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Final Short Report on the Archeological Investigations for the San Antonio River Authority's Elmendorf Lake Park Improvements Project Bexar County, Texas

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FINAL SHORT REPORT ON THE ARCHEOLOGICAL INVESTIGATIONS FOR THE SAN ANTONIO RIVER AUTHORITY'S ELMENDORF LAKE PARK IMPROVEMENTS PROJECT BEXAR COUNTY, TEXAS

Antiquities Permit #6881

Hicks & Company Archeology Series #257

Submitted to:

San Antonio River Authority,
City of San Antonio
and
Texas Historical Commission

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INTRODUCTION AND MANAGEMENT SUMMARY

On May 29 and 30, 2014, archeologists from Hicks & Company conducted a 100-percent intensive areal survey of the Elmendorf Lake Park Improvements Project in Bexar County, Texas. Subsequent monitoring work was conducted on June 11, 2015. The project area consists of the limits of Elmendorf Lake Park and its associated existing trail system from south of Commerce Street between Southwest 24th Street and 19th Street, and along the north and south banks of Apache Creek beginning approximately 200 feet north of Commerce Street and terminating at Southwest 24th Street, an area that includes a segment of the Our Lady of the Lake University (OLLU) campus (**Figure 1**).

According to current design plans, the proposed project includes trail improvements, water quality improvements, property acquisition, street realignment, utility relocation, parking lot construction, park bench and shade structure installation, channel modification, the demolition of the existing pool, and the creation of a new pool (**Appendix A: Sheets SL1.00–SL1.14**). Other planned improvements include signage, elevated walkways and tie-ins with existing paved roads, parking lots, and outfalls and bio-swales (**Appendix A: Sheets DT1.01–DT1.24**). The proposed project will be constructed on land that is owned and controlled by the San Antonio River Authority (SARA), the City of San Antonio (COSA) Parks and Recreation Department, and OLLU, all of which are political subdivisions of the State of Texas. Therefore, the proposed project is subject to the requirements of the Antiquities Code of Texas (ACT). The project will also likely require federal permitting under Section 408 of the Clean Water Act, necessitating compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

The intensive pedestrian survey took approximately 32 labor-hours to complete and was supplemented by shovel testing (n = 34) in relatively undisturbed contexts. Following survey-level investigations, a small-segment of the park, where bridge support piers would be installed well below a meter in depth, was recommended for archeological monitoring by the COSA Office of Historic Preservation (OHP) during construction. Monitoring at this location was conducted on June 11, 2015 and resulted in the recordation of no new archeological sites.

Based on the results of the current investigations, it is recommended that no archeological historic properties (36 CFR 800.16(1)) or State Antiquities Landmarks (13 TAC 26.12) will be affected by this project and that no further archeological investigations are necessary for the majority of the proposed project area prior to construction at the main body of Elmendorf Lake Park and the proposed trail system improvements on the west of 24th Street and on the OLLU side of the Lake. However, in coordination with the COSA OHP, due to planned impacts beyond the limit of shovel test investigations, it was determined that excavations for pier supports at the two planned foot bridges at the "island formation" will require archeological monitoring during construction. A separate, historic standing structures survey is to be conducted by Hicks &

Company and will further address direct and indirect effects to these items under the ACT and Section 106 of the NHPA of 1966, as amended.

Report production immediately followed the conclusion of fieldwork. Josh Haefner served as the Principal Investigator for the project, and Gregg Cestaro served as Project Archeologist. Josh Haefner and Gregg Cestaro conducted the survey investigations. Archeological monitoring was done by Meghan Egan and Josh Haefner. Gregg Cestaro, Josh Haefner, Samantha Champion, and Ashleigh Knapp authored the report. Subsequent sections of this report include a discussion of the environmental setting, cultural background, brief discussion of previous surveys and recorded sites, description of field methodology, and discussion of the results of field investigations. The report concludes with formal regulatory recommendations.

Figure 1: Elmendorf Lake Park Project Location

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ENVIRONMENTAL SETTING

GEOLOGY

The project area lies within a single geological zone identified as Terrace deposits (Qt) (**Figure 2**). Associated with the Edwards uplift, these deposits are composed of gravel, sand, silt, and clay derived primarily from Tertiary limestone dolomite and cherts that form low floodplain terraces surrounding deeply cut and eroded streams (Barnes 1983). This formation dates to the Pleistocene and, with deposits that may coincide with the arrival of the first humans into the continent, has low to moderate potential to contain deeply buried archeological sites or materials.

PEDOLOGY

According to the United States Department of Agriculture's (USDA's) Web Soil Survey for Bexar County, Texas, accessed March 5, 2014, two soils are mapped as underlying the proposed project area: Branyon clay, 1 to 3 percent slopes (HtB) and Tinn and Frio soils, 0 to 1 percent slopes, frequently flooded (Tf) (**Figure 3**). Branyon clays are clayey, upland soils that are dark gray to black in color, located on flat surfaces or on strongly sloped lobes. Gravels tend to be found in the fine blocky structure of the upper layers, while the deeper layers exhibit a medium blocky structure of mottled and calcareous clay with inclusions of shale and gypsum. Archeological sites in these contexts are generally found on the ground surface or shallowly buried. Tinn and Frio soils are described as clay and clay loams located in low lying, flat, floodplains formed by repeated yearly flooding. As soils that developed from recent alluvial deposits, locales within the project area that are mapped as the Tinn and Frio series exhibit moderate to high potential to contain buried and intact archeological deposits.

FLORA AND FAUNA

The project area is located at the southern extent of the Blackland Prairie ecological zone, just north of the Post Oak Savannah and South Texas Plains, and just south of the Edwards Plateau (McMahan et al. 1984). The modern vegetation regime is dominated by oak-hickory forests, and bunch and short grasses. Flora elements associated with the juniper-oak-mesquite savannah of the Edwards Plateau and associated with the mesquite chaparral regime of the South Texas Plains are also expected in the area (McMahan et al. 1984).

According to the Vegetation Types of Texas (McMahan et al. 1984), vegetation expected to occur in the project area and surrounding region includes Oak-Mesquite-Juniper Parks and Silver Bluestem-Texas Wintergrass Grassland. Commonly associated species in this area include Texas oak (*Quercus texana*), live oak (*Q. fusiformis*), shin oak (*Q, sinuata* var. *breviloba*), Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), Texas wintergrass (*Nassella leucotricha*), little

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Figure 2: Elmendorf Lake Park Project Area Geology

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Figure 3: Elmendorf Lake Park Project Area Soils

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bluestem (*Schizachyrium scoparium*), curly mesquite (*Hilaria belangeri*), Texas grama (*Bouteloua rigidiseta*), and so forth.

The climate of the south-central Texas area is considered humid subtropical (Thornthwaite 1948). Hot summers and cool winters characterize the seasonal climate of the area with the coldest month typically in January, the warmest months in July and August, and an average annual temperature of 70 degrees (Carr 1967). Precipitation in the region, based on measured years 1871–2013, averages 29.11 inches a year. However, it should be noted that the area is prone to intensive rainfall and concomitant flooding due to a variety of factors, including proximity to the Gulf of Mexico and the effects of tropical storms, the orographic uplift of moist gulf air masses that occurs as they meet the Balcones Escarpment, and the movement of polar air masses from the north into central Texas.

HYDROLOGY

The project area is primarily located at the northern extent of Apache Creek, with the upstream extent of the Lake located at the southern reach of Zarzamora Creek, which provides most of the drainage to the lake (Malcolm Pirnie/Arcadis 2012). Bandera Branch also drains into Elmendorf Lake. Along with Alazan, Olmos, San Pedro, Martinez, and Zarzamora Creeks, Apache Creek is one of the smaller drainages that flow into the San Antonio River. Collectively, these waterways comprise the San Antonio River Watershed.

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PREHISTORIC AND HISTORIC CONTEXT

PREHISTORIC CONTEXT

The proposed project area is at the southern reach of the Central Texas archeological region, as defined by Collins (2004) (**Figure 4**). This region encompasses the Edwards Plateau and portions of the Blackland Prairies to its east and the upper reaches of the South Texas Plains located below the Balcones Escarpment. Because this region has great variation in faunal, floral and water resources, there is also great variation in this region's archeological record (Perttula 2004). Prehistoric archeological sites on the periphery would be expected to have characteristics typical of neighboring regions. In a broad sense, the temporal divisions of prehistory in the Central Texas archeological region generally corresponds with changes in technology, settlement patterns, and subsistence strategies. These periods are as follows: the Paleoindian (11,500–8800 B.P.), the Archaic (8800–1200 B.P.), and the Late Prehistoric (1200–400 B.P.) periods.

Paleoindian Period (11,500–8800 B.P.)

Beginning at the close of the Pleistocene, the Paleoindian period is estimated at ca. 11,500–8800 B.P. in Central Texas (Collins 2004). Collins (2004) divides this period into two early and late subperiods. Diagnostic projectile points of the early Paleoindian interval include Clovis and Folsom projectile points, followed by late Paleoindian lanceolate forms such as Angostura, Golondrina, St. Mary's Hall, and Barber, with early stemmed points appearing later. The noted wide distribution of Clovis-type points across most of North America and even into Central America attests to a wide dispersal of and interaction with the people who knapped them (Kelly 1993). For the state of Texas, Bever and Meltzer (2007) have documented the presence of 544 Clovis points in 149 of 254 counties. For the Central Texas region, the distribution of Clovis points generally follows the Balcones Escarpment, where high-quality chert is readily available. Further south, below the Balcones Escarpment, fewer than expected Clovis points have been documented. For example, only four Clovis points have been recorded from Bexar County. The early Paleoindian culture in Central Texas is believed to be related to the well-known big game hunting tradition of the Great Plains (Hester 1980). Most of the well-documented early Paleoindian sites in Texas that are associated with extinct megafauna are located north and west of Central Texas on the Llano Estacado and on adjacent areas of the Southern High Plains. In general, early Paleoindian sites are scarce in Central Texas, or at least not as visible as later sites. Conversely, later Paleoindian sites are numerous in south and Central Texas, although both are usually identified from only surface-collected artifacts (Black and McGraw 1986).

Following the Clovis and Folsom style intervals in the archeological record are a series of dart point styles (Angostura, San Patrice, Wilson, Golondrina, St. Mary's Hall, Barber, etc.) for which the temporal and technological context is currently unclear. Subsistence data from several late Paleoindian sites does suggest, though, that small game was exploited rather than now-

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Figure 4. Cultural Resources Within Project Location

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extinct megafauna. This data supports the idea that a hunting and gathering lifestyle may have already been adopted across much of southwest and Central Texas prior to the advent of the Archaic period. For Central Texas, Hester (1976:9) notes that the "terminal Pleistocene in Texas appears to have a wide range of adaptations, reflecting the use of fairly localized environments and resources, and leading to the development of regional lithic specializations."

With the exception of the Bone Bed, Lubbock Lake, Wilson-Leonard and the Wilson Sites, most Paleoindian sites on record for Texas have low artifact counts (Bousman et al. 2004). Predominantly, sites that have been discovered in Central Texas have been described as campsites (e.g., Wilson-Leonard, Loeve-Fox, Richard Beene, and Levi Rock Shelter). In contrast, sites along the Plains are recorded as short-term occupation kill/butchery sites. Generally, an assemblage associated with a Paleoindian camp will have more cobble and pebble raw material, burin spalls, and groundstone tools, while kill/butchery sites seem to have comparatively higher numbers of projectile points. Early Paleoindian assemblages are more known from the Plains, where their assemblages are dominated by projectile points and unifacial tools. One important Paleoindian Site located in the San Antonio area is Site 41BX52, the Pavo Real Site. Located adjacent to Loop 1604, Pavo Real was originally recorded in 1970 and has been intensively excavated and researched over the past 45 years. A multi-component site, with multiple burned rock features and artifact clusters, Pavo Real has occupations that span the Paleo and Archaic time periods.

Two additional continuously inhabited sites located in the San Antonio area are Site 41BX708, the Chandler Site, and Site 41BX1396. Located in northwest San Antonio, Chandler is a deeply buried stratified site with occupations that date from the Paleoindian period through all phases of the Archaic and part of the Historic Period. In addition to extensive burned rock middens, documented lithic artifacts noted at this site include projectile points (including a brass arrow point), cores, debitage, faunal remains, and pottery. As reported in Shafer and Hester (2007), McKenzie and Moses' (2005) report on excavations by the Southern Texas Archaeological Association's Field School at Chandler dates the Late Paleoindian occupation dating to approximately 9000-10,000 B.P. This occupation includes a St. Mary's Hall Component (Kay Hindes, Personal Communication).

Site 41BX1396 was initially documented in 1979 by Katz and Fox during an archeological survey of Brackenridge Park. During this survey two locales of activity located along the San Antonio River were noted. A revisit by SWCA in 2001 noted that the previously described locales were connected by a continuous scatter of artifacts (Barile et al. 2002). Subsequent data recovery investigations conducted on segments of this site by SWCA recovered the Uvalde, Bandy, Travis, Pedernales, Kinney, and Langtry point types. In 2011, the Center for Archaeological Research conducted data recovery excavations at segments of Site 41BX1396. Artifacts collected during excavation include a Clearfork Adze, Guadalupe tools, Angostura points, St. Mary's Hall points, and a Dalton point (Ulrich et. al. 2012). Subsequent investigations focused on the St. Mary's Hall Component with associated radio carbon dates

returning a range of 10,490-10,230 B.P. (Kay Hindes, Personal Communication). These dates are earlier than the age range of 9990-8870 B.P. reported for this point type in Bousman et al. 2004. Site 41BX1396 is currently listed as an SAL.

Archaic Period (8800–1200 B.P.)

As the warming trend that marks the transition from Pleistocene to Holocene climates began to take effect in Texas, prehistoric inhabitants adapted with changes in lifestyle. Material culture became more diverse, with the increased exploitation of diverse flora evidenced by the use of burned rock middens. This climatic shift is also marked by the decline and extinction of the mammoth, mastodon, horse, camel, and giant bison (*Bison antiquus*) that began at the end of the Early Paleoindian period and reached a zenith during the advent of the Archaic. Evidence suggests that sometime after 11,000 B.P., large, gregarious game animals were extinct in Texas, except for the bison. These extinctions would have forced hunters to concentrate on deer, antelope, and other medium-sized or smaller game. Changes in the subsistence base required technological shifts that began during the Late Paleoindian period and continued into Archaic. Collins (2004) divides the Archaic into Early, Middle, and Late sub-periods based on technological, environmental, and adaptive changes.

The Early Archaic marks a shift to the use of multiple tons of burned limestone and other rocks in the form of scatters, hearths, middens and other features for the heated processing of plant foods. This represents the start of a long-lived Archaic cooking tradition, which lasted from roughly 8800 to 1400 B.P. This tradition was characterized by the repeated utilization of earth ovens and the resulting creation of burned rock middens at strategic places on the landscape. These new subsistence practices began with a distinctive cooking technology using layered arrangements of heated rocks in earth ovens which allowed for the exploitation of a broad range of geophytes. These included upland xerophytic plants like sotol and other species, such as Lily family onion bulbs, which grow in wetter environments (Decker et al. 2000).

The widespread use of rock and earth ovens (and the resultant formation of burned rock middens) for processing and cooking plant foods evidences a subsistence technology that was parcel to a generalized foraging strategy. Within Central Texas during certain periods of the Archaic, this generalized foraging economy appears to have shifted to a more specialized strategy focused on bison hunting (Collins 1968).

While the data and resulting models concerning environmental change during the Paleolithic-Holocene transition are robust, cultural adaptations for the same period are still unclear. This is especially true for Texas (McKinney 1981). Historically, the primary difference between Paleoindian and Archaic peoples was in associated subsistence strategies, and, by extrapolation, mobility patterns and lithic technology; Paleoindians were envisioned as nomadic specialized big-game hunters, while Archaic humans followed a migratory hunting and gathering lifeway (Suhm et al. 1954; Willey and Phillips 1958). Locally, the long Archaic Period was envisioned as

a transitional time between nomadic hunters and sedentary, pottery-producing agriculturalists (Suhm et al. 1954). However, as discussed above, the idea of exclusive big-game hunting cultures is no longer apropos when describing the entirety of the material assemblages or subsistence strategies of the Paleoindian time period. Adaptations that were once wholly ascribed to the Archaic have manifestations that date before 8800 B.P. Likewise, "survivals" of past adaptations would be expected to infiltrate the Early Archaic.

Late Prehistoric (ca. 1200–400 B.P.)

The Late Prehistoric or Post-Archaic (ca. AD 600–1600) (Johnson 1995) in Central Texas is initially marked by the replacement of the dart and atlatl with the bow and arrow, as reflected in the shift from dart points to smaller, thinner and lighter arrow points (Ricklis and Collins 1994). Despite the shift to the bow and arrow, evidence indicates that the broad-based hunting-gathering economy of the Late Archaic persisted into and through most of the Late Prehistoric period. The latter part of this period is marked by the appearance of pottery and a distinctive complex of tools composed of contracting-stem Perdiz arrow points; an abundance of unifacial end scrapers; thin, alternately beveled bifacial knives; and drills or perforators made of flakes and blades. The Post-Archaic era again turned dry and somewhat arid toward the middle of the Late Prehistoric, during which there was a rather dramatic increase in bison exploitation.

HISTORIC PERIOD

The most radical changes in the Native American history of Central Texas came during the historic era. The horse was introduced into North America by Spanish settlers in the sixteenth century. Nomadic groups, initially the Apaches and later the Comanches, adopted the horse and rapidly altered the aboriginal situation of Central Texas. These nomadic groups entered Central Texas from the plains and mountainous areas to the north and west and, within 150 years, had forced most of the native peoples to flee. Most groups were destroyed by the combined effects of nomadic raiders and the foreign diseases introduced by the Europeans. Others moved south, entering Spanish missions and settlements, or eastward to join various agricultural groups such as the Wichita (Black 1989).

The historic period in Texas begins with the arrival of Alvar Nunez Cabeza de Vaca and other survivors of the Navarez expedition on the Texas coast in 1528, although earlier landings may have occurred (Chipman and Joseph 2010). In any case, the influences of European colonization were not felt strongly in Texas until several centuries later. By the middle of the eighteenth century, however, the Spanish had established missions in east Texas and settlements in south Texas. This resulted in massive depopulation and cultural disintegration among Native American groups.

Seventeenth and Eighteenth Centuries

Colonial settlement of what would become the city of San Antonio began in the late seventeenth and early eighteenth centuries. The area had been part of New Spain since the conquest of Mexico in 1540 (Steen 1948), but beyond a few forays north of the Rio Grande, Spain paid little attention to the area until the seventeenth century when French encroachments raised concerns. After the French explorer René-Robert Cavelier, Sieur de La Salle landed on the Texas coast in 1685, the Spanish responded with the founding of a mission in east Texas, San Francisco de los Tejas (Ramsdell 1959). In 1691, the newly named governor of the province of Texas, Domingo de Teran, ventured deeper into the territory to found additional missions. His motives were largely twofold: to establish a secure intermediate point for expeditions passing to and from east Texas and to relocate the failing Mission San Francisco de Solano away from the Rio Grande. Domingo de Teran, accompanied by Padre Massanet traveled northeast, then east, across the territory, eventually entering into the San Antonio region. During their stay, the men noted the river in which they camped along sustained numerous fish, the banks contained several types of trees, and the wild chickens and buffalo were present in high numbers. It was at this time that the settlements of the Papaya Indians were first observed by the expedition. The Papaya Indians were first recorded in 1690 occupying an area from San Antonio southwestward, extending beyond the Frio River (Campbell, 2010). These people were a Coahuiltecan- speaking group who referred to their village (present day San Antonio), as well as the San Antonio River as *Yanaguana* (Campbell, 2010; Hatcher, 1932; Crimmins and Freeman 2010). The area where they lived near the headwaters of the San Antonio River was later christened "San Antonio" in honor of San Antonio de Padua by both Domingo Teran and Padre Massanet in 1691 (Donecker 2010; Jordan 2004).

Though this initial attempt to establish missions was not successful, the Spanish returned to "the site called San Antonio" in 1718, and Governor Martin de Alarcon formally established the Mission of San Antonio de Valero, along the banks of San Pedro Creek approximately half a league to three-quarters of a league south of the villa and presidio possibly near the present day "Chapel of the Miracles," west of the San Antonio River (Ramsdell 1959) or at a site recently discovered on land owned by the Christopher Columbus Society (Kay Hindes, personal communication). The mission was soon moved east of the San Antonio River, though the complex was destroyed by a 1724 hurricane. It was then rebuilt at its current location on today's Alamo Plaza. In addition to Mission San Antonio de Valero, six other missions were subsequently founded, extending south along the San Antonio River. Mission San Jose was established in 1720, and Missions Concepción, San Juan, and Espada were relocated from east Texas along the river in the 1730s.

Early development centered around today's Military and Main Plaza, west of the Alamo, between San Pedro Creek and the San Antonio River. In 1718, Alarcon established the villa and presidio at the San Pedro Springs in modern day San Pedro Park. Several *jacales* (wattle-and-daub huts) were built in this area, and an *acequia* (irrigation canal) was constructed at this time

(SABHC 1976). In 1721-22, at the site of today's Military Plaza, Aguayo constructed the second site of the presidio, where military officers and their families lived. The population for the period 1718–1731 has been estimated at approximately 400, with a settlement of about 100 houses (SABHC 1976). In 1731, a group of families from the Canary Islands arrived on order from the King of Spain to help settle the area. A town, called San Fernando, was established for them in the vicinity of present day Main Plaza, east of the presidio at "the distance of a gunshot" (SABHC 1976). At the same time the Villa of San Fernando was surveyed in 1731, a route for an acequia was planned along the watershed between San Pedro Creek and the San Antonio River; this acequia was completed in 1738 (SABHC 1976). The residence of the commandant of the Presidio was constructed in 1747 (now known as the Governor's Palace).

In 1773, San Antonio became the capital of Spanish Texas. At that time the population numbered about 2,000, divided between five distinct communities: (1) Mission San Antonio de Valero; (2) the Presidio; (3) missions to the south; (4) Villa San Fernando; and (5) La Villita (between the villa and the mission).

Nineteenth Century

At the beginning of the nineteenth century, the Spanish influence on the city was waning. All of the missions were secularized by 1795, and the religious offices of San Antonio de Valero were consolidated into San Antonio de Bexar (Schoelwer 2010). In 1821, Mexico declared itself independent of Spain, and San Antonio became part of Mexican territory. The first group of Anglo-American colonists came to Texas in the same year, and during the late 1820s and early 1830s, increasing numbers of American settlers began moving to San Antonio (Long 2014).

In the mid-1830s, San Antonio began to resist the rule of Santa Anna, the harsh dictator-President of Mexico. Joining in the movement for independence, San Antonio was the site of several battles of the Texas Revolution. Mexico sent large numbers of troops to San Antonio in 1835, but the revolutionists won several small victories, notably at Goliad and Gonzales. In December of that year, Texans stormed occupied San Antonio and forced a Mexican surrender in a battle known as the Siege of Bexar. Though Santa Anna exacted his revenge at the Battle of the Alamo in March of 1836, the revolutionists won a decisive victory at the Battle of San Jacinto, earning independence for Texas. In 1836, following establishment of the Republic of Texas, Bexar County was created with San Antonio as the county seat.

San Antonio was subject to several Mexican raids in the 1840s, and the population had dropped to about 800 in 1846. In 1845, Texas entered the Union, and under the protection of the US, began to grow more rapidly. German immigrants comprised a large portion of new settlers to the city (and elsewhere in Texas) during this time period.

San Antonio's first railroad was the Galveston, Harrisburg and San Antonio Railway (GH&SA), which reached the city in February 1877 and connected San Antonio to the coast (Long 2014).

San Antonio saw rapid population growth after the arrival of the rail; the population reached 20,550 in 1880, compared to around 12,000 in 1870. The railroads brought prosperity to San Antonio and, equally significantly, contributed to an evolution of the city's character. New Anglo settlers and access to manufactured building products transformed the city from a community dominated by Mexican traditions to one with a mix of influences (Long 2014). From the late 1870s through the 1880s, the city was transformed "from a rude Spanish outpost to a modern city" (Ramsdell 1959:46). In 1878, new waterworks shifted city water supply from the acequias to artesian wells. In the same year, San Antonio's first street cars provided a route between Alamo Plaza and San Pedro Springs. Stone crossings were also added to the unpaved downtown streets (Ramsdell 1959).

Beginning in the second half of the nineteenth century, San Antonio also developed into an important military center. In 1846, the U.S. Army set up a quartermaster depot in San Antonio, which provided support for American military operations during the Mexican War (NRHP 1975). San Antonio served as the headquarters of the U.S. Army 8th Military Department from 1849 until 1869, when the headquarters were moved to Austin (NRHP 1975). Hoping to keep the depot even though the headquarters had moved, the city offered the Army land for a permanent post (NRHP 1975).

Twentieth Century

In 1900, San Antonio was the largest city in the state for the first time since 1860 and sustained this position until 1930, fueled by immigration and the development of local service industries. The confluence of Hispanic, German, and Southern Anglo-American cultures in San Antonio made for a distinct culture and built environment. In the 1930s, the New Deal provided another round of civic improvements for the city, including paving streets, and building bridges, sewers and parks. Larger New Deal improvements would become defining elements of the city, including the renovation of La Villita and the San Antonio missions and the construction of the Riverwalk along the San Antonio River in the center of the city (Long 2014).

During World War I, Kelly and Brooks fields (which later became Kelly Air Force Base and Brooks Air Force Base) were established to train pilots, and Randolph field was opened in 1931 (Long 2014). During World War II, Bexar County's already large military presence grew even more and became the city's leading economic generator for many years (Fehrenbach 2014).

San Antonio began to expand into suburbs in the 1940s with the growing dominance of the automobile. Although the first Texas skyscraper was constructed in San Antonio in the early twentieth century, high-density development did not continue, and the city's center of population steadily moved northward (Fehrenbach 2014).

Trinity University moved to its present site in San Antonio in 1952, and the University of Texas at San Antonio was funded by the Texas Legislature in 1969. These institutions, as well as

several other schools and colleges, represent an important part of the city's role as a major educational center (Long 2014).

Although the lack of high-paying manufacturing and finance-industry jobs has kept incomes in San Antonio relatively low, the city has developed a viable economy from its stable military bases, educational institutions, tourism, and its medical-research complex (Fehrenbach 2014).

DEVELOPMENTAL HISTORY OF ELMENDORF LAKE AND PARK

Elmendorf Lake and Elmendorf Lake Park are located in San Antonio's west side, within a portion of the 687-acre Coulson Tract that includes portions of Apache Creek. The original land was sold in 1889 by W.E. Elmendorf to be purchased by the New England Syndicate, and later, in 1890, conveyed to the New England Land Company of Maine. In 1893, Mrs. Amalie Elmendorf repurchased the now-improved land under an agreement to set aside parcels to create eight new parks: Central, Electrical, Highland, Lake Side, Little Margaret, Magnolia, and two unnamed parks. She again sold the land later that year to an individual who resold to the Lake View Land Company of Maine. On December 2, 1893, Lake View Land Company planned and created a new residential development named Lake View, touted as "the most desirable suburb in San Antonio" (Pfeiffer 2014). Lake View was to be solely residential with special covenants such as 10-foot setbacks from the street, manicured properties, and homes to be valued at over one thousand dollars (Pfeiffer 2014).

According to Pfeiffer (2014), in order to entice new development in the west side, the San Antonio Street Railway Company and New England Land Company were contracted in 1892 to provide streetcar service to the area (the Lake View Rapid Transit Company). However, due to problems with construction and deadlines, the City Council revoked the transit franchise on December 4, 1893. Nevertheless, additional infrastructure was constructed in the area during that period, including seven miles of roads and an artesian water supply (Pfeiffer 2014). Additionally, the founding of the private Catholic OLLU by the Sisters of Divine Providence in 1895 added to the potential of the Westside community. The school, originally an academy for girls, later became coeducational in 1969, and is known for its Gothic spires, imported Italian marble and German stained glass (Callahan 2014). The University's churches, classrooms, and residences are set on 71 acres adjacent to the lake (Callahan 2014).

At first, the Lake View community was slow to develop, in part due the national recession of the 1890s that adversely affected real estate sales in the San Antonio area (Pfeiffer 2014). By 1914, there were only 30 homes at Lake View, and by 1921, there were only 63 homes. On May 15, 1917, the Lake View Town Site Company sold Elmendorf Lake and Lakeside Park to the City of San Antonio for one dollar, provided the City rebuild the dam, beautify the park, build sidewalks, and take over maintenance of the property (Pfeiffer 2014). The 29.60-acre lake and park at Elmendorf has been owned and maintained by San Antonio since 1917.

Currently, Elmendorf Lake Park comprises both modern-day and older, nineteenth-century structures, swim and sports facilities, and a series of winding concrete and crushed granite pedestrian paths set in a riparian environment of cypress and cattails along Apache Creek. It also features a long, man-made island with footbridge access. According to aerial photos, this island was formed by creating a new channel along the southern bank associated with OLLU (**Figures 5** and **6**). An additional, smaller island with no pedestrian access was also created by excavation and is currently a sanctuary for a large number of egrets and cormorants. A "labyrinth weir dam" at the parks southeastern terminus is a complex concrete structure that was built in 1973 by the U.S. Army Corps of Engineers (Pfeiffer 2014) (**Figure 7**). The park also features a 1950s era *faux bois* (false wood) stage/pavilion made by Dionicio Rosales, a protégé of artist Dionicio Rodriquez (COSA OCA 2014) (**Figure 8**). This structure is located adjacent to the existing foot bridge used by park patrons to access the island. The island formation at Elmendorf Lake Park is a 360-meter-long elongated strip of land that follows the natural course of Apache Creek (see **Figures 17** and **18**). The island was originally a grassy bank associated with OLLU, before excavation sometime after 1973 added another channel to the creek creating the present-day island.

Figure 5: 1938 aerial photo showing OLLU and pre-island phase Lake Elmendorf.

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Figure 6: 1986 aerial photo showing OLLU and post-island phase Lake Elmendorf.

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Figure 7: 1995 aerial photo showing OLLU and Lake Elmendorf during dam construction.

Figure 8: *Faux bois* stage with bench constructed at Elmendorf Lake Park by Dionicio Rosales.

PREVIOUS INVESTIGATIONS

According to the THC Archeological Sites Atlas, accessed on March 5, 2014, there are have been no previous archeological surveys and there are no documented archeological sites within 500 meters of the project area. A single historic-age cemetery is located approximately 220 meters southwest of the project area. The cemetery is associated with OLLU, an independent Catholic university founded in 1895 by the Sisters of the Congregation of Divine Providence, a religious institute originating in Lorraine, France. Texas. OLLU is a place of historical significance, and recognized by a historical marker located at 411 Southwest 24th Street.

METHODOLOGY

Background research conducted for the proposed project included accessing the THC's online Archeological Sites Atlas as well as a review of survey reports, site files, and maps on file at the THC, the Texas Archeological Research Laboratory, and the University of Texas in Austin. These sources were utilized to identify previous recorded cultural resources within the vicinity of the proposed project and identify potential site types and their probable horizontal and vertical location on the landscape in consideration of topographical, geological, and pedological data.

Hicks & Company conducted a pedestrian survey supplemented by shovel testing (n = 34) in order to assess the proposed project's potential to impact archeological resources. Along planned trail components, archeologists traversed the areas in a single transect or multiple transects spaced no more than 30 meters apart as dictated by width of the project area, and as allowed by access and existing infrastructure. In total approximately 23 acres was inspected. A total of 34 shovel tests were conducted throughout the project area, exceeding the THC's minimum standards for a project of this size (approximately 1 per every 2 acres or 12 in total). Most shovel tests terminated before 35 centimeters below ground surface (cmbs) within a hard clay matrix with intermixed gravel inclusions. Sediment from all shovel tests was screened through ¼-inch hardware cloth, and shovel test locations were recorded utilizing GPS technology. Investigators recorded their observations and the results of shovel tests through notes, standardized shovel test forms, and photographs. Due to the presence of manicured grasses throughout the project area, ground surface visibility was relatively high in most all locations.

During initial consultation, it was proposed that areas with impacts exceeding a meter in depth, namely proposed foot bridge locations and a proposed new pool location, would require mechanical backhoe trenching to assess potential impacts to archeological resources. However, during pedestrian survey it was noted that, in the case of proposed bridges, locations were either inaccessible by heavy machinery or were planned in locales that been extensively and recently disturbed by underground utility installation and maintenance. In the case of the proposed pool, the planned location was observed to currently be an unutilized small-sized baseball field, inaccessible during survey due to a locked fence. However, shovel tests conducted immediately adjacent to this fence noted no cultural materials and indicated the presence of sediment unlikely to house deep and intact archeological deposits.

According to current design plans, there are no planned impacts that will have a direct effect on the intact historic-age structures such as retaining walls and the *faux bois* structure (see **Figure 8**). While noted for their presence during background review and archeological survey, this report is intended to only address the archeology portion of the cultural resource investigation. A separate, historic standing structures survey is to be conducted by Hicks & Company and will further address direct and indirect effects to these items under the ACT and Section 106 of the NHPA of 1966, as amended.

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RESULTS OF INVESTIGATIONS

For discussion purposes, the archeological survey results are divided into three segments: Elmendorf Lake Park, the proposed trail system connectors, and the OLLU campus area. The Elmendorf Lake Park area includes the island formation and investigations within the park boundaries between Northwest 19th Street and Southwest 24th Street, north of the lake. The proposed trail system connectors are located west of Southwest 24th Street along the north bank of Apache Creek and along the south bank, north of West Commerce Street and the refurbishment of the trail system just west of OLLU, located between Southwest 27th Street and Southwest 21st Street.

ELMENDORF LAKE PARK

Elmendorf Lake Park is located on a flat, mostly flood plain, landform that is bisected by Apache Creek. The northern portion of the park (Southwest 24th Street to Southwest 19th Street) has been extensively modified, and contains grass, cypress, oak, and palm trees with reeds and riparian vegetation lining the bank edges (**Figures 9–11**). Within the park, archeologists conducted 14 shovel tests (GC1–GC5, GC8–GC11, GC15–GC17, JH1–JH4, JH7–JH10, and JH14–JH16) at various locations in this northern survey area (**Appendix B**). Despite the area's long historical usage, only a single, small, marble was recovered, found in shovel test JH4, near the water's edge and near the intersection of West Commerce Street and Southwest 24th Street.

The southern bank of Elmendorf Lake Park (Southwest 19th Street to the Southwest 24th Street bridge) is a thin grassy ribbon of waterfront, highlighted by concrete and gravel paths, a sewer line that starts at the Labyrinth Weir dam and ends at the Southwest 24th Street Bridge at OLLU (**Figures 12–16**). The current path is bounded by a residential neighborhood and an OLLU parking lot to the south. This area is heavily disturbed and the four shovel tests (GC15, GC16, JH14, and JH15) conducted within the area were negative for cultural materials. One shovel test (JH15) was performed at the proposed foundation of a new footbridge connecting to the island and displays a mixed sandy clay loam, which was the effect of sewer line construction. Closer to the 24th Street Bridge, two tests were performed: GC15, located in an area for new path construction at street level, and GC16, located in an area planned for new path construction under the bridge. Both shovel tests were negative for cultural materials and soils appeared indicative of the immediate area, with dark gray (7.5YR 4/1) silt loams and clay loams over clays with high alluvial gravel content inclusions (**Table 1**). Shovel Test GC16 was excavated on a high-angle slope close to the water's edge, and was sediment here appeared to have been previously disturbed during channel cutting to create the island.

Figure 9: Overview of current park infrastructure, facing east from STJH4.

Figure 10: Overview of existing pool area, facing southeast from STJH7.

Figure 11: Overview of current park infrastructure, facing east from north end of Fenton Bridge crossing at Southwest 24th Street.

Figure 12: Overview of dam, facing north from southeast project terminus.

Figure 13: Overview of existing disturbances at proposed trail area, facing west from just west of Southwest 19th Street.

Figure 14: Overview of footbridge and culvert ditch drainage, facing south.

Figure 15: Overview of planned bridge location, facing southeast from existing trail.

Figure 16: Overview of second footbridge and drainage culvert, facing northwest towards OLLU parking lot.

Table 1. Elmendorf Lake Park and Trail Shovel Test Results.					
Shovel Test	**Location**	**Depth (cmbs)**	**Munsell Color**	**Description**	**Cultural Material**
GC1	At island on proposed trail alignment adjacent to proposed fishing dock location.	0–1	7.5YR 4/1	Hard silty clay loam.	None
		13–38	7.5YR 2.5/1	Silty clay loam with gravel inclusions.	None
		38–40	7.5YR 2.5/1	Pale red sticky clay with high amount of 7.5YR 2.5/1 mottling and gravel inclusions.	None
GC2	At island on proposed trail alignment.	0–10	7.5YR 4/1	Hard and compact silty clay loam.	None
		10–26	7.5YR 2.5/1	Silty clay loam within a 90% gravel matrix, mottles.	None
		26–35	7.5YR 2.5/1 2.5YR 8/2	Mixed silty clay loam within a 90% gravel matrix, mottles.	None
GC3	At proposed bridge location at southern extent of island formation.	0–5	7.5YR 4/1	Silty clay loam.	None
		5–10	7.5YR 4/1	Silty clay with 80% gravel inclusions	
		10–13	2.5YR 8/2	Sandy clay with numerous hard granules. Terminated at impenetrable rocks.	
GC4	At proposed bioswale location adjacent to planned trail alignment 10 meters south of commerce. Manicured grass and picnic area.	0–5	7.5YR 4/1	Silty clay loam, top soil.	None
		5–25	7.5YR 4/1	Silty clay with 30% gravel inclusions.	
		25–38	2.5YR 8/2 & 7.5YR 4/1	Mixed clays.	
GC5	Near northwest corner of Elmendorf Lake Park along planned trail alignment.	0–4	7.5YR 4/1	Hard silty clay loam below humic layer.	None
		4–20	7.5 YR 4/1	Silty clay loam, sticky, with 50% gravel inclusions.	
		20–28	2.5 YR 8/2 & 7.5YR 4/1	Mottled clays with 30% gravel inclusions.	
GC8	Within existing picnic bench area between trail segments.	0–28	7.5YR 4/6	Silty clay loam w/ gravels.	None
		28–32	2.5YR 7/2 & 7.5YR 4/6	Mixed loams and clays.	
GC9	South of existing pool area at interface of a planned parking lot location and activity area.	0–5	7.5YR 4/6	Hard silty clay loam with 30% gravel.	None
		5–15	7.5YR 4/6	Silty clay loam with 80% gravel. Terminated within gravel bed.	
GC10		0–6	7.5YR 4/1	Hard silty clay loam.	None
		6–20	7.5YR 4/1	Silty clay loam with 30% gravel inclusions.	
		20–45	7.5YR 4/1	Silty clay with increasing mottles of clay with 10% gravel inclusions.	
GC11	Along planned trail alignment 12 meters west of planned pool location.	0–6	7.5YR 4/1	Hard silty clay loam.	None
		6–20	7.5YR 4/1	Silty clay loam with 30% gravel inclusions.	
		20–45	7.5YR 4/1	Silty clay with increasing mottles of clay with 10% gravel inclusions.	
GC15	On planned trail ten meters east of 24th Street.	0–23	7.5YR 4/1	Pea gravel surface. Silty clay loam with 40% gravel inclusions. Terminated at thick gravels. Very disturbed appearance.	None
GC16	On planned trail ten meters east of 24th Street.	0–10	7.5YR 4/1	Gravel matrix under thin top-soil and grass. Disturbed appearance.	None

Table 1. Elmendorf Lake Park and Trail Shovel Test Results.

Shovel Test	Location	Depth (cmbs)	Munsell Color	Description	Cultural Material
GC17	At southern extent of planned improvements to Elmendorf Lake Park, overlooking dam.	0–20	7.5YR 4/1	Silty clay with 10% gravel inclusions.	None
		20–29	2.5YR 8/2 & 7.5YR 4/1	Mottled clays with a few gravels.	
JH1	At northwest extent of island formation.	0–40	10YR 3/2	Clay loam with 2% rounded gravel inclusions.	None
JH2	Twenty meters south of GC2 near large cypress tree.	0–5	10YR 4/3	Sandy loam.	None
		5–45	10YR 3/2	Clay loam.	
JH3	At planned trail location within existing picnic bench area, 10 meters north of water's edge.	0–30	10YR 3/2	Clay loam with increasing thickness. Terminated at impenetrable clay.	None
JH4	South extent of northwest corner of Elmendorf Lake Park along planned trail alignment overlooking lake.	0–20	10YR 3/1	Sandy loam.	None
		20–40	10YR 3/2	Clay loam with mottling of 7.5YR 4/1 clay throughout. Broken up sandstone bedrock @ 40 cmbs.	
JH7	In lawn area adjacent to existing pool.	0–10	10YR 4/4	Silty loam.	None
		10–40	10YR 3/1	Clay loam with 20% gravel inclusions increasing with depth.	
JH8	At planned parking lot location.	0–35	10YR 3/1	Thick clay loam with compaction increasing with depth.	None
JH9	At the interface of a planned bioswale and activity area.	0–35	10YR 3/1	Thick clay loam with compaction increasing with depth.	None
JH10	Immediately south of fenced-off baseball field, 25 meters east of planned pool location.	0–35	10YR 3/1	Thick clay loam with compaction increasing with depth.	None
JH16	At southern extent of planned improvements to Elmendorf Lake Park, overlooking dam or slight rise.	0–20	7.5YR 3/1	Thick silty loam and gravel fill.	None

The island formation at Elmendorf Lake Park is a 360-meter-long elongated strip of land that follows the natural course of Apache Creek (**Figures 17** and **18**). The island was originally a grassy bank associated with OLLU, before excavation sometime after 1973 added another channel to the creek creating the present-day island. The island is currently connected to the main body of Elmendorf Lake Park by a metal footbridge accessed from the *faux bois* pavilion area. At the southern extent of the island two foot bridges are proposed as additional connectors, linking the island to trails on both sides of the lake. During survey, it was noted that the island is a modified landform with a gently rounded surface and dotted with cypress trees, oaks, and other riparian flora (**Figure 17**). A short, 20-meter-long existing concrete path initiates at the bridge and terminates in short grasses near the island's center (**Figure 18**). Intermittent remnants of an older asphalt path that once extended to the southern point of the island but now broken and covered with soil and grasses were also observed (this path is visible in the 1986 aerial photo depicted in **Figure 6** above).

Figure 17: Overview of the island at Elmendorf Lake Park, facing west from STJH2.

Figure 18: Overview of the island at Elmendorf Lake Park, facing east towards existing bridge structure and concrete path from STJH1.

Five shovel tests (GC1–GC3, JH1, and JH2) were excavated along the length of the island, yielding no cultural materials. Shovel testing consistently noted a top stratum of silty clay loams and clay loams that ranged in color from dark gray (7.5YR 4/1) to dark yellowish brown (10YR 4/3). Observed in this stratum were numerous gravel inclusions from approximately 0–10 cmbs. A second clay stratum, that ranged in color from black (7.5YR 2.5/1) to very dark grayish brown (10YR 3/2). The stratigraphy of the island was observed to be fairly consistent with the stratigraphy of the surrounding park. Hence, while channel modification has impacted the area itself, creating the formation, the island represents the older, intact portion of the drainage bank.

Trail System Connectors

The western extent of the project area, located west of the Fenton Bridge at Southwest 24th Street, consists of undeveloped land that abuts commercially zoned parcels (Conn's, Family Dollar, and Texas Thrift Store). Proposed new trail through these aeaas would connect with existing trails along Apache Creek, north of Commerce Street, which would connect Apache Creek Park to Elmendorf Lake Park. As noted during survey, the creek bank is currently a grass covered landform with cypress trees and riparian flora along the bank (**Figure 19**). As depicted in the 1938 aerial photo presented as **Figure 5** above, this area was formally a tree-grove used for agriculture.

Four negative shovel tests (GC6, GC7, JH5, and JH6) were performed at this location along the north bank of Apache Creek over the proposed trail alignment. Shovel test JH6, located 30 meters from the intersection of Commerce Street and Northwest 26th Street, was conducted at the planned loation of a footbridge that would tie-in trails on both sides of the drainage (**Appendix B**). Shovel testing noted consitent stratigraphy with area sediment characterized by a silty clay loams that ranged in dark gray (7.5YR 4/1) to dark yellowish brown (10YR 4/4) stratum over mottled clays that ranged from light reddish brown (2.5YR 7/2) to pinkish gray (7.5YR 6/2) with high concentrations of rounded alluvial gravels distributed throughout (**Table 2**). A single shovel test, shovel test JH11, was placed at the far northwest terminus of the proposed project within Apache Creek Park, just north of the Commerce Street Bridge along the south bank of the drainage (**Figure 20**). This shovel test noted inundated mixed clays of a very dark grayish brown (10YR 3/2) and brown color with rounded gravel inclusions.

Table 2. Trail System Connectors Shovel Test Results.					
Shovel Test	**Location**	**Depth (cmbs)**	**Munsell Color**	**Description**	**Cultural Material**
GC6	40 meters west of 24th Street on slight rise and modern trash littered area.	0–4	7.5YR 4/1	Hard silty clay loam.	None
		4–25	7.5YR 4/1	Silty clay loam with gravel inclusions.	None
		25–32	2.5YR 7/2	Light reddish brown sticky clay with high amount of 7.5YR 2.5/1 mottling and gravel inclusions.	None
GC7	In grassy area behind parking lot along planned trail alignment.	0–3	7.5YR 4/1	Hard and compact silty clay loam.	None
		3–12	7.5YR 4/1	Silty clay loam within a 90%-gravel matrix.	None
JH5	On new proposed trail area, behind Conn's.	0–10	10YR 4/4	Loam.	None
		10–40	2.5YR 7/8, 5YR 6/6, 7.5YR 6/2, and 5YR 5/8	Mixed and mottled clays with fragmented sandstone.	None
JH6	In grassy area behind parking lot at planned bridge location.	0–30	10YR 4/4	Silty clay loam above mottled clays and gravels.	None
JH11	At far northwest project terminus at trail tie-in area.	0–30	10YR 3/2 and 10YR 4/3	Mixed and mottled silty clay loam w/ increasing thickness with depth and 20% inclusions of rounded rocks at 20+ cmbs.	None
		30–60	7.5YR 4/2	Brown clay w/ 10% mottle of 2.5YR 5/3 clay, similar in texture to gleying clays.	None

Figure 19: Overview of proposed trail location, facing northwest from STJH5. Rear of the Texas Thrift Store building is right-frame center.

Figure 20: Overview of proposed trail at the north terminus, facing south from STJH11.

Our Lady of the Lake University Campus Area

West of the Fenton Bridge Crossing at Southwest 24th Street, the proposed project area was noted to consist of a well-manicured decorative landscape maintained by OLLU that gently slopes from the campus area towards Elmendorf Lake (**Figures 21** and **22**). Six negative shovel tests (GC12–GC14, JH12, JH13 and JH17) were performed along the proposed trail alignment with six recent dedicated tree plantings by the university that feature dated metal plates afixed to a concrete grave marker-like base (**Appendix B**). During shovel testing, it was noted that the sediment on this side of Elmedorf Lake was similar in stratigraphy to that of the north side, consisting of silty clay loams that ranged from dark gray (7.5YR 4/1) to dark brown (10YR 3/3) in color over thick clays pink (2.5YR 8/3), dark gray (7.5YR 4/1) or very dark gray (10YR 3/1) in color. Below topsoils, high concentrations of rounded gravels inclusions were noted (**Table 3**).

Figure 21: Overview of OLLU waterfront, facing east.

Figure 22: Overview of the OLLU waterfront,
facing northwest towards West Commerce Street.

Table 3. Our Lady of the Lake University Campus Area Shovel Test Results

Shovel Test	Location	Depth (cmbs)	Munsell Color	Description	Cultural Material
GC12	Thirty meters south of Commerce at proposed trail area on OLLU Campus lawn.	0–6	7.5YR 4/1	Hard silty clay loam.	None
		6–20	7.5YR 4/1	Silty clay loam within an 80% gravel matrix.	None
		20–25	7.5YR 4/1	Thick clay.	None
GC13	At proposed trail area just east of OLLU parking lot.	0–6	7.5YR 4/1	Silty clay, humic top soil with rock content.	None
		6–30	7.5YR 4/2	Silty clay loam within gravel matrix (80%).	None
		30–32	2.5YR 8/2	Clay with 30% gravel.	None
GC14	On proposed trail within picnic area on OLLU campus.	0–25	7.5YR 4/1	Silty clay loam with 20 % gravel inclusions	None
		25–27	2.5YR 8/3 & 7.5YR 4/1	Mixed clays.	None
JH12	On proposed trail area just east of OLLU parking lot.	0–10	10YR 3/3	Thick loam with high rootlet content.	None
		10–30	10YR 3/1	Thick clay loam	None
		30–60	10YR 3/1	Thick very dark gray clay with 10% mottles of light brown (7.5YR 6/4) clay within a gravel and sandstone nodule matrix (65%).	None
JH13	On proposed trail within picnic area on OLLU campus.	0–10	10YR 3/3	Thick loam with high rootlet content.	None
		10–30	10YR 3/1	Thick clay loam.	None
		30–50	10YR 3/1	Thick very dark gray clay with 10% mottles of light brown (7.5YR 6/4) clay within a gravel and sandstone nodule matrix (65%).	None
JH17	Near drainage ditch, just off proposed trail alignment.	0–10	10YR 3/3	Thick loam with high rootlet content.	None
		10–30	10YR 3/1	Thick clay loam	None
		30–40	10YR 3/1	Thick very dark gray clay with 10% mottles of light brown (7.5YR 6/4) clay within a gravel and sandstone nodule matrix (65%).	None

Monitoring at Elmendorf Lake

In accordance with recommendations made by COSA OHP, excavations for pier supports at the two planned foot bridges at the "island formation" were monitored during construction (**Figure 23**). Piers were drilled to depths exceeding 7 meters, with archeologist monitoring both the in-progress excavations and back dirt piles for the presence of artifacts (**Figure 24**). No such materials were noted.

Figure 23: Pier drilling at completed depth.

Figure 24: Pier drilling underway.

CONCLUSIONS AND RECOMMENDATIONS

On behalf of the San Antonio River Authority (SARA) and its partners (including the City of San Antonio, Bexar County, and Our Lady of the Lake University), Hicks & Company archeologists have completed a 100-percent intensive pedestrian survey of the proposed Elmendorf Lake Park Improvements Project and archeological monitoring during excavation for pier drillings to support a two new footbridges. The survey consisted of pedestrian survey supplemented by shovel testing (n = 34) throughout the near entirety of the project area, approximately 23 acres in size. A single location, an existing baseball field, located at the northwestern extent of the main body of Elmendorf Lake was fenced off during the time of survey. Though this area was visually expected from all sides, it was not shovel tested. The survey determined that the project area is largely a modified alluvial flood plain setting with sediment consisting of thin silty clays over a thicker clay stratum typically interspersed with river worn and rounded gravel inclusions. No archeological sites, features, or artifacts were noted during the monitoring phase of the investigations.

ARCHEOLOGICAL RESOURCES

The archeological survey and monitoring revealed no new archeological sites or features that would be affected by the proposed project. Based on the results of the current survey, it is recommended that no archeological historic properties (36 CFR 800.16(1)) or State Antiquities Landmarks (13 TAC 26.12) will be affected by this project and that no further archeological investigations are necessary for the proposed project area prior to construction at the following locations: the main body of Elmendorf Lake Park, the proposed trail system improvements west of 24th Street, and proposed improvements on the OLLU side of the Lake. For areas where construction may proceed, in the unlikely event that cultural materials are encountered, all work in the area is recommended to cease until the COSA Office of Historic Preservation and the THC are contacted so a professional archeologist can assess the finding and make recommendations for any future action that may be required.

HISTORIC STRUCTURE RESOURCES

As previously noted, a separate standing structures survey is to be conducted by Hicks & Company and will further address direct and indirect effects to these items under the ACT and Section 106 of the NHPA of 1966, as amended. Any historic structures that are listed with the National Register of Historic Places as a result of that survey should also be considered for listing as a State Antiquity Landmark.

This report is offered in partial fulfillment of the requirement of Antiquities Permit #6881.

REFERENCES CITED

Barile, K.S., B.A. Houk, and K.A. Miller

2002 A Cultural Resource Survey of the San Antonio Water System's Customer Distribution Line Project, City of San Antonio, Bexar County, Texas. SWCA Cultural Resource Report No. 02-304. SWCA Environmental Consultants, Austin, Texas.

Barnes, V.E.

1983 Geologic Atlas of Texas San Antonio Sheet. Bureau of Economic Geology. The University of Texas at Austin.

Bever, M.R., and D.J. Meltzer

2007 Exploring Variation in Paleoindian Lifeways: The Third Revised Edition of the Texas Clovis Fluted Point Survey. *Bulletin of the Texas Archeological Society* 78:65–99.

Black, S.L.

1989 The Central Texas Plateau Prairie in *From the Gulf to the Rio Grande: Human Adaptation in Central, South, and Lower Pecos Texas,* edited by T.R. Hester, S.L. Black, D.G. Steele, B.W. Olive, A.A. Fox, K.J. Reinhard, and L.C. Bement, pp. 39–62. Research Series No. 33. Arkansas Archeological Survey, Fayetteville.

Black, S.L., and A. McGraw

1986 *The Panther Creek Site*: *Culture Change and Continuity within the Upper Salado Creek Watershed, South-Central Texas.* Archeological Survey report 100. Center for Archeological Research, the University of Texas at San Antonio.

Bousman, C.B., Barry W. Baker, and Anne C. Kerr

2004 Paleoindian Archeology in Texas. In *The Prehistory of Texas* edited by Timothy k. Perttula, pp. 15–97. Texas A&M University Press, College Station.

Callahan, Sister Mary Generosa, C.D.P.

2014 Our Lady of the Lake University. *Handbook of Texas Online*. Data accessed at http://www.tshaonline.org/handbook/online/articles/kbo02 on June 10, 2014.

Campbell, T.N

2010 Papaya Indians, in the Handbook of Texas Online (http://www.tshaonline.org/handbook/online/articles/bmp53), accessed October 22,

2014. Uploaded on June 15, 2010. Published by the Texas State Historical Association.

Carr, T.R.

1967 The Climate and Physiography of Texas. Report No. 53. Texas Water Development Board, Austin.

Chipman, Donald E., and Harriet D. Joseph

2010 *Spanish Texas 1519–1821*. University of Texas Press, Austin.

City of San Antonio Office of Cultural Affairs (COSAOCA)

2014 *San Antonio Neighborhood Tours: Elmendorf Lake and Park*. Referencing Dionico Rodriquez and Faux Bois. Data accessed at http://www.saculturaltours.com/spot.php?t=1&s=107 on June 10, 2014.

Collins, Michael B.

1968 A Note on the Broad Corner-Notched Projectile Points used in Bison Hunting in Western Texas. *The Bull Roarer* 3(2): 13–14. The University of Texas Anthropology Society, Department of Anthropology, The University of Texas at Austin.

2004 Archeology in Central Texas. In *Prehistory of Texas*, edited by Timothy K. Perttula, pp. 101–126. Texas A&M University Press, College Station, Texas.

Decker, S., S.L. Black, and T. Gustavson

2000 *Woodrow Heard Site, 41UV88, a Holocene Terrace Site in the Western Balcones Canyonland of Southwestern Texas.* Studies in Archeology 33. Texas Archeological Research Laboratory, The University of Texas at Austin, and Archeology Studies Program 14. Texas Department of Transportation, Environmental Affairs Division, Austin.

Donecker, Frances

2010 San Antonio River. In *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/rns06), accessed October 20, 2014. Uploaded on June 15, 2010. Published by the Texas State Historical Association.

Fehrenbach, T.R.

2014 San Antonio, Texas. In the *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/hds02), accessed June 22, 2014. Uploaded on June 15, 2010. Published by the Texas State Historical Association.

Hatcher, M.A

1932 *The Expedition of Don Domingo Terán de los Ríos into Texas*, ed. Paul J. Foik (Preliminary Studies of the Texas Catholic Historical Society 2.1 [1932]).

Hester, T.R.

1976 Late Pleistocene Aboriginal Adaptations in Texas. In *Papers on Paleoindian Archaeology in Texas: I*, pp. 1–10. Special Report No. 3. Center for Archaeological Research, the University of Texas at San Antonio.

1980 *Digging into South Texas Prehistory*. Corona Publishing Company, San Antonio, Texas.

Johnson, L.

1995 *Past Cultures and Climates at Jonas Terrace, 41EM29, Medina County, Texas.* Office of the State Archeologist Report 40, Texas Historical Commission and Texas Department of Transportation, Austin.

Jordan, S.P.

2004 *The Teran de los Rios Massanet Expedition of 1691: A Scholarly Edition and Comparative Study.*, Masters Thesis. Texas A&M University. .

Kelly, T.C.

1993 Preceramic Projectile-Point Typology in Belize. *Ancient Mesoamerica* 4:205–227.

Long, Christopher

2014 "Bexar County." The Handbook of Texas Online. Electronic document,

http://www.tshaonline.org/handbook/online/articles/hcb07. Accessed June 15–16, 2014.

Malcom Pirnie/Arcadis

2012 San Antonio River Authority Westside Creeks/Elmendorf Lake Final Report. Electronic Document accessed at https://www.sara-tx.org/public_information/contracting_opportunities/documents/Westside%20Creeks%20Report_FINAL.pdf

McKenzie, C. and B. Moses

2005 *Preliminary Results of the 2005 Field Schoo*l. Paper presented at the September Quarterly Meeting of the Southern Texas Archaeological Association, San Antonio.

McKinney, Wilson W.

1981 Early Holocene Adaptations in Central and Southwestern Texas: The Problem of the Paleoindian-Archaic Transition. *Bulletin of the Texas Archeological Society* 52:92–120.

McMahan, C.A., R.G. Frye, and K.L. Brown

1984 The Vegetation Types of Texas Including Cropland. Texas Parks and Wildlife Department, Wildlife Division.

National Register of Historic Places (NRHP)

1975 Fort Sam Houston, San Antonio, Bexar County, Texas, National Register #75001950.

Perttula, T.K.

2004 An Introduction to Texas Prehistory Archeology. In *The Prehistory of Texas* edited by Timothy K. Perttula, pp. 5–14. Texas A&M University Press, College Station.

Pfeiffer, Maria Watson

2014 *Elmendorf Lake Park History*. COSA Park Directory Data accessed at http://www.sanantonio.gov/parksandrec/directory_elmendorf_lake.aspx on June 10, 2014.

Ramsdell, Charles.

1959 *San Antonio: A Historical and Pictorial Guide*. University of Texas Press, Austin, Texas.

Ricklis, R.A., and M.B. Collins

1994 *Archaic and Late Prehistoric Human Ecology in the Middle Onion Creek Valley, Hays County, Texas*. Studies in Archeology 19, Texas Archeological Research Laboratory, The University of Texas, Austin.

Schoelwer, Susan Prendergast

2010 San Antonio de Valero Mission. In *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/uqs08), accessed October 20, 2014. Uploaded on June 15, 2010. Published by the Texas State Historical Association.

Shafer, H.J. and T.R. Hester

2007 *An Archaeological Survey of the Westwood Center Unit 11, Bexar County, Texas.* Abasolo Archaeological Consultants, San Antonio.

Steen, R.W.

1948 *The Texas Story*. Steck Company, Austin.

Suhm, Dee Ann, Alex D. Kreiger, and Edward B. Jelks

1954 An Introductory Handbook of Texas Archeology. *Bulletin of the Texas Archeological Society* 25:1–562.

San Antonio Bicentennial Heritage Committee (SABHC).

1976 San Antonio in the Eighteenth Century.

Texas Historical Commission (THC)

2014 Online Archeological Sites Atlas. Available at http://nueces.thc.state.tx.us/, accessed March 5, 2014.

Thornthwaite, C.W.

1948 An Approach toward a Rational Classification of Climate. In *Geographical Review* 38:55–94.

Ulrich, K.M, et al.

2012 *Intensive Pedestrian Survey and Constructun Monitoring along a Portion of Trail 11 in Brackenridge Park, San Antonio, Bexar County, Texas*. Center for Archaeological Research, San Antonio.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)

2014 Web Soil Survey: Soil database for Brazos County, Texas. Data accessed at http://websoilsurvey.nrcs.usda.gov/app/ on March 15, 2014.

Wiley, Gordon R., and Phillip Phillips

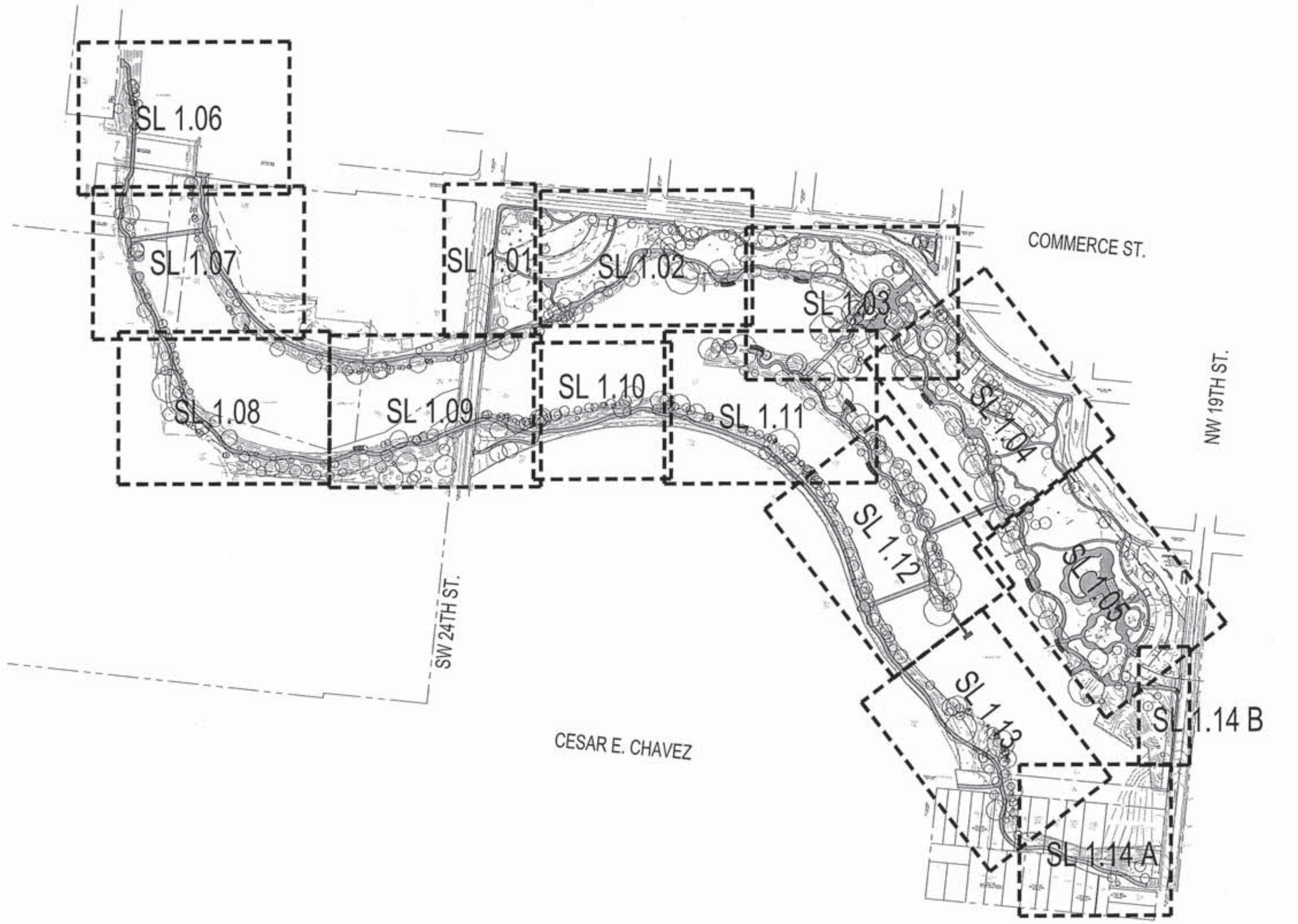
1958 Method and Theory in American Archaeology. University of Chicago Press, Chicago.

Appendix A

Design Plans

Appendix A

Design Plans



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ELMENDORF
LAKE PARK

3700 West Commerce
San Antonio, Texas 78207

REVISION	DATE

0' 75' 150' NORTH

Project no:
Date: Feburay 28, 2014
Sheet:

OVERALL
SITE LAYOUT

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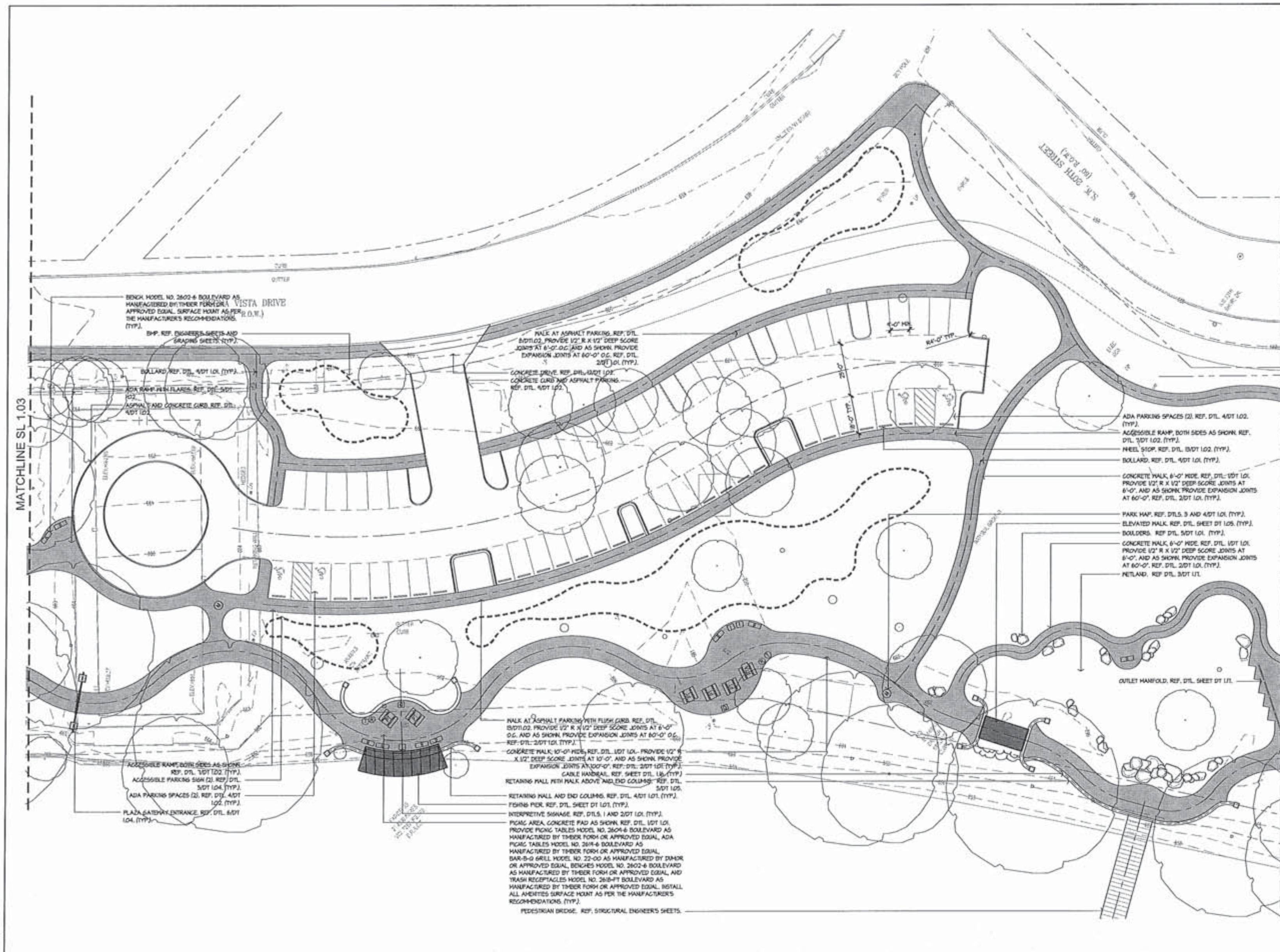
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MATCHLINE SL 1.05
S.W. 20TH STREET
VISTA DRIVE
BENCH, MODEL NO. 2602-6 BOULEVARD AS MANUFACTURED BY TIMBER FORM OR APPROVED EQUAL. SURFACE MOUNT AS PER THE MANUFACTURER'S RECOMMENDATIONS. (TYP.)
ADA PARKING SPACES (2). REF. DTL. 4/DT 1.02. (TYP.)
ACCESSIBLE RAMP, BOTH SIDES AS SHOWN. REF. DTL. 7/DT 1.02. (TYP.)
WHEEL STOP. REF. DTL. 13/DT 1.02. (TYP.)
BOLLARD. REF. DTL. 4/DT 1.01. (TYP.)
PARK MAP. REF. DTLS. 3 AND 4/DT 1.01. (TYP.)
ELEVATED WALK. REF. DTL. SHEET DT 1.05. (TYP.)
BOULDERS. REF. DTL. 5/DT 1.01. (TYP.)
WETLAND. REF. DTL. 3/DT 1.11.
OUTLET MANIFOLD. REF. DTL. SHEET DT 1.11.
PEDESTRIAN BRIDGE. REF. STRUCTURAL ENGINEER'S SHEETS.

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Date: Feburay 28, 2014
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SITE
LAYOUT

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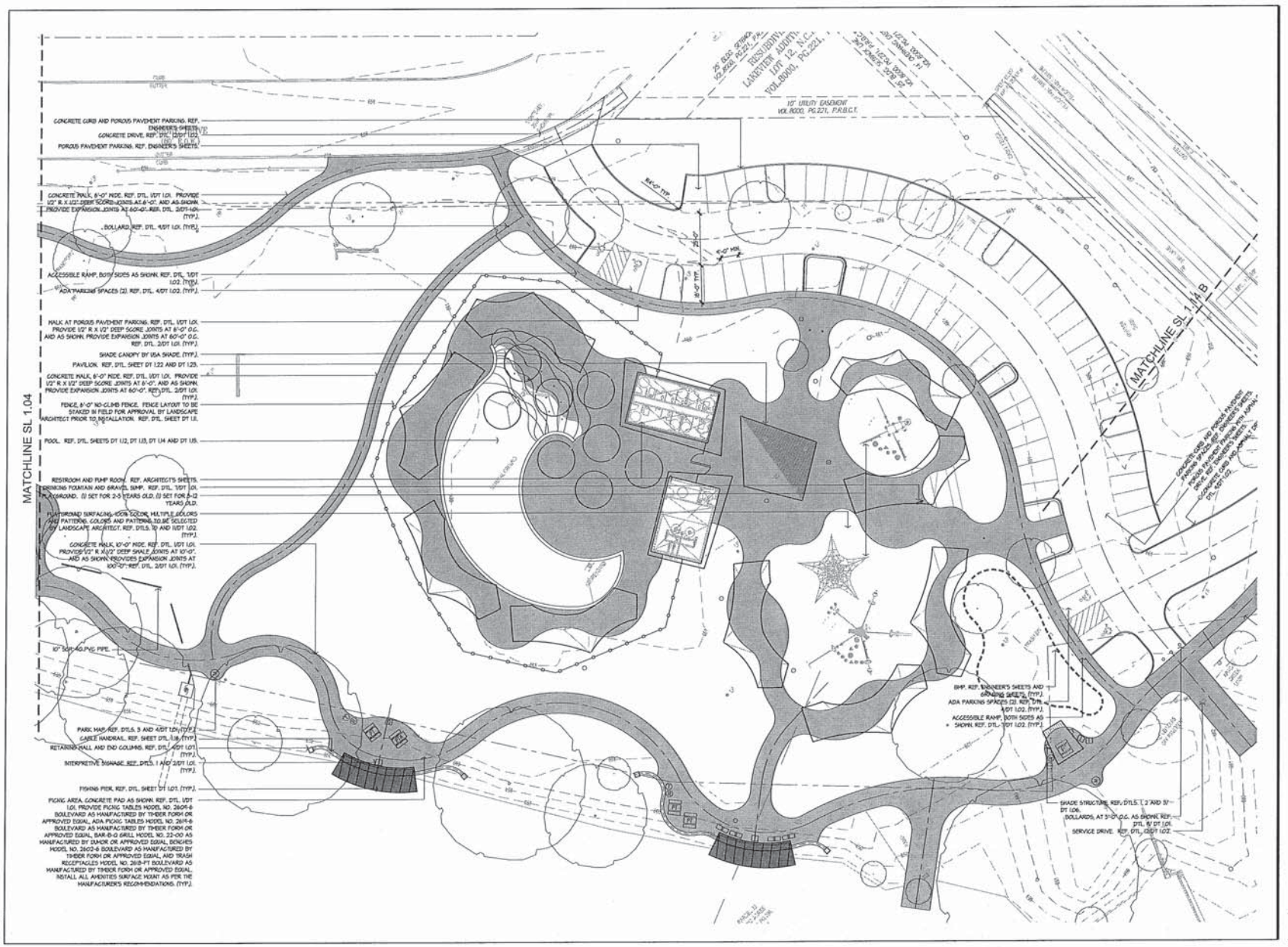

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SITE LAYOUT

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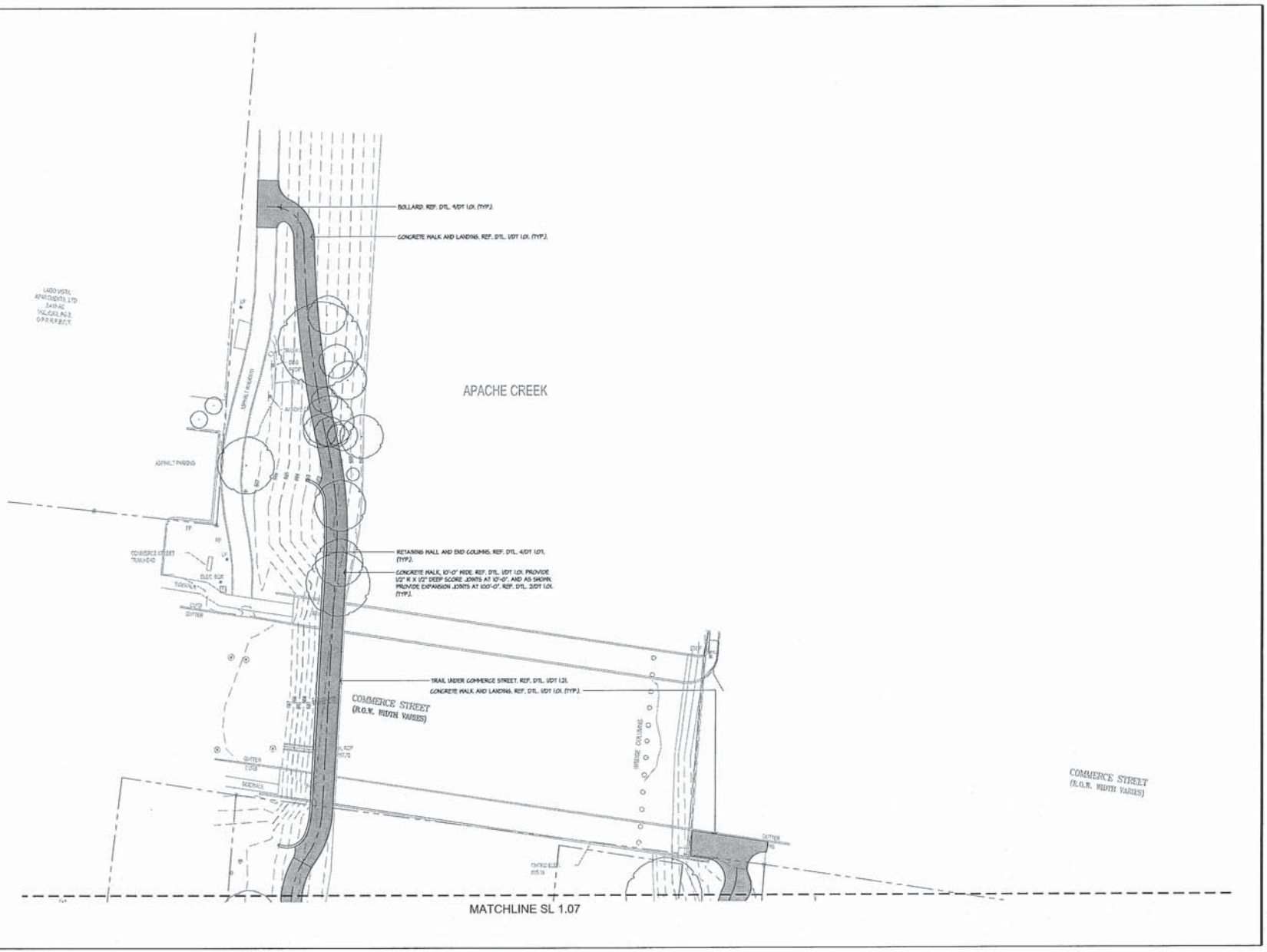

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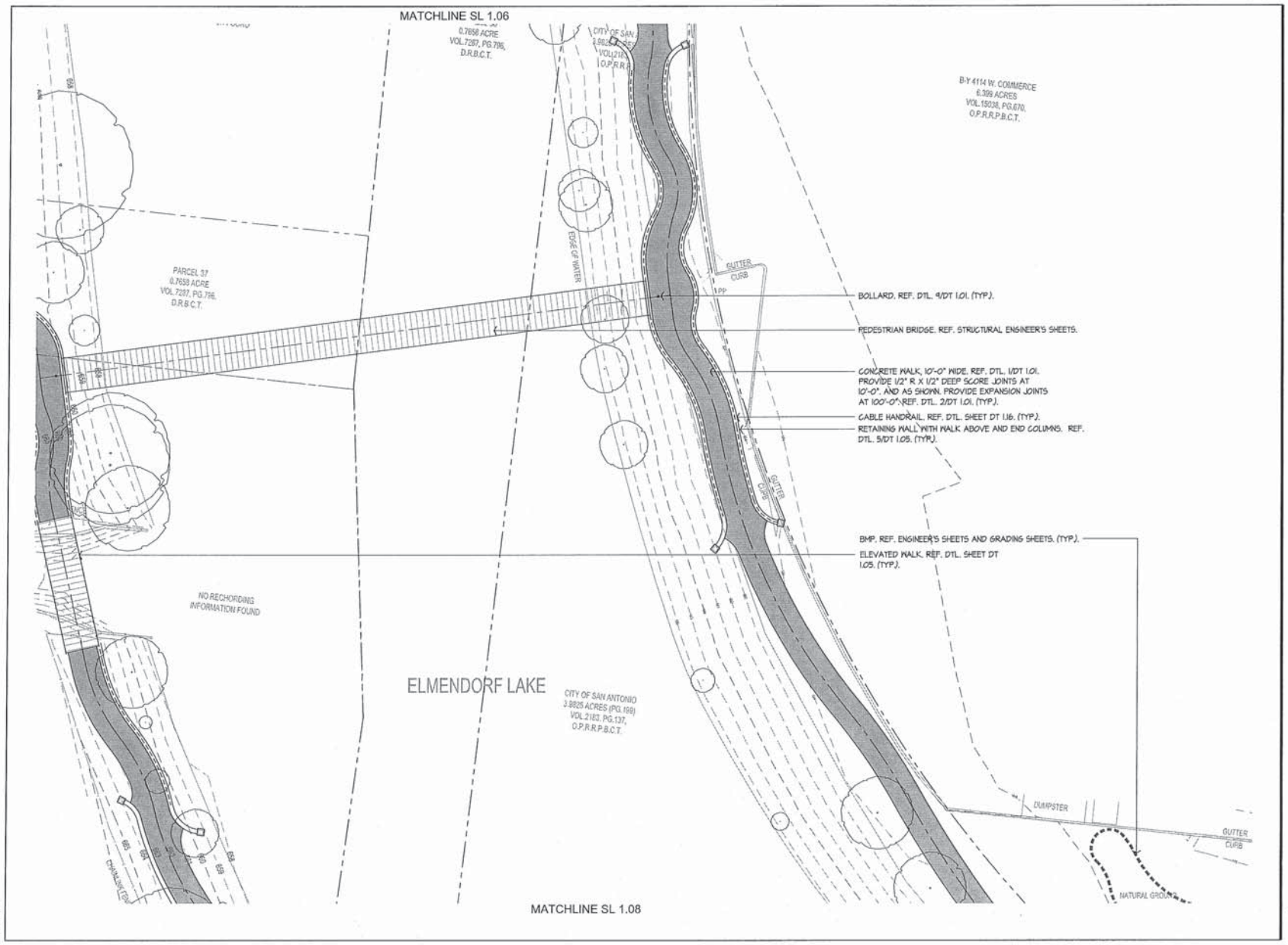
SITE LAYOUT

SL 1.06



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SITE LAYOUT

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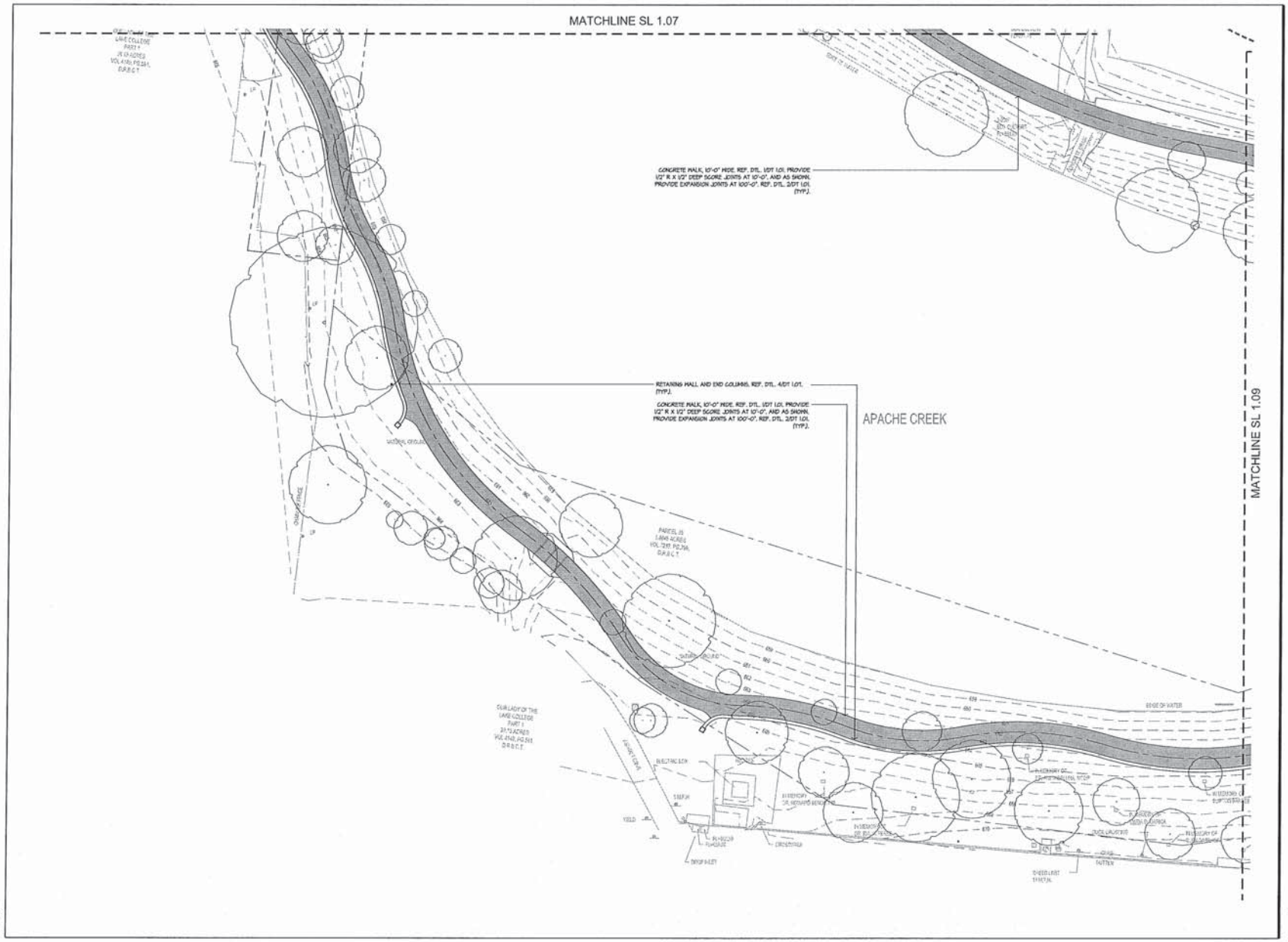

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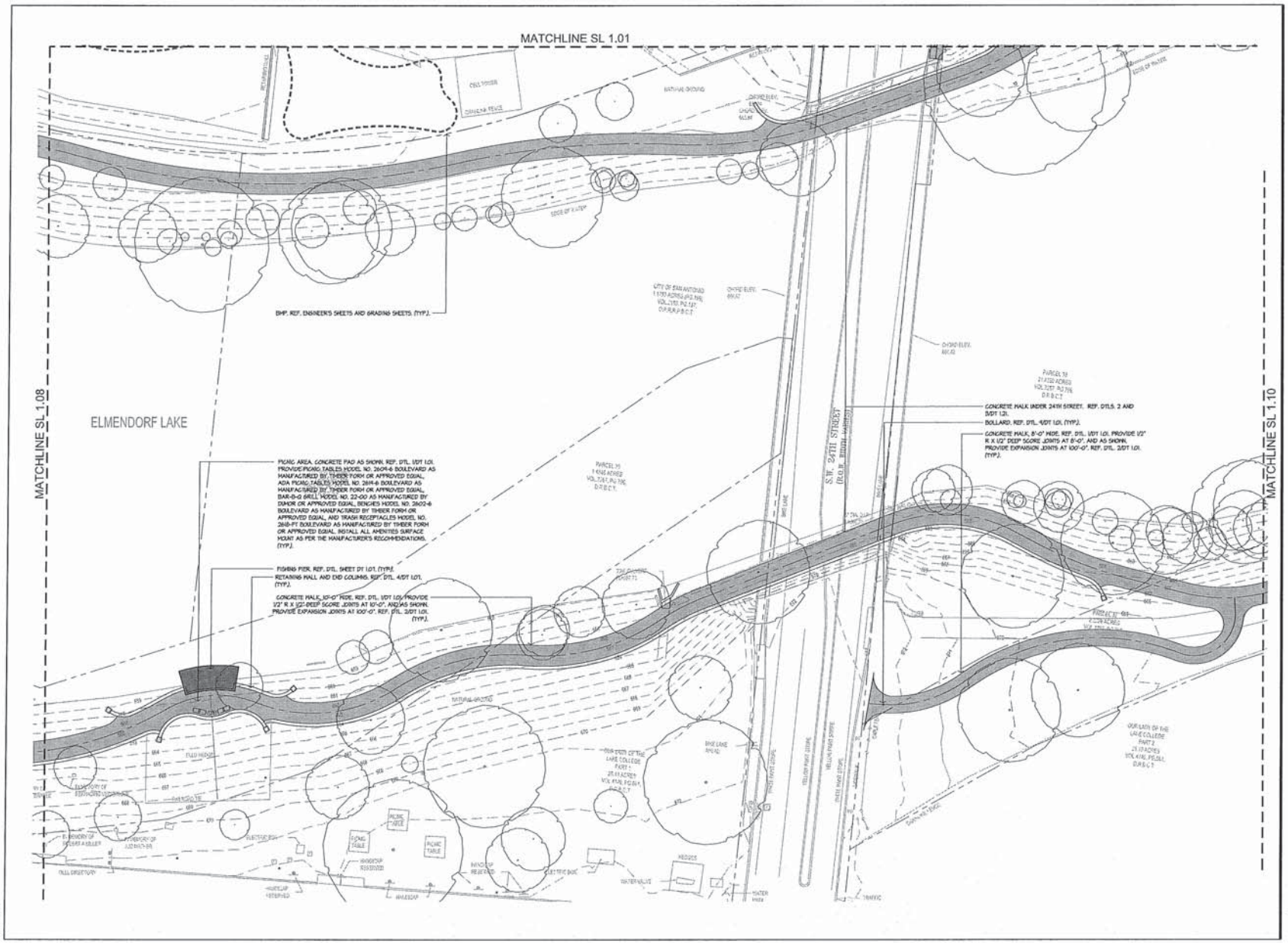
SL 1.08



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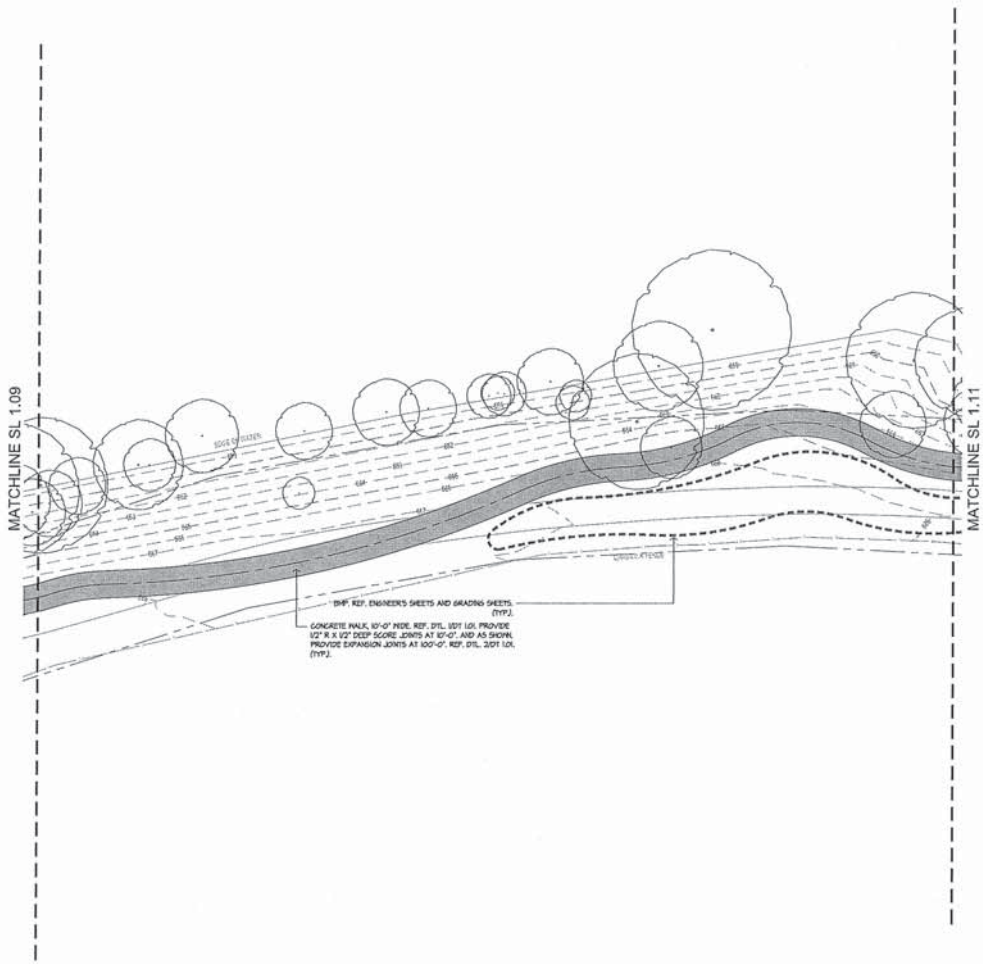
SITE LAYOUT

SL 1.09

ELMENDORF LAKE



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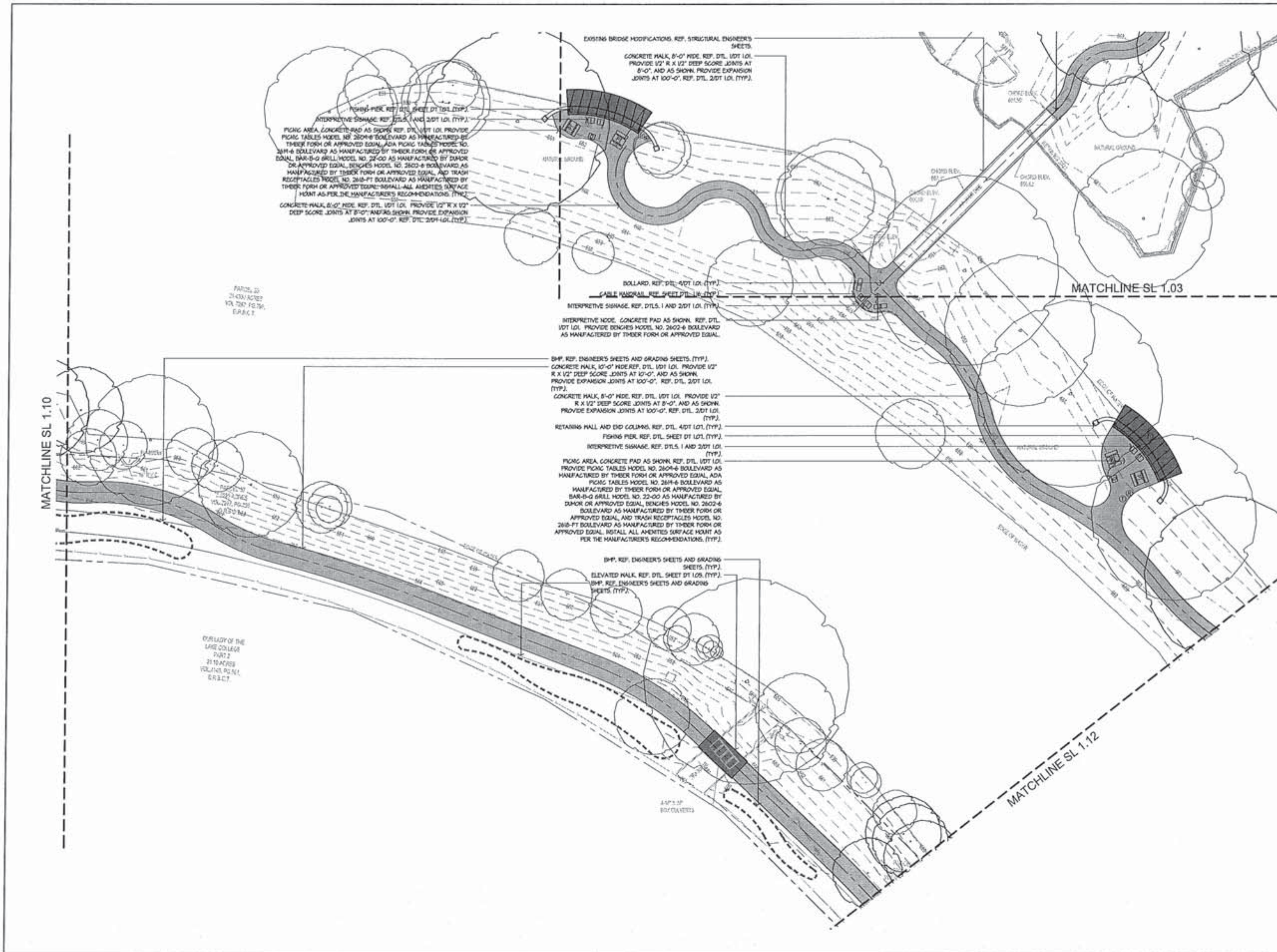
SITE LAYOUT

SL 1.10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MATCHLINE SL 1.10
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FISHING PIER. REF. DTL. SHEET DT 1.01. (TYP.)
INTERPRETIVE SIGNAGE. REF. DTLS. 1 AND 2/DT 1.01. (TYP.)
BOLLARD. REF. DTL. 4/DT 1.01. (TYP.)
CABLE HANDRAIL. REF. SHEET DTL. 1.16. (TYP.)
INTERPRETIVE NODE. CONCRETE PAD AS SHOWN. REF. DTL. 1/DT 1.01. PROVIDE BENCHES MODEL NO. 2602-6 BOULEVARD AS MANUFACTURED BY TIMBER FORM OR APPROVED EQUAL.
BMP. REF. ENGINEER'S SHEETS AND GRADING SHEETS. (TYP.)
CONCRETE WALK, 10'-0" WIDE.REF. DTL. 1/DT 1.01. PROVIDE 1/2" R X 1/2" DEEP SCORE JOINTS AT 10'-0". AND AS SHOWN. PROVIDE EXPANSION JOINTS AT 100'-0". REF. DTL. 2/DT 1.01. (TYP.)
RETAINING WALL AND END COLUMNS. REF. DTL. 4/DT 1.01. (TYP.)
ELEVATED WALK. REF. DTL. SHEET DT 1.05. (TYP.)
NATURAL GROUND
EDGE OF WATER
ELMENDORF LAKE PARK

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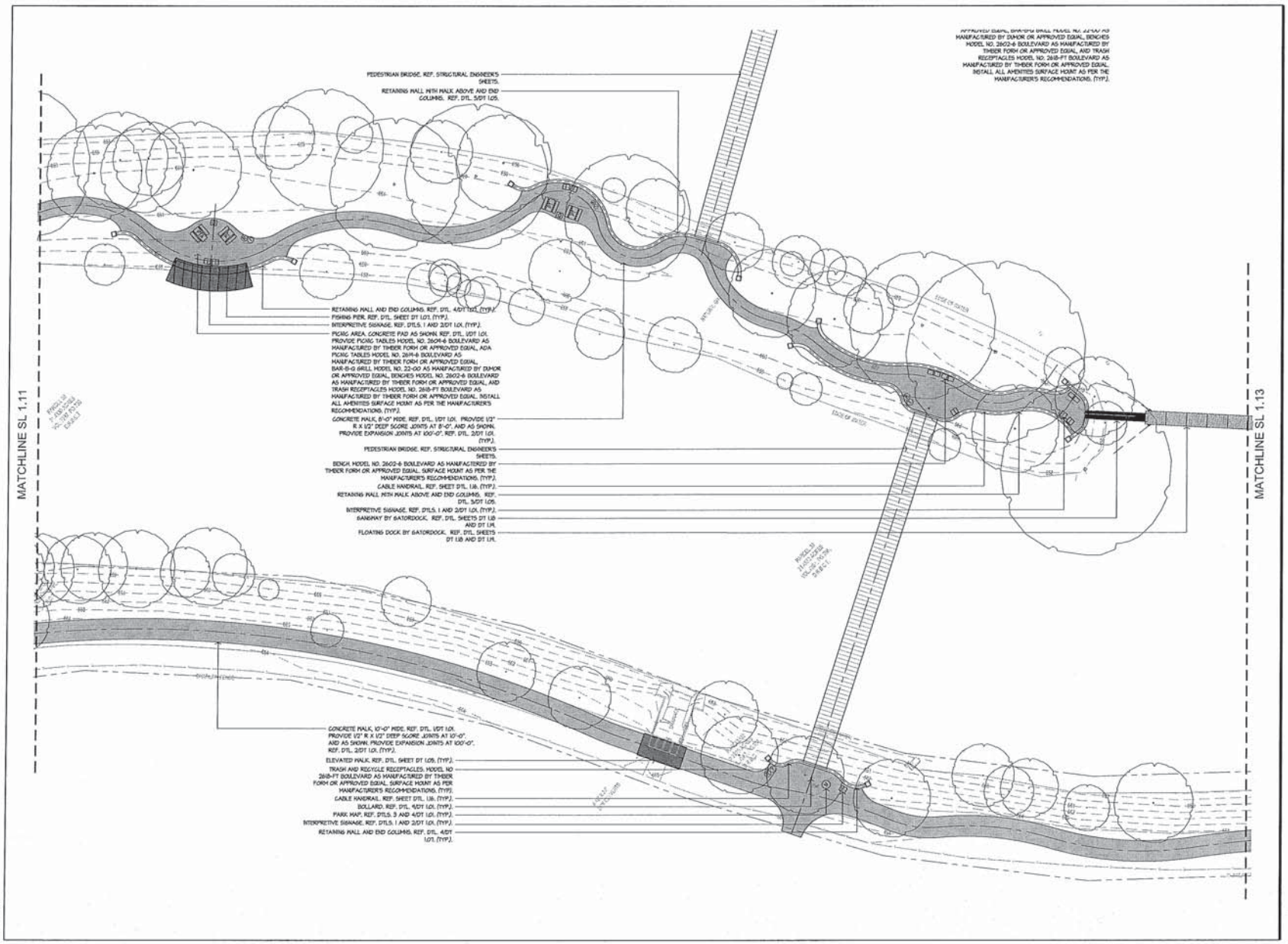
SITE LAYOUT

SL 1.11



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SITE LAYOUT

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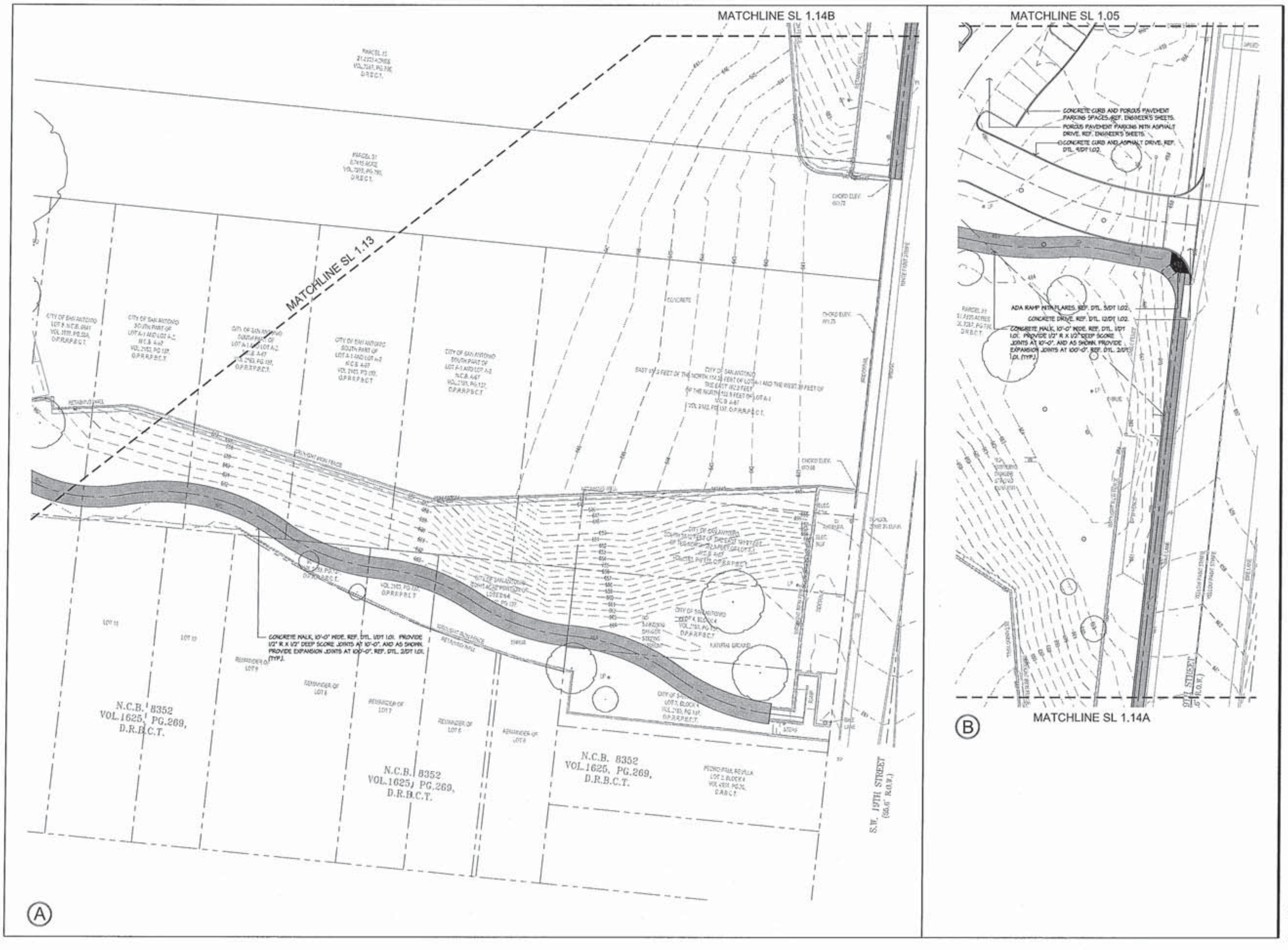
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CONCRETE CURB AND POROUS PAVEMENT PARKING SPACES. REF. ENGINEER'S SHEETS.
POROUS PAVEMENT PARKING WITH ASPHALT DRIVE. REF. ENGINEER'S SHEETS.
CONCRETE CURB AND ASPHALT DRIVE. REF. DTL. 4/DT L02.
ADA RAMP WITH FLARES. REF. DTL. 5/DT L02.
CONCRETE DRIVE. REF. DTL. 12/DT L02.
CONCRETE WALK, 10'-0" WIDE. REF. DTL. 1/DT L01. PROVIDE 1/2" R X 1/2" DEEP SCORE JOINTS AT 10'-0", AND AS SHOWN. PROVIDE EXPANSION JOINTS AT 100'-0". REF. DTL. 2/DT L01. (TYP.)
N.C.B. 8352
VOL.1625, PG.269,
D.R.B.C.T.
S.W. 19TH STREET
(55.6' R.O.W.)
A
B

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SITE
LAYOUT

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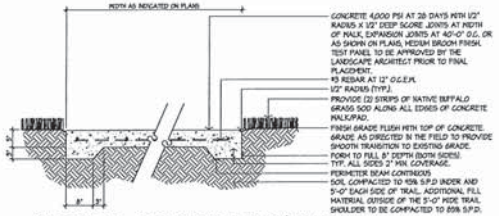

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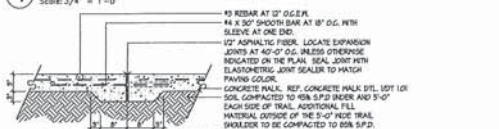

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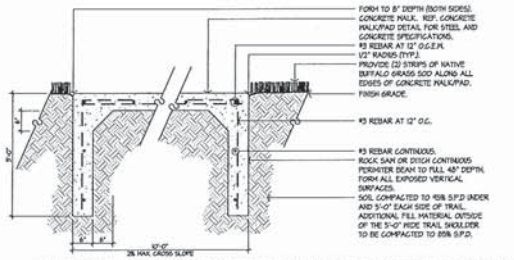

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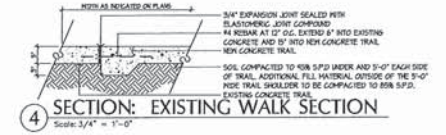

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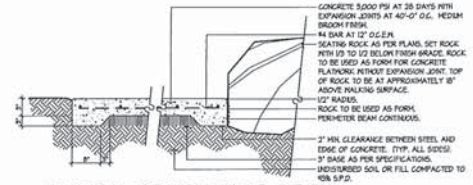

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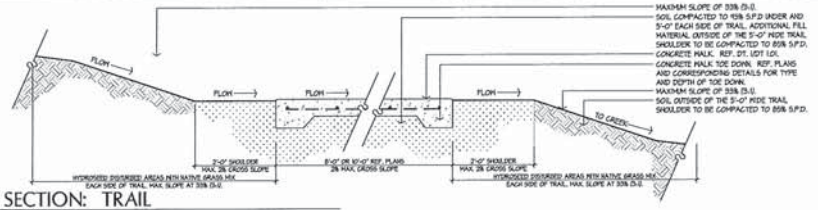

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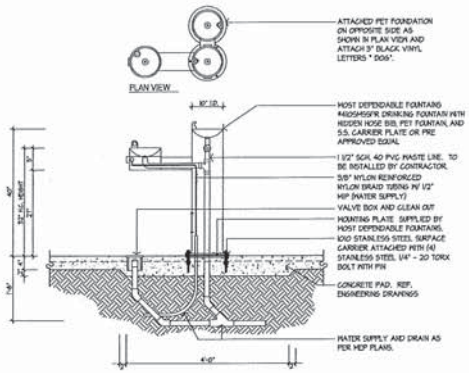

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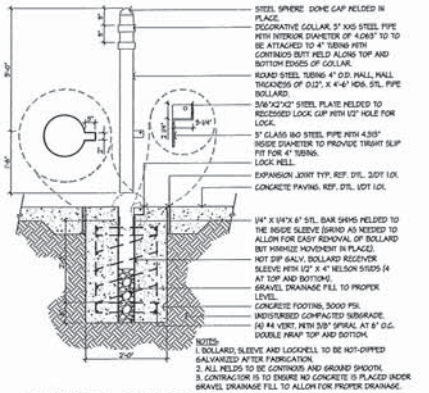

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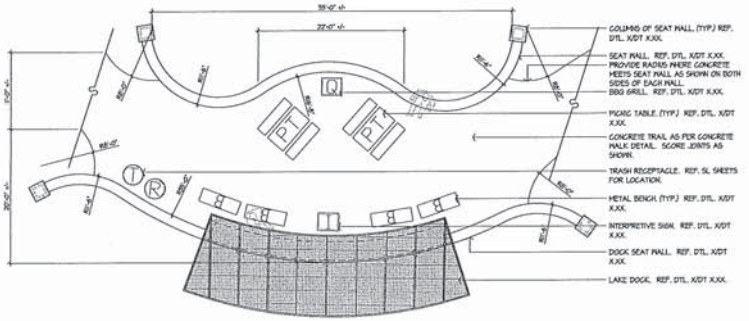

8 PLAN: FISHING PIER NODE
Scale: 1/8" = 1'-0"

WALTER H. HEARD 629 REGISTERED LANDSCAPE ARCHITECT

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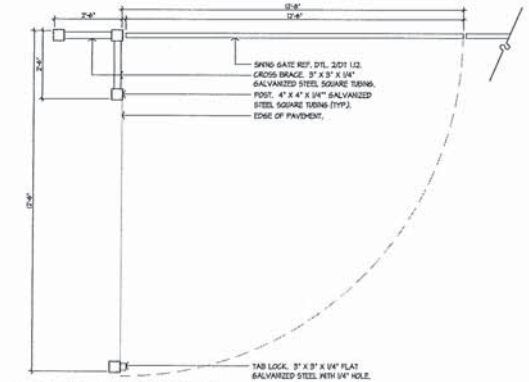
SITE DETAILS

DT 1.01



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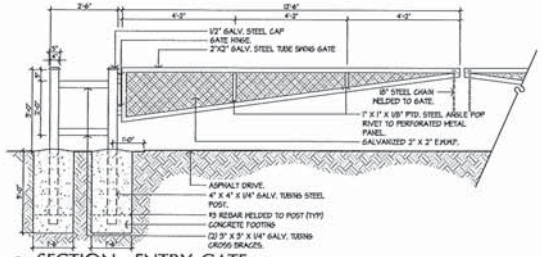

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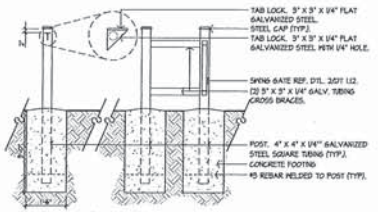

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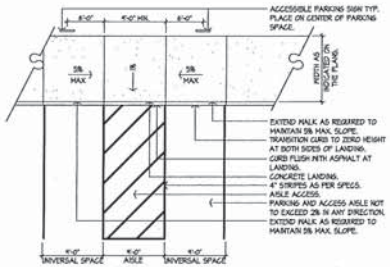

4 PLAN: ACCESSIBLE PARKING SPACE
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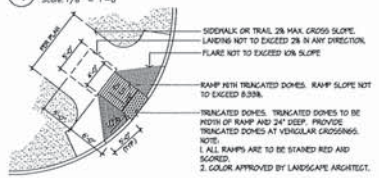

5 PLAN: ADA RAMP WITH FLARES
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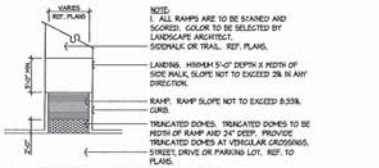

6 PLAN: ADA ACCESS
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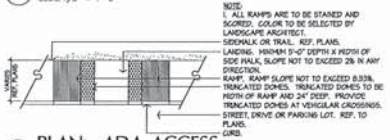
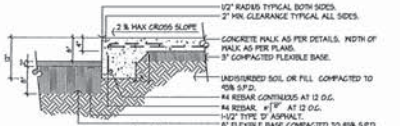
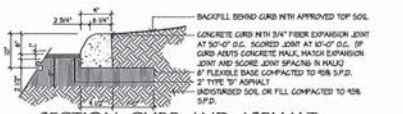


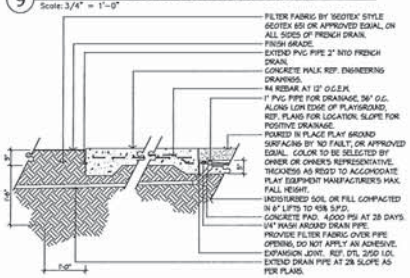
7 PLAN: ADA ACCESS
Scale: 1/8" = 1'-0"



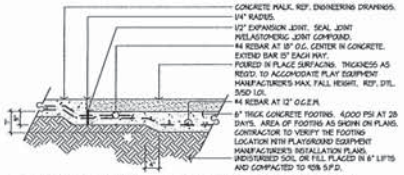
8 SECTION: WALK AND PARKING
Scale: 3/4" = 1'-0"



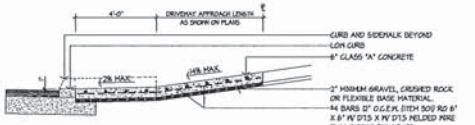
9 SECTION: CURB AND ASPHALT
Scale: 3/4" = 1'-0"



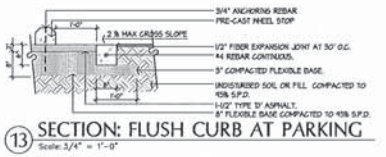
10 SECTION: PLAYGROUND SURFACING
Scale: 3/4" = 1'-0"



11 SECTION: PLAYGROUND FOOTING
Scale: 3/4" = 1'-0"



12 SECTION: COMMERCIAL DRIVEWAY ENTRANCE
Scale: 3/8" = 1'-0"



13 SECTION: FLUSH CURB AT PARKING
Scale: 3/4" = 1'-0"

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ELMENDORF LAKE PARK

3700 West Commerce
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REVISION	DATE

Project no:
Date: Feburay 28, 2014
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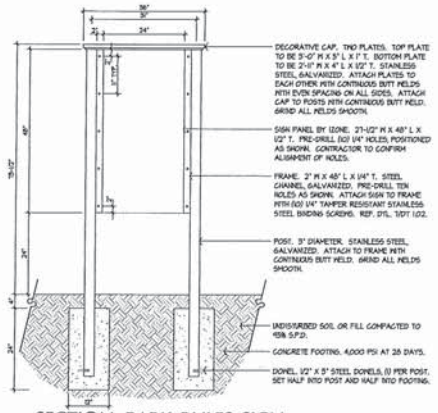
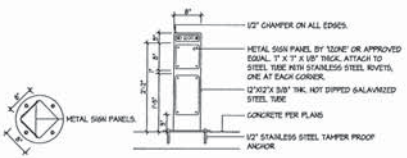
SITE DETAILS

DT 1.02

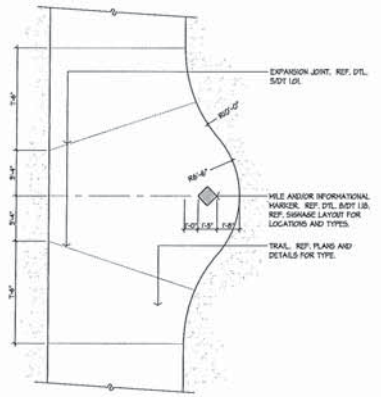


1 SECTION: PARK RULES SIGN
Scale: 3/4" = 1'-0"

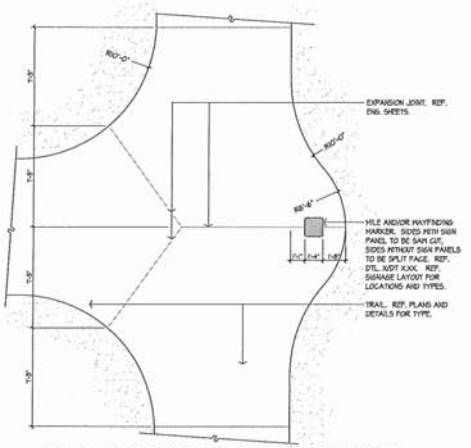
2 DETAIL: PARK RULES SIGN
Scale: 3" = 1'-0"



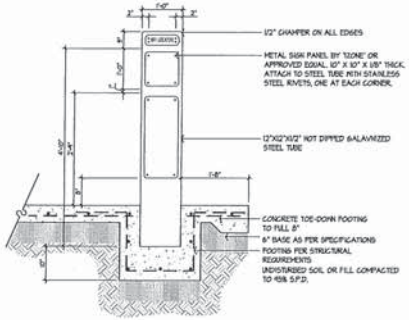
4 ELEVATION: 1/4 MILE MARKER
Scale: 3/4" = 1'-0"



5 PLAN: LARGE MILE MARKER
Scale: 1/4" = 1'-0"



6 PLAN: WAYFINDING AT INTERSECTION
Scale: 1/4" = 1'-0"



3 ELEVATION: LARGE MILE MARKER/DIRECTIONAL SIGNAGE
Scale: 3/4" = 1'-0"

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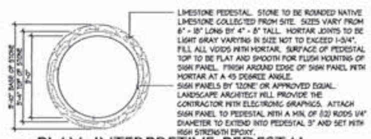
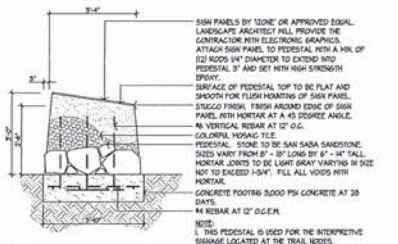
SITE DETAILS

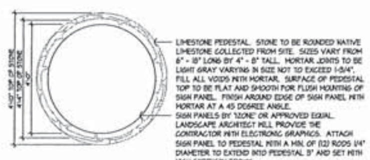
DT 1.03


LIMESTONE PEDESTAL. STONE TO BE ROUNDED NATIVE LIMESTONE COLLECTED FROM SITE. SIZES VARY FROM 6" - 18" LONG BY 4" - 8" TALL. MORTAR JOINTS TO BE LIGHT GRAY VARYING IN SIZE NOT TO EXCEED 1-3/4". FILL ALL VOIDS WITH MORTAR. SURFACE OF PEDESTAL TOP TO BE FLAT AND SMOOTH FOR FLUSH MOUNTING OF SIGN PANEL. FINISH AROUND EDGE OF SIGN PANEL WITH MORTAR AT A 45 DEGREE ANGLE.
SIGN PANELS BY 'IZONE' OR APPROVED EQUAL. LANDSCAPE ARCHITECT WILL PROVIDE THE CONTRACTOR WITH ELECTRONIC GRAPHICS. ATTACH SIGN PANEL TO PEDESTAL WITH A MIN. OF (12) RODS 1/4" DIAMETER TO EXTEND INTO PEDESTAL 3" AND SET WITH HIGH STRENGTH EPOXY.

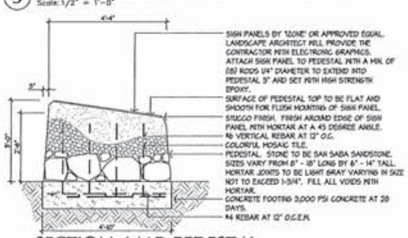
1 PLAN: INTERPRETIVE PEDESTAL
Scale: 1/2" = 1'-0"


3'-4"
SIGN PANELS BY 'IZONE' OR APPROVED EQUAL. LANDSCAPE ARCHITECT WILL PROVIDE THE CONTRACTOR WITH ELECTRONIC GRAPHICS. ATTACH SIGN PANEL TO PEDESTAL WITH A MIN. OF (12) RODS 1/4" DIAMETER TO EXTEND INTO PEDESTAL 3" AND SET WITH HIGH STRENGTH EPOXY.
SURFACE OF PEDESTAL TOP TO BE FLAT AND SMOOTH FOR FLUSH MOUNTING OF SIGN PANEL.
STUCCO FINISH. FINISH AROUND EDGE OF SIGN PANEL WITH MORTAR AT A 45 DEGREE ANGLE.
#6 VERTICAL REBAR AT 12" O.C.
COLORFUL MOSAIC TILE.
PEDESTAL. STONE TO BE SAN SABA SANDSTONE. SIZES VARY FROM 8" - 18" LONG BY 6" - 14" TALL. MORTAR JOINTS TO BE LIGHT GRAY VARYING IN SIZE NOT TO EXCEED 1-3/4". FILL ALL VOIDS WITH MORTAR.
CONCRETE FOOTING 3,000 PSI CONCRETE AT 28 DAYS.
#4 REBAR AT 12" O.C.E.W.
NOTE:
1. THIS PEDESTAL IS USED FOR THE INTERPRETIVE SIGNAGE LOCATED AT THE TRAIL NODES.

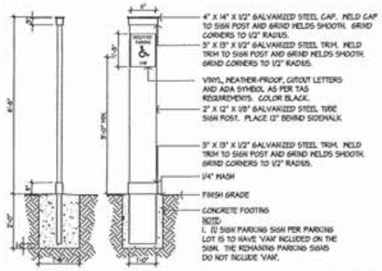
2 SECTION: INTERPRETIVE PEDESTAL
Scale: 1/2" = 1'-0"


LIMESTONE PEDESTAL. STONE TO BE ROUNDED NATIVE LIMESTONE COLLECTED FROM SITE. SIZES VARY FROM 6" - 18" LONG BY 4" - 8" TALL. MORTAR JOINTS TO BE LIGHT GRAY VARYING IN SIZE NOT TO EXCEED 1-3/4". FILL ALL VOIDS WITH MORTAR. SURFACE OF PEDESTAL TOP TO BE FLAT AND SMOOTH FOR FLUSH MOUNTING OF SIGN PANEL. FINISH AROUND EDGE OF SIGN PANEL WITH MORTAR AT A 45 DEGREE ANGLE.
SIGN PANELS BY 'IZONE' OR APPROVED EQUAL. LANDSCAPE ARCHITECT WILL PROVIDE THE CONTRACTOR WITH ELECTRONIC GRAPHICS. ATTACH SIGN PANEL TO PEDESTAL WITH A MIN. OF (12) RODS 1/4" DIAMETER TO EXTEND INTO PEDESTAL 3" AND SET WITH HIGH STRENGTH EPOXY.

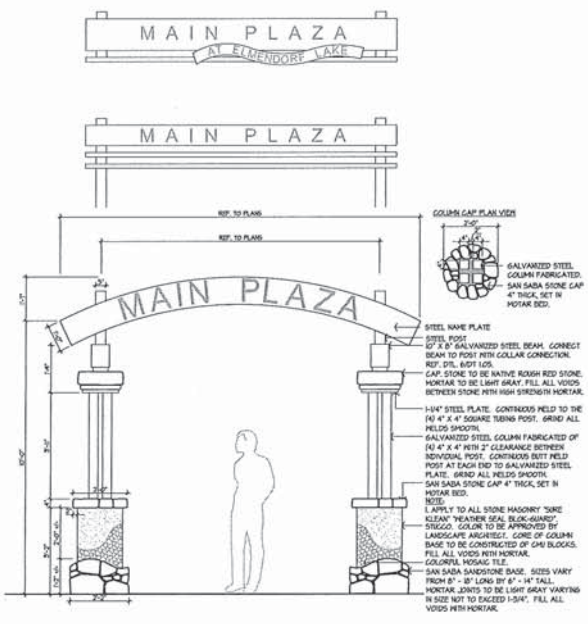
3 PLAN: MAP PEDESTAL
Scale: 1/2" = 1'-0"


4'-4"
SIGN PANELS BY 'IZONE' OR APPROVED EQUAL. LANDSCAPE ARCHITECT WILL PROVIDE THE CONTRACTOR WITH ELECTRONIC GRAPHICS. ATTACH SIGN PANEL TO PEDESTAL WITH A MIN. OF (16) RODS 1/4" DIAMETER TO EXTEND INTO PEDESTAL 3" AND SET WITH HIGH STRENGTH EPOXY.
SURFACE OF PEDESTAL TOP TO BE FLAT AND SMOOTH FOR FLUSH MOUNTING OF SIGN PANEL.
STUCCO FINISH. FINISH AROUND EDGE OF SIGN PANEL WITH MORTAR AT A 45 DEGREE ANGLE.
#6 VERTICAL REBAR AT 12" O.C.
COLORFUL MOSAIC TILE.
PEDESTAL. STONE TO BE SAN SABA SANDSTONE. SIZES VARY FROM 8" - 18" LONG BY 6" - 14" TALL. MORTAR JOINTS TO BE LIGHT GRAY VARYING IN SIZE NOT TO EXCEED 1-3/4". FILL ALL VOIDS WITH MORTAR.
CONCRETE FOOTING 3,000 PSI CONCRETE AT 28 DAYS.
#4 REBAR AT 12" O.C.E.W.
4'-10"

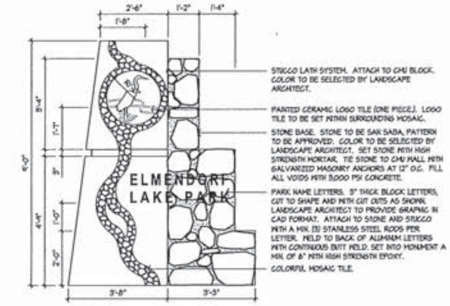
4 SECTION: MAP PEDESTAL
Scale: 1/2" = 1'-0"


4" X 14" X 1/2" GALVANIZED STEEL CAP. WELD CAP TO SIGN POST AND GRIND WELDS SMOOTH. GRIND CORNERS TO 1/2" RADIUS.
3" X 13" X 1/2" GALVANIZED STEEL TRIM. WELD TRIM TO SIGN POST AND GRIND WELDS SMOOTH. GRIND CORNERS TO 1/2" RADIUS.
VINYL, WEATHER-PROOF, CUTOUT LETTERS AND ADA SYMBOL AS PER TAS REQUIREMENTS. COLOR BLACK.
2" X 12" X 1/8" GALVANIZED STEEL TUBE SIGN POST. PLACE 12" BEHIND SIDEWALK
3" X 13" X 1/2" GALVANIZED STEEL TRIM. WELD TRIM TO SIGN POST AND GRIND WELDS SMOOTH. GRIND CORNERS TO 1/2" RADIUS.
1/4" WASH
FINISH GRADE
CONCRETE FOOTING
NOTE:
1. (1) SIGN PARKING SIGN PER PARKING LOT IS TO HAVE 'VAN' INCLUDED ON THE SIGN. THE REMAINING PARKING SIGNS DO NOT INCLUDE 'VAN'.

5 ELEVATION: ACCESSIBLE PARKING SIGN
Scale: 1/2" = 1'-0"


MAIN PLAZA
AT ELMENDORF LAKE
MAIN PLAZA
MAIN PLAZA
COLUMN CAP PLAN VIEW
2'-0"
GALVANIZED STEEL COLUMN FABRICATED.
SAN SABA STONE CAP 4" THICK, SET IN MOTAR BED.
STEEL NAME PLATE
STEEL POST
10" X 8" GALVANIZED STEEL BEAM. CONNECT BEAM TO POST WITH COLLAR CONNECTION. REF. DTL. 6/DT 1.05.
CAP. STONE TO BE NATIVE ROUGH RED STONE. MORTAR TO BE LIGHT GRAY. FILL ALL VOIDS BETWEEN STONE WITH HIGH STRENGTH MORTAR.
1-1/4" STEEL PLATE. CONTINUOUS WELD TO THE (4) 4" X 4" SQUARE TUBING POST. GRIND ALL WELDS SMOOTH.
GALVANIZED STEEL COLUMN FABRICATED OF (4) 4" X 4" WITH 2" CLEARANCE BETWEEN INDIVIDUAL POST. CONTINUOUS BUTT WELD POST AT EACH END TO GALVANIZED STEEL PLATE. GRIND ALL WELDS SMOOTH.
SAN SABA STONE CAP 4" THICK, SET IN MOTAR BED.
NOTE:
1. APPLY TO ALL STONE MASONRY "SURE KLEAN" "WEATHER SEAL BLOK-GUARD".
STUCCO. COLOR TO BE APPROVED BY LANDSCAPE ARCHITECT. CORE OF COLUMN BASE TO BE CONSTRUCTED OF CMU BLOCKS. FILL ALL VOIDS WITH MORTAR.
COLORFUL MOSAIC TILE.
SAN SABA SANDSTONE BASE. SIZES VARY FROM 8" - 18" LONG BY 6" - 14" TALL. MORTAR JOINTS TO BE LIGHT GRAY VARYING IN SIZE NOT TO EXCEED 1-3/4". FILL ALL VOIDS WITH MORTAR.

6 ELEVATION: GATEWAY ENTRANCE
Scale: 1/2" = 1'-0"


2'-6"
1'-2"
1'-4"
ELMENDORF
LAKE PARK
3'-8"
3'-3"
STUCCO LATH SYSTEM. ATTACH TO CMU BLOCK. COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT.
PAINTED CERAMIC LOGO TILE (ONE PIECE). LOGO TILE TO BE SET WITHIN SURROUNDING MOSAIC.
STONE BASE. STONE TO BE SAN SABA, PATTERN TO BE APPROVED. COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT. SET STONE WITH HIGH STRENGTH MORTAR. TIE STONE TO CMU WALL WITH GALVANIZED MASONRY ANCHORS AT 12" O.C. FILL ALL VOIDS WITH 3,000 PSI CONCRETE.
PARK NAME LETTERS. 3" THICK BLOCK LETTERS, CUT TO SHAPE AND WITH CUT OUTS AS SHOWN. LANDSCAPE ARCHITECT TO PROVIDE GRAPHIC IN CAD FORMAT. ATTACH TO STONE AND STUCCO WITH A MIN. (3) STAINLESS STEEL RODS PER LETTER. WELD TO BACK OF ALUMINUM LETTERS WITH CONTINUOUS BUTT WELD. SET INTO MONUMENT A MIN. OF 6" WITH HIGH STRENGTH EPOXY.
COLORFUL MOSAIC TILE.

7 ELEVATION: ENTRY MONUMENT
Scale: 1/2" = 1'-0"

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LAKE PARK

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REVISION	DATE

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Date: Feburay 28, 2014
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SITE DETAILS

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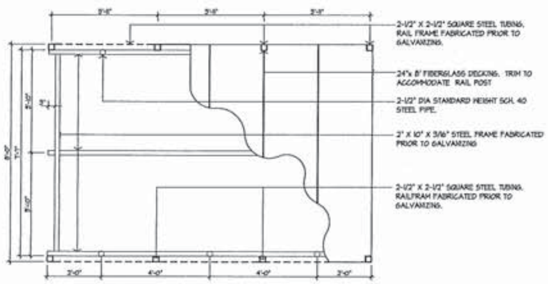
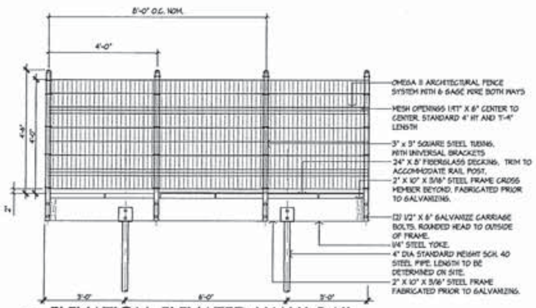
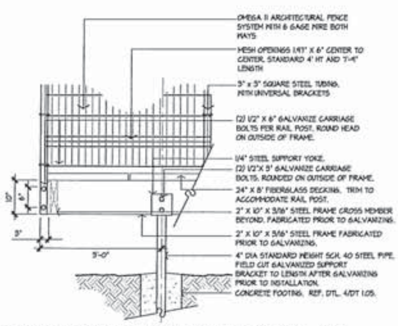

2-1/2" X 2-1/2" SQUARE STEEL TUBING. RAIL FRAME FABRICATED PRIOR TO GALVANIZING.
24"x 8' FIBERGLASS DECKING. TRIM TO ACCOMMODATE RAIL POST
2-1/2" DIA STANDARD HEIGHT SCH. 40 STEEL PIPE.
2" X 10" X 3/16" STEEL FRAME FABRICATED PRIOR TO GALVANIZING
2-1/2" X 2-1/2" SQUARE STEEL TUBING. RAILFRAM FABRICATED PRIOR TO GALVANIZING.

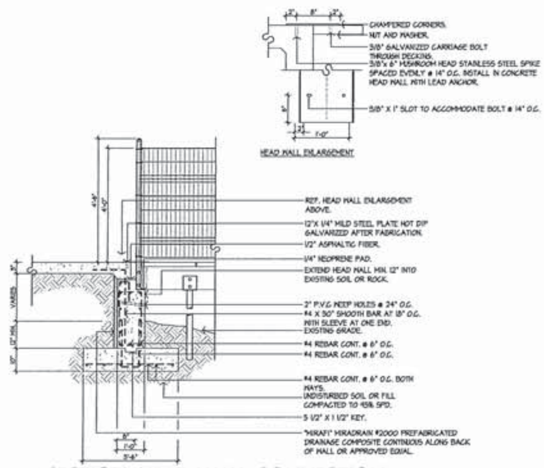
1 PLAN: ELEVATED WALK PANEL
Scale: 1/2" = 1'-0"


8'-0" O.C. NOM.
4'-0"
OMEGA II ARCHITECTURAL FENCE SYSTEM WITH 6 GAGE WIRE BOTH WAYS
MESH OPENINGS 1.97" X 6" CENTER TO CENTER. STANDARD 4' HT AND 7'-4" LENGTH
3" x 3" SQUARE STEEL TUBING. WITH UNIVERSAL BRACKETS
24" X 8' FIBERGLASS DECKING. TRIM TO ACCOMMODATE RAIL POST.
2" X 10" X 3/16" STEEL FRAME CROSS MEMBER BEYOND. FABRICATED PRIOR TO GALVANIZING.
(2) 1/2" X 6" GALVANIZE CARRIAGE BOLTS. ROUNDED HEAD TO OUTSIDE OF FRAME.
1/4" STEEL YOKE.
4" DIA STANDARD HEIGHT SCH. 40 STEEL PIPE. LENGTH TO BE DETERMINED ON SITE.
2" X 10" X 3/16" STEEL FRAME FABRICATED PRIOR TO GALVANIZING.

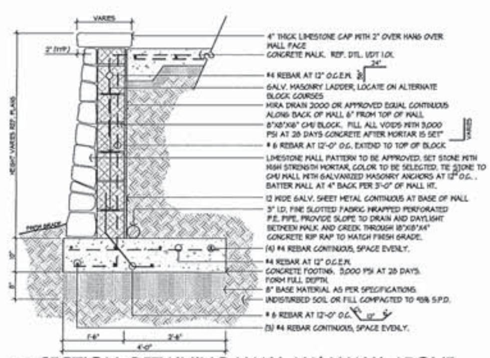
2 ELEVATION: ELEVATED WALK RAIL
Scale: 1/2" = 1'-0"


OMEGA II ARCHITECTURAL FENCE SYSTEM WITH 6 GAGE WIRE BOTH WAYS
MESH OPENINGS 1.97" X 6" CENTER TO CENTER. STANDARD 4' HT AND 7'-4" LENGTH
3" x 3" SQUARE STEEL TUBING. WITH UNIVERSAL BRACKETS
(2) 1/2" X 6" GALVANIZE CARRIAGE BOLTS PER RAIL POST. ROUND HEAD ON OUTSIDE OF FRAME.
1/4" STEEL SUPPORT YOKE.
(2) 1/2"X 5" GALVANIZE CARRIAGE BOLTS. ROUNDED ON OUTSIDE OF FRAME.
24" X 8' FIBERGLASS DECKING. TRIM TO ACCOMMODATE RAIL POST.
2" X 10" X 3/16" STEEL FRAME CROSS MEMBER BEYOND. FABRICATED PRIOR TO GALVANIZING.
2" X 10" X 3/16" STEEL FRAME FABRICATED PRIOR TO GALVANIZING.
4" DIA STANDARD HEIGHT SCH. 40 STEEL PIPE. FIELD CUT GALVANIZED SUPPORT BRACKET TO LENGTH AFTER GALVANIZING PRIOR TO INSTALLATION.
CONCRETE FOOTING. REF. DTL. 4/DT 1.05.

3 SECTION: ELEVATED WALK RAIL 'A'
Scale: 3/4" = 1'-0"


CHAMFERED CORNERS.
NUT AND WASHER.
3/8" GALVANIZED CARRIAGE BOLT THROUGH DECKING.
3/8"x 6" MUSHROOM HEAD STAINLESS STEEL SPIKE SPACED EVENLY @ 14" O.C. INSTALL IN CONCRETE HEAD WALL WITH LEAD ANCHOR.
5/8" X 1" SLOT TO ACCOMMODATE BOLT @ 14" O.C.
HEAD WALL ENLARGEMENT
REF. HEAD WALL ENLARGEMENT ABOVE.
12"X 1/4" MILD STEEL PLATE HOT DIP GALVANIZED AFTER FABRICATION.
1/2" ASPHALTIC FIBER.
1/4" NEOPRENE PAD.
EXTEND HEAD WALL MIN. 12" INTO EXISTING SOIL OR ROCK.
2" P.V.C. WEEP HOLES @ 24" O.C.
#4 X 30" SMOOTH BAR AT 18" O.C. WITH SLEEVE AT ONE END.
EXISTING GRADE.
#4 REBAR CONT. @ 6" O.C.
#4 REBAR CONT. @ 6" O.C.
#4 REBAR CONT. @ 6" O.C. BOTH WAYS.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% SPD.
5 1/2" X 1 1/2" KEY.
"MIRAFI" MIRADRAIN #2000 PREFABRICATED DRAINAGE COMPOSITE CONTINUOUS ALONG BACK OF WALL OR APPROVED EQUAL.

4 SECTION: HEAD WALL CONNECTION
Scale: 1/2" = 1'-0"


VARIES
4" THICK LIMESTONE CAP WITH 2" OVER HANG OVER WALL FACE
CONCRETE WALK. REF. DTL. 1/DT 1.01.
#4 REBAR AT 12" O.C.E.W.
GALV. MASONRY LADDER, LOCATE ON ALTERNATE BLOCK COURSES
MIRA DRAIN 2000 OR APPROVED EQUAL CONTINUOUS ALONG BACK OF WALL 6" FROM TOP OF WALL
8"X8"X16" CMU BLOCK. FILL ALL VOIDS WITH 3,000 PSI AT 28 DAYS CONCRETE AFTER MORTAR IS SET
6 REBAR AT 12'-0" O.C. EXTEND TO TOP OF BLOCK
LIMESTONE WALL PATTERN TO BE APPROVED. SET STONE WITH HIGH STRENGTH MORTAR. COLOR TO BE SELECTED. TIE STONE TO CMU WALL WITH GALVANIZED MASONRY ANCHORS AT 12" O.C.. BATTER WALL AT 4" BACK PER 5'-0" OF WALL HT.
12 WIDE GALV. SHEET METAL CONTINUOUS AT BASE OF WALL
3" I.D. FINE SLOTTED FABRIC WRAPPED PERFORATED P.E. PIPE. PROVIDE SLOPE TO DRAIN AND DAYLIGHT BETWEEN WALK AND CREEK THROUGH 18"X18"X4" CONCRETE RIP RAP TO MATCH FINISH GRADE.
(4) #4 REBAR CONTINUOUS, SPACE EVENLY.
#4 REBAR AT 12" O.C.E.W.
CONCRETE FOOTING. 3,000 PSI AT 28 DAYS. FORM FULL DEPTH.
8" BASE MATERIAL AS PER SPECIFICATIONS.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.
6 REBAR AT 12'-0" O.C.
(5) #4 REBAR CONTINUOUS, SPACE EVENLY.

5 SECTION: RETAINING WALL W/ WALK ABOVE
Scale: 3/4" = 1'-0"

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REVISION	DATE

Project no:
Date: Feburay 28, 2014
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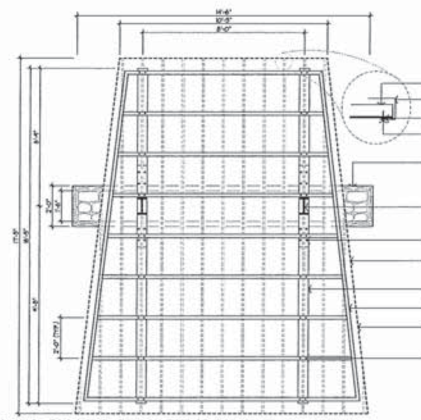
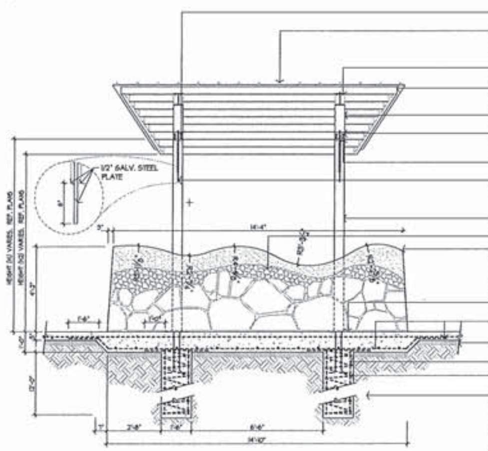
SITE DETAILS

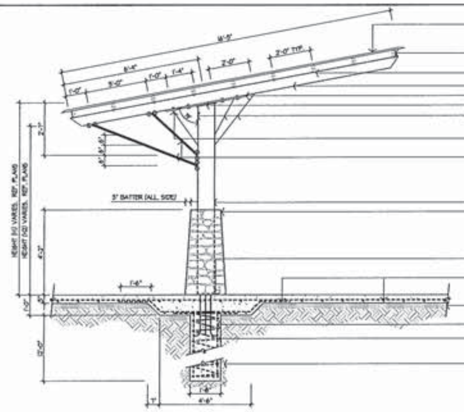
DT 1.05


METAL ROOF STANDING SEAM
24 GAGE STEEL STRIP
RUBBER GROMET
1" SELF TAPPING SHEET METAL SCREW AT 18" O.C.
STONE WALL. STONE TO BE ROUNDED NATIVE LIMESTONE. SIZES TO VARY FROM 6" -12" DIA. MORTAR TO BE LIGHT GRAY. FILL ALL VOIDS BETWEEN STONE AND STEEL POST WITH HIGH STRENGTH MORTAR. FINISH TOP OF WALL WITH STONE.
10" D X 5.8" W AT 30 LBS. PER LIN. FT. WIDE FLANGE I BEAM.
1" DIA. GALV. STEEL HEX HEAD BOLTS, NUTS AND WASHERS. (4) PER SIDE.
STANDING SEAM METAL ROOF, MBCI 12" O.C. X 1-3/4" HT. X 24 GA. 'LOCK SEAM' OR EQUAL, GALV. FINISH. ATTACH WITH ZINC PLATED 1/4" X 3/4" SCREWS.
6" D X 5/4" W AT 15 LBS. PER LIN. FT. WIDE FLANGED I BEAM.
2" X 4" X 3/16" RECTANGULAR STEEL TUBING PERIMETER MITER CORNERS AND WELD ALL SIDES.
CURL ENDS OF ROOF STANDING SEAMS.
(2) 1/2" X 5" GALV. CARRIAGE BOLT, WASHER AND NUT (TYP.).
NOTES:
1. ALL STEEL IS TO BE GALVANIZED AFTER FABRICATION. ON SITE WELDING WILL NOT BE PERMITTED. 'COLD' GALVANIZING WILL NOT BE PERMITTED.

1 PLAN: SHADE STRUCTURE
Scale: 3/8" = 1'-0"

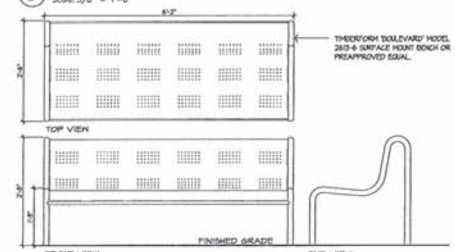

1/2" GALV. STEEL PLATE
1" DIA. GALV. STEEL HEX HEAD BOLTS, NUTS AND WASHERS. 4 PER SIDE.
STANDING SEAM METAL ROOF, MBCI 12" O.C. X 1 3/4" HT. X 24 GA. 'LOCK SEAM' OR EQUAL, GALV. FINISH, ATTACH WITH ZINC PLATED 1/4" X 3/4" SCREWS.
(2) 1/2" X 5" GALV. CARRIAGE BOLT, WASHER AND NUT (TYP.).
2" X 4" X 3/16" RECTANGULAR STEEL TUBING PERIMETER MITER CORNERS AND WELD ALL SIDES.
6"D X 5.9"W AT 15 LBS. PER LIN. FT. WIDE FLANGED I BEAM.
6"W X 4'-8"L X 3/4" THK. GALV. STEEL PLATE WELDED TO STEEL POST TOP. FABRICATE WITH ALL HOLES PREDRILLED PRIOR TO GALVANIZING.
6"W X 12"L X 1/2" THK. STEEL PLATE WELDED TO TOP OF I BEAM POST.
1/2" GALV. STEEL BRACING. BUTT WELD AND GRIND WELDS SMOOTH. (3) PLATES FRONT SIDE (THIS SIDE). (1) PLATE BACK SIDE. (TYP. BOTH POST).
10"D X 5.8" AT 30 LBS. PER LIN. FT. WIDE FLANGE I BEAM.
COLORFUL MOSAIC TILES.
STONE WALL. STONE TO BE SAN SABA SANDSTONE. SIZES TO VARY FROM 6" -15" DIA. MORTAR TO BE LIGHT GRAY. FILL ALL VOIDS BETWEEN STONE AND STEEL POST WITH HIGH STRENGTH MORTAR. FINISH TOP OF WALL WITH STUCCO.
18" X 14" X 3/4" PLATE WITH (6) 24" X 1-1/4" GALVANIZED STEEL 'J' BOLT AND NUTS. REF. FIG. #1)
#3 REBAR. 12" O.C.E.W.
3" LIMESTONE BASE MATERIAL AS PER SPECIFICATIONS.
(5) #6 BARS EVENLY SPACED.
(FIG. #1)
#3 SPIRAL BASKET WITH 6" PITCH. ONE FLAT TURN AT TOP AND BOTTOM.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.
NOTES:
1. ALL STEEL IS TO BE GALVANIZED AFTER FABRICATION. ON SITE WELDING WILL NOT BE PERMITTED. 'COLD' GALVANIZING WILL NOT BE PERMITTED.

2 SECTION: SHADE STRUCTURE FRONT
Scale: 3/8" = 1'-0"

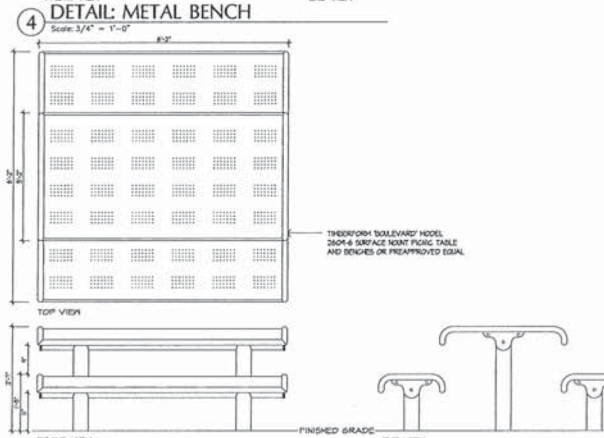

3" BATTER (ALL SIDE)
STANDING SEAM METAL ROOF, MBCI 12" O.C. X 1 3/4" HT. X 24 GA. 'LOCK SEAM' OR EQUAL, GALV. FINISH, ATTACH WITH ZINC PLATED 1/4" X 3/4" SCREWS.
2" X 4" X 3/16" RECTANGULAR STEEL TUBING PERIMETER, MITER CORNERS, AND WELD ALL SIDES.
(2) 1/2" X 3" GALV. CARRIAGE BOLT, WASHER AND NUT (TYP.).
6"D X 5.9"W AT 15 LBS. PER LIN. FT. WIDE FLANGED I BEAM.
6"W X 4'-8"L X 3/4" THK. STEEL PLATE WELDED TO STEEL POST TOP.
6"W X 12"L X 1/2" THK. STEEL PLATE WELDED TO TOP OF I BEAM POST.
1/2" GALV. STEEL BRACING. BUTT WELD AND GRIND WELDS SMOOTH. 3 PLATES ON FRONT SIDE. 1 PLATE ON BACK SIDE.
1" DIA. GALV. STEEL HEX HEAD BOLTS, NUTS AND WASHERS. (4) PER SIDE.
1-1/2" DIA. GALV. STEEL SUPPORT ROD ATTACHED TO 6" X 6" X 3/4" WELD PLATE BOLTED TO I BEAMS WITH FOUR 2 1/2" X 3/4" GAL. HEX BOLTS AND NUTS. FABRICATE RODS WITH ATTACHMENT PLATE PRIOR TO GALVANIZE. MIN. 80" CLEARANCE TO LOWEST SUPPORT ROD.
10"D X 5.8" AT 30 LBS. PER LIN. FT. WIDE FLANGE I BEAM.
STONE WALL. STONE TO BE ROUNDED NATIVE LIMESTONE. SIZES TO VARY FROM 6" -15" DIA. MORTAR TO BE LIGHT GRAY. FILL ALL VOIDS BETWEEN STONE AND STEEL POST WITH HIGH STRENGTH MORTAR. FINISH TOP OF WALL WITH STONE.
18" X 14" X 3/4" PLATE WITH (6) 14" X 1-1/4" GALVANIZED STEEL 'J' BOLT AND NUTS. (FIG. #1)
#3 REBAR. 12" O.C.E.W.
3" LIMESTONE BASE MATERIAL AS PER SPECIFICATIONS.
(5) #6 BARS EVENLY SPACED.
(FIG. #1)
#3 SPIRAL BASKET WITH 6" PITCH. ONE FLAT TURN AT TOP AND BOTTOM.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.
NOTES:
1. ALL STEEL IS TO BE GALVANIZED AFTER FABRICATION. ON SITE WELDING WILL NOT BE PERMITTED. 'COLD' GALVANIZING WILL NOT BE PERMITTED.

SHADE STRUCTURE HEIGHTS (REF. PLANS DETAILS FOR EACH SHADE STRUCTURE AND ITS HEIGHT.):
(A) H1 = 11'-0" H2 = 9'-4"
(B) H1 = 12'-0" H2 = 10'-4"

3 SECTION: SHADE STRUCTURE SIDE
Scale: 3/8" = 1'-0"



4 DETAIL: METAL BENCH
Scale: 3/4" = 1'-0"



5 DETAIL: METAL PICNIC TABLE
Scale: 3/4" = 1'-0"

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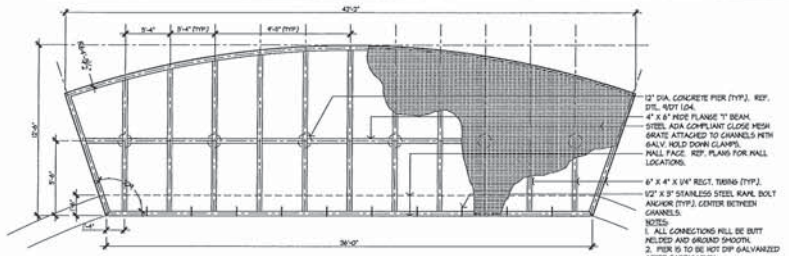
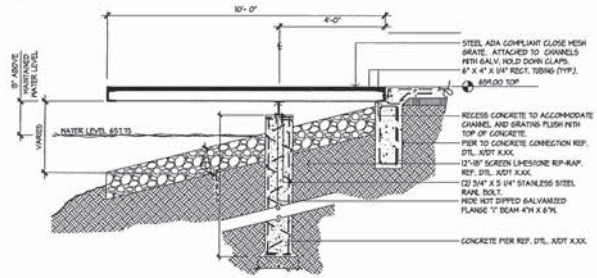
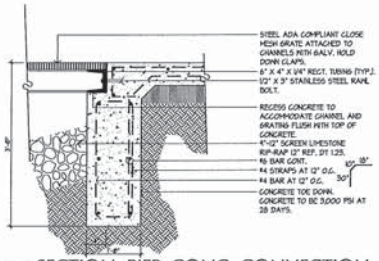


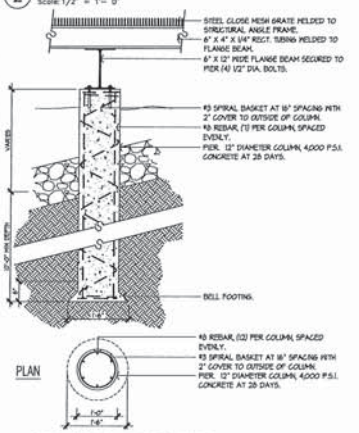
1 PLAN: METAL FISHING PIER
Scale: 1/4" = 1'- 0"



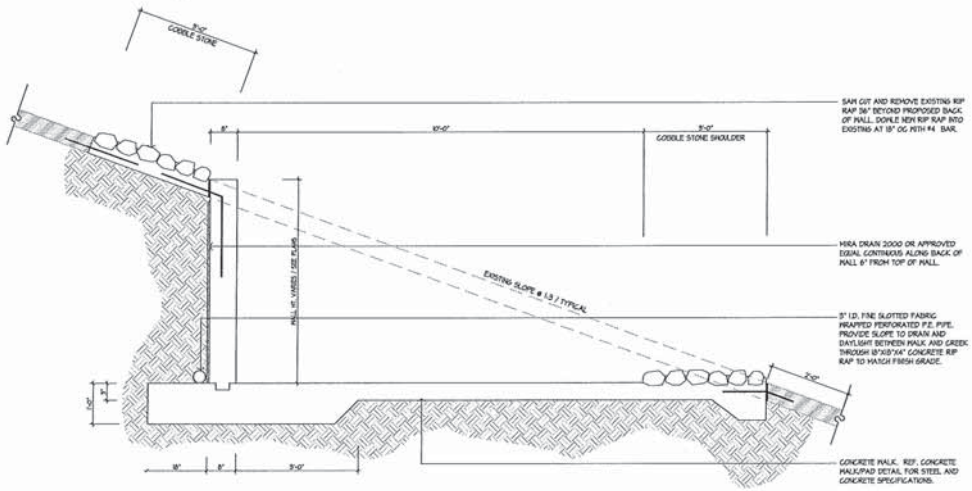
2 SECTION: METAL FISHING PIER
Scale: 1/2" = 1'- 0"



4 SECTION: PIER CONC. CONNECTION
Scale: 1" = 1'-0"



3 SECTION: DECK PIER
Scale: 3/4" = 1'-0"



5 SECTION: TRAIL WALL ALONG EXISTING RIP-RAP
Scale: 3/4" = 1'-0"

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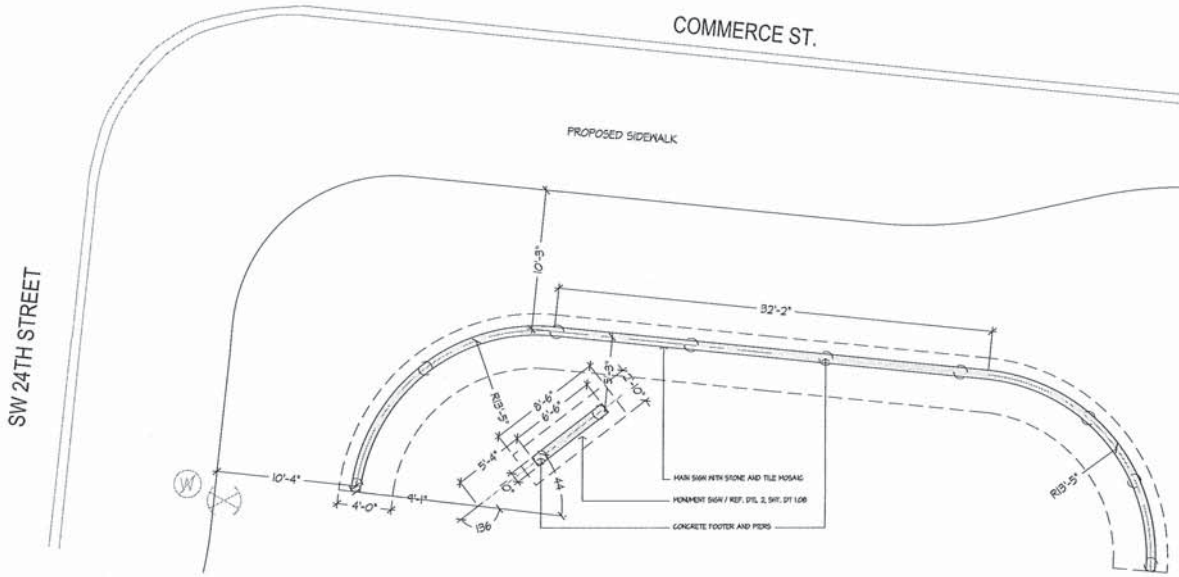
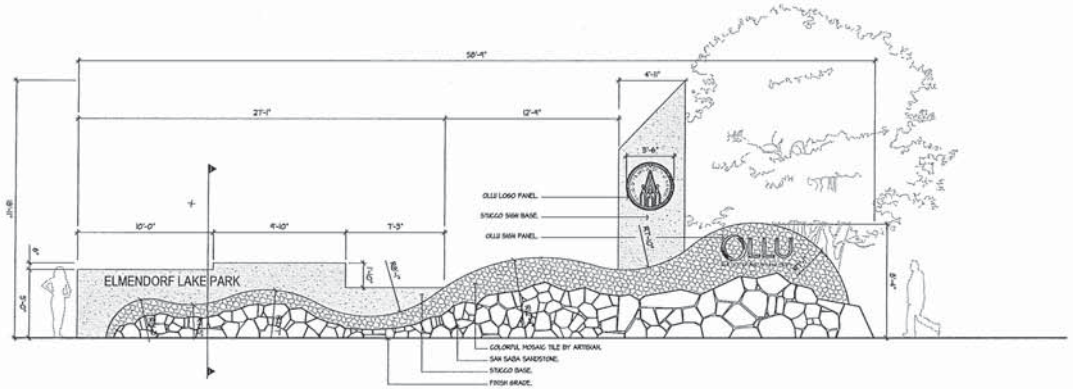
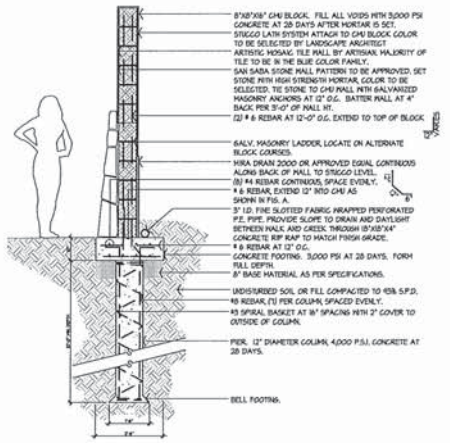


1 PLAN: MAIN ENTRANCE SIGN
Scale: 3/8" = 1'-0"



2 ELEVATION: OLLU MAIN ENTRANCE SIGN
Scale: 1/4" = 1'-0"



3 SECTION: OLLU MAIN ENTRANCE SIGN
Scale: 1/2" = 1'-0"

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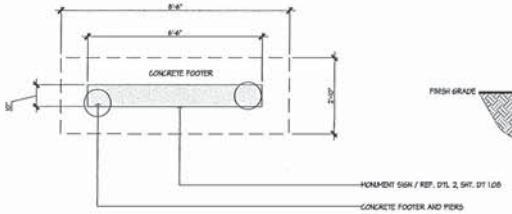
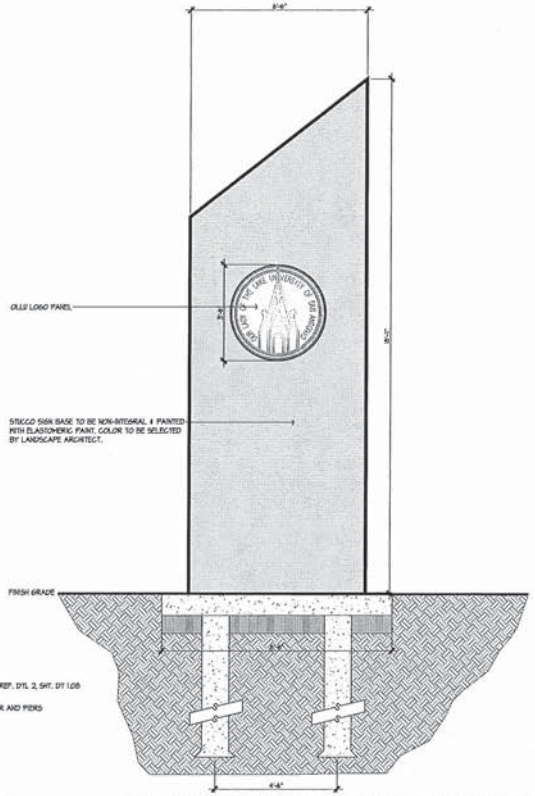
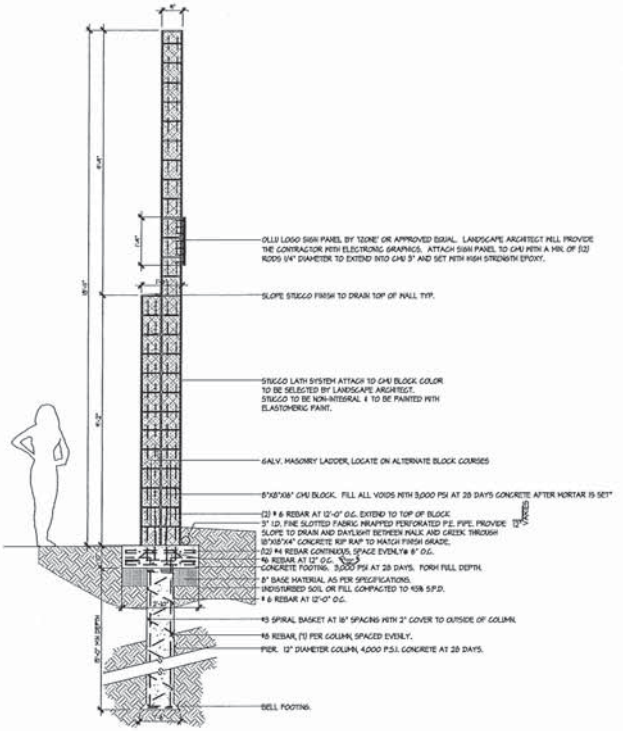


1 PLAN: MAIN ENTRANCE MONUMNET SIGN
Scale: 1/2" = 1'-0"



2 ELEVATION: MAIN ENTRANCE MONUMNET SIGN
Scale: 1/2" = 1'-0"



3 SECTION: MAIN ENTRANCE MONUMNET SIGN
Scale: 1/2" = 1'-0"

Tdg

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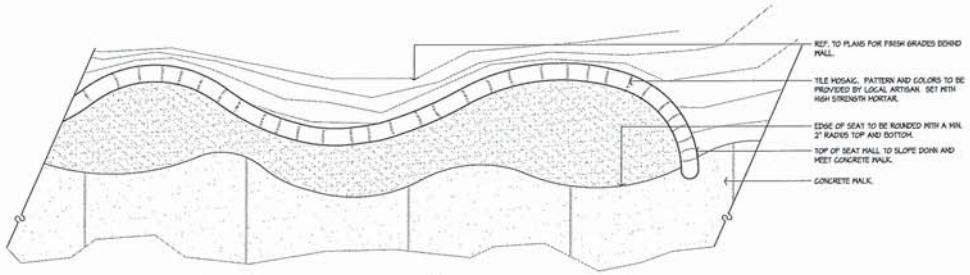
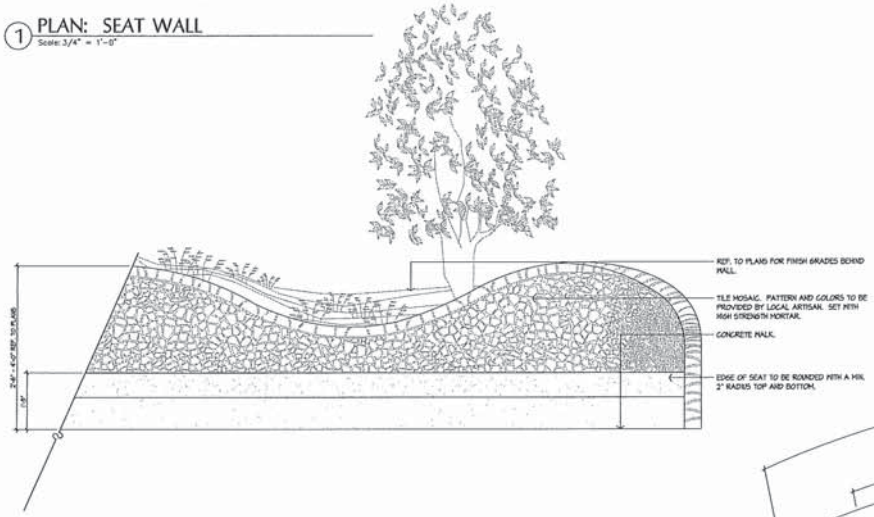
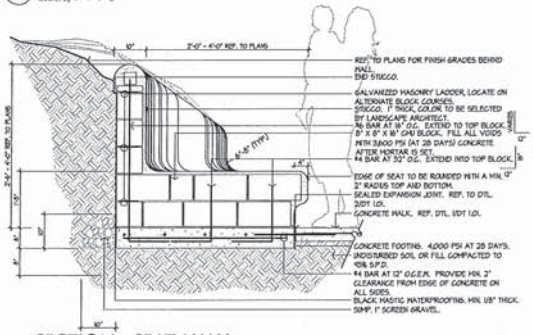


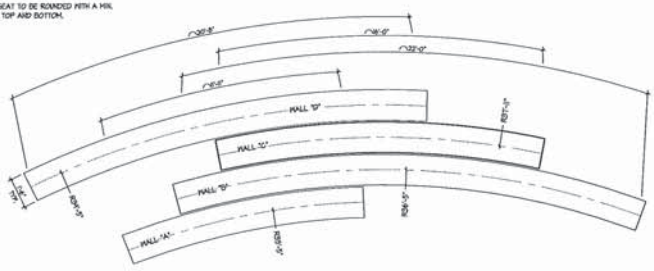
1 PLAN: SEAT WALL
Scale: 3/4" = 1'-0"

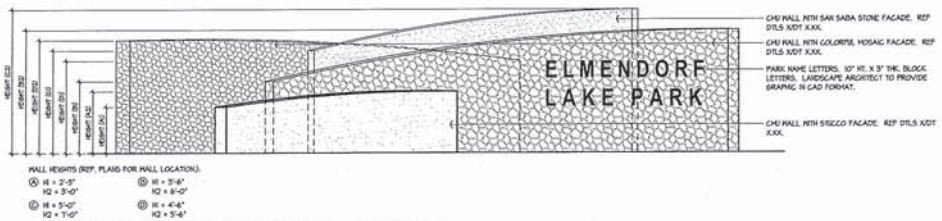


2 ELEVATION: SEAT WALL FRONT
Scale: 3/4" = 1'-0"



3 SECTION: SEAT WALL
Scale: 3/4" = 1'-0"





4 ELEVATION: PARK MONUMENT AT TRIANGLE
Scale: 3/8" = 1'-0"

WALTER N. HEARD
5229
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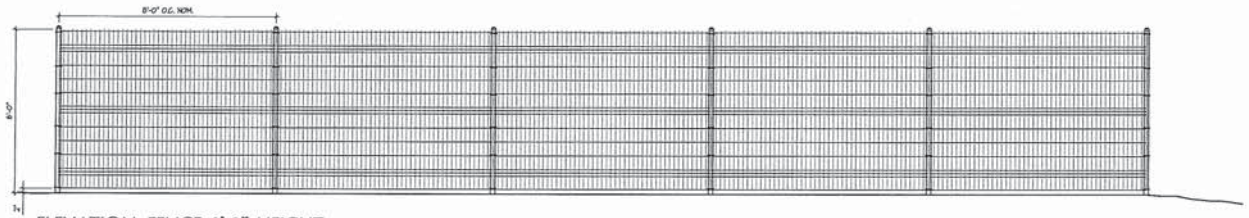
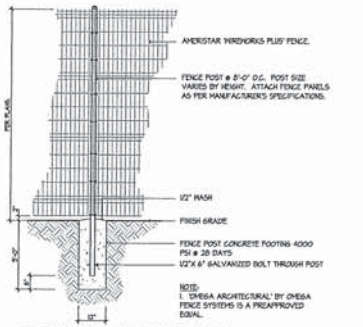
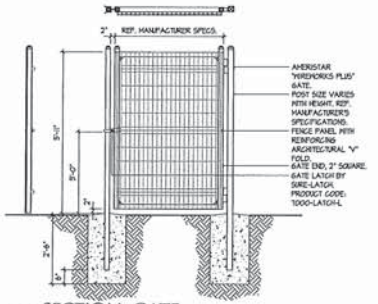


1 ELEVATION: FENCE 6'-0" HEIGHT
Scale: 1/2" = 1'-0"



2 SECTION: FENCE POST
Scale: 1/2" = 1'-0"



3 SECTION: GATE
Scale: 1/2" = 1'-0"

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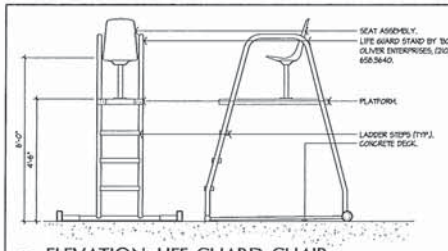
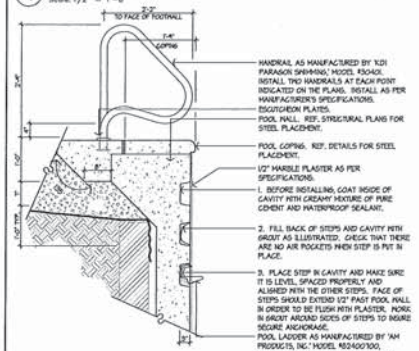
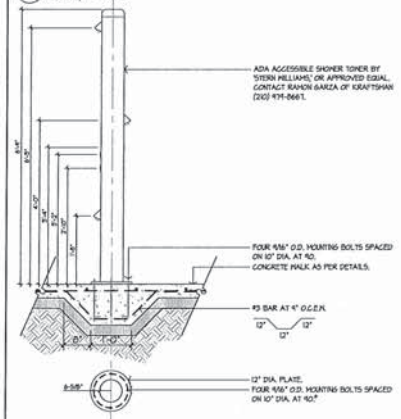


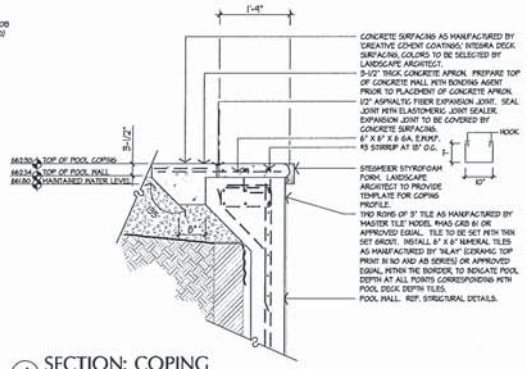
1 ELEVATION: LIFE GUARD CHAIR
Scale: 1/2" = 1'-0"



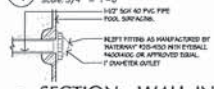
2 SECTION: LADDER AND HANDRAIL
Scale: 3/4" = 1'-0"



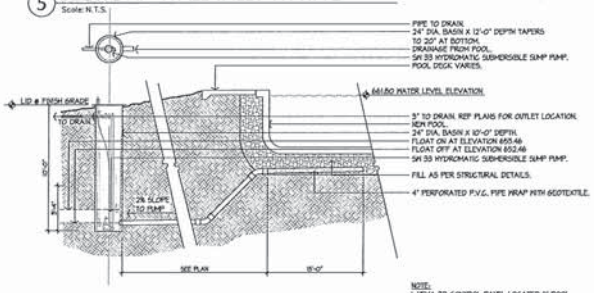
3 SECTION: OUTDOOR SHOWER
Scale: 3/4" = 1'-0"



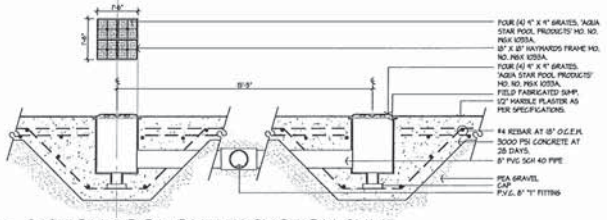
4 SECTION: COPING
Scale: 3/4" = 1'-0"



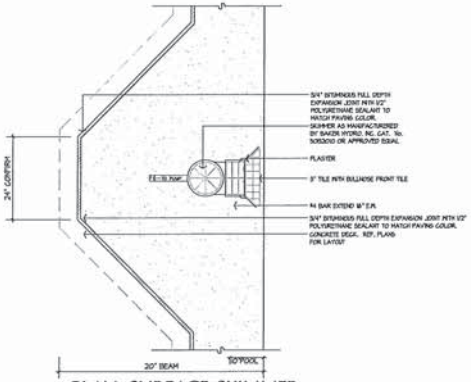
5 SECTION: WALL INLET FITTING
Scale: N.T.S.



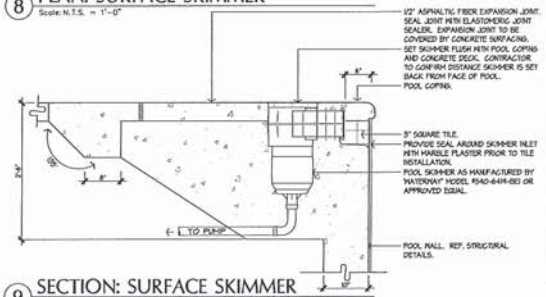
6 SECTION: SUMP PUMP AT POOL
Scale: 1/4" = 1'-0"



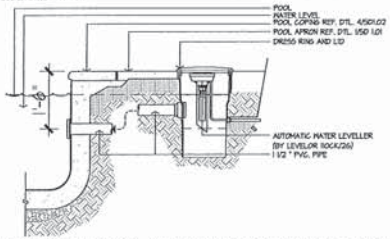
7 SECTION POOL OUTLET SUCTION SUMP
Scale: 1/2" = 1'-0"



8 PLAN: SURFACE SKIMMER
Scale: N.T.S. = 1'-0"



9 SECTION: SURFACE SKIMMER
Scale: N.T.S. = 1'-0"



10 SECTION: POOL AUTOMATIC WATER LEVELER
Scale: 1/2" = 1'-0"

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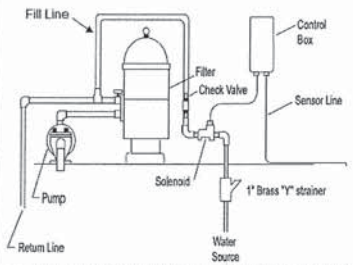
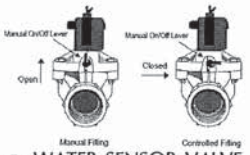
DT 1.12

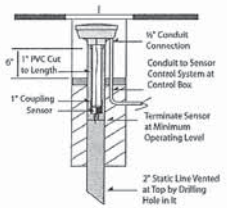


1 ELEVATION: WATER SENSOR INSTALLATION
Scale: 3/4" = 1'-0"

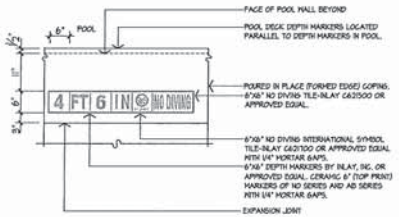
2 WATER SENSOR CONTROLLER
Scale: 3/4" = 1'-0"



3 WATER SENSOR VALVE
Scale: 3/4" = 1'-0"

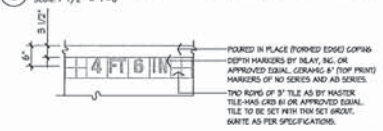


4 SECTION: WATER SENSOR
Scale: 3/4" = 1'-0"



5 PLAN: DECK DEPTH MARKER
Scale: 3/4" = 1'-0"

6 SECTION: DECK DEPTH MARKER
Scale: 1 1/2" = 1'-0"



7 ELEVATION: POOL DEPTH MARKER
Scale: 3/4" = 1'-0"

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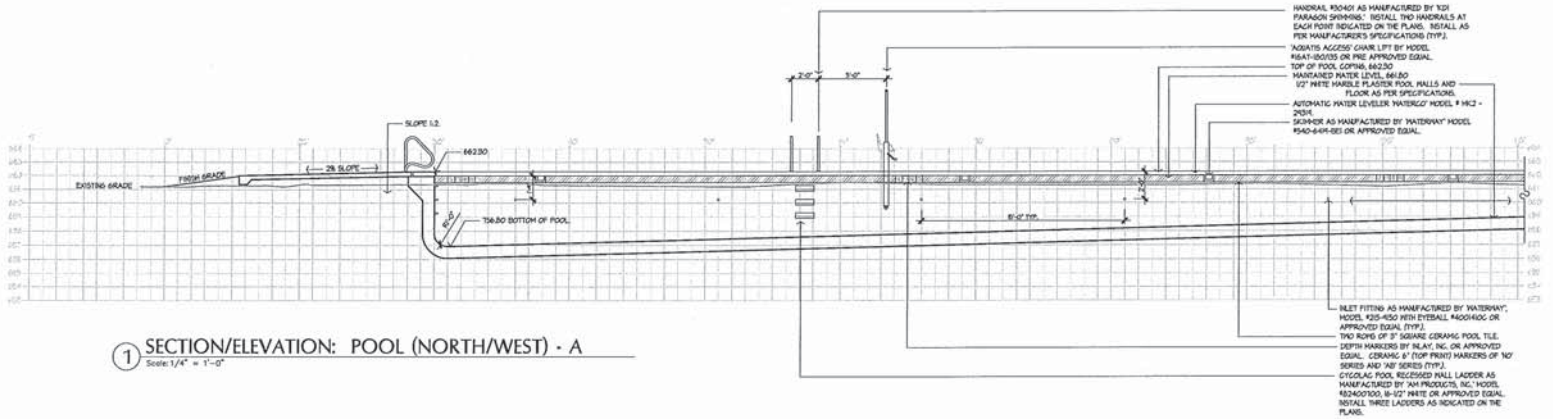
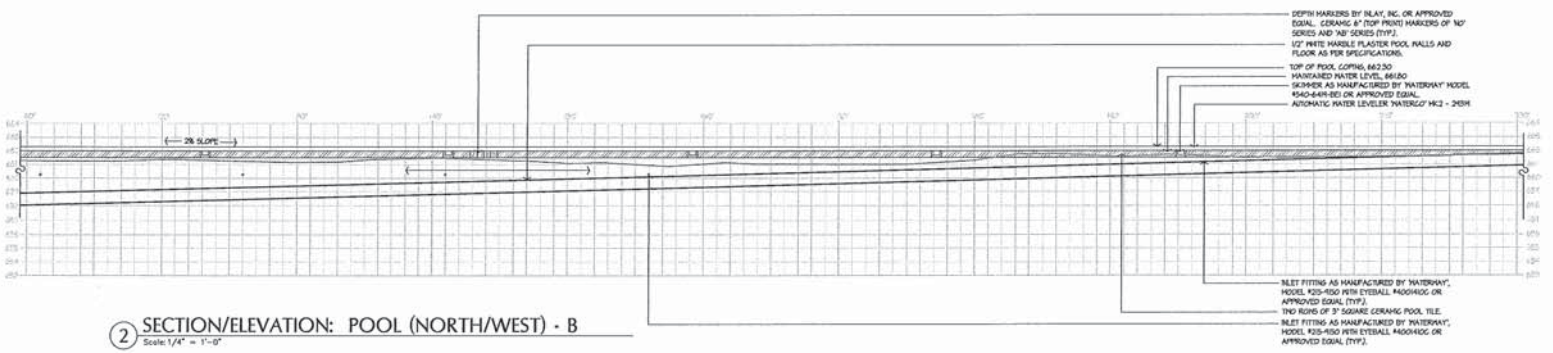
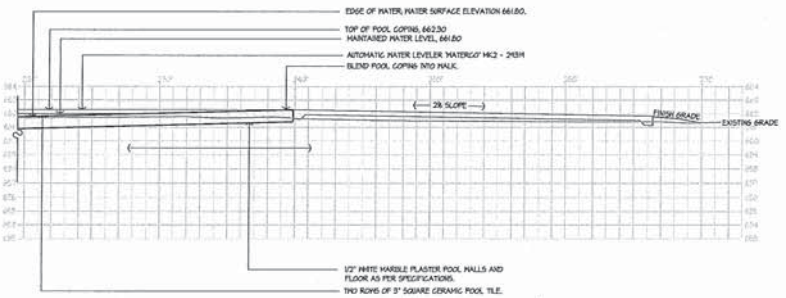
DT 1.13



1 SECTION/ELEVATION: POOL (NORTH/WEST) - A
Scale: 1/4" = 1'-0"



2 SECTION/ELEVATION: POOL (NORTH/WEST) - B
Scale: 1/4" = 1'-0"



3 SECTION/ELEVATION: POOL (NORTH/WEST) - C
Scale: 1/4" = 1'-0"

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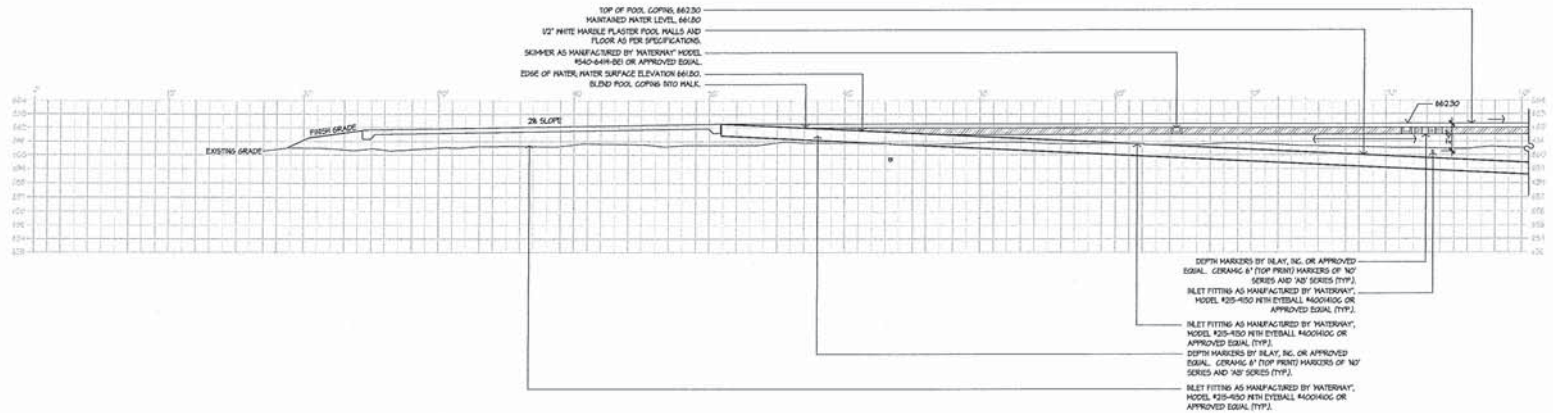
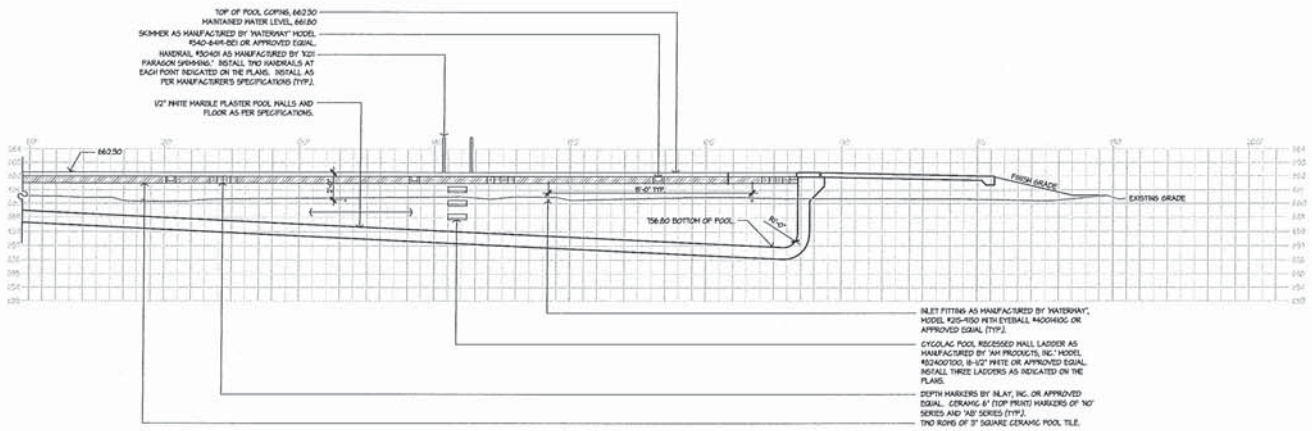
DT 1.14



1 SECTION/ELEVATION: POOL (SOUTH/EAST) - A

Scale: 1/4" = 1'-0"



2 SECTION/ELEVATION: POOL (SOUTH/EAST) - B

Scale: 1/4" = 1'-0"

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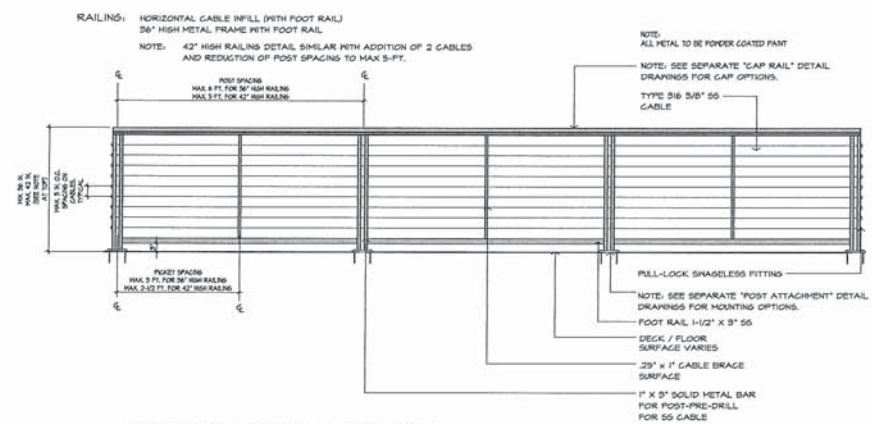
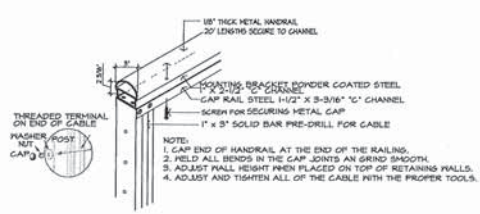
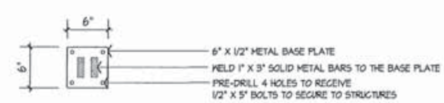
DT 1.15


RAILING: HORIZONTAL CABLE INFILL (WITH FOOT RAIL)
36" HIGH METAL FRAME WITH FOOT RAIL
NOTE: 42" HIGH RAILING DETAIL SIMILAR WITH ADDITION OF 2 CABLES AND REDUCTION OF POST SPACING TO MAX 5-FT.
POST SPACING
MAX. 6 FT. FOR 36" HIGH RAILING
MAX. 5 FT. FOR 42" HIGH RAILING
PICKET SPACING
MAX. 5 FT. FOR 36" HIGH RAILING
MAX. 2-1/2 FT. FOR 42" HIGH RAILING
NOTE:
ALL METAL TO BE POWDER COATED PAINT
NOTE: SEE SEPARATE "CAP RAIL" DETAIL DRAWINGS FOR CAP OPTIONS.
TYPE 316 3/8" SS CABLE
PULL-LOCK SWAGELESS FITTING
NOTE: SEE SEPARATE "POST ATTACHMENT" DETAIL DRAWINGS FOR MOUNTING OPTIONS.
FOOT RAIL 1-1/2" X 3" SS
DECK / FLOOR SURFACE VARIES
.25" x 1" CABLE BRACE SURFACE
1" X 3" SOLID METAL BAR FOR POST-PRE-DRILL FOR SS CABLE

(1) ELEVATION: CABLE HANDRAIL
Scale: 3/4" = 1'-0"


1/8" THICK METAL HANDRAIL 20' LENGTHS SECURE TO CHANNEL
MOUNTING BRACKET POWDER COATED STEEL 1" X 2-1/2" "C" CHANNEL
CAP RAIL STEEL 1-1/2" X 3-3/16" "C" CHANNEL
SCREW FOR SECURING METAL CAP
1" x 3" SOLID BAR PRE-DRILL FOR CABLE
THREADED TERMINAL ON END OF CABLE
WASHER
NUT
CAP
POST
NOTE:
1. CAP END OF HANDRAIL AT THE END OF THE RAILING.
2. WELD ALL BENDS IN THE CAP JOINTS AN GRIND SMOOTH.
3. ADJUST WALL HEIGHT WHEN PLACED ON TOP OF RETAINING WALLS.
4. ADJUST AND TIGHTEN ALL OF THE CABLE WITH THE PROPER TOOLS.

(2) ISOMETRIC: HANDRAIL POST CONNECTION
Scale: 1-1/2" = 1'-0"



(3) PLAN: HANDRAIL POST BASE
Scale: 1-1/2" = 1'-0"

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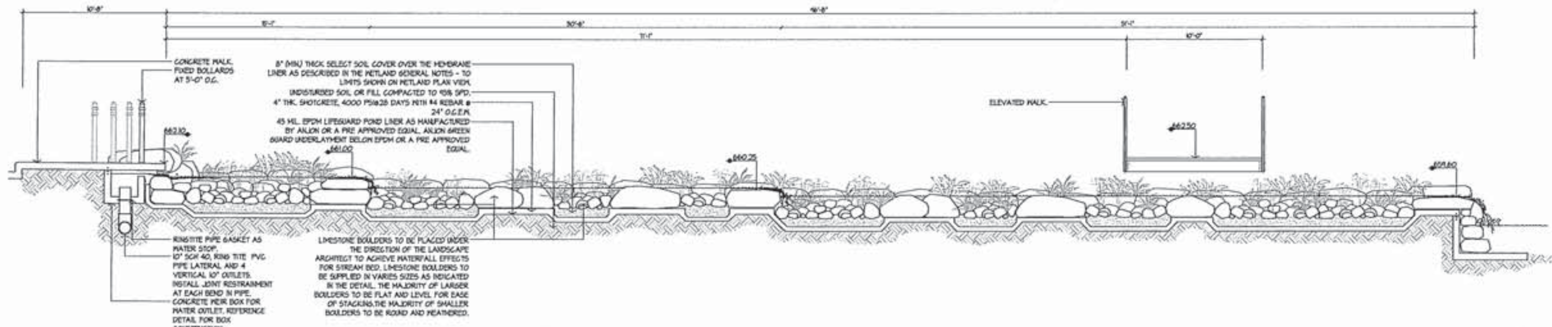
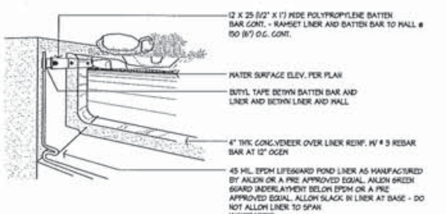
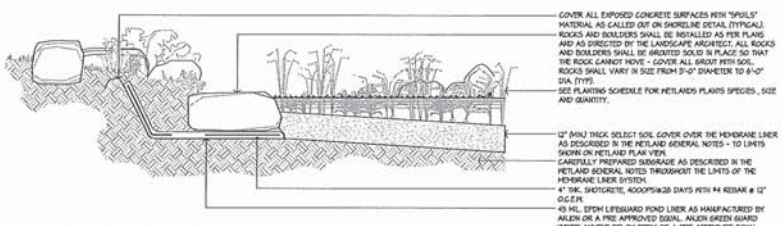

10'-8"
10'-1"
30'-6"
96'-8"
71'-1"
51'-1"
10'-0"
CONCRETE WALK.
FIXED BOLLARDS AT 5'-0" O.C.
8" (MIN.) THICK SELECT SOIL COVER OVER THE MEMBRANE LINER AS DESCRIBED IN THE WETLAND GENERAL NOTES - TO LIMITS SHOWN ON WETLAND PLAN VIEW.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% SPD.
4" THK. SHOTCRETE, 4000 PSI@28 DAYS WITH #4 REBAR @ 24" O.C.E.W.
45 MIL. EPDM LIFEGUARD POND LINER AS MANUFACTURED BY ANJON OR A PRE APPROVED EQUAL. ANJON GREEN GUARD UNDERLAYMENT BELOW EPDM OR A PRE APPROVED EQUAL.
662.10
661.00
660.25
ELEVATED WALK.
662.50
659.80
RINGTITE PIPE GASKET AS WATER STOP.
10" SCH 40, RING TITE PVC PIPE LATERAL AND 4 VERTICAL 10" OUTLETS. INSTALL JOINT RESTRAINMENT AT EACH BEND IN PIPE.
CONCRETE WEIR BOX FOR WATER OUTLET. REFERENCE DETAIL FOR BOX CONSTRUCTION.
LIMESTONE BOULDERS TO BE PLACED UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT TO ACHIEVE WATERFALL EFFECTS FOR STREAM BED. LIMESTONE BOULDERS TO BE SUPPLIED IN VARIES SIZES AS INDICATED IN THE DETAIL. THE MAJORITY OF LARGER BOULDERS TO BE FLAT AND LEVEL FOR EASE OF STACKING.THE MAJORITY OF SMALLER BOULDERS TO BE ROUND AND WEATHERED.

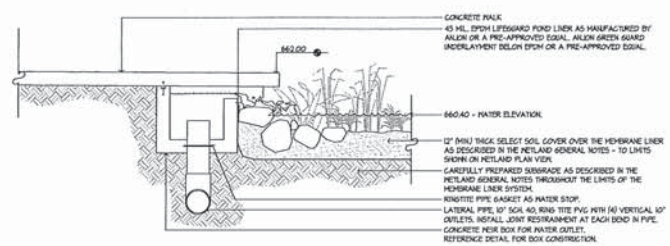
① SECTION: COMMERCE ST. WETLAND/SWALE
Scale: 1/4" = 1'- 0"


12 X 25 (1/2" X 1") WIDE POLYPROPYLENE BATTEN BAR CONT. - RAMSET LINER AND BATTEN BAR TO WALL @ 150 (6") O.C. CONT.
WATER SURFACE ELEV. PER PLAN
BUTYL TAPE BETWN BATTEN BAR AND LINER AND BETWN LINER AND WALL
4" THK CONC.VENEER OVER LINER REINF. W/ # 3 REBAR BAR AT 12" OCEW
45 MIL. EPDM LIFEGUARD POND LINER AS MANUFACTURED BY ANJON OR A PRE APPROVED EQUAL. ANJON GREEN GUARD UNDERLAYMENT BELOW EPDM OR A PRE APPROVED EQUAL. ALLOW SLACK IN LINER AT BASE - DO NOT ALLOW LINER TO SPAN UNSUPPORTED

② DETAIL: LINER ATTACHMENT
Scale: 1/2" = 1'-0"


COVER ALL EXPOSED CONCRETE SURFACES WITH "SPOILS" MATERIAL AS CALLED OUT ON SHORELINE DETAIL (TYPICAL).
ROCKS AND BOULDERS SHALL BE INSTALLED AS PER PLANS AND AS DIRECTED BY THE LANDSCAPE ARCHITECT. ALL ROCKS AND BOULDERS SHALL BE GROUTED SOLID IN PLACE SO THAT THE ROCK CANNOT MOVE - COVER ALL GROUT WITH SOIL. ROCKS SHALL VARY IN SIZE FROM 3'-0" DIAMETER TO 6'-0" DIA. (TYP).
SEE PLANTING SCHEDULE FOR WETLANDS PLANTS SPECIES, SIZE AND QUANTITY.
12" (MIN.) THICK SELECT SOIL COVER OVER THE MEMBRANE LINER AS DESCRIBED IN THE WETLAND GENERAL NOTES - TO LIMITS SHOWN ON WETLAND PLAN VIEW.
CAREFULLY PREPARED SUBGRADE AS DESCRIBED IN THE WETLAND GENERAL NOTES THROUGHOUT THE LIMITS OF THE MEMBRANE LINER SYSTEM.
4" THK. SHOTCRETE, 4000PSI@28 DAYS WITH #4 REBAR @ 12" O.C.E.W.
45 MIL. EPDM LIFEGUARD POND LINER AS MANUFACTURED BY ANJON OR A PRE APPROVED EQUAL. ANJON GREEN GUARD UNDERLAYMENT BELOW EPDM OR A PRE APPROVED EQUAL.

③ SECTION: WETLAND
Scale: 1/2" = 1'-0"


CONCRETE WALK
45 MIL. EPDM LIFEGUARD POND LINER AS MANUFACTURED BY ANJON OR A PRE-APPROVED EQUAL. ANJON GREEN GUARD UNDERLAYMENT BELOW EPDM OR A PRE-APPROVED EQUAL.
662.00
660.40 - WATER ELEVATION.
12" (MIN.) THICK SELECT SOIL COVER OVER THE MEMBRANE LINER AS DESCRIBED IN THE WETLAND GENERAL NOTES - TO LIMITS SHOWN ON WETLAND PLAN VIEW.
CAREFULLY PREPARED SUBGRADE AS DESCRIBED IN THE WETLAND GENERAL NOTES THROUGHOUT THE LIMITS OF THE MEMBRANE LINER SYSTEM.
RINGTITE PIPE GASKET AS WATER STOP.
LATERAL PIPE, 10" SCH. 40, RING TITE PVC WITH (4) VERTICAL 10" OUTLETS. INSTALL JOINT RESTRAINMENT AT EACH BEND IN PIPE.
CONCRETE WEIR BOX FOR WATER OUTLET. REFERENCE DETAIL FOR BOX CONSTRUCTION.

④ SECTION: WETLAND OUTFALL
Scale: 1/2" = 1'-0"

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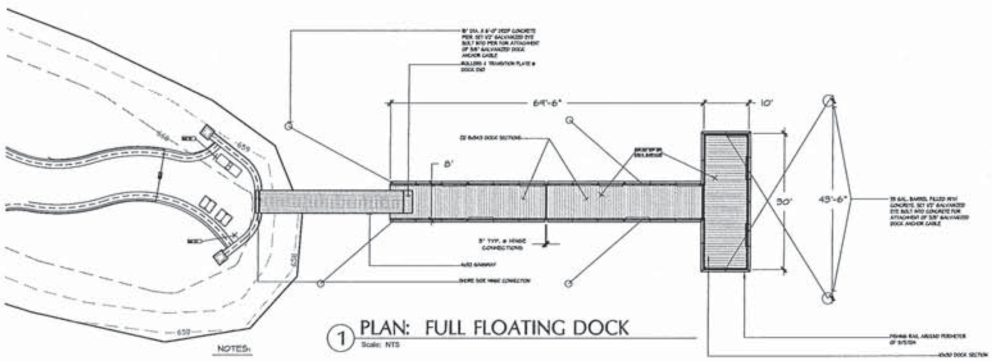
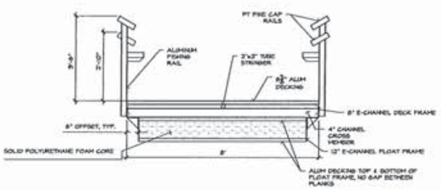


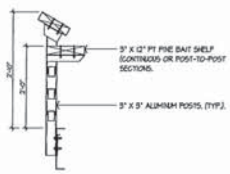
1 PLAN: FULL FLOATING DOCK
Scale: NTS

NOTES:

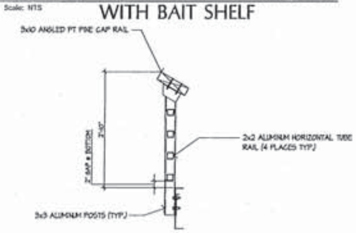
1. ALL STRUCTURAL ALUMINUM IS ALLOY 6061-T6, MILL FINISH.
2. ALL WELDED FABRICATION IN ACCORDANCE WITH AWS D1.2, UNLESS NOTED OTHERWISE. FILLER METAL TO BE 5356 SERIES WIRE.
3. ALL HARDWARE IS STAINLESS STEEL, SERIES 304.
4. ALL WOOD RAIL ACCENTS TO BE S.YP. #1 PRESSURE TREATED TO 0.15 PCF CA-C MINIMUM OR EQUAL. ISOLATE WOOD FROM ALUMINUM WITH BITUMINOUS PAINT, CARBOLINE BIT 50 OR EQUAL.
5. FLOATING DOCKS DESIGNED FOR 16" MINIMUM UNLOADED FREEBOARD AND A MINIMUM 8" LOADED FREEBOARD UNDER A 40PSF LIVE LOAD.
6. GANGWAYS DESIGNED FOR 50 PSF LIVE LOAD, L/180 DEFLECTION.
7. HAND RAILING DESIGNED FOR 50 PLF LIVE LOAD OR 200# POINT LOAD.
8. ANCHORING LOCATIONS ARE SUGGESTED FOR COMPATIBILITY WITH DOCK LAYOUT ONLY.
9. DOCK DIMENSIONS SHOWN ARE NOMINAL FROM ALUMINUM TO ALUMINUM FRAME. FINAL FINISHED DIMENSIONS WILL VARY ACCORDING TO INSTALLED FENDERS & BUMPERS.

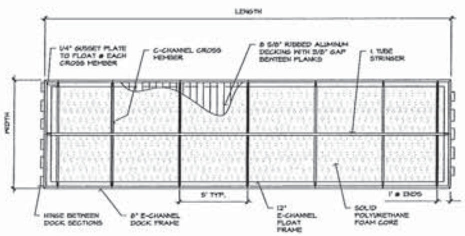


2 SECTION: FULL FLOATING DOCK
Scale: NTS

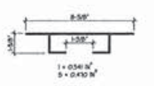


3 SECTION: ADA ACCESS FISHING RAIL WITH BAIT SHELF
Scale: NTS

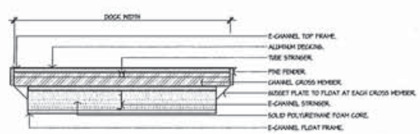



LENGTH
WIDTH
1/4" GUSSET PLATE TO FLOAT @ EACH CROSS MEMBER
C-CHANNEL CROSS MEMBER
8 5/8" RIBBED ALUMINUM DECKING WITH 3/8" GAP BETWEEN PLANKS
I TUBE STRINGER
HINGE BETWEEN DOCK SECTIONS
8" E-CHANNEL DOCK FRAME
5' TYP.
12" E-CHANNEL FLOAT FRAME
SOLID POLYURETHANE FOAM CORE

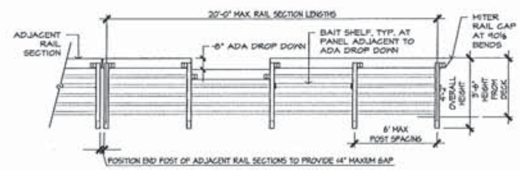
5 PLAN: DOCK PLAN
Scale: NTS



6 SECTION: ALUMINUM RIBBED DECKING
Scale: NTS



7 SECTION: FULL FLOATING DOCK
Scale: NTS



8 ELEVATION: FULL FLOATING DOCK
Scale: NTS

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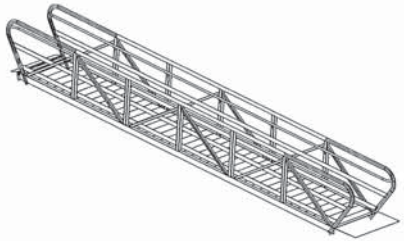
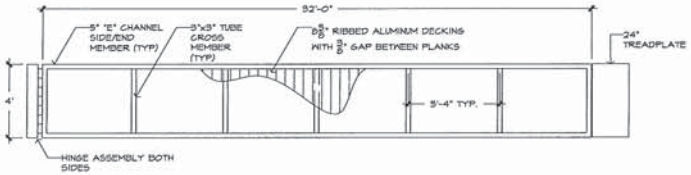
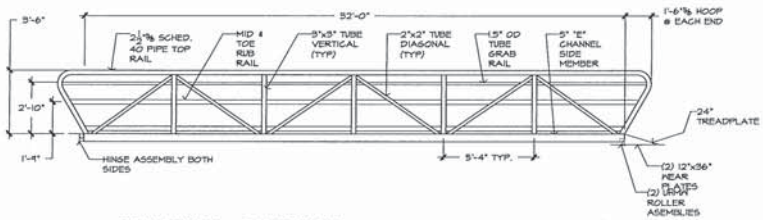


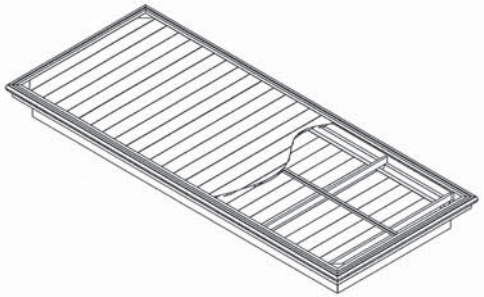
1 ISOMETRIC: ALUMINUM GANGWAY
Scale: NTS



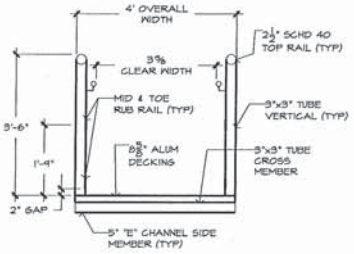
4 PLAN: GANGWAY
Scale: NTS



2 ELEVATION: GANGWAY
Scale: NTS



5 ISOMETRIC: FULL FLOATING DOCK
Scale: NTS



3 SECTION: GANGWAY
Scale: NTS

6 SECTION: FLOATING DOCK-TO-DOCK BOLTED CONNECTION
Scale: NTS

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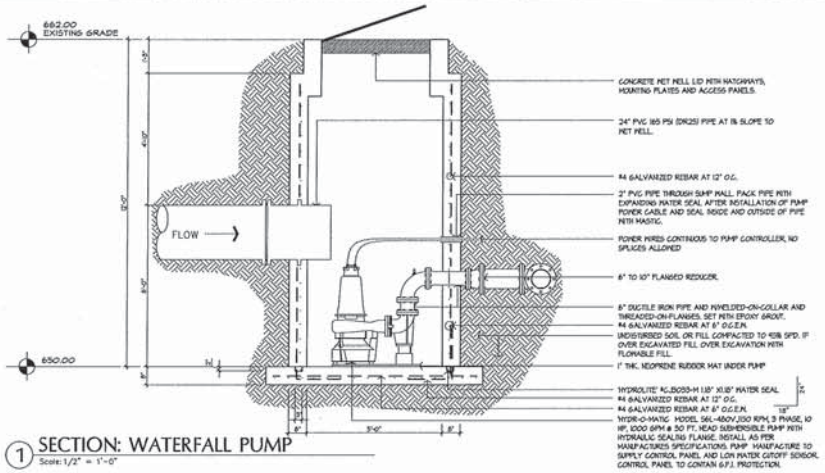
DT 1.19



1 SECTION: WATERFALL PUMP
Scale: 1/2" = 1'-0"

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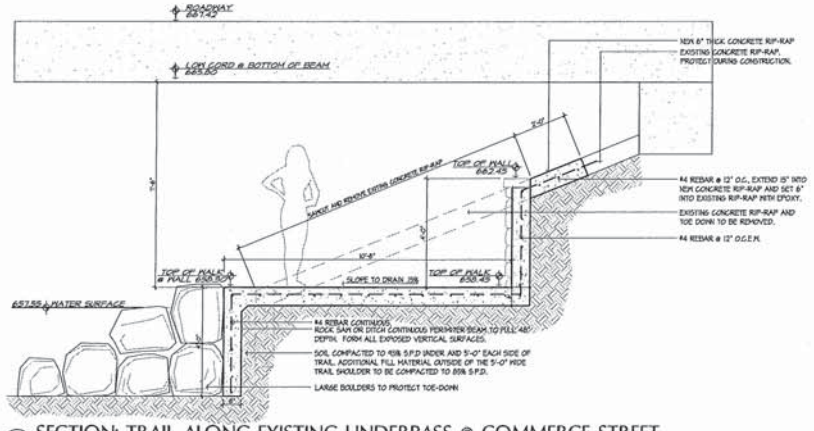
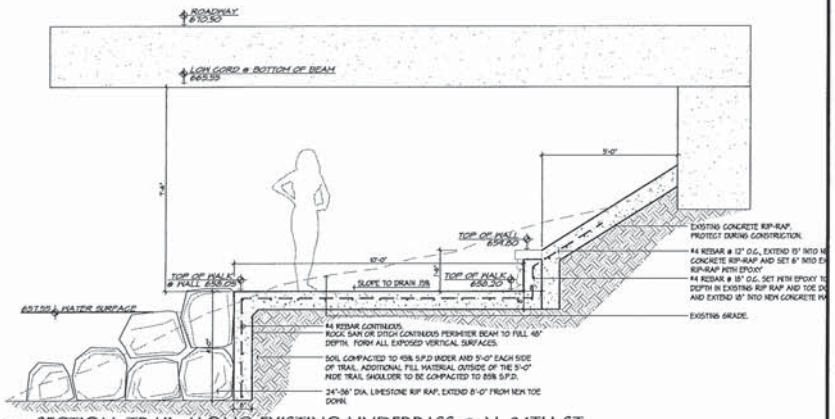
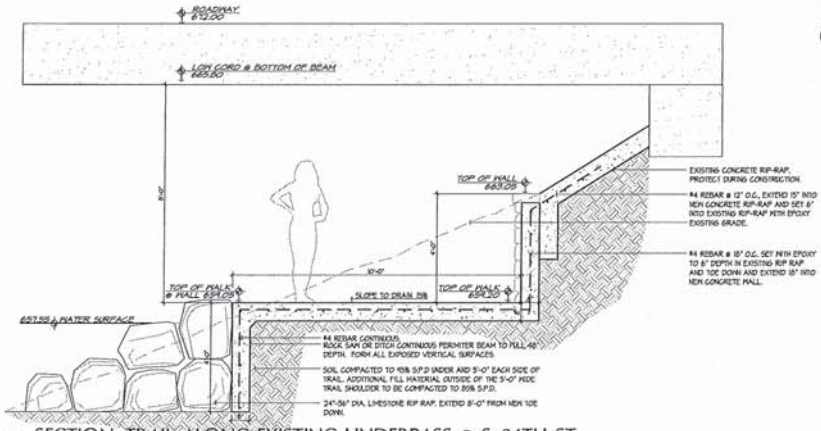
DT 1.20



1 SECTION: TRAIL ALONG EXISTING UNDERPASS @ COMMERCE STREET
Scale: 1/2" = 1'-0"



2 SECTION: TRAIL ALONG EXISTING UNDERPASS @ N. 24TH ST.
Scale: 1/2" = 1'-0"



3 SECTION: TRAIL ALONG EXISTING UNDERPASS @ S. 24TH ST.
Scale: 1/2" = 1'-0"

WALTER H. HOARD
629
REGISTERED LANDSCAPE ARCHITECT

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ELMENDORF LAKE PARK

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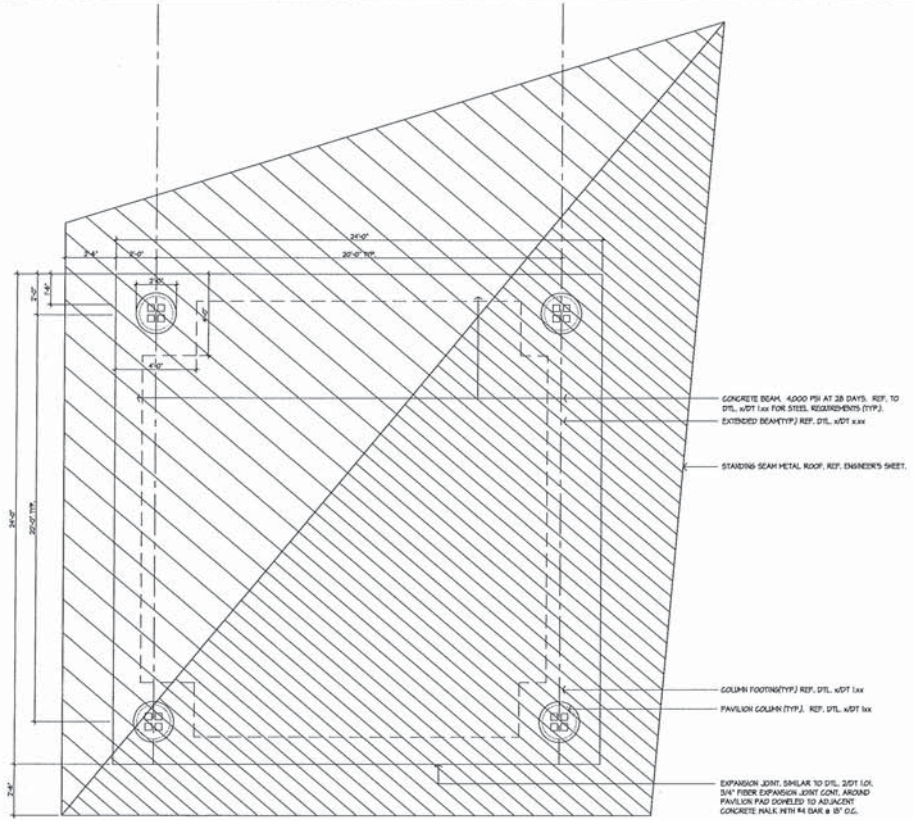
San Antonio, Texas 78207

REVISION	DATE

Project no:
Date: Feburay 28, 2014
Sheet:

SITE DETAILS

DT 1.21



1 PLAN: PAVILION
Scale: 3/8" = 1'

WALTER H. HEARD
629
REGISTERED LANDSCAPE ARCHITECT
STATE OF TEXAS

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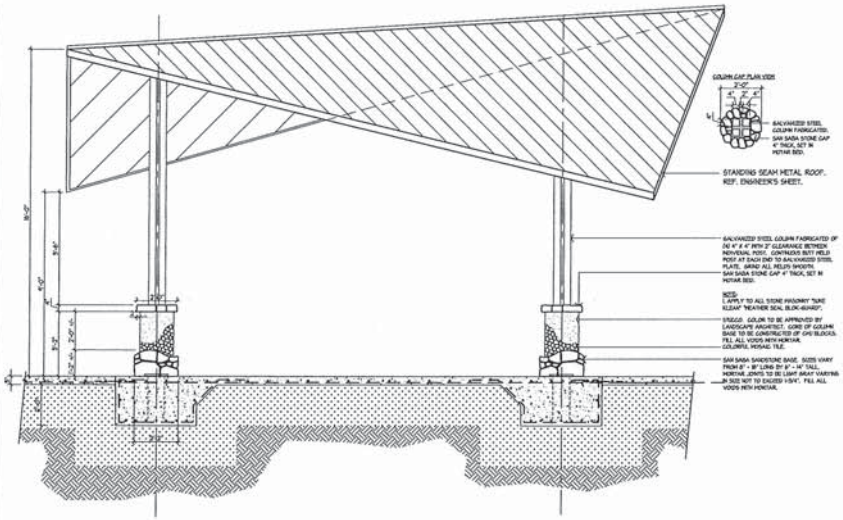
REVISION	DATE

Project no:
Date: Feburay 28, 2014
Sheet:

SITE DETAILS

DT 1.22



1 ELEVATION: PAVILION
Scale: 3/8" = 1'

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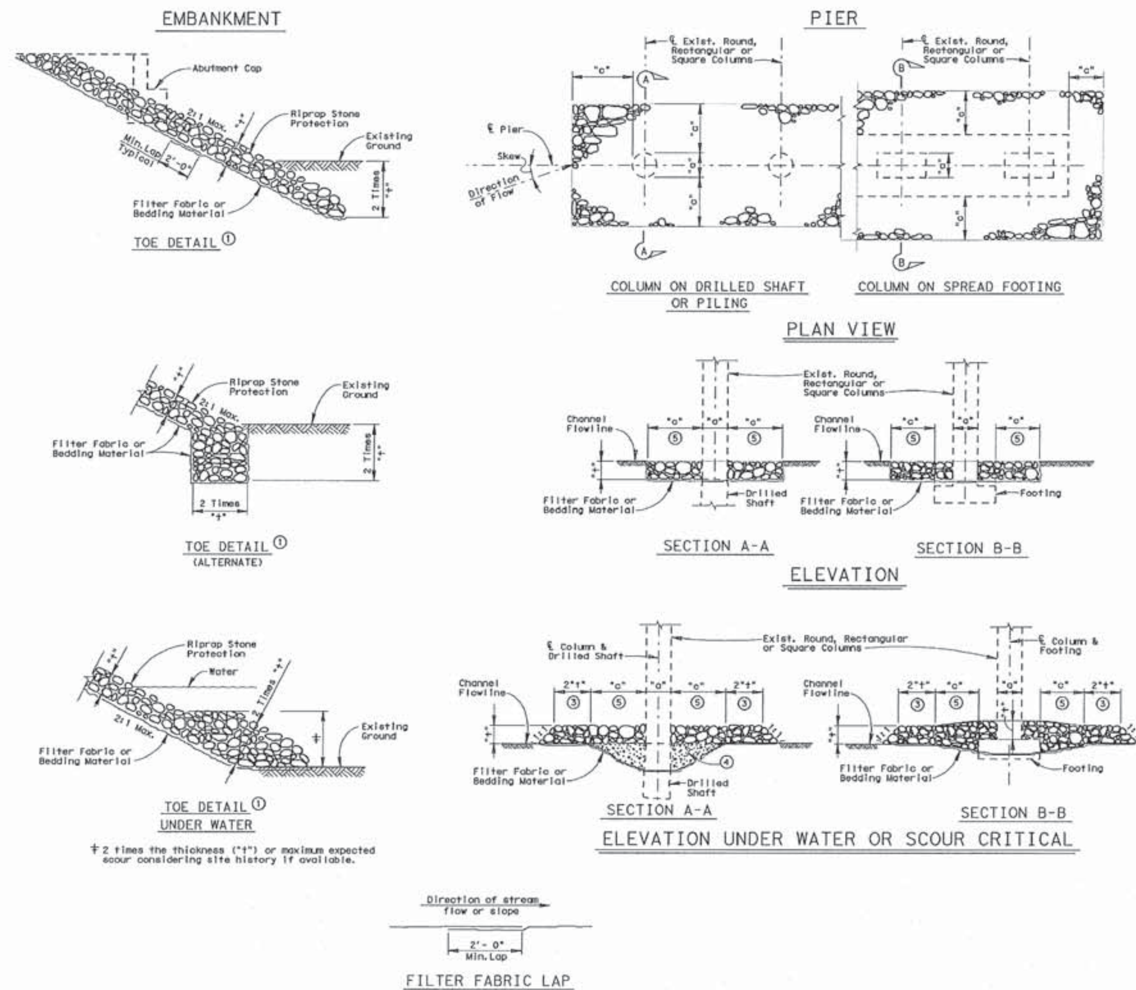
SITE DETAILS

DT 1.23


EMBANKMENT
Abutment Cap
Riprap Stone Protection
Existing Ground
2:1 Max.
Min. Lap 2'-0" Typical
2 Times "t"
Filter Fabric or Bedding Material
TOE DETAIL ①
Riprap Stone Protection
Existing Ground
2:1 Max.
Filter Fabric or Bedding Material
2 Times "t"
TOE DETAIL ①
(ALTERNATE)
Riprap Stone Protection
Water
2 Times "t"
2:1 Max.
Existing Ground
Filter Fabric or Bedding Material
TOE DETAIL ①
UNDER WATER
ǂ 2 times the thickness ("t") or maximum expected scour considering site history if available.
PIER
℄ Exist. Round, Rectangular or Square Columns
℄ Pier
Skew
Direction of Flow
COLUMN ON DRILLED SHAFT OR PILING
COLUMN ON SPREAD FOOTING
PLAN VIEW
Exist. Round, Rectangular or Square Columns
Channel Flowline
Filter Fabric or Bedding Material
Drilled Shaft
Footing
SECTION A-A
SECTION B-B
ELEVATION
℄ Column & Drilled Shaft
Exist. Round, Rectangular or Square Columns
℄ Column & Footing
Channel Flowline
Filter Fabric or Bedding Material
Drilled Shaft
Footing
SECTION A-A
SECTION B-B
ELEVATION UNDER WATER OR SCOUR CRITICAL
Direction of stream flow or slope
2'-0" Min. Lap
FILTER FABRIC LAP

NOTES:

① Toe required at all boundaries of stone protection except where placed next to a structure such as an abutment or pier.

② Bedding material is not required if filter fabric is used. Filter Fabric will be Type 2 (6 oz/sy) as per DMS 6200.

③ In areas where excavation in the channel will exacerbate scour, an additional width of stone protection is required as shown.

④ Scour damage may be filled with a material having a gradation equal to the bedding material but will not be more coarse than stone protection being placed, as specified in Item 432 "RIPRAP", approval of the engineer is required.

⑤ Surface of stone protection will slope away from the pier, but not exceed 2:1.

GENERAL NOTES:

Refer to Item 432 for the gradation of stone protection and bedding material, alternate gradations are not permitted. Placement of stone protection will not be performed in a manner that will cause segregation such as dumping or pushing material in place.

See Layout for limits and thickness of riprap specified, design table provided below is a guide for the designer. All work will be performed in accordance with Item 432.

DESIGN TABLE:

Minimum specific gravity for stone protection is 2.40
Minimum thickness permissible is 12 inches, channel velocities (V) for a given thickness and gradation will not exceed the limits indicated in the table below.

"t" = Thickness of revetment
"a" = Column width
Skew = Angle between direction of flow and center of pier
"c" = 2"a"/cos (skew)
"v" = Stream velocity

	REVETMENT TYPE		
	ABUTMENT OR CHANNEL BANK	PIER	
		RECT. NOSE	ROUND NOSE
"t" in.	"v" (max.) ft/s	"v" (max.) ft/s	"v" (max.) ft/s
12	5.8	6.0	6.8
15	6.5	6.8	7.7
18	7.1	7.2	8.2
21	7.7	7.7	8.7
24	8.2	7.8	8.8
30	9.2	9.1	10.3

SAN ANTONIO DISTRICT STANDARD

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San Antonio District (Structural Design)

FLEXIBLE RIPRAP
STONE PROTECTION
EMBANKMENTS
AND PIERS

FRR (SP)

FILE:	ORIGINAL DRAWING DATE: SEPT. 2007	STATE DISTRICT: SAT	FEDERAL REGION: 6
DN: JHK	REVISIONS: 05-01-08		
CK: JGO			
DW: MRM			
CK: JHK			

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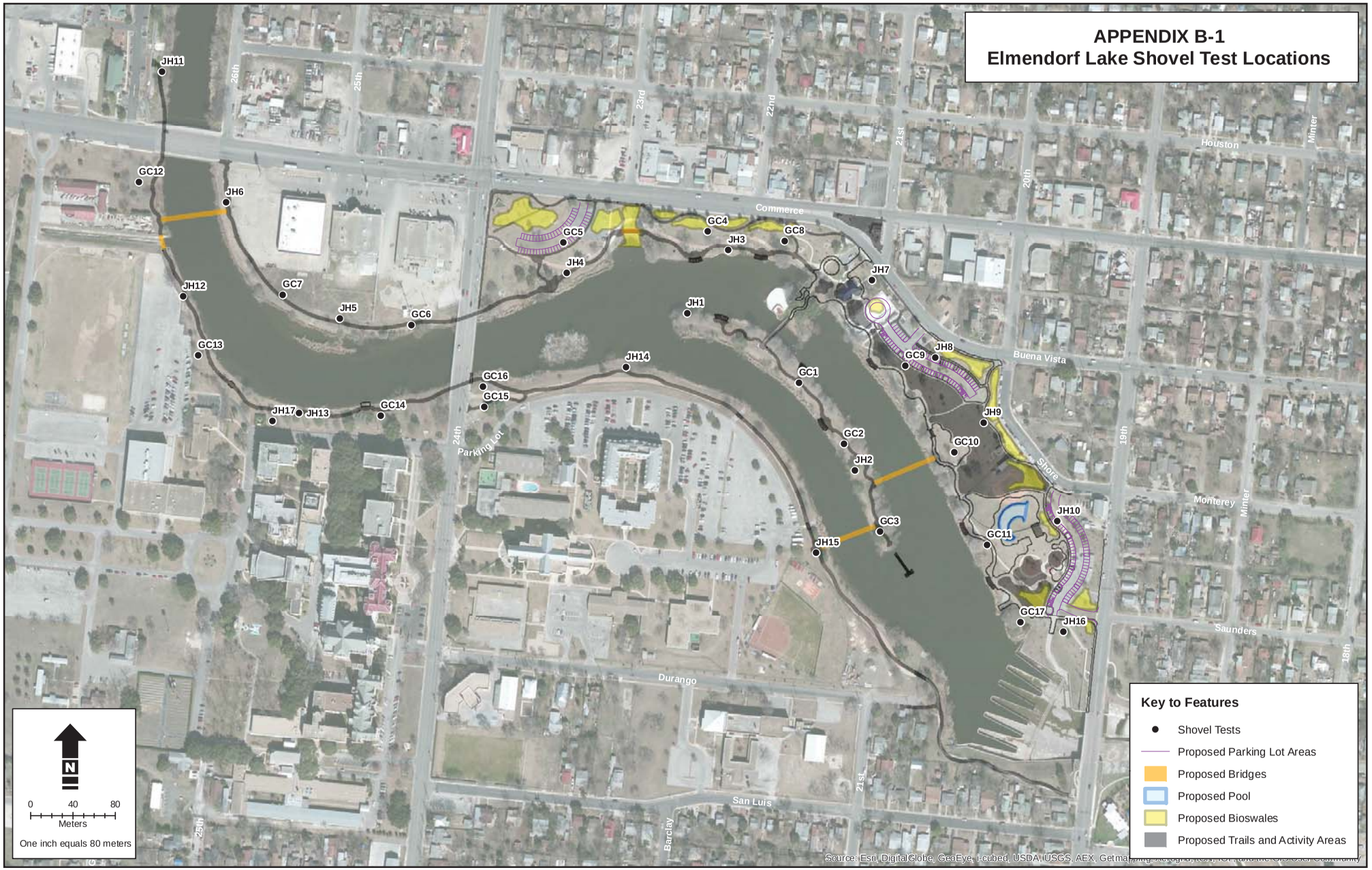
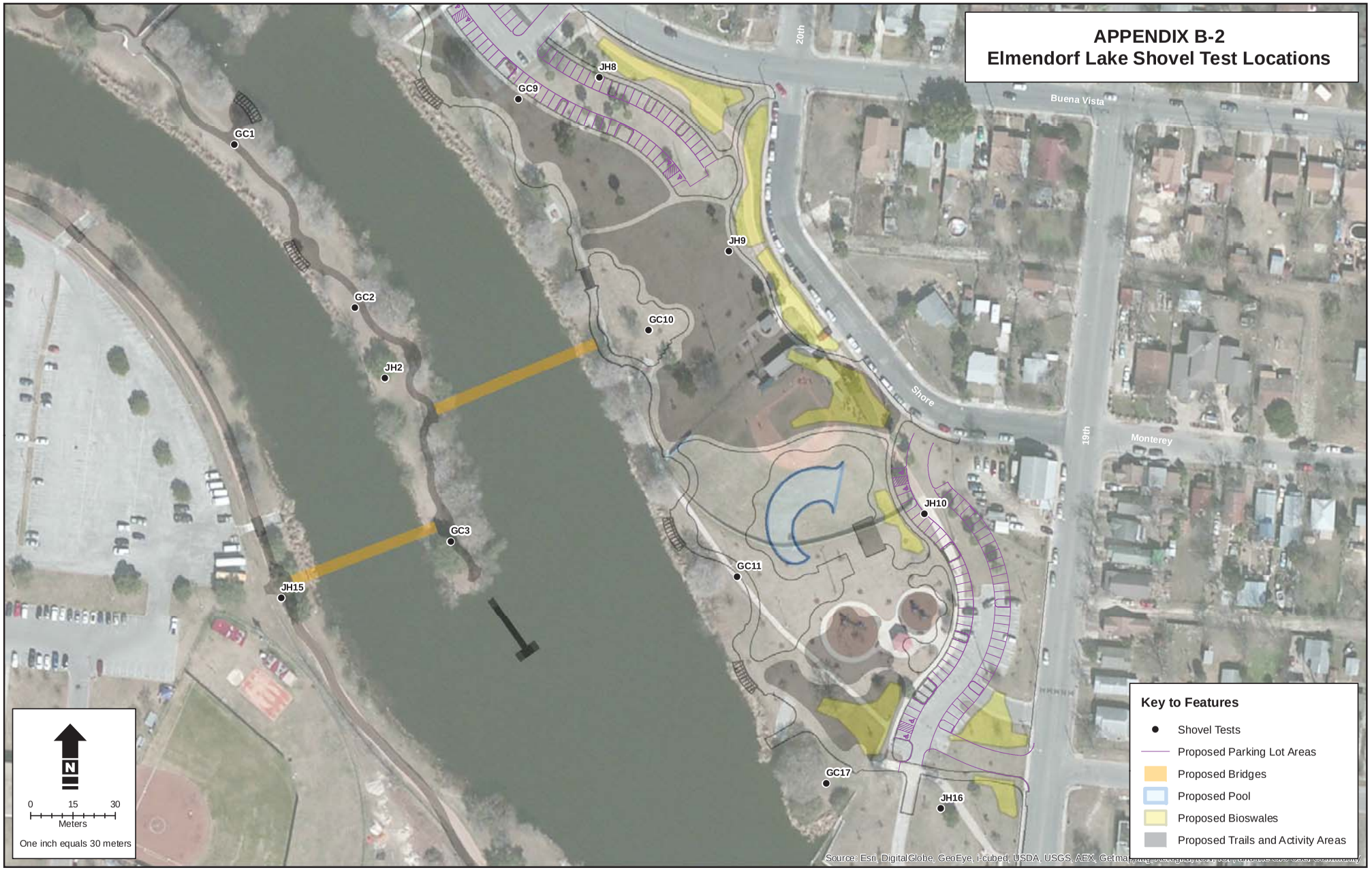
SITE DETAILS

DT 1.24

Appendix B

Plates B-1 and B-2: Location of Shovel Tests


APPENDIX B-1
Elmendorf Lake Shovel Test Locations
JH11
GC12
JH6
GC5
GC4
GC8
JH3
JH4
JH7
JH12
GC7
JH5
GC6
JH1
GC13
JH14
GC9
JH8
GC1
GC16
GC15
JH17
JH13
GC14
JH9
GC2
GC10
JH2
GC3
JH10
GC11
JH15
GC17
JH16
Commerce
Houston
Buena Vista
Shore
Monterey
Saunders
Durango
San Luis
Parking Lot
26th
25th
23rd
22nd
21st
20th
19th
24th
Minter
Barclay
18th
N
0
40
80
Meters
One inch equals 80 meters
Key to Features
Shovel Tests
Proposed Parking Lot Areas
Proposed Bridges
Proposed Pool
Proposed Bioswales
Proposed Trails and Activity Areas
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


APPENDIX B-2
Elmendorf Lake Shovel Test Locations
20th
Buena Vista
Shore
19th
Monterey
JH8
GC9
GC1
JH9
GC2
GC10
JH2
JH10
GC3
GC11
JH15
GC17
JH16
N
0
15
30
Meters
One inch equals 30 meters
Key to Features
Shovel Tests
Proposed Parking Lot Areas
Proposed Bridges
Proposed Pool
Proposed Bioswales
Proposed Trails and Activity Areas
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getma