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ZONING AND PLATTING COMMISISON SITE PLAN
CONDITIONAL USE PERMIT
REVIEW SHEET

CASE NUMBER: SPC-2010-0104D **ZAP COMMISSION HEARING DATE:** October 19, 2010

PROJECT NAME: Shaw Lane Lime Residuals Disposal Facility Overall Site Development Plan

ADDRESS: 5006 Shaw Lane

APPLICANT: City of Austin – Austin Water Utility (Chris Wolter) (512) 972-0224
625 E. 10th Street
Austin, TX 78701

AGENT: Alan Plummer Associates (Pablo Rubio P.E.) (512) 452-5905
6300 La Calma Drive, Suite 400
Austin, TX 78752

CASE MANAGER: Nikki Hoelter Phone: 974-2863
nikki.hoelter@ci.austin.tx.us

PROPOSED DEVELOPMENT:
The applicant is requesting a conditional use permit to construct and develop on 155 acres for a lime residual disposal site. The site consists of 3 gravel pits in which the City water treatment plants dispose of the lime residual. The site is owned and operated by the City of Austin, Austin Water Utility.

SUMMARY STAFF RECOMMENDATION:
Staff recommends approval of the Conditional Use Permit for the disposal facility to allow development over an acre within the P, public zoning district. The CUP will establish the site development regulations for the site. Additionally, this site has been used for this function prior to annexation. If the property were still in the County, a conditional use permit would not be required.

PROJECT INFORMATION

SITE AREA	155 acres		
EXISTING ZONING	P, Public		
WATERSHED	Onion Creek		
WATERSHED ORDINANCE	Comprehensive Watershed Ordinance (Suburban)		
TRAFFIC IMPACT ANALYSIS	Not required		
CAPITOL VIEW CORRIDOR	None		
PROPOSED ACCESS	Shaw Lane		
	Allowed/Required	**Existing**	**Proposed**
FLOOR-AREA RATIO	NA	0	0
BUILDING COVERAGE	NA	720	0
IMPERVIOUS COVERAGE	NA	1.18%, 78,844 sf	2.9%, 146,362 sf.
PARKING	NA		None required or proposed

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SUMMARY COMMENTS ON SITE PLAN:
The subject site was recently annexed into the City of Austin's Full Purpose jurisdiction in October 2009 and given an interim zoning of I-RR. Since the site could not be developed as planned under the interim zoning, the City requested a zoning change to P, Public. The zoning was granted on June 24, 2010. The P zoning district is the standard zoning for a governmental, civic, public service or public institution use. However under this zoning district, any development greater than one acre requires a conditional use permit to establish the site development regulations and land use. The facility consists of 3 tracts, and has been tied together with a Restrictive Covenant Regarding Unified Development, for purposes of drainage, maintenance of drainage facilities, impervious cover, and landscaping.

The City has been utilizing the site for some time, but understood the need for an overall master plan, which would include a restoration plan, wetland mitigation, levee stabilization and water quality improvements. The master plan aka site plan SPC-2010-0104D establishes development guidelines for the construction improvements on Shaw Lane from its present condition to its closure. This type of facility is very similar to a land fill, and will eventually be at full capacity and be required to cease operation. The anticipated life of the disposal is 25 to 30 years.

**A portion of the engineer's report is provided for more detailed information about the proposed improvements.

COMPATIBILITY
The subject site is surrounded by land within the 2 mile ETJ, which would not trigger compatibility standards; however there aren't any land uses that would have triggered compatibility.

EXISTING ZONING AND LAND USES

	ZONING	LAND USES
Site	P, public	Lime residual disposal facility- existing pits
North	2 mile ETJ	Austin Police Academy and undeveloped
South	2 mile ETJ	Onion Creek and mining pit
East	2 mile ETJ	Undeveloped
West	2 mile ETJ and DR	Undeveloped and McKinney Falls State park

ABUTTING STREETS

Street	Right-of-Way Width	Pavement Width	Classification
Shaw Lane	Varies	28 ft	Collector

NEIGHBORHOOD ORGNIZATIONS:
511—Austin Neighborhoods Council
627 - Onion Creek Homeowner's Association
1228 - Sierra Club Regional District
774 - Del Valle Independent School District
1200—Super Duper Neighborhood Objectors and Appealers Organization
1224—Austin Monorail Project
1236—The Real Estate Council of Austin, Inc
1258—Del Valle Community Coalition

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CONDITIONAL USE PERMIT REVIEW AND EVALUTATION CRITERA

The following evaluation is included to provide staff's position on each point of the conditional use permit criteria. Section **25-5-145** of the Land Development Code **(EVALUATION OF CONDITIONAL USE SITE PLAN)** states:

A. The Land Use Commission shall determine whether the proposed development or use of a conditional use site plan complies with the requirements of this section.

B. A conditional use site plan must:

1. **Comply with the requirements of this title;**
   Staff Response: This site plan complies with all regulations and requirements of the Land Development Code. There were no variance requests.

2. **Comply with the objectives and purposes of the zoning district;**
   Staff Response: The proposed sludge facility/lime residual use is a conditional use because the site is zoned P, public. It's a governmental use and is appropriate for this zoning district.

3. **Have building height, bulk, scale, setback, open space, landscaping, drainage, access, traffic circulation, and use that is compatible with the use of an abutting site;**
   Staff Response: The site plan will comply with all requirements of the Land Development Code. The site plan complies with setback, height, and compatibility requirements.

4. **Provide adequate and convenient off-street parking and loading facilities; and**
   Staff Response: The site plan will create adequate off-street parking and loading.

5. **Reasonably protect persons and property from erosion, flood, fire, noise, glare, and similar adverse effects.**
   Staff Response: The site plan will comply with all requirements of the Land Development Code including Compatibility Standards, and reasonably protects the health, safety, and welfare of persons and property.

C. In addition, a conditional use site plan may not:

6. **More adversely affect an adjoining site than would a permitted use;**
   The facility will have no more impact on adjoining properties than other permitted uses in the area which could operate under similar circumstance.

7. **Adversely affect the safety or convenience of vehicular or pedestrian circulation, including reasonably anticipated traffic and uses in the area; or**
   Staff Response: The site plan does not adversely affect the safety and convenience of vehicular and pedestrian circulation. Pedestrian activity is not anticipated for this site.

8. **Adversely affect an adjacent property or traffic control through the location, lighting, or type of a sign.** Staff Response: All signs and lighting will comply with the Land Development Code.

D. A site plan may not adversely affect the public health, safety, or welfare, or materially injure property. If the Land Use Commission determines that a site plan has an adverse effect or causes a material injury under this subsection, the Land Use Commission shall identify the adverse effect or material injury.

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In addition, Sec. **25-5-146 (CONDITIONS OF APPROVAL)** states:

(A) To make a determination required for approval under Section 25-5-145 (Evaluation Of Conditional Use Site Plan), the Land Use Commission may require that a conditional use site plan comply with a condition of approval that includes a requirement for:

(1) a special yard, open space, buffer, fence, wall, or screen;
(2) landscaping or erosion;
(3) a street improvement or dedication, vehicular ingress & egress, or traffic circulation;
(4) signs;
(5) characteristics of operation, including hours;
(6) a development schedule; or
(7) other measures that the Land Use Commission determines are required for compatibility with surrounding uses or the preservation of public health, safety, or welfare.

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1. Master Plan Report
2. Wetland Mitigation
3. Water Quality
4. Levee Stability
5. Restoration Plan

Master Plan Report
WPDRD required AWU to develop a Master Plan for the development of Shaw Lane as a condition for approval of any improvements proposed at Shaw Lane. Consequently, AWU retained Alan Plummer Associates, Inc. (APAI) to develop a not only the Master Plan for Shaw Lane, but construction plans for improvements proposed at Shaw Lane. The Master Plan establishes development guidelines for the construction improvements on Shaw Lane from its present condition to its closure. Refer to **Attachment 25** in the Engineer's Report.

Wetland Mitigation
Approximately 3 years ago, during a site visit by WPDRD staff wetlands vegetation was identified within the perimeter of the East pit. As a result of this finding a Critical Environmental Feature (CEF) point was created It was agreed by WPDRD and Austin Water Utility (AWU) that 1.7 Ac. would be dedicated on the South end of the West pit to mitigate for the CEF point, this area would be re-vegetated in accordance with City of Austin Standard Specification 609S.

In April of 2009, Baer Engineering (BE) a sub-consultant of Alan Plummer Associates, Inc. (APAI), performing an environmental evaluation of the three sites that integrate the Shaw Lane property found evidence of additional local wetlands on the Far West pit. WPDRD required additional 5 Acres of wetland mitigation area in the Far West pit. This requirement prompted a meeting between AWU, WPDRD and APAI where an agreement was reached to dedicate a 70 Ft. wide buffer strip adjacent to the Critical Water Quality Zone along the Shaw Lane property. This agreement replaces the previous CEF creation. The buffer strip will be re-vegetated as per specification 609S and has been recorded in the Travis County Courthouse (see **Attachment 20** in the Engineer's Report – Non-Development 70-Ft. Buffer Strip). Baer Engineering prepared a Preliminary Jurisdictional Determination (PJD) report and submitted it to the US Army Corps of Engineers (USACE). USACE concluded that the wetlands are not jurisdictional. There is a very short channel (approximately 190-Feet long by 3-Feet wide) outside of the limits of construction, which was determined to be jurisdictional. This channel can be seen on sheet G-002 of the Construction Plans submitted for review.

Water Quality
Water quality, specifically, connectivity between the Shaw Lane facility and Onion Creek has been an important issue. Comments made by review staff contemplating the requirement for a liner prompted several meetings between WPDRD staff, AWU and APAI to develop measures to prove that connectivity didn't exist. WPDRD requested boring logs to gain knowledge on the soil profile under the East pit. During the last of this meetings APAI presented geotechnical borings, piezometer readings and an exhibit showing that the difference between surface water on the East pit and Onion Creek's water

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surface elevation (WSE) was too large to support concerns of connectivity. Finally, Scott Hiers/WPDRD issued an email dated 6/09/09, concluding that connectivity was not a concern and that a liner would not be required by the City (refer to Engineer's Report, page 12 – Water Quality).

Levee Stability
The overall site development plan for the Shaw Lane has been based on 0% Discharge, holding all of the rainwater that falls on the Far West, West and East pits drainage areas on-site. In accordance with the Drainage Criteria Manual (DCM), the stored volume was calculated using the probable maximum flood (PMF), which is approximately 4 times larger than the 100-year storm. The proposed levee extension for the Far West pit has been designed in compliance with Chapter 299 of Title 30 of the Texas Administrative Code (see **Attachment 26** of the Engineer's Report). APAI hired Freese & Nichols (F&N), a reputable dam design engineering firm to perform a levee stability analysis based on a conservative approach and considering the 100-Year and 500-Year Storms on Onion Creek and PMF on Far West, West and East pits. F&N's findings show that under very conservative conditions the existing levee and the extension proposed for the Far West pit maintained its structural soundness and stability. F&N's report is included in the ER as **Attachment 13**.

Restoration Plan
Through meetings with Chuck Lesniak and Lee Lawson/WPDRD, it was determined that restoration plans for the three sites would need to be submitted as a requirement for approval of construction plans for Shaw Lane, even though, actual restoration may not happen until 2033. APAI has included restoration plans for the three pits with the construction plans submitted for review.

I appreciate the attention given to this submittal. If you have any questions, or require additional information, please do not hesitate on calling me at (512-687-2198).

Sincerely yours,

ALAN PLUMMER ASSOCIATES, INC.

Pablo Rubio, P.E.
Project Manager

PR/jl

STATE OF TEXAS
PABLO RUBIO
86804
LICENSED
PROFESSIONAL ENGINEER

Enclosure: As noted

cc: Chris Wolter/AWU, Project Sponsor, Robert Hengst/PW, Project Manager

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INTRODUCTION

The Shaw Lane Lime Residuals Disposal Facility is located at 5006 Shaw Lane and 5001 McKinney Falls Parkway, in southeast Travis County (see **Attachment 1** – General Site Location Map). It occupies 153.37 acres of land owned by the City of Austin which was annexed on December 31, 2009. The improvements associated with the overall site plan are located in City grid L-15 and K-15 (see **Attachment 17**– Grid Maps). A portion of the site has been subdivided as the Martinshaw Subdivision in October 1954, and the remainder of the property is part of the Santiago del Valle Grant, in Travis County (see **Attachment 6**– Plat).

The site includes three former gravel pits; the East pit (EP), West pit (WP) and the Far West pit (FWP). Currently, disposal of lime residuals from the City's water treatment plants is being conducted on the WP and EP. The material is delivered to the site by 18-wheel end-dump trucks. Disposal operations at the site began in 1987. The lime residuals disposal operations for the WP and EP are registered and approved by the Texas Commission on Environmental Quality (TCEQ) (see **Attachment 7** – TCEQ Site Registration). The current registration will be up for renewal on November 2, 2010. The City of Austin Water Utility department (AWU) has already started communications with TCEQ to submit an amendment to the registration to include the FWP, a property that was acquired in 2008. The proposed site plan improvements will allow the optimal utilization of the site and will be done following the development guidelines set forth in Shaw Lane's Master Plan Report, submitted with this report for approval (**Attachment 25**– Master Plan Report).

Hydrologically, the site lies within the Onion Creek Watershed, which is classified as a suburban watershed. A fundamental part in the development of the site has been to develop the site aiming for a 0% discharge, while considering the Probable Maximum Flood (PMF). This objective was first achieved for the development of the Interim Site Improvements on the East pit and is proposed for each of the remaining development contracts. In order to fully achieve the 0% discharge objective during contract V (2043), the last of the contracts on Shaw Lane, a switch will be made from PMF to the standard 100 year storm over the entire site when calculating the detention volume on the EP during the last step of development of the site (Contract V, 2043).

The DCM equates the safety in developing each of the three gravel pits to that of a dam, the concept of 0% discharge has been fully discussed with Eduardo Acosta, with the Dam Safety office of the Watershed Protection and Development Review Department (WPDRD). Mr. Acosta's review and approval of the concept were pivotal in obtaining approval of the Interim Site Improvements Plan (see **Attachment 19**– Site Plan Approval).
For the final grading of the site, which is expected to occur between 2033 and 2043, we are proposing an outfall drainage concept that will allow runoff to sheet-flow over the restored pits to flow spreading structures. These structures will control the amount of flow fed to vegetated riprap swales that will ensure that velocities stay below 5 feet-per-second, as the runoff outfalls to Onion Creek.

The construction of the proposed improvements for this project spans 32 years and has been broken down into Contracts, as described in the next section. In general terms, Contract I (2012) improvements on the FWP consist of: excavation on the FWP to borrow material for the

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construction of approximately 1,000 LF of levee extension on the FWP. Construction of approximately 1,500 LF of asphalt road , one truck wash station, two (2) concrete, 32 LF-wide driveways and two (2) concrete dump pads. Extension of approximately 1,500 LF of 6-inch waterline, re-establishment of Riparian Corridor along FWP frontage to Onion Creek. Re-vegetation of the 70' Buffer Strip along and outside FWP's Critical Water Quality Zone, as per recorded deed restriction.
On the WP, installation of 1,050FT of 24" storm drain pipe with three (3) manholes, and one (1) outfall to the EP (see below). Build berm over southern section of Shaw Lane Rd.
On the EP, install 70LF of 60-inch RCP culvert between WP and EP with outfall structure (gabion mattress). Abandonment of existing outfall pipe through levee (see Site Plan No. SP-2009-0055D, previously approved).
For Contract II (2014), on FWP: protect inlet weir structure with vegetated riprap (conveyance channel from FWP to EP, see below). On the WP, final grading including conveyance channel from FWP to EP and restoration of WP. Plugging and abandonment of 60" culvert between WP and EP. On the EP, protection of conveyance channel outfall with vegetated riprap.

Plans for Contracts I and II are submitted herewith for approval. Plans for improvements on Contracts III, IV and V are not part of this submittal, since those improvements will not be needed before 2033; however, in accordance with LDC 25-8-342 (B), restoration plans for the entire site are included. The master plan report (**Attachment 25**– Master Plan Report) describes the sequence of development including the closure of the site.

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SITE PLAN IMPROVEMENTS SUMMARY

CONTRACT I (2011)
Most of the improvements on this contract will take place on the FWP; however, there will be improvements on the WP and EP, as follows:

FAR WEST PIT (FWP)
Demolition. The Far West Pit currently is leased by several tenants. One operates a concrete batch plant and another one uses part of the site to store highway jersey barriers. The City's Real Estate department has been in communication with the tenants. The tenants will vacate the site before construction begins. Once the site is vacated, the remaining structures will need to be demolished to allow for the excavation of material and preparation of the site. The structures to be demolished include but are not limited to: concrete pads, concrete containment walls, metal structures and buildings, etc.
Excavation. The western portion of the FWP will be excavated for material to be used for the construction of the levee, additionally, for the clay liner and soil cover for the WP. Excess material will be deposited in the staging areas for future use in subsequent contracts.
Levee Extension. The existing levee located along the southern end of the WP will be extended westward over and across the southern portion of the FWP tract. The levee extension will be approximately 1,000 FT long, with a top width of 20-feet and 4:1 (H:V) side slopes as per recommendations by Freese and Nichols (see **Attachment 13** – Levee Design Report).
Access Road Extension. The existing access road located north of the West Pit (active) will be extended westward over and across the FWP tract connecting to existing intersection approach on McKinney Falls Parkway. The access road will be 30-feet wide with an asphalt top, as per recommendations outlined in an email dated February 12, 2010 by HVJ (see **Attachment 24** – Geotechnical Report). A 50 FT -18-inch RCP culvert will be installed under the access road extension to facilitate cross-drainage.
Truck Wash/Water-Filling Station. For the purpose of facilitating the dumping of material off of the trucks and washing the trucks before they leave the site, a truck-wash station will be built
Concrete Drives and Dumping Pads. There will be two 32-FT concrete drives totaling approximately 665 LF leading to 2- 32'x50', reinforced concrete pads supported by piers.
Waterline Extension The existing waterline located at the dump pad on the north end of the West Pit will be extended westward along the proposed access road extension, approximately 1,500-LF. The waterline extension will run parallel along the northern edge of the proposed access road and branch southward to serve each of the dump pads.
Riparian Corridor Re-establishment. Once the levee work has been completed, in accordance with an agreement between AWU and WPDRD, the riparian corridor along the Onion Creek frontage of the FWP will be re-established with native planting material.
Non-Disturbance 70' Buffer Strip. Once the levee work has been completed, in accordance with a deed restriction recorded in the Travis County courthouse, a 70' strip along and outside the Critical Water Quality Zone will be vegetated following standard specification 609S.

WEST PIT (WP)
Storm Drain. Approximately 1,050FT of 18-inch and 24-inch storm drain will be installed from the existing WP Truck Wash to proposed outfall into the EP. The system will include 3

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manholes. The upstream-most manhole will connect with 2-12-inch RCP pipes extended from the outfall of an existing culvert under an existing dumping pad on the EP.
Berm over Shaw Lane Rd. Build berm over southern section of Shaw Lane Rd.

EAST PIT (EP)
24-inch Storm Drain Outfall. The outfall will consist of a vegetated riprap apron.
60-inch RCP Culvert. Installation of West Pit--East Pit 60-inch RCP Culvert with a vegetated riprap outfall structure.
Outfall Abandonment. Abandonment of existing 30" concrete outfall pipe through levee as per Site Plan No. SP-2009-0055D, previously approved.

CONTRACT II (2014)

FWP
Vegetated Riprap Inlet Structure. Installation of vegetated riprap inlet weir structure for conveyance channel from FWP to EP, see below.

WP
Berm on Shaw Lane Rd. Cut berm on Shaw Lane to allow outfall from conveyance channel.
Grading. Grade lime residuals material to subgrade. Lay 12-inch layer of clay and 12-inch layer of soil. Final grading including approximately 1,500 LF of conveyance channel between FWP and EP.
Conveyance Structure A 30-FT bottom, grass-stabilized, trapezoidal channel with a 4-foot wide concrete pilot channel and 4:1 side slopes with capacity to convey 75% of the PMF generated on the FWP, as per DCM 8.3.4.B, will convey the overflow from PMF from the FWP and the flow generated by a 100-year return storm over the West Pit to the East Pit. The channel depth will vary from 3.88 FT to 4.53 FT and will be 1,500 FT long.
Restoration. Restore WP as outlined in the Restoration and Stabilization Plan.

EP
Outfall Protection. Protect channel outfall with vegetated riprap outfall structure.

Future Contracts III, IV and V (Not Included)

Refer to the Master Plan Report for Shaw Lane (**Attachment 25**) for information on what will be done on each contract not included in this report.

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SUBDIVISION AND ANNEXATION

The proposed site plan improvements are located on property platted as the Martinshaw Subdivision in October 1954 (City of Austin Case No. C8-54-085) (see **Attachment 6** – Plat/Survey). The improvements are located partially on Lots 5-A, 6 and 6-A of the original subdivision, and also on property included in the original subdivision as a 55.32 acre tract out of the 103.92 acre tract being a portion of the Santiago Del Valle Grant, Abstract No. 247 in Travis County, Texas.

All property upon which the proposed improvements will be constructed is owned by the City of Austin. This property was annexed on December 31, 2009 , Ordinance No. 20091022-025 (see **Attachment 4**– Annexation Ordinance).

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FLOODPLAIN, ZERO PERCENT DISCHARGE AND DRAINAGE

Floodplain
APAI contracted Jose I. Guerra, Inc. (JIG) to evaluate the floodplain on Onion Creek in relation to the proposed improvements on this project, their report can be found in **Appendix 21** and their conclusions follow:

"The calculated results of the existing conditions analysis performed by JIG (HEC-RAS Plan: EX-2003) was in basic agreement with the accepted FEMA Study (as of July, 2009). Also, the calculated results of the JIG existing conditions model (reflecting COA 2003 topographic data from 55460 -66435) showed equal or lower water surface elevations than the City of Austin's 100-Year model (per 1997 data) for all cross sections in the model.

The calculated results of the proposed conditions analysis (HEC-RAS Plan: PROP-2003) showed no changes in the 100-Year water surface elevation at any location (per the model cross sections). Calculated results show reductions in the 500-Year water surface elevation in multiple locations, with the exception of one cross section (RS 64700) where it increased by .01'. The reduction in the 500-Year water surface is attributed to the proposed grading surface along the proposed project site, which is essentially more uniform than the existing conditions surface. The calculated results also indicate that the 500-year water surface reductions occur decreasingly for approximately 6.50 miles upstream of (RS 65088) (Almost to Bluff Springs Road, RS 100375), and for approximately 0.10 miles downstream before reaching (RS 64700). Furthermore, the calculated results indicate no changes in the 500-Year water surface elevations further upstream than RS 100220 or further downstream than RS 64700. ***The proposed model results therefore indicate that the proposed conditions will have no adverse impact on the project site or at any of the upstream or downstream cross sections.*** Based on the modifications described for both existing and developed conditions, the numerical results provided in the following table were obtained."

A copy of the FEMA FIRM Map that covers the subdivision area is included in **Attachment 12.**

Zero Percent Discharge
From the beginning of the project it was decided that the drainage design would include, if possible, 0% discharge. To achieve this objective runoff would have to be kept onsite. Provisions were made through the development sequence to split the burden of handling the Probable Maximum Precipitation (PMP) flows between the FWP and the EP.

Due to the size of the drainage areas and the existing topography, the EP and FWP are considered Large Regional Ponds per City of Austin Drainage Criteria Manual (DCM) Section 8.3.3. The volume of storm water flow to be retained on each pit is calculated based on the probable maximum flood (PMF) using the probable maximum precipitation (PMP) values as described in the DCM section 2-7.
On the EP, the drainage area considered included: the WP, EP and offsite drainage area (Police Academy). This calculation showed that the EP had capacity to handle the PMF without exceeding an elevation of 532.00 FT, which is 2 FT below the lowest point on the levee bordering

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the EP (**Attachment 11**). Slope Stability Analysis considered extreme conditions on the levee (saturation of material and rapid drawdown) resulting in safety factors exceeding those recommended (**Attachment 13**).

Similarly to the East Pit, the Far West Pit is considered a large regional Pond. Routing the PMF through the FWP without an outfall shows that the FWP has capacity to handle the PMF without overtopping the levee.
A conveyance channel across the WP would act as a spillway for the FWP in case water surface elevation in the FWP exceeds elevation 534.50 FT. This channel is designed to convey 75% of the Probable Maximum Flood (PMF), plus runoff generated over the WP from a 100 YR return period storm. The development sequence for the entire site (refer to Attachment 25, Master Plan Report) deals with the logistics to ensure an overall 0% discharge to Onion Creek.

Drainage
K Friese and Associates (KFA), a sub-consultant to APAI, collaborated in the development of the drainage area maps for existing and proposed conditions.(see **Attachment 11**– Drainage Area Maps). The U.S. Army Corps of Engineers' HEC-HMS Hydrologic program was used to calculate stormwater flows for each area. Summary tables for existing and proposed conditions are shown below.

Runoff travel path for each area was determined and the time of concentration was estimated for each sub-area. Typically, three types of flow may be used in this assessment including sheet flow, shallow concentrated flow, and channel flow. The City of Austin (COA) Drainage Criteria Manual (DCM) provides a prescribed calculation method for each type. Manning's coefficients (frictional resistance) have been estimated for each flow regime based on surface conditions. From these inputs, the time of concentration was determined for each sub-area. The lag time, which is utilized in the SCS method of flow generation, is defined as 0.6 times the time of concentration. The HEC-HMS model uses the SCS method and requires lag time as the temporal input.
Storm drainage improvements include, on the FWP: approximately 70-LF of 18-inch RCP culvert pipe under the proposed asphalt road. This culvert will convey Q_{25}=34 CFS from Drainage Area (DA 6). On the WP, a storm drain system consisting of approximately1,050FT of 18-inch and 24-inch storm drain will be installed from the existing WP Truck Wash to proposed outfall into the EP. The system will have 3 manholes. The upstream-most manhole will connect with 2-12-inch RCP pipes extended from the outfall of an existing culvert under the existing dumping pad on the EP. For Contract II, the West pit will be restored and a conveyance channel will be built. This channel will communicate the FWP with the EP and it will be approximately 1,500-LF long, with a 30-FT wide bottom, 4:1 side-slopes and a 4-FT wide, V-shaped concrete pilot channel at 0.5% slope. The inlet and outfall of the channel will be protected with vegetated riprap. On the EP, storm drainage improvements will consist of storm drain vegetated riprap apron outfall. Installation of West Pit--East Pit 60-inch RCP Culvert with a vegetated riprap outfall structure. Additionally, abandonment of existing 30" concrete outfall pipe through levee as per Site Plan No. SP-2009-0055D, previously approved.

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EROSION AND SEDIMENT CONTROL

Temporary Erosion / Sedimentation Controls
During construction of the proposed site plan improvements storm water flows will be managed by installation of stabilized construction entrances, and silt fences along downhill side of the project construction activities in accordance with the City of Austin's Environmental Criteria Manual and Standard Details. The entire area disturbed by this construction project will be re-vegetated. Refer to **Attachment 16** for Sediment and Erosion Control Cost Estimate.

Permanent Erosion / Sedimentation Controls
Due to the nature of the proposed site plan improvements permanent erosion/sedimentation controls will consist of reseeding of all disturbed areas, as well as maintaining the existing drainage patterns in and around the site area. For the proposed improvements, storm water flow from the paved area being constructed over graveled area will flow into the existing gravel pit; off-site storm water flow from the Police Academy are will be capture in a closed system and directed to the EP.

ENVIRONMENTAL

Slopes
The end of the proposed dump pads on the FWP are the only improvements located over an area having a slope greater than 15%. All storm water flow from these areas will continue to be directed into the gravel pits and will be retained in the pit, in accordance with the 0% discharge directive.

Tree Mitigation
Several trees are located within the limits of the project. Many trees have already been removed with the clearing and grubbing activities associated with the approved Site Plan No. SP2009-0055D. A total of 1,037.5 inches were approved for removal (776.5 inches with the initial approval of the site plan and 261 inches with correction no. 2). The tree mitigation calculations account only for the trees which will be removed and have not been accounted for in other calculations. (see **Attachment 9** – Tree Survey, List and Mitigation Calculations).

Jursidictional Waters
Upon a field inspection at the beginning of 2009, Baer Engineering, a sub-consultant to APAI, prepared a Preliminary Jurisdictional Determination (PJD) report for Shaw Lane and submitted it to the U. S. Army Corps of Engineers (USACE) in April 2009. The report established that Onion Creek was a jurisdictional Relatively Permanent Water (RPW) which flows year round. A small channel (190-FT x 4-FT) tributary to Onion Creek was identified as T1, and considered jurisdictional non-RPW that only flows during storm events located within the riparian hillside to the north of the Creek. On the plans this small channel is identified as USACE Jursidictional Waters. In October 2009, Baer Engineering received a response from USACE concurring with the JPD (at that point JD). A copy of the JD and the response received from the USACE is included in **Attachment 10.**

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Non-Disturbance Buffer Strip and Riparian Corridor
In the summer of 2007, during a site visit by WPDRD staff members, wetlands-type plant species were identified in the bottom of the EP. Based on this finding, WPDRD staff requested that the wetlands area be treated as a point-type environmental feature requiring either a setback of at least 150 feet or mitigation. Mitigation would require the establishment of vegetation over an area at least as large as the 150 foot diameter setback area (approx. 1.6 acres). During the review of Site Plan No. SP-2009-0055D discussion between AWU and WPDRD were held to develop a solution to the point feature easement that would benefit Onion Creek and allow the maximum land use of the Shaw Lane site. An agreement was reached to replace the requirement for an easement around the point feature with a non-development 70-FT buffer strip easement along the Onion Creek frontage of the property directly abutting the Critical Water Quality Zone. This buffer strip easement was recorded at Travis County courthouse (**Attachment 20**). Additionally, AWU agreed to enhance and re-establish the riparian corridor along the Onion Creek frontage of the FWP.

WATER QUALITY

In 2007, staff from WPDRD expressed concerns that arose from the spilling over of lime residuals from the WP to the EP after some heavy rains. WPDRD required AWU to provide assurances that lime residuals would not be discharged to Onion Creek. AWU hired Klotz Engineering to analyze the situation and issue recommendations that would address WPDRD's concerns. The January 12, 2009 Klotz report outlined several recommendations that were implemented and modified the day to day operations at Shaw Lane (See Appendix 1.6). In preparing this MPR and the Construction Plans, APAI has taken in consideration WPDRD's concerns and designed the improvements around a 0% Discharge Stormwater Management concept. By keeping onsite all of the water generated by storm events and by the lime residuals, until such time when the FWP and WP have been fully restored (not earlier than 2033), any over-spilling issues concerning water quality are averted.
During the review of the Interim Site Improvements Plan on the EP, WPDRD expressed further concerns regarding the possibility of connectivity between superficial water on the EP and groundwater flowing to Onion Creek. For the purpose of determining if connectivity existed between superficial water and groundwater, APAI contracted HVJ Associates to install a total of 4 piezometers. Two (2) were installed within the limits of the EP and two (2) within the limits of the FWP (Appendix 1.5).

During the review of Site Plan No. SP-2009-0055D, WPDRD reviewed geotechnical boring logs on the East pit, together with information on water surface elevation on surface ponding and water surface elevation on Onion Creek. Scott Hiers/WPDRD concluded that:

"*I have evaluated the boring logs from Shaw Lane's eastern quarry pit. The rock quality designation (RQD) and core recovery data suggest that the underlain rock units are soft and fractured limestone and tuff. The fractures could be a potential pathway for water within sludge to migrate into local groundwater. Although it is possible that during the land application of lime sludge the water contained within sludge could migrate through the fractures underlying rock, the physical properties of lime sludge greatly reduced the*

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conductivity to groundwater. In general, lime sludge is silt and sticky material that would likely seal the fractures in rocks and reduce the permeability of underlain limestone. The occurrence of ponded water and a wetland habitat within eastern pit is evidence of compacted lime fill is impeding the development of surface water/groundwater connection. ***In view of this and that the groundwater level within the eastern pit is considerable higher in elevation than Onion Creek and that no springs are present along the banks of Onion Creek adjacent to the quarry site, there does not seem to be need to construct a liner within eastern pit".***

UTILITIES

The City of Austin AWU currently provides, and will continue to provide, water utility service to the project site area. Wastewater service is not provided to the project site area and there are currently no plans to do so in the future. No septic fields are proposed for the development of this project.

ELECTRIC SERVICE

Electric service to the property is provided by Austin Energy.

ENGINEER'S COST ESTIMATE

An engineer's cost estimate for the project is included as **Attachment 15**.

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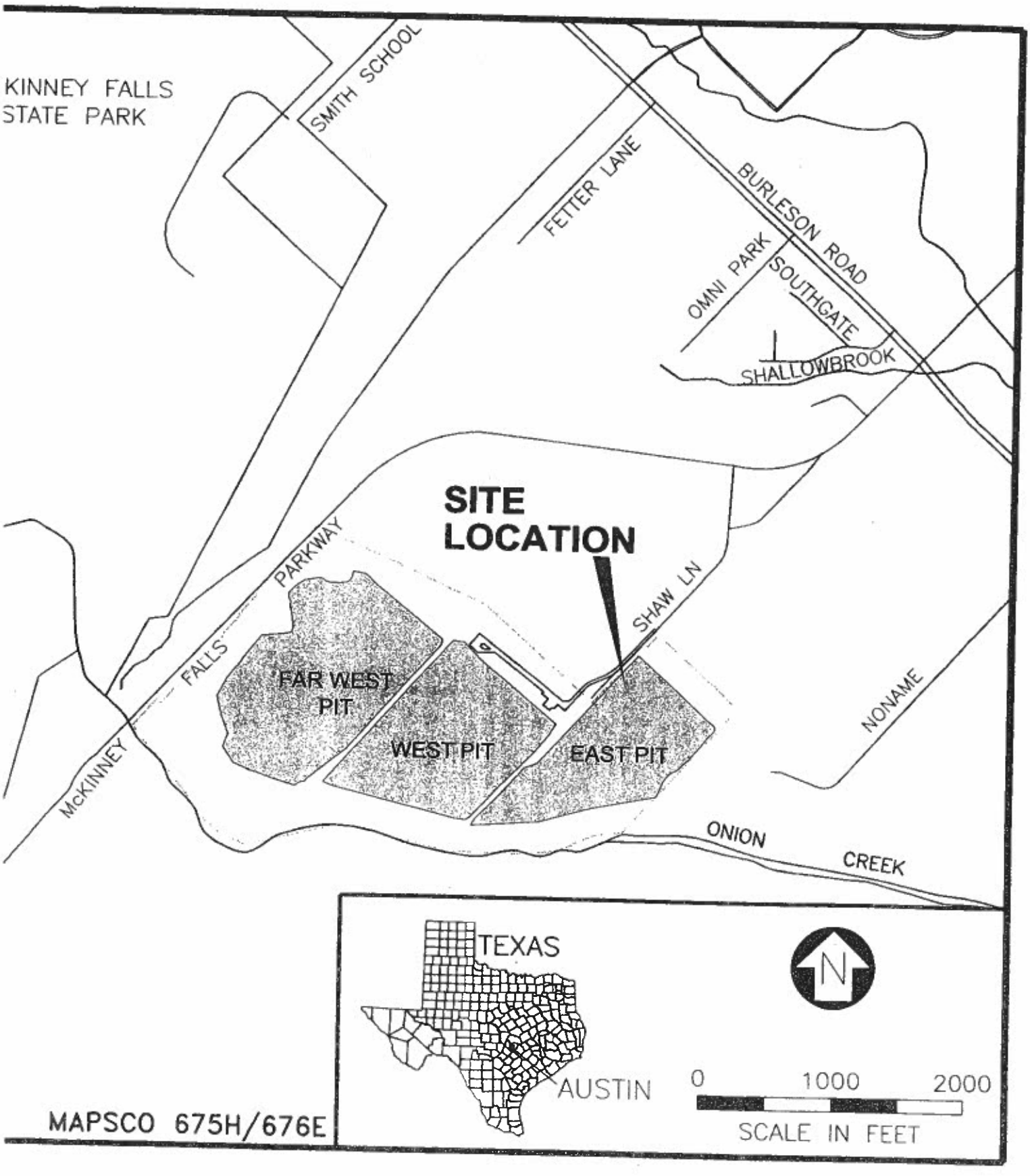
KINNEY FALLS STATE PARK
SMITH SCHOOL
FETTER LANE
BURLESON ROAD
OMNI PARK
SOUTHGATE
SHALLOWBROOK
SITE LOCATION
PARKWAY
FALLS
SHAW LN
FAR WEST PIT
WEST PIT
EAST PIT
McKINNEY
NONAME
ONION CREEK
TEXAS
AUSTIN
N
0
1000
2000
SCALE IN FEET
MAPSCO 675H/676E

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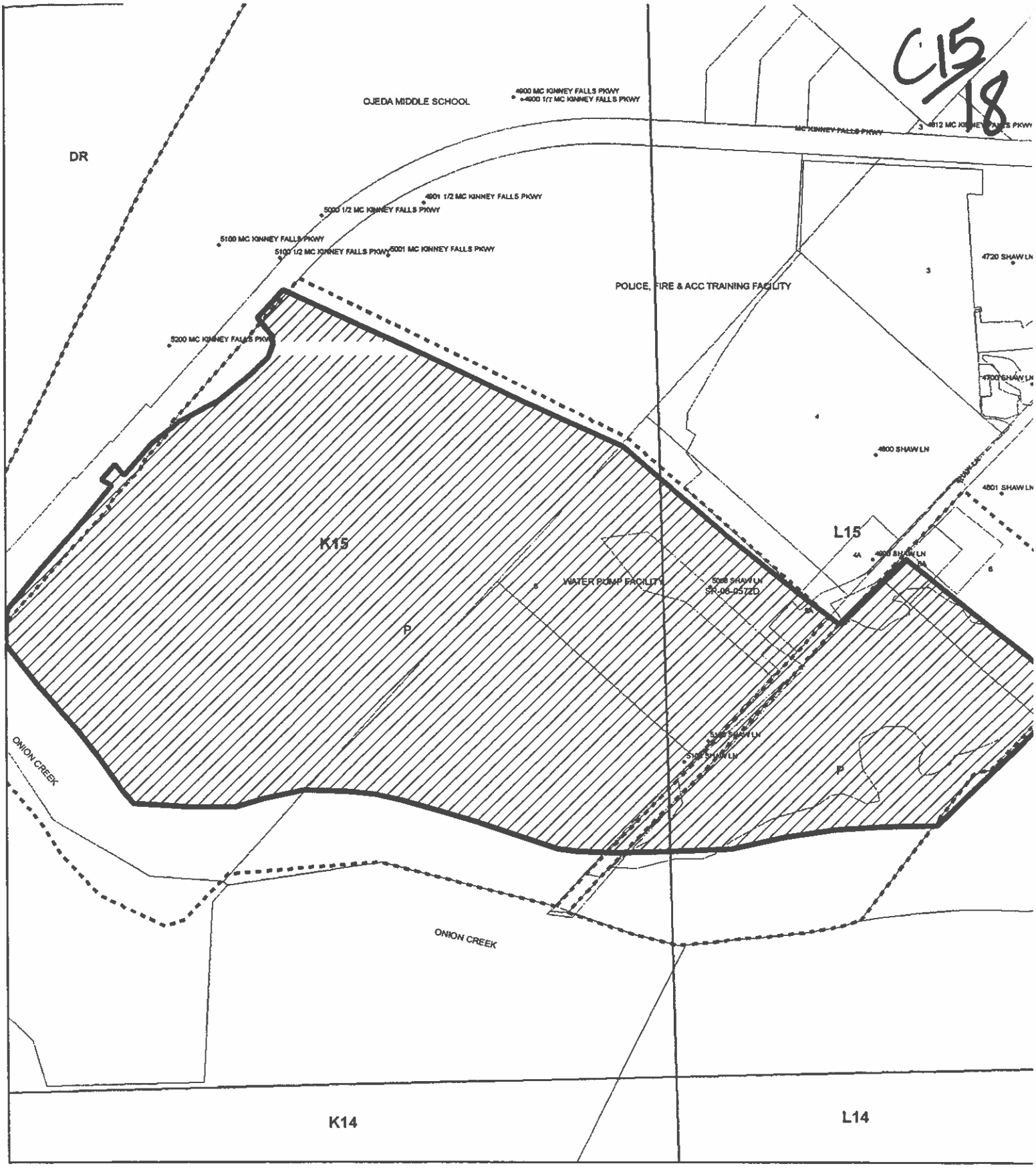


SPC-2010-0104D

N

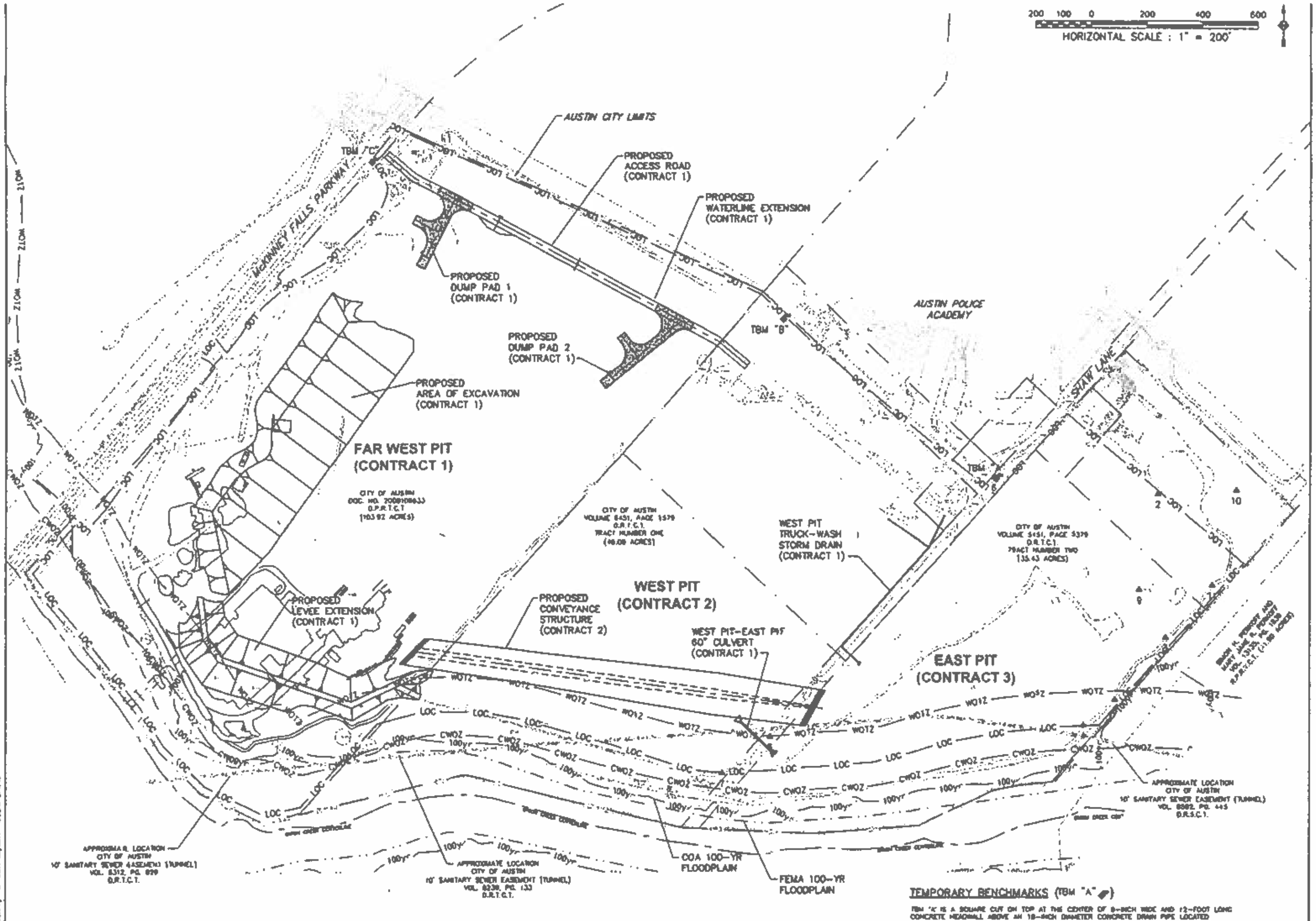
SUBJECT TRACT

ZONING BOUNDARY

CASE#: SPC-2010-0104D
ADDRESS: 5006 Shaw Lane
GRID: K15, L15
MANAGER: NIKKI HOELTER

OPERATOR: C.Casillas

CITY OF AUSTIN FOUNDED 1839


HORIZONTAL SCALE : 1" = 200'
AUSTIN CITY LIMITS
PROPOSED ACCESS ROAD (CONTRACT 1)
PROPOSED WATERLINE EXTENSION (CONTRACT 1)
PROPOSED DUMP PAD 1 (CONTRACT 1)
PROPOSED DUMP PAD 2 (CONTRACT 1)
PROPOSED AREA OF EXCAVATION (CONTRACT 1)
FAR WEST PIT (CONTRACT 1)
PROPOSED LEVEE EXTENSION (CONTRACT 1)
PROPOSED CONVEYANCE STRUCTURE (CONTRACT 2)
WEST PIT (CONTRACT 2)
WEST PIT TRUCK-WASH STORM DRAIN (CONTRACT 1)
WEST PIT-EAST PIT 60" CULVERT (CONTRACT 1)
EAST PIT (CONTRACT 3)
AUSTIN POLICE ACADEMY
SHAW LANE
MCKINNEY FALLS PARKWAY
TBM "C"
TBM "B"
COA 100-YR FLOODPLAIN
FEMA 100-YR FLOODPLAIN

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	10041225.3808	3126904.4641	557.47	MAG NAIL
2	10040749.3332	3127104.3836	553.68	600 NAIL
3	10040242.2260	3127133.0504	546.55	600 NAIL
4	10039933.4225	3126837.7192	533.94	600 NAIL
5	10040021.5432	3126931.0396	536.38	600 NAIL
6	10040606.5877	3126513.7021	565.05	600 NAIL
7	10039764.2246	3125836.1317	534.36	600 NAIL
8	10039894.3323	3125708.1525	534.98	600 NAIL
9	10040410.7425	3127038.7596	505.03	600 NAIL
10	10040762.8847	3127386.5975	551.73	600 NAIL
11	10040427.0558	3177299.6980	552.36	600 NAIL

NOTES:

1. THE COORDINATES AND BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE-4203, NAD83(HARN). THE COORDINATES WERE ESTABLISHED FROM L.C.R.A./TRAVIS COUNTY COOPERATIVE NETWORK REFERENCE POINT "K-16" HAVING COORDINATE VALUES OF N=10,043,641.69, E=3,124,375.47. DISTANCES SHOWN HEREON ARE GRID. JUNE 17, 2009
2. ELEVATIONS AND CONTOURS ARE BASED ON L.C.R.A./TRAVIS COUNTY MONUMENT "K-16", A 2 INCH BRASS DISK IN CONCRETE ON THE GROUNDS OF THE TEXAS PARKS AND WILDLIFE HEADQUATERS SOUTH OF BURLESON ROAD ON SMITH SCHOOL RD. ELEVATION = 564.39 FEET.

TEMPORARY BENCHMARKS (TBM "A")

TBM "A" IS A SQUARE CUT ON TOP AT THE CENTER OF 8-INCH WIDE AND 12-FOOT LONG CONCRETE HEADWALL ABOVE AN 18-INCH DIAMETER CONCRETE DRAIN PIPE LOCATED APPROXIMATELY 63 FEET EAST OF THE CENTERLINE OF ASPHALT PAVING OF SHAW LANE NEAR THE ENTRANCE INTO THE CITY OF AUSTIN SHAW LANE SLUDGE FACILITY. BENCHMARK IS 110 FEET NORTHEAST OF THE INTERSECTION OF THE CENTERLINE OF THE ASPHALT ROAD OF SHAW LANE AND THE CENTERLINE OF THE SLIDING CHAIN LINK ENTRANCE GATE FOR THE SLUDGE FACILITY. THE BENCHMARK IS ALSO 101 FEET EAST OF THE INTERSECTION OF THE ASPHALT ROAD AT THE SOUTH ENTRANCE INTO THE CITY OF AUSTIN POLICE TRAINING FACILITY AND THE CENTER OF THE CHAIN LINK GATES FOR THE SOUTH ENTRANCE. BENCHMARK IS 84 FEET NORTH OF UTILITY POLE NUMBERED 207877.
ELEVATION = 564.57'

TBM "B" IS THE TOP OF A COTTON GIN SPINDLE DRIVEN 1 FOOT ABOVE THE GROUND IN THE NORTH SIDE OF AN 11-INCH DIAMETER HACKBERRY TREE WITH ALUMINUM TAG NUMBERED 468. BENCHMARK IS LOCATED 115 FEET EAST AND 18 FEET SOUTH OF THE INTERSECTION OF A 6-FOOT HIGH CHAIN LINK FENCE WITH THE FENCE POST AT THE INTERSECTION BEING LOCATED 10 FEET EAST OF A SQUARE HEAD BOLT FOUND AT THE SOUTHWEST PROPERTY CORNER OF THE CITY OF AUSTIN POLICE TRAINING FACILITY.
ELEVATION = 583.43'

TBM "C" IS A SQUARE CUT ON TOP AT THE BACK OF CURB ON THE CENTER OF A 10 FOOT WIDE CURB INLET LOCATED APPROXIMATELY 82 FEET SOUTH AND 44 FEET EAST OF THE CENTER LINE INTERSECTION OF McKINNEY FALLS PARKWAY AND THE ENTRANCE ROAD INTO THE TEXAS PARKS AND WILDLIFE DEPARTMENT FACILITY. BENCHMARK IS 18 FEET SOUTHWEST OF A FIRE HYDRANT LOCATED ON THE SOUTHEAST CORNER OF THE INTERSECTION.
ELEVATION = 573.56'

SHEET INDEX

SEQ	SHEET	TITLE
1.	C-001	COVER/LOCATION MAP
2.	C-002	SITE LAYOUT/SHEET INDEX
3.	EX-001	SEQUENCE OF DEVELOPMENT PLAN (AWU USE ONLY)
4.	C-003	GENERAL NOTES
5.	C-004	GENERAL NOTES/ABBREVIATIONS LIST
6.	C-005	SITE SLOPE MAP - FAR WEST PIT
7.	C-006	SITE SLOPE MAP - WEST PIT
8.	C-007	SITE SLOPE MAP - EAST PIT
9.	G-008	EXISTING CONDITIONS DRAINAGE AREA MAP
10.	G-009	PROPOSED CONDITIONS DRAINAGE AREA MAP
11.	C-010A	DRAINAGE CALCULATIONS
12.	C-010B	DRAINAGE CALCULATIONS
13.	C-011	PMF CAPACITY ANALYSIS
14.	C-012	FAR WEST PIT RESTORATION & STABILIZATION PLAN
15.	C-013	EAST PIT RESTORATION & STABILIZATION PLAN
16.	G-014	RESTORATION & STABILIZATION NOTES
CONTRACT 1		
17.	C-001	FAR WEST PIT ESC/TREE PROTECTION
18.	C-002	WEST PIT ESC/TREE PROTECTION
19.	C-003	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
20.	C-004	TREE PROTECTION NOTES AND DETAILS
21.	C-005	TREE LIST AND MITIGATION TABLE
22.	C-006	FAR WEST PIT DEMO PLAN
25.	C-007	FAR WEST PIT SITE PLAN
24.	C-008	ACCESS ROAD PLAN AND PROFILE BEGIN TO STA. 12+00
25.	C-009	ACCESS ROAD PLAN AND PROFILE STA. 12+00 TO END
26.	C-010	WATER LINE PLAN AND PROFILE
27.	C-011	WATER LINE PLAN AND PROFILE
28.	C-011B	2" RP2 INSTALLATION ON OFFICE WATERLINE
29.	C-012	STORM SEWER PLAN AND PROFILE BEGIN TO STA. 5+00
30.	C-013	STORM SEWER PLAN AND PROFILE STA. 5+00 TO END
31.	C-014	STORM SEWER PLAN AND PROFILE 12" RCP EXTENSION
32.	C-015	WEST PIT TO EAST PIT CULVERT LAYOUT
33.	C-016	SHAW LANE ROAD BERM PLAN
34.	C-017	FAR WEST PIT DUMP PADS
35.	C-018	BORROW AREA DIMENSION AND CONTROL PLAN
36.	C-019	LEVEE DIMENSION AND CONTROL PLAN
37.	C-020	BORROW AREA EXCAVATION PLAN
38.	C-021	LEVEE GRADING PLAN
39.	C-022	BORROW AREA SECTIONS
40.	C-023	LEVEE SECTIONS
41.	C-024	LEVEE EXTENSION TYPICAL SECTION
42.	C-025	RIPARIAN CORRIDOR PLANTING SCHEME AND LIST
43.	S-001	FAR WEST PIT STRUCTURAL NOTES & DETAILS
44.	C-901	STANDARD DETAILS
45.	C-902	STANDARD DETAILS
46.	C-903	TRAFFIC CONTROL DETAILS
CONTRACT 2		
47.	C-101	FAR WEST PIT ESC/TREE PROTECTION
48.	C-102	WEST PIT ESC/TREE PROTECTION
49.	C-103	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
50.	C-104	TREE PROTECTION NOTES AND DETAILS
51.	C-105	WEST PIT SITE PLAN
52.	C-106	WEST PIT RESTORATION & STABILIZATION PLAN
53.	C-107	WEST PIT DRAINAGE CHANNEL PLAN AND PROFILE
54.	C-108	WEST PIT CHANNEL DETAILS

5006 SHAW LANE

SPC-2010-0104D

NO.	DATE	REVISION	BY

DESIGNED BY RS
DRAWN BY BLO
CHECKED BY RS
REVIEWED BY PR

ALAN PLUMMER ASSOCIATES, INC.
6300 LA CALMA, SUITE 400
AUSTIN, TEXAS 78752-3890
PHONE 512-452-5905
FAX 512-452-8280
TBPE FIRM REGISTRATION NO. 13

CITY OF AUSTIN
SHAW LANE SITE IMPROVEMENTS
CIP: 3960-2207-7121 / PROJECT I.D.: 2009.006

SITE LAYOUT/SHEET INDEX

Sht. 2 of 6
Dwg. No. G-002
0382-020-0

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