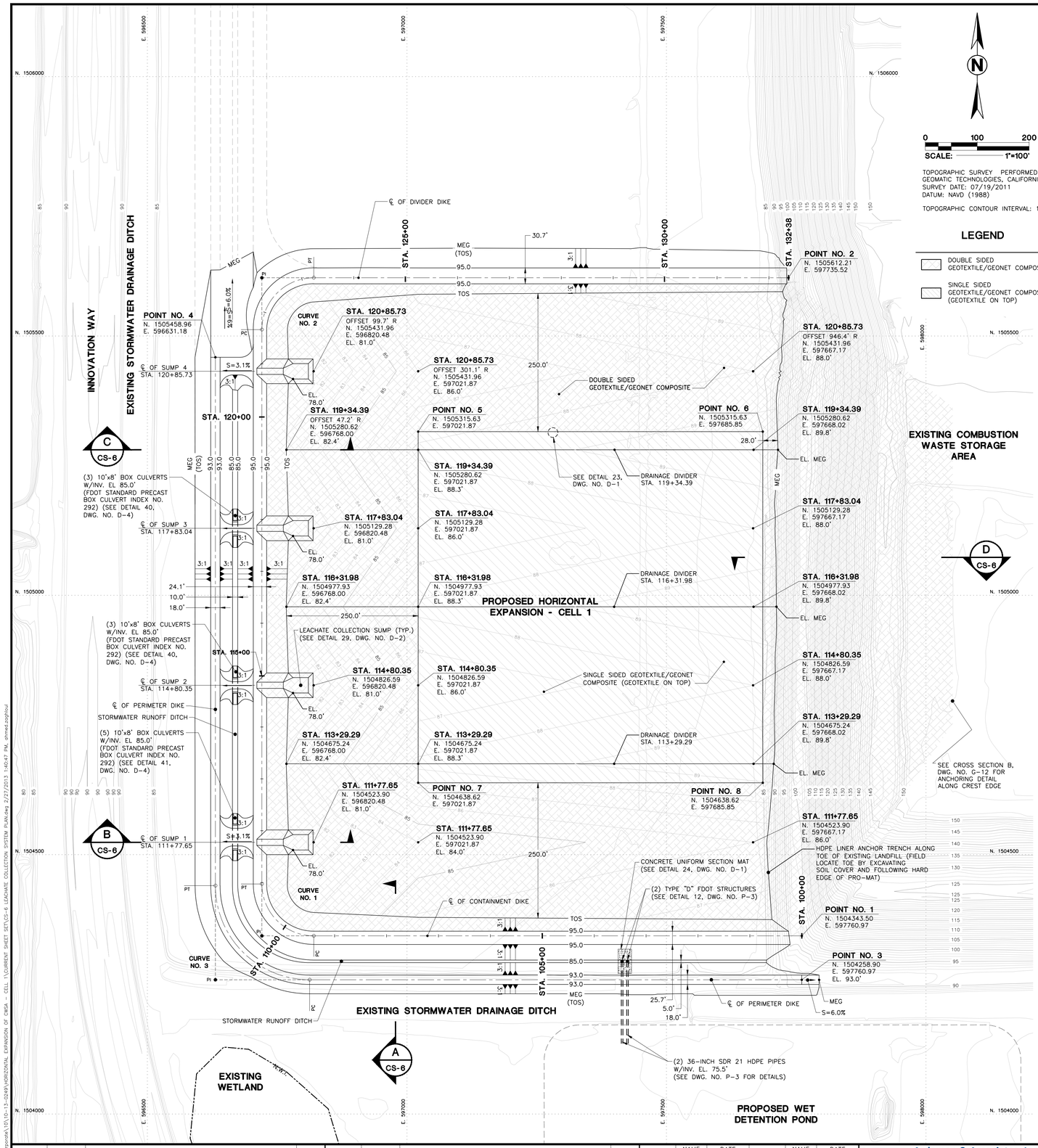
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

FORCE MAIN PIPELINE PLAN

DRAWING NO. G-9

\\Ardaster\Cost\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\G-10 FORCE MAIN PIPELINE CROSS SECTIONS.dwg 2/27/2013 1:37:24 PM, ahmed.zogifoul



N

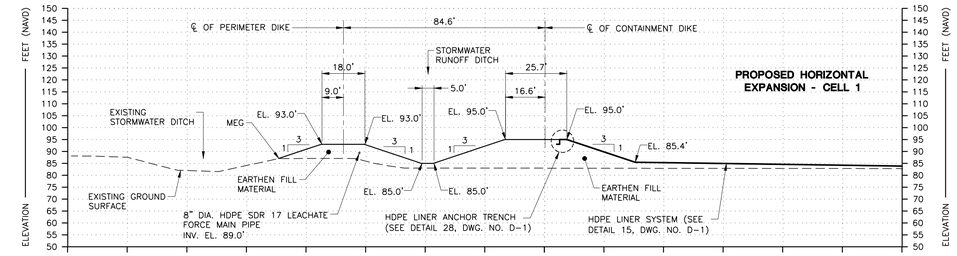
SCALE: 0 100 200 1"=100'

TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA.
SURVEY DATE: 07/19/2011
DATUM: NAVD (1988)

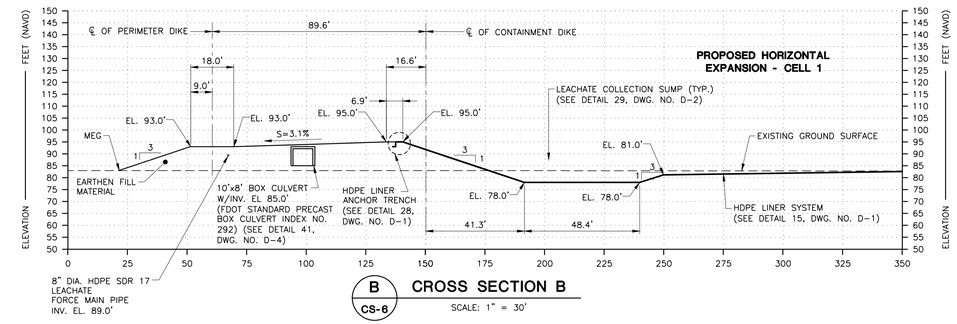
TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

LEGEND

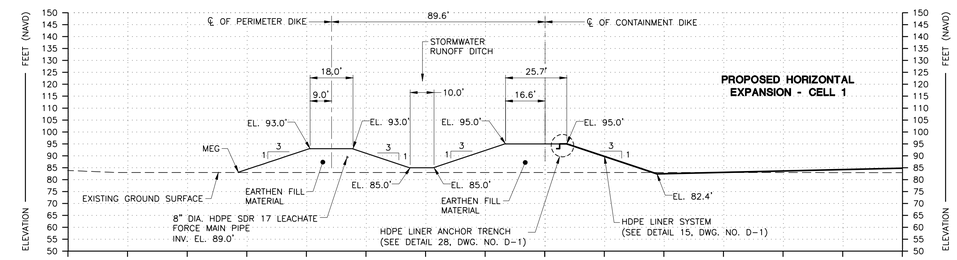
- DOUBLE SIDED GEOTEXTILE/GEONET COMPOSITE
- SINGLE SIDED GEOTEXTILE/GEONET COMPOSITE (GEOTEXTILE ON TOP)



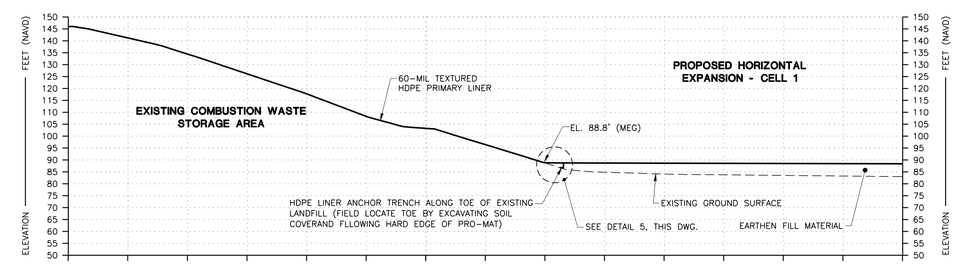
A CS-6 CROSS SECTION A
SCALE: 1" = 30'



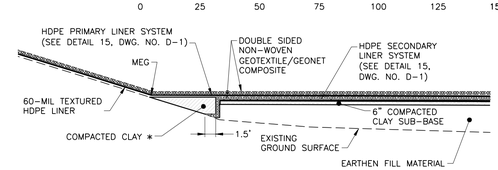
B CS-6 CROSS SECTION B
SCALE: 1" = 30'



C CS-6 CROSS SECTION C
SCALE: 1" = 30'



D CS-6 CROSS SECTION D
SCALE: 1" = 30'



* NOTE: INSTALL LDS GEOCOMPOSITE PRIOR TO BACKFILLING AND COMPACTING THE ANCHOR TRENCH

5 CS-6 HDPE LINER ANCHOR DETAIL
SCALE: 1" = 10'

PROPOSED HORIZONTAL EXPANSION DIKE CENTERLINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
NO. 1	100.00'	157.08'	N. 1504343.50	E. 596720.78	STA. 109+40.19	STA. 110+97.27	100.00'	90°00'00"
NO. 2	100.00'	157.08'	N. 1505612.21	E. 596720.78	STA. 121+65.98	STA. 123+23.06	100.00'	90°00'00"
NO. 3	181.50'	285.10'	N. 1504258.90	E. 596631.18	STA. 9+48.29	STA. 12+33.39	181.50'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D
0	1/27/2012	ISSUED FOR CONSTRUCTION	
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

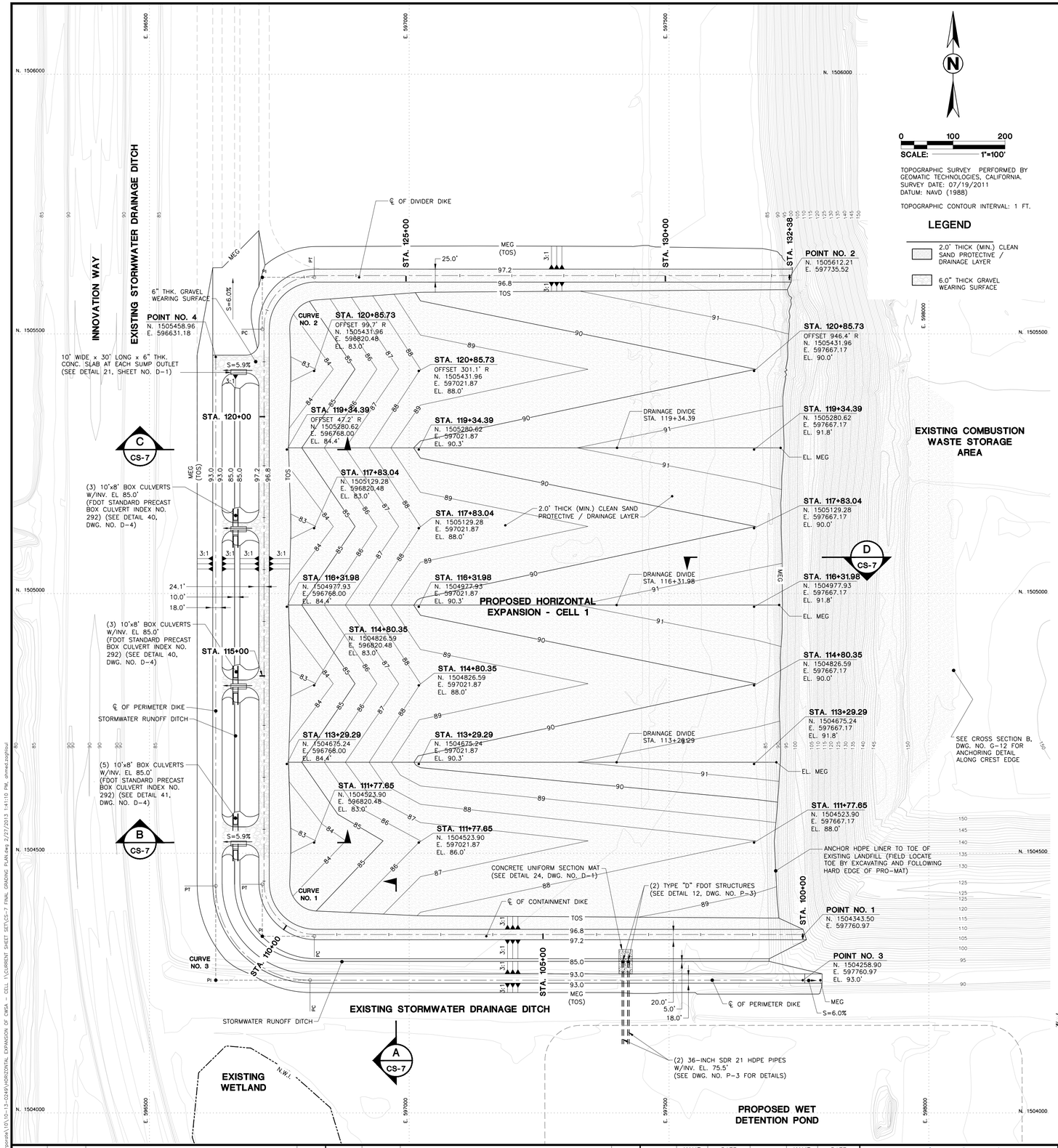
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

LEACHATE COLLECTION SYSTEM PLAN

DRAWING NO. CS-6

\\Alliedtech\Cosd\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\CS-6 LEACHATE COLLECTION SYSTEM PLAN.dwg 2/27/2013 1:40:47 PM, ahmed.zaghloul



N

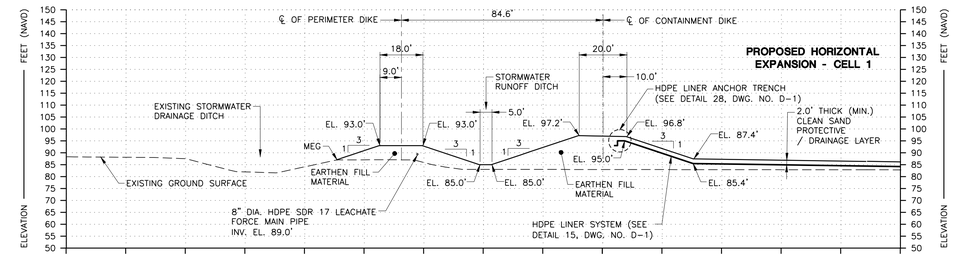
0 100 200
SCALE: 1"=100'

TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA. SURVEY DATE: 07/19/2011
DATUM: NAVD (1988)

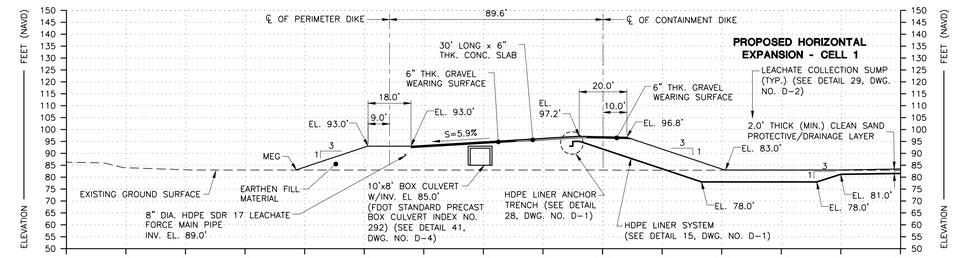
TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

LEGEND

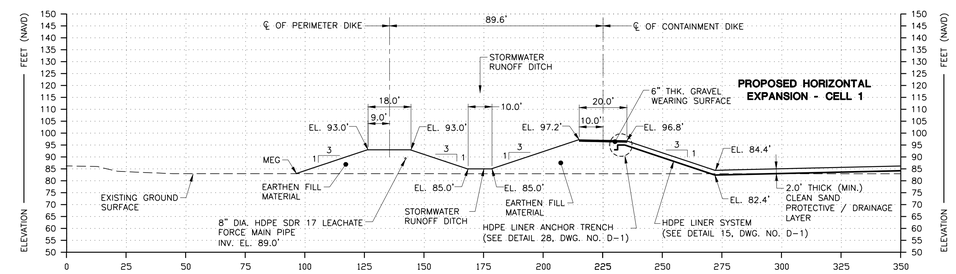
- 2.0" THICK (MIN.) CLEAN SAND PROTECTIVE / DRAINAGE LAYER
- 6.0" THICK GRAVEL WEARING SURFACE



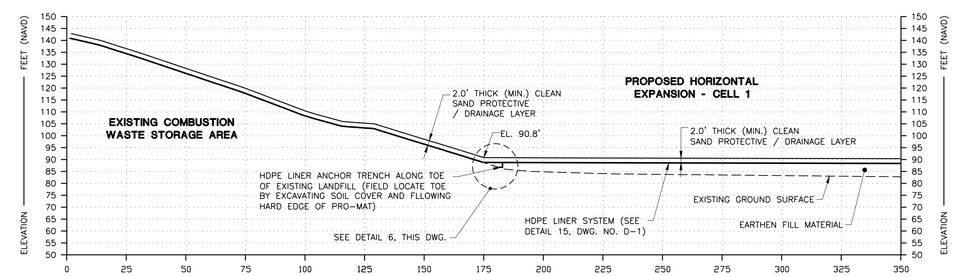
A CS-7 CROSS SECTION A
SCALE: 1" = 30'



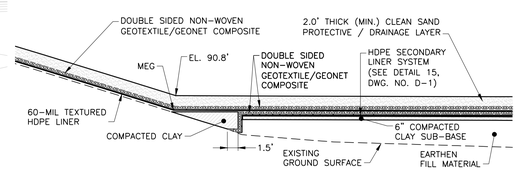
B CS-7 CROSS SECTION B
SCALE: 1" = 30'



C CS-7 CROSS SECTION C
SCALE: 1" = 30'



D CS-7 CROSS SECTION D
SCALE: 1" = 30'



6 CS-7 HDPE LINER ANCHOR DETAIL
SCALE: 1" = 10'

PROPOSED HORIZONTAL EXPANSION DIKE CENTERLINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
NO. 1	100.00'	157.08'	N. 1504343.50	E. 596720.78	STA. 109+40.19	STA. 110+97.27	100.00'	90°00'00"
NO. 2	100.00'	157.08'	N. 1505612.21	E. 596720.78	STA. 121+65.98	STA. 123+23.06	100.00'	90°00'00"
NO. 3	181.50'	285.10'	N. 1504258.90	E. 596631.18	STA. 9+48.29	STA. 12+33.39	181.50'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D
0	1/27/2012	ISSUED FOR CONSTRUCTION	
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

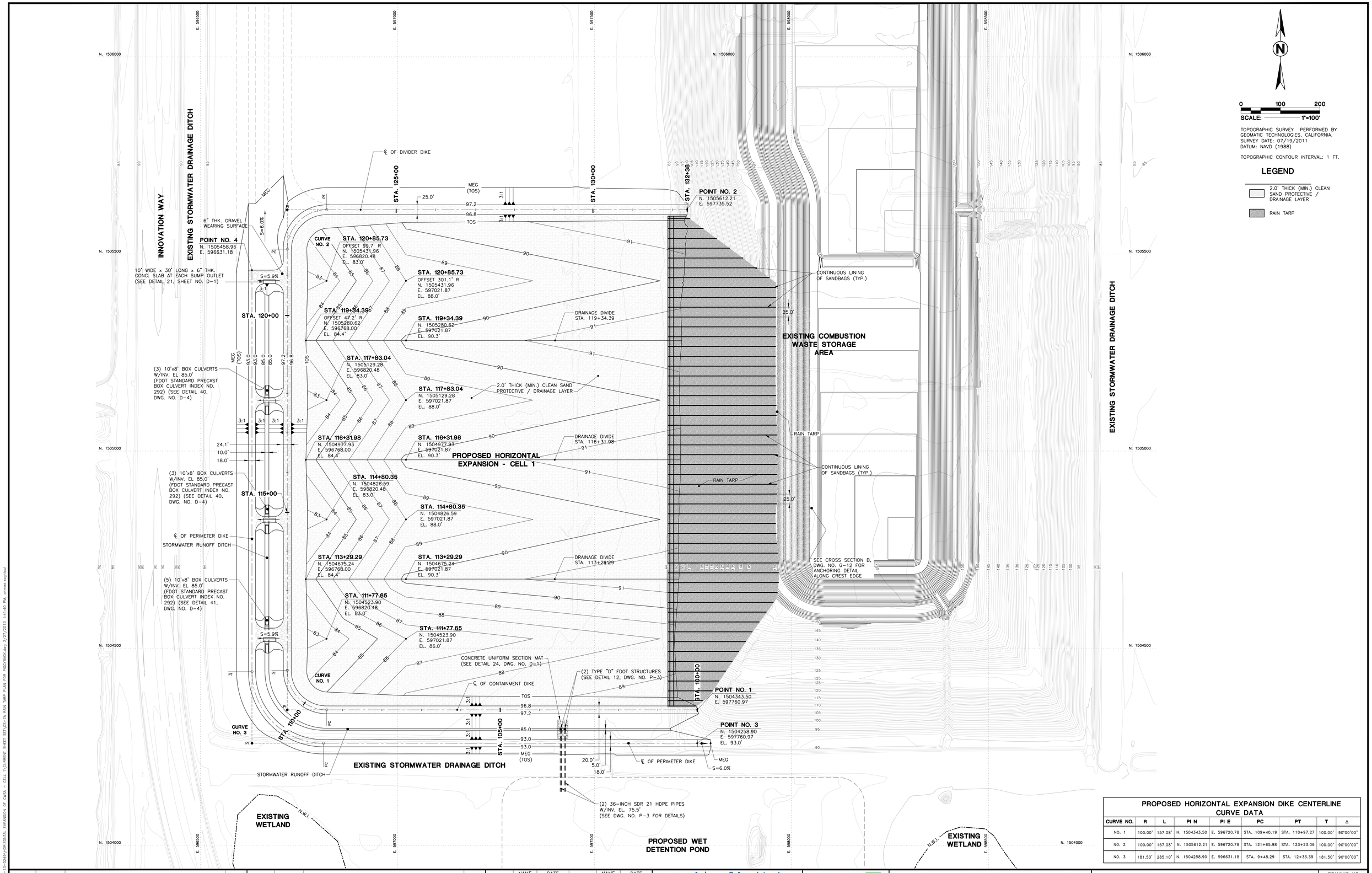
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

FINAL GRADING PLAN

DRAWING NO. CS-7

\\Ardawatter2\ocat\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SETS\CS-7 FINAL GRADING PLAN.dwg 2/27/2013 1:41:10 PM, ahmed.zaghloul



TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA.
SURVEY DATE: 07/19/2011
DATUM: NAVD (1988)

TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

LEGEND

- 2.0' THICK (MIN.) CLEAN SAND PROTECTIVE / DRAINAGE LAYER
- RAIN TARP

PROPOSED HORIZONTAL EXPANSION DIKE CENTERLINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
NO. 1	100.00'	157.08'	N. 1504343.50	E. 596720.78	STA. 109+40.19	STA. 110+97.27	100.00'	90°00'00"
NO. 2	100.00'	157.08'	N. 1505612.21	E. 596720.78	STA. 121+65.98	STA. 123+23.06	100.00'	90°00'00"
NO. 3	181.50'	285.10'	N. 1504258.90	E. 596631.18	STA. 9+48.29	STA. 12+33.39	181.50'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	08/09/2012
DRAWN BY	AZ	08/09/2012	CHECKED BY	TSI	08/09/2012
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

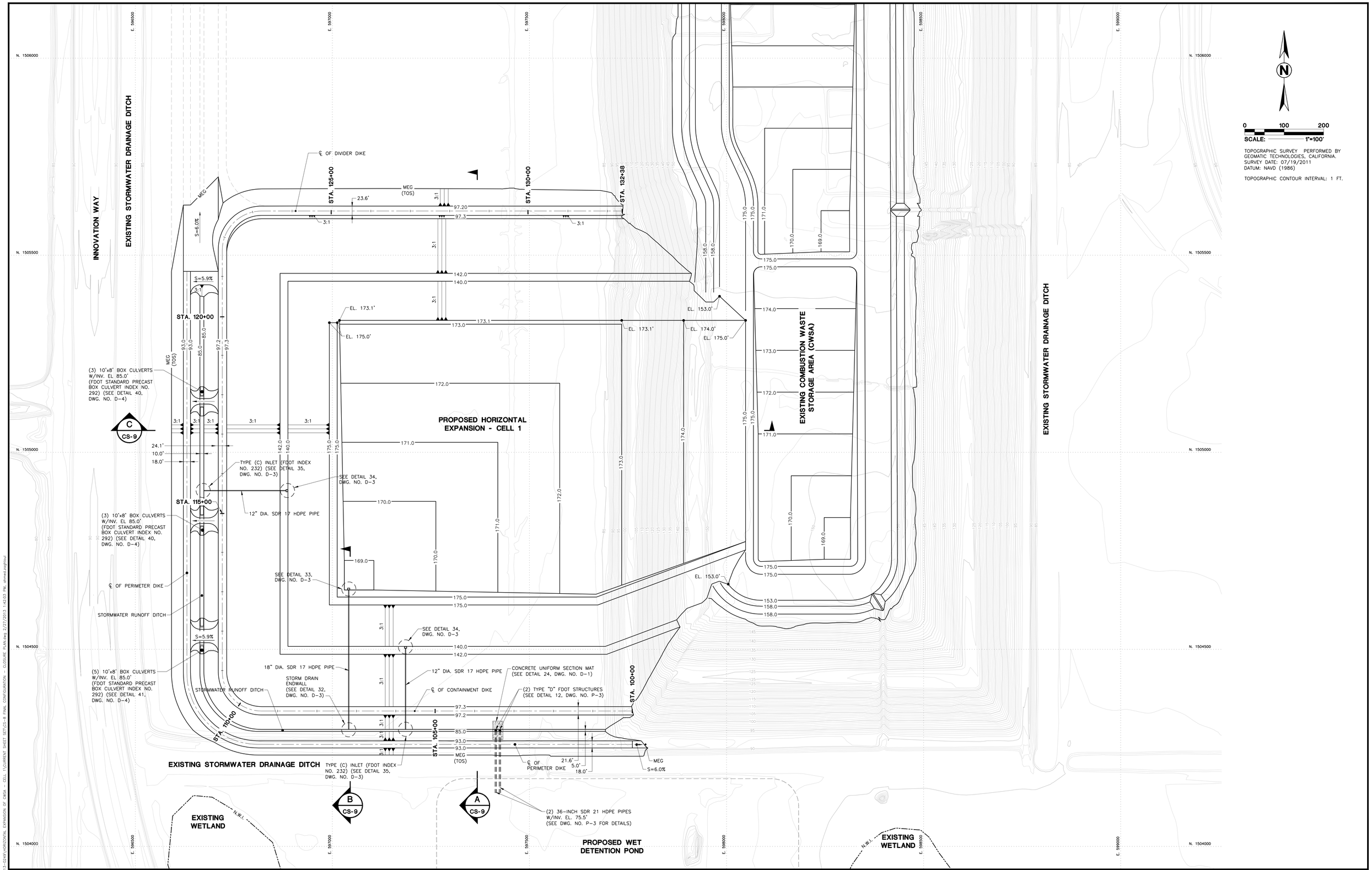
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

RAIN TARP PLAN FOR PIGGYBACK

DRAWING NO. CS-7A

T:\corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\CS-7A RAIN TARP PLAN FOR PIGGYBACK.dwg 2/27/2013 1:41:40 PM, ahmad.zoghloul



REVISION	DATE	DESCRIPTION	APPR'D
0	1/27/2012	ISSUED FOR CONSTRUCTION	
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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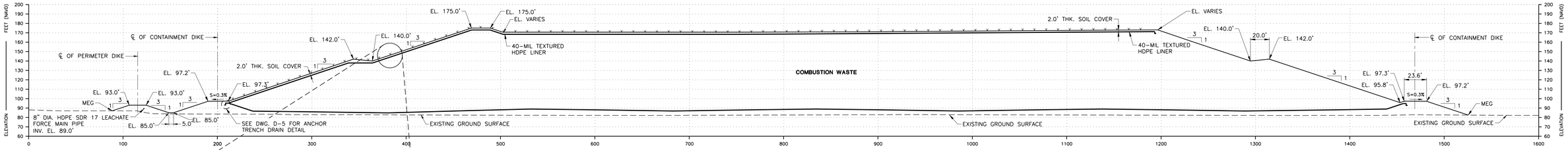
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

FINAL CONFIGURATION - CONCEPTUAL CLOSURE PLAN

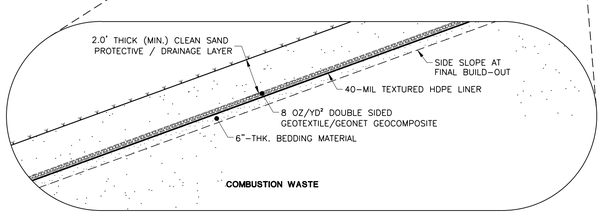
DRAWING NO.
CS-8

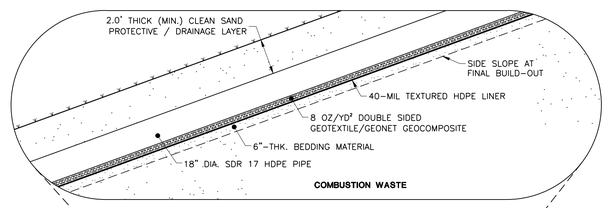
T:\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\CS-8 FINAL CONFIGURATION - CLOSURE PLAN.dwg 2/27/2013 1:42:03 PM, ahmed.zaghloul

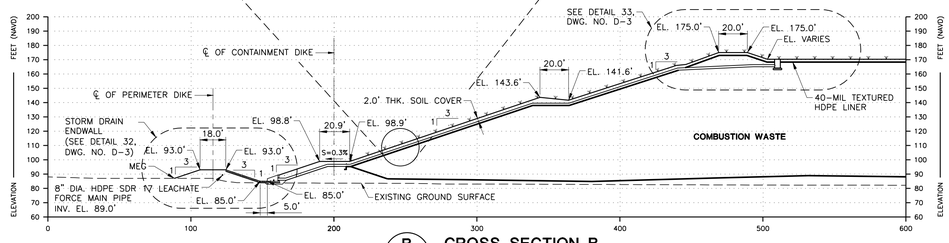


A / CS-8 CROSS SECTION A

SCALE: 1" = 50'

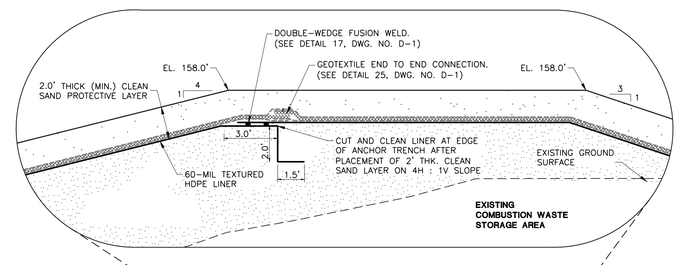


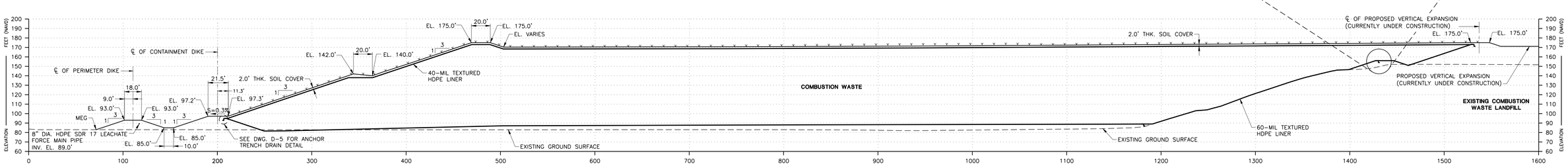




B / CS-8 CROSS SECTION B

SCALE: 1" = 50'





C / CS-8 CROSS SECTION C

SCALE: 1" = 50'

REVISION	DATE	DESCRIPTION	APPR'D
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

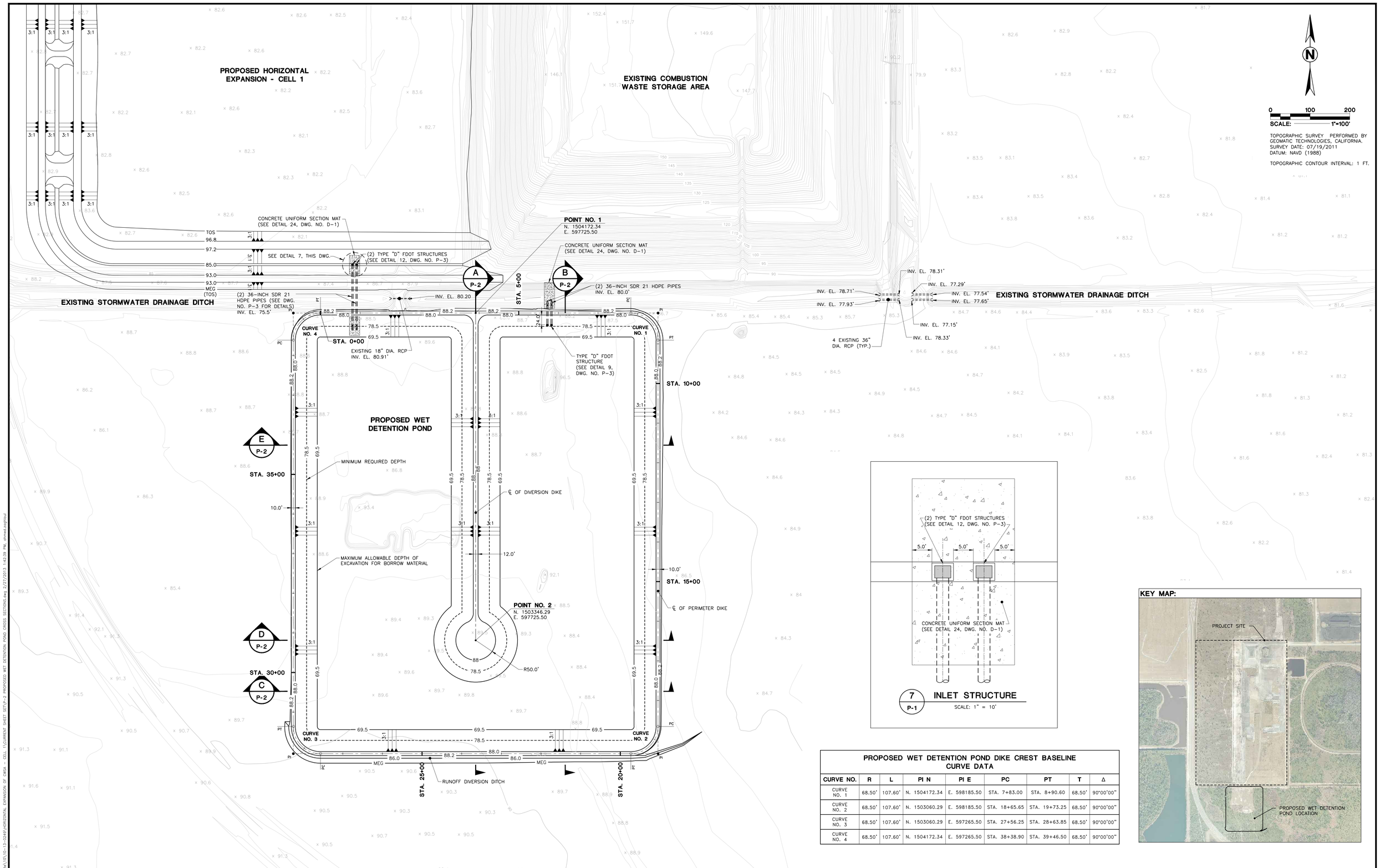
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

FINAL CONFIGURATION - CROSS SECTIONS

DRAWING NO. CS-9

T:\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\CS-8 FINAL CONFIGURATION - CLOSURE PLAN.dwg 2/27/2013 1:42:14 PM, ahmed.zoghloul



PROPOSED WET DETENTION POND DIKE CREST BASELINE CURVE DATA

CURVE NO.	R	L	PI N	PI E	PC	PT	T	Δ
CURVE NO. 1	68.50'	107.60'	N. 1504172.34	E. 598185.50	STA. 7+83.00	STA. 8+90.60	68.50'	90°00'00"
CURVE NO. 2	68.50'	107.60'	N. 1503060.29	E. 598185.50	STA. 18+65.65	STA. 19+73.25	68.50'	90°00'00"
CURVE NO. 3	68.50'	107.60'	N. 1503060.29	E. 597265.50	STA. 27+56.25	STA. 28+63.85	68.50'	90°00'00"
CURVE NO. 4	68.50'	107.60'	N. 1504172.34	E. 597265.50	STA. 38+38.90	STA. 39+46.50	68.50'	90°00'00"

REVISION	DATE	DESCRIPTION	APPR'D
0	1/27/2012	ISSUED FOR CONSTRUCTION	
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

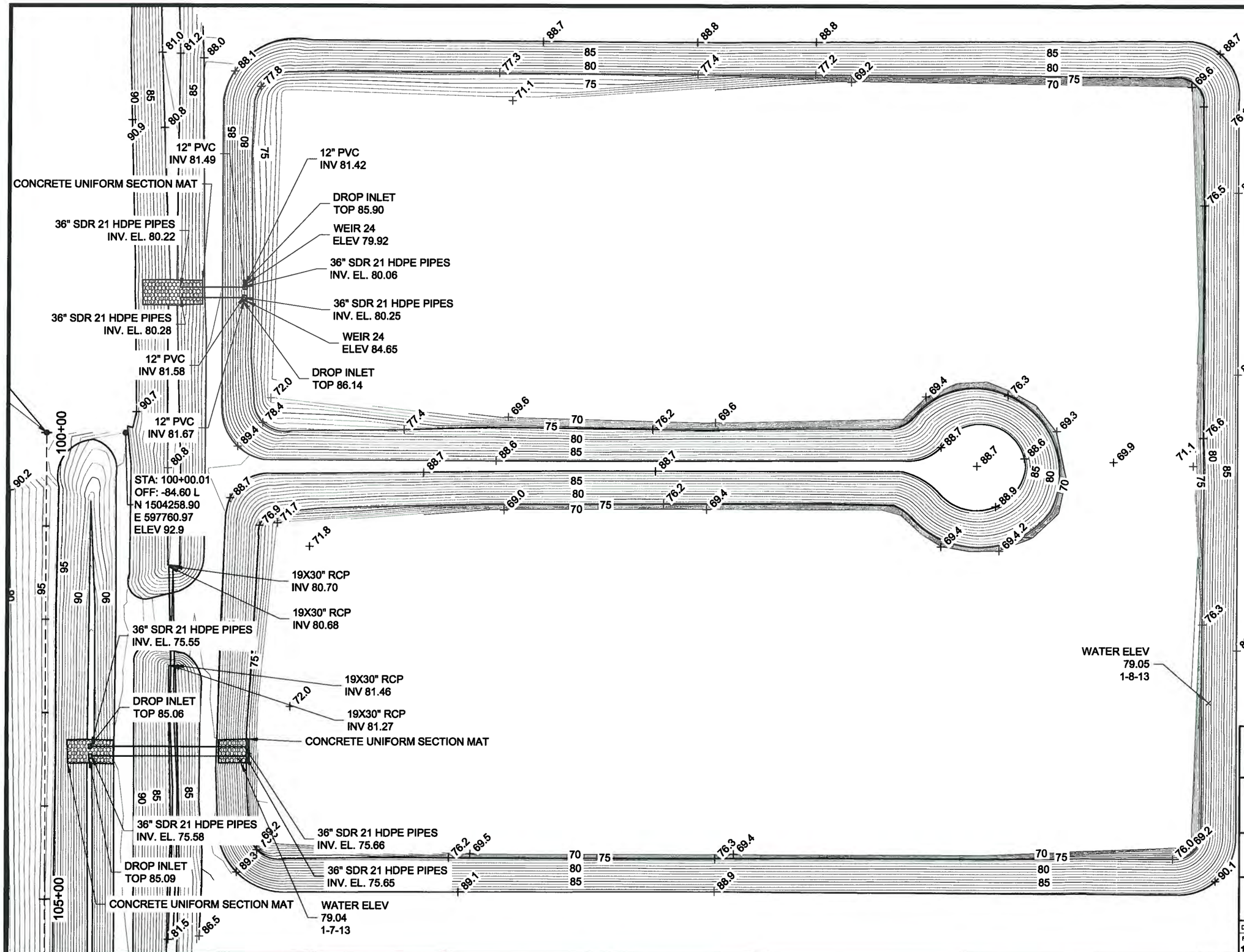
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

PROPOSED WET DETENTION POND PLAN AND DETAILS

DRAWING NO. P-1

\\Ardaman2\ccad\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\P-2 PROPOSED WET DETENTION POND CROSS SECTIONS.dwg 2/27/2013 1:42:39 PM, ahmed.zaghloul



TOPOGRAPHIC SURVEY PERFORMED BY:

TETRA TECH – ENGINEERING & CONSULTING SERVICES (ECS)

DATED: 01/23/2013

AS-BUILT SURVEY OF WET DETENTION POND

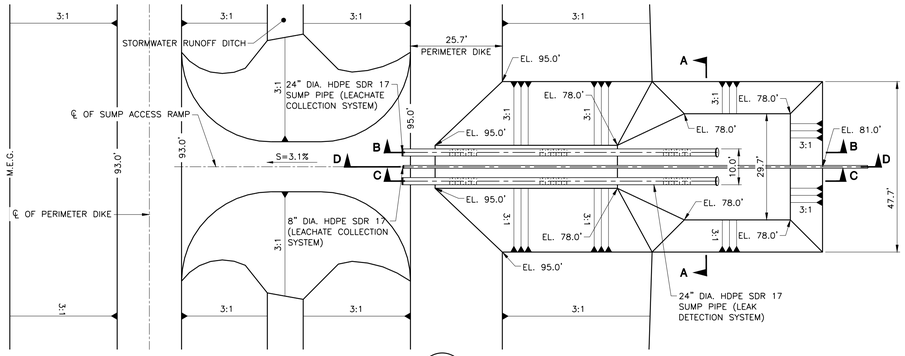
Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1
ORANGE COUNTY, FLORIDA

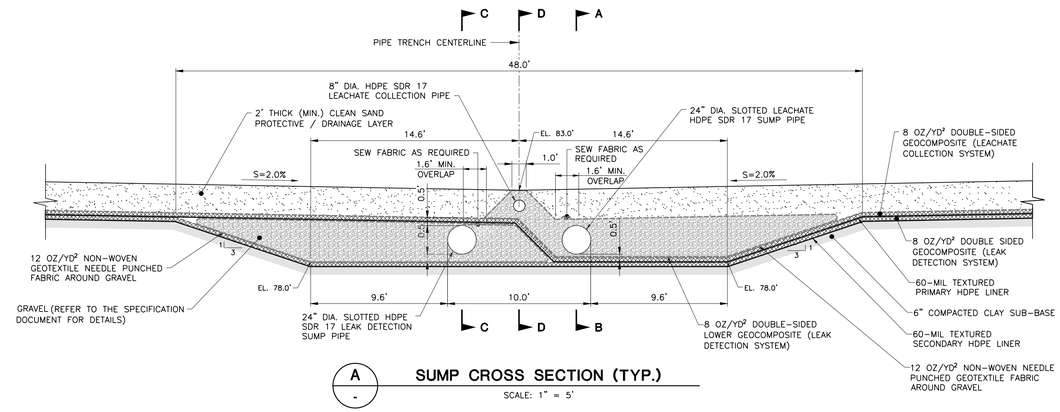
DRAWN BY: AZ	CHECKED BY: JR	DATE: 04/15/13
FILE NO. 10-13-0249	APPROVED BY:	FIGURE: 3-16

T:\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA – CELL 1\REPORT FIGURES_Current Sheet Set\3-16 AS-BUILT SURVEY OF WET DETENTION POND.dwg 4/29/2013 5:46:00 PM, ruben.hoffman



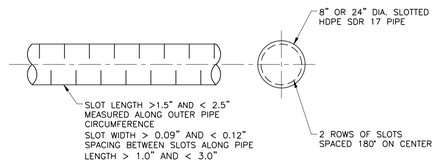
29 SUMP PLAN VIEW

SCALE: 1" = 20'



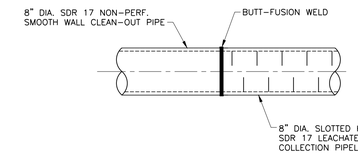
A SUMP CROSS SECTION (TYP.)

SCALE: 1" = 5'



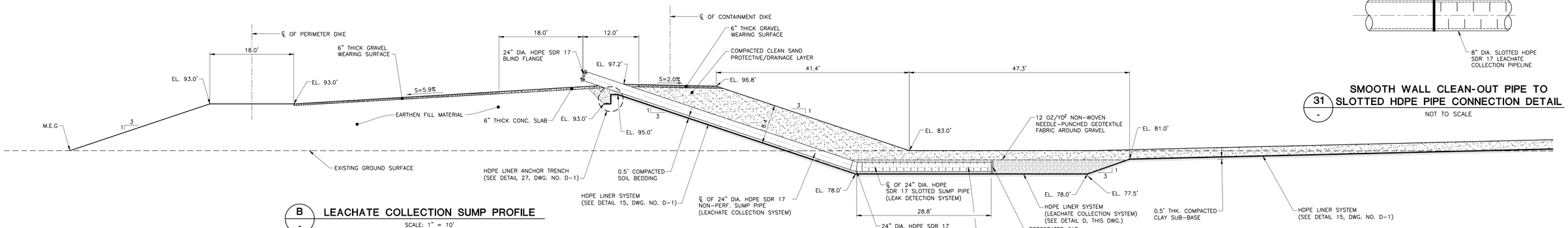
30 SLOTTED HDPE PIPE

NOT TO SCALE



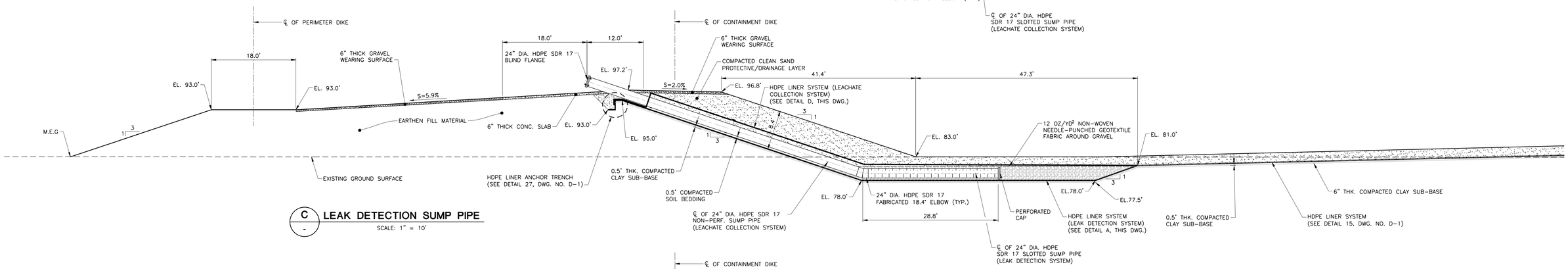
31 SMOOTH WALL CLEAN-OUT PIPE TO SLOTTED HDPE PIPE CONNECTION DETAIL

NOT TO SCALE



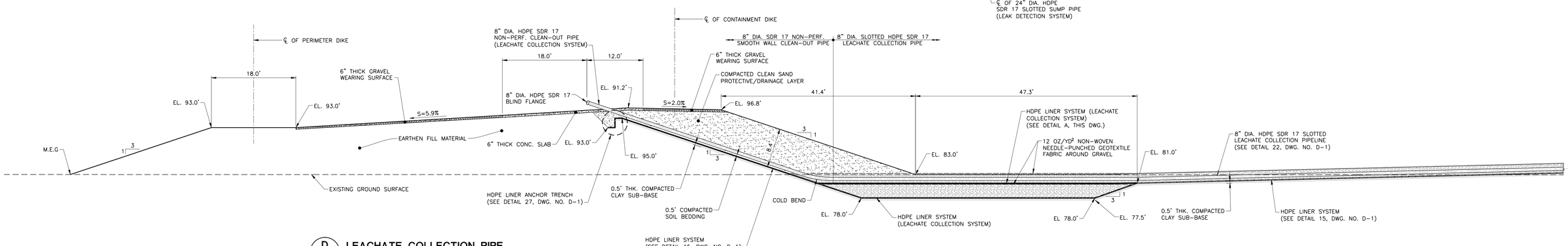
B LEACHATE COLLECTION SUMP PROFILE

SCALE: 1" = 10'



C LEAK DETECTION SUMP PIPE

SCALE: 1" = 10'



D LEACHATE COLLECTION PIPE

SCALE: 1" = 10'

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				0	1/27/2012	ISSUED FOR CONSTRUCTION	
				P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
				P2	12/01/2011	ISSUED FOR PERMITTING	
				P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	DTC	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

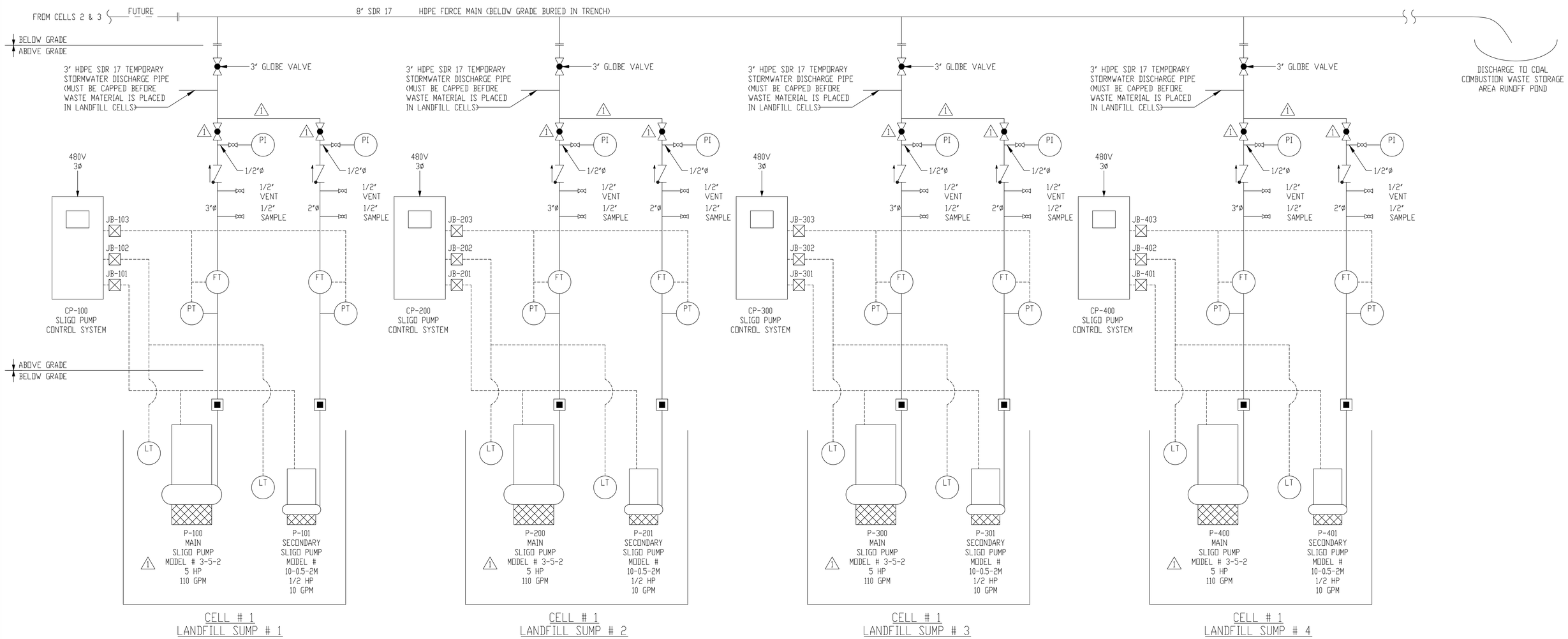
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

SUMP DETAILS AND CROSS SECTIONS

DRAWING NO. D-2

\\Ardaetec2\cost\Corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\D-2 SUMP DETAILS AND CROSS SECTIONS.dwg 2/27/2013 1:43:41 PM, ahmed.zaghloul



LEGEND:

- ☒ BREAKOUT JUNCTION BOX
- ■ THROUGH-RISER QUICK DISCONNECT

REVISION	DATE	DESCRIPTION	APPR'D
P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
P2	12/01/2011	ISSUED FOR PERMITTING	
P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	TSI	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		
APPROVED BY:					

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TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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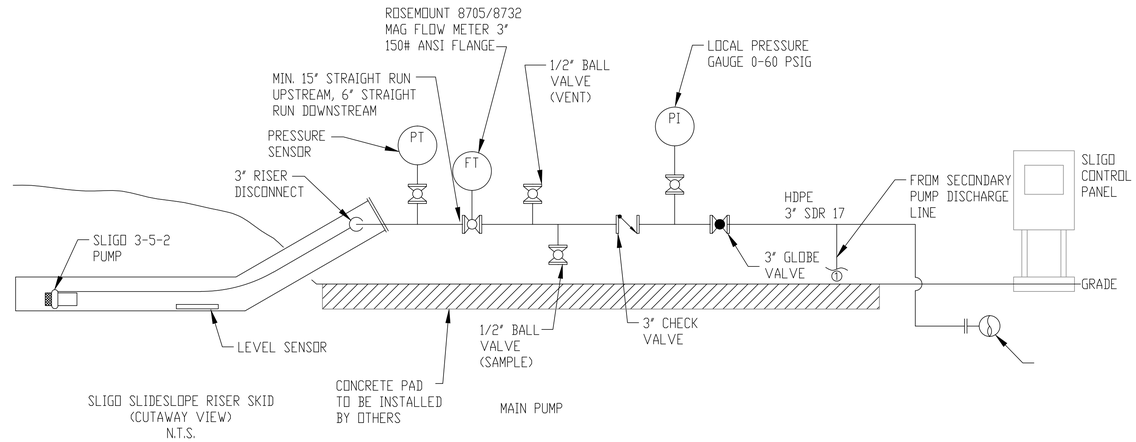
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

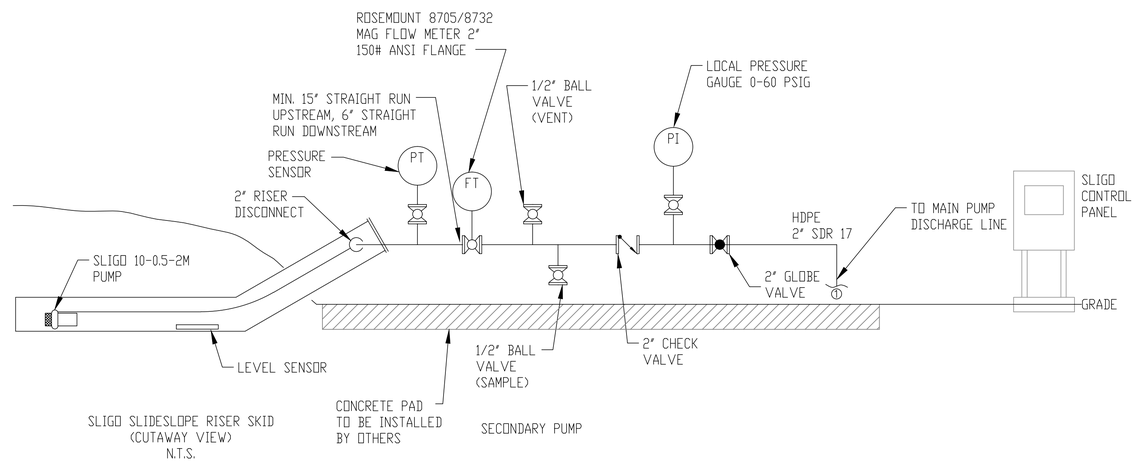
LEACHATE COLLECTION PUMP AND PIPING P&ID DIAGRAM

DRAWING NO. M-1

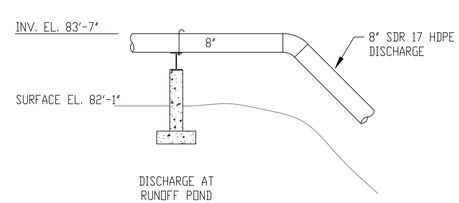
T:\corporate\10\10-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SETV-1 LEACHATE COLLECTION PUMP AND PIPING P&ID DIAGRAM.dwg 2/27/2013 1:45:14 PM, ahmed.zaghloul



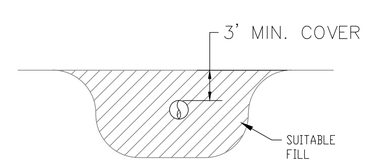
SLIGO SLIDESLOPE RISER SKID
(CUTAWAY VIEW)
N.T.S.



SLIGO SLIDESLOPE RISER SKID
(CUTAWAY VIEW)
N.T.S.



DISCHARGE AT
RUNOFF POND
N.T.S.



TRENCH
N.T.S.

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				P3	1/26/2012	ISSUED FOR PERMITTING – REVISED PER FDEP RAI	
				P2	12/01/2011	ISSUED FOR PERMITTING	
				P1	11/16/2011	ISSUED FOR CLIENT REVIEW	

	NAME	DATE		NAME	DATE
DESIGNED BY	MH	12/01/2011	CHECKED BY	FKC	12/01/2011
DRAWN BY	AZ	10/06/2011	CHECKED BY	TSI	12/20/2011
FILE NO.: 10-13-0249			SCALE: AS SHOWN		

APPROVED BY:

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Geotechnical, Environmental, and Materials Consultants
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TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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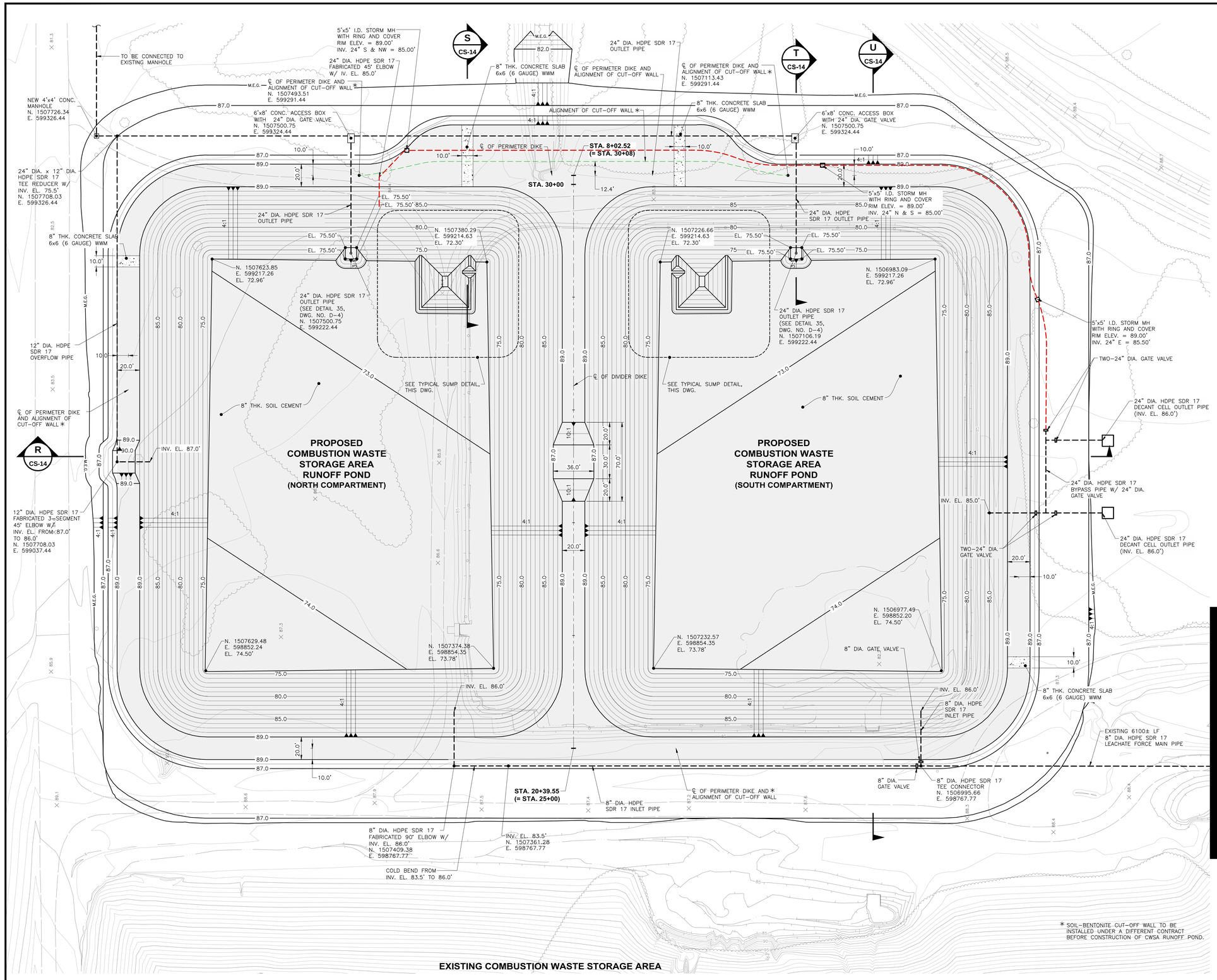
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

LEACHATE COLLECTION PUMP AND PIPING TYPICAL DETAILS

DRAWING NO.
M-2

T:\corporate\1\0\1-13-0249\HORIZONTAL EXPANSION OF CWSA - CELL 1\CURRENT SHEET SET\M-2 LEACHATE COLLECTION PUMP AND PIPING TYPICAL DETAILS.dwg 2/27/2013 1:45:20 PM, ahmed.zaghloul



N

0 40 80

SCALE: 1"=40'

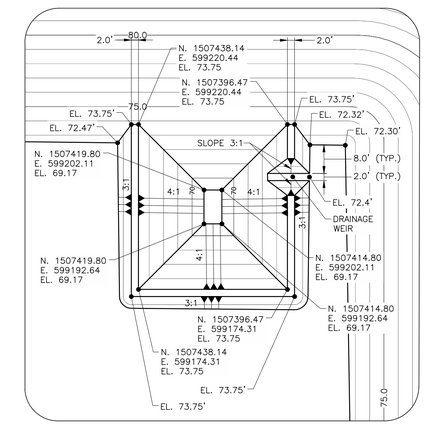
TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA. SURVEY DATE: 07/19/2011

DATUM: NAVD (1988)

TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

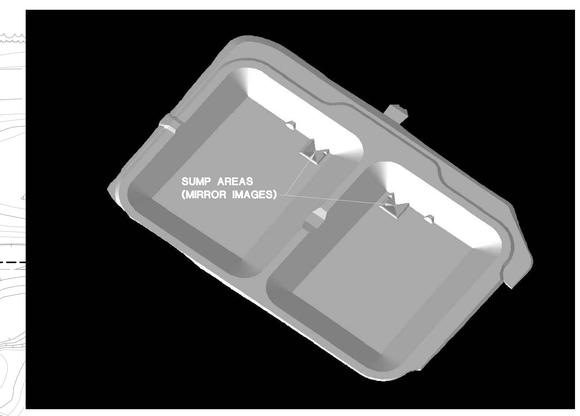
LEGEND

SOIL CEMENT



TYPICAL SUMP DETAIL

SCALE: 1" = 20'



3D VIEW OF POND AREA

REVISION	DATE	DESCRIPTION	APPR'D
1	05/14/15	REVISED EAST SIDE OF SITE AND ADDED 24" PIPE INFORMATION	
0	08/07/13	ISSUED FOR CONSTRUCTION	
P1	08/02/13	ISSUED FOR REGULATORY REVIEW	
P0	04/15/13	ISSUED FOR PRELIMINARY REVIEW MEETING WITH FDEP	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/29/13	CHECKED BY	DTC	04/29/13
DRAWN BY	AAD	04/29/13	CHECKED BY	MH	04/29/13
FILE NO.: 12-13-0166			SCALE: AS SHOWN		
APPROVED BY:					

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TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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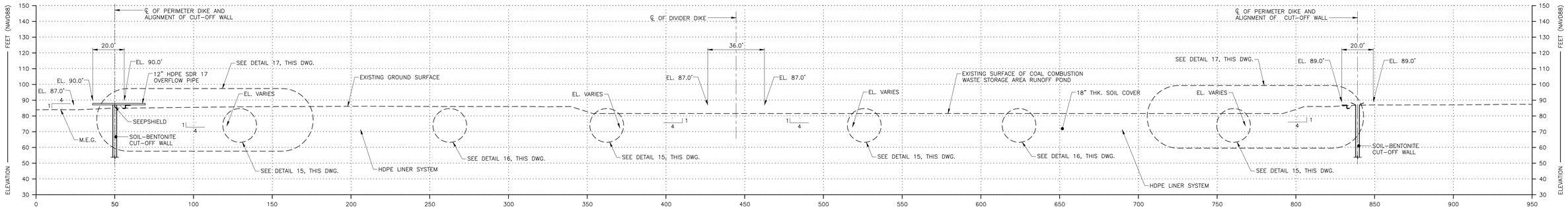
COMBUSTION WASTE STORAGE AREA RUNOFF POND

OUC STANTON ENERGY CENTER ORANGE COUNTY, FLORIDA

SOIL CEMENT FINAL GRADING PLAN

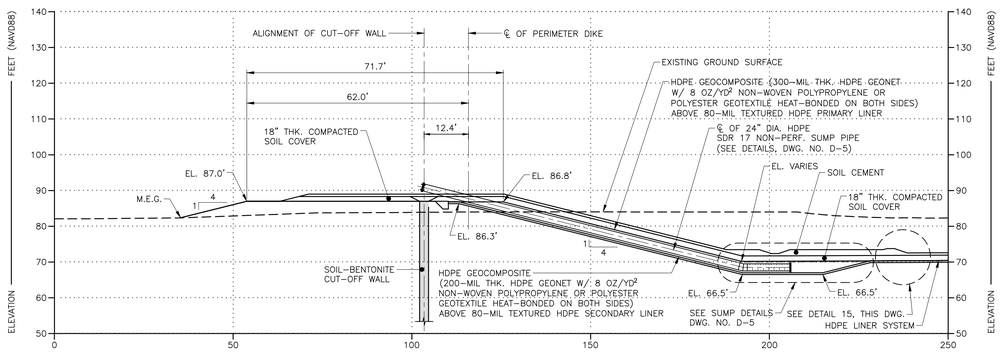
DRAWING NO. CS-9

C:\Users\Carol.Stone\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\NSPS9PN5\CS-9 SOIL CEMENT FINAL GRADING PLAN.dwg 7/21/2015 10:48:10 AM, carol.stone



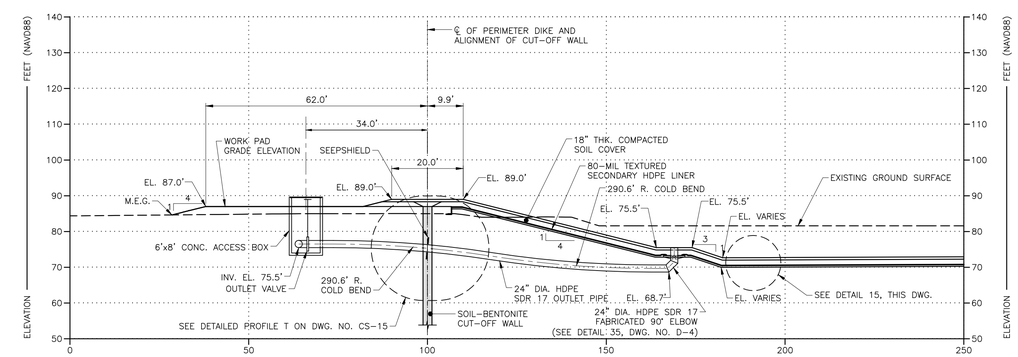
R CS-9 **CROSS SECTION R**

SCALE: 1" = 30'



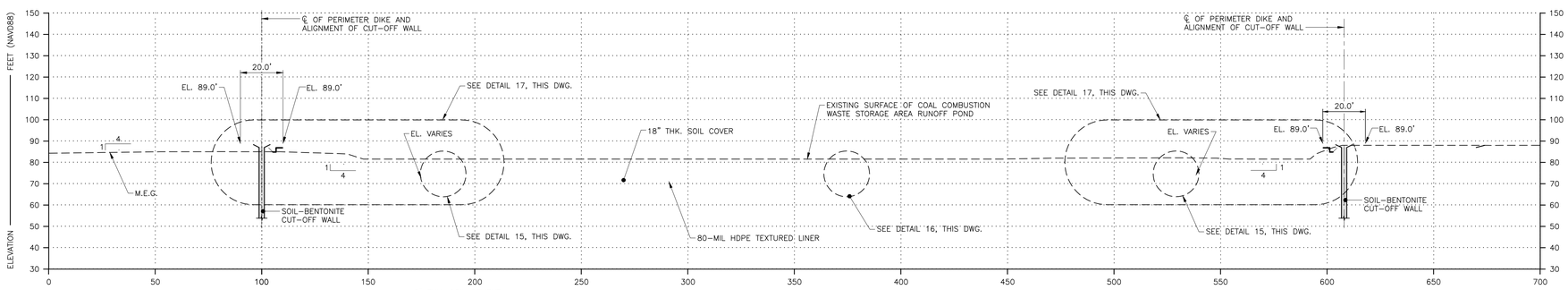
S CS-9 **CROSS SECTION S**

SCALE: 1" = 20'



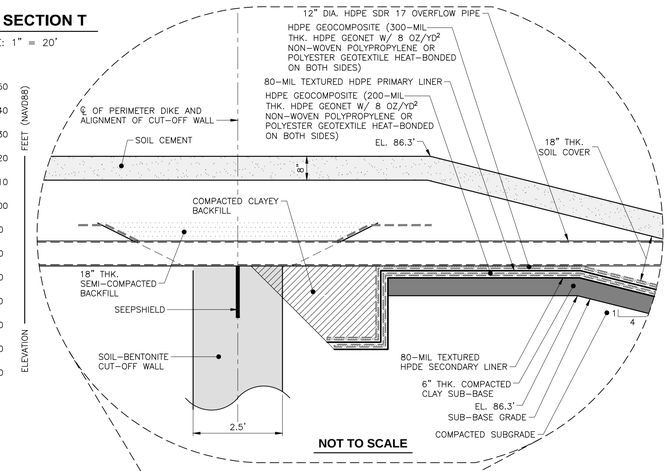
T CS-9 **CROSS SECTION T**

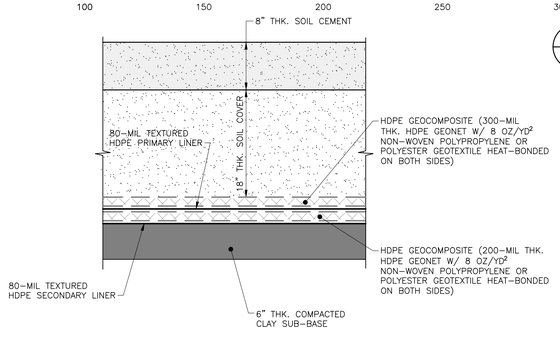
SCALE: 1" = 20'



U CS-9 **CROSS SECTION U**

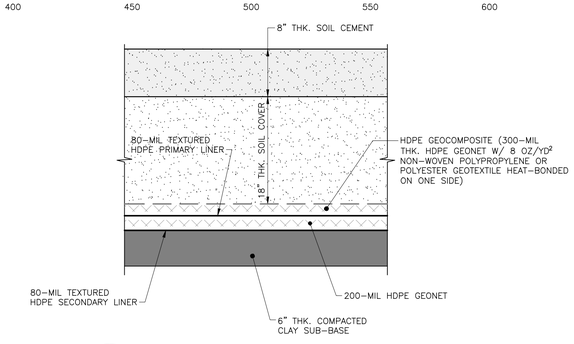
SCALE: 1" = 30'





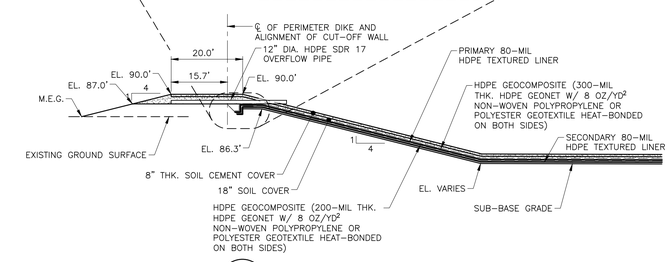
15 - **TYPICAL FINAL GRADE DETAIL**

SCALE: 1" = 1'



16 - **TYPICAL FINAL GRADE DETAIL**

SCALE: 1" = 1'



17 - **TYPICAL FINAL GRADE DETAIL**

SCALE: 1" = 20'

REVISION	DATE	DESCRIPTION	APPR'D
1	05/14/15	REMOVED SECONDARY LINER ANCHOR TRENCH	
0	08/07/13	ISSUED FOR CONSTRUCTION	
P1	08/02/13	ISSUED FOR REGULATORY REVIEW	
P0	04/15/13	ISSUED FOR PRELIMINARY REVIEW MEETING WITH FDEP	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/29/13	CHECKED BY	DTC	04/29/13
DRAWN BY	BTW	04/29/13	CHECKED BY	MH	04/29/13
FILE NO.: 12-13-0166			SCALE: AS SHOWN		
APPROVED BY:					

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Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

COMBUSTION WASTE STORAGE AREA RUNOFF POND

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

SOIL CEMENT FINAL GRADING CROSS SECTIONS

DRAWING NO. CS-14

C:\Users\Carol.Stone\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Outlook\NSPS9PR5\CS-14 FINAL GRADING CROSS SECTIONS.dwg 7/21/2015 10:46:13 AM, carol.stone

SCALE: 1"=30'

TOPOGRAPHIC SURVEY PERFORMED BY GEOMATIC TECHNOLOGIES, CALIFORNIA. SURVEY DATE: 07/19/2011

DATUM: NAVD (1988)

TOPOGRAPHIC CONTOUR INTERVAL: 1 FT.

COMBUSTION WASTE STORAGE AREA RUNOFF POND (SOUTH COMPARTMENT)

INLET DETAILS WILL BE PROVIDED IN THE CWSA RUNOFF POND DESIGN DRAWINGS

℄ OF DIVIDER DIKE

℄ OF PERIMETER DIKE AND ALIGNMENT OF CUT-OFF WALL

DECANT CELL (EAST COMPARTMENT)

DECANT CELL (WEST COMPARTMENT)

DECANT GRAVEL FILTER (SEE DETAIL 3, THIS DWG.)

24" DIA. HDPE SDR 17 OUTLET PIPE (INV. EL. 86.0')

℄ OF DECANT CELL DIVIDER DIKE

℄ OF DECANT CELL PERIMETER DIKE

STA. 100+00 (= STA. 110+14.77)

STA. 101+00

STA. 102+00

STA. 103+00

STA. 104+00

STA. 105+00

STA. 106+00

STA. 107+00

STA. 108+00

STA. 109+00

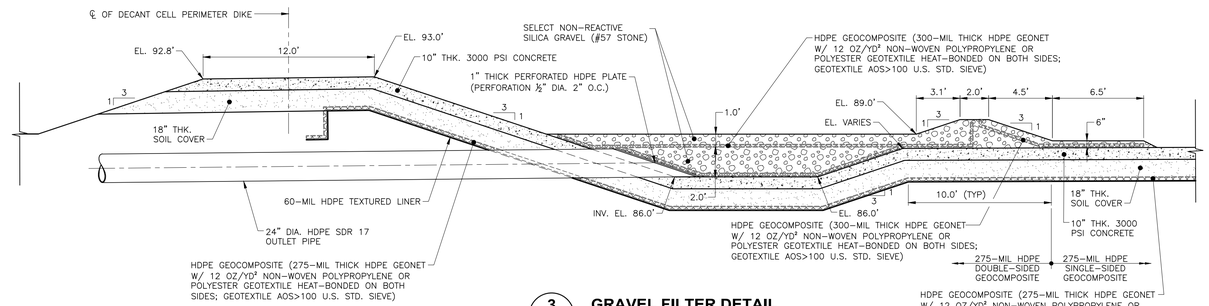
STA. 110+00

STA. 111+00

STA. 112+00

STA. 112+84 (= STA. 105+07.39)

S=8.0%



3 / - GRAVEL FILTER DETAIL

SCALE: 1" = 5'

REVISION	DATE	DESCRIPTION	APPR'D
P3	10/11/13	ISSUED FOR CONSTRUCTION	
P2	08/07/13	ISSUED FOR BID	
P1	05/03/13	ISSUED FOR PERMITTING	
P0	04/15/13	ISSUED FOR PRELIMINARY REVIEW MEETING WITH FDEP	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/29/13	CHECKED BY	DTC	04/29/13
DRAWN BY	AAD	04/29/13	CHECKED BY	MH	04/29/13
FILE NO.: 12-13-0166			SCALE: AS SHOWN		
APPROVED BY:					

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Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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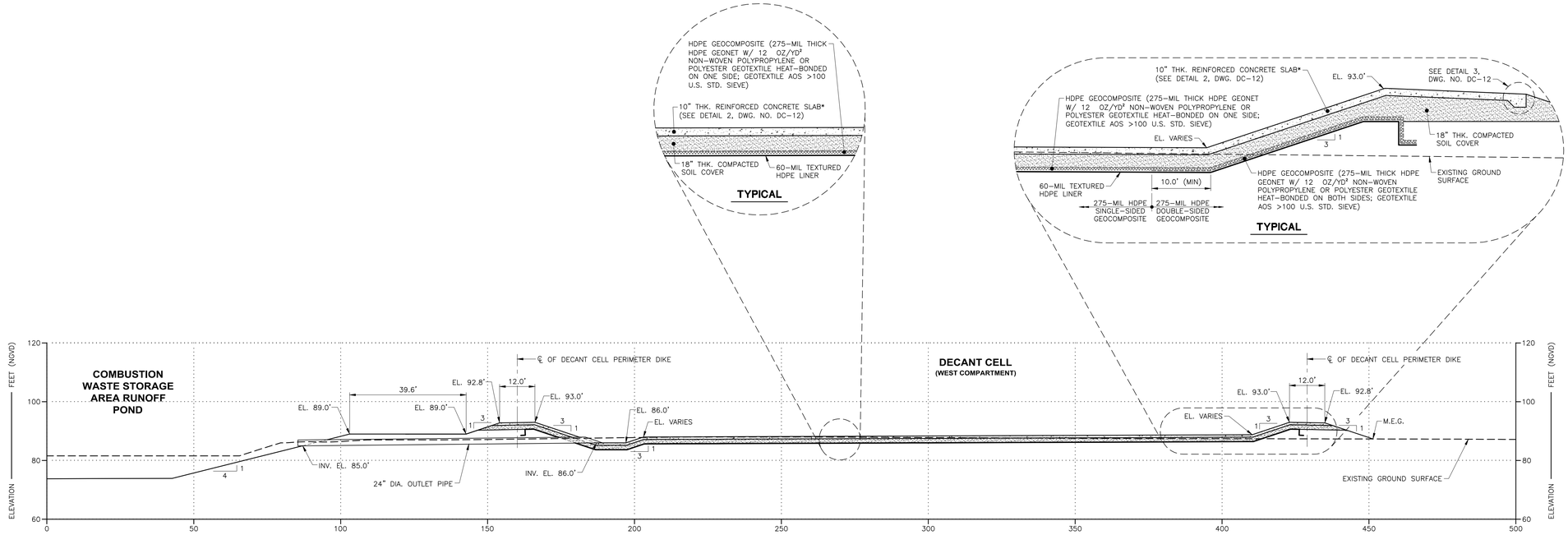
DECANT CELL

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

DECANT CELL GRAVEL FILTER DETAILS

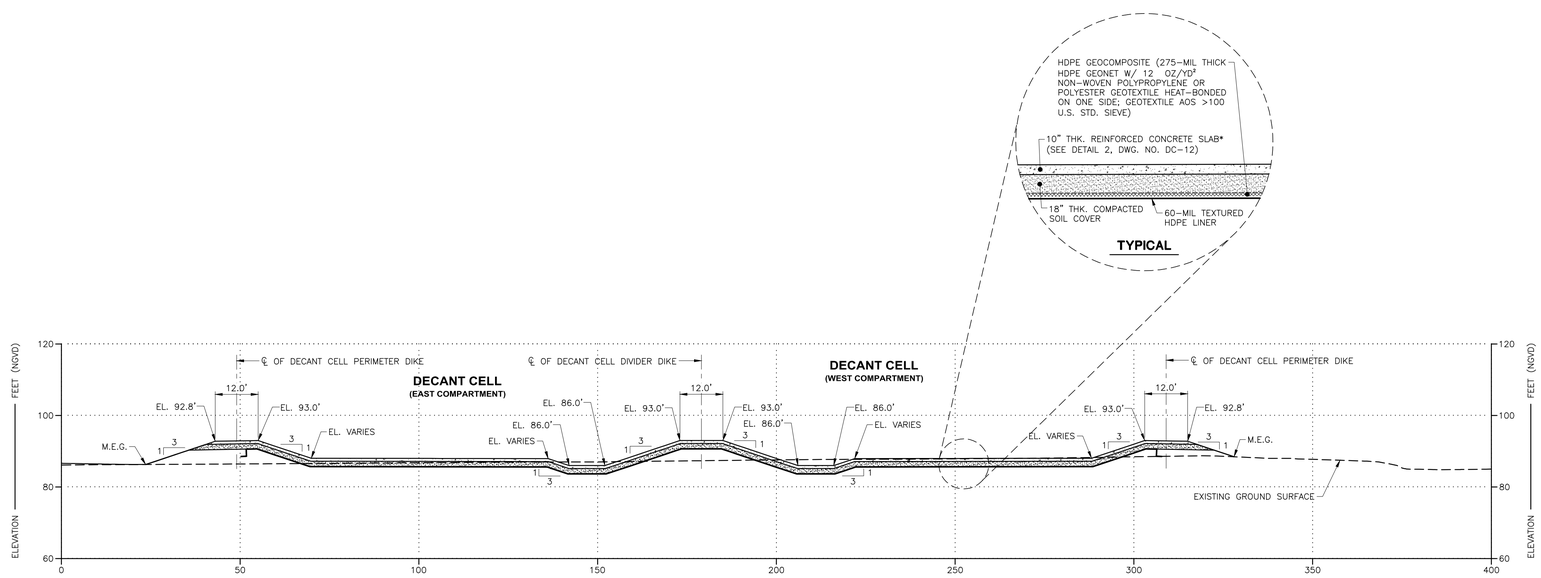
DRAWING NO. DC-7

E:\Corporate\12\12-13-0166\DECANT CELL_Current Sheet Set\DC-7 DECANT CELL GRAVEL FILTER DETAILS.dwg 11/19/2013 10:04:20 AM, Paula.Soto



E / **DC-6** **CROSS SECTION E**

SCALE: 1" = 20'



F / **DC-6** **CROSS SECTION F**

SCALE: 1" = 20'

* EXPANSION JOINTS, CONTROL JOINTS AND REINFORCEMENT DETAILS ARE PROVIDED ON DRAWING NUMBERS DC-11 AND DC-12.

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D
				P3	10/11/13	ISSUED FOR CONSTRUCTION	
				P2	08/07/13	ISSUED FOR BID	
				P1	05/03/13	ISSUED FOR PERMITTING	
				P0	04/15/13	ISSUED FOR PRELIMINARY REVIEW MEETING WITH FDEP	

	NAME	DATE		NAME	DATE
DESIGNED BY	JM	04/29/13	CHECKED BY	DTC	04/29/13
DRAWN BY	AAD	04/29/13	CHECKED BY	MH	04/29/13
FILE NO.: 12-13-0166			SCALE: AS SHOWN		
APPROVED BY:					

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Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
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DECANT CELL

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

DECANT CELL FINAL GRADING CROSS SECTIONS

DRAWING NO. **DC-10**

E:\Corporate\12\12-13-0166\DECANT CELL_Current Sheet Set\DC-10 DECANT CELL FINAL GRADING CROSS SECTIONS.dwg 11/19/2013 10:06:31 AM, Paula.Soto

Appendix 5

Mikon Corporation 2013, 2014, 2015, and 2016 Annual Topographic Surveys for Combustion Waste Storage Landfill

MIKON CORPORATION Consulting Engineers

October 30, 2013

Mr. Brian Moore
Orlando Utilities Commission
5100 South Alafaya Trail
Orlando, FL 32831-2001

RE: Stanton Energy Center
Ash Landfill

Dear Mr. Moore:

We have completed the volume determinations of the Fly Ash Landfill at the Stanton Energy Center. The volume is reported 2 ways: total volume referenced to base, and total volume referenced to constant elevation 82 feet. Total volume includes active and capped areas. The results are as follows:

	Total Volume (cy)[1]	
	Fill	Cut
Volume referenced to base	7,356,200	707
Volume referenced to elevation 82 feet	7,453,968	28

[1] Total = Active Area + Capped Area

Attached is a site topography drawing both in paper format and on disk. Should you have any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us. We appreciate the opportunity to provide our services to Orlando Utilities.

Sincerely,

MIKON Corporation

Bryan W. Davis

Eric E. Coustry

BWD/EEC:js / #113004-3
Attachment

4414 B South 40th Street, St. Joseph, MO 64503 816.364.2890 fax 816.364.2126 mikon@mikoncorp.com

SCALE 1" = 300'
2' CONTOUR INTERVAL

NORTH

0 300

DATE OF SURVEY: SEPTEMBER 14 - 15, 2013

SHEET NOTES:

1. FIELD WORK AND MAPPING FOR LANDFILL TOPOGRAPHY PROVIDED BY MIKON CORPORATION.
2. A FABRIC LINER HAD BEEN INSTALLED IN A PORTION OF THE SOUTHWEST CORNER OF THE LANDFILL (SHOWN AS LINER AREA IN DRAWING). CONTOURS IN THIS AREA WILL BE DEVELOPED WHEN THE LINER AREA IS SURVEYED NEXT YEAR.
3. EXPANSION AREA CONTOURS DEPICT SURFACE OF SOIL FILL AT TIME OF SURVEY.

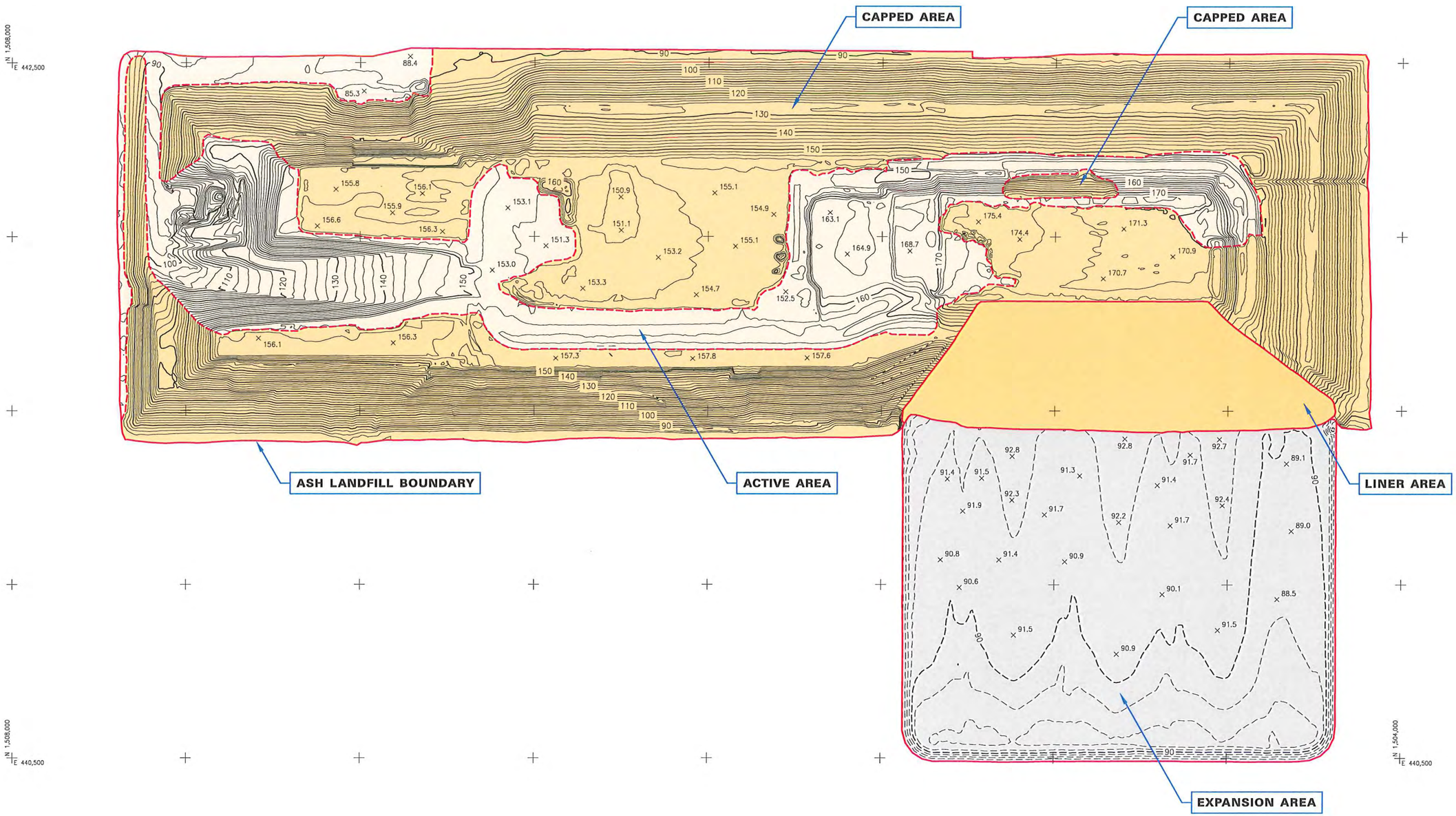
PERMITTED AREA = 315.1 ACRES

ASH LANDFILL

CAPPED AREA	=	59.4 ACRES
ACTIVE AREA	=	23.1 ACRES
LINER AREA	=	8.3 ACRES
TOTAL AREA	=	90.8 ACRES

LANDFILL EXPANSION AREA

EXPANSION AREA	=	27.4 ACRES



PROJECT NO. 113004-3
FILE NAME: STANTON_LF_9_13
DRW. BY: DHS CKD. BY: [illegible]

ORLANDO UTILITIES COMMISSION
5100 ALAFAYA TRAIL
ORLANDO, FLORIDA 32831

MIKON CORPORATION
4414 SOUTH 40th STREET, Suite B
ST. JOSEPH, MISSOURI 64503
816-364-2890 fax: 816-364-2126
email: mikon@mikoncorp.com

ORLANDO UTILITIES COMMISSION

STANTON ENERGY CENTER; ORLANDO, FLORIDA

ASH LANDFILL TOPOGRAPHY

DATE: 10/30/13

SHEET 1 of 1

MIKON CORPORATION Consulting Engineers

September 25, 2014

Mr. Brian Moore
Orlando Utilities Commission
5100 South Alafaya Trail
Orlando, FL 32831-2001

RE: Stanton Energy Center
Ash Landfill

Dear Mr. Moore:

We have completed the volume determinations of the Fly Ash Landfill at the Stanton Energy Center. The volume is reported 2 ways: total volume referenced to base, and total volume referenced to constant elevation 82 feet. Total volume includes active and capped areas. The results are as follows:

	Total Volume (cy)[1]	
	Fill	Cut
Volume referenced to base	7,694,607	592
Volume referenced to elevation 82 feet	7,790,925	28

[1] Total = Active Area + Capped Area

Attached is a site topography drawing both in paper format and on disk. Should you have any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us. We appreciate the opportunity to provide our services to Orlando Utilities.

Sincerely,

MIKON Corporation

Bryan W. Davis

David J. Kramer

BWD/DJK:js / #114004-3
Attachment

4414 B South 40th Street, St. Joseph, MO 64503 816.364.2890 fax 816.364.2126 mikon@mikoncorp.com

SCALE 1" = 300'
2' CONTOUR INTERVAL

NORTH

0 300

DATE OF SURVEY: AUGUST 28 - 29, 2014.

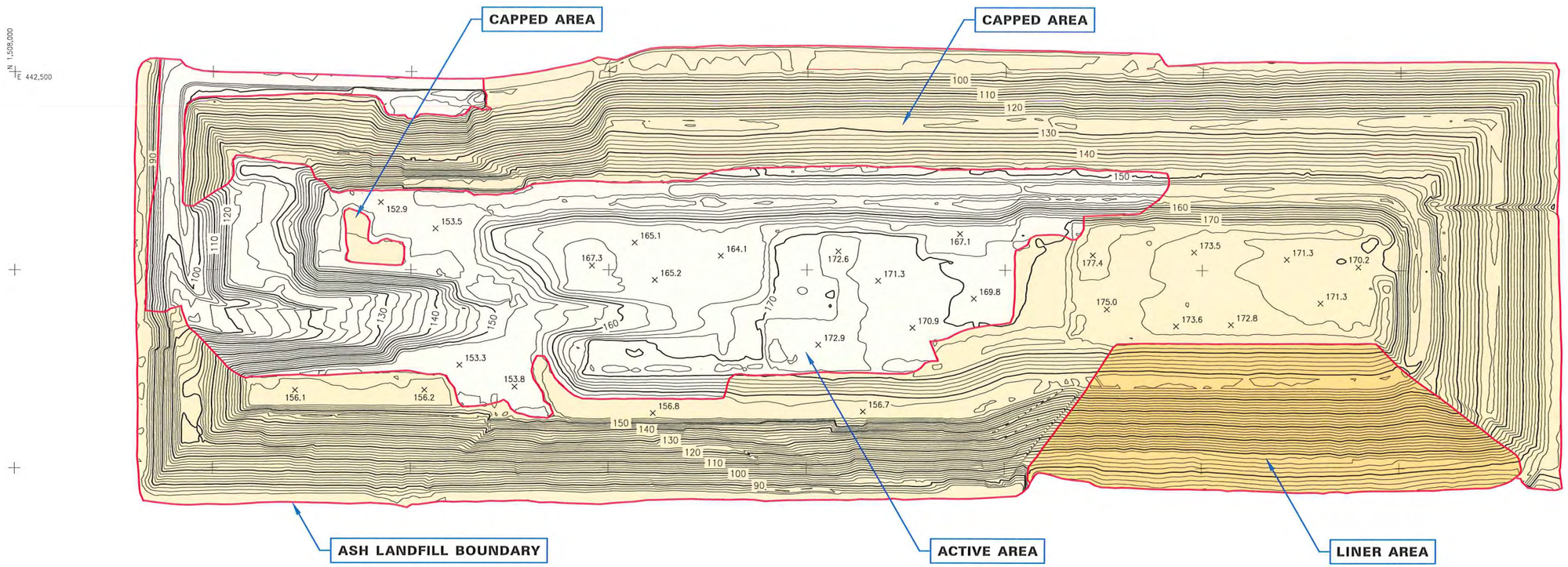
SHEET NOTES:

1. FIELD WORK AND MAPPING FOR LANDFILL TOPOGRAPHY PROVIDED BY MIKON CORPORATION.
2. A FABRIC LINER HAD BEEN INSTALLED IN A PORTION OF THE SOUTHWEST CORNER OF THE LANDFILL (SHOWN AS LINER AREA IN DRAWING).

PERMITTED AREA = 315.1 ACRES

ASH LANDFILL

CAPPED AREA	=	55.2 ACRES
ACTIVE AREA	=	27.3 ACRES
LINER AREA	=	8.3 ACRES
TOTAL AREA	=	90.8 ACRES



PROJECT NO. 114004-3
FILE NAME: STANTON_LF_B_14
DRW. BY: DHS | CKD. BY: BJP

ORLANDO UTILITIES COMMISSION
5100 ALAFAYA TRAIL
ORLANDO, FLORIDA 32831

MIKON CORPORATION
4414 SOUTH 40th STREET, Suite B
ST. JOSEPH, MISSOURI 64503
816-364-2890 fax: 816-364-2126
email: mikon@mikoncorp.com

ORLANDO UTILITIES COMMISSION

STANTON ENERGY CENTER; ORLANDO, FLORIDA

ASH LANDFILL TOPOGRAPHY

DATE: 9/24/14

SHEET 1 of 1

MIKON CORPORATION Consulting Engineers

December 29, 2015

Mr. Brian Moore
Orlando Utilities Commission
5100 South Alafaya Trail
Orlando, FL 32831-2001

RE: Stanton Energy Center
Ash Landfill

Dear Mr. Moore:

We have completed the volume determinations of the Fly Ash Landfill at the Stanton Energy Center. The volume of the vertical area is reported 2 ways: total volume referenced to base, and total volume referenced to constant elevation 82 feet. Total volume includes active and capped areas. The reported total volume of the horizontal area is referenced to base. The results are as follows:

VOLUMES

Dates of Survey: December 10-12, 2015

Area	Reference Datum	Type of Volume	Fill (cy)	Cut (cy)
Vertical	Base [1]	Total	8,321,093	11
Vertical	Elev. 82.0 [2]	Total	8,427,227	0
Horizontal	Base [3]	Total	140,131	7

[1] Base model developed by MIKON Corporation from survey data provided by OUC.
[2] Reference datum = constant elevation 82.0', per Client.
[3] Base model developed by MIKON Corporation from survey data obtained September 2013.

Attached is a site topography drawing both in paper format and on disk. Should you have any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us. We appreciate the opportunity to provide our services to Orlando Utilities.

Sincerely,

MIKON Corporation

Bryan W. Davis

David J. Kramer

BWD/DJK:js / #115002-4
Attachments: Landfill Topography Drawing (11 x 17) and CD

4414 B South 40th Street, St. Joseph, MO 64503 816.364.2890 fax 816.364.2126 mikon@mikoncorp.com

SCALE 1" = 300'
2' CONTOUR INTERVAL

NORTH

0 300

PERMITTED AREA = 315.1 ACRES

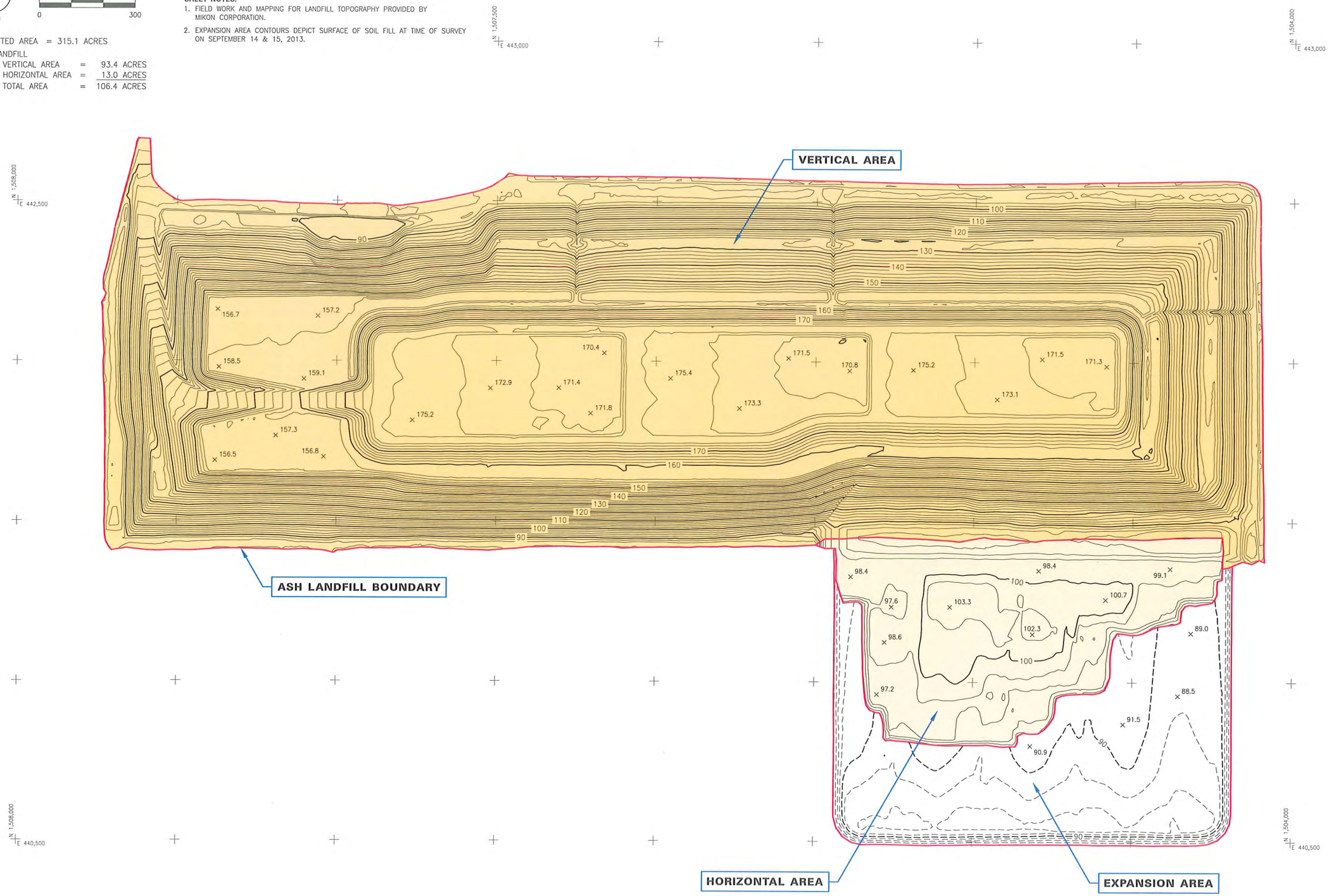
ASH LANDFILL

VERTICAL AREA	=	93.4 ACRES
HORIZONTAL AREA	=	13.0 ACRES
TOTAL AREA	=	106.4 ACRES

DATE OF SURVEY: DECEMBER 10 - 12, 2015

SHEET NOTES:

1. FIELD WORK AND MAPPING FOR LANDFILL TOPOGRAPHY PROVIDED BY MIKON CORPORATION.
2. EXPANSION AREA CONTOURS DEPICT SURFACE OF SOIL FILL AT TIME OF SURVEY ON SEPTEMBER 14 & 15, 2013.



PROJECT NO. 115002-4
FILE NAME: STANTON_LF_12_15
DRW. BY: DHS CKD. BY: DJK

ORLANDO UTILITIES COMMISSION
5100 ALPHA TRAIL
ORLANDO, FLORIDA 32831

MIKON CORPORATION
4414 SOUTH 40th STREET, Suite B
ST. JOSEPH, MISSOURI 64503
816-364-2890 fax: 816-364-2126
email: mikon@mikoncorp.com

ORLANDO UTILITIES COMMISSION

STANTON ENERGY CENTER

ASH LANDFILL TOPOGRAPHY

DATE: 12/28/15

SHEET 1 of 1

MIKON CORPORATION Consulting Engineers

September 14, 2016

Mr. Brian Moore
Orlando Utilities Commission
5100 South Alafaya Trail
Orlando, FL 32831-2001

RE: Stanton Energy Center
Ash Landfill

Dear Mr. Moore:

We have completed the volume determinations of the Fly Ash Landfill at the Stanton Energy Center. The volume of the horizontal area is reported as total volume referenced to base. Total volume includes active and capped (if any) areas. The results are as follows:

VOLUMES

Date of Survey: September 12, 2016

Area	Reference Datum	Type of Volume	Fill (cy)	Cut (cy)
Horizontal	Base [1]	Total	353,301	19

[1] Base model developed by MIKON Corporation from survey data obtained September 2013.

Attached is a site topography drawing both in paper format and on disk. Should you have any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us. We appreciate the opportunity to provide our services to Orlando Utilities.

Sincerely,

MIKON Corporation

Bryan W. Davis

David J. Kramer

BWD/DJK:js / #116003-3
Attachments: Landfill Topography Drawing (11 x 17) and CD

4414 B South 40th Street, St. Joseph, MO 64503 816.364.2890 fax 816.364.2126 mikon@mikoncorp.com

SCALE 1" = 300'
2' CONTOUR INTERVAL

0 300

NORTH

PERMITTED AREA = 315.1 ACRES

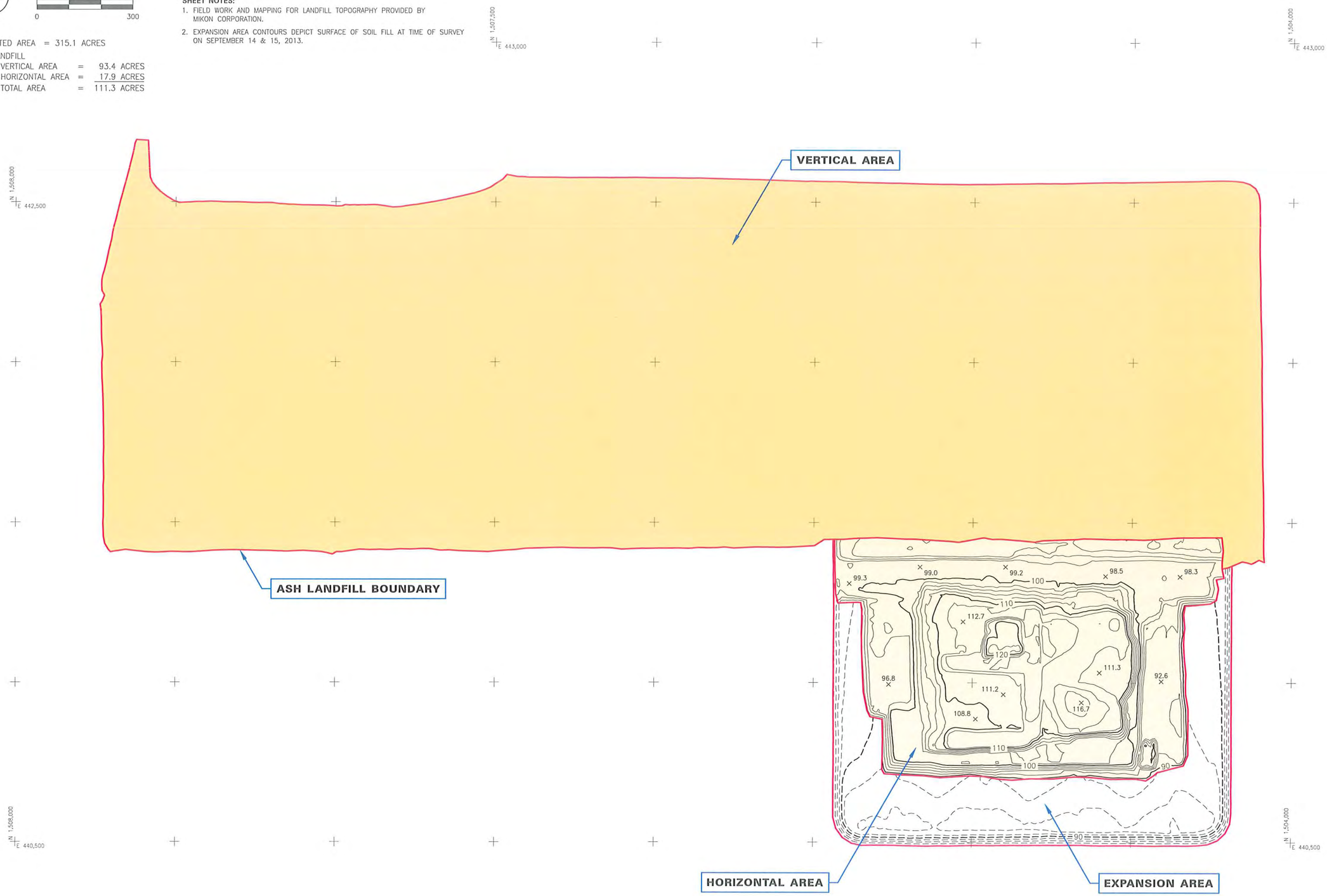
ASH LANDFILL

VERTICAL AREA	=	93.4 ACRES
HORIZONTAL AREA	=	17.9 ACRES
TOTAL AREA	=	111.3 ACRES

DATE OF SURVEY: SEPTEMBER 12, 2016

SHEET NOTES:

1. FIELD WORK AND MAPPING FOR LANDFILL TOPOGRAPHY PROVIDED BY MIKON CORPORATION.
2. EXPANSION AREA CONTOURS DEPICT SURFACE OF SOIL FILL AT TIME OF SURVEY ON SEPTEMBER 14 & 15, 2013.



PROJECT NO. 116003-3
FILE NAME: STANTON_LF_9_16
DRW. BY: DHS | CKD. BY: DJK

ORLANDO UTILITIES COMMISSION
5100 ALAFAYA TRAIL
ORLANDO, FLORIDA 32831

MIKON CORPORATION
4414 SOUTH 40th STREET, SUITE B
ST. JOSEPH, MISSOURI 64503
816-364-2880 fax 816-364-2126
email: mikon@mikoncorp.com

ORLANDO UTILITIES COMMISSION

STANTON ENERGY CENTER

ASH LANDFILL TOPOGRAPHY

DATE: 9/14/16

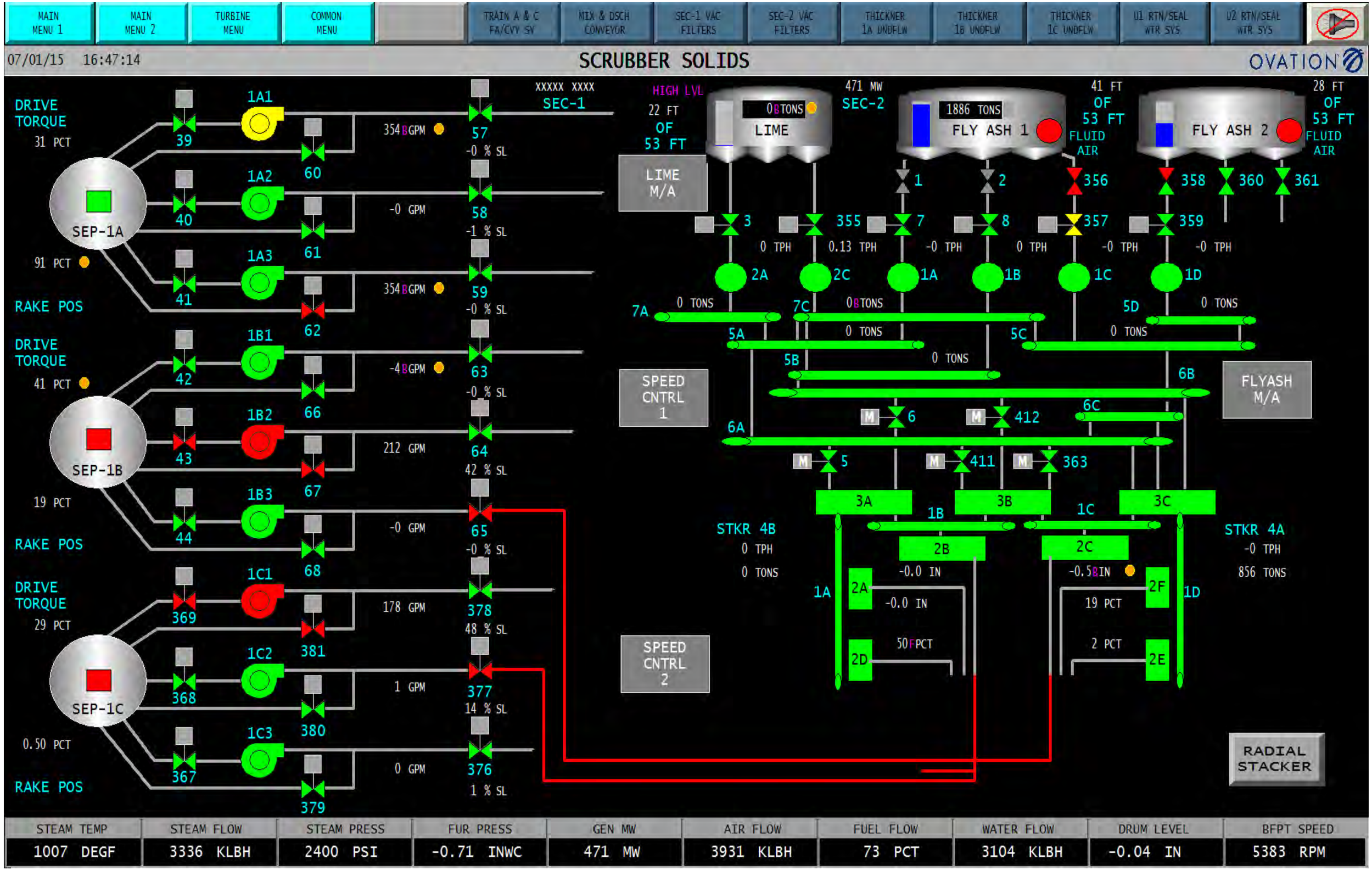
SHEET 1 of 1

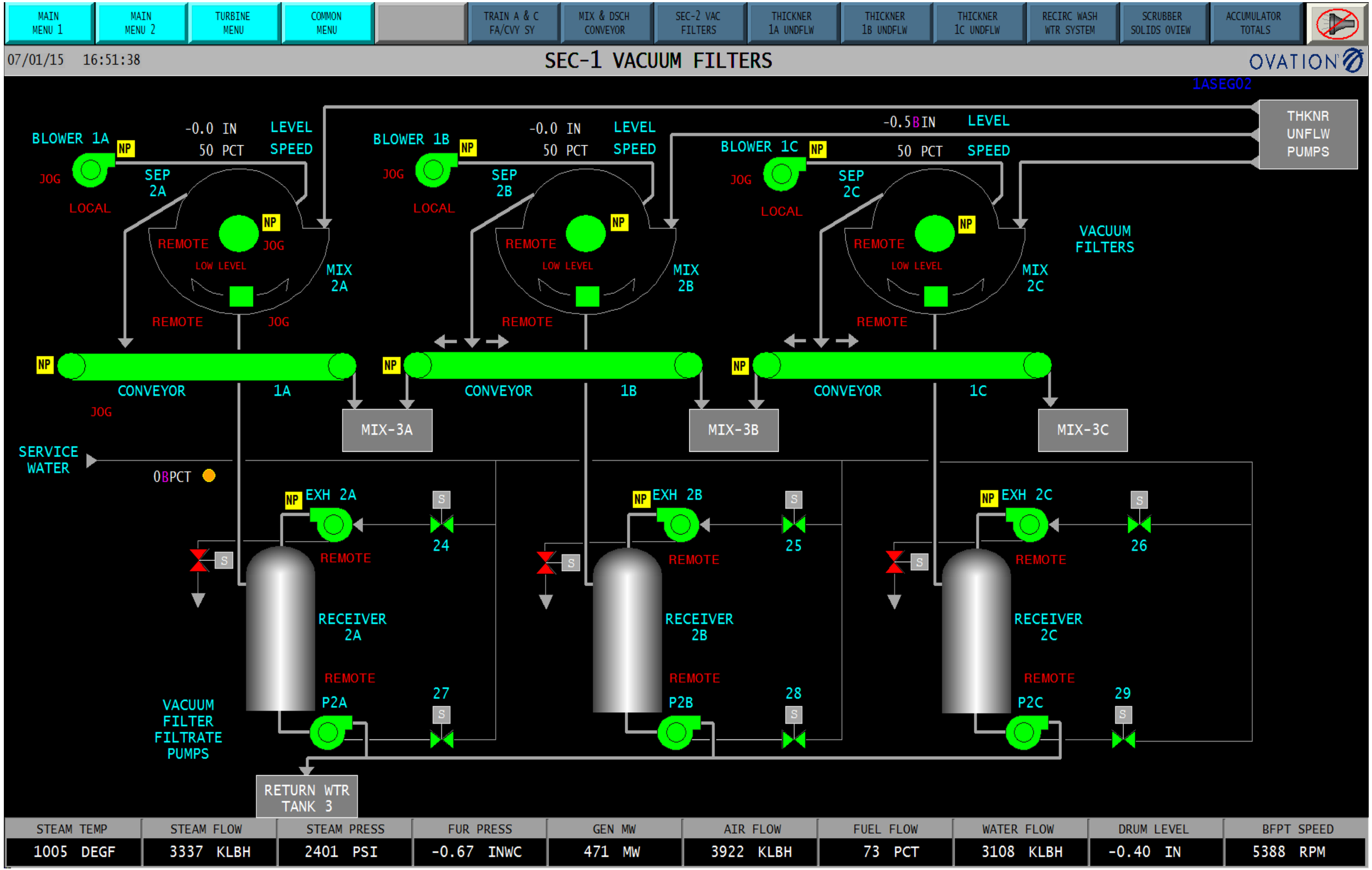
Appendix 6

Screen Displays from FGD Sludge Conditioning Facility Control Room

Screen displays on the following pages include**:**

- Silos and Thickeners
- Unit 1 Vacuum Filters
- Unit 2 Vacuum Filters
- Mixers and Discharge Conveyors

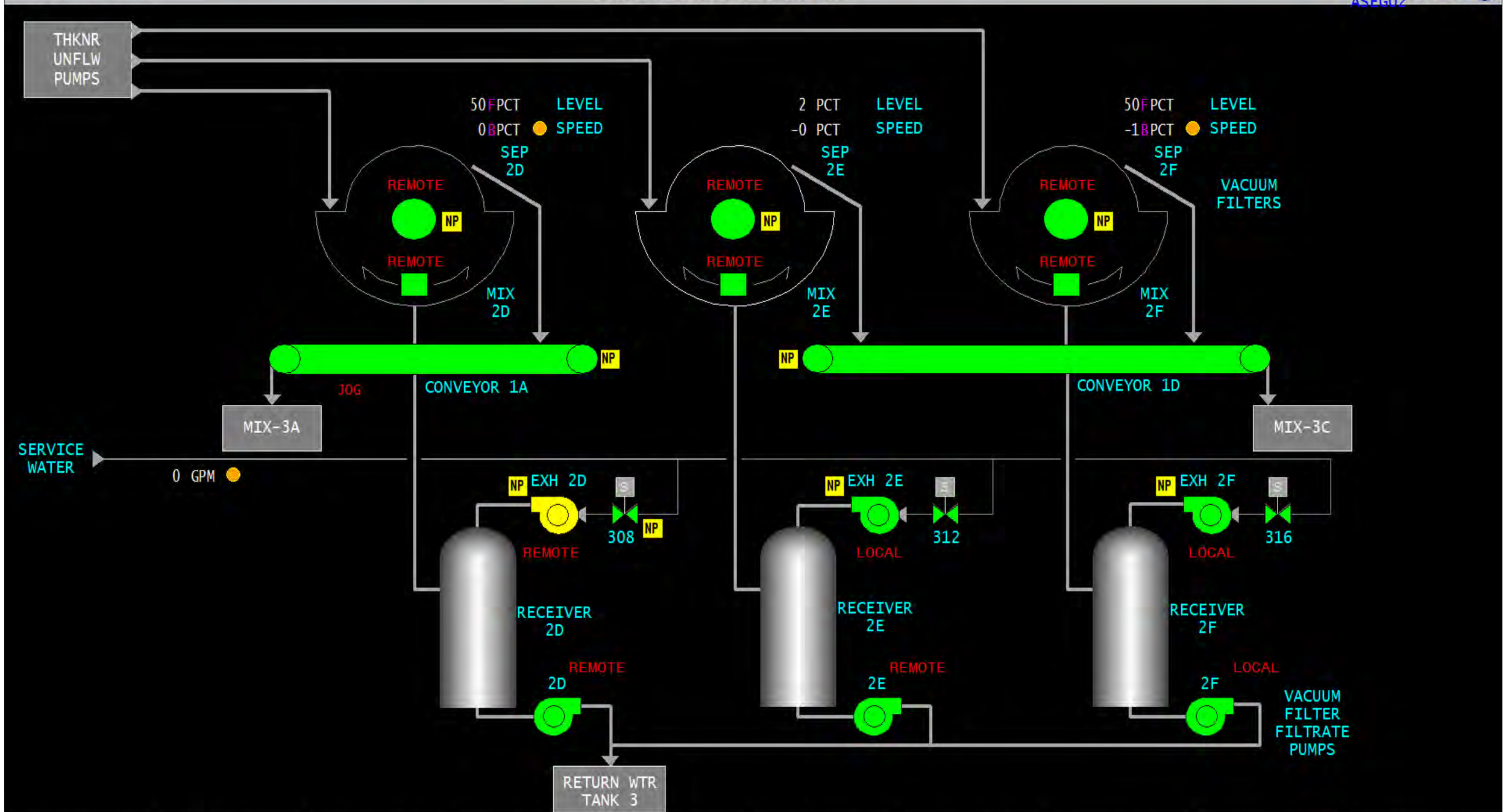

MAIN MENU 1
MAIN MENU 2
TURBINE MENU
COMMON MENU
TRAIN A & C FA/CVY SY
MIX & DSCH CONVEYOR
SEC-1 VAC FILTERS
SEC-2 VAC FILTERS
THICKNER 1A UNDFLW
THICKNER 1B UNDFLW
THICKNER 1C UNDFLW
U1 RTN/SEAL WTR SYS
U2 RTN/SEAL WTR SYS
07/01/15 16:47:14
SCRUBBER SOLIDS
OVATION
DRIVE TORQUE
31 PCT
SEP-1A
91 PCT
RAKE POS
1A1
1A2
1A3
39
40
41
60
61
62
354 BGPM
-0 GPM
354 BGPM
57
-0 % SL
58
-1 % SL
59
-0 % SL
XXXXX XXXX
SEC-1
DRIVE TORQUE
41 PCT
SEP-1B
19 PCT
RAKE POS
1B1
1B2
1B3
42
43
44
66
67
68
-4 BGPM
212 GPM
-0 GPM
63
-0 % SL
64
42 % SL
65
-0 % SL
DRIVE TORQUE
29 PCT
SEP-1C
0.50 PCT
RAKE POS
1C1
1C2
1C3
369
368
367
381
380
379
178 GPM
1 GPM
0 GPM
378
48 % SL
377
14 % SL
376
1 % SL
HIGH LVL
22 FT OF 53 FT
LIME M/A
0 BTONS
LIME
471 MW
SEC-2
1886 TONS
FLY ASH 1
41 FT OF 53 FT
FLUID AIR
FLY ASH 2
28 FT OF 53 FT
FLUID AIR
1
2
356
358
360
361
3
355
7
8
357
359
0 TPH
0.13 TPH
-0 TPH
0 TPH
-0 TPH
-0 TPH
2A
2C
1A
1B
1C
1D
7A
0 TONS
7C
0 BTONS
5D
0 TONS
5A
0 TONS
5C
0 TONS
5B
0 TONS
6B
SPEED CNTRL 1
FLYASH M/A
6C
6A
6
412
5
411
363
3A
3B
3C
1B
1C
STKR 4B
0 TPH
0 TONS
STKR 4A
-0 TPH
856 TONS
2B
2C
-0.0 IN
-0.0 IN
-0.58 IN
19 PCT
1A
2A
2F
1D
50 FPCT
2 PCT
2D
2E
SPEED CNTRL 2
RADIAL STACKER
STEAM TEMP
1007 DEGF
STEAM FLOW
3336 KLBH
STEAM PRESS
2400 PSI
FUR PRESS
-0.71 INWC
GEN MW
471 MW
AIR FLOW
3931 KLBH
FUEL FLOW
73 PCT
WATER FLOW
3104 KLBH
DRUM LEVEL
-0.04 IN
BFPT SPEED
5383 RPM


MAIN MENU 1
MAIN MENU 2
TURBINE MENU
COMMON MENU
TRAIN A & C FA/CVY SY
MIX & DSCH CONVEYOR
SEC-2 VAC FILTERS
THICKNER 1A UNDFLW
THICKNER 1B UNDFLW
THICKNER 1C UNDFLW
RECIRC WASH WTR SYSTEM
SCRUBBER SOLIDS OVIEW
ACCUMULATOR TOTALS
07/01/15 16:51:38
SEC-1 VACUUM FILTERS
OVATION
1ASEG02
BLOWER 1A
-0.0 IN
50 PCT
LEVEL
SPEED
JOG
LOCAL
SEP 2A
REMOTE
LOW LEVEL
MIX 2A
BLOWER 1B
SEP 2B
MIX 2B
BLOWER 1C
-0.5BIN
SEP 2C
MIX 2C
THKNR UNFLW PUMPS
VACUUM FILTERS
NP
CONVEYOR 1A
CONVEYOR 1B
CONVEYOR 1C
MIX-3A
MIX-3B
MIX-3C
SERVICE WATER
0BPCT
EXH 2A
EXH 2B
EXH 2C
24
25
26
RECEIVER 2A
RECEIVER 2B
RECEIVER 2C
P2A
P2B
P2C
27
28
29
VACUUM FILTER FILTRATE PUMPS
RETURN WTR TANK 3
STEAM TEMP 1005 DEGF
STEAM FLOW 3337 KLBH
STEAM PRESS 2401 PSI
FUR PRESS -0.67 INWC
GEN MW 471 MW
AIR FLOW 3922 KLBH
FUEL FLOW 73 PCT
WATER FLOW 3108 KLBH
DRUM LEVEL -0.40 IN
BFPT SPEED 5388 RPM

07/01/15 16:52:11

SEC-2 VACUUM FILTERS

OVATION ASEG02



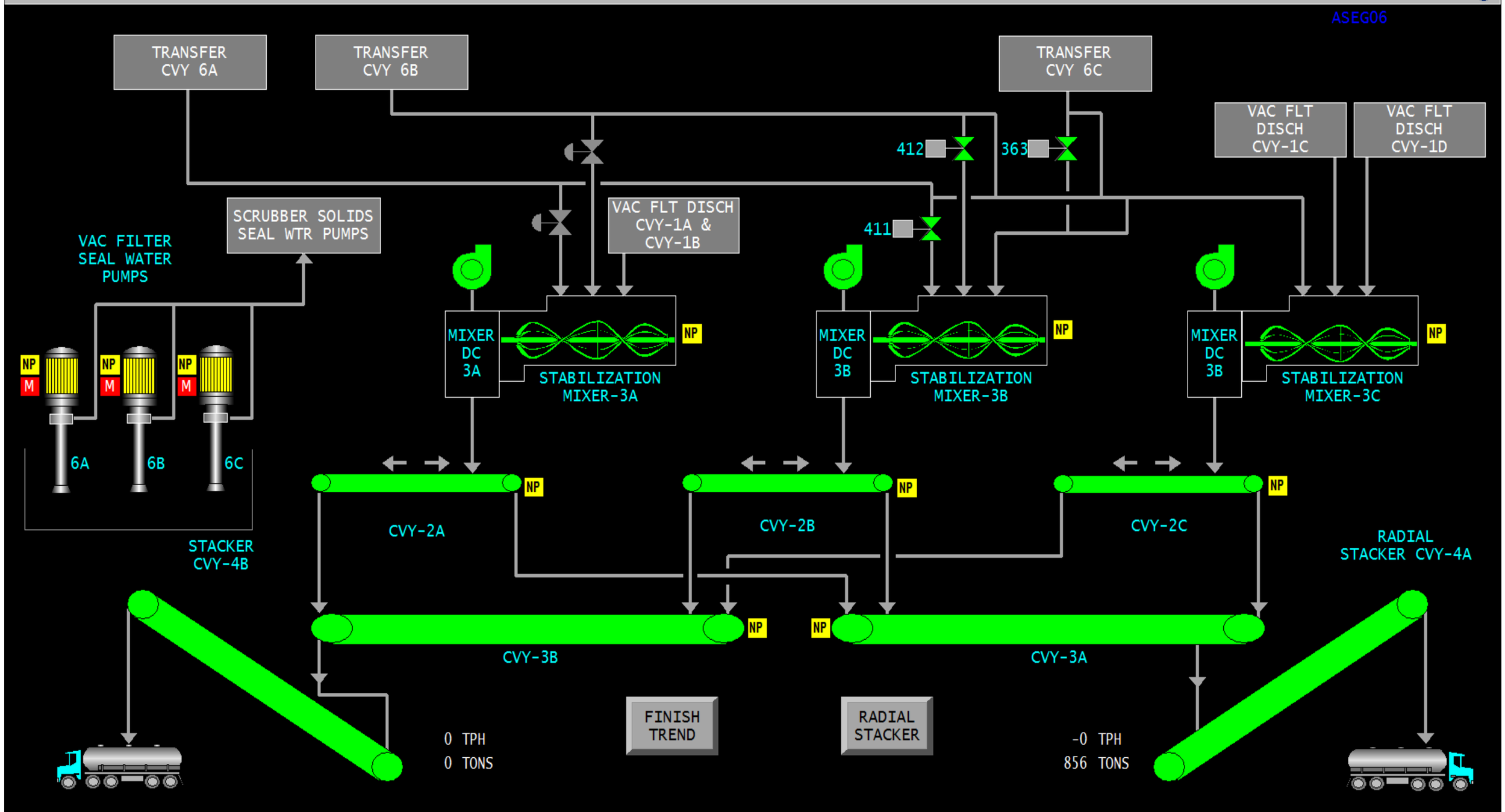
STEAM TEMP	STEAM FLOW	STEAM PRESS	FUR PRESS	GEN MW	AIR FLOW	FUEL FLOW	WATER FLOW	DRUM LEVEL	BFPT SPEED
1005 DEGF	3337 KLBH	2401 PSI	-0.69 INWC	471 MW	3913 KLBH	73 PCT	3097 KLBH	-0.32 IN	5383 RPM

07/01/15 16:43:31

MIXERS & DISCHARGE CONVEYORS

OVATION

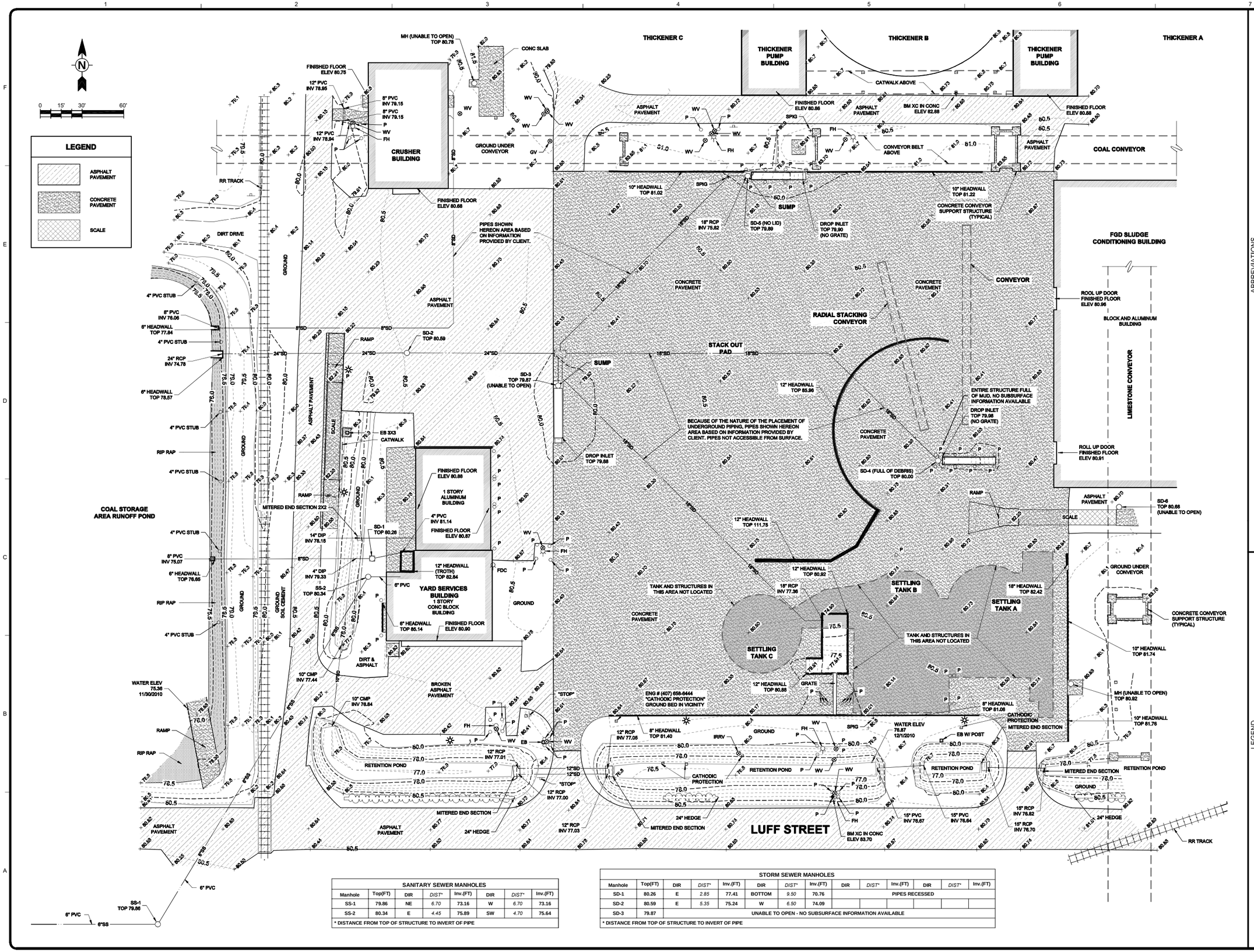
ASEG06



STEAM TEMP	STEAM FLOW	STEAM PRESS	FUR PRESS	GEN MW	AIR FLOW	FUEL FLOW	WATER FLOW	DRUM LEVEL	BFPT SPEED
1004 DEGF	3337 KLBH	2401 PSI	-0.45 INWC	471 MW	3905 KLBH	73 PCT	3108 KLBH	0.10 IN	5384 RPM

Appendix 7

Survey of the Stack Out Pad Area



SANITARY SEWER MANHOLES							
Manhole	Top(FT)	DIR	DIST*	Inv.(FT)	DIR	DIST*	Inv.(FT)
SS-1	79.86	NE	6.70	73.16	W	6.70	73.16
SS-2	80.34	E	4.45	75.89	SW	4.70	75.64

* DISTANCE FROM TOP OF STRUCTURE TO INVERT OF PIPE

STORM SEWER MANHOLES													
Manhole	Top(FT)	DIR	DIST*	Inv.(FT)	DIR	DIST*	Inv.(FT)	DIR	DIST*	Inv.(FT)	DIR	DIST*	Inv.(FT)
SD-1	80.26	E	2.85	77.41	BOTTOM	9.50	70.76	PIPES RECESSED					
SD-2	80.59	E	5.35	75.24	W	6.50	74.09						
SD-3	79.87	UNABLE TO OPEN - NO SUBSURFACE INFORMATION AVAILABLE											

* DISTANCE FROM TOP OF STRUCTURE TO INVERT OF PIPE

ABBREVIATIONS

EM	ELECTRIC METER	JBL	JURISDICTIONAL BOUNDARY
ET	ELECTRIC TRANSFORMER		LINE
F	FOUND	(M)	MEASURED
FF	FINISHED FLOOR	MB	MAILBOX
FP	FIBER POWER	ME	MANHOLE
FO	FIBER OPTIC	MW	MONITORING WELL
G	GAS	ND	NAIL & DISK
GM	GAS METER	NL	NAIL
GV	GAS VALVE	OE	OVERHEAD UTILITY LINES
INV	INVERT	OR	OFFICIAL RECORDS
IP	IRON PIPE	P	POST
IR	IRON ROD	(P)	PER PLAT
IRRV	IRRIGATION VALVE	PB	PLAT BOOK
ANT	ANTENNA	PG	PAGE
BM	BENCHMARK	PK	PK NAIL
(C)	CALCULATED	RCP	REINFORCED CONC PIPE
CO	CLEANOUT	RR	RAILROAD
CONC	CONCRETE	RW	RECLAIMED WATER
CM	CONCRETE MONUMENT	S	SET
CMP	CORREGATED METAL PIPE	SC	SECTION CORNER
CPP	CORREGATED PLASTIC PIPE	SH	SPRINKLER HEAD
DIP	DUCTILE IRON PIPE	SS	SANITARY SEWER
DH	DRILL HOLE	SD	STORM DRAIN
EB	ELECTRIC RISER	SV	WATER VALVE
ELEC	ELECTRIC	XC	X CUT
TEL	TELEPHONE		
TP	TRAVERSE POINT		
TSC	TRAFFIC SIGNAL CONTROL		
TSP	TRAFFIC SIGNAL POLE		
TV	CABLE TELEVISION		
UE	UNDERGROUND UTILITY LINES		
WI	WATER		
WH	WOODEN HUB		
WM	WATER METER		
WV	WATER VALVE		
XC	X CUT		

LEGEND

BM BENCHMARK	CO CLEANOUT	MB MAIL BOX	UTILITY MARKER (AS SHOWN)
ND NAIL & DISK	DECIDUOUS TREE	PALM TREE	UTILITY MANHOLE (AS SHOWN)
TP TRAVERSE POINT	ELECTRIC TRANSFORMER	P POST	UTILITY METER (AS SHOWN)
F FOUND IRON (TYPE)	EVERGREEN TREE	SATELLITE DISH	UTILITY RISER (AS SHOWN)
S SET IRON (TYPE)	FIRE HYDRANT	SPIGOT	UTILITY VALVE (AS SHOWN)
F FOUND MONUMENT (TYPE)	FLAG (AS SHOWN)	SPRINKLER HEAD	UTILITY POLE (AS SHOWN)
S SET MONUMENT (TYPE)	GUY ANCHOR	TRAFFIC SIGN	WELL
SC SECTION CORNER	LIGHT POLE		

MARK	DATE	DESCRIPTION	BY

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER

TETRA TECH
www.tetratech.com
201 EAST PINE STREET, SUITE 1000
ORLANDO, FL 32801
PHONE (407) 839-3955 FAX: (407) 839-3790

Client: ORLANDO UTILITIES COMMISSION
Proj. Loc.: ORANGE COUNTY, FL

SPECIFIC PURPOSE & TOPOGRAPHIC SURVEY OF THE

STANTON ENERGY CENTER ORLANDO, FL SECTION 13 - T 23 S - R 31 E

Project No.:	200-08391-11001
Designed By:	N/A
Drawn By:	CIS
Checked By:	LEJ

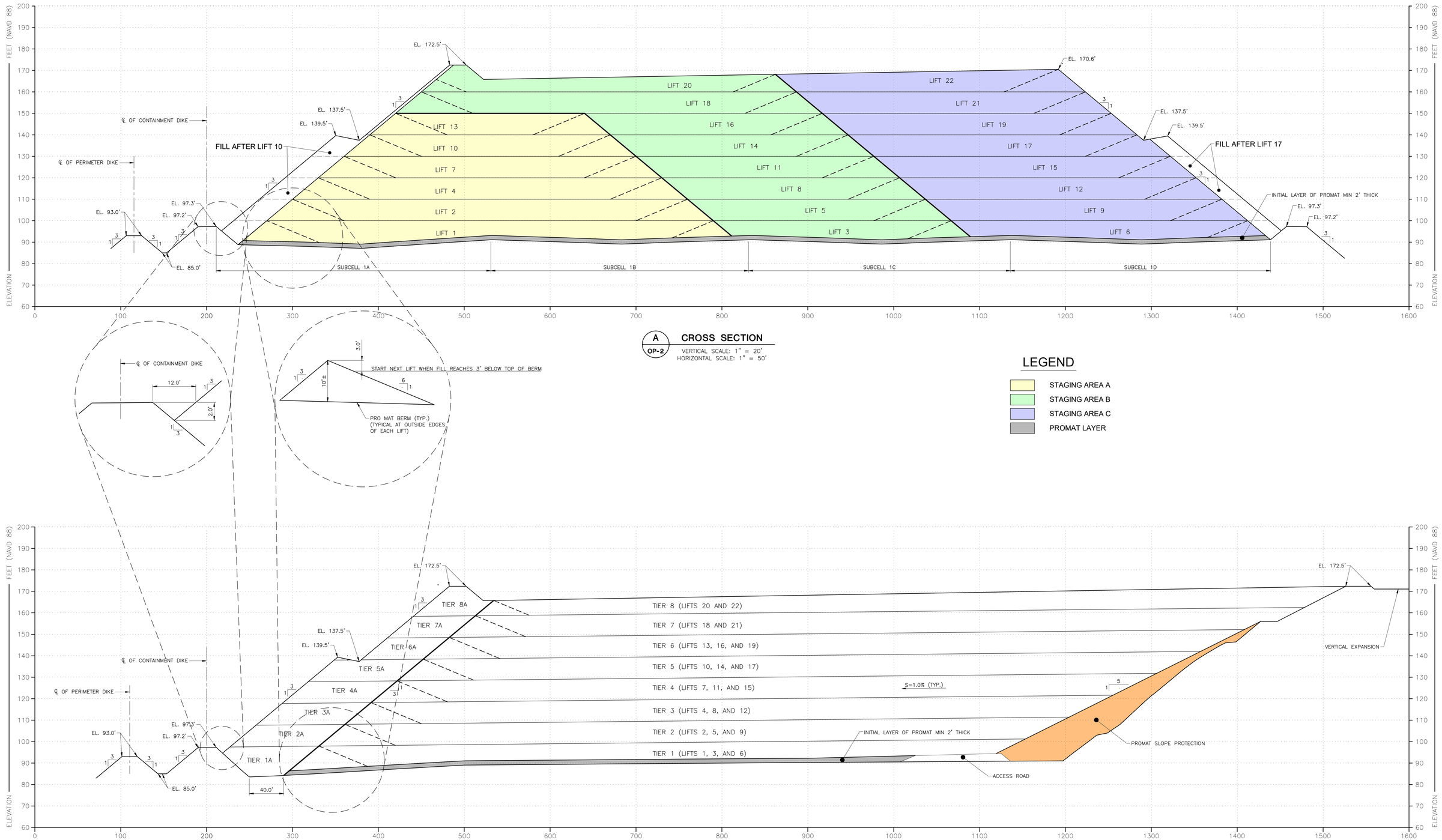
V102

Copyright: Tetra Tech

1/5/2011 2:06:28 PM - P:\ENR\08391\200-08391-11001\CAD\MODEL\FILES\V-XP SURVEYBASE.DWG - SANFORD, CHADWICK

Appendix 8

Drawings Showing Conceptual Sequence of Landfilling



A OP-2 **CROSS SECTION**
VERTICAL SCALE: 1" = 20'
HORIZONTAL SCALE: 1" = 50'

B OP-2 **CROSS SECTION**
VERTICAL SCALE: 1" = 20'
HORIZONTAL SCALE: 1" = 50'

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D

	NAME	DATE		NAME	DATE
DESIGNED BY	PAK	08/04/15	CHECKED BY	FKC	08/04/15
DRAWN BY	CLD	08/04/15	CHECKED BY	–	–
FILE NO.: 13-13-0166			SCALE: AS SHOWN		

APPROVED BY:

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

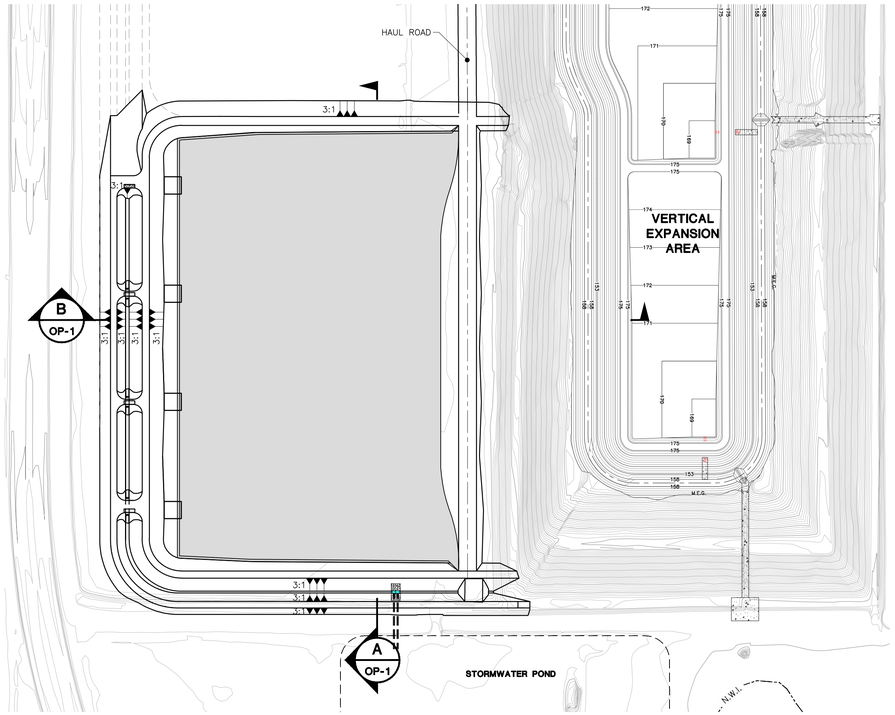
HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

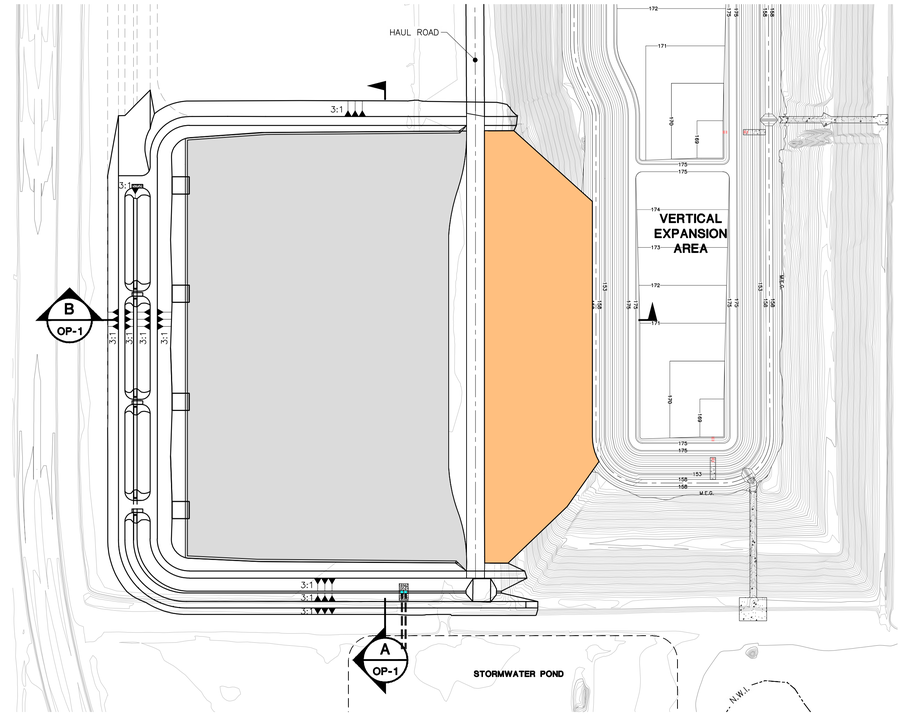
FILL SEQUENCING CROSS SECTIONS

DRAWING NO. **OP-1**

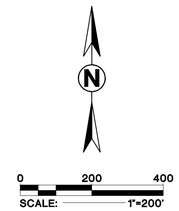
T:\Corporate\13\13-13-0166\LANDFILL OPERATION PLAN_CURRENT\Cross Sections A and B.dwg 8/28/2015 3:44:59 PM, Chris.Drew

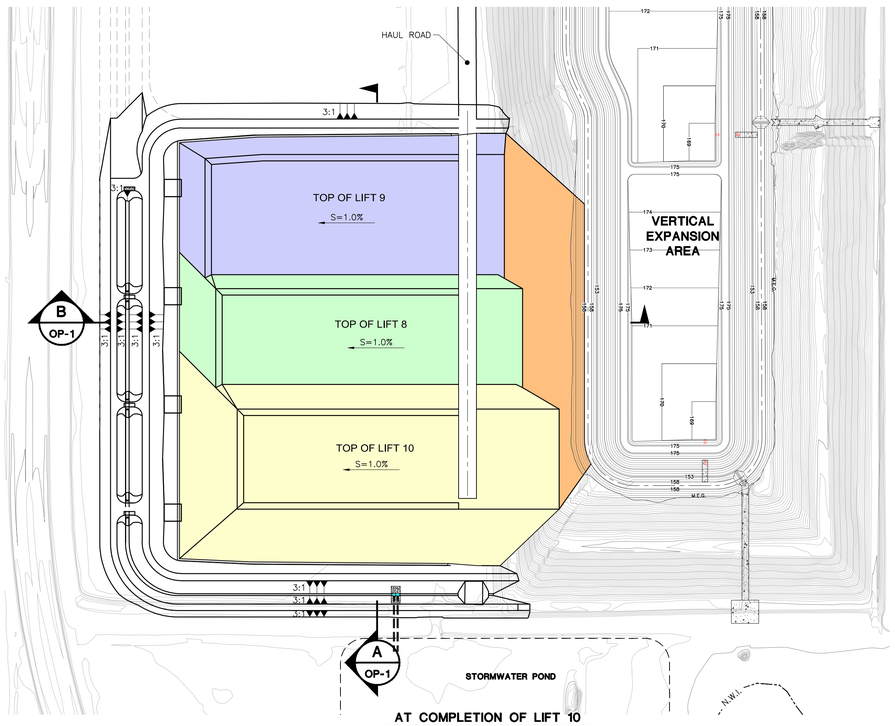


AFTER PLACEMENT OF INITIAL LAYER OF PROMAT

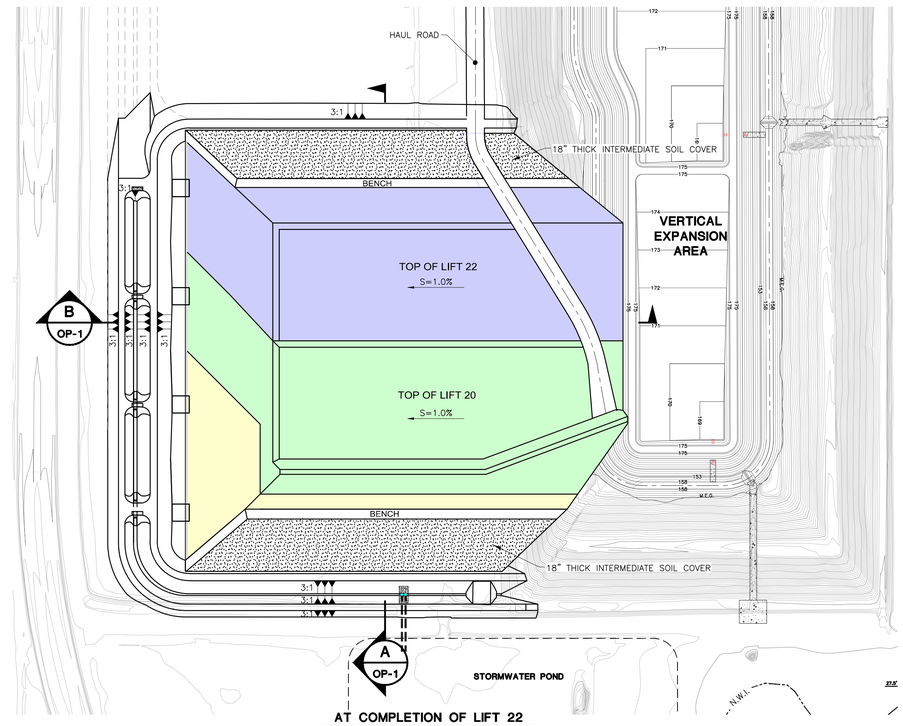


AFTER PLACEMENT OF PROMAT SLOPE PROTECTION





AT COMPLETION OF LIFT 10



AT COMPLETION OF LIFT 22

REVISION	DATE	DESCRIPTION	APPR'D	REVISION	DATE	DESCRIPTION	APPR'D

	NAME	DATE		NAME	DATE
DESIGNED BY	PAK	08/04/15	CHECKED BY	FKC	08/04/15
DRAWN BY	PS	08/04/15	CHECKED BY	–	–
FILE NO.: 13-13-0166			SCALE: AS SHOWN		
APPROVED BY:					

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

HORIZONTAL EXPANSION OF COMBUSTION WASTE STORAGE AREA - CELL 1

OUC STANTON ENERGY CENTER
ORANGE COUNTY, FLORIDA

FILL SEQUENCING PLANS

DRAWING NO.
OP-2

E:\Corporate\13\13-13-0166\LANDFILL OPERATION PLAN_CURRENT\OP-2 FILL SEQUENCING PLAN2.dwg 2015/08/28 10:45 AM, Drew, Chris

Appendix 9

Stormwater Management System Inspection Instructions and Checklist

INSTRUCTIONS FOR STORMWATER MANAGEMENT SYSTEM INSPECTIONS

An inspection log with explanations of observations made will document each inspection and become part of the operating records for the facility. Inspection logs will be in a checklist/fill-in-the-blank format. All site inspection reports will include the date, place, time, weather, and names of the individual(s) conducting the inspection.

A typical inspection log form is attached. The log is formatted to ensure that a specific itinerary is followed, and that all pertinent parts of the system identified are inspected. The inspection logs will be supplemented, as necessary, with written reports documenting problem areas and maintenance actions performed.

The inspection logs will be completed for each of the specific areas listed in the inspection schedule and will be maintained in a binder. Separate written reports, documenting maintenance activities and remedial actions, shall be recorded together with these logs.

Quarterly and post-storm event Inspections should include i) the culverts and ditch on the west side of Cell 1 including the stormwater discharge pipes from the sump risers; ii) the stormwater runoff ditch south of Cell 1; iii) the wet detention pond south of Cell 1 including inflow and outflow structures and bleed down; iv) the clean water ditch on the east side of the CWSA; and v) the natural drainage ways downstream from the wet detention pond and the clan water ditch.

Inspection Checklist Form				
SITE:				**WEATHER:**
DATE:				**INSPECTOR :**
	CONDITIONS TO CHECK	**YES**	**NO**	**DETAILS OF PROBLEM/DEFECT AND CORRECTIVE ACTION(S)**
				IMPLEMENTED AND DATE
DO NOT DIG OR DRIVE OBJECT				
WITHIN LINED AREAS INSIDE				
OF ANCHOR TRENCH				
STORMWATER DRAINAGE	Any Obstructions	❑	❑	
AND CONVEYANCE SYSTEMS	Excessive Bank Erosion	❑	❑	
	Ponding	❑	❑	
• SWALES, DITCHES, AND CHANNELS	Adequate Vegetation	❑	❑	
• INTAKE STRUCTURES	Excessive Vegetation	❑	❑	
• OUTLET ENDS	Excessive Scouring	❑	❑	
• CULVERTS	Excessive Siltation, Obstructions, Damage	❑	❑	
	Any Significant Differential Settling or Ponding	❑	❑	
	Settling and Ponding	❑	❑	
STORMWATER WET DETENTION POND	Any Obstructions	❑	❑	
	Excessive Erosion	❑	❑	
• BOTTOM SURFACE	Excessive Siltation	❑	❑	
• CONTROL STRUCTURE INTAKE & OUTLET	Adequate Vegetation	❑	❑	
• STORMWATER DISCHARGE OVER WEIR	Excessive Vegetation	❑	❑	
• TOP OF STRUCTURE	Did any discharge over weir occur? List date.	❑	❑	
• ORIFICE	Was a water sample obtained from discharge?	❑	❑	
	Was quarterly report submitted to FDEP regarding discharge?	❑	❑	

Appendix 10

Fugitive Dust Control Plan

CCR Fugitive Dust Control Plan
Curtis H. Stanton Energy Center
Orange County, Florida

The Orlando Utility Commission (OUC) operates the Curtis H. Stanton Energy Center which is subject to the requirements of 40 CFR Part 257, Hazardous And Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities. The requirements for a coal combustion residuals (CCR) fugitive dust control plan are set forth in § 257.80. This CCR fugitive dust control plan follows the requirements a set forth in the rule.

§ 257.80 Air criteria.

(a) The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

(b) CCR fugitive dust control plan. The owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan as specified in paragraphs (b)(1) through (b)(7) of this section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act.

(1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system; reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers; establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

Fugitive Dust Control Measures:

A) Water Applications and Sweeping Operations

OUC hires an on-site contractor to perform coal combustion residue (CCR) operations. The contractor will have an individual employee perform visible emission observations. Based on the experience of the observer, when visible emissions are observed, the observer will use this indicator to determine if there is a need to apply water as a dust suppressant or to remove material from paved roadways with a sweeper. Water may be applied with a water spray truck in the landfill when work activities are causing a disturbance of the erodible surface and on all roadways during operational activities. Sweeping operations may be performed on the paved haul roads whenever CCR materials build-up on the paved haul roads.

The on-site contractor will keep a daily log to show the following:

i) when and what observations are made
ii) when water is applied to the landfill
iii) when the roadways are sprayed with water
iv) when the roadways are swept
v) reasons the above control measures are not implemented, e.g., during a precipitation event.

These dust control measures will be performed until areas are observed to be sufficiently free of fugitive emissions, i.e., until observations for visible emissions do not indicate the need to apply additional fugitive dust control measures.

B) Vehicular and Equipment Speed Limits

A 15 mile per hour (mph) speed limit is posted within the plant facilities and enforced by OUC security personnel. Based on the observations of the contracted emissions observer, the speed limit for vehicular and heavy equipment travel within the plant facilities and on the haul roads may be reduced if necessary.

Time spent in non-paved areas by hauling vehicles is limited to only that necessary.

Justification:

"Water acts as a dust suppressant by forming cohesive moisture films among the discrete grains of surface material. In turn, the moisture level depends on the moisture added by natural precipitation, the moisture removed by evaporation, and moisture movement beneath the surface. The evaporation rate depends on the degree of air movement over the surface, material texture and mineralogy, and the degree of compaction or crusting. The moisture-holding capacity of the air is also important, and it correlates strongly with the surface temperature. Vehicle traffic intensifies the drying process primarily by increasing air movement over the surface."[1] *"Following the wetting of a soil or other surface material, fine particles will move to form a surface crust. The surface crust acts to hold in soil moisture and resist erosion." "Exposed soil that lacks a surface crust (e.g., a disturbed soil or a very sandy soil) is much more susceptible to wind erosion."*[2] *Application of dust suppressants, in this case water, on disturbed areas are 80% efficient in controlling PM_{10} emissions.*[3]

---

[1] Western Regional Air Partnership (WRAP), September 2006. *Fugitive Dust Handbook*, pg. 1-5.
[2] Ibid., pg.1-6.
[3] Ibid., pg. 8-19

(2) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids. In lieu of water, CCR conditioning may be accomplished with an appropriate chemical dust suppression agent.

Fugitive Dust Control Measures:

All CCR materials undergo processing prior to placement in the landfill that results in a wetted product. If the material is too wet to pass a paint-filter test, it is placed in a decanting cell.

(3) The CCR fugitive dust control plan must include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility.

The OUC Environmental Division will keep a log documenting all complaints from citizens regarding CCR fugitive dust events received by the OUC Marketing and Community Relations Division.

(4) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

The OUC Environmental Division will keep a log documenting all complaints from citizens regarding CCR fugitive dust events received by the OUC Marketing and Community Relations Division. The log will be reviewed on a monthly basis and used by OUC Environmental Division to evaluate the appropriateness of fugitive dust control measures and to modify those measures as needed.

(5) The owner or operator of a CCR unit must prepare an initial CCR fugitive dust control plan for the facility no later than **October 19, 2015**, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this subpart after **October 19, 2015**. The owner or operator has completed the initial CCR fugitive dust control plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(1).

The Fugitive Dust Control Plan will be posted on OUC web site no later than October 19, 2015.

(6) Amendment of the plan. The owner or operator of a CCR unit subject to the requirements of this section may amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility's operating record as required by §257.105(g)(1). The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit.

OUC will amend the Fugitive Dust Control Plan if the planned operational controls are ineffective or there is a change at the facility that reduces the effectiveness of the current control operations.

(7) The owner or operator must obtain a certification from a qualified professional engineer that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this section.

I certify that this CCR fugitive dust control plans meets the requirements of 40 CFR 257.80.

P.E. Signature — *October 2nd, 2015* *Date*

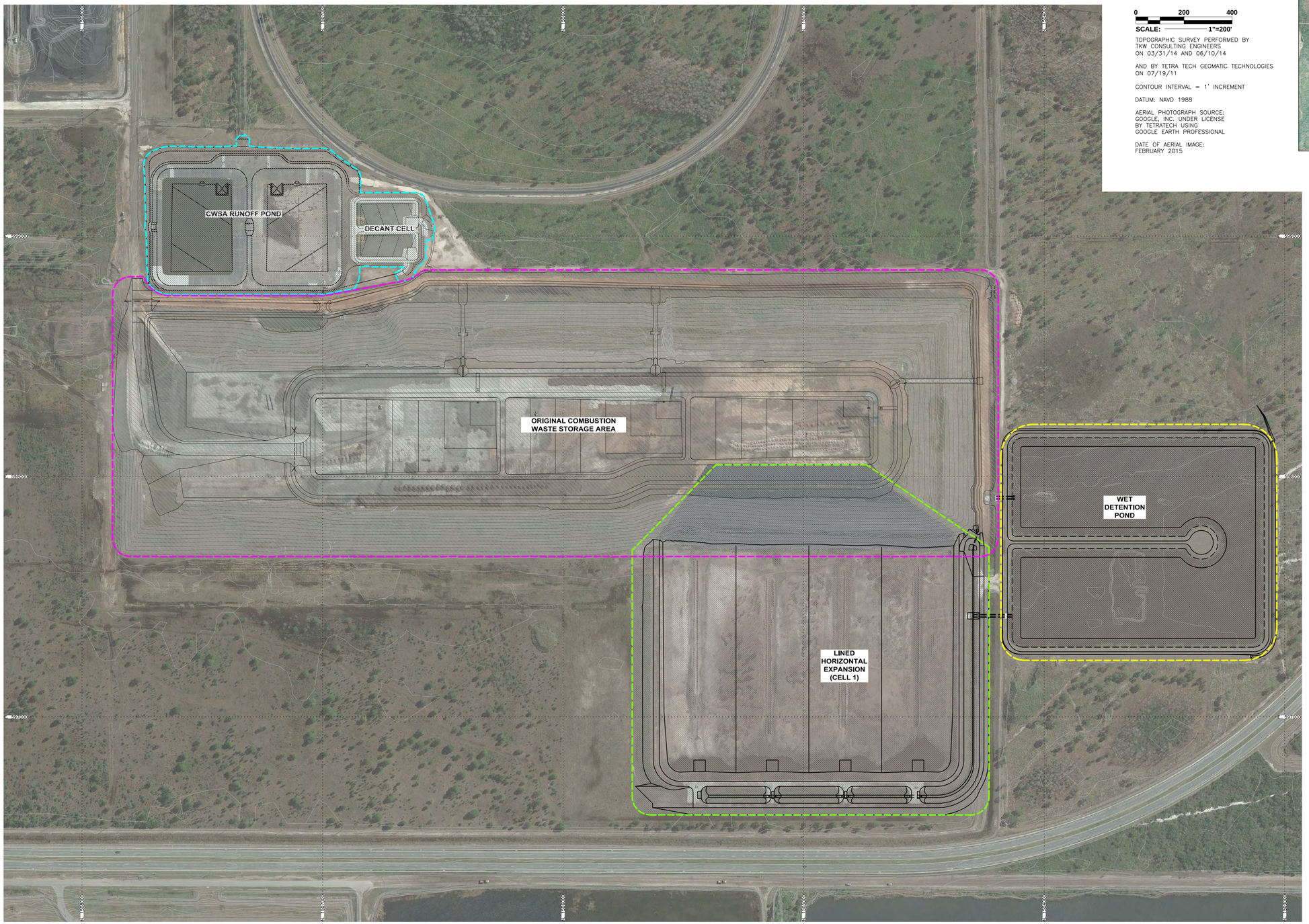
Mr. Charles Doud
Printed Name

 # 58596 — *Florida*
Registration Number — *State*

(Affix seal)

Appendix 11

Closure Drawings for Original CWSA Including Vertical Expansion



N

0 200 400

SCALE: 1"=200'

TOPOGRAPHIC SURVEY PERFORMED BY TKW CONSULTING ENGINEERS ON 03/31/14 AND 06/10/14

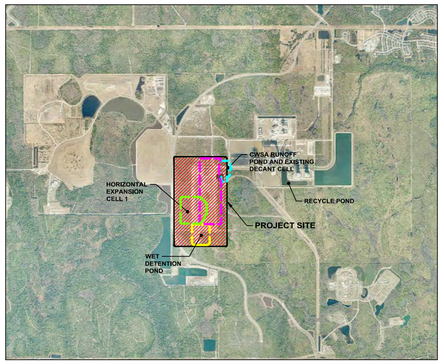
AND BY TETRA TECH GEOMATIC TECHNOLOGIES ON 07/19/11

CONTOUR INTERVAL = 1' INCREMENT

DATUM: NAVD 1988

AERIAL PHOTOGRAPH SOURCE: GOOGLE, INC. UNDER LICENSE BY TETRATECH USING GOOGLE EARTH PROFESSIONAL

DATE OF AERIAL IMAGE: FEBRUARY 2015



SITE VICINITY MAP

1" = 4,000'

SITE LOCATION

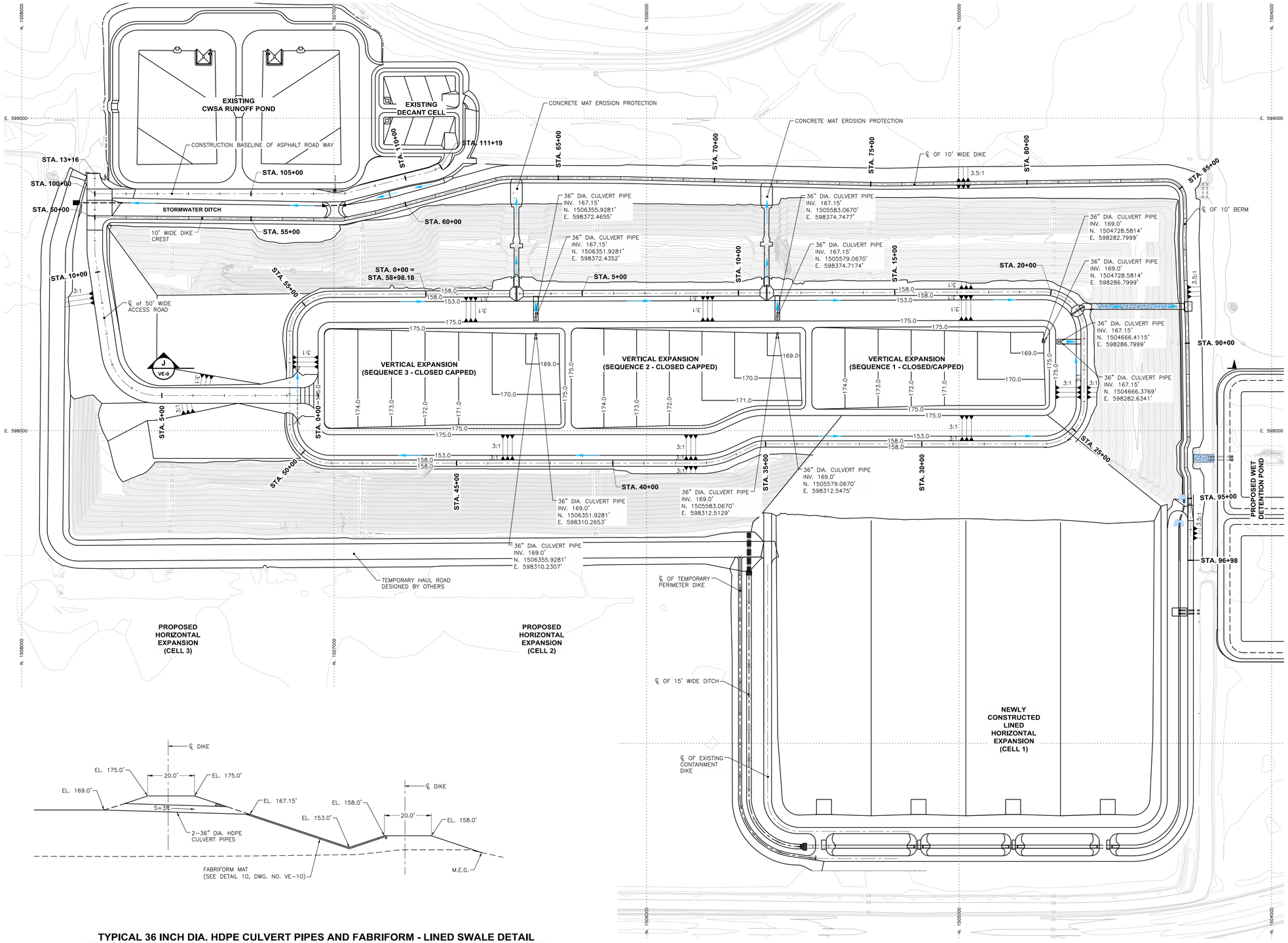
Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

OUC The Reliable One

CERTIFICATION OF CLOSURE CONSTRUCTION COMPLETION FOR ORIGINAL COMBUSTION WASTE STORAGE AREA AT THE ORLANDO UTILITIES COMMISSION, STANTON ENERGY CENTER

DRAWN BY: PS	CHECKED BY: JM	DATE: 02/09/16
FILE NO. 15-13-0249	APPROVED BY:	FIGURE: 1

I:\Corporate\15\15-13-0249\LANDFILL DEVELOPMENT PLAN_Report\FIGURE 1.dwg 2016/03/14 12:43 PM, Soto, Paulo



TYPICAL 36 INCH DIA. HDPE CULVERT PIPES AND FABRIFORM - LINED SWALE DETAIL

SCALE: 1" = 20'

N

0 150 300

SCALE: 1"=150'

TOPOGRAPHIC SURVEY PERFORMED BY TKW CONSULTING ENGINEERS ON 03/31/14 AND 06/10/14

AND BY TETRA TECH GEOMATIC TECHNOLOGIES ON 07/19/11

CONTOUR INTERVAL = 1' INCREMENT

DATUM: NAVD 1988

FINAL CLOSURE CONFIGURATION

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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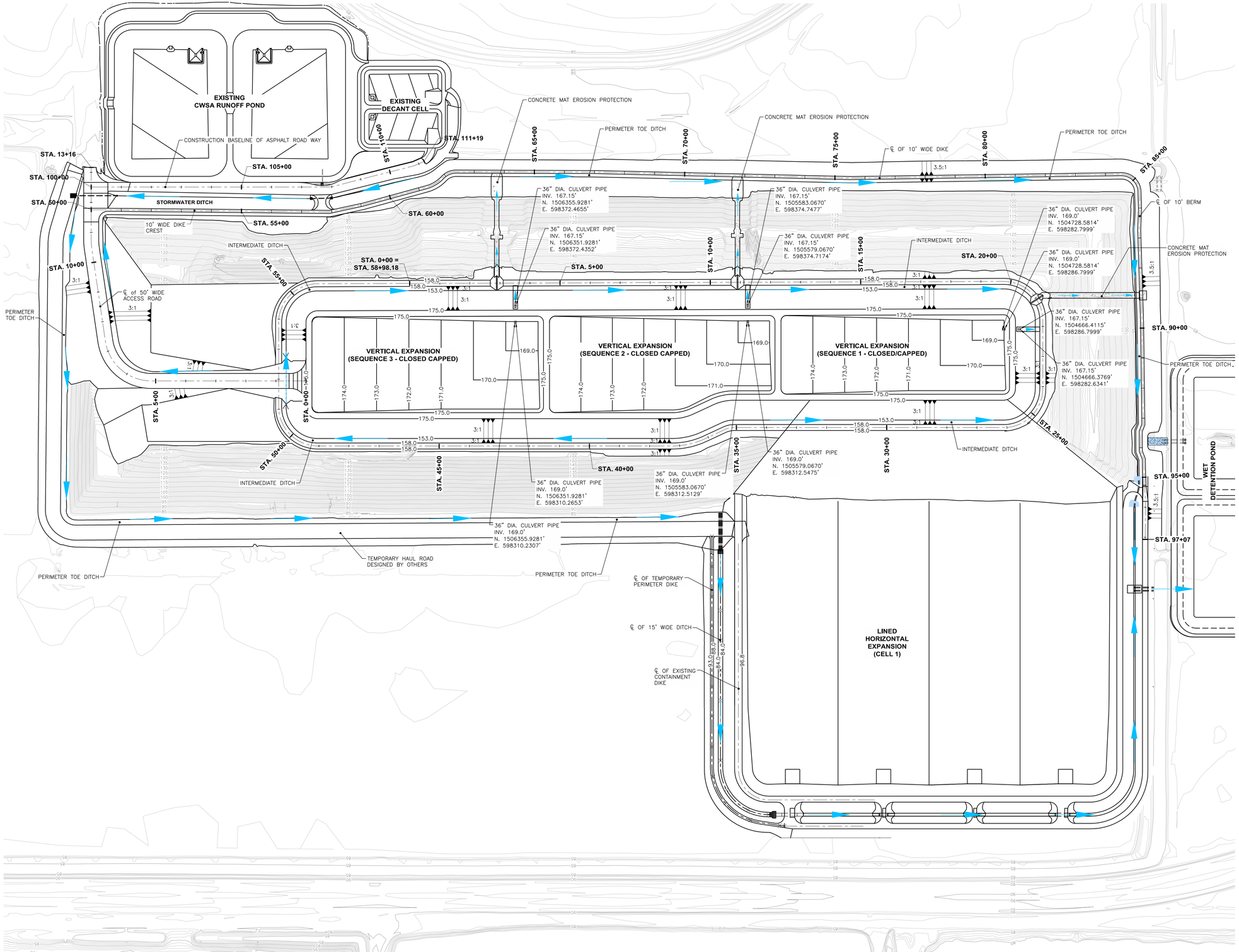
DRAWN BY: PS	CHECKED BY: JM	DATE: 02/09/16
FILE NO. 15-13-0249	APPROVED BY:	FIGURE: 2



N

0 150 300

SCALE: 1"=150'

TOPOGRAPHIC SURVEY PERFORMED BY TKW CONSULTING ENGINEERS ON 03/31/14 AND 06/10/14

AND BY TETRA TECH GEOMATIC TECHNOLOGIES ON 07/19/11

CONTOUR INTERVAL = 1' INCREMENT

DATUM: NAVD 1988

STORMWATER CONVEYANCE SYSTEM

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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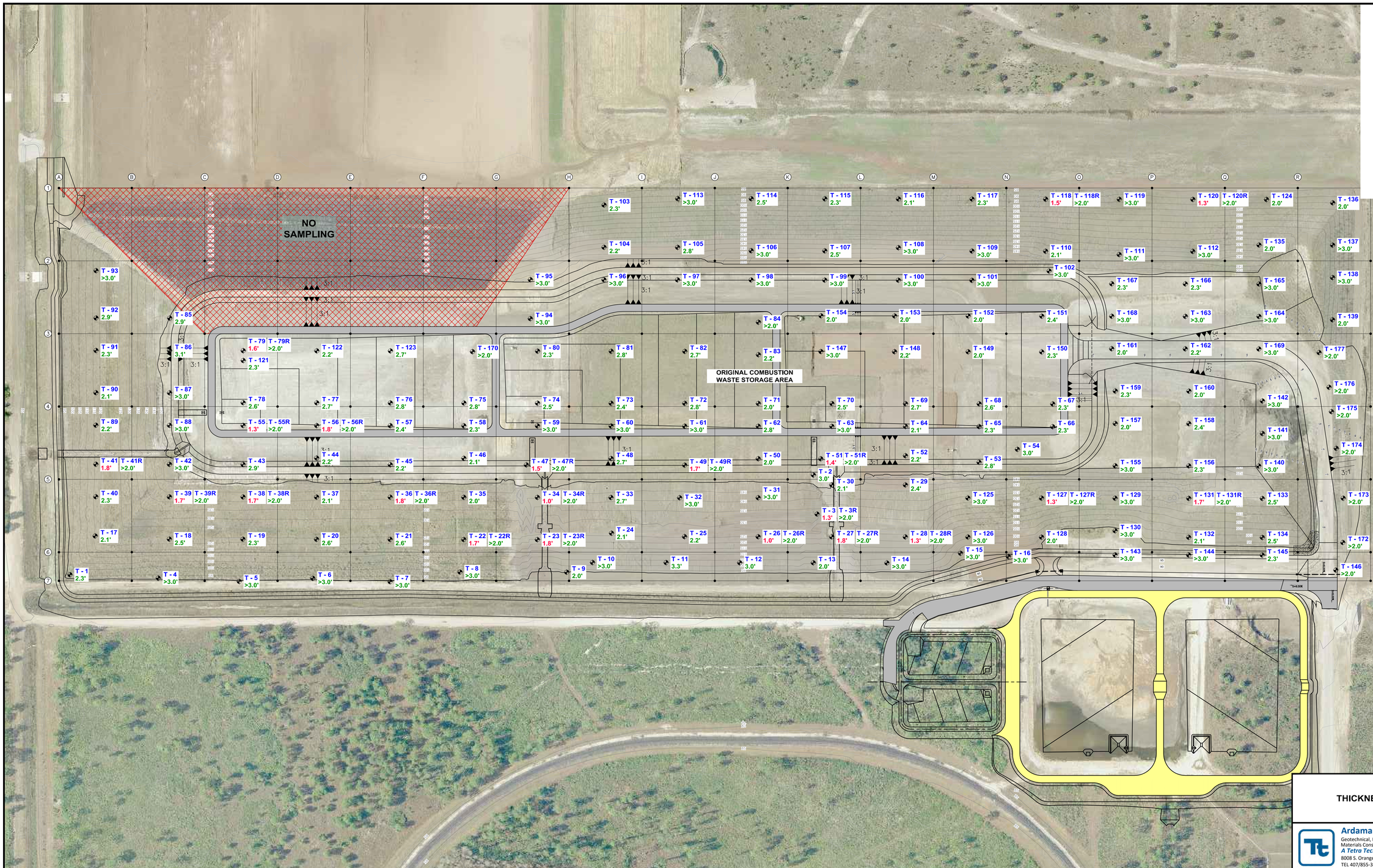
DRAWN BY: PS	CHECKED BY: JM	DATE: 02/09/16
FILE NO. 15-13-0249	APPROVED BY:	FIGURE: 3



0 120 240

SCALE: 1"=120'

TOPOGRAPHIC SURVEY PERFORMED BY TKW CONSULTING ENGINEERS ON 03/31/14 AND 06/10/14

AND BY TETRA TECH GEOMATIC TECHNOLOGIES ON 07/19/11

CONTOUR INTERVAL = 1' INCREMENT

DATUM: NAVD 1988

AERIAL PHOTOGRAPH SOURCE:

ORANGE COUNTY PROPERTY APPRAISER

FLIGHT DATE: JANUARY 2013

DEPTH CHECK WAS PERFORMED BY TT-AAI FIELD TECHNICIANS ON DECEMBER 2015

LEGEND

T - 28 2.3'	MEASURED THICKNESS GREATER THAN OR EQUAL TO 24 INCHES
T - 28 1.5'	MEASURED THICKNESS LESS THAN 24 INCHES
T 28R >2.0'	MEASURED THICKNESS AFTER RE-GRADING WITH ADDITIONAL FILL (GREATER THAN OR EQUAL TO 24 INCHES)

THICKNESS MEASUREMENTS

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
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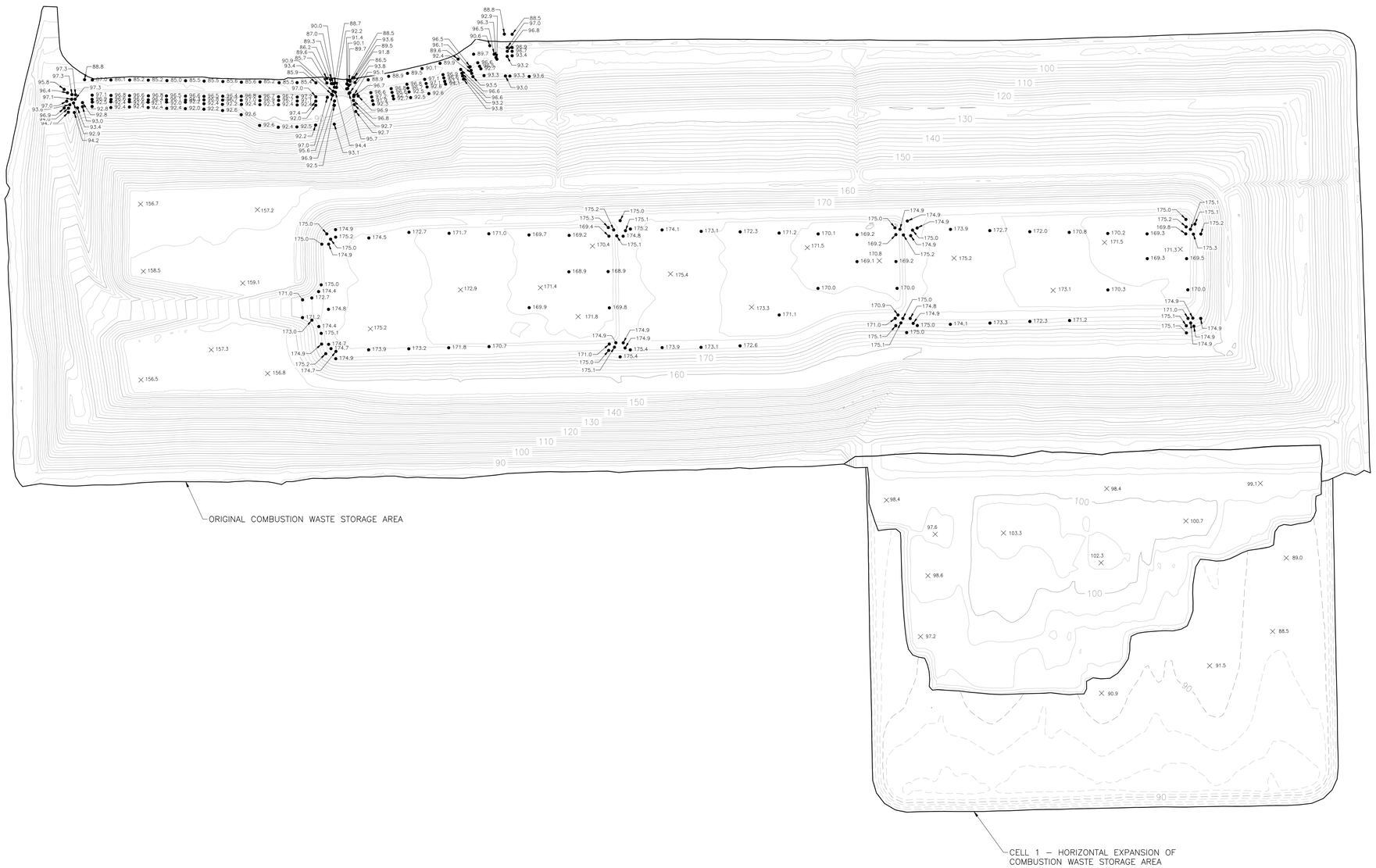
DRAWN BY: PS	CHECKED BY: JM	DATE: 02/09/16
FILE NO. 15-13-0249	APPROVED BY:	FIGURE: 4



N

0 150 300

SCALE: 1"=150'

DATE OF MIKON SURVEY: DECEMBER 10 - 12, 2015

SHEET NOTES:

1. FIELD WORK AND MAPPING FOR LANDFILL TOPOGRAPHY PROVIDED BY MIKON CORPORATION.
2. EXPANSION AREA CONTOURS DEPICT SURFACE OF SOIL FILL AT TIME OF SURVEY ON SEPTEMBER 14 & 15, 2013.

× 173.1 SPOT ELEVATION BY MIKON

DATE OF AMEC SURVEY: MARCH 12, 2016

• 170.3 SPOT ELEVATION BY AMEC

TOPOGRAPHIC SURVEY

Ardaman & Associates, Inc.
Geotechnical, Environmental, and Materials Consultants
A Tetra Tech Company
8008 S. Orange Ave. Orlando, FL 32809
TEL 407/855-3860 FAX 407/859-8121 C.A.N. 5950

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DRAWN BY: PS	CHECKED BY: JM	DATE: 03/10/16
FILE NO. 15-13-0249	APPROVED BY:	FIGURE: 5

Appendix 12

Excerpts from SEC Contractor Orientation Information Guide

ORLANDO UTILITIES COMMISSION
STANTON ENERGY CENTER
CONTRACTOR ORIENTATION

Emergency Phone # 43111 or 3111

CONTRACTOR / COMPANY NAME *

Print Name of Company Above

OUC REPRESENTATIVE*		CONTRACTOR REPRESENTATIVE*	
Print Name Above		*Print Name Above*	
Phone #*	Extension #*	Phone #*	Extension #

JOB/WORK INFORMATION

Date of Orientation*	Date Work Begins*	Date Work is Scheduled to Conclude*

Indicate Peak Number Of Contractor Personnel Expected To Be On Site In Box On The Right		Check The Box On The Right If The Contractor Will Be Bringing Materials On Site That Require An MSDS	☐

System Contractor Is Working On*

Nature Of Work On Site*

SCOPE OF CONTRACTOR ORIENTATION

All Contractors Working On Site Are Required To Review Sections I - IV.

Work Covered by Section V. Special Hazards And Work Conditions

Check Each Box Below that Represents the Needs of the Contractor for Section V of the Contractor Orientation.

☐	1. Fall Arrest	☐	5. Respiratory Protection	☐	9. Process Safety Management
☐	2. Lockout/Tagout	☐	6. Confined Space Procedure	☐	10. Commercial Diving
☐	3. Exposed Energized Electrical Work	☐	7. Welding & Cutting/Hot Work	☐	
☐	4. Scaffold Requirements	☐	8.Trenching and Excavations	☐	

The Following Procedures And Rules Have Been Developed To Protect The Employees And Equipment Of The Orlando Utilities Commission at Stanton Energy Center. It Is Not Meant To Be All Inclusive Nor Does It Relieve Any Contractor Of Any Of Their Responsibility As Defined In The Contract, Or Any Federal, State, Or Local Regulation.

AREAS OF SPECIAL CONCERN

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

CONTRACTOR EMPLOYEE NOTIFICATION

The Contractor is responsible for informing their personnel of the above rules, regulations and information. All employees who will be on site to perform work shall sign the Contractor Employee Notification List. Failure to sign the Contractor Employee Notification List may result in removal of the Contractor employee from site.

CONTRACTOR INJURY/ILLNESS REPORTS

Per the terms of your contract, the Contractor shall conduct investigations on all incidents involving injury to Contractor or subcontractor employees or equipment damage. "Near Miss" incidents where significant injury or equipment damage could have but did not occur shall also be investigated. All investigations shall include corrective action to be taken to prevent re-occurrence and shall be documented in a detail report and submitted to the Owner within 7 calendar days of the incident. The Contractor shall maintain accurate accident and injury records as defined in OSHA Part 1904, Recording and Reporting Occupational Injuries and Illnesses. All OSHA Recordable injuries and illnesses shall be reported to the Owner no later than 12 hours after the accident.

VIOLATIONS

1. Violations of the above rules and regulations may result in the employee and/or contractor being removed from the site.

* _____ * _____

OUC Representative Contractor Representative

EMERGENCY EVACUATION NOTIFICATION☐

1. I have read and understand that the Contractor Representatives must provide a completed Contractor Evacuation List to Security before any personnel enter or any work will begin on site located at the main gate Security office.

* _____

Contractor Representative

All areas with * must be filled out.

CONTRACTOR EMPLOYEE NOTIFICATION LIST

I have been informed, and understand the rules; regulations and information contained in the SEC Contractor Orientation, and understand violation of these rules may result in my removal from site.

COMPANY NAME:			
	Print Name	Signature	Date
1.			
2.			
3.			
4			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			

Competent and Qualified Person Designation Explanation

Definitions:

Competent Person - means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, AND who has the authorization to take prompt corrective measures to eliminate them.

Qualified Person - means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work or the project. Note: Generally speaking, a "Qualified Person" is considered to have a higher level of expertise than a "Competent Person".

Explanation of Competent and Qualified Form:

29 CFR 1926 and 29 CFR 1910 (OSHA) requires your company to provide Competent Persons and/or Qualified Persons for various types of work. The Competent and Qualified Form has multiple boxes to be checked indicating the person(s) designated as "Competent/Qualified Person" for your company, depending on the scope of work. By checking each appropriate box as "Competent/Qualified Person" on the Competent and Qualified Form you are also indicating the person named has met any OSHA requirements for performing duties at this level of responsibility and has the authority to take prompt corrective measures to eliminate hazards and enforce safety rules for your company. Some of the check boxes on the Competent and Qualified Form may not have a specific OSHA regulation that mentions a "Competent or Qualified Person", however, this form is used to ensure OUC contacts the person(s) with the appropriate training and authority to take the actions necessary for the safety of your company's employees. While OUC does not require documentation prior to beginning work on site, OUC reserves the right to request documentation of the training and qualifications of those personnel designated as "Competent/Qualified Person" on the Competent and Qualified Form should plant management deem it necessary at a later date.

Example:

The ABC Construction Company will be replacing underground water piping attached to the potable water tank. Their work will require Lockout/Tag out, Confined Space Work, Welding & Cutting and Excavation while on site.

Name of Competent/Qualified Person:					
	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
✓	2. Lockout/Tag out	✓	6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work	✓	7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements	✓	8.Trenching and Excavations		

The Contractor Representative prints the name of the person(s) on the form who is to be the "Competent or Qualified Person" and checks each item in their scope of work for which they will be the "Competent or Qualified Person", if one person is to be the sole "Competent or Qualified Person", then the contractor should have each item in their scope of work check under his name. If multiple personnel, or personnel with varying qualifications are needed, write the name of the "Competent or Qualified Person" in the space provided and check only those items in the scope of work for which they will be the "Competent or Qualified Person".

Competent and Qualified Form

Based upon their training and experience, the following personnel have the authority of a Competent/Qualified Person Representative for the specific types of work noted by the check marks in the table below. ***This document must be filled out if Section V is filled out.***

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

Name of Competent/Qualified Person:

	1. Fall Arrest		5. Respiratory Protection		9. Hazardous Materials
	2. Lockout/Tagout		6. Confined Space Procedure		10. Commercial Diving
	3. Exposed Energized Electrical Work		7. Welding & Cutting/Hot Work		11. Other
	4. Scaffold Requirements		8.Trenching and Excavations		

INFORMATION GUIDE

EMERGENCY # 43111 or 3111

OUC REPRESENTATIVE _____ EXT. # _____
WATCH ENGINEER EXT. # 43718 or 43507
PLANT PAGING SYSTEM = DIAL 84 and state announcement.

EVACUATION AREA(S):

PRIMARY = AREA # 3 ON MAP - IMMEDIATELY SOUTH OF SEC 1 AQC BLDG.
SECONDARY = AREA # 4 ON MAP - IMMEDIATELY WEST OF SEC 2 CHIMNEY

EMERGENCY PROCEDURES:

1. Medical, Fire and Other Plant Emergencies

For medical, fire and other plant emergencies the Control Room shall be notified using the plant emergency telephone number 3111.

The person making the call should be prepared to relay the following information:
- Type of emergency
- Location of emergency
- Severity of emergency
- Name of caller and telephone number call is being made from

The person making the call shall not break communication until directed to by the Control Room.

Medical and chemical emergencies will be announced over the Public Address system in conjunction with three two (2) second tones of the alarm system. Do not evacuate when the three two-second tones are used.

2. Evacuation Plan

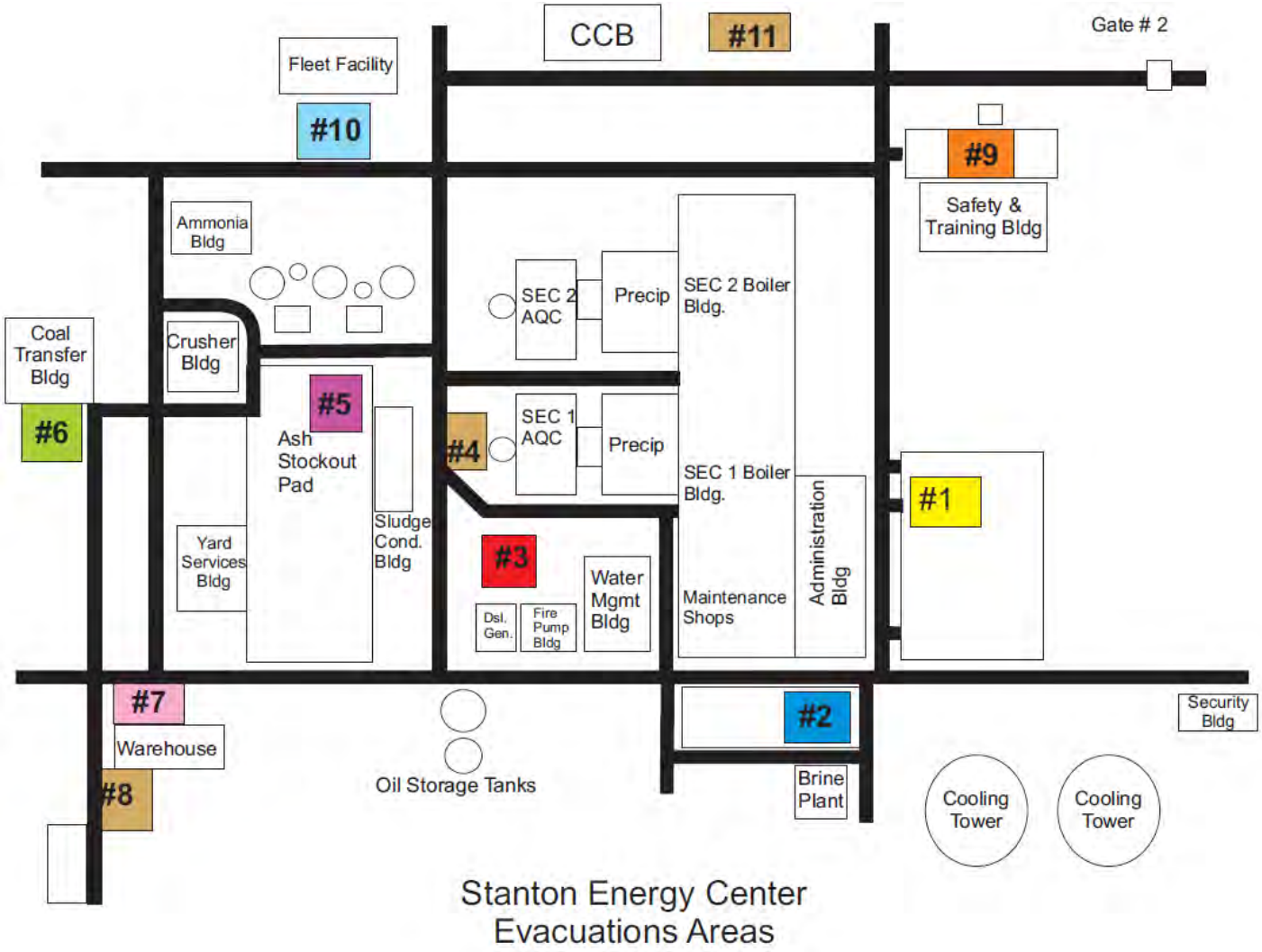
A. In the event a plant evacuation is required an alarm will be sounded three (3) times at 15-second intervals. In between each alarm a verbal announcement will inform all personnel as to the nature of the emergency. Regardless of the verbal announcement, personnel shall evacuate upon hearing the three tones at 15-second intervals and report to their evacuation areas. Regardless of where a fire is located all personnel must report to their evacuation areas when the three 15-second tones are used.

B. Outside contractor personnel shall assemble on the south side of the Air Quality Control Building, location 3 on the evacuation map. The alternate assembly point will be on the west side of the chimney, location 4 on the evacuation map. Elevators shall not be used for plant evacuations.

C. Supervisors shall be responsible to account for their personnel in the assigned areas. The Contractor Representative(s) will provide a Contractor Evacuation List to Security prior to any personnel beginning work or entering the site. The Contractor Representative will also insure that all of the Contractor's personnel entering the site are informed of their evacuation area. Site Security shall drive to each evacuation area and check in with each Supervisor. Supervisors shall inform Security of any missing persons.

D. During the emergency use of the paging system, OUC radios, or calls to the Control Room should be limited to only those calls concerning additional information about the current emergency, or to report a new emergency. An "all clear" will be sounded when normal communications may resume.

E. Personnel shall remain at their assembly areas until released by the Watch Engineer in charge of the emergency scene.



Stanton Energy Center
Evacuations Areas

1) VISITOR PARKING LOT
2) ADMIN. & PLANT SERVICES PARKING LOT
3) SOUTH OF AQC ACROSS ROAD
4) WEST OF UNIT # 1 CHIMNEY
5) PAD WEST OF STOCK OUT PILES
6) SOUTH OF TRANSFER BUILDING
7) N. E. OF WAREHOUSE (Primary)
8) S. W. OF WAREHOUSE (Alternate)
9) SAFETY & TRAINING PARKING LOT
10) FLEET FACILITY
11) CCB

I. SECURITY

1. Identification and Access

A. Authorization for any Contractor, or person to enter to the site, or to remain on site, can be denied solely at the discretion of the Management or the designated OUC Representatives of Stanton Energy Center.
B. All Contractor employees will provide photographic identification to Security as requested upon entering or exiting.
C. All Contractor employees shall be required to wear an identification badge. The badge shall be worn in plain view on the upper part of the body.
D. No employee shall enter any electrical enclosure or substation without prior approval.
E. Contractor Employees shall only be allowed in pre-approved areas.
F. The use of the plant restroom facilities shall be prohibited unless prior arrangements have been made.
G. Smoking shall only be allowed in designated areas.

2. Materials and Equipment

A. Property removal forms are required to take any material or equipment off site. They shall be signed by the appropriate OUC Supervisor.
B. The following are specifically prohibited at the Stanton Energy Center: Firearms or other deadly weapons, explosives or fireworks, alcoholic beverages, narcotics or non-prescription drugs, pets, open fires, posting of unauthorized signs.
C. All vehicles and equipment entering the site are subject to search by Security or other personnel designated by OUC. OUC reserves the right to forbid access to any vehicle, as well as the driver and occupants of any vehicle that is not searched or has deficiencies that may impair the safety of the vehicle or equipment.
D. Material and equipment shall be stored only in pre-approved areas. Unless prior approval is obtained, the use of OUC trash bins, dumpsters, etc., is not allowed. Contractors must make arrangements for storage and removal of all waste products or trash.
E. The use of cameras or video equipment shall be prohibited unless prior arrangements have been made.

II. HAZARDOUS MATERIALS ON SITE

A. The following Extremely Hazardous Materials are found on site in the locations noted (areas covered by the Process Safety Management are in the ***BOLD, Italicized*** print):

1. Anhydrous Ammonia
   A. Ammonia Storage Tank, north side of Unit #1 Boiler Building
   B. ***Ammonia Storage Tanks, Ammonia Storage Building for the SCR System***
   C. ***SCR System in Unit #2 Boiler Building***
   D. Ammonia Feed systems in Unit #1 & #2 Boiler Buildings
2. Asbestos
   A. Some of the breakers on site have transite arc chutes, an Asbestos Containing Material (ACM). Before any work is performed inside SUS breakers, a determination must be made if the breaker has ACM. Any case in which the breaker has ACM, the breaker shall be cleaned of any friable ACM material before work may be performed on the breaker, except by those personnel who meet the requirements for the work to be performed, as found in 29 CFR 1926.1101.
   B. Several of the gaskets used on the steam turbine have ACM impregnated in the gaskets. The removal of these gaskets also must meet the requirements for the work to be performed, as found in 29 CFR 1926.1101.
3. Biocide
   A. South of Unit #1 Main Transformers.

4. Chlorine
   A. *Unit #1 & #2 Cooling Towers*
   B. Domestic Wastewater Treatment Facility
   C. Water Management Building
   D. Cooling Tower Blowdown Treatment (Brine Plant)
   E. Gas Storage Facility
5. Hydrogen
   A. Hydrogen Building
6. Liquid Nitrogen
   A. Liquid Nitrogen Storage Tank *Note: This tank is filled intermittently and is not always available.*
7. Radioactive Materials
   A. Radioactive sources are used for measuring purposes on various piping and vessels. Each source is marked with the appropriate warning sign. Unless entering a vessel using a source, or involved in removal/renovation of a source the exposure on the site is within the levels determined as acceptable for members of the public by the Florida Bureau of Radiation Control and the Nuclear Regulatory Commission.

8. Sodium Hydroxide
   A. Condensate Polishing areas of Unit #1 & #2 Boiler Buildings
   B. Water Management Building
   C. Cooling Tower Blowdown Treatment (Brine Plant)
9. Sulfuric Acid
   A. Unit #1 & #2 Cooling Towers
   B. Water Management Building
   C. Cooling Tower Blowdown Treatment (Brine Plant)
   D. Unit #1 Boiler Building (North side) and Unit #2 Boiler Building (North side)

B. All Contractor personnel working on site must be aware of the presence and hazards of these materials. Any personnel working in the immediate area must be notified of the appropriate actions to take in an emergency involving these materials. The actions to be taken are:

1. Exit the area immediately.
2. Notify the Control Room using the Emergency Procedures noted in the Emergency Procedures section of this document.
3. Follow the directions given by OUC personnel as to evacuation, etc.

C. Contractors whose scope of work will include performing maintenance, repair, renovation or specialty work on any system involving extremely hazardous materials shall perform a Job Hazard Analysis (JHA) for the work to be performed in conjunction with OUC personnel.

D. Contractors bringing hazardous or toxic materials on site shall provide, upon request, an emergency plan for any spill/release of the material they are using, and the appropriate training records for the type of work of the personnel are expected to perform.

E. Potable (Drinking) Water and Re-Use Water

1. The only water that is acceptable for drinking on site is the following:
   a. Spigots found at sinks in offices or restrooms.
   b. Spigots found at sinks inside kitchens.
   c. Drinking fountains.

   DO NOT DRINK FROM ANY OTHER SOURCE OF WATER
2. Emergency Eyewash/Showers use potable water supplies, but it is not recommended they be used for drinking unless thoroughly flushed.
3. All plant Service Water and Fire Water is Re-Use water. This includes all outlets in the plant environment. The Re-Use water is treated wastewater from a local Orange County sewage treatment plant. Water reuse involves taking domestic wastewater, giving it a high degree of treatment, and using the resulting high-quality reclaimed water for a new, beneficial purpose. Extensive treatment and disinfection ensure that public health and environmental quality are protected. The treatment of wastewater prevents it from being considered a hazard for incidental contact. However, Re-Use Water is not considered suitable for drinking, or hygiene activities such as washing the face, hands, etc. When prolonged contact is likely to occur, rubber gloves, rain suits etc. should be used.

III. EMERGENCY PROCEDURES

1. Medical, Fire and Other Plant Emergencies

A. For medical, fire and other plant emergencies the Control Room shall be notified using the plant emergency telephone number 3111.
   1. The person making the call should be prepared to relay the following information:
      Type and Location of emergency.
      Severity of emergency.
      Name of caller and telephone number call is being made from.
   2. The person making the call shall not break communication until directed to by the Control Room.

B. Medical and chemical emergencies will be announced over the Public Address system in conjunction with three two (2) second tones of the alarm system. Do not evacuate when the three two-second tones are used.

2. Evacuation Plan

A. In the event a plant evacuation is required an alarm will be sounded three (3) times at 15-second intervals. In between each alarm a verbal announcement will inform all personnel as to the nature of the emergency. Regardless of the verbal announcement, personnel shall evacuate upon hearing the three tones at 15-second intervals and report to their evacuation areas. Regardless of where a fire is located all personnel must report to their evacuation areas when the three 15-second tones are used.

B. Outside contractor personnel shall assemble on the south side of the Air Quality Control Building, location 3 on the evacuation map. The alternate assembly point will be on the west side of the chimney, location 4 on the evacuation map. Elevators shall not be used for plant evacuations.

C. Supervisors shall be responsible to account for their personnel in the assigned areas. A Contractor Evacuation List will be provided by the Contractor Representatives to Security prior to any personnel beginning work or entering the site. The Contractor Representative will also insure that all of the Contractor's personnel entering the site are informed of their evacuation area. Site Security shall drive to each evacuation area and check in with each Supervisor. Supervisors shall inform Security of any missing persons.

D. During the emergency use of the paging system, OUC radios, or calls to the Control Room should be limited to only those calls concerning additional information about the current emergency, or to report a new emergency. An "all clear" will be sounded when normal communications may resume.

E. Personnel shall remain at their assembly areas until released by the Watch Engineer in charge of the emergency scene.

IV. GENERAL SAFETY

1. Work Apparel and Hearing Protection

A. Hardhats and safety glasses shall be worn at all times (except while in air-conditioned areas or vehicles with enclosed cabs).

B. Good leather work shoes or boots shall be worn. Athletic and open toed shoes shall not be allowed.
   Exception: Athletic style shoes which meet the requirements and specifications established in the American Standard Safety Requirements for Foot Protection ANSI *Z41-1991 may be worn*.

C. Shirts covering the full trunk and upper arm shall be worn. Cut off jeans or shorts shall not be allowed. Minimum acceptable apparel is considered a Cotton Tee-Shirt and Cotton Pants. Personnel who may be exposed to arcs or flames shall not wear apparel that may increase their injuries in an accident. Further guidelines for proper apparel for personnel who may be exposed to arcs or flames can be found in 29 CFR 1910.269 and the additional requirements noted in Section V, Paragraph - 3 Exposed Energized Electrical Work of this document.

D. Hearing protection shall be worn while working in excessively noisy areas or when using tools that exceed 90 decibels. Further information on hearing protection requirements may be found in 29 CFR 1910.95.

2. Vehicular Safety

A. Unless otherwise stated, only company owned or rented vehicles will be allowed on site. All contractor employee personal vehicles shall park in the construction parking lot unless otherwise designated.
B. Personnel riding in the bed of a pickup truck shall not sit above the floor of the bed unless provided with a suitable seat with a backrest that prevents them from falling out of the vehicle. Sitting on the tailgate while the vehicle is in motion is strictly prohibited.
C. Personnel shall not ride on the running boards, fenders, etc., of any vehicle.
D. All persons operating motor vehicles must have the appropriate license for the vehicle being operated.
E. The project speed limit is 15 mph unless otherwise posted.

3. Housekeeping

A. Special attention shall be given to keeping the inside of the structures and surrounding grounds clean and free from trash and debris. Work areas and storage areas shall be continuously cleaned each workday.
B. All hoses, cables, extension cords, and similar materials shall be located, arranged, grouped and routed overhead so that they will not block any access way or work area, and will permit easy cleaning and maintenance.
C. Material and supplies shall be stored in an orderly manner to prevent their falling or spreading, and to eliminate tripping and stumbling hazards.
D. Flammable and combustible liquids shall only be stored, or dispensed, using Underwriters Laboratories or Factory Mutual listed safety containers and only in approved quantities.
E. Gas or diesel powered vehicles and equipment shall not be allowed in any building unless prior approval has been obtained; a Welding and Cutting Permit is utilized to receive approval.
F. Upon completion of work, all equipment, material and waste shall be removed from the plant site.
G. Any operation that produces air contaminants above the permissible exposure limits noted on the Material Safety Data Sheet for the material being used, or above the limits set in Table Z-1-A (29 CFR 1910.1000), shall provide engineering controls to restrict the exposure of air contaminants above the limits to only those personnel working in the immediate area of the work to be performed. The suggested method of protecting the adjacent areas from air contaminants above the limits is a ventilation/exhaust system with tenting if necessary. The exhaust of the system must have the appropriate filter(s) to prevent the air contaminants from producing an exposure above the permissible exposure limits. Other methods of controlling the air contaminant exposure requires approval by the Manager of Maintenance or PRBU Safety & Training Manager prior to beginning to perform the work.

   The need for protecting the adjacent areas from air contaminants shall be assumed unless the Contractor can provide documentation from a Certified Industrial Hygienist that the exposure level is below the permissible exposure limits. Any dust or other contaminant produced from the operation is the Contractor's responsibility, and the Contractor shall ensure it is cleaned/removed upon completion of the work unless prior arrangements have been made.

4. Hazardous or Toxic Materials

A. The Contractor shall provide Material Safety Data Sheets covering all hazardous materials furnished under or otherwise associated with the work under this contract in accordance with applicable federal, state and local laws. Before entering the site, the contractor must provide a copy of all the Material Safety Data Sheets for the materials that will be used on site to perform their work, or any of their subcontractor's work. Should additional materials be needed after work has begun, the materials must receive approval by OUC and the MSDS must be on site and supplied to OUC before the material is brought on site.
B. All hazardous and toxic material brought on site, *or generated by the work process*, shall be clearly labeled with the Contractor's name. All containers must have the appropriate labels containing the information on the hazards of the materials. The minimum requirements for day use containers or similar containers that do not have the appropriate manufacturers warning label are: the trade name of the product, a hazard warning such as the NFPA 704 system or H.M.I.S. System.

C. Hazardous and toxic materials shall only be stored in pre-approved locations.

D. Contractors are responsible for all hazardous materials or toxic materials brought on site or generated by their work and shall properly dispose of all hazardous and toxic material for which they are responsible at their cost unless prior arrangements are made. Contractors shall immediately report any spills to the appropriate OUC representative.

5. Fire Equipment and Fire Hydrants

A. Fire equipment and fire hydrants shall not be used unless there is an emergency or unless prior approval has been given.
B. To prevent hydrant damage when using a fire hydrant, it shall be opened all the way when in use and closed all the way when not in use.
C. If a plant fire extinguisher is used it shall be turned in to the appropriate OUC representative.

6. Ladders

A. All ladders and use of ladders shall comply with 29 CFR 1910.25, 1910.26 and 1910. 27.
B. Site Specific Rules regarding ladders are the following:
   1. Portable metal ladders shall not be used. Exception: Such ladders may be used in specialized work, as high voltage substations, where non-conductive ladders might present a greater hazard. These ladders shall be properly marked.
   2. Ladders shall not be used as scaffold platforms.
   3. Boxes, chairs, etc., shall not be used as ladders.
   4. Portable straight ladders shall be used only if they have non-skid bases.
   5. When working from a portable ladder, employees shall ensure that the ladder is securely placed, held, tied, or otherwise made secure to prevent slipping or falling.
   6. Personnel working from portable ladders shall wear fall arrest equipment whenever they are exposed to a fall of 24 feet or more.

7. Mechanical

A. Pulley, gear and similar equipment guards shall be replaced if removed.
B. No work shall be performed in close proximity to running conveyor belts.
C. No one shall ride, stand on, or cross over a conveyor.

8. Cranes, Hoists, Forklifts and Heavy Equipment

A. Prior approval must be obtained before using any plant crane, hoist, forklift or heavy equipment.
B. Only qualified persons shall operate any crane, hoist, forklift or heavy equipment.
C. All Contractor hoists and cranes must meet the requirements as specified in 29 CFR 1910 and 1926.
D. Upon request, the Contractor must provide the inspection records of any Contractor supplied hoist or crane to be used on site.
E. All forklift operators must have a license/certification as being qualified to operate a forklift and a current valid evaluation indicating they have the skills necessary for the type of forklift they will be using.

9. Area Protection and Access

A. Work area protection is the adequate protecting of all employees by the use of suitable barriers, warning signs, lights, flags, flagmen, etc., as the job requires on approaches to work areas, excavations, open manholes, floor holes, etc. Proper work area protection shall be preplanned.
B. Safe access shall be provided to all work areas.
C. Any open floor hole with a vertical dimension greater than four (4) feet shall have a suitable barrier with appropriately constructed guardrails, midrails and toeboards, or suitable cover, designed for 2 times the intended load. For short duration jobs, warning tape with signs denoting that 100% Fall Protection is needed, in conjunction with a standby employee to ensure personnel entering the designated area wear the appropriate fall arrest equipment, may be utilized. The barricade tape must be placed at least six (6) feet from the edge of the fall exposure and the standby employee must be present AT ALL TIMES WHEN THE FLOOR HOLE IS OPEN.
D. Open manholes are required to have a suitable barrier with appropriately constructed guardrails, midrails and toeboards.

E. Any *Leading Edge* type of fall exposure (roof, walkway without handrails etc.) in excess of four (4) feet shall be protected appropriately constructed guardrails, midrails and toeboards. For short duration jobs, warning tape with signs denoting 100% Fall Protection is needed may be used. The barricade tape must be placed at least six (6) feet from the edge of the fall exposure. All personnel entering past the barricade tape must wear the appropriate fall arrest equipment.

10. Tools and Equipment

A. All portable power tools, portable lighting, and other temporary equipment require the use of a Ground Fault Circuit Interrupter (GFCI).
B. Electrical equipment and tools shall be wired and grounded as required by applicable electrical codes.
C. Appropriate guarding shall be used on tools and equipment.
D. Defective tools and equipment must be identified as defective by tagging, marking etc. and may not be used until repaired.
E. Use of OUC tools or equipment is forbidden unless authorized by the OUC Representative.

11. Operation and Modification of Equipment

A. Contractor employees shall not operate any switch, valve, breaker, etc., unless they receive approval from their OUC representative and the Tagging Authority for the equipment they need to operate.
B. Contractor employees shall not make any circuit logic, control modifications, or other modification to equipment without approval from the appropriate OUC representative.

V. SPECIAL HAZARDS AND WORK CONDITIONS

1. Fall Arrest

A. Fall arrest equipment shall be properly used when exposed to a fall in excess of six (6) feet, when the use of other fall protection means are not practical. Fall protection shall be provided 100% of the time personnel are exposed to a fall in excess of six (6) feet, with the exception of working from a portable ladder with a fall exposure of twenty-four (24) feet in height or lower. Any time personnel work from a portable ladder in excess of than twenty-four (24) feet, or climb a fixed ladder that has a fall exposure greater than twenty-four (24) feet; the appropriate fall protection measures must be taken. Appropriate fall arrest equipment is considered the following:

1. A full body harness is required for use as part of the fall arrest system. A body belt or a chest harness is not considered proper fall arrest equipment.
2. All lanyards used for fall arrest shall have double locking snap hooks.
3. All lanyards used for fall arrest shall have a shock absorber that limits the arresting force to less than 900 pounds in the event of a fall.
4. Those devices which limit the fall distance in such a manner as to ensure the arresting force does not exceed 900 pounds may be used without a shock absorber (e.g.: retractable lifelines, ladder clamps, etc.).

Note: Floor Holes and Leading Edge Fall Exposures require fall protection or fall arrest at an exposure of 4 feet.

B. Additional requirements and information on fall protection may be found in 29 CFR SUBPART M.

2. LOTO Procedure (Lockout/Tagout)

A. Stanton Energy Center requires all contractors to comply with 29 CFR 1910.269(d) - Hazardous Energy Control (Lockout/Tagout) Procedures, the SEC LOTO Procedure will be used to ensure the control of hazardous energy.
B. No personnel shall work in such proximity to any part of an electric power circuit that he may contact in the performance of the work unless protected against electrical shock. Effective protection is considered to be the following:
   1. De-energize the circuit and use of the SEC LOTO Procedure.
   2. If the circuit is required to be worked on while energized, it must be guarded by effective insulation or other means and must conform to the guidelines for work performed on energized equipment, as found in 29 CFR 1910.269 and the additional requirements noted in Paragraph - 3. Exposed Energized Electrical Work of this document.

C. Anytime personnel must de-energize or de-pressurize equipment to perform their work safely, the requirements of the SEC LOTO Procedure must be followed. Precautions to relieve, or block, stored energy must also be taken. Examples are, but are not limited to:
    1. Capacitors.
    2. Pressure trapped in piping or vessels.
    3. Spring operated equipment.
    4. Hydraulics.
    5. Eccentrics
D. The SEC LOTO Procedure uses three different colored tags for the purposes of preventing equipment from being operated. Violation of any of these tags may cause serious injury or equipment damage. Any contractor employee violating a LOTO Tag will be removed from site.
E. Red Tags: Operations hangs Red Tags to prevent operation of equipment. Equipment that is Red Tagged may only be operated by Operations personnel, and only after approval has been obtained from the Tagging Authority.
    1. The SEC LOTO Procedure requires "Blockout" with Red Tags. Blockout is the use of a heavy-duty tie-wrap to prevent inadvertent operation of equipment similar in manner to the use of a lock for this purpose.
F. Yellow Tags: Personnel designated as Primary Authorized Employees hang Yellow Tags. Equipment that is Yellow Tagged may only be operated under the authority and by direct communication with, the Primary Authorized Employee.
    1. The SEC LOTO Procedure requires "Blockout," or Lockout, to be used with Yellow Tags in compliance with the provisions of the SEC LOTO Procedure. Blockout is the use of a heavy-duty tie-wrap to prevent inadvertent operation of equipment similar in manner to the use of a lock for this purpose. The decision as to which is appropriate, Blockout or Lockout, is the responsibility of the Primary Authorized Person.
G. A Yellow Tag shall not be placed on equipment that has a Yellow or Red Tag already placed on it, and a Red Tag shall not be placed on equipment with a Yellow Tag or Red Tag hung on it.
H. Blue Tags: When equipment is tagged to prevent injury to personnel, a Blue Tag is hung adjacent to a Red or Yellow Tag by a person designated as a Lead Authorized Person. <u>No equipment may be operated while a Blue Tag is attached to the equipment.</u>
    1. Only Lead Authorized Persons may hang OUC/PRBU Blue Tags and perform the other duties assigned this designation in the SEC LOTO Procedure.
    2. A Blue Tag shall only be removed by the Lead Authorized Person who hangs the tag, except under the Emergency Release Provisions of the SEC LOTO Procedure.
    3. Contractor employees who have been designated as Lead Authorized Persons may provide Blue Tag administration for contractor employees using the provisions of the SEC LOTO Procedure. Only personnel designated by the OUC PRBU Safety & Training Manager may be Lead Authorized Persons. The designation of Lead Authorized Person is based upon successfully passing training requirements and demonstration of the proper use of the SEC LOTO Procedure.
    4. Contractors who have no person designated as a Lead Authorized Person will have their personnel work under the Blue Tags of an OUC Representative that has the designation. The OUC Lead Authorized Person will create an Authorized Person Clearance Log. All contractor employees working under the Blue Tags of an OUC Lead Authorized Person shall sign on the Authorized Person Clearance Log before beginning work, and shall sign off of the Authorized Person Clearance Log when the work is complete, or when they will no longer be working on the equipment. The OUC Lead Authorized Person shall not remove a Blue Tag if any signatures are not cleared from (signed off) the Authorized Person Clearance Log.
    5. Each contractor employee is responsible for his or her own LOTO device (signature). No person shall sign for another person, work under the signature of another person, or sign off for another person on the Authorized Person Clearance Log except under the Emergency Provisions of the SEC LOTO Procedure.
    6. When the OUC Lead Authorized Person deems it necessary, they have the authority to require all contractor employees to sign off the Authorized Person Clearance Log at the end of each work shift when contractor employees are leaving the site for the day.
    7. The OUC Lead Authorized Person has the authority to require the contractor to designate a "Senior Authorized Person". The Senior Authorized Person is responsible to ensure all contractor employees sign on and off the Authorized Person Clearance Log as needed for their protection and provide the completed Authorized Person Clearance Log to the OUC Lead Authorized Person as needed to control hazardous energy.

3. <u>Exposed Energized Electrical Work</u>

A. No employee shall approach or take any conductive object closer to exposed, energized lines or equipment than set forth in TABLE 1 in this section unless, the employee is *Qualified* as per the definition in 29 CFR 1910.269 and the employee is insulated from the energized part(s) using gloves, sleeves, or tools rated for the voltage of the exposed, energized part(s), or the exposed energized part(s) are insulated from the employee.

B. All personnel performing exposed, energized, electrical work on equipment under the exclusive control of Stanton Energy Center shall barricade unshielded areas and wear the appropriate level of protective apparel (ATPV Rating) within the barricaded area. The distance the unshielded area shall be barricaded shall conform to the following:

50 volts to 599 volts = 10 feet
Greater Than 600 Volts = 20 feet

Note: Exposed, energized, work on electrical equipment not under the exclusive control of Stanton Energy Center shall conform to the appropriate guidelines and regulations per the authority having control of the equipment.

C. All electrical protective devices shall meet the requirements of 29 CFR 1910.137 as minimum standard.

D. Additional requirements may be found in 29 CFR 1910.269.

TABLE 1

AC LIVE-LINE EXPOSURE MINIMUM APPROACH DISTANCE

NOMINAL VOLTAGE PHASE TO PHASE	DISTANCE	
	PHASE TO GROUND EXPOSURE (FT - IN)	PHASE TO PHASE EXPOSURE (FT - IN)
50 to 1000	AVOID CONTACT	AVOID CONTACT
1100 to 15000	2 - 1	2 - 2
15100 to 36000	2 - 4	2 - 7
36100 to 46000	2 - 7	2 - 10
46100 to 72500	3 - 0	3 - 6
72600 to 121000	3 - 2	4 - 3
138000 to 145000	3 - 7	4 - 11
161000 to 169000	4 - 0	5 - 8
230000 to 242000	5 - 3	7 - 6
345000 to 362000	8 - 6	12 - 6
500000 to 550000	11 - 3	18 - 1
765000 to 800000	14 - 11	26 - 0

4. Scaffold Requirements

A. Detailed regulations on specific types of scaffolding are given in 29 CFR, Part 1926 Subpart L.
B. Competent persons as defined by 29 CFR 1926.450 (b) must be designated to supervise the erecting, moving, dismantling, and alteration of scaffolds.
C. A Competent Person shall check all scaffolding each shift (prior to use) to ensure it is of sufficient strength and rigidity to safely support the weight of workers and material to which it will be subjected.
D. The following rules are site-specific requirements for scaffolding and supports.

1. Scaffolds 4 feet and higher must have standard guardrails and midrails installed on all open sides and ends of the platform where feasible. If standard guardrails and midrails are not installed on all open sides and ends of the platform, the scaffold must denoted as requiring fall protection using the Yellow Scaffold Tag. Toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor unless other precautions are taken for personnel.
2. All scaffolds shall have the appropriate tag hung indicating their suitability for use. Only the competent person in charge of the erection/dismantling of the scaffold may sign the scaffold tag. The scaffold tag shall be signed and dated in the spaces provided on the back of the tag. Any other pertinent information may be written on the back of the tag.
    a. When any scaffold is incomplete (such as during erection or dismantling) or damaged, the red colored scaffold tag shall be hung appropriately. The front of the red scaffold tag will read as follows:

    WARNING-THIS SCAFFOLD IS NOT COMPLETE-DO NOT USE

In the event a piece(s) of scaffold is damaged it shall be tagged and the reason noted on the back of the tag under the warning header. The damaged piece of scaffold shall be removed from service and placed out of service, with the tag remaining in place, until the scaffold piece(s) is repaired or destroyed.

b. In the event a scaffold must be built which is unable to have the guardrails and midrails, or has a ladder access with a fall hazard of greater than 24 feet, fall protection shall be used. Any scaffold which requires the use of fall protection shall have a yellow scaffold tag hung appropriately. The front of the yellow scaffold tag will read as follows:

CAUTION-FALL PROTECTION MUST BE USED ON THIS SCAFFOLD

For those scaffolds which require fall protection only because the ladder access exceeds 24 feet, the competent person shall indicate on the back of the yellow scaffold tag (under CAUTION header) that fall protection is needed only while climbing/descending the ladder access.

c. Those scaffolds that are complete and meet the proper specifications shall have a green scaffold tag hung appropriately. The front of the green scaffold tag will read as follows:

. ATTENTION: THIS SCAFFOLD WAS BUILT TO MEET PROPER SPECIFICATIONS IT IS SAFE TO USE.

d. Any scaffold which is tagged with a green or yellow scaffold tag shall have the tags removed and replaced with a red scaffold tag before any modification may be made which changes the safety status of the scaffold.

e. Scaffold tags shall be hung at approximately eye level and adjacent to each ladder access. In the event the scaffold does not have a ladder access, the tag shall be placed at each access location where it is easily visible before accessing the scaffold.

5. <u>Respiratory Protection</u>

A. Respirator protection shall be worn when required. The Contractor's Respiratory Program shall meet the applicable O.S.H.A standard for the operation or maintenance to be performed. Upon request, the records of your respirator program shall be provided to OUC for the personnel needing to use respiratory protection. This information must contain, but not be limited to, the following:

1. Training record for the type of respirator to be used.
2. Medical clearance for respirator use.
3. Fit test records for tight fitting respirators requiring a seal on the face.
4. Methods used to determine the change out schedule for respirator cartridges.

The PRBU Safety & Training Manager is the PRBU Respiratory Program Administrator has final authority on the type and level of respiratory protection used; unless the Contractor provides written authorization to use a different level of respiratory protection from the Contractor's Respirator Program Administrator. The written authorization must include the data and methodology used to determine the level of respiratory protection.

B. Additional information on respiratory protection may be found in 29 CFR 1910.134 and 1910.120.

6. <u>Confined Space Procedure</u>

A. A Confined Space Entry Permit shall be obtained before entering into any confined space. The Confined Space Entry Permit shall be obtained from the appropriate OUC Representative.

1. A confined space is any one of the following areas that employees may need to enter in the course of their work:
   a. A structure such as a boiler or condenser
   b. A container such as a tank, drum, sump, vault, or other vessel
   c. A pipe, ventilation or exhaust duct, sewer, coal silo, mill, manhole.

2. Any structure which was not designed for continuous human occupancy where there may be a lack of oxygen or where potentially explosive, flammable, poisonous, asphyxiant, suffocant, or anesthetic vapors or gases could be

present in hazardous amounts. Any structure in which engulfment or entrapment is possible. Confined spaces should be marked; however, lack of proper marking does not relieve personnel of determining if the space requires to be considered as a confined space prior to entry.

B. Responsibilities:
   1. Contractors Representatives: Shall coordinate their requests for a Confined Space Permit through their OUC representative. Unless other arrangements are made through the OUC representative, it is the Contractor's responsibility to assign a qualified person to authorize a Confined Space Permit, as the Person in Charge of the Work, and to provide a rescue plan, the personnel, equipment and/or devices necessary to ensure the requirements of the Confined Space Permit are met.
   2. Supervisors: It shall be all supervisors' responsibility to inform their employees of the requirements of the Confined Space Entry Procedure and the hazards associated with working in confined spaces and to initiate disciplinary action for any violation of the procedure.
   3. Employees: It shall be all employees' responsibility to abide by the requirements of the Confined Space Entry Procedure.

C. Personnel required to enter a confined space shall obtain a Confined Space Entry Permit from the appropriate authorized person.

D. The employee issuing the permit and the employee requesting the permit shall fill out the permit and it shall be posted in a conspicuous location near the entrance to the confined space.

E. The following items shall be considered and the appropriate actions taken before anyone enters the confined space:
   1. The atmosphere shall be tested to determine the oxygen percentage level and the presence of explosive or toxic gases, fumes, or dust.
      a. Only an approved instrument shall be used. Instruments found not working properly shall immediately be repaired.
      b. Employees conducting the tests shall be properly trained.
      c. All levels of the confined space shall be tested to ensure there are no pockets of hazardous gases, fumes, or oxygen deficient areas.
      d. If long work in the confined space is anticipated, tests shall be conducted periodically to ensure that safe conditions are maintained. A test shall be conducted a minimum of once each shift to ensure the atmosphere remains in a safe condition.
      e. Constant monitoring may be required based on the hazards and the work being performed (i.e., welding, painting, coating, using chemicals). In the Air Quality Control Building constant monitoring for Sulfur Dioxide is required inside the modules and the connecting ductwork while the boiler is in operation.

F. All test results shall be recorded on the Confined Space Entry Permit.

G. Detailed requirements for welding in confined spaces are given in 29 CFR, Part 1910.252.

H. Entry into a confined space with an unsafe atmosphere shall be avoided if at all possible. An employee required to enter a confined space with an unsafe atmosphere shall be equipped with the necessary personal protective equipment. Any entry into a confined space with an unsafe atmosphere requires a consultation with OUC Plant Management and the methods of protecting employees must be agreed upon before work may be performed. Any entry into a confined space with an atmosphere that is Immediately Dangerous to Life or Health (IDLH) requires a Job Hazard Analysis (JHA) and consultation with Plant Management, the PRBU Safety & Training Manager or designee.

I. The confined space shall be ventilated as required to ensure a continuous supply of breathing air to the work area.

J. The SEC LOTO Procedure shall be used to ensure all equipment and systems that could affect the confined space are rendered inoperative.

K. If required, the space shall be prepared by isolation, draining, venting and cleaning.

L. No employee shall enter a confined space unless a standby employee (hole man) is stationed outside the entrance.
   1. It shall be the standby employee's responsibility to provide assistance to the employees working in the confined space, and to summon emergency assistance in the event of an emergency.
   2. The standby employee shall not enter the confined space or leave the area without being replaced by another employee.
   3. It shall be the standby employee's responsibility to keep track of employees entering and exiting the confined space. He/she shall log them in and out on the back of the Confined Space Entry Permit.

M. The “Person in Charge of the Work” as denoted on the OUC-SEC Confined Space Permit shall ensure a rescue plan, rescue equipment and fire equipment are available in the event of an emergency. The rescue plan must indicate the

equipment required for extricating personnel in an emergency and must be at the entrance to the confined space under the control of the standby employee with a copy of the OUC - SEC Confined Space Permit.

1. If the contractor is providing their own rescue services:
    a. The name of the response team or person(s)and their response time must be indicated on the Rescue Plan. The response time must be no longer than four minutes for the rescuer(s) to respond to the scene.
    b. The availability of rescue services for each shift that entry occurs in the confined space must be denoted on the Confined Space Permit in the appropriate location.
    c. The OUC Representative and Watch Engineer must be notified each shift entry occurs that the contractor is providing their own rescue services for the confined space.
2. If OUC is providing rescue services:
    a. There must be an SEC approved Rescue Plan and there must also be a SEC Rescue Checklist for use by the SEC Emergency Response Team at the entrance to the confined space under the control of the standby employee.
    b. Any deviation(s) from a SEC approved rescue plan must be approved by the PRBU Safety & Training Division.
    c. Any confined space that must be entered for which there is not a SEC pre-approved rescue plan requires a plan to be written and approved by the PRBU Safety & Training Division before entry is allowed.
    d. In cases where there is not a PRBU Safety & Training representative available, the OUC Representative <u>and</u> a SEC Confined Space Qualified ERT member may authorize the deviation to the Rescue Plan or write a new rescue plan.
    e. To ensure SEC ERT Confined Space Rescue Services are available, the Person in Charge of the Work shall call the Watch Engineer, and verify the availability of rescue services and denote it in the appropriate space on the Confined Space Permit.

N. A communication system shall be preplanned to include communications between the standby person and employees inside the confined space, and a method to call for emergency assistance.

O. Safe access to the confined space shall be maintained at all times.
    1. If the confined space is entered by a ladder, the ladder shall remain in place and shall be fastened in a firm position while employees are inside the confined space.
    2. If possible, all cords, hoses, leads, etc., shall be routed through an entrance other than the employee access into the confined space.

P. All electrical equipment used shall be properly grounded. GFCI protection is required for use with portable lighting and portable power tools used in confined spaces.

Q. To prevent the latching of self-locking doors or hatches while employees are working inside a confined space, the locking devices shall be made inoperative before employees enter.

R. No work activities that cause or produce open flames, such as welding, shall be performed without a Welding and Cutting Permit.

S. Electric welding, gas welding, cutting, or any other hot work, shall not be performed on the interior, exterior, or near the openings of any confined space that may contain flammable or explosive vapors until the confined space has been properly cleared.

T. Compressed gas bottles other than compressed air shall not be allowed in a confined space.

U. All entryways deeper than five (5) feet vertically require a mechanical device (e.g., Tripod) for emergency extrication to be in place at all times while personnel are in the Confined Space.

V. After the permit has been hung, but before any employee enters the confined space, a pre-entry briefing with all employees required to enter the confined space shall be conducted by the person in charge of the work. The briefing shall cover all the items required to safely enter the confined space and the hazards associated with working in confined spaces.

W. When the work in the confined space is complete, the person that requested the permit shall ensure all personnel and equipment are out of the confined space. They shall then sign off on the permit and turn it in to their supervisor. The supervisor shall turn it in to the PRBU Safety Coordinator or their OUC representative.

X. Failure to follow the guidelines of the confined space procedure may require work to stop until the correct procedures are followed. The determination as to who is responsible for the cost of a work stoppage will be determined by the OUC Representative and Contractor Representative.

7. Welding and Cutting/Hot Work

A. A welding and cutting/ hot work permit is required whenever welding, cutting or heating is done. Welding and cutting permits shall be coordinated through the appropriate OUC representative.
B. When welding or cutting in elevated positions, precautions shall be taken to prevent sparks and hot metal from falling on people and equipment below. Walls, roofs, ceilings, pipes, tanks and partitions shall be assessed to determine if welding or cutting on them will cause a fire due to conductive heat, radiated heat or sparks from the hot work process. Conveyors and ductwork shall be considered when performing welding, cutting or other hot work that might carry sparks or otherwise cause a fire at a distant location. The conveyors or ducts must be protected, or shut down to prevent fires due to the welding, cutting or hot work if is determined the work may cause a fire. The person requesting the permit or the OUC Representative shall notify the Watch Engineer or appropriate Operations Area Supervisor when beginning work, and at the end of each shift that the day's hot work has concluded until the hot work being performed under the permit is complete.
C. Welding screens shall be used while working next to other employees or walkways and stairways.
D. Suitable fire extinguishing equipment shall be immediately available at all locations where welding and cutting work is being performed.
E. A fire watch shall be provided during and after the work is completed to ensure no fire hazards exist. The minimum length of time for a fire watch is 30 minutes, however, based upon the determination of the OUC Representative, the fire watch may be required for up to an hour.

8. Trenching and Excavations

A. Before any work is started, all underground structures and utilities affected by the work shall be located and marked. A map or drawing of the proposed excavation or trenching and any obstructions must be reviewed by all personnel involved in the trenching or excavation and agreement reached as to the methods used to ensure no underground utilities or structures are damaged during the process of the excavation or trenching.
B. All excavations 5 foot or deeper shall be shored or sloped in accordance with Federal, State and local standards.
C. All excavations 4 feet or deeper shall have a ladder for access into the excavation with no more than 25 feet of travel in any direction.
D. Spoil piles shall be kept a minimum of 2 feet from the edge of the excavation.
E. The soil type on site is to be considered Type C for excavations and trenches.
F. All excavations or trench operations shall be inspected and supervised by a “Competent Person” as designated in 29 CFR 1926 Sub Part P - Excavations.
G. Further information on the requirements for excavations and trenching can be found in 29 CFR 1926 Sub Part P - Excavations.

9. Process Safety Management

A. The Stanton Energy Center has two systems which are covered by 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals:
    1. The Selective Catalytic Reduction Ammonia system (SCR) which is used to reduce NOx emissions on SEC Unit # 2.
    2. The Chlorine Injection system used to chemically treat the cooling water at both the SEC Unit # 1 & # 2 Cooling Towers.

B. In accordance with 29 CFR 1910.119 (h) (1) (Process Safety Management), the Orlando Utilities Commission is required to review the safety performance and safety program of contractors who perform maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to systems that are covered by the standard as part of the evaluation used to determine the award of contracts. In order for your company to be evaluated for award of the contract, a completed, signed and dated Contractor Safety Evaluation form must be submitted along with a copy of the contractor’s Experience

Modification Rate (EMR) on Insurance Company Letterhead. Failure to submit the Contractor Safety Evaluation will remove the Contractor from the qualified contractor/vendor list and the contractor will not be eligible for award of the contract.

C. All contractors awarded work that is on the systems covered by the Process Safety Management Standard shall provide documentation that all employees have received training in the potential fire, explosion, or toxic release hazards related to his/her job and the process and the applicable provisions of the emergency plan. The documentation shall include the identity of the contract employee, the date of the training, and the means used to verify that the employee understood the training. In addition, a Job Hazard Analysis (JHA) is required for all work on systems covered by the Process Safety Management Standard and the JHA must be reviewed by all personnel involved in the work prior to the work beginning, and as needed, during the progress of the work. Any modification to the JHA during the job must be approved by the senior contractor supervisor on site and either the OUC/PRBU Safety & Training Manager or Stanton Energy Center Maintenance Manager, or their designees.

D. All contractors awarded work that is on the systems covered by the Process Safety Management Standard shall report any injuries or illness related to work in the process areas immediately and shall provide an injury and illness log on a weekly basis to the Safety & Training Manager.

E. All contractors awarded work that is on the systems covered by the Process Safety Management Standard shall comply with all other pertinent provisions of 29 CFR 1910.119 that are not mentioned in this document.

10. <u>Commercial Diving Operations</u>

A. All diving operations shall conform to the non-diving safety procedures contained in the Contractor Orientation.

B. The Watch Engineer on duty shall be made aware of each day's planned diving activities.

C. Diving operations will be supervised by an OUC representative.

D. Any diving operation taking place at the intake of a pump or pumps shall be a surface supplied air dive with helmet and shall meet all requirements as outlined in 29 CFR 1910.425.

E. An operational 2-way voice communication system shall be used for all dives.

F. Communications shall be checked at least each 3 minutes. A correct response from the diver is required to continue the dive.

G. All divers must be line-tended.

H. Detailed information concerning the requirements for diving operations is given in 29 CFR 1910. SUBPART T Commercial Diving Operations.

Appendix 13

Excerpts from OUC Operational Guide, Emergency Plan Procedures

OUC EMERGENCY NUMBERS

To report an EMERGENCY (requiring immediate help)

Reliable Plaza, Gardenia, Pershing & St. Cloud
Call: **9-911** EMS and **x44911** SMC

Stanton Energy Center
Call: **x43111** Control Center

Indian River Plant
Call: **3-911** EMS and **x44911** SMC

OUC The *Reliable* One®

SMC = OUC Security Monitoring Center
When calling from an outside phone, dial 407-434-4911 to reach the SMC

OUC NON-EMERGENCY NUMBERS

To Report a Non-Emergency Accident or Injury

Call: **x46111** Service Dispatch

OUC The *Reliable* One®

Other Phone Numbers

Security Guards

x46100 407-434-6100 — ***Reliable Plaza***
x46200 407-434-6200 — ***Pershing***
x46300 407-434-6300 — ***Gardenia***
x43136 407-434-3136 — ***SEC Main Gate***

Stanton Energy Center
407-658-6444

OUC Emergency Operational Guide

Emergency Plan Procedures

ORLANDO UTILITIES COMMISSION
ORLANDO, FLORIDA

REVISED AUGUST 2010

OUC Emergency Preparedness

Overview
The emergency plan procedure is established to provide a continuing program to prepare for, respond to, and recover from any emergency or disaster and to assure maximum protection, continuity, and recovery of personnel, property, and services.

OUC recognizes the essential role that must be played by all personnel in planning to minimize the effects of any type of disaster, which might strike the Commission's, electric, and water facilities distribution or support systems. Two general types of disasters that could threaten normal operations are Natural Disasters or Manmade Disasters.

Natural Disasters: (Types of natural phenomena)
• Hurricanes
• Severe Thunderstorms/Lightning
• Extreme Cold Weather Conditions
• Tornadoes/High Winds
• Flooding
• Fires
• Sinkholes
• Drought

Man-Made Disasters:
• Terrorist Attacks
• Civil Disorders
• Chemical/Hazardous Material Spills
• Arson
• Vandalism
• Bomb Threats
• Major Fires or Explosions
• Transportation Accidents or Derailments

The most common type of emergency condition encountered in the past has been hurricanes. OUC has been through a number of these conditions and has a standard procedure in place. If the disaster is the result of terrorist action, some advance warning may be received. In the event of terrorist attack, the Commission's contribution of electric power and uncontaminated water supply is essential to survival and to post attack recovery. The effectiveness of this contribution will depend upon any blast damage to the system and the extent of completion of pre-attack preparation.

Employee Expectations
Maximum support to OUC's Divisions is required by both management and employees in times of emergency. Emergency preparedness plans are designed to show employees where and when to report to a pre-assigned station. While OUC is under a level I status an employee may be asked to perform duties different from their normal work load. They may also report to a different person depending on the task assigned.

Because OUC provides an essential public service, the forced closing of its facilities is unlikely. However, as a result of severe weather conditions which may include hazardous driving conditions and other weather-related problems beyond employees' control (e.g., the closing of schools), work attendance maybe affected. In such instances, special procedures will be

Power Resources Branch

The Power Resources Branch is responsible for securing all OUC power plants prior to an event and restoring their operations in the event of a major incident. The Power Resources Branch Director shall have primary responsibility for implementation and direction of the procedures to secure and restore the plants as deemed necessary.

Power Resources Branch Director

- **Report to the Operation's Section Chief**

Responsibilities: (See Appendix E for detailed plan)

Power Resources Director's role is to oversee securing the plant before an incident and restoring the plant to normal operating status as needed.

Preparation Phase

LEVEL 2

- ❑ All loose material on the plant premises which might create damage during high winds shall be removed or secured.
- ❑ Bracing for roll up doors should be located.
- ❑ The radiator for the Emergency Diesel Generator should be assessed for additional protection from wind-driven hazards and protective action taken.
- ❑ Contact CCA and ensure they are aware of the hurricane status and are taking the appropriate precautions.
- ❑ All pumps and auxiliary equipment at all outlying pump structures shall be checked for proper operation
- ❑ All plant sump pumps and ash pumps shall be checked for status and operation condition
- ❑ The location and condition of foul weather gear shall be checked and should obtain new gear as necessary.
- ❑ If high rainfall is predicted, check position of all basin outlet gates.
- ❑ Operating condition of plant auxiliary power systems shall be checked
- ❑ Advise all plant personnel that a Watch is in effect, and explain the time to be given for their domestic responsibilities in order that they may be available for emergency. Review the OUC Employee Handbook Section 1 page 171 - 175, Weather Policy, and explain assignments that will probably be made as the situation develops.
- ❑ Review personnel roster and plan to provide the extra personnel that may be required for the anticipated emergency
- ❑ Secure air-monitoring stations by checking for loose items and continue normal operation.
- ❑ Check No. 2 oil tank and check No. 5 oil tank levels. Top off raw water, potable and de-ionized water tanks. Top off emergency diesel generator and fire pumps
- ❑ Plant vehicles should be properly serviced and fueled.
- ❑ Contact OUC Telecommunications to acquire microwave phones for use as needed.

- ❑ Make certain that supplies of battery-powered lights, spare bulbs, and spare batteries for all battery-powered devices are adequate
- ❑ Check operation and security of normal and emergency communication equipment between plants and Load Dispatch Center.
- ❑ Determine food requirements and other supplies required for those personnel remaining at the plant during the hurricane.
- ❑ Close windows and doors
- ❑ Place a 6" pump for use in drainage & flood control inside the building near the unit # 2 Forced Draft Fans
- ❑ Make a copy of plant operating procedures for hurricane conditions available in the Control Room
- ❑ Top off coal silo and additive storage tanks. Override key for additive feed storage tank mixers.
- ❑ Operations personnel shall be alerted to standby for Pond Water Level Control if not during normal duty hours.
- ❑ Check operation of battery-operated AM/FM radio, OUC radios and cellular phone.
- ❑ Decide if it is advisable to disconnect electrical supply to all streetlights for the fixtures at Coal Handling.

LEVEL 1

- ❑ Switching operations will be implemented as directed by the Control Center to place the system in the most reliable condition
- ❑ Bracing for roll up doors should be applied
- ❑ All plant vehicles will be moved to the most secure positions available on the plant sites
- ❑ Systems should be shut down to control nuisance breaker trips and electrical shorts in various areas of the site. This will be performed as directed
- ❑ Remaining road signs should be removed
- ❑ The Stacker/Reclaimer should be secured
- ❑ The equipment at the Sludge Conditioning Building should be secured
- ❑ Verify the Auxiliary Boiler is available for use

Operational Phase:

During event

- ❑ Plant loads will be adjusted as directed by the Load Dispatcher.
- ❑ Availability of units and estimated availability of damaged units will be furnished to the Load Dispatchers.
- ❑ Units will be loaded as directed as system recovery proceeds.

After Event

- ❑ The Plant Director or his designee will coordinate the operation of the Indian River Plant Combustion Turbines as needed to support the needs of the Stanton Energy Center and OUC Transmission System during, and after, the Hurricane.
- ❑ Damage to plant and equipment will be assessed as rapidly as possible, and reported Estimates of repair requirements and assistance, beyond the capabilities of plant personnel, shall be a part of this report.
- ❑ Availability of units and estimated availability of damaged units will be furnished to the System Operators.

- ❑ Units will be loaded as directed as system recovery proceeds.
- ❑ Verify with System Operations, integrity of the 17-21 Distribution Line. This is the power for phone system at SEC.
- ❑ The Stanton Energy Center has minor damage, or no damage, at the discretion of the Plant Director SEC personnel may be assigned to assist other areas of the Commission to complete recovery operations.

TERMS

What is a Hurricane?

A hurricane is a type of tropical cyclone, which is a generic term for a low pressure system that generally forms in the tropics. The cyclone is accompanied by thunderstorms and, in the Northern Hemisphere, a counterclockwise circulation of winds near the earth's surface. Tropical cyclones are classified as follows:

Tropical Depression

An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds* of 38 mph (33 kt**) or less

Tropical Storm

An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph (34-63 kt)

*** Sustained winds**
A 1-minute average wind measured at about 33 ft (10 meters) above the surface.

**** 1 knot** = 1 nautical mile per hour or 1.15 statute miles per hour. Abbreviated as "kt".

Hurricane

An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph (64 kt) or higher

HURRICANE WATCH indicates the **possibility** that you could experience hurricane conditions (sustained winds of 74 mph or higher) within **48 hours.**
This watch should trigger your family's disaster plan, and protective measures should be initiated, especially those actions that require extra time such as securing a boat, leaving a barrier island, etc.

HURRICANE WARNING indicates that sustained winds of at least 74 mph are **expected** within **36** hours or less.
Once this warning has been issued, your family should be in the process of completing protective actions and deciding the safest location to be during the storm.

****HURRICANE WATCH – STANTON ENERGY CENTER/INDIAN RIVER PLANT ****
(ACTIVATION LEVEL II - 48 HOUR NOTICE OF POSSIBLE HURRICANE FORCE WINDS)

PLANT MANAGEMENT

- Advise all **Personnel** that a Watch is in effect
- **Contact Stanton A and Reliant** regarding OUC weather plans and the status of their preparations
- **Review OUC Weather Policy** with employees and remind all personnel to keep OUC identification with them when traveling to/from SEC
- **Develop staffing plan**. Request volunteers from Operations and Maintenance group. Advise personnel of the possibility of extended shift work. Verify that employee emergency phone numbers are current ***(See list at end of document).*** **NOTE: Depending upon the location and direction of the storm, SEC Employees residing in Brevard County may need to be released early to allow safe travel home.**
- Direct all plant vehicles should be serviced and fueled.
- **Finalize list and begin procurement of supplies and food** needed to sustain personnel at site during storm. **(*See guide at end of document*)**
- **Sleeping Accommodations** – Provide air mattresses and sheets for 80 persons (supplied from OUC-Pershing)
- **Create time and material tracking system (work orders, etc.) for labor hours and material costs to support FEMA provisions.**
- **FUELS**
  1. Evaluate the need for using OUC tank trailers and trucks or renting additional tank trucks and scheduling drivers to provide No. 2 Fuel Oil to IRP. Determine location for staging trucks if needed.
  2. Evaluate Coal Suppliers and Rail Company plans for delivery through anticipated duration of hurricane watch and warning.
  3. Make provisions for railroad (crossing equipment, signs, etc.) repair after the hurricane has passed.
- **WAREHOUSE** - Begin securing supplies on pallets **(*See guide at end of document*)**
- **Contact OUC ICC Operations Section Chief or Incident Commander to communicate action taken.**

UNIT 1/2 OPERATIAONS	PLANT MAINTENANCE	SITE MAINTENANCE	STANTON B	INDIAN RIVER PLANT
Verify operational status of **outlying pumps and auxiliary equipment**	Locate bracing for **roll up doors**	**Remove loose materials** on plant grounds	Verify operational status of **outlying pumps and auxiliary equipment**	Verify operational status of **outlying pumps and auxiliary equipment**
Verify operational status of plant **sump and ash pumps**	Inspect **Emergency Diesel Generator radiator** for risk of wind damage	**Inspect buildings** for secure wall panels, doors, etc.	Locate bracing for **roll up doors**	**Remove loose materials** on plant grounds
Check position of all **basin outlet gates**	Organize **standby crew** to reside onsite during the hurricane	**Secure mobile equipment**, and vehicles	**Remove loose materials** on plant grounds	Inspect **Emergency Diesel Generator radiator** for risk of wind damage
Verify operational status of **Aux Boiler and auxiliary power systems Test Fire Aux Boiler**	Secure air-monitoring stations	De-install **non-essential road signs**	**Inspect buildings** for secure wall panels, doors, etc. **Close all windows and doors**	**Inspect buildings** for secure wall panels, doors, etc. **Close all windows and doors**

Check/top off **bulk oil tank** (No. 2 and 6) levels	Close all windows and doors		**Secure mobile equipment**, and vehicles	**Secure mobile equipment**, and vehicles
Verify operational status of emergency communication systems - Radios– Base Station at Main Control Room, Remote Units - Land Lines - Cell Phones	Rent (2) 6" drainage-flood control pump (one Mudhen pump)		Verify operational status **auxiliary power systems**	Verify operational status **auxiliary power systems**
Provide copy of Hurricane Procedures to Main Control Room	Evaluate need to isolate electrical service for fixtures at Coal Handling		Check/top off **bulk oil tank**	Check/top off **bulk oil tank** **Fill Portable fuel containers/top off portable equipment**
Top off coal silos	Power off: 1. Front Street Lights - Breaker Panel 1-APC-LPL-F531 (at Emergency Diesel Generator Bldg.) 2. Coal Pile Lights – Breaker Panel 1-APC-LPL-F922 (in the Coal Transfer Bldg.)		Verify operational status of emergency communication systems - Radios– - Land Lines - Cell Phones	Verify operational status of emergency communication systems - Radios– - Land Lines - Cell Phones
Top off additive storage tanks			Verify Remote Operation of outlying facilities from Control Room	Verify Remote Operation of outlying facilities from Control Room
Empty Brine Tanker – Park vehicle in the A&B Centrifuge Room				
Verify Remote Operation of outlying facilities from Control Room				

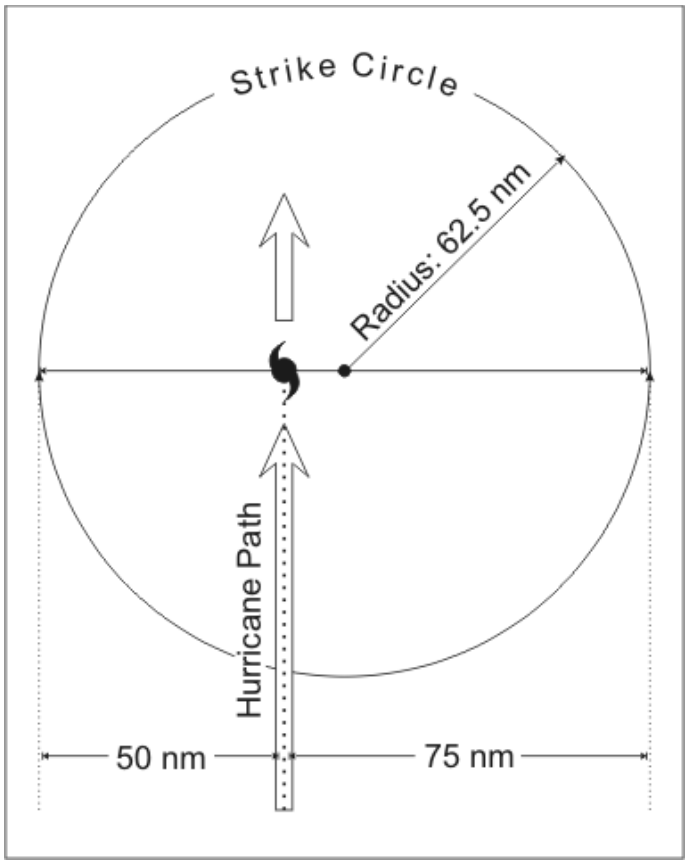
****HURRICANE WATCH – STANTON ENERGY CENTER/INDIAN RIVER PLANT ****
(ACTIVATION LEVEL I - 36 HOUR NOTICE OF POSSIBLE HURRICANE FORCE WINDS)

PLANT MANAGEMENT

- **Advise all SEC employees that a Hurricane Warning is in effect.**
- Receive instructions from **Load Dispatch**
- Contact **DTE Energy** to advise plans for **Landfill Gas**.
- **Finalize and Communicate Staffing Plan** to operate facility during storm
- Complete procurement of supplies and food.
- Monitor news reports for road closures
- Insure that all personnel not assigned to work during the storm are sent home 12 hours in advance.
- Move all plant vehicles to secure locations (indoors) with keys left in the vehicles.
- Move all employee vehicles to location TBD.
- Insure that all work assignments have been communicated to appropriate personnel 12 hours in advance of hurricane winds.
- **WAREHOUSE – Move supply pallets to Crane Bay by Unit 1 Boiler Building.**

OPERATIONS	MAINTENANCE	SITE MAINTENANCE	STANTON B	INDIAN RIVER PLANT
Park diesel tank truck near Emergency Diesel Generator Bldg.	Install bracing for roll up doors	De-Install remaining road signs	Install bracing for roll up doors	Secure reference materials and records in trailer
Evaluate the need to isolate all **Chemical feed systems** (Ammonia, Sulfuric Acid, Caustic, Chlorine, Bulk Fuel oil tanks, etc.) Verify that gas cylinders are secure	Move 2 six inch diesel sump pumps under Unit 1 and Unit 2 Precipitators		Evaluate the need to isolate all **Chemical feed systems** (Ammonia, Sulfuric Acid, Bulk Fuel oil tanks, etc.)	
To prevent nuisance alarms and electrical outage, consider shutdown of the following; 1. Coal handling 2. 2 Spray Levels – Units 1 and 2 AQC 3. Precipitator Fields 4. Brine Plant	Secure all Outside Overhead Cranes			
Assess the need to Shut off Fire Suppression system to GSU MAT and RATS				
Evaluate the need to isolate the Biogas supply				
Secure the Stacker/Reclaimer				
Secure equipment in Sludge Conditioning Bldg. (radial stacker, conveyors, vehicles, etc.) (**HVFL Operations)**				

**HURRICANE STRIKE – STANTON ENERGY CENTER/INDIAN RIVER PLANT **   *(HURRICANE FORCE WINDS HAVE REACHED SITE)*
PLANT MANAGEMENT
• Category 1 and 2 Hurricanes – Adjust Plant Loads as directed by Load Dispatch   • Category 3 and Higher – Evaluate need to shutdown Units   • **Move all onsite personnel to designated storm-protected areas (Maintenance Shops) inside SEC Main Building and IRP.**



POST HURRICANE STRIKE – STANTON ENERGY CENTER/INDICAN RIVER PLANT *(HURRICANE HAS TRAVELED AWAY FROM AREA – WIND SPEED < 30 mph)*				
PLANT MANAGEMENT				
• **Initiate Site Damage Evaluation and Repair** • Coordinate with Load Dispatch to Evaluate Storm impact on Coal and Natural Gas Supply • **Contact OUC ICC Operations Section Chief or Incident Commander** to communicate status. • **Notify Employees of return-to-work plans**				
OPERATIONS	**PLANT MAINTENANCE**	**SITE MAINTENANCE**	**STANTON B**	**INDIAN RIVER PLANT**
Inspect chemical storage tanks - Return chemical and gas supply systems to normal status.	Return Overhead Cranes to normal status	Re-Install all road signs	Inspect chemical storage tanks - Return chemical and gas supply systems to normal status.	Inspect site for debris
Return Stacker Reclaimer to normal status	Use pumps to transfer water as needed	Inspect site for debris	Return mobile equipment/ vehicles to normally designated parking locations.	Inspect buildings for damage and repair as needed.
Return mobile equipment/ vehicles to normally designated parking locations.	Remove bracing for roll up doors	Inspect buildings for damage and repair as needed.	Inspect site for debris	
	Re-Energize all breakers supporting Street and Coal Pile Lighting		Remove bracing for roll up doors	
			Return mobile equipment/ vehicles to normally designated parking locations.	

STAFFING OPTIONS	SUPPLIES (SMALL ARTICLES PALLETIZED)
Operations Crews 2 (weekday) = 30 3 (weekend) = 45	1 Case of Duct Tape
Machine Shop - 10	4 Rolls of Plastic 20' wide x 100' (6 mil)
Electric Shop - 5	24 D Cell Batteries
Instrument Shop - 5	12 Flashlights (2 D Cell Type)
Management - 3	8 6 Volt Flashlights (Lantern)
Security Personnel - 3	4 100' Electrical Extension Cord
VFL - 2	1 Spool (600') of 3/8" Rope
Engineers - 3	1 Spool (600') of 1/4" Rope
Labor Crew - 9 (2 Janitorial)	8 Cases of Aerosol Tire Sealant
Fleet Mechanic - 1	8 6 Volt Batteries
Warehouse - 2	1 Bundle (48 sheets) of plywood (1/˜" thick)
Environmental - 1	1 Bundle (96 boards) of 2" x 4" x 8' boards
Safety - 1	20 Assorted size tarps
TOTAL: 75-90	Portable Flood lights (placed in the I&C Pick-up Truck)
	Note: 200 ea. – 40 lb. bags of Builders Sand with 200 reinforced polypropylene bags on pallets covered with shrink wrap should be staged at the SEC # 1 FD Fans by the North Door (These bags and sand should normally be kept in the Temporary Warehouse out of the weather).

MEAL AND FOOD SUPPY GUIDE

PLAN – Supply meals for 4 days for 80 individuals. All meals prepared in 2nd Floor Kitchen or 2nd Floor warehouse area. Management will be responsible for purchasing food and preparing meals

MEAL PLAN
DAY 1 - DINNER- 06:00 PM CATER MEAL FOR ALL PLANT HURRICANE TEAM MEMBERS
DAY 2 BREAKFAST BACON/SAUSAGE EGGS TOAST
DAY 2 LUNCH HOT DOGS BAKED BEANS CHIPS ICED TEA
DAY 2 DINNER HAMBURGERS AND CHICKEN CORN ICED TEA
DAY 3 - BREAKFAST PANCAKES BACON
DAY 3 - LUNCH PIZZA ICED TEA
DAY 3 - DINNER SPAGHETTI WITH MEAT SAUCE GARLIC BREAD
DAY 4 BREAKFAST BACON/SAUSAGE EGGS BUSCUITS
DAY 4 LUNCH/DINNER BBQ BOSTON BUTTS GREEN BEANS POTATOES ICED TEA

FOOD LIST TO SUPPORT MEAL PLAN	
MEATS	**QUANTITY**
Meatballs	250 meatballs
Hamburgers	440 hamburger patties
Hot Dogs	
Chicken	120 pieces
Boston Butts	61lbs. / 8 Butts
Bacon	X Lbs.
Sausage Links	X Lbs.
Pasta	32 Lbs.
Pizzas	24 (14 inch)
Potatoes	
Green Beans	
Baked Beans	
Corn	
Pancakes	
Eggs	
Garlic Bread	16 loaves
Sliced Bread	
Hot Dog Buns	
Chips	
Spaghetti Sauce	36 Jars
Tea	
Syrup	6 Bottles
Charcoal	

Appendix 14

SEC Fire Emergency Procedures

3.5 SEC FIRE EMERGENCY PROCEDURES

3.5.1 Major Fire

A. The Control Room shall be notified using the plant emergency telephone number 3111. The person making the call should be prepared to relay the following information: Type of emergency, location of emergency, severity of emergency, name of caller and telephone number call is being made from. The person making the call shall not break communication until directed to by the Control Room.

B. The Watch Engineer or Watch Engineer's designee (Control Center Operator) shall enact the plant evacuation plan and alert the Emergency Response Team.

1. Sound the fire alarm 3 times at 15 second intervals. Using the emergency paging system, announce the following between each alarm signal: "We have a fire emergency at (then give the exact location of the emergency. Give the building name, floor, direction and equipment reference point.) Please report to your assigned evacuation area."

2. All personnel shall evacuate all buildings and gather at their assigned areas with the exception of the following: (Note: the following should remain only if safe to do so.)

Main Bldg.	- Control Center I (Control Center Operator)
Scrubber	- Env. Systems Operator (Control Center Operator)
Waste Water Treatment Bldg.	- Aux. Operator I (Control Center Operator)
Sludge Conditioning Bldg.	- Lead Operator (Control Center Operator)

(Note: elevators should not be used to evacuate the building.)

3. The assigned evacuation areas are as follows:

a. Personnel assigned to the Control Center Building, Administration and Plant Services Building shall gather in the Visitor Parking Lot, location 1 on the SEC Evacuation Map. The alternate assembly point will be the Administration and Plant Services Parking Lot, location 2 on the SEC Evacuation Map.

b. Personnel assigned to the Waste Water Treatment Building will assemble in the Administration and Plant Services Parking Lot, location 2 on the SEC Evacuation Map. The alternate assembly point will be the Visitor Parking Lot, location 1 on the SEC Evacuation Map.

c. Personnel assigned to the Air Quality Control Building shall assemble on the south side of the building across the pavement, location 3 on the SEC Evacuation Map. The alternate assembly point shall be on the west side of the Unit #1 chimney, location 4 on the SEC Evacuation Map. (Rev. 3/27/96)

d. Personnel assigned to the Sludge Conditioning Building shall assemble on the pad west of the sludge stock out piles, location 5 on the SEC Evacuation Map. The alternate assembly point shall be on the west side of the Unit #1 chimney, location 4 on the SEC Evacuation Map. (Rev. 3/27/96)

e. Personnel assigned to the Material Handling Area shall assemble at the south side of the Transfer Building, location 6 on the SEC Evacuation Map. The alternate assembly point shall be the area west of the sludge stock out piles, location 5 on the SEC Evacuation Map.

f. Personnel assigned to the Permanent Warehouse shall assemble on the north edge of the parking lot on the north side of the building, location 7 on the SEC Evacuation Map. The alternate assembly area will be on the southwest corner of the fenced-in area, on the south side of the building, location 8 on the SEC Evacuation Map.

g. All site visitors shall assemble in the Visitor Parking Lot, location 1 on the SEC Evacuation Map. The alternate assembly area shall be the Administration and Plant Services Parking Lot, location 2 on the SEC Evacuation Map. Plant Security shall account for visitors using the gate log book.

h. Outside contractor personnel shall assemble on the south side of the Air Quality Control Building, location 3 on the SEC Evacuation Map. The alternate assembly point shall be on the west side of the Unit #1 chimney, location 4 on the SEC Evacuation Map. (Rev. 3/27/96)

i. Contract labor shall assemble in the Administration and Plant Services parking lot, location 2 on the SEC Evacuation Map. The alternate assembly area shall be the Visitor Parking Lot, location 1 on the SEC Evacuation Map.

j. Personnel assigned to the Safety & Training building will utilize the parking lot north of the Safety & Training building as their primary evacuation area. The primary evacuation area will be designated as Area #9. The main parking lot east of the Administration Building is designated as the alternate evacuation area (Area #1) for personnel assigned to the Safety & Training building. During normal working hours All OUC personnel assigned to the Stanton Energy Center as their normal workplace who are attending training at the Safety & Training building must report to their regular evacuation area. All other OUC personnel, or non-OUC personnel attending training will be accounted for as if assigned to the Safety & Training building. The Training Coordinator, or his designee, will determine if any personnel are missing from the PRBU Safety & Training Division, and will utilize the attendance roster(s) to verify personnel in training classes are in evacuation area #9 (or area #1 if alternate is used). Any personnel not in the evacuation area must be reported as missing. After normal working hours All personnel attending the Craft training classes will report to area #9 (or area #1 if alternate is used). The Lead Craft Training Instructor, or designee, will utilize the attendance list to verify the personnel in evacuation area #9 (or #1 if alternate is used). Any personnel not in the evacuation area must be reported as missing. (ERT members will be reported as missing because they will respond to the scene, not the evacuation area). (Revised 7/30/98)

k. Personnel assigned to the SEC Fleet Maintenance Facility will utilize area #10 (west of the building) as their primary evacuation area and area #11 (south of the building) as their alternate evacuation area. (Revised 12/1/98)

4. Supervisors shall be responsible to account for their personnel in the assigned areas. Site security shall drive to each evacuation area and check-in with each Supervisor. Supervisors shall inform security of any missing persons. After checking with each evacuation area, security shall report to the Watch Engineer in charge of the emergency scene. (Note: Supervisors shall list members of the Emergency Response Team as missing when reporting to security. Emergency Response Team members shall report to the Watch Engineer in charge of the emergency scene. The Watch Engineer shall keep a list of members that have reported. The Watch Engineer shall compare their list to Security's list to ensure all Emergency Response Team members are accounted for.)

5. Personnel shall remain at their assembly areas until released by the Watch Engineer in charge of the emergency scene.

C. The Watch Engineer or Watch Engineer's designee (Control Center Operator) shall call 911 and request outside emergency services.

D. Upon hearing the evacuation notice, the Plant Emergency Response Team shall report to the emergency location. It shall be the Watch Engineer's responsibility to have the emergency vehicle and trailer taken to the emergency location. The Watch Engineer or Watch Engineer's designee shall be in charge of the emergency scene.

E. The Watch Engineer or Watch Engineer's designee shall contact the Service Dispatcher, extension 4088 or outside line 9-384-4088. Information relayed to the Service Dispatcher shall include:

- Type of emergency,
- Location,
- That 911 has been called.

F. The Watch Engineer or Watch Engineer's designee shall send a person to the Main Gate. The person shall wait for the emergency vehicles and escort them to the accident scene.

G. It shall be the Watch Engineer's or Watch Engineer's designee's responsibility to notify the following:

- Plant Director appropriate Supervisor,
- PRBU Safety & Training Manager,
- Environmental Engineer,
- others as deemed necessary or as denoted in the ERT Standard Operating Procedures.

H. Personnel should not use the radio, PA system, or phone the Control Room except in regards to safe plant operation, or personnel involved in the emergency. To ensure personnel know when the emergency is over, an "All Clear" message will be given to indicate the emergency is over. The following is how the "All Clear" will be administered: (Rev. 1/19/96) Upon determining the incident is secure and it is safe to resume normal plant communications, the Watch Engineer or Senior Emergency Response Team member will have the following message announced over the PA system: "Attention all plant personnel, the emergency is now secure, you may resume normal communications". (Rev. 1/19/96) The Watch Engineer or Senior Emergency Response Team member will have each area evacuated, checked, and have any personnel in the evacuation areas notified the emergency is over and they may return to work either to the whole Plant or individual buildings. After evacuation, no personnel shall enter a building or leave the Plant site until so directed. (Rev. 1/19/96)

I. During a fire emergency, site security shall limit access to the site and egress from the site to emergency personnel only.

J. A Fire Watch will be posted as decided necessary by the Watch Engineer.

3.5.2 Minor Fires

A. At Stanton Energy Center all fires must be reported. Those that have been extinguished will be considered as a minor fire. If the fire has not been extinguished it is considered a Major Fire. Follow PRBU Guidelines in reporting and notifying the proper personnel.

B. The Control Center shall be notified.

C. The Watch Engineer and those designated from the Emergency Response Team shall check the emergency scene to ensure possible re-ignition or other fire hazards are eliminated. The Watch Engineer or Watch Engineer's designee shall notify the Emergency Response Team members deemed necessary by name using the plant paging system (84).

D. The Emergency Response Team members will assemble at the minor fire emergency scene and size up the emergency.

E. After the minor fire emergency scene is determined safe by the Watch Engineer and the designated Emergency Team Members, personnel may return to work.

~~F. At any time the minor fire emergency re-ignites, or otherwise begins to burn, the procedure for major fires may be initiated.~~

F. A Fire Watch will be posted as decided necessary by the Watch Engineer.

The Watch Engineer or Watch Engineer's designees shall then contact the Commission Service Dispatcher, extension 4088 or outside line 9-384-4088. Information relayed to the Field Operations Dispatcher shall include:

- type of emergency,
- location,
- fire is under control.

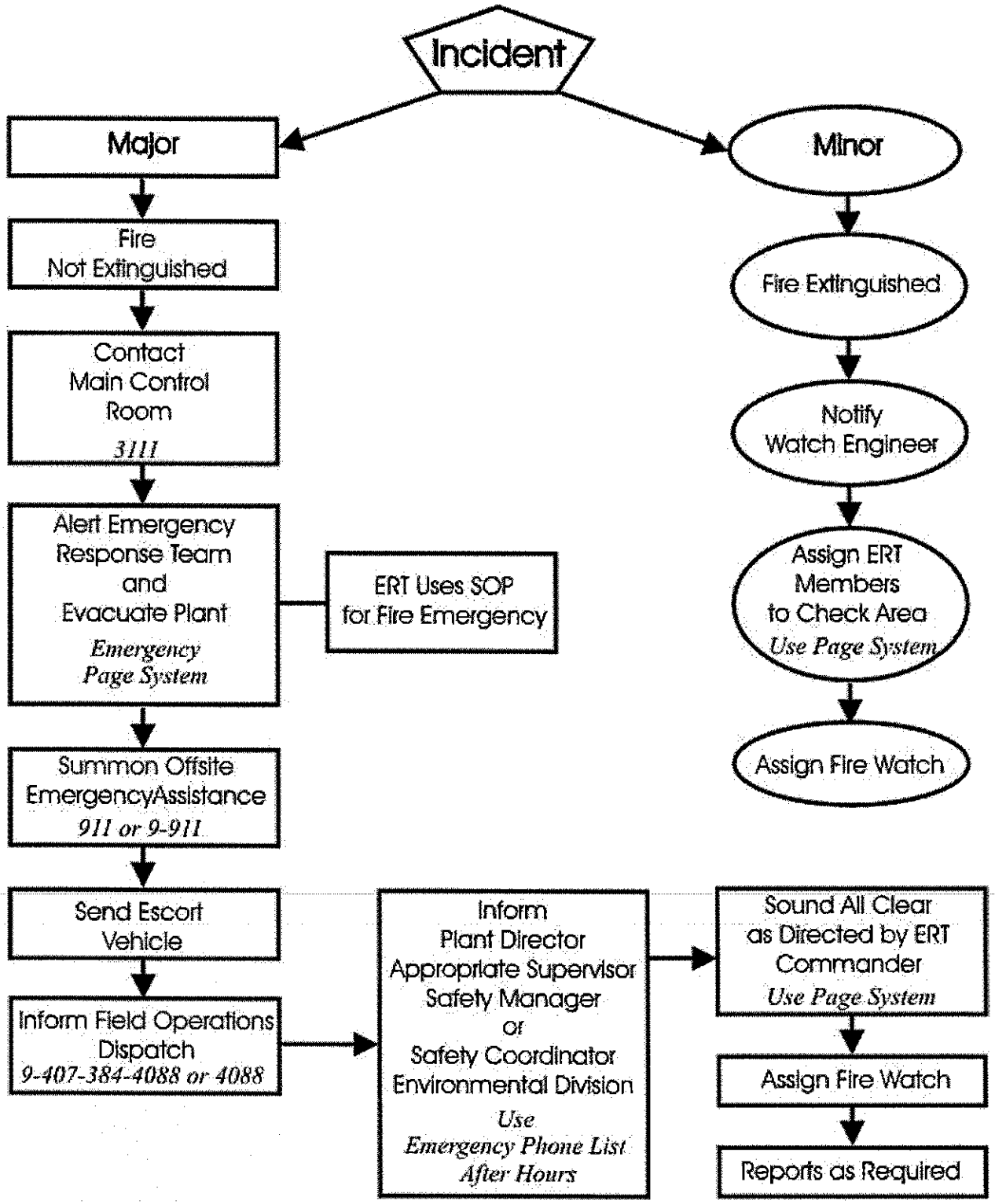
G. It shall be the Watch Engineer's or Watch Engineer's designee's responsibility to notify the following:

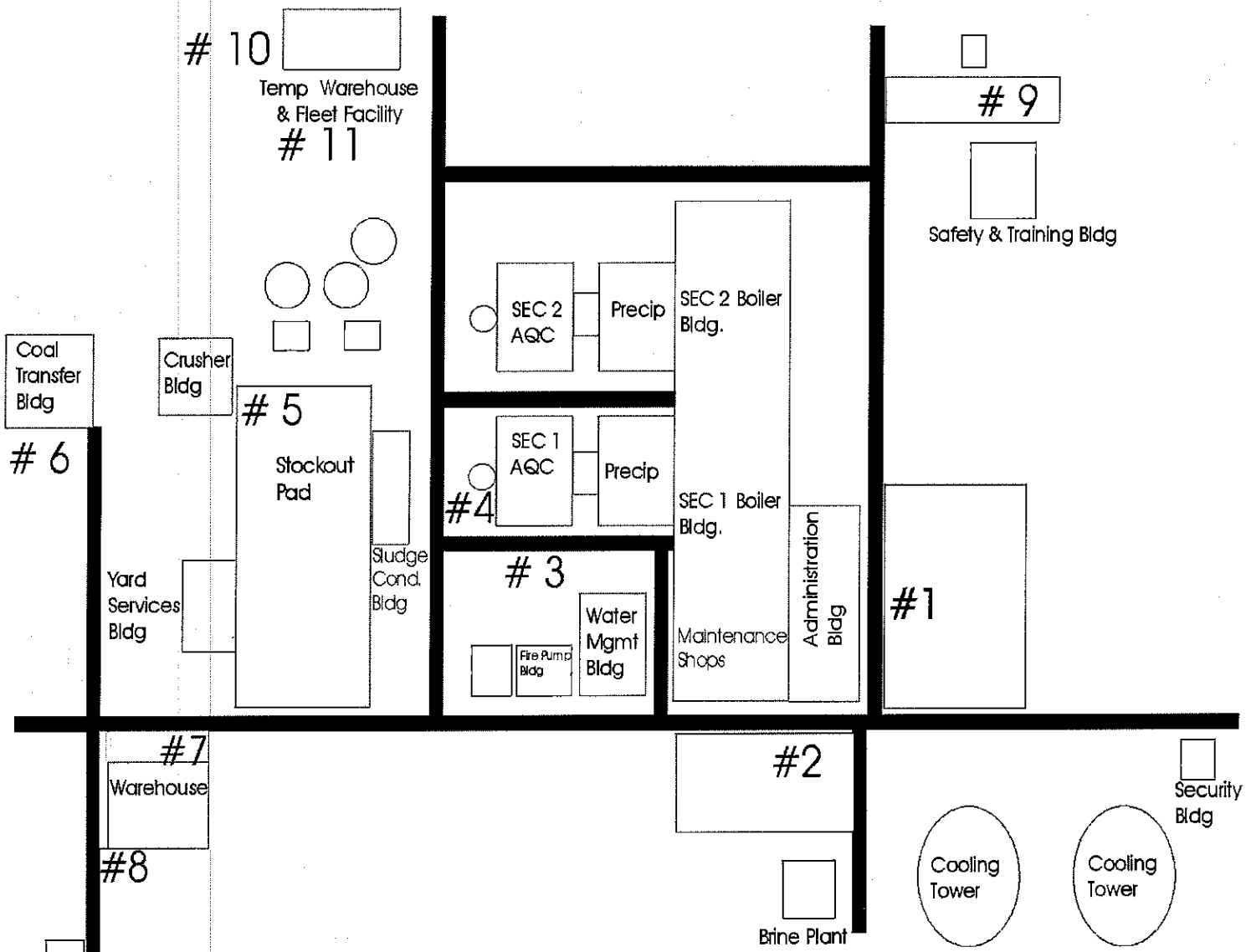
- Plant Director,
- appropriate Supervisor,
- PRBU Safety & Training Manager, Others as deemed necessary.

3.5.3 Reports

a. Reports as required shall be completed as soon as possible after each fire emergency.

Stanton Energy Center
Fire Procedure Flow Diagram





Stanton Energy Center
Evacuations Areas

SOP FOR INCIPIENT FIRES

1. Report to the fire trailer and Team Leader **(Watch Engineer). Insure your name is noted as having responded on ERT list on door of command center.**

2. Should Watch Engineer be unable to respond, the senior team member shall assume control of the team's actions.

3. **Insure non-team members evacuate emergency area**, they should be told to proceed to their evacuation area until further notification.

4. **Assign an escort for county fire service** to scene of emergency.

5. **Assess fire magnitude - take appropriate action.**

A. Safe distance assessment can be performed if the fire is readily visible without exposure to fire hazards. This can be performed without SCBA or fire protective clothing.

- OR –

Close proximity assessment/dispatch scout team if fire is not readily visible and must be investigated, fire protective clothing and SCBA should be considered. There must be at least 2 team members or scouts sent to assess the fire situation. Each scout should take a portable fire extinguisher. (One Class C and one Class ABC unless the type of fire is known) The Team Leader may direct scout team to pull or wait for hoselines instead of taking portable fire extinguishers if necessary.

Scout team should determine:

I. **Are any personnel in area? Are they injured?** Rescue should only be attempted if risk to team members is minimal or warranted.

II. **What is on fire and type of fire?**

III. **Do electrical systems need to be disabled?**

(Both AC and DC power may be available)

IV. **Can scout team extinguish the fire?**

(Scout team should extinguish fire at this time if it can be accomplished safely)

Note: If extinguishment is accomplished team should start procedures taken for - Step #6 - Fire is declared extinguished.

V. **Is fire beyond incipient stage, or can ERT extinguish the fire?**

VI. **Are automatic fire systems in area? Are they working?**

B. Lay hoselines while scouts assess situation. (If sufficient numbers of team members are present) Should hoselines be needed the second team should advance the hose to protect the scout position. The scout team should return to report to the Team Leader or do as directed by Team Leader if unable to extinguish the fire.

C. Establish plan of attack based on scout teams assessment. At this point the Team Leader must decide if fire is beyond incipient stage if scout team is unable to extinguish fire during close proximity assessment.

D. Extinguish the fire with hoselines or portable fire extinguishers, if scout team does not accomplish extinguishment. This situation must be assessed as the fire may be beyond the incipient stage if the scout team extinguishers do not provide sufficient extinguishment capabilities.

6. **Fire is declared extinguished** by the Team Leader. The Team Leader will insure that the area is secure and check for possible secondary ignition points. The Team Leader will report to the plant director or his designee as to whether it is safe to give an all clear for plant personnel to return to their workstations.

7. **Fire can not be extinguished** and is declared beyond the incipient stage and into the free burning stage. When the fire is declared to be beyond the incipient stage team members should retreat to a safe location and follow the SOP for free burning fires.

SOP FOR FREE BURNING FIRES

8. **Establish plan of defense** based on steps 1 - 5 of **Incipient Fire** procedures, scout teams assessment and results of the teams actions to this point.

9. **Take defensive action/await county fire services.** The primary concern is protecting the lives of team members and plant personnel. Rescue of personnel in emergency area should only be attempted if risk to team members performing rescue is minimal or warranted.

Defensive actions to be taken:

A. De-energize electrical power where needed to assist in fighting the fire and preventing contact with energized electrical equipment by team members or county fire service personnel. It should be remembered that some systems have auxiliary DC power, this power should also be de-energized.

B. Lay hoselines and protect exposures. Pay special attention to compressed gas cylinders, tanks or drums which may pressurize and B.L.E.V.E.

C. Ensure automatic fire systems are operating if provided. (It may be necessary to manually activate a system) automatic fire systems should remain in operation until the fire is declared extinguished by the appropriate authority.

D. Close or open valves to assist in control or extinguishment of fire.

E. Ensure fire water supply. It may be necessary to start diesel fire pumps, if electrical pump should fail or be disabled. The diesel fire pumps may also be used to augment water supply, if electrical pump cannot keep up sufficient water flow.

Note: It is possible for fire pumps to out produce flow to water tanks. If fire is of major proportions, county fire service personnel may need to pump water from ponds to increase water supply. (Consult - Fire Water Augmentation SOP)

10. **Arrival of county fire services** the Team Leader must relinquish control of the fire scene to the on-scene commander. The Team Leader should remain to assist the on-scene commander. Other team members should assist, as directed by the Team Leader.

11. **Fire is declared extinguished** by the on-scene commander or appropriate authority. The Team Leader shall notify the plant director or his designee as to whether the all clear for plant personnel to return to their workstations may be given.

12. **Clean up and equipment protection** may be necessary. This function may be performed in part or wholly by team members. The Plant Director, along with the Team Leader will determine what procedures may be necessary.

Appendix 15

Quality Control Test Procedures

Test Procedures

Property Tested	Test Method
In-Place Density	ASTM D2167 Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
Moisture Content/Solids Content	ASTM D4643 Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating
	ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (See Note 1)
Compaction	ASTM D698 Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (See Note 2)
	ASTM D4254 Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density (See Note 3)
Unconfined Compressive Strength	ASTM D2166 Standard Test Method for Unconfined Compressive Strength of Cohesive Soil

NOTES

1. Because ProMat, filter cake, and FGD sludge contain gypsum, results from ASTM D4643 should be calibrated against results using ASTM Test Method 2216 with the maximum drying temperature limited to 40°C.

2. Standard Proctor compaction tests should be performed at least once per year and any time there is a significant difference in the composition or characteristics of the ProMat or other waste materials.

3. ASTM D4254 is an alternative method that can be used for bottom ash.

STANDARDIZED JOB
MATERIAL LIME PERCENTAGE TEST

Description: This is an effective method for measuring the amount of lime in a given sample of ProMat material.

Procedure

1. Weigh out 25 g of stabilized material and place in a 400 ml beaker. Record weight to the nearest hundredth of a gram.

2. Add approximately 200 ml of warm water (70°F) to beaker.

3. Using a magnetic stirrer with stir bar, agitate the contents of the beaker.

4. Calibrate a pH meter to 7.

5. Using 0.5 N Hydrochloric acid (HCl), titrate the sample for 20 minutes maintaining a pH of 8.0-8.5. Do not let the pH drop below 8.0.

6. Record the final burette reading in ml of HCl.

7. Determine the % solids content.

   Calculations:

   A) Uncorrected Lime Content

$$\frac{(\text{ml of HCl})(0.5)(y)(100)}{\text{sample weight}}$$

   B) Corrected Lime Content of the Stabilized Material (WWB)

$$\frac{\text{\% lime in stabilized material uncorrected}}{\text{Lime Efficiency Factor}} \times 100$$

   C) Corrected Lime Content of Stabilized Material (DWB)

$$\frac{\text{\% lime in stabilized material (MB)}}{\text{\% Solids}} \times 100$$

NOTES: y = 0.037 for hydrated lime
y = 0.028 for quick lime
The 20-minute titration time is relatively critical and must be the same for all samples tested. Also if the ash being utilized contains available lime, one must take into account the lime content of the ash when determining lime content of a mixture.

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STANDARDIZED JOB

Solids Content Test Procedure

Description: This method is used for testing the solids content of soil-like, ProMat, filter cake and sludge materials.

Microwave Method

1. Weigh and record weight of evaporating dish and paper cover to the nearest 0.1 g (tare weight).

2. Use approximately 20 g of wet sample for test. Weigh and record weight of sample, dish and paper cover to the nearest 0.1 g.

3. Cover sample with paper cover and dry in microwave. Microwave should be set on "defrost," to prevent overcooking of the sample. At these settings, the sample should dry in approximately 9 minutes.

4. If sample does not fully dry, cycle sample at 3- to 4-minute intervals on "defrost" until dry.

5. Weigh and record weight of dry sample, evaporating dish, and paper cover.

Calculation: Report results to the nearest 0.1%

$$\textbf{Solids Content (\%)} = \frac{\textbf{Dry Weight of Material, g}}{\textbf{Wet Weight of Material, g}} \times 100$$

Referenced Method: ASTM D4643, Standard Test Method for Determination of Water (Moisture) Content of Soil by Microwave Oven Heating

NOTES: If multiple samples are to be run simultaneously, drying times must be increased. Care should be exercised so as not to overcook the sample since this may lead to inaccurate results. This method should not be used on petroleum, salt or metal sludges. Please do not confuse this method with moisture content.

Because ProMat, filter cake, and FGD sludge contain gypsum, results should be calibrated against results using ASTM Test Method 2216 with the maximum drying temperature limited to 40°C.

"Adding Value to Energy"

STANDARDIZED JOB
UNDERFLOW SOLIDS SAMPLE

1) CHECK STATUS OF UNDERFLOW PUMPS TO DETERMINE WHICH PUMPS ARE RUNNING.
2) OBTAIN CORRECT SAMPLE CONTAINER (A, B, C) FROM DRYING RACK ABOVE LAB SINK.
3) COLLECT 1/2 TO 3/4 BOTTLE OF SLURRY FROM SAMPLE PORT AT PUMP.
4) WEIGH CORRECT (A, B, C) 100 ml. BEAKER EMPTY TO OBTAIN TARE WT. AND WRITE WEIGHT IN UNDERFLOW SOLIDS LOG BOOK.
5) SHAKE SAMPLE BOTTLE WELL TO MIX SLURRY AND POUR APPX. 30 ml. OF SLURRY INTO BEAKER.
6) WEIGH BEAKER AND SAMPLE TO OBTAIN COMBINED WEIGHT AND WRITE IN LOG BOOK.
7) PLACE SAMPLES IN DRYING OVEN OVERNIGHT.
8) REMOVE FROM OVEN AND COOL ON COUNTER FOR 10 MIN. WEIGH COOLED SAMPLE AND WRITE WEIGHT IN LOGBOOK.
9) CALCULATE % SOLIDS. DRY WEIGHT/ WET WEIGHT x 100 = % SOLIDS.
10) IF NO PUMPS ARE RUNNING, SAMPLE CAN BE TAKEN FROM BED BOMB STICK.

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S T A N D A R D I Z E D J O B
FILTER CAKE PRODUCTION TEST

NOTE: BE SURE TO USE CORRECT TEST SHEET FOR FILTER BEING TESTED. I.E., FILTERS "A, B, AND C" ARE UNIT 1. FILTERS "D, E, AND F" ARE UNIT 2.

1) OBTAIN SAMPLE CUP (6x3 CYLINDER) FROM DRYING RACK IN LAB AND WEIGH.

2) WRITE WEIGHT ON TEST SHEET UNDER WEIGHT OF SAMPLE BAG.

3) TIME FILTER DRUM TO DETERMINE TIME OF ROTATION IN SECONDS AND WRITE TIME ON TEST SHEET.

4) USING PLASTIC CYLINDER CUP CUT AT LEAST 5 SAMPLES OF FILTER CAKE FROM SURFACE OF FILTER DRUM FROM DIFFERENT AREAS.

5) WEIGH CUP AND SAMPLES AND WRITE WEIGHT AND NUMBER OF SAMPLES IN APPROPRIATE PLACES ON TEST SHEET AND DO ALL CALCULATIONS TO DETERMINE TONS PER HOUR OF FILTER CAKE PRODUCTION FOR THAT FILTER.

6) AFTER WEIGHING, THESE SAMPLES WILL BE USED FOR FILTER CAKE SOLIDS TEST ON PRODUCTION RUN TEST SHEET.

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HEADWATERS RESOURCES

"ADDING VALUE TO ENERGY"

S T A N D A R D I Z E D J O B

Field Density Test - Balloon Method

Phase A:

1) At prearranged time (Presently 1500) you will need to be in the landfill to pull density. Insure you carry volumeasure, base plate, sample bags, and marker to write on them with. **If inclement weather occurs, you may want to call the landfill supervisor to see if it will even be possible to pull density.**

2) Determine location to be tested (needs to be two holes dug and measured for each run). Samples should be from two separate grids (holes should not be closer than ten foot minimum). Try to obtain samples from areas with similar moisture percentage.

3) Place base plate on first sample area. Seat volumeasure in slot in base plate. Release control valve and let balloon drop until water level ceases to drop (Note: **Do Not Pump Vacuum Bulb To Force Water Level More).** Take measurement at eye-level and record the initial reading to nearest **.025.** Turn vacuum bulb over and pump balloon back up into volumeasure until tip of balloon pops out **(Do not pump past this. Over-pumping only stretches the balloon and if pumped past "airflow tube" will cause loss of water in the volumeasure).** Remove volumeasure from **base-plate (hold base-plate to insure it doesn't move).**

4) With steel spoon, dig hole as big as cutout in center of base-plate to a depth of approx. the blade of spoon (Try not to dig "outside" circumference of center of base-plate - can result in false readings).

5) Still holding base-plate, reset volumeasure over hole, release control valve, and pump vacuum bulb until pressure barely moves volumeasure off of base-plate. Holding pressure on vacuum bulb, take final reading "at eye-level" and record.

6) Repeat steps 3 through 5 in second location.

7) Return to lab to complete testing. **Note: Landfill needs to be notified by 1630, so start testing immediately.**

NOTE: If the landfill calls and says density is ready, you have four hrs. from that point to pull samples. Otherwise, it will have to be recompacted.

NOTE: If you feel it would be futile to pull density due to it being too dry or too wet, notify landfill supervisor and plant manager. Do not make the decision not to pull density without one-or-both of their approval.

HEADWATERS RESOURCES

"ADDING VALUE TO ENERGY"

S T A N D A R D I Z E D J O B

Field Density Test - Balloon Method

Phase B:

It is very important that the lab-testing portion of density begin immediately to let landfill crew know results ASAP.

1) Immediately upon return to the lab, weigh both samples and a dry 3" X 6" black plastic cylinder. Record these weights on the density work sheet.

2) Do material solids test on both samples. These numbers will be averaged to get final solids number for Proctor dry density.

3) While waiting on solids tests make a Proctor from the mixed samples from both tests. Weight of Proctor in grams minus weight of cylinder divided by 454 divided by volume of cylinder (0.02453) will determine wet density. I.E., 1100 g – 82 g= 1018 g/454/0.02453= 91.41 lbs. per cu. ft.

4) Wet density of Proctor times avg. solids from both samples in decimal form gives dry density of proctor. IE: 0.75 solids times wet density of 100 lbs./ cu. ft. = 75 lbs. per cu. ft. dry density

5) Determine wet density of each sample by dividing weight of sample in grams minus bag weight by 454 to convert to pounds. Divide weight in pounds by test volume from volumeasure to determine wet density of sample. I.E., 1000 g – 7 g bag wt. = 993/454= 2.19 lbs./0.0225 test volume = 97.33 lbs. per cu. ft.

6) Determine moisture content of solids tests by subtracting dry sample weight from wet sample weight and dividing weight of water in sample by dry sample weight. I.E., wet wt. 20 g - dry wt.14 g = 6 g divided by dry wt. = 6 / 14 = 0.43 (43%)

7) Determine dry density of sample by dividing wet density by moisture content + 1 I.E., 97.33 lbs. per cu. ft./1.43 = 68.06 lbs. per cu. ft.

8) For density to pass, dry density must be at least 94% but not more than 102% of dry control density. I.E., dry density of 75 lbs. per cu. ft. divided by Proctor dry density of 80 lbs. per cu. ft. = 93.75 % FAILURE 75 lbs. per cu. ft./73 lbs. per cu. ft. Proctor = 102.74% FAILURE. 75 lbs. per cu. ft./74 lbs. per cu. ft. = 101.35 PASS.

9) Report results to your supervisor and/or landfill ASAP.

Appendix 16

Headwaters Month-End Detailed Report for December 2014

HEADWATERS RESOURCES

OUC STANTON ENERGY CENTER

MONTH END DETAILED REPORTS (MEDR)

DECEMBER 2014

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(1)

MERCR REPORT
DECEMBER 2014

Month End Reconciled Comparison Report

MONTH	JEA DELIVERED	CBA DELIVERED	LIME SUB INTO PROMAT	BOTTOM ASH PRODUCED		B/A SOLD	F/A PRODUCED		F/A SOLD	PROMAT WWB	OUC F/A INTO PROMAT	PROMAT TO OCLF	FILTER CAKE WWB
				UNIT #1	UNIT #2		UNIT #1	UNIT #2					
Jan-14	2278.62	0.00	2465.00	383.66	889.67	0.00	4412.04	10231.26	8344.64	27078.00	6629.00	0.00	15965.00
Feb-14	3936.15	0.00	3974.15	813.31	829.63	0.00	9353.01	9540.73	9095.83	38074.00	12498.00	0.00	20884.00
Mar-14	352.56	4530.74	4955.00	646.87	425.25	0.00	7439.06	4890.37	9461.26	27914.00	3512.00	4840.00	18607.00
Apr-14	2728.24	641.32	2984.00	518.13	670.54	0.00	5958.45	7711.25	11842.73	23613.00	2662.00	8861.00	16823.00
May-14	375.22	3558.50	3968.00	138.36	610.15	0.00	1480.35	7016.70	9001.67	12021.00	1491.00	3832.00	6244.00
Jun-14	0.00	3934.70	3171.00	422.56	714.68	0.00	4859.42	8218.86	9157.33	25968.00	3304.00	0.00	19493.00
Jul-14	0.00	4064.90	4194.00	551.18	601.87	0.00	6889.79	7523.42	8284.74	33828.00	4879.00	0.00	24755.00
Aug-14	0.00	4915.52	4636.00	544.68	609.30	0.00	6263.87	7006.96	9010.30	33473.00	3333.00	0.00	25492.00
Sep-14	0.00	4066.00	3714.00	457.54	554.92	0.00	5261.68	6381.61	8698.21	25011.00	1833.00	2222.00	19464.00
Oct-14	408.80	1758.54	2584.00	536.87	127.21	0.00	6174.04	1462.87	9761.60	15709.00	118.00	0.00	14822.00
Nov-14	386.85	3030.58	3370.00	677.52	725.37	0.00	7791.44	8341.81	7346.44	35938.00	2325.00	0.00	26949.00
Dec-14	2354.86	2284.60	4213.00	447.86	611.78	0.00	5150.35	7035.53	8585.52	36402.00	5010.00	0.00	26243.00
Totals	**12821.30**	**32785.40**	**44228.15**	**6138.54**	**7370.37**	**0.00**	**71033.50**	**85361.37**	**108590.27**	**335029.00**	**47594.00**	**19755.00**	**235741.00**

(2)
MASS BALANCE REPORT
DECEMBER 2014

2014 MASS BALANCE
OUC OPERATIONS W/ LIME SUB

	Totalizer Readings (tons)								Daily Totals				Calculated Quantities (tons)					Lab Data			
DEC 2014	ProMat		Lime Sub		OUC Ash				ProMat WWB	Lime Sub	OUC ASH UNIT 1	OUC ASH UNIT 2	ProMat % Solids	ProMat DWB	ProMat w/o Lime	F/C (dwb)	F/C (wwb)	ProMat			
					Silo #1			Silo #2										% Lime	% FA	FA:S	F/C
Run #	Start	Stop	A	C	A	B	C	D												FA:1.0	SOLIDS
1	0	3651	300	0	656	0	0	0	3651	300	0	656	72.60	2651	2351	1673	2695	2.27	41.4	0.73	62.09%
2	0	2423	223	0	344	0	0	0	2423	223	0	344	72.86	1765	1542	1364	1856	2.08	36.9	0.60	73.50%
3	0	5458	533	0	929	0	0	0	5458	533	0	929	72.34	3948	3415	2617	3996	2.05	38.5	0.65	65.50%
4	0	1252	105	0	211	0	0	0	1252	105	0	211	72.16	903	798	601	936	2.09	41.9	0.75	
5	0	2013	278	0	0	0	0	0	2013	278	0	0	73.60	1482	1204	1151	1735	2.50	39.4	0.68	66.32%
6	0	1131	158	0	35	0	0	0	1131	158	0	35	73.22	828	670	615	938	2.40	41.3	0.73	65.52%
7	0	3556	449	0	630	0	0	0	3556	449	0	630	71.38	2538	2089	1588	2477	2.83	42.0	0.76	64.12%
8	0	4051	425	0	466	0	0	0	4051	425	0	466	72.00	2917	2492	1870	3160	2.82	42.2	0.77	59.19%
9	0	1760	182	0	194	0	0	0	1760	182	0	194	73.13	1287	1105	892	1384	3.07	40.0	0.70	64.42%
10	0	1280	156	0	168	0	0	0	1280	156	0	168	72.92	933	777	593	956	2.87	41.9	0.76	62.08%
11	0	1302	193	0	300	0	0	0	1302	193	0	300	72.45	943	750	506	809	2.82	45.3	0.87	62.52%
12	0	800	123	0	171	0	0	0	800	123	0	171	72.46	580	457	324	506	2.26	43.7	0.81	64.02%
13	0	1077	127	0	175	0	0	0	1077	127	0	175	72.68	783	656	477	775	2.92	47.0	0.94	61.50%
14	0	2425	287	0	370	0	0	0	2425	287	0	370	72.33	1754	1467	1130	1768	2.45	41.4	0.74	63.92%
15	0	3057	385	0	361	0	0	0	3057	385	0	361	72.24	2208	1823	1501	2311	2.25	44.6	0.84	64.93%
16	0	700	109	0	0	0	0	0	700	109	0	0	72.17	505	396	374	591	2.41	36.2	0.59	63.27%
17	0	1266	180	0	0	0	0	0	1266	180	0	0	71.55	906	726	706	1086	2.45	32.5	0.50	65.05%
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					
Total		37202	4213	0	5010	0	0	0	37202	4213	0	5010	72.48	26932	22719	17982	27979	2.50	40.9	0.73	64.25%
DEC 2014	Promat		Lime Sub		OUC Ash				ProMat WWB	Lime Sub	OUC ASH UNIT 1	OUC ASH UNIT 2	ProMat Solids	ProMat DWB	ProMat w/o Lime	F/C (dwb)	F/C (wwb)	% Lime	% FA	FA:S	F/C SOLIDS
																		Promat			
YTD		31327	27884	413	38270	165	0	14204	309542	44575	14204	38435	71.68	213916	169341	138248	208654	3.20	38.5	0.74	66.39%

Totalizer Readings ONLY are Cake & Ash – No Lime-Conditioned Runs

Notes **– On days we do not run, leave ProMat Solids Place Blank. Entering a "0" will produce erroneous results.

(3)
ASH AVAILABILITY REPORTS
DECEMBER 2014

DECEMBER 2014 UNIT 1 ASH AVAILABILITY

DATE	DAILY COAL BURN UT 1	AS FIRED REPORT TOTAL ASH	AVG % ASH OF COAL (EST)	TONS ASH PRODUCED (EST)	F/A PRODUCED (0.92)*(EST)	B/A PRODUCED (0.08)*(EST)	SUL FROM OUC REPORT
12/1/2014	3467	6.44	0.06	223.27	205.41	17.86	2.11
12/2/2014	3134	7.47	0.07	234.11	215.38	18.73	2.64
12/3/2014	3281	6.13	0.06	201.13	185.04	16.09	2.21
12/4/2014	3323	7.81	0.08	259.53	238.76	20.76	2.40
12/5/2014	3496	7.44	0.07	260.10	239.29	20.81	1.88
12/6/2014	3422	6.80	0.07	232.70	214.08	18.62	2.50
12/7/2014	3422	6.60	0.07	225.85	207.78	18.07	2.27
12/8/2014	3653	5.73	0.06	209.32	192.57	16.75	2.33
12/9/2014	2919	6.34	0.06	185.06	170.26	14.81	2.16
12/10/2014	2784	7.37	0.07	205.18	188.77	16.41	2.75
12/11/2014	2987	7.14	0.07	213.27	196.21	17.06	2.78
12/12/2014	2910	7.47	0.07	217.38	199.99	17.39	2.88
12/13/2014	3410	6.98	0.07	238.02	218.98	19.04	1.95
12/14/2014	2545	7.50	0.08	190.88	175.61	15.27	1.79
12/15/2014	3033	6.97	0.07	211.40	194.49	16.91	2.19
12/16/2014	3056	8.20	0.08	250.59	230.54	20.05	2.94
12/17/2014	2560	8.02	0.08	205.31	188.89	16.42	1.89
12/18/2014	2422	7.31	0.07	177.05	162.88	14.16	1.70
12/19/2014	2165	6.27	0.06	135.75	124.89	10.86	2.08
12/20/2014	2621	8.32	0.08	218.07	200.62	17.45	2.35
12/21/2014	2041	5.84	0.06	119.19	109.66	9.54	1.88
12/22/2014	2493	6.50	0.07	162.05	149.08	12.96	2.06
12/23/2014	2375	8.13	0.08	193.09	177.64	15.45	1.63
12/24/2014	1669	7.07	0.07	118.00	108.56	9.44	2.39
12/25/2014	2453	7.24	0.07	177.60	163.39	14.21	2.42
12/26/2014	922	7.56	0.08	69.70	64.13	5.58	2.54
12/27/2014	1089	6.13	0.06	66.76	61.42	5.34	2.31
12/28/2014	1721	7.02	0.07	120.81	111.15	9.67	2.40
12/29/2014	1958	8.02	0.08	157.03	144.47	12.56	2.81
12/30/2014	1674	7.17	0.07	120.03	110.42	9.60	0.00
12/31/2014	0	0.00	0.00	0.00	0.00	0.00	0.00
	79005	**6.87**	**0.07**	**5598.21**	**5150.35**	**447.86**	**2.14**

* THE F/A (0.92) AND B/A (0.08) PRODUCED ARE ESTIMATES ONLY AND WILL BE ADJUSTED ON THE FINAL YEAR END REPORT.

**????: AVERAGE ASH & SULFUR CONTENTS DUE TO NO LAB TESTS RECEIVED FROM TSUB REPORT.

DECEMBER 2014 UNIT 2 ASH AVAILABILITY

DATE	DAILY COAL BURN UT 2	AS FIRED REPORT TOTAL ASH	AVG % ASH OF COAL (EST)	TONS ASH PRODUCED (EST)	F/A PRODUCED (0.92)*(EST)	B/A PRODUCED (0.08)*(EST)	SUL FROM OUC REPORT
12/1/2014	4174	6.44	0.06	268.81	247.30	21.50	2.11
12/2/2014	3515	7.47	0.07	262.57	241.56	21.01	2.64
12/3/2014	3621	6.13	0.06	221.97	204.21	17.76	2.21
12/4/2014	3684	8.56	0.09	315.35	290.12	25.23	2.52
12/5/2014	3773	7.48	0.07	282.22	259.64	22.58	1.80
12/6/2014	3755	6.80	0.07	255.34	234.91	20.43	2.50
12/7/2014	3568	6.60	0.07	235.49	216.65	18.84	2.27
12/8/2014	3854	5.73	0.06	220.83	203.17	17.67	2.33
12/9/2014	4046	6.34	0.06	256.52	236.00	20.52	2.16
12/10/2014	3810	7.37	0.07	280.80	258.33	22.46	2.75
12/11/2014	3316	7.14	0.07	236.76	217.82	18.94	2.78
12/12/2014	3930	7.47	0.07	293.57	270.09	23.49	2.88
12/13/2014	4007	6.98	0.07	279.69	257.31	22.38	1.95
12/14/2014	3867	7.50	0.08	290.03	266.82	23.20	1.79
12/15/2014	3861	6.97	0.07	269.11	247.58	21.53	2.19
12/16/2014	3664	8.20	0.08	300.45	276.41	24.04	2.94
12/17/2014	3629	8.02	0.08	291.05	267.76	23.28	1.89
12/18/2014	3796	7.31	0.07	277.49	255.29	22.20	1.70
12/19/2014	3693	6.27	0.06	231.55	213.03	18.52	2.08
12/20/2014	3520	8.52	0.09	299.90	275.91	23.99	2.21
12/21/2014	3262	7.30	0.07	238.13	219.08	19.05	1.54
12/22/2014	3128	6.41	0.06	200.50	184.46	16.04	2.01
12/23/2014	3020	7.67	0.08	231.63	213.10	18.53	2.36
12/24/2014	2753	6.96	0.07	191.61	176.28	15.33	2.29
12/25/2014	2545	7.24	0.07	184.26	169.52	14.74	2.42
12/26/2014	3802	7.56	0.08	287.43	264.44	22.99	2.54
12/27/2014	2580	6.13	0.06	158.15	145.50	12.65	2.31
12/28/2014	2051	7.02	0.07	143.98	132.46	11.52	2.40
12/29/2014	2699	8.02	0.08	216.46	199.14	17.32	2.81
12/30/2014	2791	8.66	0.09	241.70	222.36	19.34	2.82
12/31/2014	2779	6.62	0.07	183.97	169.25	14.72	2.29
	106493	7.19	0.07	7647.31	7035.53	611.78	2.31

* THE F/A (0.92) AND B/A (0.08) PRODUCED ARE ESTIMATES ONLY AND WILL BE ADJUSTED ON THE FINAL YEAR END REPORT.

**????: AVERAGE ASH & SULFUR CONTENTS DUE TO NO LAB TESTS RECEIVED FROM TSUB REPORT.

(4)
QA/QC REPORTS
DECEMBER 2014

QA/QC REPORT FOR DECEMBER 2014

DECEMBER	RUN NUMBERS AVERAGED						DENSITY				PERMEABILITY		COMPRESSIVE STRENGTH			
DATE	RUN #	PROMAT % SOLIDS	PROMAT MOISTURE	LIME	F/A TO SLUDGE RATIO	FILTER CAKE SOLIDS	TEST #1 % SOLIDS	TEST #2 % SOLIDS	PROCTOR DRY DENSITY (pcf)	% PROCTOR DENSITY (94%-103%)	30-DAY	90-DAY	30-DAY	60-DAY	90-DAY	QA/QC COMMENTS
12/1-12/3	1	72.60	37.74%	2.27%		62.09%	72.17	76.76	75.11	99.14%						Enhanced
12/3-12/5	2	72.86	37.25%	2.08%	0.60	73.50%	79.31	77.02	78.50	99.57%						Enhanced
12/5-12/8	3	72.34	38.24%	2.05%	0.63	65.50%	74.92	74.76	75.28	99.42%						Enhanced
12/8-12/9	4	72.16	38.58%	2.09%	0.75		77.83	76.22	76.01	101.34%						Enhanced
12/9-12/11	5	72.60	37.74%	2.50%	0.68	66.32%										Cake & Lime
12/11-12/12	6	73.22	36.57%	2.40%	0.73	65.52%										Cake & Lime
12/12-12/15	7	71.38	40.10%	2.83%	0.77	64.12%	70.07	69.48	73.09	95.46%						Enhanced
12/15-12/18	8	72.00	38.89%	2.82%	0.78	59.19%	68.00	66.95	70.87	95.21%						Enhanced
12/18-12/19	9	73.13	36.74%	3.07%	0.71	64.42%										Enhanced
12/19-12/20	10	72.92	37.14%	2.87%	0.76	62.08%										Enhanced
12/20-12/22	11	72.45	38.03%	2.82%	0.88	62.52%	76.90	76.79	77.35	99.35%						Enhanced
12/22-12/23	12	72.46	38.01%	2.26%	0.81	64.02%	75.74	76.58	78.08	97.54%						Enhanced
12/23-12/24	13	72.68	37.59%	2.92%	0.79	61.50%										Enhanced
12/24-12/26	14	72.33	38.26%	2.45%	0.72	63.92%										Enhanced
12/26-12/30	15	72.24	38.43%	2.25%	0.84	54.93%										Cake & Lime Enhanced
12/30-12/31	16	72.17	38.56%	2.41%	0.59	63.27%	74.82	73.87	78.55	94.65%						Cake & Lime
12/31-1/2	17	71.55	39.76%	2.45%	0.51	65.05%	68.63	72.46	72.76	96.96%						Enhanced

(5)
LANDFILL REPORT & DIAGRAMS
DECEMBER 2014

LANDFILL MONTHLY REPORT - DECEMBER 2014

RUN #	MATERIAL TYPE	MATERIAL USAGE	GRID LOCATION	ELEVATION	COMMENTS
1,2	Enhanced	Cover	3300W X 500S ABCD; 3300W X 400S BD 3400W X 500S ABCD; 3400W X 400S BD	135	
3	Enhanced	Cover	3300W X 700S AC; 3400W X 700S AC 3300W X 600S ABCD; 3400W X 600S ABCD	135	
4	Enhanced		2500W X 500S ABCD	170	
5	Enhanced		2600W X 500S ABCD; 2700W X 500S ABCD	170	
6	Enhanced		2700W X 600S AC	170	
7	Enhanced	Cover	3300W X 500S ABCD; 3300W X 400S BD 3400W X 500S ABCD; 3400W X 400S BD	142	
8	Enhanced	Cover		142	
9	Enhanced		2600W X 600S ABCD	170	
10,11	Enhanced		2700W X 700S ABCD	170	
12,13	Enhanced		2600W X 700S ABCD	170	
14	Enhanced	Cover	3300W X 400S BD; 3300W X 500S ABCD 3400W X 400S BD; 3400W X 500S ABCD	148	
15	Enhanced	Cover	3300W X 700S AC; 3300W X 600S ABCD 3400W X 700S AC; 3400W X 600S ABCD	148	
16	Enhanced		2500W X 600S ABCD	170	
17	Enhanced		2500W X 700S ABCD	170	

Appendix 17

Summaries of Waste Quantities from January 2005 through October 2016

Waste Quantities for 2005

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	16,956	17,281	1,283	18,166	31,021	54,613	67.26	36,733	2,312	1,346
February	16,893	17,689	1,144	15,027	24,587	43,406	68.12	29,566	2,304	630
March	11,292	12,723	39	17,111	20,327	41,865	67.42	28,227	1,540	4,071
April	13,151	12,392	1,380	6,884	15,620	24,618	69.16	17,027	1,793	924
May	14,135	15,472	1,395	17,815	18,777	44,847	67.70	30,359	1,927	951
June	18,844	19,087	3,354	20,808	24,638	57,118	66.26	37,848	2,570	3,137
July	22,966	20,925	618	21,725	20,987	51,582	66.04	34,067	3,132	4,633
August	24,715	22,331	31	20,799	19,929	49,433	64.93	32,097	3,370	1,890
September	20,275	20,727	2,105	17,710	19,349	46,660	66.59	31,071	2,765	2,101
October	22,000	16,798	4,130	18,904	17,112	49,917	66.47	33,181	3,000	2,588
November	19,676	19,259	1,345	9,936	20,140	35,293	65.49	23,113	2,683	648
December	22,266	20,179	823	18,922	23,052	50,156	66.85	33,529	3,036	3,189
Total	223,169	214,863	17,647	203,807	255,539	549,508	66.75	366,818	30,432	26,108

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2006

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	20,986	19,083	1,505	12,249	19,190	45,322	67.93	30,786	2,862	4,406
February	17,314	16,197	1,505	12,249	18,415	36,512	68.24	24,918	2,361	2,920
March	17,990	13,244	1,036	10,081	12,273	26,264	67.22	17,655	2,453	1,459
April	11,011	11,529	3,620	12,797	19,409	36,349	68.31	24,832	1,501	1,018
May	20,968	14,138	10,636	13,028	31,774	54,589	67.53	36,866	1,578	1,485
June	22,907	18,676	4,400	14,697	30,192	48,995	66.71	32,684	1,724	3,139
July	22,553	15,864	5,429	14,833	30,710	51,109	67.56	34,529	1,961	2,105
August	21,714	20,062	2,250	14,684	21,504	43,345	68.59	29,731	1,888	1,973
September	21,782	13,067	9,582	16,269	17,850	52,802	69.47	36,680	1,894	2,141
October	13,596	9,782	3,719	11,970	15,019	36,217	68.03	24,637	1,182	1,708
November	20,391	7,672	11,648	8,674	9,114	36,515	70.40	25,705	584	1,686
December	18,539	9,623	14,366	16,552	2,418	46,769	69.10	32,318	1,681	1,682
Total	229,750	168,937	69,696	158,083	227,867	514,788	68.25	351,341	21,671	25,720

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2007

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	19,163	8,103	11,265	–	–	46,713	69.43	32,434	1,666	1,908
February	15,647	6,400	10,559	12,537	–	44,215	70.16	31,020	1,178	1,188
March	9,529	7,610	3,647	12,124	12,836	31,775	68.87	21,884	829	711
April	15,757	8,984	8,794	9,152	16,932	34,825	69.37	24,159	1,144	599
May	22,716	7,834	15,082	15,054	25,142	56,489	70.24	39,676	1,817	3,000
June	22,490	7,350	17,132	16,700	22,045	57,736	66.91	38,632	1,857	1,529
July	25,577	6,717	18,590	14,730	22,616	59,478	69.38	41,264	2,012	2,019
August	24,264	6,753	16,650	14,996	28,346	61,475	69.79	42,902	2,070	1,818
September	24,920	5,648	16,293	10,572	24,450	51,141	69.99	35,796	2,167	1,224
October	17,042	7,764	10,392	8,815	19,346	38,553	69.68	26,862	1,482	2,100
November	14,636	7,634	7,729	9,204	14,658	31,542	68.52	21,612	1,273	1,807
December	22,368	7,269	13,977	10,591	26,277	50,845	70.62	35,907	1,945	1,439
Total	234,107	88,067	150,110	134,475	212,648	564,787	69.43	392,148	19,439	19,342

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2008

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	23,013	6,994	17,536	16,331	28,948	59,150	70.95	41,969	2,001	2,650
February	19,207	5,883	14,255	12,762	21,142	50,807	70.08	35,608	1,670	1,837
March	16,717	6,771	10,943	11,919	19,110	41,954	69.14	29,008	1,395	1,505
April	10,636	8,197	2,817	5,711	13,271	21,947	68.84	15,108	1,450	1,158
May	13,632	7,814	10,133	9,880	21,811	41,013	65.64	26,920	1,859	627
June	22,856	6,524	15,915	10,853	24,046	48,978	71.34	34,941	1,987	3,082
July	25,398	7,523	17,101	10,187	23,922	49,518	71.46	35,387	2,208	2,048
August	24,443	5,194	16,893	7,675	30,342	54,567	71.32	38,917	2,126	2,109
September	24,771	5,981	17,358	10,027	33,081	59,389	70.72	42,000	2,154	2,501
October	12,917	5,933	8,483	7,710	18,016	32,800	71.37	23,409	1,123	1,349
November	21,083	5,148	15,325	7,871	10,328	32,918	72.26	23,785	1,833	0
December	26,042	4,190	22,108	11,367	24,085	55,912	71.47	39,963	2,265	0
Total	240,715	76,152	168,867	122,292	268,103	548,953	70.50	387,015	22,072	18,867

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2009

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	21,028	3,645	18,440	8,775	19,358	47,231	70.91	33,489	1,829	0
February	21,249	3,899	20,870	9,147	21,792	51,621	69.87	36,068	1,848	0
March	19,547	5,025	16,185	8,480	24,446	47,698	69.92	33,349	1,700	0
April	17,936	4,179	17,773	5,722	17,190	42,357	69.82	29,574	1,560	0
May	20,412	3,339	17,755	7,946	18,896	43,186	71.50	30,876	1,775	0
June	20,433	5,886	16,130	6,264	20,990	42,956	71.64	30,773	1,777	0
July	24,865	4,983	18,802	6,268	21,568	46,279	71.94	33,292	2,162	0
August	23,004	5,031	20,371	6,222	20,254	49,265	63.73	31,397	2,000	0
September	20,415	4,820	20,746	5,599	21,177	47,817	72.23	34,540	1,775	0
October	11,316	4,670	9,961	5,178	11,380	25,806	71.52	18,457	984	0
November	18,529	3,967	12,792	3,494	18,182	35,185	71.80	25,264	1,611	0
December	22,027	4,827	21,335	6,545	23,675	49,791	71.96	35,828	1,915	0
Total	240,762	54,272	211,160	79,640	238,908	529,192	70.47	372,908	20,935	0

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2010

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	23,091	4,029	18,543	6,394	26,261	52,914	71.96	38,079	2,008	0
February	20,035	4,787	14,341	6,917	22,237	42,342	71.84	30,417	1,742	0
March	12,033	5,673	7,133	2,946	8,079	18,740	71.31	13,364	1,046	0
April	10,281	5,856	4,546	2,208	13,616	20,632	69.59	14,358	894	0
May	22,287	6,834	14,570	3,940	28,533	48,070	69.54	33,427	1,938	0
June	22,037	5,646	16,253	3,453	16,591	38,267	71.19	27,241	1,916	0
July	24,133	8,485	20,214	3,923	28,235	54,869	71.53	39,249	2,099	0
August	19,301	4,487	16,781	4,376	21,645	43,987	71.19	31,313	1,678	0
September	21,137	4,533	16,763	5,070	17,324	38,528	71.01	27,357	1,838	0
October	11,437	4,815	7,005	2,953	10,468	19,767	70.73	13,982	995	0
November	16,407	5,348	11,727	3,473	17,610	33,612	71.04	23,879	1,427	0
December	19,825	5,074	14,928	5,111	22,228	43,647	70.94	30,962	1,724	0
Total	222,006	65,568	162,804	50,762	232,827	455,375	71.07	323,628	19,305	0

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2011

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Indiantown and Cedar Bay Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	Bottom Ash Sold (tons)
January	16,957	7,300	11,635	6,609	21,321	39,953	70.95	28,346	1,475	0
February	12,103	8,322	3,779	3,948	12,890	18,908	70.56	13,341	1,052	0
March	7,856	9,481	5	3,179	5,797	6,480	63.52	4,116	683	0
April	14,810	8,843	6,053	4,306	11,283	20,792	71.08	14,778	1,288	0
May	15,671	8,386	8,446	4,284	11,049	25,993	71.39	18,557	1,363	0
June	16,569	6,173	10,185	4,811	22,421	41,165	71.04	29,242	1,441	0
July	19,036	4,567	11,833	5,944	19,811	41,721	71.15	29,685	1,655	0
August	18,307	5,754	12,279	6,496	25,232	45,932	70.71	32,480	1,592	0
September	10,399	5,493	4,789	6,426	17,528	28,069	69.30	19,453	904	0
October	15,082	4,693	8,211	5,354	19,474	34,041	70.78	24,093	1,311	0
November	15,750	5,865	7,364	2,764	25,280	36,440	68.78	25,062	1,370	0
December	8,386	5,584	4,822	4,506	18,010	25,176	69.31	17,450	729	0
Total	170,926	80,461	89,401	58,627	210,096	364,670	70.37	256,603	14,863	0

wwb - Wet weight basis
dwb - Dry weight basis

Waste Quantities for 2012

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Imported Ash Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	ProMat to OCLF (tons)
January	7,076	5,041	1,521	1,664	6,003	10,893	70.25	7,652	615	528
February	5,768	5,029	405	26	5,371	6,166	71.43	4,404	502	0
March	6,252	5,647	1,226	2,427	7,502	10,684	70.40	7,522	544	2,088
April	8,785	5,484	3,550	787	8,287	14,150	71.67	10,141	764	0
May	7,427	6,336	1,791	3,787	8,307	11,194	72.42	8,107	594	1,368
June	12,917	7,352	4,395	2,990	12,375	19,808	70.83	14,030	1,123	0
July	15,607	8,876	6,672	4,093	20,468	28,964	71.48	20,703	1,357	576
August	11,632	8,460	4,073	2,804	22,302	28,165	68.75	19,363	1,011	0
September	9,306	5,596	4,453	2,891	16,153	22,335	68.27	15,248	809	0
October	11,535	6,067	3,609	3,111	11,494	19,055	66.61	12,693	1,003	0
November	7,767	5,201	3,007	26	12,125	17,510	67.44	11,809	675	0
December	6,525	4,750	176	1,633	9,978	11,118	69.58	7,736	567	0
Total	110,598	73,839	34,968	26,240	140,365	200,042	69.69	139,408	9,566	4,560

wwb - Wet weight basis
dwb - Dry weight basis
OCLF – Orange County Landfill

Waste Quantities for 2013

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Lime Substitute Delivered (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids)	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)	ProMat to OCLF (tons)
January	4,646	6,072	529	2,020	7,914	10,121	75.29	7,620	404	1,872
February	4,525	4,470	0	2,216	6,858	8,392	75.54	6,339	393	0
March	7,607	5,821	1,379	3,384	12,774	17,926	72.31	12,962	661	0
April	9,411	6,081	3,549	2,912	9,503	15,717	74.11	11,648	818	0
May	8,894	7,233	3,123	3,021	10,507	16,459	71.08	11,699	773	0
June	15,972	6,799	10,482	3,347	23,565	38,307	73.08	27,995	1,389	0
July	15,752	7,567	10,460	4,568	23,989	38,979	73.63	28,700	1,370	0
August	15,969	8,636	8,464	4,344	26,238	38,895	72.75	28,296	1,389	0
September	9,808	7,502	3,267	3,808	13,194	20,953	71.11	14,900	853	0
October	9,844	9,863	1,372	3,717	15,834	17,822	71.32	12,711	788	0
November	12,718	8,299	3,791	3,717	21,205	25,760	71.37	18,385	1,106	0
December	10,479	8,295	5,853	3,486	25,953	34,109	73.63	25,114	911	0
Total	125,625	86,639	52,269	40,540	197,534	283,440	72.81	206,369	10,855	1,872

wwb - Wet weight basis
dwb - Dry weight basis
OCLF – Orange County Landfill

Waste Quantities for 2014

Month	SEC Fly Ash Produced (tons)	SEC Fly Ash Sold (tons)	SEC Fly Ash into ProMat (tons)	Lime Substitute Delivered (tons)	Lime Substitute into ProMat (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat Produced* (tons dwb)	Bottom Ash Produced (tons)	ProMat to OCLF (tons)
January	14,643	8,345	6,629	2,279	2,465	15,965	27,078	18,878	1,273	0
February	18,894	9,096	12,498	3,936	3,974	20,884	38,074	26,545	1,643	0
March	12,329	9,461	3,512	4,883	4,955	18,607	27,914	19,461	1,072	4,840
April	13,670	11,843	2,662	3,370	2,984	16,823	23,613	16,463	1,189	8,861
May	8,497	9,002	1,491	3,934	3,968	6,244	12,021	8,381	749	3,832
June	13,078	9,157	3,304	3,935	3,171	19,493	25,968	18,104	1,137	0
July	14,413	8,285	4,879	4,065	4,194	24,755	33,828	23,584	1,153	0
August	13,271	9,010	3,333	4,916	4,636	25,492	33,473	23,337	1,154	0
September	11,643	8,698	1,833	4,066	3,714	19,464	25,011	17,437	1,012	2,222
October	7,637	9,762	118	2,167	2,584	14,822	15,709	10,952	664	0
November	16,133	7,346	2,325	3,417	3,370	26,949	35,938	25,055	1,403	0
December	12,186	8,586	5,010	4,639	4,213	26,243	36,402	25,379	1,060	0
Total	156,395	108,590	47,594	45,607	44,228	235,741	335,029	233,577	13,509	19,755

wwb - Wet weight basis
dwb - Dry weight basis
OCLF – Orange County Landfill

* Based on average ProMat solids content of 69.72%.

Waste Quantities for 2015

Month	SEC Fly Ash Produced (tons)	Fly Ash Sold* (tons)	SEC Fly Ash into ProMat (tons)	Lime Substitute Delivered (tons)	Lime Substitute into ProMat (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat (% solids))	ProMat Produced (tons dwb)	Bottom Ash Produced (tons)
January	3,955	8,555	164	2,978	1,503	11,840	14,469	71.98	10,415	344
February	6,067	6,693	0	3,307	2,737	14,091	16,822	68.81	11,576	528
March	13,450	10,985	1,935	2,930	3,263	27,461	33,337	66.87	22,294	1,170
April	6,287	11,811	203	3,831	2,023	22,914	25,140	71.09	17,871	547
May	4,826	7,386	10	2,594	3,198	14,354	17,562	68.71	12,067	420
June	11,345	10,987	0	4,975	3,745	22,756	26,501	72.43	19,194	986
July	12,438	11,490	1,560	4,668	3,734	27,516	34,871	73.14	25,505	1,082
August	13,171	10,594	1,869	6,825	4,552	24,327	34,778	71.45	24,848	1,145
September	10,305	11,049	1,154	5,426	4,366	27,363	33,156	72.02	23,879	896
October	6,979	8,970	24	4,882	3,544	19,981	23,549	72.00	16,956	607
November	10,449	10,185	0	4,692	3,575	26,999	30,574	72.36	22,124	909
December	7,168	8,082	0	4,405	2,961	21,487	21,482	64.24	13,799	623
Total	106,440	116,787	6,919	51,513	39,201	261,089	312,241	70.63	220,527	7,418

wwb - Wet weight basis
dwb - Dry weight basis

* Incudes lime substitute fly ash.

Waste Quantities for 2016

Month	SEC Fly Ash Produced (tons)	Fly Ash Sold* (tons)	SEC Fly Ash into ProMat (tons)	Lime Substitute Delivered (tons)	Lime Substitute into ProMat (tons)	FGD Sludge Filter Cake (tons wwb)	ProMat Produced (tons wwb)	ProMat Produced** (tons dwb)	Bottom Ash Produced (tons)	ProMat to OCLF (tons)
January	6,894	7,249	0	3,045	3,162	11,890	15,205	10,948	599	–
February	11,340	11,600	0	4,905	5,340	46,210	51,796	36,637	986	–
March	10,532	12,072	0	5,650	4,853	46,106	50,959	34,451	916	–
April	5,909	6,776	0	866	1,281	13,745	15,026	9,956	514	–
May	5,574	5,847	0	1,386	832	19,242	20,074	12,086	485	–
June	6,961	7,382	0	4,504	3,865	20,205	24,070	15,717	605	–
July	7,377	8,323	0	5,219	4,331	19,094	23,425	14,842	641	–
August	9,963	9,006	1,921	7,442	6,800	37,014	45,742	30,708	867	–
September	12,740	8,348	2,627	6,128	5,347	40,391	48,905	32,831	1,107	–
October	8,204	8,638	0	4,338	3,628	31,292	37,920	25,457	712	–
November										
December										
Total	85,494	85,241	4,548	43,483	39,439	285,189	333,122	223,632	6,833	–

wwb - Wet weight basis
dwb - Dry weight basis
OCLF – Orange County Landfill

* Incudes lime substitute fly ash.
** August through October based on average ProMat solids content of 67.13%.