HISTORIC AND DESIGN REVIEW COMMISSION

August 07, 2019

HDRC CASE NO:	**2019-403**
ADDRESS:	8601 TIMBER PATH
LEGAL DESCRIPTION:	NCB 15091 BLK LOT P-139C 10.656 AC & P-139D 6.344 AC (GREAT NW ANNEXATN)
ZONING:	O-2
CITY COUNCIL DIST.:	6
APPLICANT:	Beth Wells/Bender Wells Clark Design
OWNER:	Arthur Rossman/CITY OF SAN ANTONIO
TYPE OF WORK:	Park improvements
APPLICATION RECEIVED:	July 17, 2019
60-DAY REVIEW:	September 15, 2019
CASE MANAGER:	Adam Rajper

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to carry out various park improvements, including the addition of parking to the existent lot and relocation of an existing softball field. The applicant has also proposed project alternatives that include the construction of a fenced dog park.

APPLICABLE CITATIONS:

UDC Sec. 35-641. - Design Considerations for Historic and Design Review Commission Recommendations.
In reviewing an application, the historic and design review commission shall be aware of the importance of attempting to find a way to meet the current needs of the City of San Antonio, lessee or licensee of public property. The historic and design review commission shall also recognize the importance of recommending approval of plans that will be reasonable to implement. The best urban design standards possible can and should be employed with public property including buildings and facilities, parks and open spaces, and the public right-of-way. Design and construction on public property should employ such standards because the use of public monies for design and construction is a public trust. Public commitment to quality design should encourage better design by the private sector. Finally, using such design standards for public property improves the identity and the quality of life of the surrounding neighborhoods.

UDC Sec 35-642. – New Construction of Buildings and Facilities:
In considering whether to recommend approval or disapproval of a certificate, the historic and design review commission shall be guided by the following design considerations. These are not intended to restrict imagination, innovation or variety, but rather to assist in focusing on design principles, which can result in creative solutions that will enhance the city and its neighborhoods. Good and original design solutions that meet the individual requirements of a specific site or neighborhood are encouraged and welcomed.
(a) Site and Setting.
(1) Building sites should be planned to take into consideration existing natural climatic and topographical features. The intrusive leveling of the site should be avoided. Climatic factors such as sun, wind, and temperature should become an integral part of the design to encourage design of site-specific facilities which reinforces the individual identity of a neighborhood and promotes energy efficient facilities.
(2) Special consideration should be given to maintain existing urban design characteristics, such as setbacks, building heights, streetscapes, pedestrian movement, and traffic flow. Building placement should enhance or create focal points and views. Continuity of scale and orientation shall be emphasized.
(3) Accessibility from streets should be designed to accommodate safe pedestrian movement as well as vehicular traffic. Where possible, parking areas should be screened from view from the public right-of-way by attractive fences, berms, plantings or other means.
(4) Historically significant aspects of the site shall be identified and if possible incorporated into the site design. Historic relationships between buildings, such as plazas or open spaces, boulevards or axial relationships should be maintained.
(b) Building Design.
(1) Buildings for the public should maintain the highest quality standards of design integrity. They should elicit a pride of ownership for all citizens. Public buildings should reflect the unique and diverse character of San Antonio

and should be responsive to the time and place in which they were constructed.
(2) Buildings shall be in scale with their adjoining surroundings and shall be in harmonious conformance to the identifying quality and characteristics of the neighborhood. They shall be compatible in design, style and materials. Reproductions of styles and designs from a different time period are not encouraged, consistent with the secretary of the interior's standards. Major horizontal and vertical elements in adjoining sites should be respected.
(3) Materials shall be suitable to the type of building and design in which they are used. They shall be durable and easily maintained. Materials and designs at pedestrian level shall be at human scale, that is they shall be designed to be understood and appreciated by someone on foot. Materials should be selected that respect the historic character of the surrounding area in texture, size and color.
(4) Building components such as doors, windows, overhangs, awnings, roof shapes and decorative elements shall all be designed to contribute to the proportions and scale of their surrounding context. Established mass/void relationships shall be maintained. Patterns and rhythms in the streetscape shall be continued.
(5) Colors shall be harmonious with the surrounding environment, but should not be dull. Choice of color should reflect the local and regional character. Nearby historic colors shall be respected.
(6) Mechanical equipment or other utility hardware should be screened from public view with materials compatible with the building design. Where possible, rooftop mechanical equipment should be screened, even from above. Where feasible, overhead utilities should also be underground or attractively screened. Exterior lighting shall be an integral part of the design. Interior lighting shall be controlled so that the spillover lighting onto public walkways is not annoying to pedestrians.
(7) Signs which are out of keeping with the character of the environment in question should not be used. Excessive size and inappropriate placement on buildings results in visual clutter. Signs should be designed to relate harmoniously to exterior building materials and colors. Signs should express a simple clear message with wording kept to a minimum.
(8) Auxiliary design. The site should take into account the compatibility of landscaping, parking facilities, utility and service areas, walkways and appurtenances. These should be designed with the overall environment in mind and should be in visual keeping with related buildings, structures and places.

FINDINGS:

a. The property located at 8601 Timber Path, northwest of Downtown, is a public park with the common name of Oscar Perez Memorial Park. The applicant is requesting approval to carry out various park improvements.
b. PARK IMPROVEMENTS – The applicant has proposed various park improvements, including the addition of parking to the existent lot and relocation of an existing softball field. Staff finds the proposal consistent with the UDC.
c. ALTERNATIVE ITEMS – The applicant has proposed project alternatives that include the construction of a fenced dog park. Based on the submitted documents, staff finds that all of the project alternatives are consistent with the UDC and the documentation level qualifies the requests for final approval. The applicant should notify OHP staff in writing regarding the final project scope prior to the issuance of a Certificate of Appropriateness.
d. ARCHAEOLOGY – The project shall comply with all federal, state, and local laws, rules, and regulations regarding archaeology.

RECOMMENDATION:

Staff recommends approval of the proposed park improvements based on findings a through d with the following stipulations:

i. That the applicant notify OHP staff in writing regarding the final project scope prior to the issuance of a Certificate of Appropriateness.
ii. That the applicant coordinate with the City Arborist’s office to develop a comprehensive tree preservation plan.
iii. ARCHAEOLOGY – The project shall comply with all federal, state, and local laws, rules, and regulations regarding archaeology.

8601 Timber Path

July 31, 2019

User drawn lines

1:4,000

0 0.0325 0.065 0.13 mi

0 0.05 0.1 0.2 km


Mi Casa Child Center
Villas de Sendero
Timber Path KinderCare
Oscar Perez Memorial Park
Church's Chicken
S H Express Tire Shop
Moreno Auto Repair
Farmers Insurance - Luis Moreno
Great Northwest Animal Hospital
Kwik Wash (Operated by EZ Wash)
Northwest Starter & Alternator
Abundant Life Church of God
Kobams Cafe & Grill
Grissom Bingo
Pizza Hut
Wok Inn
Bill Miller Bar-B-Q
Whataburger
Pirate Tavern
Casias Automotive & Tire Shop
Timber Path
Meadow Trace St
Meadow Range St
Meadow Rice St
Grissom Rd
Northwest Trail
471

OFFICER OSCAR PEREZ PARK IMPROVEMENTS

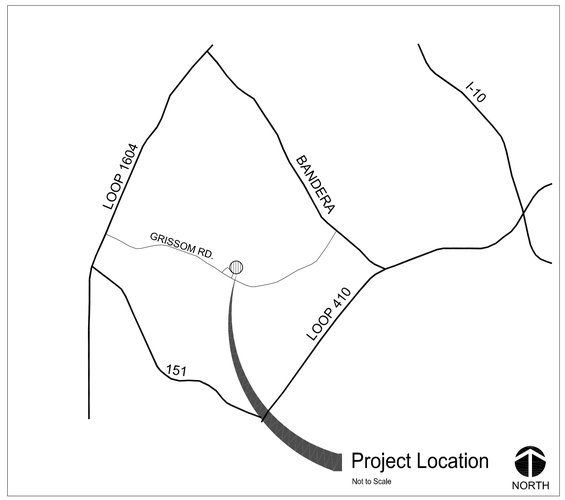
The applicant is requesting final approval for construction of new park improvements at Officer Oscar Perez Park.

Bender Wells Clark Design and their sub-consultants have developed Construction Documents for these proposed improvements. Components of this project were funded by the 2017 Parks Bonds and include:

1) A new lit parking lot connected to an existing parking lot on site.
2) Removal and re-location of an existing softball field with backstop
3) Alternate for a new fully enclosed fenced Dog Park area
4) Alternate for additional parking on site

All the proposed improvements will be accessible, constructed of long-lived materials. All the improvements were approved through neighborhood meetings.

VICINITY MAP



PROJECT DESCRIPTION

OFFICER OSCAR PEREZ PARK

Office Oscar Perez Parkis an established park located on the City's northwest side. It contains a pavilion, skate park elements, lit concrete walking trail, park toilet, softball field, sports practice field, parking, and picnic units. The play equipment and shade over the equipment have been recently replaced by the Parks & Recreation department.

The design intent is to add lit parking attached to the existing lot in the park.

Alternates for Construction will include fencing for a dog park area and additional parking.

Designs and Specifications provided by Bender Wells Clark Design, the landscape architect of record, and our sub-consultants for Civil and MEP engineering are contained in the Construction Documents.

City of San Antonio, Texas
Transportation & Capital Improvements (TCI)
Vertical Projects Division
114 West Commerce Street, San Antonio, Texas 78205

Oscar Perez Park Site Improvements

8601 Timber Path, San Antonio, Texas 78250

CONSTRUCTION DOCUMENTS
Submitted: 06 / 21 / 2019

CoSA Permit: AP #_____

PROJECT NUMBER: -

FUNDING: 2017 - 2022 BOND

CITY COUNCIL

MAYOR
Ron Nirenberg

COUNCIL

Roberto Treviño	District 1	Melissa Cabello Havrda	District 6
Jada Andrews-Sullican	District 2	Ana Sandoval	District 7
Rebecca Viagran	District 3	Manny Pelaez	District 8
Adriana Rocha Garcia	District 4	John Courage	District 9
Shirley Gonzales	District 5	Clayton Perry	District 10

CITY MANAGER
Erik Walsh

INTERIM DIRECTOR OF TRANSPORTATION & CAPITAL IMPROVEMENTS / CITY ENGINEER
Razi Hosseini, P.E

TCI PROJECT MANAGER
Arthur Rossman - Project Manager
City of San Antonio, Transportation & Capital Improvements
Municipal Plaza Building, 114 West Commerce Street, 4th Floor, San Antonio, Tx 78283-3966

Phone: (210) 207-3392

NOTE:
AS A PART OF THE PROJECT THE CONTRACTOR SHALL MAINTAIN A COMPLETE, UP-TO-DATE SET OF DRAWINGS AND TECHNICAL SPECIFICATIONS AVAILABLE FOR REVIEW AT THE CONSTRUCTION SITE BY THE OWNER'S REPRESENTATIVE, INSPECTORS OR CONSULTANTS. IN ADDITION, THE CONTRACTOR SHALL ENSURE ALL INSTALLATIONS AND COORDINATION BY ALL TRADES OCCURS IN ACCORDANCE WITH THE ABOVE DOCUMENT ISSUANCE & ANY REVISIONS.

"It is not the responsibility of the City to provide sets of drawings and/or specifications to the successful Contractor for the construction of this project. All sets as deemed required by the Contractor, for the purposes of construction of this project, shall be obtained and paid by the Contractor."

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

PARKS & RECREATION
SAN ANTONIO

DRAWINGS INDEX:

LANDSCAPE ARCHITECT'S LICENSURE

LAWRENCE C. CLARK
LANDSCAPE ARCHITECT

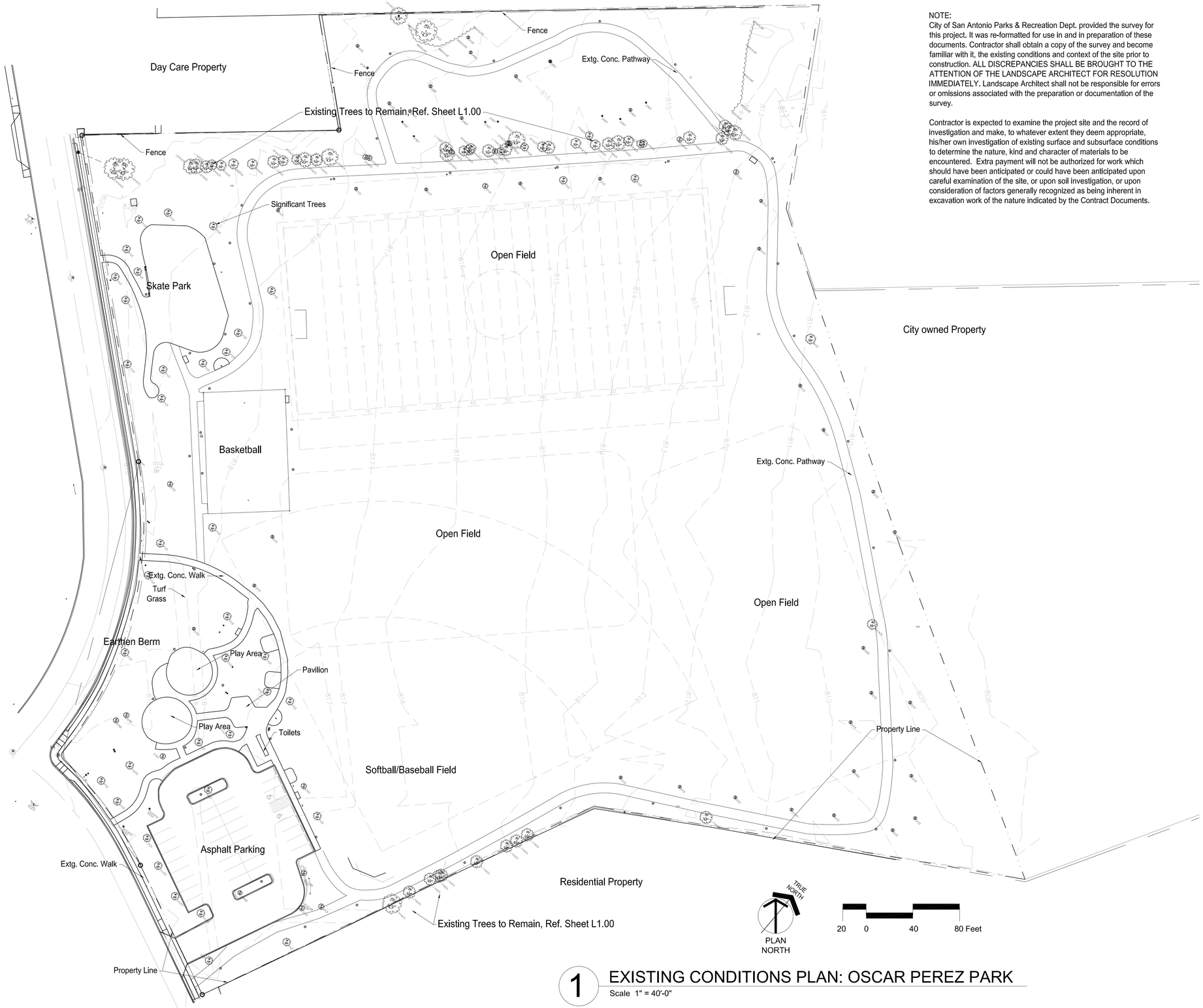
THESE DOCUMENTS ARE INCOMPLETE AND ARE RELEASED FOR INTERIM REVIEW ONLY, AND NOT INTENDED FOR REGULATORY APPROVAL, BIDDING, PERMIT, OR CONSTRUCTION PURPOSES.

LANDSCAPE ARCHITECT / PRIME CONSULTANT
BENDER WELLS CLARK DESIGN
830 N. ALAMO ST.
SAN ANTONIO, TEXAS 78215
(210) 692-9221 FAX (210) 223-8582

BENDER WELLS CLARK DESIGN
Landscape Architecture
Urban Design
Planning
830 North Alamo Street
San Antonio, Texas 78215
210-692-9221
www.bwcdesign.com

CIVIL ENGINEER
BAIN MEDINA BAIN
7073 San Pedro Ave.
San Antonio, Texas 78216
(210) 377-1300

ELECTRICAL ENGINEER
HM3 ENGINEERING
902 N. Flores
San Antonio, Texas 78212
(210) 393-1840



1 EXISTING CONDITIONS PLAN: OSCAR PEREZ PARK

Scale 1" = 40'-0"

NOTE:
City of San Antonio Parks & Recreation Dept. provided the survey for this project. It was re-formatted for use in and in preparation of these documents. Contractor shall obtain a copy of the survey and become familiar with it, the existing conditions and context of the site prior to construction. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR RESOLUTION IMMEDIATELY. Landscape Architect shall not be responsible for errors or omissions associated with the preparation or documentation of the survey.

Contractor is expected to examine the project site and the record of investigation and make, to whatever extent they deem appropriate, his/her own investigation of existing surface and subsurface conditions to determine the nature, kind and character of materials to be encountered. Extra payment will not be authorized for work which should have been anticipated or could have been anticipated upon careful examination of the site, or upon soil investigation, or upon consideration of factors generally recognized as being inherent in excavation work of the nature indicated by the Contract Documents.

CONSTRUCTION DOCUMENTS

ISSUE DATE

No.	Date	Issue Description
	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:_
Project Manager
Tel:_

LANDSCAPE ARCHITECT / PRIME CONSULTANT
BENDER WELLS CLARK DESIGN
830 N. ALAMO ST.
SAN ANTONIO, TEXAS 78215

Landscape Architecture
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Planning

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LANDSCAPE ARCHITECT'S LICENSURE

THESE DOCUMENTS ARE INCOMPLETE AND ARE RELEASED FOR INTERIM REVIEW ONLY, AND NOT INTENDED FOR REGULATORY APPROVAL, BIDDING, PERMIT, OR CONSTRUCTION PURPOSES.

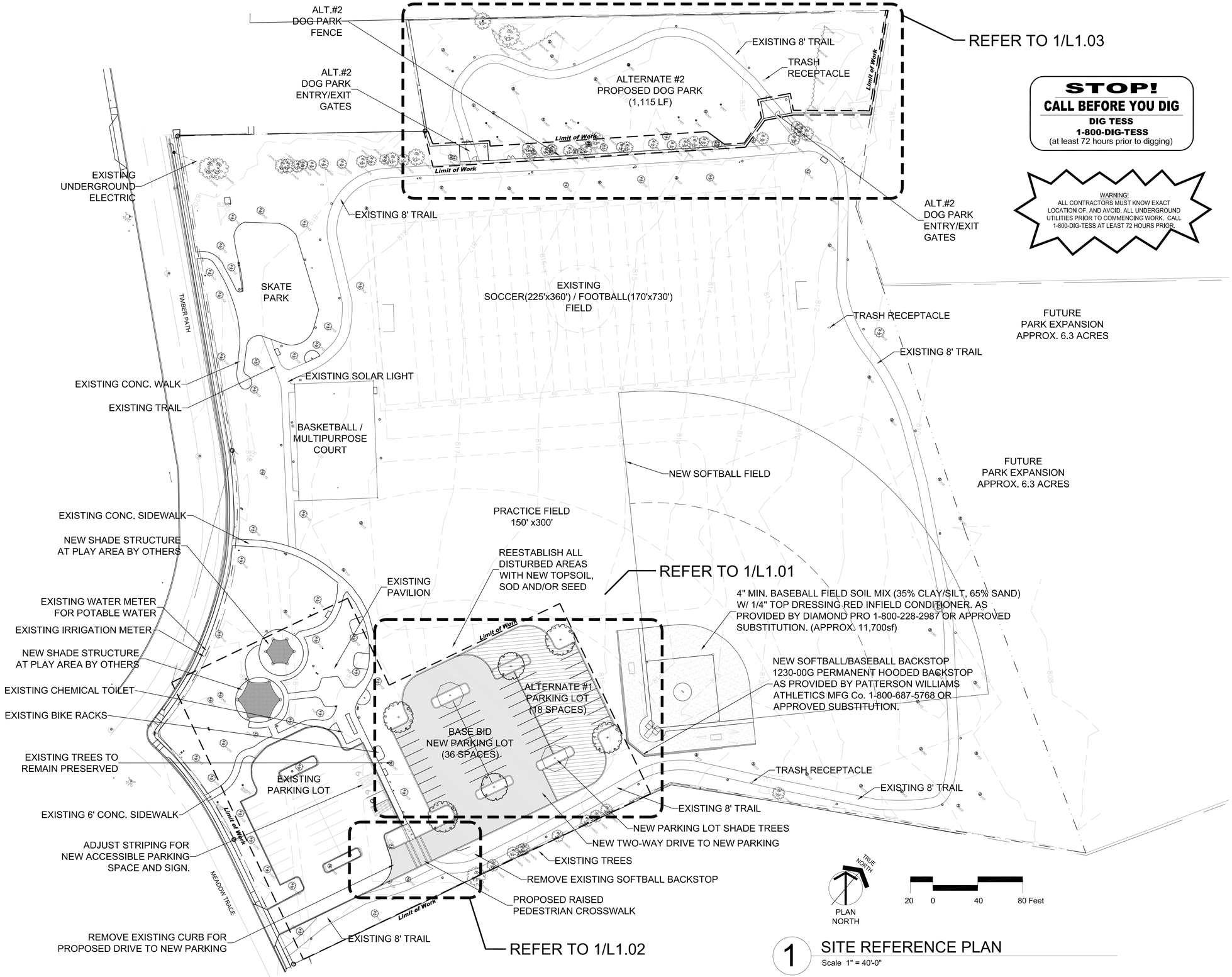
BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

Existing Conditions Plan

L0.01

Date: Jun 21, 2019, 2:13pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg



1 SITE REFERENCE PLAN

Scale 1" = 40'-0"

CONSTRUCTION DOCUMENTS

Date: Jun 21, 2019, 2:12pm User ID: bvierville
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ISSUE DATE

No.	Date	Issue Description
	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: _

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BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

Proposed Site Plan

L0.02

GENERAL NOTES

N1. Applicable Codes Ordinances (or most current edition as required by City of San Antonio):
- a. 2012 International Building Code
- b. 2012 International Fire Code
- c. 2012 Uniform Plumbing Code
- d. 2012 Uniform Mechanical Code
- e. 2011 National Electrical Code
- f. 2012 International Energy Conservation Code
- g. 2012 International Residential Code
- h. City of San Antonio Unified Development Code, most current edition and Amendments

N2. All provisions of Texas Accessibility Standards (TAS) of the Architectural Barriers Act (Article 9102, Texas Civil Statutes) must be followed.

N3. Signage: All signage placement and mounting is to comply with all provisions of TAS.

N4. Slope Criteria
- a. Walkway/path cross slope 2% maximum (1% preferred)
- b. Walkway/path running slope 5% maximum
- c. Ramp running slope 8.33% maximum
- d. Ramp cross slopes 1% maximum
- e. Curb ramp 8.33% maximum (6.25% preferred)
- f. Walkway landings at drainage in direction 2% maximum cross slope. (1.5% preferred)
- g. Ramp landings 2% maximum cross slope/running slope.

N5. Complete repairs and finish outs are to be done as a result of any relocations, modifications, repairs, construction, demolition, etc.

N6. Any items, procedures, or any other items that are unclear are to be brought to the attention of Landscape Architect, Owner and Consultant(s) related to that particular item prior to proceeding with work.

N7. All safety provisions and codes must be followed during demolition and construction of all areas. Provide temporary construction fences where work will occur and maintain through Substantial Completion of Project. Coordinate location with Landscape Architect and Owner.

N8. All holes or rips must be patched to a flush condition and must match existing adjacent surfaces.

N9. Any existing surfaces to be repainted must first be prepared by repairing any holes, changing any rotted wood, replacing rusted metal, making any repairs needed, etc.

N10. Where existing surface mounted items have been removed, all holes and chips must be repaired and patched with like materials of existing surface finish.

N11. Any items requested by Owner to be salvaged must be salvaged and protected until further direction by Owner, and delivered to a location as directed by Owner.

N12. All surrounding sites and adjacent buildings/structures must be protected and unaffected during construction.

N13. All areas around construction areas must be safe for pedestrian traffic before, during and after construction. Work sites shall be cleaned daily from all construction trash, debris, materials, etc.

N14. Any items that create an obstruction of any kind to demolition and construction is to be brought to the attention of Landscape Architect, Owner and Consultant(s) related to this item prior to proceeding with work.

N15. Any unusual or unexpected items are to be brought to the attention of Landscape Architect, Owner and Consultant(s) related to this item prior to proceeding with work.

N16. Contractor and Fabricator shall verify all quantities, dimensions, and conditions and notify Landscape Architect of any discrepancies or inconsistencies before proceeding with work. DO NOT scale drawings for dimensions.

N17. General Contractor shall inspect job for completion before scheduling any observation by Landscape Architect and Consultants.

N18. Any conflicts between Contract Drawings and Specifications shall be brought to the attention of Landscape Architect. Landscape Architect reserves the right to make appropriate decision without any extra cost to Owner.

N19. Landscape Architect and Consultant(s) shall not have control of, and shall not be responsible for construction means, methods, techniques, sequences, or procedures for safety precautions and programs in connection with the work, for the acts or omissions of Contractor, Subcontractor(s), or any other persons performing any of the work, or for the failure of any of them to carry out the work in accordance with the contract documents.

N20. Periodic site observation by field representatives of the Landscape Architect and Consultant(s) is solely for the purpose of determining if the work contract of Contractor is proceeding in accordance with the contract documents. This limited site observation is not intended to be a check of the quality or quantity of the work, but rather periodic in an effort to inform Owner of defects and deficiencies in the work of Contractor.

N21. Contractor shall be responsible for making himself familiar with all underground utilities, pipes, and structures. Contractor is to trace out and verify location of all existing utilities whether shown or not shown prior to digging. It is the Contractor's responsibility to protect all utilities and request call-out of utility locations by Texas One Call and others as required.

N22. Construction crew(s) to remain within designated work areas at all times. It is Contractor's responsibility to maintain public safety and welfare within and adjacent to project work areas.

N23. Do not willingly proceed with construction as designed when it is obvious that unknown obstruction and/or grade differences exist that may not have been known/considered during design. Such conditions shall be immediately brought to the attention of the Landscape Architect. The Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.

N24. The Contractor shall be responsible for any coordination with sub contractors as required to accomplish any and all operations.

N25. City of San Antonio Parks & Recreation Dept. provided the survey for this project. It was re-formatted for use in and in preparation of these documents. Contractor shall obtain a copy of the survey and become familiar with it, the existing conditions and context of the site prior to construction. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR RESOLUTION IMMEDIATELY. Landscape Architect shall not be responsible for errors or emissions associated with the preparation or documentation of the survey.

N26. Geotechnical investigation report has been prepared by Raba Kistner Inc. for the project. It has been referenced in the preparation of these documents. Contractor shall obtain an officially signed copy of the report and become familiar with it prior to construction. Any discrepancies should be brought to the attention of the Landscape Architect for resolution immediately. Landscape Architect shall not be responsible for errors or emissions associated with the preparation or documentation of the report. Contractor is invited and encouraged to make his own interpretation and evaluation of the information and by starting work shall be assumed to have fully accepted responsibility for the subsurface conditions that may hereafter be encountered in performing the excavation work.

N27. Contractor is expected to examine the project site and the record of investigation and make, to whatever extent they deem appropriate, his own investigation of existing subsurface conditions to determine the nature, kind and character of materials to be encountered. Extra payment will not be authorized for work which should have been anticipated or could have been anticipated upon careful examination of the site, or upon soil investigation, or upon consideration of factors generally recognized as being inherent in excavation work of the nature indicated by the Contract Documents.

N28. Contractor is responsible for detrmining means and methods per note N19, above. These drawings may indicate a limit of proposed improvements, limits of site demolition, etc. for delineation of expected extents of disturbance. However, final impact shall be determined in the field. Should the limits of disturbance exceed the boundaries defined in Drawings, the Contractor shall contact Landscape Architect for resolution.

N29. Contractor is responsible for repairing all work disturbed by construction outside of limit lines defined on drawings or through Contracor and Sub-contractor's means and methods to a condition better than or equal to the existing conditions prior to commencement of construction at no additional cost to the Owner.

N30. The Drawings and Specifications are complimentary to one another and implied to correspond with one another. Any discrepancies should be brought to the attention of the Landscape Architect for resolution immediately.

GENERAL CONSTRUCTION NOTES

1. Construction Staging Area
   Contractor shall coordinate with the Owner the location of the construction staging area.
2. Construction Fencing
   Contractor is responsible for the safety and security of all activities around the construction site. Provide construction chainlink fencing around the proposed site work.
3. Erosion and Sediment Control
   All erosion and sediment control measures must be in place before any site work begins and must remain in place for the duration of construction. Refer to the Specifications.

SITE DEMOLITION NOTES

1. Remove items shown to be removed to the full depth of the their construction unless noted otherwise.
2. Verify the extent and location of items to remain vis-a-vis items to be demolished prior to commencement of work.
3. Structures or items encountered below grade and not shown on the Drawings shall be brought to the attention of the Landscape Architect for clarification.
4. Contact the local underground utility locate and identification service prior to commencement of work.
5. The locations of underground utilities shown on the drawings may vary in relation to actual conditions on the site; additional utilities may not be shown. Verify all information in the field and report any discrepancies to the Landscape Architect.

SITE LIGHTING NOTES

1. Lighting symbols on plans are diagrammatic. Refer to Details & Specifications for actual dimensions and product information.
2. Coordinate with existing and proposed underground utilities. Notify Landscape Architect of any conflicts for direction on approved locations.
3. Wiring circuits are diagrammatic. Care and consideration for underground obstructions, utilities and tree roots shall be warranted. Adjust alignment of wiring runs with review and approval of the Landscape Architect and Electrical Engineer prior to excavation.
4. Lighting is intended to produce an overall 0.5 footcandles (fc) illumination level on the trail / path with 1.0 fc illumination at trail intersections. Final installation shall confirm these illumination standards.
5. Contractor shall ensure luminaires are installed per Manufacturer's specifications and guidelines. No light greater than 0.1 fc at the property line. Notify the Landscape Architect of any discrepancies.
6. Layout dimensions are for general reference only. Final locations shall be staked in the field for review, adjustment and approval by the Landscape Architect.
7. Lighting pull-boxes, vaults and other in-grade appurtenances shall be set flush with adjacent finish grades or surfaces.

GENERAL CONCRETE NOTES

1. All forms shall be well braced and straight.
2. All steel shall be free of grease, scale, & dirt.
3. Concrete shall reach a minimum strength of 2500 psi at 28 day test. Concrete shall not be placed in excess of 5 $\frac{1}{2}$" slump without prior approval of the engineer.
4. All #3 reinforcing bars shall be 40 grade steel, all #4 or larger bars shall be ASTM A-615 grade 60.
5. Contractor shall verify all the dimensions with the plan.
6. Expansion joints (EJs) shall be provided at joints where concrete flatwork meets vertical structures such as walls, curbs, steps and building elements, and as indicated on the Drawings. EJs at concrete walks shall be placed at intervals not less that 5 X the width of the walk.
7. Contraction (or control) joints (CJs) shall be provided on flatwork at a width of 1 X the width of concrete walks, typically, and as shown on the Drawings. Form CJs by saw cutting, typical, within 4 to 12 hours of placement, to a depth of $\frac{1}{4}$ the thickness of the slab.

SITE LAYOUT NOTES

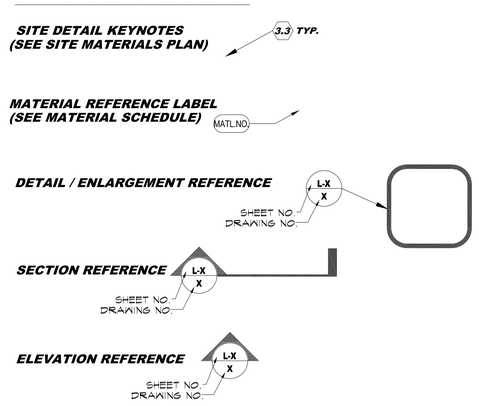
1. Layout and verify dimensions prior to construction. Bring any discrepancies to the attention of the Landscape Architect for clarification.
2. Do not scale Drawings. Written dimensions take precedence over scale.
3. Where dimensions are called as "equal" space, reference items equally, measured to their center lines.
4. Install intersecting items at 90 degrees to one another, unless noted otherwise.

ABBREVIATIONS

A.F.F.A.	ABOVE FINISH FLOOR
ACCS.	ACCESSIBLE
ADJ.	ADJACENT or ADJUSTABLE
ALT.	ALTERNATE
ALUM.	ALUMINUM
A.D.A	AMERICAN DISABILITIES ACT
A.B.	ANCHOR BOLT
L	ANGLE
ANOD.	ANODIZED
APPRVD.	APPROVED
APPROX.	APPROXIMATE
ARCH.	ARCHITECT/ ARCHITECTURAL
@	AT
BM.	BEAM
BET.	BETWEEN
BLT.	BOLT
BOT./ BTM.	BOTTOM
BLDG.	BUILDING
B/S	BUILDING STANDARD
B.U.	BUILT UP
CTR.	CENTER
CL. OR	CENTER LINE
CRS.	CENTERS
C.L.F.	CHAIN LINK FENCE
CLR.	CLEAR
CMU	CONCRETE MASONRY UNIT
COMP.	COMPACTED
CONC.	CONCRETE
CONT.	CONTINUOUS
C.J.	CONTROL JOINT
C.F.	CUBIC FOOT
C.Y.	CUBIC YARD
DTL.	DETAIL
DIA.	DIAMETER
E.W.	EACH WAY
ENG.	ENGINEER
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXIST.	EXISTING
EXTG.	EXISTING
EXP. JT./ E.J.	EXPANSION JOINT
FIN.	FINISH
FTG.	FOOTING
GALV.	GALVANIZED
ga.	GAUGE
H/A	HANDICAP/ACCESSIBLE
HT.	HEIGHT
HORIZ.	HORIZONTAL
HDG	HOT-DIPPED-GALVANIZED
I.D.	INSIDE DIAMETER
INT.	INTERIOR
JT.	JOINT
L.ARCH.	LANDSCAPE ARCHITECT/ LANDSCAPE ARCHITECTURAL
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
MFR'D.	MANUFACTURED
MFR.	MANUFACTURER
MDD.	MAXIMUM DRY DENSITY
O.C.	ON CENTER
O.C.E.W.	ON CENTER EACH WAY
O.D.	OUTSIDE DIAMETER
PNTD	PAINTED
PVMT.	PAVEMENT
PVG.	PAVING
PLT.	PLATE
P.D.	PROCTOR DENSITY
P.L.	PROPERTY LINE
RAD.	RADIUS
REF.	REFERENCE or REFER TO
REINF.	REINFORCING
REQ'D.	REQUIRED
R.S.	ROUGH SAWN
SCH.	SCHEDULE
SHT.	SHEET
SL.	SLOPE
SQ.	SQUARE
S.F.	SQUARE FOOT
STL.	STEEL
STRUCT.	STRUCTURAL
S4S	SMOOTH FOUR SIDES
S.Y.P.	SOUTHERN YELLOW PINE
THK.	THICK
TYP.	TYPICAL
VERT.	VERTICAL
WP.	WATERPROOFING
W/	WITH or WITHIN

DRAWING KEY

SYMBOLS & LEGEND



SITE LIGHTING LEGEND

PROPOSED PEDESTRIAN POLE LIGHT

GRADING LEGEND

KEY TO GRADING ABBREVIATIONS

BM 999.99	***BENCHMARK ELEVATION***
EX 999.99	***EXISTING GRADE ELEVATION***
FG 999.99	***FINISHED GRADE ELEVATION***
TP 999.99	***TOP OF PAVEMENT ELEVATION***
TW 999.99	***TOP OF WALL ELEVATION***
BW 999.99	***BASE OF WALL ELEVATION***
TC 999.99	***TOP OF CURB ELEVATION***
BC 999.99	***BASE OF CURB ELEVATION***
TR 999.99	***TOP OF RAMP ELEVATION***
BR 999.99	***BASE OF RAMP ELEVATION***
HP 999.99	***HIGH POINT***
LP 999.99	***LOW POINT***
BC 999.99	***BASE OF CURB ELEVATION***

NOTE:
AS A PART OF THE PROJECT THE CONTRACTOR SHALL MAINTAIN A COMPLETE, UP-TO-DATE SET OF DRAWINGS AND TECHNICAL SPECIFICATIONS AVAILABLE FOR REVIEW AT THE CONSTRUCTION SITE BY THE OWNER'S REPRESENTATIVE, INSPECTORS OR CONSULTANTS. IN ADDITION, THE CONTRACTOR SHALL ENSURE ALL INSTALLATIONS AND COORDINATION BY ALL TRADES OCCURS IN ACCORDANCE WITH THE ABOVE DOCUMENT ISSUANCE & ANY REVISIONS.

CONSTRUCTION DOCUMENTS

ISSUE DATE

No.	Date	Issue Description
	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: _

LANDSCAPE ARCHITECT / PRIME CONSULTANT
BENDER WELLS CLARK DESIGN
830 N. ALAMO ST.
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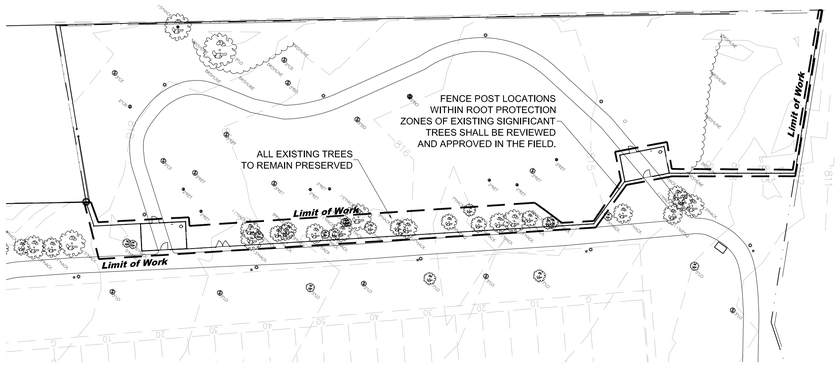
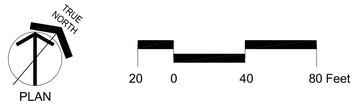
BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

General Information

L0.03

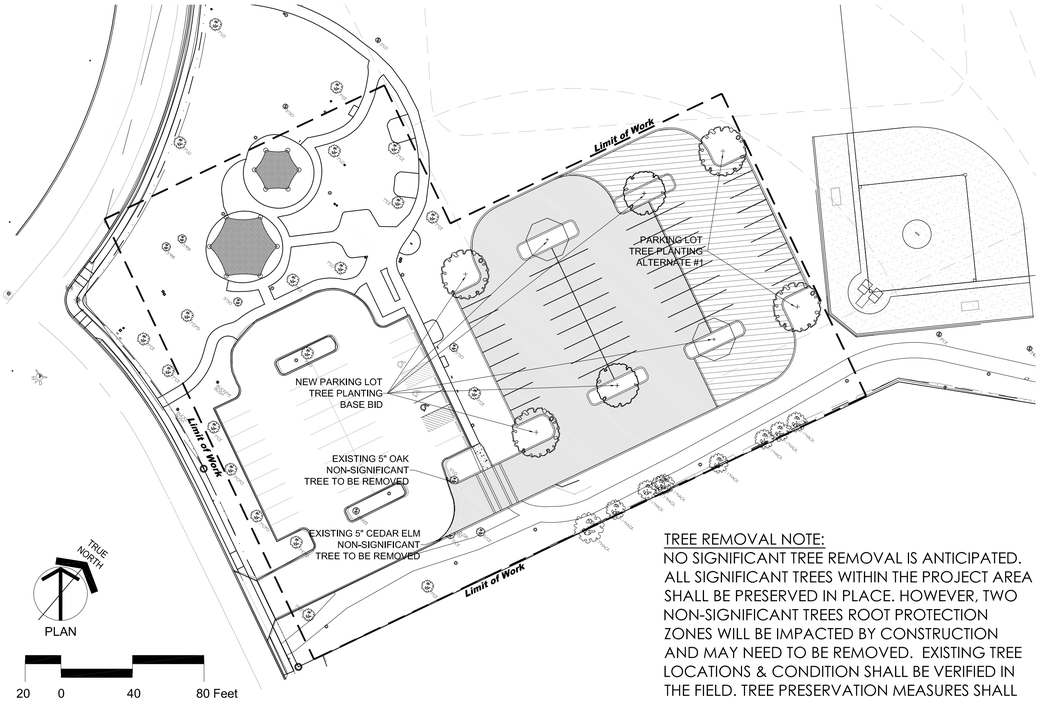




TREE REMOVAL NOTE:
NO TREE REMOVAL IS ANTICIPATED.
ALL SIGNIFICANT TREES WITHIN THE PROJECT AREA SHALL BE PRESERVED IN PLACE. TREE PRESERVATION MEASURES SHALL BE IMPLEMENTED AS REQUIRED.
REFER TO TREE PRESERVATION DETAILS & NOTES.

1 TREE PROTECTION & CANOPY PLAN: DOGPARK

Scale 1" = 40'-0"



TREE REMOVAL NOTE:
NO SIGNIFICANT TREE REMOVAL IS ANTICIPATED. ALL SIGNIFICANT TREES WITHIN THE PROJECT AREA SHALL BE PRESERVED IN PLACE. HOWEVER, TWO NON-SIGNIFICANT TREES ROOT PROTECTION ZONES WILL BE IMPACTED BY CONSTRUCTION AND MAY NEED TO BE REMOVED. EXISTING TREE LOCATIONS & CONDITION SHALL BE VERIFIED IN THE FIELD. TREE PRESERVATION MEASURES SHALL BE IMPLEMENTED AS REQUIRED. REFER TO TREE PRESERVATION DETAILS & NOTES.

2 TREE PROTECTION & CANOPY PLAN: PLAY AREA AND PARKING

Scale 1" = 40'-0"

TREE PROTECTION & PRESERVATION NOTES

1. ALL TREES SHALL REMAIN UNLESS NOTED ON THE CITY APPROVED PLANS.

2. NO DISTURBANCE SHALL OCCUR IN THE ROOT PROTECTION ZONE AREA.

3. NO CONSTRUCTION SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.

4. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. REFER TO TP01-102 FOR TREE PRESERVATION FENCING.

5. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE-INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATIONS IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.

6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE WORK DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.

7. NO, EQUIPMENT, VEHICLES OR MATERIALS SHALL BE OPERATED OR STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. THE ROOT PROTECTION ZONE FOR ALL PROTECTED TREES SHALL BE AN 8 FOOT DIAMETER (MIN.) ROOT PROTECTION ZONE.

8. ROOT OR BRANCHES IN CONFLICT WITH CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. ALL OAK WOUNDS SHALL BE PAINTED WITHIN 30 MINUTES TO PREVENT 'OAK WILT' INFECTION.

9. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST.

10. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.

11. TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE STREET OR ALLEY RIGHT-OF-WAY OR PAVEMENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES MAY BE NEATLY TRIMMED BY THE CONTRACTOR ONLY AFTER APPROVAL FROM THE INSPECTOR.

12. SAPLINGS, SHRUBS, OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A PROTECTED TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.

TREE PROTECTION FENCING NOTE:
EXISTING TREE TRUNKS & BRANCHES (HEIGHT AND ANGLE) MAY INFLUENCE TREE PROTECTION FENCING LAYOUT, CONTRACTOR SHALL ANTICIPATE ADJUSTMENTS IN THE FIELD.

ALL EXISTING TREES WITHIN AREA OF CONSTRUCTION SHALL RECEIVE TREE PROTECTION/PRESERVATION FENCING. REFER TO DETAILS & NOTES.

ALL TREES ARE TO REMAIN PROTECTED/PRESERVED IN PLACE UNLESS NOTED OTHERWISE ON THE CITY APPROVED PLANS.

DAMAGED OR DEAD TREES SHALL BE MITIGATED BY THE CONTRACTOR TO THE CITY'S SATISFACTION.

ROOT PRUNING NOTE:
CONTRACTOR SHALL REFER TO ROOT PRUNING NOTES AND DETAILS FOR ALL WORK WITHIN THE ROOT PROTECTION ZONE.

Tree Canopy Coverage								
Site 1	Total Site Area (SF)				5,528.00	sf	5,528	SF
	Total Canopy Required				25%		**1,382**	SF
Existing Tree Canopy Preservation								
	Large trees				***Species***		*Bald Cypress, Cottonwood, Deodar Cedar,*	
	0	1200	@	100%	0.00	sf	*Pecan, Red Oak, Sycamore, Burr Oak and*	
							Texas Sycamore	
	Medium/Large trees				***Species***		*Anaqua, Arizona Cypress, Live Oak, Texas Grn. Ash, Cedar Elm,*	
	26	875	@	100%	22,750.00	sf	*Cedar Elm, Chinkapin Oak, Esc. Blk. Cherry, Blk. Willow, Eve's Nec*	
							Hackberry and Western Soapberry	
	Medium trees				***Species***		*Honey Locust, Huisache & Lacey Oak*	
	0	550	@	100%	0.00	sf		
	Medium/Small trees				***Species***		*Anacacho Orchid Tree, Ashe Juniper, Carolina Buckthorne,*	
	0	275	@	100%	0.00	sf	*Condalia, Crabapple, Goldenball Lead Tree, Mesquite,*	
							Persimmon, Possumhaw, Redbud, Retama, Wild Olive, and Vitex	
	Total Shade Coverage Provided=				**22,750.00**	**sf**		
	Total Shade Coverage Provided=				**1646.16%**			
Site 2	Total Site Area (SF)				78,807.00	sf	78,807	SF
	Total Canopy Required				25%		**19,702**	SF
Existing Tree Canopy Preservation								
	Large trees				***Species***		*Bald Cypress, Cottonwood, Deodar Cedar,*	
	0	1200	@	100%	0.00	sf	*Pecan, Red Oak, Sycamore, Burr Oak and*	
							Texas Sycamore	
	Medium/Large trees				***Species***		*Anaqua, Arizona Cypress, Live Oak, Texas Grn. Ash, Cedar Elm,*	
	28	875	@	100%	24,500.00	sf	*Cedar Elm, Chinkapin Oak, Esc. Blk. Cherry, Blk. Willow, Eve's Nec*	
							Hackberry and Western Soapberry	
	Medium trees				***Species***		*Honey Locust, Huisache & Lacey Oak*	
	0	550	@	100%	0.00	sf		
	Medium/Small trees				***Species***		*Anacacho Orchid Tree, Ashe Juniper, Carolina Buckthorne,*	
	3	275	@	100%	825.00	sf	*Condalia, Crabapple, Goldenball Lead Tree, Mesquite,*	
							Persimmon, Possumhaw, Redbud, Retama, Wild Olive, and Vitex	
	Total Shade Coverage Provided=				**25,325.00**	**sf**		
	Total Shade Coverage Provided=				**128.54%**			
Total SF of Tree Canopy Outstanding								
	Total Canopy Required						**21,084**	SF
	Total Canopy Required minus Canopy Provided						**-1,666**	SF
	Total Number of Tree Canopy Outstanding						-1,666 SF / 788 SF=	**-2 Trees**
Proposed Tree Canopy Planting								
	Large trees				***Species***		*Bald Cypress, Cottonwood, Deodar Cedar,*	
	3	1200	@	90%	3,240.00	sf	*Pecan, Red Oak, Sycamore, Burr Oak and*	
							Texas Sycamore	
	Medium/Large trees				***Species***		*Anaqua, Arizona Cypress, Live Oak, Texas Grn. Ash,*	
	4	875	@	90%	3,150.00	sf	*Cedar Elm, Chinkapin Oak, Esc. Blk. Cherry, Blk. Willow,*	
							Eve's Necklace, and Western Soapberry	
	Medium trees				***Species***		*Honey Locust, Huisache & Lacey Oak*	
	0	550	@	90%	0.00	sf		
	Medium/Small trees				***Species***		*Anacacho Orchid Tree, Ashe Juniper, Carolina Buckthorne,*	
	0	275	@	90%	0.00	sf	*Condalia, Crabapple, Goldenball Lead Tree, Mesquite,*	
						sf	*Persimmon, Possumhaw, Redbud, Retama, Wild Olive, and Vitex*	
	Total Shade Coverage Provided=				**6,390.00**	**sf**		

90% shade value for new trees, minimum of 1.5" cal. Each
***No morte than twenty-five percent of the replacement trees shall be of the same species for purposes of miligation*
****Multi-family and Nonresidential sites rerquire a minimum tree canopy cover of twenty-five (25) percent of the total site area*

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CONSTRUCTION DOCUMENTS

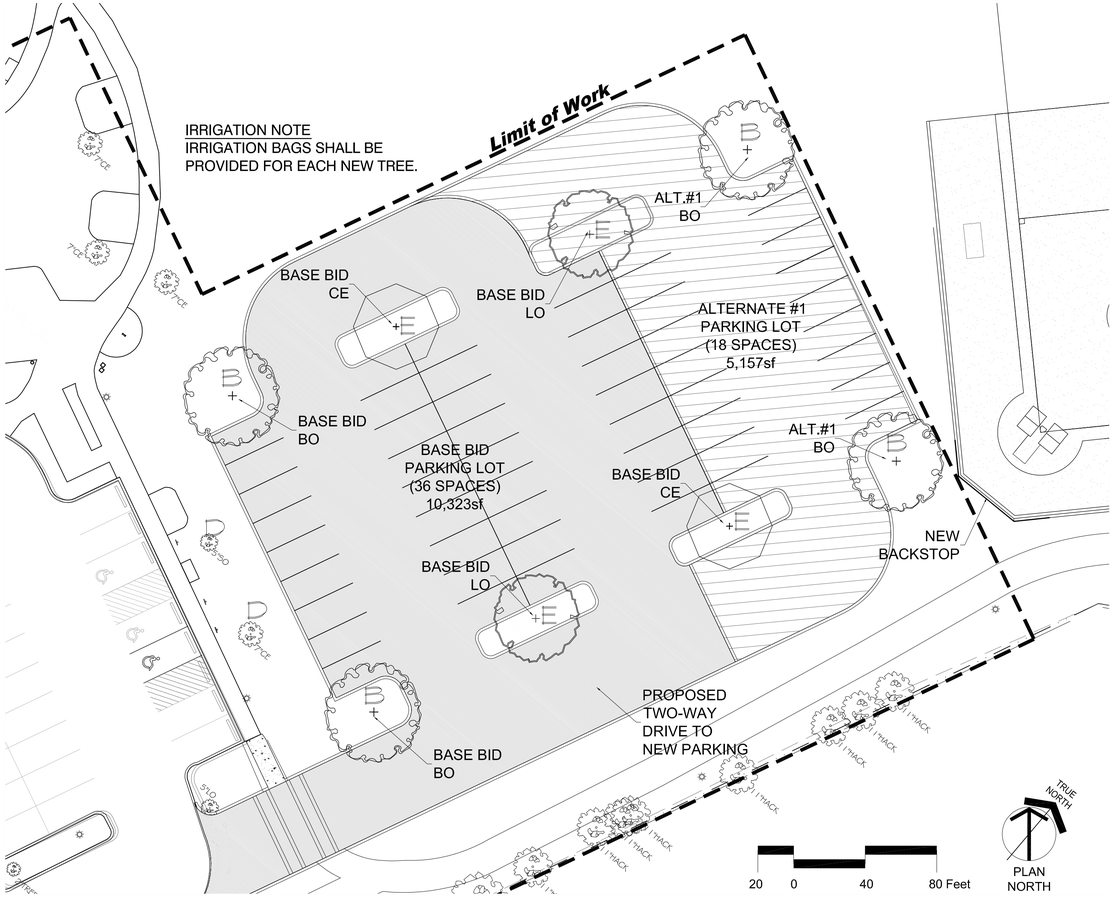
BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

Tree Protection & Canopy Plan

L1.00

Date: Jun 21, 2019, 2:10pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg



1 ENLARGED PLAN: PARKING LOT SHADING

Scale 1" = 40'-0"

Parking-lot Shading Calculations

Oscar Perez Park

	Total Parking-lot Area=				15,480.00 sf	
	Shade Coverage Required=				25%	
	Shade Coverage Required=				3,870.00 sf	
Key	# of Trees	Shade Value				
See Plan	**Large trees**				***Species***	*Bald Cypress, Cottonwood, Deodar Cedar,*
A	0	1200	@	100%	0.00 sf	*Pecan, Red Oak, Sycamore, Burr Oak and*
B	4	1200	@	75%	3,600.00 sf	*Texas Sycamore*
C	0	1200	@	50%	0.00 sf	
	Medium/Large trees				***Species***	*Anaqua, Arizona Cypress, Live Oak,*
D	2	875	@	100%	1,750.00 sf	*Texas Grn. Ash, Blk. Willow, Cedar*
E	4	875	@	75%	2,625.00 sf	*Elm, Chinkapin Oak, Esc. Blk. Cherry,*
F	0	875	@	50%	0.00 sf	*Ashe Juniper, Hackberry,*
						Eve's Necklace, and Western Soapberry
	Medium trees				***Species***	*Honey Locust, Huisache & Lacey Oak*
G	0	550	@	100%	0.00 sf	
H	0	550	@	75%	0.00 sf	
I	0	550	@	50%	0.00 sf	
	Medium/Small trees				***Species***	*Anacacho Orchid Tree, Ashe Juniper,*
J	0	275	@	100%	0.00 sf	*Carolina Buckthorne, Yaupon, Condalia,*
K	0	275	@	75%	0.00 sf	*Condalia, Crabapple, Goldenball Lead*
L	0	275	@	50%	0.00 sf	*Tree, Mesquite, Persimmon, Possumhaw,*
						Redbud, Retama, Wild Olive, and Vitex
	Total Shade Coverage Provided=				**7,975.00 sf**	
	Total Shade Coverage Provided=				**51.52%**	
	100% shade value for existing trees meeting RPZ criteria					
	75% shade value for trees in islands or peninsulas					
	50% shade value for trees within 12' of a parking surface					

Elective Requirements- 25 points required

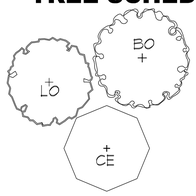
Tree Preservation - 40 points, maximum		Qty.	Points
4 to 6 inch trees	3 points each	-	-
6 to 12 inch trees	4 points each	-	-
12 to 18 inch trees	6 points each	-	-
18 inch trees or larger	8 points each	-	-

Inside Streetyard:	
full credit up to 30 points	-
1/2 credit for total above 30 points	-
Outside Streetyard:	
1/2 credit up to a maximum of 15 points	-
Total Points: Tree Preservation (40 Points, max.)	-

Parking Lot Shading	
Percent Shaded	Points
25%	20
35%	25
50%	35

Total Points: Parking Lot Shading	35
Screening of Surface Parking - 25 points	-
Street Trees - 25 Points	-
Understory Preservation or Restoration - 15 Pnts.	-
Infill or Retrofit Use Pattern - 25 pnts.	-
Total Points - Elective Criteria	***35***

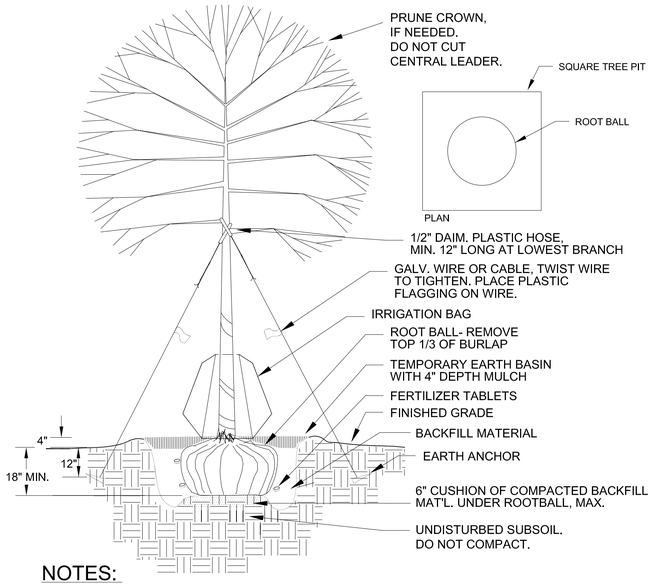
TREE SCHEDULE



BO	2	(*2)	Bur Oak	*Quercus macrocarpa*	3" cal., 12' ht., full container grown
LO	2		Live Oak	*Quercus virginiana*	3" cal., 8' ht., full container grown
CE	2		Cedar Elm	*Ulmus crassifolia*	3" cal., 8' ht., full container grown

* Quantity for Alternate #1

Note:
All trees are to be boxed or containerized, nursery grown specimens.

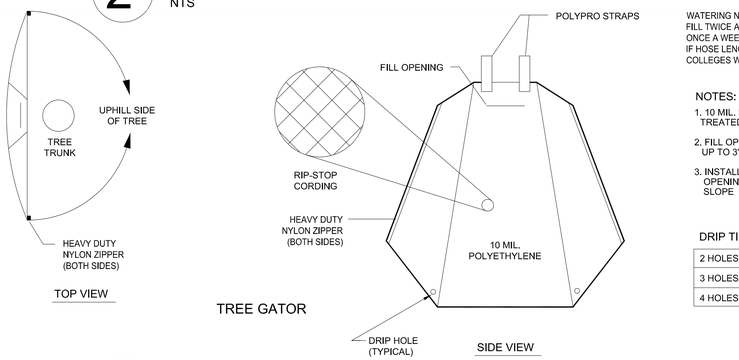


NOTES:

1. PIT SIZE: WIDTH TO BE A MINIMUM OF TWICE AS WIDE AS ROOT BALL, SQUARED CORNERS, TYPICAL. DEPTH OF PIT TO BE EQUAL TO ROOTBALL DEPTH, PLUS 6", TYP.
2. PLANTING DEPTH: TOP OF ROOT BALL ONE INCH ABOVE FINISHED GRADE.
3. BACKFILL MATERIAL: 6 PARTS APPROVED TOPSOIL, 2 PARTS COMPOSTED WOOD MULCH & 1 PART SHARP RED SAND. SOAK TO REDUCE SETTLING.
4. PLANTING TABLETS: 21 GRAM AGRIFORM TABLETS (20-10-5). USE 3 FOR 5 GAL. SIZE, 6 FOR 15 GAL. SIZE, 12 FOR 24" BOX SIZE.
5. EARTH BASIN: 12" DIAMETER LARGER THAN ROOT BALL.
6. MULCH: APPROVED UNTREATED 90% MIN. BARK BASE PRODUCT, SEE SPEC.
7. ROOT STIMULATOR: GREENLITE ROOT STIMULATOR OR EQUAL. APPLY AS PER MANUFACTURER'S INSTRUCTIONS (3 TIMES @ 2 WEEK INTERVALS)
8. STAKES: STRAIGHT 2X2 SYP TREATED WITH LP 22, 8' LENGTH, TAPER POINT.
9. STAKING HEIGHT: SUFFICIENT TO SUPPORT TRUNK IN VERTICAL, UNBENDING POSITION WHEN SECURED WITH CABLE TIES, 2' TO 3' ABOVE GRADE, TYPICAL.
10. TREE GUYING: TREES NORMALLY DO NOT NEED TO BE STAKED OR GUYED. DO SO ONLY WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT. IF REQUIRED, USE EARTH ANCHOR GUYING SUCH AS 'ARBOR BRACE', OR 'DUCKBILL' WITH ALL STAKING DONE OUTSIDE OF THE ROOTBALL. PLACE PLASTIC FLAGGING OR OTHER VISUAL MARKERS ON EACH GUY WIRE.
11. TEST ALL TREE PITS FOR DRAINAGE PER SPECIFICATIONS.

2 DETAIL: TREE PLANTING

NTS



WATERING NOTE:
FILL TWICE A WEEK FOR THE FIRST YEAR. ONCE A WEEK FOR THE NEXT TWO YEARS. IF HOSE LENGTH IS TO GREAT TO FILL, ALAMO COLLEGES WILL PROVIDE WATER TRUCK

NOTES:
1. 10 MIL. POLYETHYLENE - UV TREATED AND REINFORCED
2. FILL OPENING ACCEPTS HOSES UP TO 3" IN DIAMETER
3. INSTALL TREEGATOR WITH FILL OPENING ON DOWNHILL SIDE OF SLOPE

DRIP TIMES:

2 HOLES	6 - 10 HOURS
3 HOLES	2 - 6 HOURS
4 HOLES	1 - 2 HOURS

3 DETAIL: TREE IRRIGATION BAG

NTS

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BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

LANDSCAPE ORDINANCE COMPLIANCE PLAN

L1.01

Date: Jun 21, 2019, 2:00pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg

REESTABLISH ALL DISTURBED AREAS WITH NEW TOPSOIL SOD AND/OR SEED

NEW TREE PLANTING

NEW TREE PLANTING

NEW TREE PLANTING

ALT.#1 TREE PLANTING

4" MIN. BASEBALL FIELD SOIL MIX (35% CLAY/SILT, 65% SAND) W/ 1/4" TOP DRESSING RED INFIELD CONDITIONER. TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS. AS PROVIDED BY DIAMOND PRO 1-800-228-2987 OR APPROVED SUBSTITUTION. (APPROX. 11,700sf)

REESTABLISH ALL DISTURBED AREAS WITH NEW TOPSOIL SOD AND/OR SEED

ALTERNATE #1 PARKING LOT (18 SPACES)

HOME PLATE, PITCHER'S RUBBER, 3 BASES AND FIELD CHALK NOT IN CONTRACT, TO BE PROVIDED BY OTHERS

ALT.#1 TREE PLANTING

BASE BID PARKING LOT (36 SPACES)

NEW SOFTBALL/BASEBALL BACKSTOP 1230-00G PERMANENT HOODED BACKSTOP AS PROVIDED BY PATTERSON WILLIAMS ATHLETICS MFG Co. 1-800-687-5768 OR APPROVED SUBSTITUTION. TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS. LOCATION TO BE REVIEWED AND APPROVED IN THE FIELD PRIOR TO INSTALLATION.

NEW TREE PLANTING

NEW TREE PLANTING

EXISTING TREES TO REMAIN PRESERVED

NEW ACCESSIBLE PARKING SPACE SIGN

NEW TREE PLANTING

ADJUST STRIPING FOR NEW ACCESSIBLE PARKING SPACE & AISLE

REMOVE EXISTING CURB STOP

PROPOSED SIDEWALK TO MATCH EXISTING

PROPOSED TWO-WAY DRIVE TO NEW PARKING

EXISTING SIDEWALK & FLUSH CURB

EXISTING TREE TO REMAIN PRESERVED

PROPOSED CURB

EXISTING 8' TRAIL

EXISTING CURB TO REMAIN

PROPSED SIDEWALK

PROPOSED CURB

SAW CUT EXISTING CURB

PROPOSED RAISED PEDESTRIAN CROSSWALK

EXISTING TREES TO REMAIN PRESERVED

PROPOSED CURB

REESTABLISH ALL DISTURBED AREAS WITH NEW TOPSOIL SOD AND/OR SEED

REMOVE PORTION OF EXITING CURB FOR NEW DRIVEWAY

ARTIFICIAL LOT

REMOVE EXISTING SOFTBALL BACKSTOP

PROPOSED DRIVEWAY

PROPOSED CURB

SAW CUT EXISTING CURB

EXISTING CURB TO REMAIN

REMOVE EXISTING BARRICADE

EXISTING 8' TRAIL

IRRIGATION NOTE
IRRIGATION BAGS SHALL BE PROVIDED FOR EACH NEW TREE.

5 0 10 20 Feet

TRUE NORTH

PLAN NORTH

1 ENLARGED PLAN: PARKING AREA & RAISED PEDESTRIAN CROSSWALK

Scale 1" = 10'-0"

REFER TO CIVIL

CONSTRUCTION DOCUMENTS

Date: Jun 21, 2019, 1:57pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg

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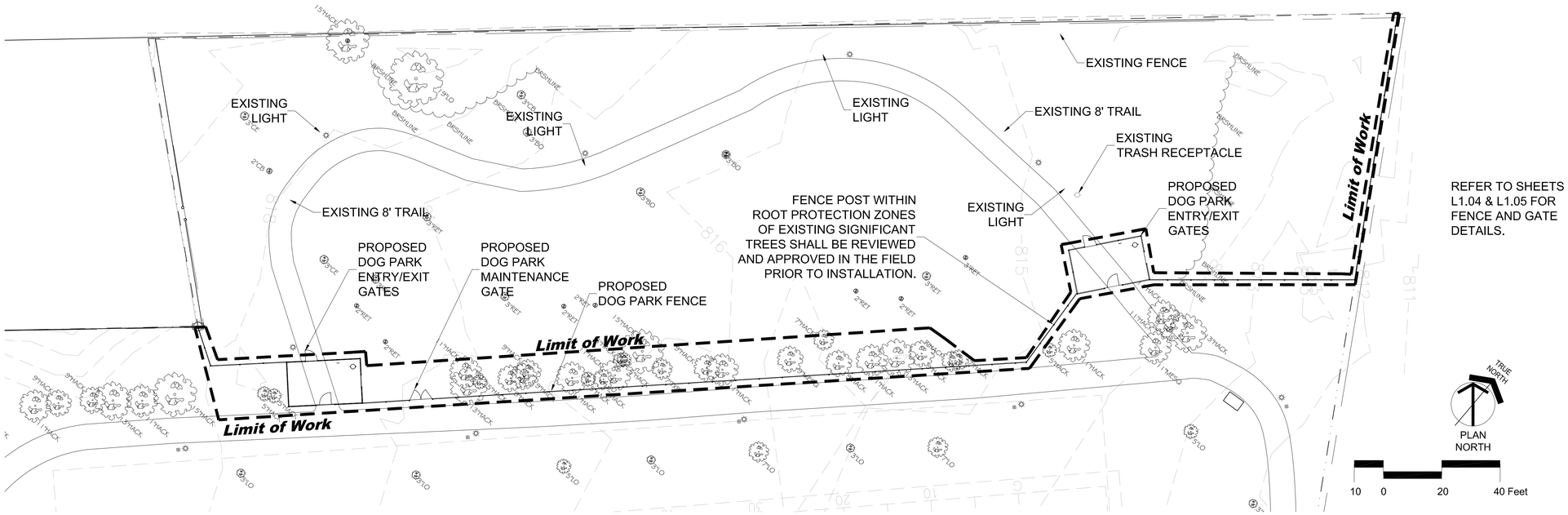
BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

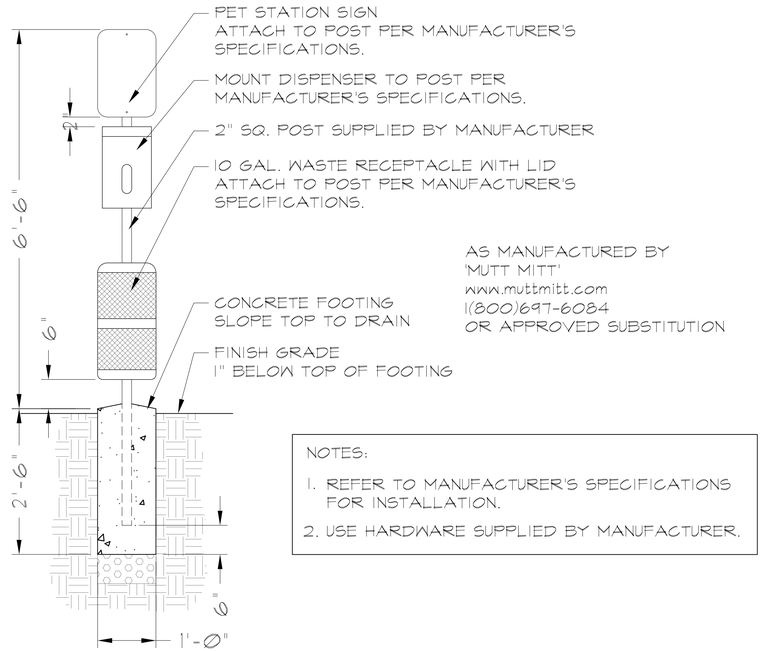
ENLARGED PLAN PARKING AREA & RAISED CROSSWALK

L1.02



1 ENLARGED PLAN: DOG PARK - ALTERNATE #2

Scale 1" = 20'-0"



NOTES:

1. REFER TO MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION.
2. USE HARDWARE SUPPLIED BY MANUFACTURER.

2 DETAILS: DOG PARK MUTT-MITTS - ALT. #2

NTS

CONSTRUCTION DOCUMENTS

ISSUE DATE

No.	Date	Issue Description
	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:_
Project Manager
Tel:_

LANDSCAPE ARCHITECT / PRIME CONSULTANT
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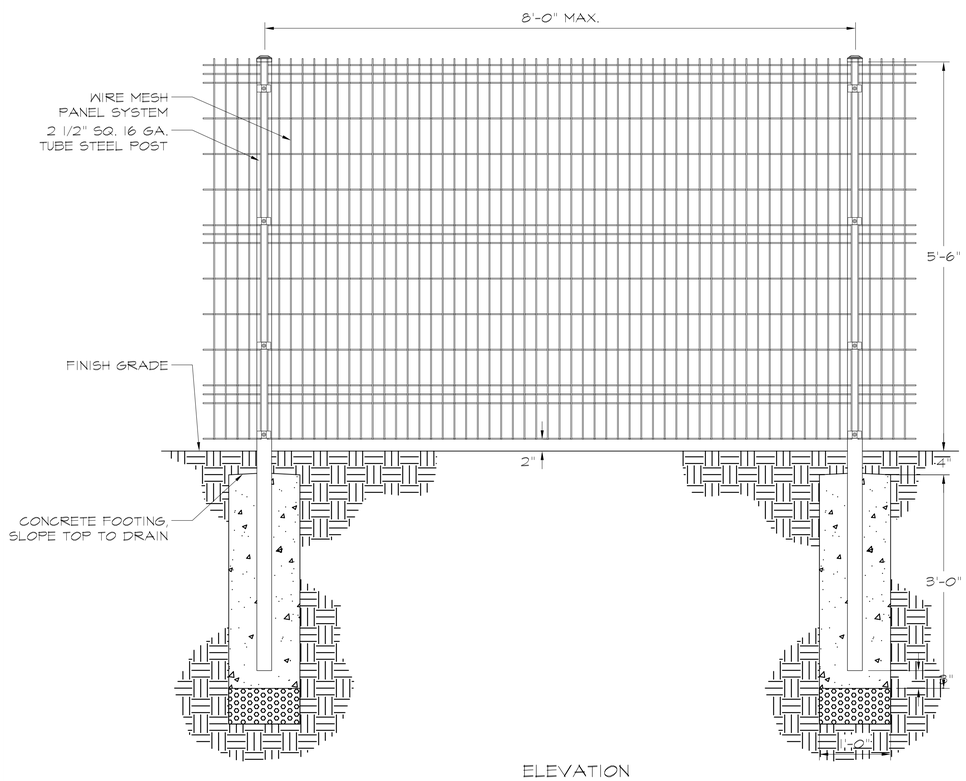
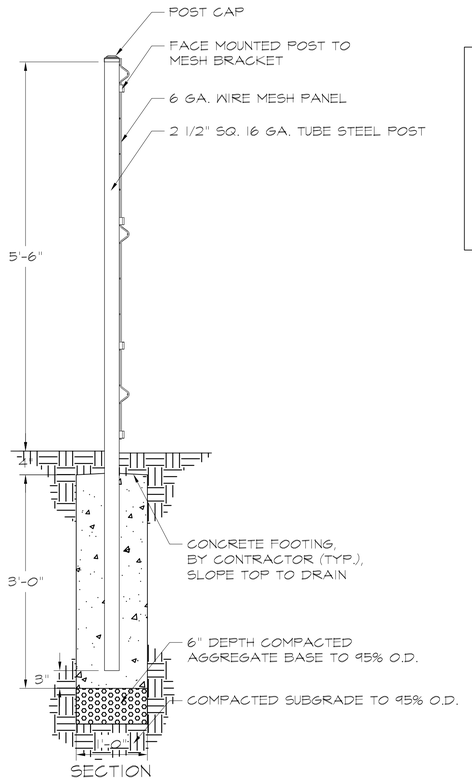
ALTERNATE #2 ENLARGED PLAN DOG PARK

L1.03

Date: Jun 21, 2019, 1:54pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg



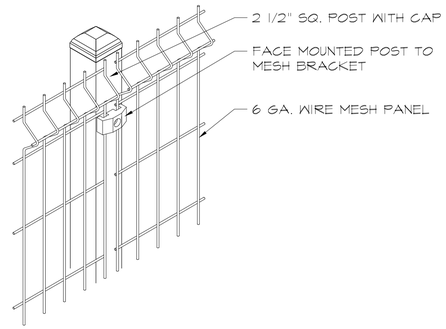
ELEVATION



SECTION

NOTES:

1. PROVIDE & SUBMIT ALL NECESSARY SHOP DRAWINGS TO THE LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO FABRICATION & INSTALLATION.
2. CONTRACTOR SHALL PROVIDE ONE 8 FT. LENGTH FULL HEIGHT FENCE SECTION FOR REVIEW AND APPROVAL BEFORE CONTINUING CONSTRUCTION.
3. ALL TUBULAR STEEL MEMBERS AND MESH FENCE SHALL HAVE A POWDER COAT FINISH.
4. REFER TO MATERIALS LEGEND FOR MANUFACTURER & COLOR.



WIRE MESH PANEL ENLARGEMENT

1 DETAILS: DOG PARK FENCE - ALTERNATE #2

NTS

CONSTRUCTION DOCUMENTS

ISSUE DATE

No.	Date	Issue Description
	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:_
Project Manager
Tel: _

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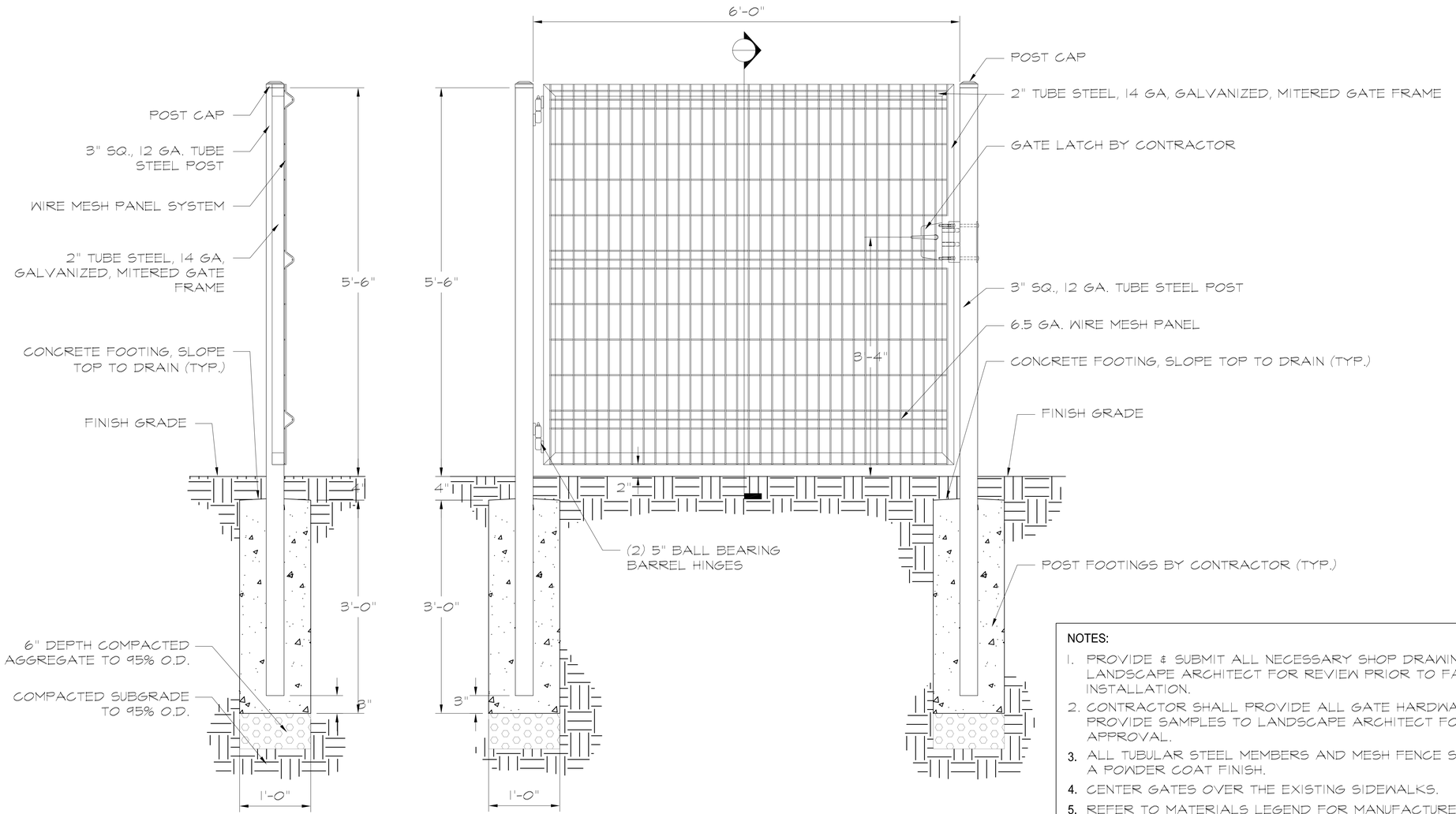
BWCD Proj. No. :	Drawn By :

SHEET TITLE & NO. :

ALTERNATE #2
DOG PARK
FENCE DETAIL

L1.04

PLAN



SECTION

ELEVATION

NOTES:

1. PROVIDE & SUBMIT ALL NECESSARY SHOP DRAWINGS TO THE LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO FABRICATION & INSTALLATION.
2. CONTRACTOR SHALL PROVIDE ALL GATE HARDWARE. PROVIDE SAMPLES TO LANDSCAPE ARCHITECT FOR APPROVAL.
3. ALL TUBULAR STEEL MEMBERS AND MESH FENCE SHALL HAVE A POWDER COAT FINISH.
4. CENTER GATES OVER THE EXISTING SIDEWALKS.
5. REFER TO MATERIALS LEGEND FOR MANUFACTURER & COLOR.

1 DETAIL: DOG PARK GATE - ALTERNATE #2

NTS

CONSTRUCTION DOCUMENTS

ISSUE DATE		
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	06/ 21 /2019	Construction Documents

Oscar Perez park Site Improvements

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SHEET TITLE & NO. :

ALTERNATE #2
DOG PARK
GATE DETAIL

L1.05

Date: Jun 21, 2019, 1:52pm User ID: bvierville
File: S:\2018 PROJECTS\Oscar Perez Park- 2017 Bond\Workfile\2019-06-21-BWC Oscar Perez Park CD SUBMITTAL.dwg

NOTE:
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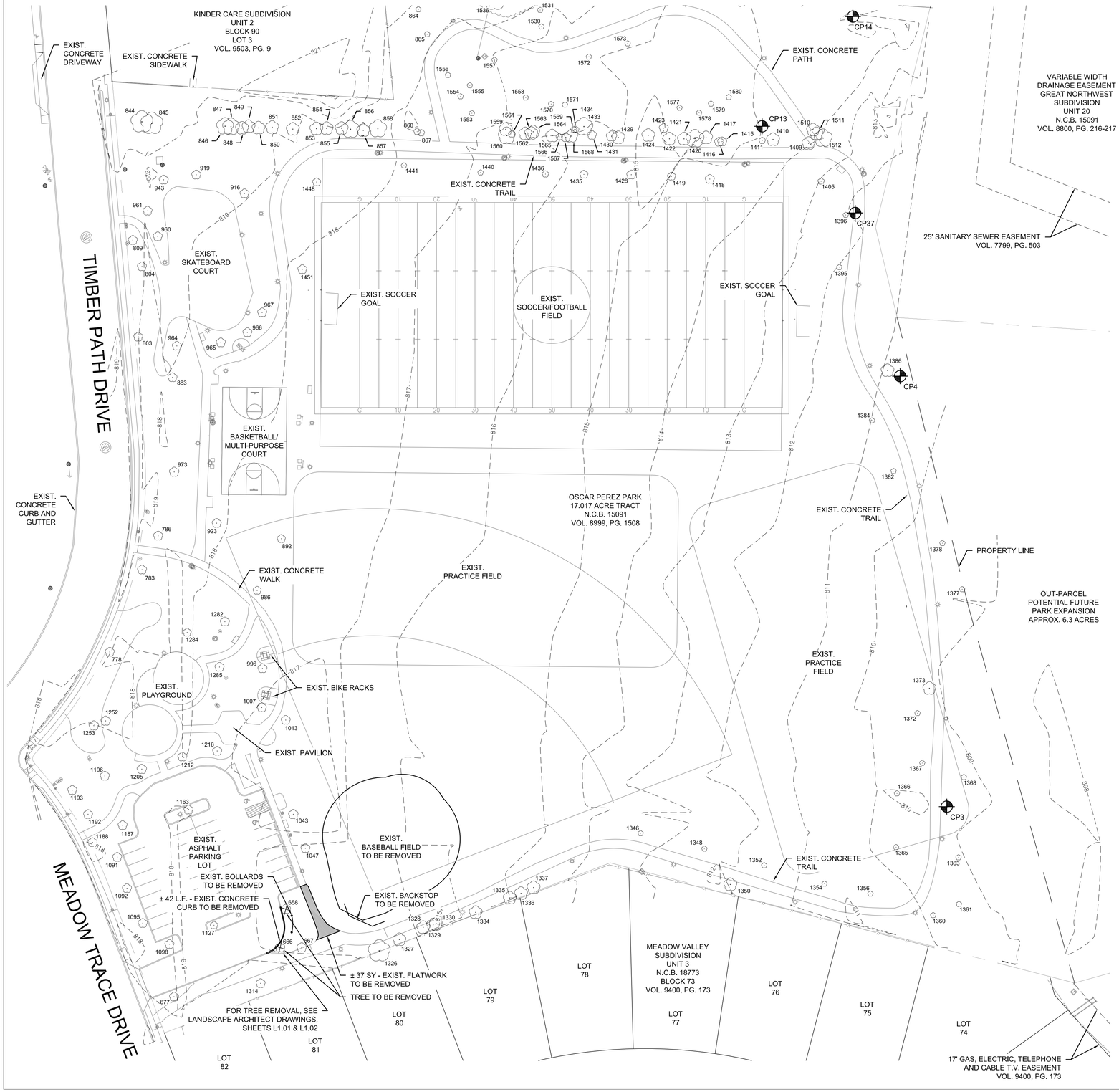

LEGEND

- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING GUY WIRE
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC JUNCTION BOX
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPRINKLER BOX
- EXISTING SPRINKLER HEAD
- EXISTING WATER FOUNTAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIGN
- EXISTING TREE
- EXISTING CONTOURS
- EXISTING WOOD FENCE

40 0 20 40 80
SCALE: 1" = 40'

CONTROL POINTS

POINT NO.	NORTHING	EASTING	ELEVATION
3	13725506.3235	2078508.7304	809.77'
4	13725721.2650	2078248.0041	810.61'
13	13725785.5922	2078034.6775	814.86'
14	13725896.3027	2078025.5496	813.70'
37	13725787.9302	2078133.8989	812.68

TREE TABLE

POINT NO.	SIZE AND TYPE	POINT NO.	SIZE AND TYPE	POINT NO.	SIZE AND TYPE
658	5" LO	1098	7" CPO	1411	5" HACKBERRY
666	5" CEDAR	1127	2" TREE	1415	7" HACKBERRY
667	5" CEDAR	1163	7" LO	1416	7" HACKBERRY
677	7" CEDAR	1187	BUCKEYE BUSH	1417	9" HACKBERRY
778	7" LO	1188	BUCKEYE BUSH	1418	7" LO
783	7" LO	1192	7" CEDAR	1419	3" LO
786	7" LO	1193	7" CEDAR	1420	13" HACKBERRY
803	7" LO	1196	7" CPO	1421	11" HACKBERRY
804	7" CEDAR	1205	5" SO	1422	9" HACKBERRY
809	7" LO	1212	7" CEDAR	1423	7" HACKBERRY
844	19" HACKBERRY	1216	7" LO	1424	9" MESQUITE
845	19" HACKBERRY	1252	5" RB	1428	7" LO
846	13" HACKBERRY	1253	5" RB	1429	11" HACKBERRY
847	13" HACKBERRY	1282	7" CEDAR	1430	9" HACKBERRY
848	11" MESQUITE	1284	3" SO	1431	7" TXP
849	7" HACKBERRY	1285	7" LO	1433	15" HACKBERRY
850	9" HACKBERRY	1314	7" CEDAR	1434	5" HACKBERRY
851	9" MESQUITE	1326	17" HACKBERRY	1435	3" LO
852	9" HACKBERRY	1327	11" HACKBERRY	1436	5" LO
853	11" HACKBERRY	1328	11" HACKBERRY	1440	3" LO
854	9" HACKBERRY	1329	11" HACKBERRY	1441	3" LO
855	9" HACKBERRY	1330	11" HACKBERRY	1448	3" LO
856	13" HACKBERRY	1334	11" HACKBERRY	1451	7" CEDAR
857	11" HACKBERRY	1335	11" HACKBERRY	1510	11" HACKBERRY
858	15" HACKBERRY	1336	11" HACKBERRY	1511	11" HACKBERRY
864	3" CEDAR	1337	11" HACKBERRY	1512	13" HACKBERRY
865	2" CB	1346	3" CEDAR	1530	3" BO
867	5" HACKBERRY	1348	3" CEDAR	1531	3" CHINABERRY
868	5" HACKBERRY	1350	11" HACKBERRY	1536	19" LO
883	7" CEDAR	1352	3" CEDAR	1546	15" HACKBERRY
892	3" CEDAR	1354	3" CPO	1553	2" RETAMA
916	7" CEDAR	1356	3" CEDAR	1554	2" RETAMA
919	7" LO	1360	3" CEDAR	1555	3" RETAMA
923	7" CEDAR	1361	3" CEDAR	1556	3" CEDAR
943	7" LO	1363	3" CEDAR	1557	3" RETAMA
960	7" CEDAR	1365	3" BO	1558	3" RETAMA
961	7" CEDAR	1366	3" CEDAR	1559	11" HACKBERRY
964	7" LO	1367	3" CEDAR	1560	13" HACKBERRY
965	7" CEDAR	1368	3" CEDAR	1561	5" HACKBERRY
966	7" CEDAR	1372	3" BO	1562	9" HACKBERRY
967	7" CEDAR	1373	9" HACKBERRY	1563	9" HACKBERRY
973	5" CEDAR	1377	3" CPO	1564	9" HACKBERRY
986	3" LO	1378	3" CEDAR	1565	11" HACKBERRY
996	7" CEDAR	1382	3" LO	1566	5" HACKBERRY
1007	7" CEDAR	1384	3" LO	1567	7" HACKBERRY
1013	7" CEDAR	1386	9" CEDAR	1568	11" HACKBERRY
1043	5" SO	1395	3" LO	1569	5" HACKBERRY
1047	7" CEDAR	1396	3" LO	1572	3" BO
1091	7" CEDAR	1405	5" LO	1573	3" BO
1092	7" CPO	1409	11" MESQUITE	1577	2" RETAMA
1095	7" CPO	1410	11" HACKBERRY	1578	2" RETAMA
				1579	3" RETAMA
				1580	3" RETAMA

CONSTRUCTION DOCUMENT SUBMITTAL

Date: Jun 21, 2019, 1:38pm User ID: LCarter
File: W:\Work\C-1515 Oscar Perez Park - CoSA Bond 2017\Design\Civil\Construction Documents\EXIST SITE PLAN.dwg

ISSUE DATE

No.	Date	Issue Description

Oscar Perez Park Site Improvements

8601 Timber Path
San Antonio, Texas 78250
OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: _

LANDSCAPE ARCHITECT / PRIME CONSULTANT
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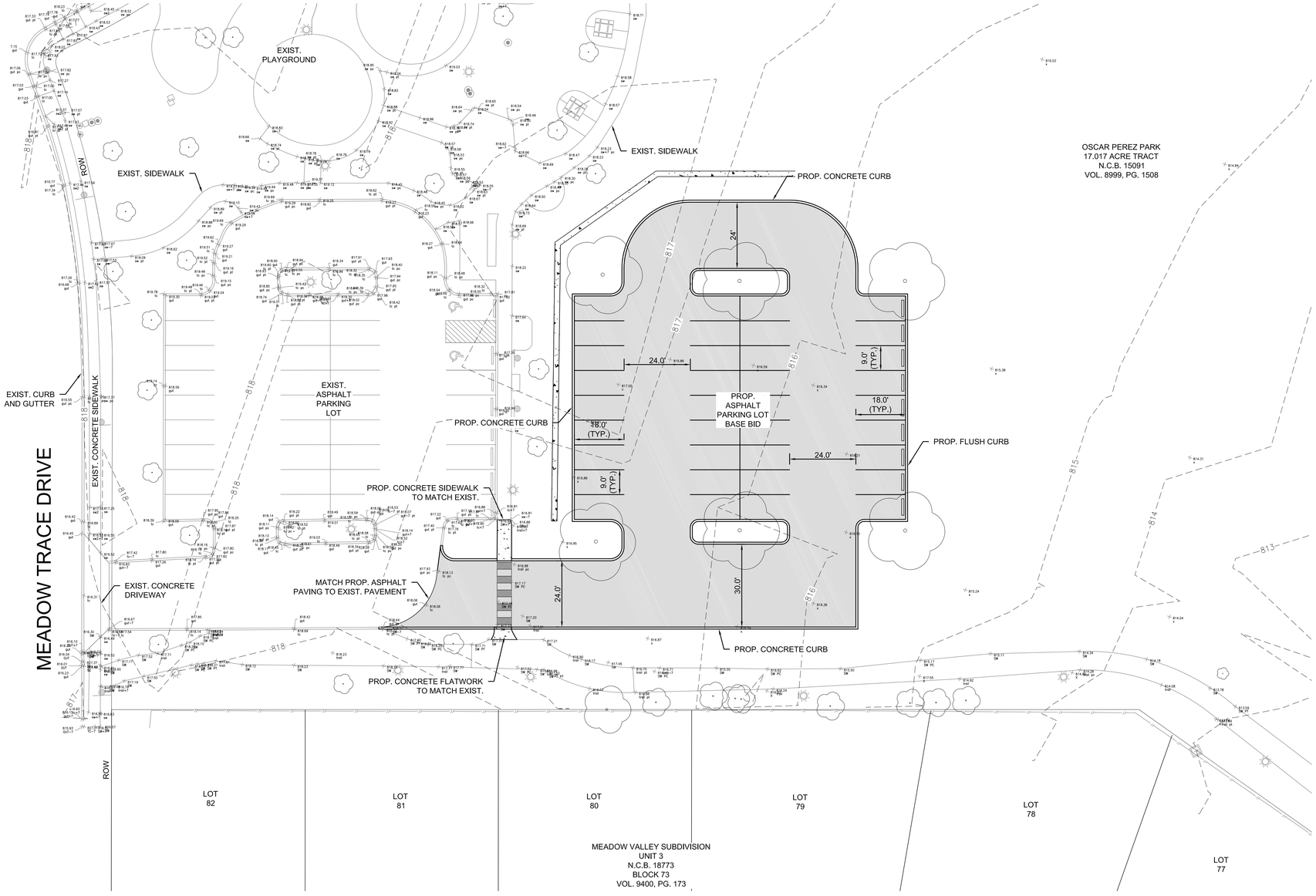
Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : | Drawn By : JML

SHEET TITLE & NO. :

EXISTING SITE AND DEMOLITION PLAN

C-1.0



20 0 10 20 40

SCALE: 1" = 20'

LEGEND

- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING GUY WIRE
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC JUNCTION BOX
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPRINKLER BOX
- EXISTING SPRINKLER HEAD
- EXISTING WATER FOUNTAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIGN
- EXISTING TREE
- EXISTING CONTOURS 816
- EXISTING WOOD FENCE
- NEW TREES, SEE LANDSCAPE PLANS

CONSTRUCTION DOCUMENT SUBMITTAL

Date: Jun 21, 2019, 1:39pm User ID: LCarter
File: W:\Work\C-1515 Oscar Perez Park – CoSA Bond 2017\Design\Civil\Construction Documents\PROP SITE PLAN.dwg

ISSUE DATE

No.	Date	Issue Description

Oscar Perez Park Site Improvements

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San Antonio, Texas 78250
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Contact:
Project Manager
Tel: _

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LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : | **Drawn By : JML**

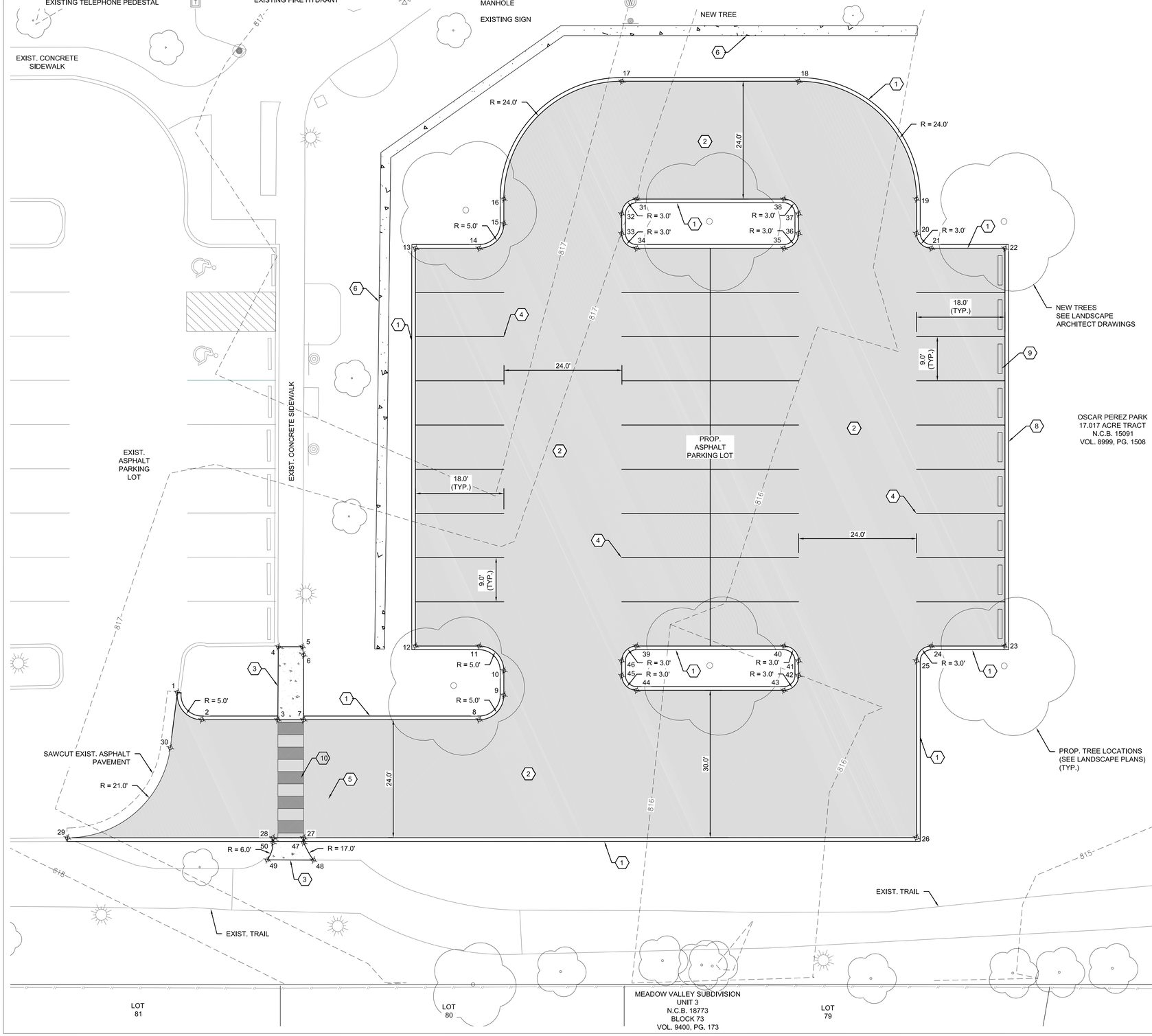
SHEET TITLE & NO. :

PROPOSED SITE PLAN

C-2.0

LEGEND

EXISTING POWER POLE
EXISTING LIGHT POLE
EXISTING GUY WIRE
EXISTING TELEPHONE PEDESTAL
EXISTING ELECTRIC JUNCTION BOX
EXISTING WATER METER
EXISTING WATER VALVE
EXISTING FIRE HYDRANT
EXISTING SPRINKLER BOX
EXISTING SPRINKLER HEAD
EXISTING WATER FOUNTAIN
EXISTING SANITARY SEWER MANHOLE
EXISTING SIGN
EXISTING WOOD FENCE
EXISTING TREE
EXISTING CONTOURS
NEW TREE



10 0 5 10 20

SCALE: 1" = 10'

KEY NOTES

1. PROPOSED CONCRETE CURB. SEE CIVIL DETAIL SHEET C-6.0.
2. PROPOSED ASPHALT PAVEMENT. SEE PAVEMENT SECTION DETAIL ON SHEET C-6.0.
3. PROPOSED CONCRETE SIDEWALK. SEE CIVIL DETAIL SHEET C-6.0.
4. PROPOSED PARKING STRIPES. SEE CIVIL DETAIL SHEET C-6.0.
5. PROPOSED RAISED PEDESTRIAN CROSSWALK.
6. PROPOSED CONCRETE SWALE. SEE CIVIL DETAIL SHEET C-6.0
7. PROPOSED TREE REMOVAL. SEE LANDSCAPE PLANS
8. PROPOSED ±81 L..F. FLUSH CURB. SEE CIVIL DETAIL SHEET C-6.0
9. PROPOSED WHEEL STOPS. SEE CIVIL DETAIL SHEET C-6.0.
10. PROPOSED STRIPING.

POINT TABLE

POINT NO.	NORTHING	EASTING
1	13725087.4003	2078191.4218
2	13725089.5589	2078198.5824
3	13725103.6105	2078205.0802
4	13725109.9211	2078191.6205
5	13725114.3529	2078193.6699
6	13725113.9128	2078195.3099
7	13725108.3757	2078207.2838
8	13725140.8243	2078222.2889
9	13725147.4612	2078219.8492
10	13725149.5598	2078215.3110
11	13725147.1201	2078208.6741
12	13725135.3207	2078203.2177
13	13725169.3182	2078129.6978
14	13725181.1177	2078135.1542
15	13725187.7546	2078132.7146
16	13725189.8532	2078128.1763
17	13725221.7102	2078116.4660
18	13725254.3857	2078131.5760
19	13725266.0960	2078163.4330
20	13725263.1579	2078169.7866
21	13725264.6217	2078173.7687
22	13725278.2365	2078180.0646
23	13725244.2389	2078253.5844
24	13725230.6241	2078247.2886
25	13725226.6420	2078248.7524
26	13725211.5285	2078281.4354
27	13725098.2868	2078229.1011
28	13725092.6134	2078226.4791
29	13725054.6161	2078208.9188
30	13725081.3427	2078201.0651
31	13725214.3598	2078139.5088
32	13725210.3777	2078140.9726
33	13725208.6988	2078144.8032
34	13725210.1626	2078148.5854
35	13725237.3921	2078161.1770
36	13725241.3742	2078159.7133
37	13725243.0531	2078156.0826
38	13725241.5893	2078152.1005
39	13725176.1650	2078222.1052
40	13725203.3946	2078234.6969
41	13725204.8584	2078238.6790
42	13725203.5992	2078241.4020
43	13725199.6171	2078242.8658
44	13725172.3875	2078230.2741
45	13725170.9237	2078226.2919
46	13725172.1829	2078223.5690
47	13725097.8861	2078229.9677
48	13725098.1931	2078234.0632
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CONSTRUCTION DOCUMENT SUBMITTAL

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ISSUE DATE

No.	Date	Issue Description

Oscar Perez Park Site Improvements

8601 Timber Path
San Antonio, Texas 78250
OWNER
City of San Antonio, TCI
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Tel: -

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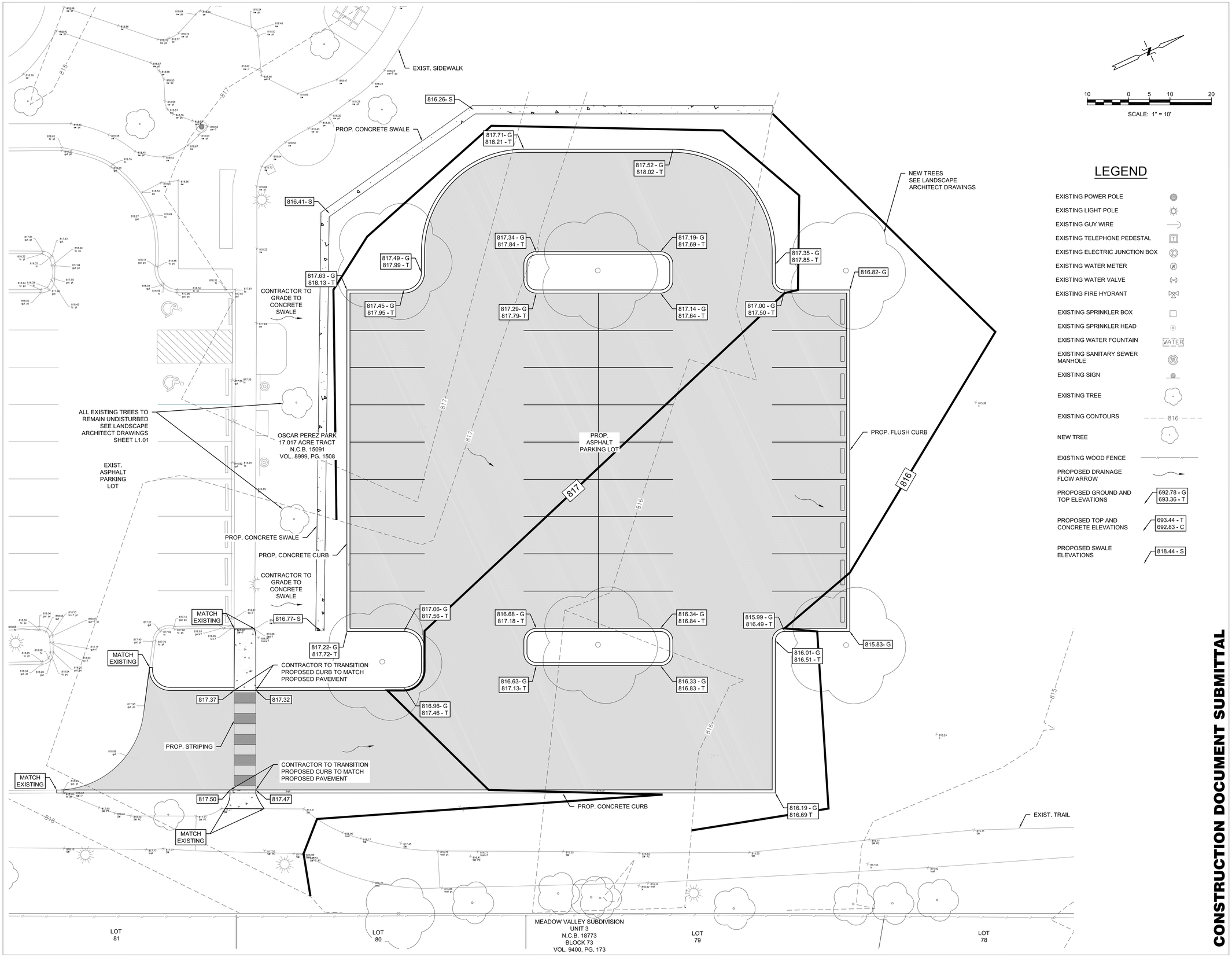
Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : | **Drawn By : JML**

SHEET TITLE & NO. :

DIMENSION CONTROL PLAN

C-3.0



10 0 5 10 20

SCALE: 1" = 10'

LEGEND

- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING GUY WIRE
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC JUNCTION BOX
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPRINKLER BOX
- EXISTING SPRINKLER HEAD
- EXISTING WATER FOUNTAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIGN
- EXISTING TREE
- EXISTING CONTOURS — 816 —
- NEW TREE
- EXISTING WOOD FENCE
- PROPOSED DRAINAGE FLOW ARROW
- PROPOSED GROUND AND TOP ELEVATIONS — 692.78 - G / 693.36 - T
- PROPOSED TOP AND CONCRETE ELEVATIONS — 693.44 - T / 692.83 - C
- PROPOSED SWALE ELEVATIONS — 818.44 - S

CONSTRUCTION DOCUMENT SUBMITTAL

Date: Jun 21, 2019, 1:39pm User ID: LCarter
File: W:\Work\C-1515 Oscar Perez Park – CoSA Bond 2017\Design\Civil\Construction Documents\GRADING PLAN.dwg

ISSUE DATE

No.	Date	Issue Description

Oscar Perez Park Site Improvements

8601 Timber Path
San Antonio, Texas 78250
OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: _

LANDSCAPE ARCHITECT / PRIME CONSULTANT
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SAN ANTONIO, TEXAS 78215

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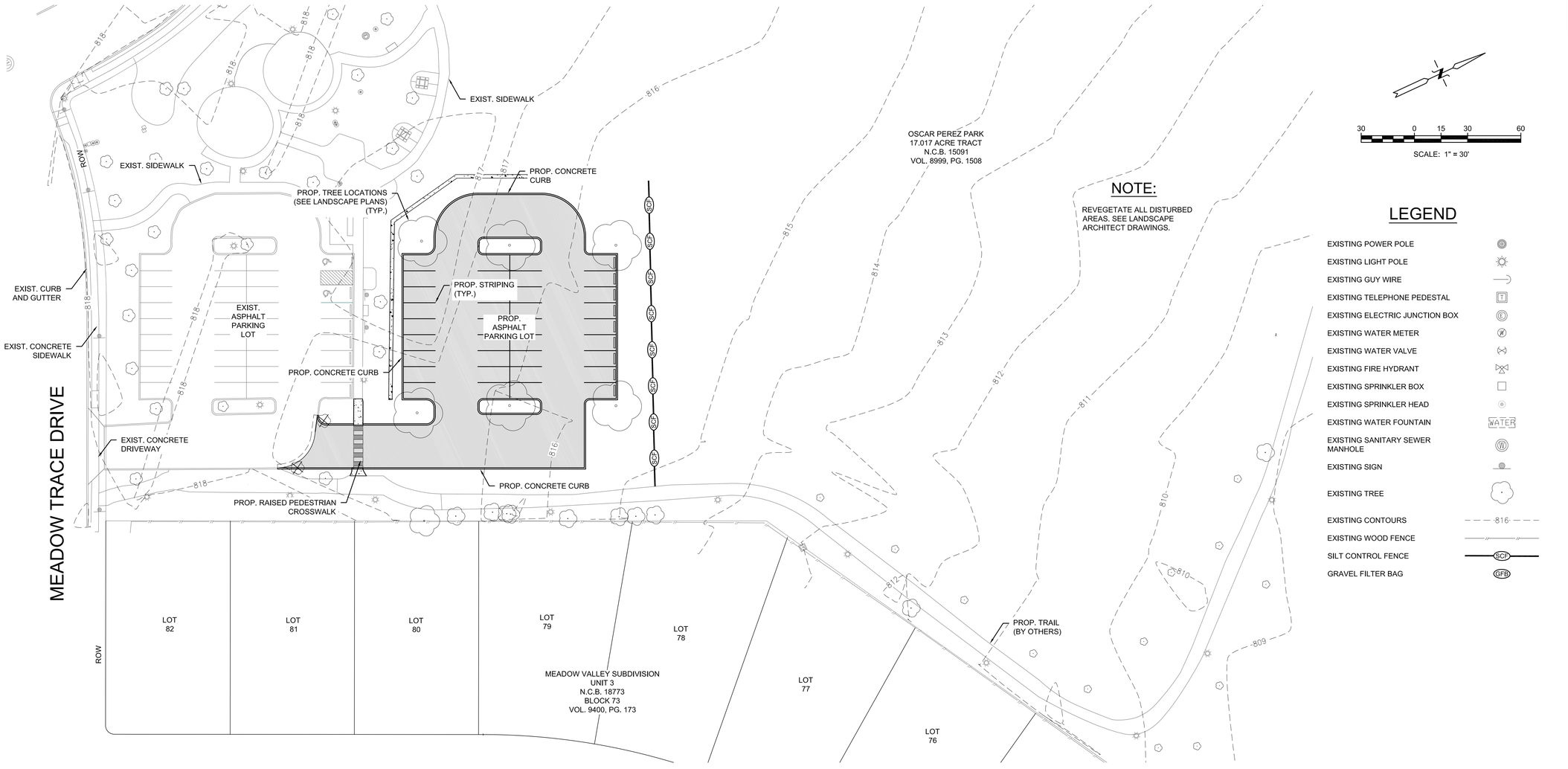
BAIN MEDINA BAIN, INC.
Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : | **Drawn By : JML**

SHEET TITLE & NO. :

GRADING PLAN

C-4.0



30 0 15 30 60

SCALE: 1" = 30'

NOTE:

REVEGETATE ALL DISTURBED AREAS. SEE LANDSCAPE ARCHITECT DRAWINGS.

LEGEND

- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING GUY WIRE
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC JUNCTION BOX
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING SPRINKLER BOX
- EXISTING SPRINKLER HEAD
- EXISTING WATER FOUNTAIN
- EXISTING SANITARY SEWER MANHOLE
- EXISTING SIGN
- EXISTING TREE
- EXISTING CONTOURS
- EXISTING WOOD FENCE
- SILT CONTROL FENCE (SCF)
- GRAVEL FILTER BAG (GFB)

SITE DESCRIPTION

PROJECT LIMITS: Oscar Perez Park is located at the corner of Timber Path and Meadow Trace St.

PROJECT DESCRIPTION: Construction of additional parking lot to tie into existing parking lot.

MAJOR SOIL DISTURBING ACTIVITIES: Soil disturbing activities will include preparing site clearing, and grubbing, grading and excavation.

TOTAL PROJECT AREA: 17.02 Acres

TOTAL AREA TO BE DISTURBED: 0.57 Acres (3.4%)

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION): 0.95

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: Lewisville Silty Clay (LvA), 0-1 percent slopes; Lewisville Silty Clay (LvB), 1-3 percent slopes

NAME OF RECEIVING WATERS: Leon Creek

SOIL STABILIZATION PRACTICES:

- ___ TEMPORARY SEEDING
- _X_ PERMANENT PLANTING, SODDING, OR SEEDING
- ___ MULCHING
- ___ SOIL RETENTION BLANKET
- _X_ BUFFER ZONES
- _X_ PRESERVATION OF NATURAL RESOURCES

OTHER: Disturbed areas on which construction activity has ceased (temporarily or permanently) shall be stabilized within 14 days unless activities are scheduled to resume and do within 21 days.

EROSION AND SEDIMENT CONTROLS

STRUCTURAL PRACTICES:

- _X_ SILT FENCES
- ___ HAY BALES
- ___ ROCK BERMS
- ___ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ___ DIVERSION DIKE AND SWALE COMBINATIONS
- ___ PIPE SLOPE DRAINS
- ___ PAVED FLUMES
- ___ ROCK BEDDING AT CONSTRUCTION EXIT
- ___ TIMBER MATTING AT CONSTRUCTION EXIT
- ___ CHANNEL LINERS
- ___ SEDIMENT TRAPS
- ___ SEDIMENT BASINS
- ___ STORM INLET SEDIMENT TRAP
- ___ STONE OUTLET STRUCTURES
- _X_ CURBS AND GUTTERS
- ___ STORM SEWERS
- ___ VELOCITY CONTROL DEVICES

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES:

The order of activities will be as follows:

1. Install controls.
2. Clear, grub and excavate.
4. Haul in fill.
4. When all construction activity is complete and the site is stabilized and approved by the project engineer, remove all temporary structural controls and reseed any areas disturbed by their removal.
5. The contractor is responsible for inplementing and maintaining the storm water pollution prevention plan.

STORM WATER MANAGEMENT: Storm water drainage will be conveyed by overland flow.

NON-STORM WATER DISCHARGE: None.

OTHER EROSION AND SEDIMENT CONTROLS:

MAINTENANCE: All erosion and sediment controls will be maintained in good working order. If a repair is necessary, it will be done at the earliest date possible, but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from heavy equipment. The areas adjacent to creeks and drainageways shall have priority followed by devices protecting storm sewer inlets.

INSPECTION: An inspection will be performed by a CITY inspector every week as well as after every half inch or more of rain (as recorded on a non-freezing rain gauge to be located at the Project Site). An inspection and Maintenance Report will be made per each Inspection. Based on the inspection results, the controls shall be revised per the inspection report.

WASTE MATERIALS: All waste materials will be collected and stored in a securely lidded metal dumpster. The dumpster will meet all state and local city solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary or as required by local regulations and the trash will be hauled to a local dump. No construction waste material will be buried on site.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): At a minimum, any products in the following categories are considered to be hazardous: paints, acids for cleaning, masonry surfaces, cleaning solvents, asphalt products, chemical additives for soil stabilization or concrete curing compounds and additives. In the event of a hazardous material spill, the spill coordinator shall be contacted immediately.

SANITARY WASTE: All sanitary waste will be collected from portable units as necessary, or as required by local regulations by a Licensed Sanitary Waste Management Contractor.

OFFSITE VEHICLE TRACKING:

- ___ HAUL ROADS DAMPENED FOR DUST CONTROL
- _X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- _X_ EXCESS DIRT ON ROAD REMOVED DAILY
- ___ STABILIZED CONSTRUCTION ENTRANCE

PERMITS: _____

REMARKS: Disposal areas, stockpiles, and haul roads shall be constructed in a manner that will minimize and control the amount of sediment that may enter receiving waters. Disposal areas shall not be located in any wetland, waterbody or streambed. Construction staging areas and vehicle maintenance areas shall be constructed by the Contractor in a manner to minimize the runoff of pollutants.

OWNERS CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE _____ DATE _____

CONTRACTOR'S CERTIFICATION

I certify under penalty of law that I understand the terms and conditions of the general Texas Pollutant Discharge Elimination System (TPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification plan.

SIGNATURE (CONTRACTOR) _____ DATE _____

Notes:

1. All temporary erosion and sedimentation controls shall be removed by the contractor and areas disturbed by their removal shall be stabilized before final acceptance of the project.

2. Contractor is required to clean up daily and maintain sidewalks around work areas free of mud, dirt, and debris.

3. Contractor shall prepare a storm water pollution prevention plan and shall submit a notice of intent for storm water discharges associated with construction activity under the TPDES general permit to the EPA.

CONSTRUCTION DOCUMENT SUBMITTAL

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Oscar Perez Park Site Improvements

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Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : | Drawn By : JML

SHEET TITLE & NO. :

STORM WATER POLLUTION PREVENTION PLAN

C-5.0

Date: Jun 21, 2019, 1:41pm User ID: LCarter
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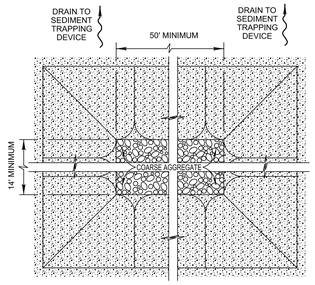
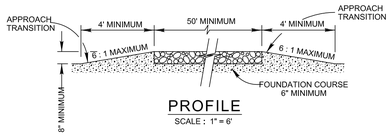


PLAN

SCALE : 1" = 6'



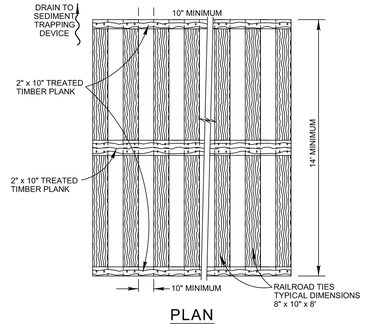
PROFILE

SCALE : 1" = 6'

GENERAL NOTES

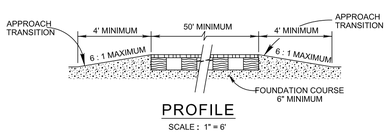
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT - TYPE 1



PLAN

SCALE : 1" = 6'



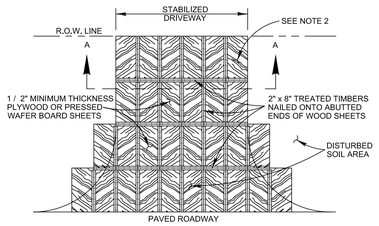
PROFILE

SCALE : 1" = 6'

GENERAL NOTES

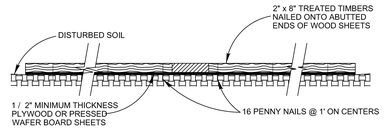
1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1 / 2" x 6" MIN. LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT - TYPE 2



PLAN

SCALE : 1" = 20'



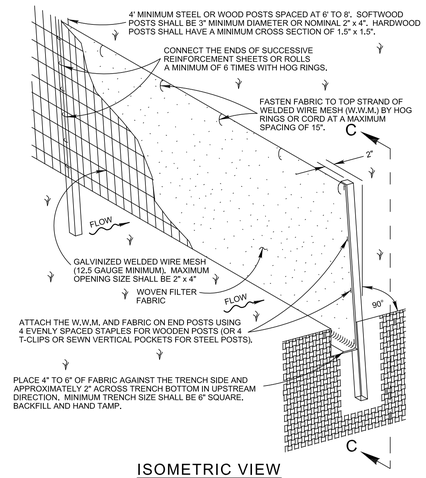
SECTION A-A

SCALE : 1" = 2'

GENERAL NOTES

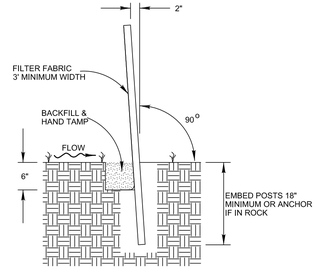
1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 2 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN., AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

CONSTRUCTION EXIT - TYPE 3



ISOMETRIC VIEW

SCALE : 1" = 2'



SECTION C-C

SCALE : 1" = 2'

SEDIMENT CONTROL FENCE USAGE GUIDELINES

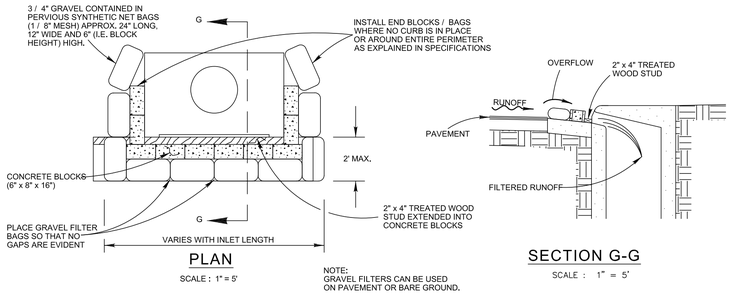
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

GENERAL NOTES

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



PLAN

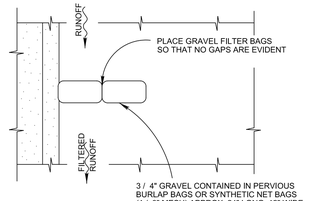
SCALE : 1" = 5'

NOTE:
GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.

SECTION G-G

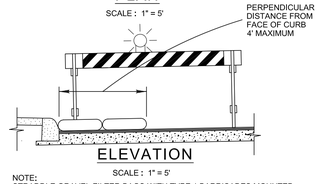
SCALE : 1" = 5'

CURB INLET GRAVEL FILTER



PLAN

SCALE : 1" = 5'



ELEVATION

SCALE : 1" = 5'

NOTE:
STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

% SUBMITTAL	PROJECT NO.:		DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: OF

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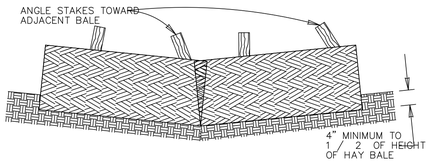
BWCD Proj. No. :	Drawn By : JML

SHEET TITLE & NO. :

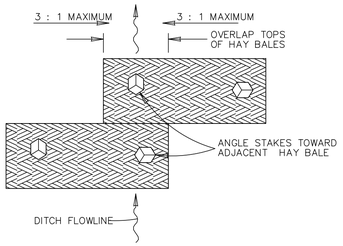
SW3P DETAILS 1

C-5.1



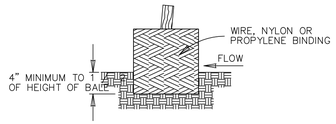
PROFILE VIEW

SCALE : 1" = 1'



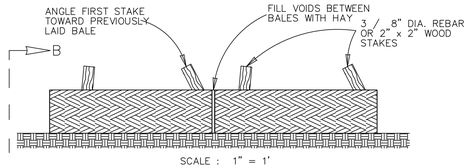
PLAN VIEW

SCALE : 1" = 1'



SECTION B–B

SCALE : 1" = 1'



SCALE : 1" = 1'

BALED HAY USAGE GUIDELINES

A BAILED HAY INSTALLATION MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF. A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. THE INSTALLATION SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 5 GPM / FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR LESS THAN 100'. IF THE SLOPE OF THE DISTURBED SOIL EXCEEDS 10 %, THE LENGTH OF SLOPE UPSTREAM OF THE BAILED HAY SHOULD BE LESS THAN 50'.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1 / 2 ACRE.

FOR BALED HAY INSTALLATIONS IN SMALL DITCHES, THE FOLLOWING ADDITIONAL CONDI–TIONAL CONSIDERATIONS APPLY:

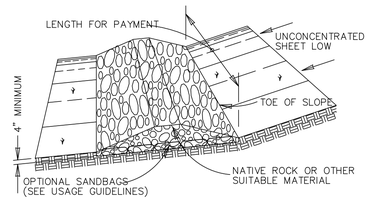
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERLAPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BAILED HAY.

BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTERGRITY IS ACCELERATED.

GENERAL NOTES

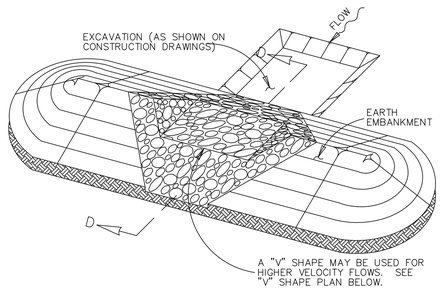
1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MININMUM OF 4" AND, WHERE POSSIBLE, ONE–HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3 / 8" DIA. REBAR OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TO–WARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

BALED HAY FOR EROSION CONTROL



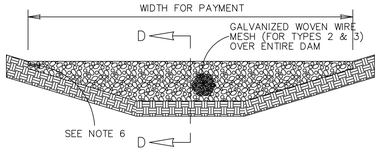
TYPE 1 FILTER DAM AT TOE OF SLOPE

SCALE : 1" = 5'



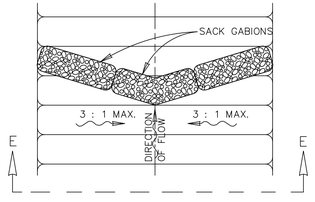
TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 5'



TYPE 1, 2 & 3 FILTER DAM AT CHANNEL SECTIONS

SCALE : 1" = 3'



PLAN VIEW

SCALE : 1" = 5'

TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND / OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 60 GPM / FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 (18" HIGH WITH NO WIRE MESH) :

TYPE 1 MAY BE USED AT THE TOE OF SLOPES, AROUND INLETS, IN SMALL DITCHES AND AT DIKE OR SWALE OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCEN–TRATED HIGH VELOCITY FLOWS (APPROXIMATELY 8 FT. / SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 (18" HIGH WITH WIRE MESH) :

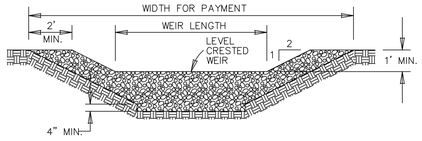
TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.

TYPE 3 (36" HIGH WITH WIRE MESH) :

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

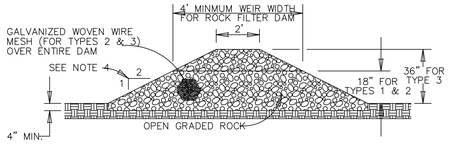
TYPE 4 (SACK GABIONS) :

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.



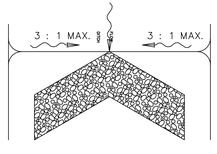
PROFILE OF TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 3'



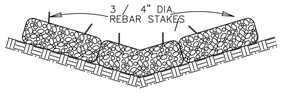
SECTION D–D

SCALE : 1" = 3'



"V" SHAPE PLAN VIEW

NOT TO SCALE



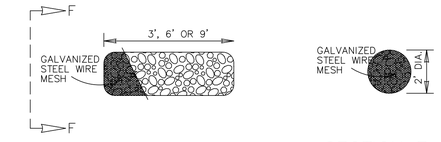
SECTION E–E

SCALE : 1" = 5'

ROCK FILTER DAMS

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, FILTER DAMS SHOULD BE PLACED NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED, UPSTREAM AND / OR DOWNSTREAM AT DRAINAGE STRUCTURES, AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 2 : 1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6 : 1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3 / 4" DIA. REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.



TYPE 4 SACK GABION DETAIL

SCALE : 1" = 3'

SECTION F–F

SCALE : 1" = 3'

JANUARY 2005

STANDARD PLANS
CITY OF SAN ANTONIO, TEXAS
DEPARTMENT OF PUBLIC WORKS

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

DRAWN BY: V. VASQUEZ	DATE	REVISIONS	SCALE:
CHECKED BY: NAT HARDY, P.E.			DATE: SEE ABOVE
			SHEET: OF

CONSTRUCTION DOCUMENT SUBMITTAL

ISSUE DATE

No.	Date	Issue Description

Oscar Perez Park Site Improvements

8601 Timber Path
San Antonio, Texas 78250
OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: _

LANDSCAPE ARCHITECT / PRIME CONSULTANT
BENDER WELLS CLARK DESIGN
830 N. ALAMO ST.
SAN ANTONIO, TEXAS 78215

Landscape Architecture
Urban Design
Planning
830 North Alamo Street
San Antonio, Texas 78215
210-692-9221
www.bwcdesign.com

CIVIL ENGINEER
BAIN MEDINA BAIN
7073 San Pedro Ave.
San Antonio, Texas 78216
(210) 377-1300

ELECTRICAL ENGINEER
HM3 ENGINEERING
902 N. Flores
San Antonio, Texas 78212
(210) 393-1840

ENGINEER'S LICENSURE

PRELIMINARY
FOR REVIEW ONLY
Not for construction, bidding or permit purposes.
BAIN MEDINA BAIN, INC.
Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

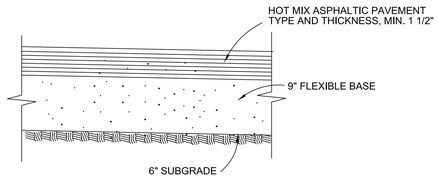
BWCD Proj. No. : | Drawn By : JML

SHEET TITLE & NO. :

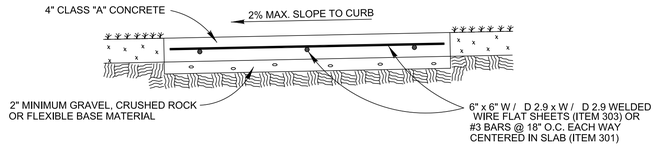
SW3P DETAILS 2

C-5.2

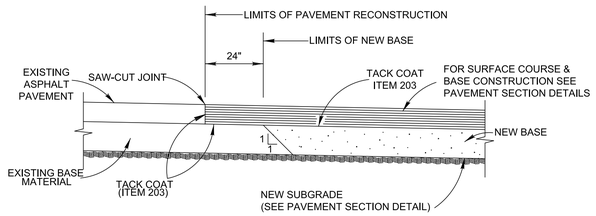
Date: Jun 21, 2019, 1:40pm User ID: LCarter
File: W:\Work\C-1515 Oscar Perez Park – CoSA Bond 2017\Design\Civil\Construction Documents\SW3P PLAN.dwg



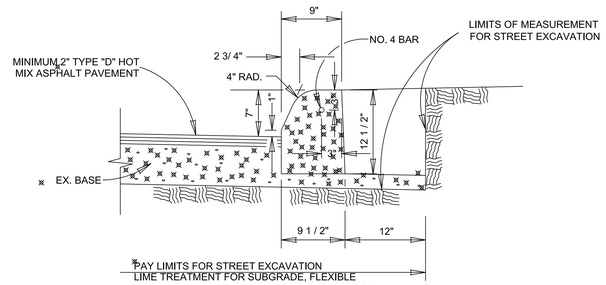
TYPICAL PAVEMENT SECTION
NTS



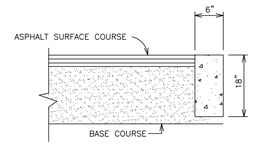
CONCRETE SIDEWALK SECTION
ITEM 502
NTS



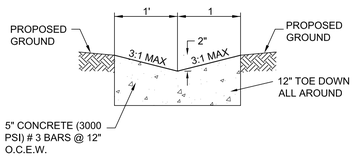
PAVEMENT JUNCTION DETAILS
NTS



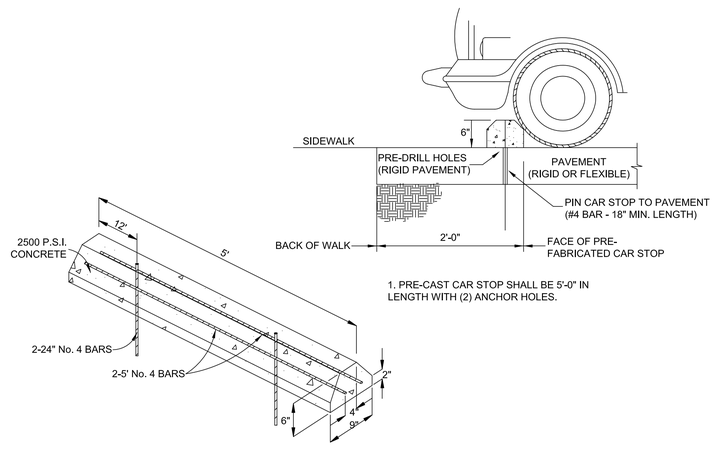
CONCRETE CURB



CONCRETE FLUSH CURB
NTS



TYPICAL CONCRETE SWALE DETAIL
NTS



1. PRE-CAST CAR STOP SHALL BE 5'-0" IN LENGTH WITH (2) ANCHOR HOLES.

WHEEL STOP DETAIL
N.T.S.

CONSTRUCTION DOCUMENT SUBMITTAL

ISSUE DATE

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OWNER
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BAIN MEDINA BAIN, INC.
Engineer:
LORENA CARTER 06/21/19
P.E. No. 116832 Date

BWCD Proj. No. : **Drawn By : JML**

SHEET TITLE & NO. :

CIVIL DETAILS

C-6.0

ABBREVIATIONS

A

A	AMPERES
ABV	ABOVE
A/C	AIR CONDITIONING
AC	ABOVE COUNTER
ACC	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMPERE FUSE, AMPERE FRAME
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPT CAPACITY
AL	ALUMINUM
AM	AMMETER
AMP	AMPLIFIER
ANN	ANNUNICATOR
AP	ACCESS PANEL, ALARM PANEL
ARCH	ARCHITECT, ARCHITECTURAL
ASC	AMPERES SHORT CIRCUIT
AT	AMPERE TRIP RATING
ATS	AUTOMATIC TRANSFER SWITCH
AVG.	AVERAGE
AUX.	AUXILIARY
AWG.	AMERICAN WIRE GAUGE

B

BC	BELOW COUNTER
BKR	BREAKER
BLDG.	BUILDING

C

C	CONDUIT, CELSIUS
CATV	CABLE TELEVISION SYSTEM
CCTV	CLOSED CIRCUIT TELEVISION
CWP	CONDENSER WATER PUMP
CH	CHILLER
CHP	CHILLED WATER PUMP
CIRC	CIRCULATING
CKT	CIRCUIT
CL	CENTERLINE
CLG.	CEILING
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC	CONCRETE
CONNR.	CONNECTION
CONT.	CONTINUOUS,CONTINUATION
	CONTROLLER, CONTRACTOR
CP.	CIRCULATING PUMP
CPUC	CPU CHILLER
CRT	CATHODE RAY TUBE
CRU	CONDENSATE RETURN UNIT
CT	CURRENT TRANSFORMER, COOLING TOWER
CTR	CENTER
CU	COPPER

D

dB	DECIBEL
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DTL	
DIA	DIAMETER
DIM	DETAIL DIMENSION
DISC	DISCONNECT
DN	
DP	DISTRIBUTION PANEL
DOWN	
DPDT	DOUBLE-POLE, DOUBLE-THROW
DPST	DOUBLE-POLE, SINGLE-THROW
DR	DROPPED RECEPTACLE
DW	DISHWASHER
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
DWP	DOMESTIC WATER PUMP
DXFC	DX FAN COIL UNIT

E

(E)	EXISTING
EA	EACH
EC	ELECTRICAL CONTRACTOR
E.C.	EMPTY CONDUIT
EDF	ELECTRIC DRINKING FOUNTAIN
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
EMERG	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
ENCL.	ENCLOSURE
ENGR.	ENGINEER
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
(ER)	EXISTING TO REMAIN
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
EXH	EXHAUST

F

FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FS	FUSED SWITCH, FLOW SWITCH
FSD	MOTORIZED FIRE SMOKE DAMPER
FT	FOOT, FEET
FTL	FEED-THRU LUGS
FUT	FUTURE

G

GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GUH	GAS UNIT HEATER

H

HACR	HEATING, AIR CONDITIONING RATED CIRCUIT BREAKER
HD	ELECTRIC HAND DRYER
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HS	HAND SET
HSC	HAND SCANNER
HTG	HEATING
HTR	HEATER
GUH	HOT WATER/ GAS UNIT HEATER
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
HVU	HEATING/ VENTILATING UNIT
HWB	HOT WATER BOILER
HWC	HOT WATER CIRCULATOR
HWP	HEATING WATER PUMP
H_Z	HERTZ

I

ID	INSIDE DIAMETER
IG	ISOLATED GROUND
IN	INCH
INCAND	INCANDESCENT
INT	INTERNAL, INTERIOR

J

JB	JUNCTION BOX
JP	JOCKEY PUMP

K

KEC	KITCHEN EQUIPMENT CONTRACTOR
KO	KNOCKOUT
KVA	KILOVOLT- AMPS
KW	KILOWATT
KWH	KILOWATT-HOUR

L

LF	LINEAR FEET
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE TRANSFORMER
LVL	LEVEL

M

M	METER
MAP	MASTER ALARM PANEL
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX.	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MDP	MAIN DISTRIBUTION PANEL
MECH.	MECHANICAL
MFR	MANUFACTURER
MH	METAL HALIDE
MIC	MICROPHONE
MIN.	MINIMUM
MLO	MAIN LUGS ONLY
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MV	MERCURY VAPOR

N

N3R	NEMA 3R ENCLOSURE
N4X	NEMA 4X ENCLOSURE
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NF	NON-FUSED
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NFS	NON-FUSED SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
N.O.	NORMALLY OPEN
NO.	NUMBER
NTS	NOT TO SCALE

O

OAF	OUTSIDE AIR FAN
OAHU	OUTSIDE AIR HANDLING UNIT
OC	ON CENTER
OD	OUTSIDE DIAMETER
OHE	OVERHEAD ELECTRICAL
OPG	OPENING

P

P	POLE, PUMP
PH	PHASE
PNL	PANEL
POS	POINT OF SALE
PP	POWER POLE
PR	PAIR
PWR	POWER

Q

QTY	QUANTITY

R

R	EXISTING TO BE REMOVED
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RCPT	RECEPTACLE
RE	REFERENCE, REFER
REC	RECEPTACLE
REV	REVISION, REVISE
RGS	RIGID GALVANIZED STEEL
RTU	ROOFTOP UNIT

S

SCHED	SCHEDULE
SEC	SECONDARY
SECT	SECTION
SF	SQUARE FEET
SPEC	SPECIFICATION
SPKR	SPEAKER
SPDT	SINGLE-POLE, DOUBLE-THROW
SPST	SINGLE-POLE, SINGLE-THROW
SQ.	SQUARE
SW	SWITCH
SWBD	SWITCHBOARD

T

TC	TEMPERATURE CONTROL
TEL	TELEPHONE
TF	TRANSFER FAN
TL	TWIST-LOCK
TOC	TOP OF CURB
TOS	TOP OF STEEL
TP	CHILD TAMPER PROOF DEVICE
TSTAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BOARD
TTC	TELEPHONE TERMINAL CABINET
TU	TERMINAL UNIT
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL

U

UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SYSTEM

V

V	VOLT
VA	VOLT-AMPERE
VAV	VARIABLE AIR VOLUME
VC	VOLUME CONTROL
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VP	VACUUM PUMP
VM	VOLT METER

W

W	WATT, WIRE, WIDTH
WG	WIREGUARD
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
WS	WATER SOFTENER
WT	WATERTIGHT, WEIGHT
WWF	WELDED WIRE FABRIC

X

XFMR	TRANSFORMER

Z

Z	ZONE

ELECTRICAL SYMBOLS

MOTORS AND CONTROLS

- (5) — SINGLE OR THREE PHASE MOTOR NUMBER INDICATES HORSE POWER
- ELECTRIC DUCT HEATER
- DISCONNECT (SAFETY) SWITCH "200/3/150" DENOTES AMPERES/POLE/FUSE, "NF" DENOTES NON-FUSED "N3R" DENOTES NEMA 3R
- [B] — ENCLOSED CIRCUIT BREAKER- "200/3/150" DENOTES AMPERES/POLE/TRIP.
- MOTOR STARTER FURNISHED BY DIVISION 15 AND INSTALLED BY DIVISION 16.
- COMBINATION DISCONNECT (SAFETY) SWITCH AND MOTOR STARTER, "30/3/15/#0" DENOTES AMPERES/POLES/FUSE/ STARTER SIZE, "NF" DENOTES NON-FUSED. FURNISHED BY DIVISION 15 AND INSTALLED BY DIVISION 16.
- VFD — VARIABLE FREQUENCY DRIVE PROVIDED BY DIVISION 15 AND INSTALLED BY DIVISION 16.
- EPO — EMERGENCY POWER OFF BUTTON.

RECEPTACLES AND OUTLETS

ALL RECEPTACLES SHALL BE MOUNTED 16" ABOVE FINISHED FLOOR TO CENTER OF DEVICE UNLESS NOTED OTHERWISE.

- SIMPLEX WALL RECEPTACLE, NEMA 5-20R, 20A, 125V.
- DUPLEX WALL RECEPTACLE, NEMA 5-20R, 20A, 125V.
  - "EM" DENOTES EMERGENCY CIRCUIT. PROVIDE RED RECEPTACLE AND FACEPLATE.
  - "GFI" DENOTES GROUND FAULT INTERRUPTER,
  - "WP" DENOTES WEATHERPROOF,
  - "IG" DENOTES ISOLATED GROUND,
  - "TP" DENOTES SAFETY TYPE, (TAMPER PROOF)
  - "DR" DENOTES DROPPED RECEPTACLE,
  - "AC" DENOTES ABOVE COUNTER MOUNTING, SEE ARCHITECTURAL PLANS FOR EXACT MOUNTING HEIGHT.
- DUPLEX WALL RECEPTACLE ON EMERGENCY CIRCUIT, RED COLOR.
- DUPLEX WALL RECEPTACLE ON A CIRCUIT DEDICATED TO DATA PROCESSING, GRAY COLOR. PROVIDE ISOLATED GROUND TYPE RECEPTACLES WHERE NOTED.
- SPLIT WIRED RECEPTACLE. TOP RECEPTACLE SHALL BE SWITCHED ACCORDING TO PLANS, AND BOTTOM SHALL REMAIN UNSWITCHED.
- FOURPLEX (DOUBLE DUPLEX) WALL RECEPTACLE. NEMA 5-20R, 20A, 125V.
- FOURPLEX WALL RECEPTACLE ON EMERGENCY CIRCUIT, RED COLOR.
- SPECIAL RECEPTACLE, NEMA CONFIGURATION AS NOTED.
- D, R, P — FLUSH ELECTRICAL FLOOR OUTLET, "P" DENOTES POKE-THRU. "D" INDICATES DUPLEX RECEPTACLE, "R" INDICATES RED RECEPTACLE ON EMERGENCY POWER
- MULTI-OUTLET SURFACE RACEWAY. SEE ARCHITECTURAL DRAWINGS FOR EXACT MOUNTING HEIGHTS.
- J — JUNCTION BOX (SQUARE)
- J — JUNCTION BOX
- DUPLEX RECEPTACLE WITH HOMERUN
- DUPLEX RECEPTACLE (PEDESTAL MOUNTED)
- TWO-GANG FLOOR OUTLET
- THREE-GANG FLOOR OUTLET
- PP — POWER POLE
- DIRECT CONNECTION TO EQUIPMENT
- P — PULL BOX (OVER 4" SQUARE)
- L — TENANT LIGHTING JUNCTION BOX
- P — TENANT POWER JUNCTION BOX
- C (2) — CLOCK RECEPTACLE TO BE MOUNTED 12" BELOW FINISHED CEILING. (2) DENOTES DOUBLE SIDED CLOCK. (1) SINGLE SIDED. NO NUMBER MEANS CLOCK TO MOUNTED WITH BACK SURFACE MOUNTED ON WALL

LIGHTING

LETTER(S) DENOTE TYPE- SEE LIGHTING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.

- 2' X 4' FLUORESCENT LIGHTING FIXTURE.
- 2' X 2' FLUORESCENT LIGHTING FIXTURE.
- 1' X 4' FLUORESCENT LIGHTING FIXTURE.
- 1' X 2' FLUORESCENT LIGHTING FIXTURE.
- 1' X 1' FLUORESCENT LIGHTING FIXTURE.
- FLUORESCENT STRIP LIGHTING FIXTURES.
- STAGGERED STRIP LIGHTING FIXTURE.
- INCANDESCENT, FLUORESCENT OR HID DOWNLIGHT FIXTURE.
- WALL MOUNTED INCANDESCENT, FLUORESCENT OR HID FIXTURE.
- TRACK LIGHTING FIXTURE, MOUNTED AS SHOWN ON LIGHTING FIXTURE SCHEDULE.
- CEILING MOUNTED EXIT SIGN; ARROWS AS INDICATED. SHADED AREA DENOTES FACE.
- WALL MOUNTED EXIT SIGN; ARROWS AS INDICATED. SHADED AREA DENOTES FACE.
- EMERGENCY WALL MOUNTED LIGHTING FIXTURE. BATTERY OPERATED UNLESS NOTED OTHERWISE.
- HID SECURITY WALL PACK

RACEWAYS AND WIRING

- CAP AND STAKE
- CONDUIT CONCEALED IN WALL OR CEILING
- CONDUIT UNDERSLAB OR UNDERGROUND
- EM — EMERGENCY CONDUIT
- EXPOSED CONDUIT
- DB — UNDERGROUND CONDUIT, "DB" DENOTES DUCTBANK ENCASED IN CONCRETE
- OHE — OVERHEAD ELECTRIC PRIMARY UTILITY POWER LINE
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- HASH MARKS INDICATE NUMBER OF CONDUCTORS. LEFT TO RIGHT: PHASE/NEUTRAL/SWITCH LEG/GROUND/ISOLATED GROUND. NO HASH MARKS INDICATES 2# 12, PLUS GROUND, UNLESS NOTED OTHERWISE.
- 1LA-2,4 / 3 — HOMERUN TO PANEL WITH CIRCUIT NUMBER(S) AS INDICATED.
- 3 / (ON)1LA-6 / T — PARTIAL CIRCUIT HOMERUN TO PANEL.
- COMMUNICATIONS CONDUIT OR CABLE:
  - "C" DENOTES MASTER CLOCK,
  - "CA" DENOTES MASTER CLOCK,
  - "CR" DENOTES CASH REGISTER
  - "D" DENOTES DATA,
  - "FA" DENOTES FIRE ALARM,
  - "I" DENOTES INTERCOM,
  - "OHE" DENOTES OVERHEAD ELECTRICAL LINE.
  - "PA" DENOTES PAGING,
  - "S" DENOTES SECURITY,
  - "T" DENOTES TELEPHONE,
  - "V" DENOTES VIDEO.
- TELECOMMUNICATIONS CABLE TRAY TO BE CONCEALED ABOVE ACCESSABLE CEILING.

ELECTRICAL EQUIPMENT

- DISTRIBUTION PANEL
- SWITCHBOARD, MAIN DISTRIBUTION PANEL OR MOTOR CONTROL CENTER
- PANELBOARD (FLUSH/SURFACE MOUNT)
- FLOOR MOUNTED DRY-TYPE TRANSFORMER

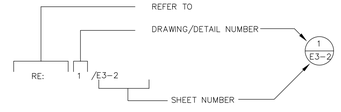
COMMUNICATIONS

ALL RECEPTACLES SHALL BE MOUNTED 16" ABOVE FINISHED FLOOR TO CENTER OF DEVICE UNLESS NOTED OTHERWISE.

THE FOLLOWING NOTATIONS REFER TO ALL COMMUNICATIONS OUTLETS:
"FAX" DENOTES OUTLET DEDICATED FOR A FAX,
"W" DENOTES WALL PHONE SHALL BE MOUNTED AT 42" A.F.F.
"PAY" DENOTES PAY PHONE SHALL BE MOUNTED 42" A.F.F.

- TELEPHONE WALL OUTLET.
- DATA WALL OUTLET.
- VOICE/DATA OUTLET
- FLUSH TELEPHONE FLOOR OUTLET, "P" DENOTES POKE-THRU
- FLUSH DATA FLOOR OUTLET, "P" DENOTES POKE-THRU
- FLUSH VOICE/DATA FLOOR OUTLET, "P" DENOTES POKE-THRU
- DS — SCHOOL INTERCOMMUNICATION SYSTEM DESKSET.
- HS — SCHOOL INTERCOMMUNICATION SYSTEM HANDSET.
- TV — TELEVISION OUTLET 1 GANG JUNCTION BOX WITH ONE FEMALE COAX BARREL CONNECTOR MOUNTED IN SINGLE GANG S.S. COVER PLATE.
- MP W — MICROPHONE FLOOR OUTLET, "W" INDICATES WALL MOUNTED
- S VC — CEILING MOUNTED SPEAKER. "VC" INDICATES VOLUME CONTROL ON SPEAKER.
- S — WALL MOUNTED SPEAKER.

DRAWING/DETAIL REFERENCE KEY



GENERAL NOTES

A. NOT ALL SYMBOLS SHOWN ON THIS SYMBOL LIST ARE USED IN THE CONTRACT DOCUMENTS.

MISCELLANEOUS

- F — SHADED SYMBOLS INDICATE EXISTING DEVICES TO REMAIN, UNLESS OTHERWISE NOTED.
- INDICATES WALL-MOUNTED WHEN ATTACHED TO ANY SYMBOL
- 1 — DRAWING NOTE REFERENCE
- 1 — STARTER/DISCONNECT SCHEDULE REFERENCE
- 1 — FEEDER SCHEDULE REFERENCE
- LC — LIGHTING CONTACTOR
- TS — TIME SWITCH
- PC — PHOTOCELL
- PUSH BUTTON
- TC — TIMECLOCK
- R — RELAY

FIRE ALARM

- W — WATER FLOW SWITCH
- SP — SUPERVISORY SWITCH
- S_D — SMOKE DETECTOR – "D" INDICATES DUCT TYPE
- H — HEAT DETECTOR
- BT — BEAM DETECTOR TRANSMITTER, HIGH IN CEILING WALL DIRECT LINE OF SIGHT.
- BR — BEAM DETECTOR RECEIVER, HIGH IN CEILING WALL DIRECT LINE OF SIGHT.
- S — SPEAKER/VISUAL +80" A.F.F. – 15/75cd UNLESS NOTED OTHERWISE.
- D — MAGNETIC DOOR HOLDER
- R — AUXILIARY CONTROL RELAY
- F — FIRE ALARM PULL STATION +42" AFF
- F — FIREMAN'S TELEPHONE JACK +42" AFF
- F — AUDIO VISUAL FIRE ALARM HORN +80" AFF
- H — AUDIO FIRE ALARM HORN +80" AFF
- V — VISUAL FIRE ALARM (STROBE) +80" AFF
- FACP — FIRE ALARM CONTROL PANEL
- ANN — REMOTE FIRE ALARM ANNUNCIATOR PANEL
- VEP — FIRE ALARM VOICE EVACUATION PANEL
- S — FIRE ALARM SPEAKER / WALL MOUNTED
- M — MINI AUDIO FIRE ALARM HORN +80" AFF
- MS — MINI AUDIO/VISUAL FIRE ALARM HORN +80" AFF
- FH — FIRE FIGHTER HANDSET
- RPS — REMOTE POWER SUPPLY FOR AUDIO/VISUAL FIRE ALARM DEVICES.
- FSD — FIRE SMOKE DAMPER
- V — VISUAL FIRE ALARM STROBE, CEILING MOUNTED
- F — AUDIO VISUAL FIRE ALARM HORN-CEILING MOUNTED
- S — FIRE ALARM SPEAKER / VISUAL – CEILING MOUNTED

SWITCHES

ALL SWITCHES SHALL BE MOUNTED AT 42" ABOVE FINISHED FLOOR TO CENTER OF DEVICE UNLESS NOTED OTHERWISE.

- $ — SWITCH, SPST, 20A, 120/277V.
- $_2$ — SWITCH, 20A, 120/277V:
  - "2" DENOTES DPST,
  - "3" DENOTES THREE-WAY,
  - "4" DENOTES FOUR-WAY.
  - "K" DENOTES KEY SWITCH,
  - "P" DENOTES PILOT LIGHT,
  - "ST" DENOTES SPRING WOUND TIMER.
  - "R" DENOTES RED
  - "F" FAN SPEED CONTROLLER
  - "OC" OCCUPANCY SENSOR
  - "L" DENOTES LOCKING SWITCH
- $_{MC}$ — SWITCH, SPDT, CENTER OFF, MOMENTARY CONTACT.
- $_D$ — DIMMER CONTROL SWITCH, 600 WATT UNLESS OTHERWISE NOTED.
- $_{3K}$ — THREE-WAY KEY SWITCH, 20A, 120/277V.
- $_{SC}$ — WALL MOUNTED SWITCH TO CONTROL MOTORIZED PROJECTION SCREENS.
- $_M$ — MOTOR RATED SWITCH WITH THERMAL OVERLOADS
- $_T$ — MOTOR RATED TOGGLE SWITCH
- OC — CEILING MOUNTED OCCUPANCY SENSOR

CONSTRUCTION DOCUMENTS

HM3 ENGINEERING CONSULTANTS
2902 NORTH FLORES
SAN ANTONIO, TEXAS 78212
210.393.1840 PHONE
SAN ANTONIO - RGV
TBPE FIRM REGISTRATION NO. 13361

Date: Jun 21, 2019, 9:59am User ID: WESLEY
File: C:\Users\WESLEY\appdata\local\temp\AcPublish_8780\ELECTRICAL.dwg

ISSUE DATE

No.	Date	Issue Description
	06/ 18 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250
OWNER
City of San Antonio, TCI
Contact:
Project Manager
Tel: -

LANDSCAPE ARCHITECT / PRIME CONSULTANT
BENDER WELLS CLARK DESIGN
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902 N. Flores
San Antonio, Texas 78212
(210) 393-1840

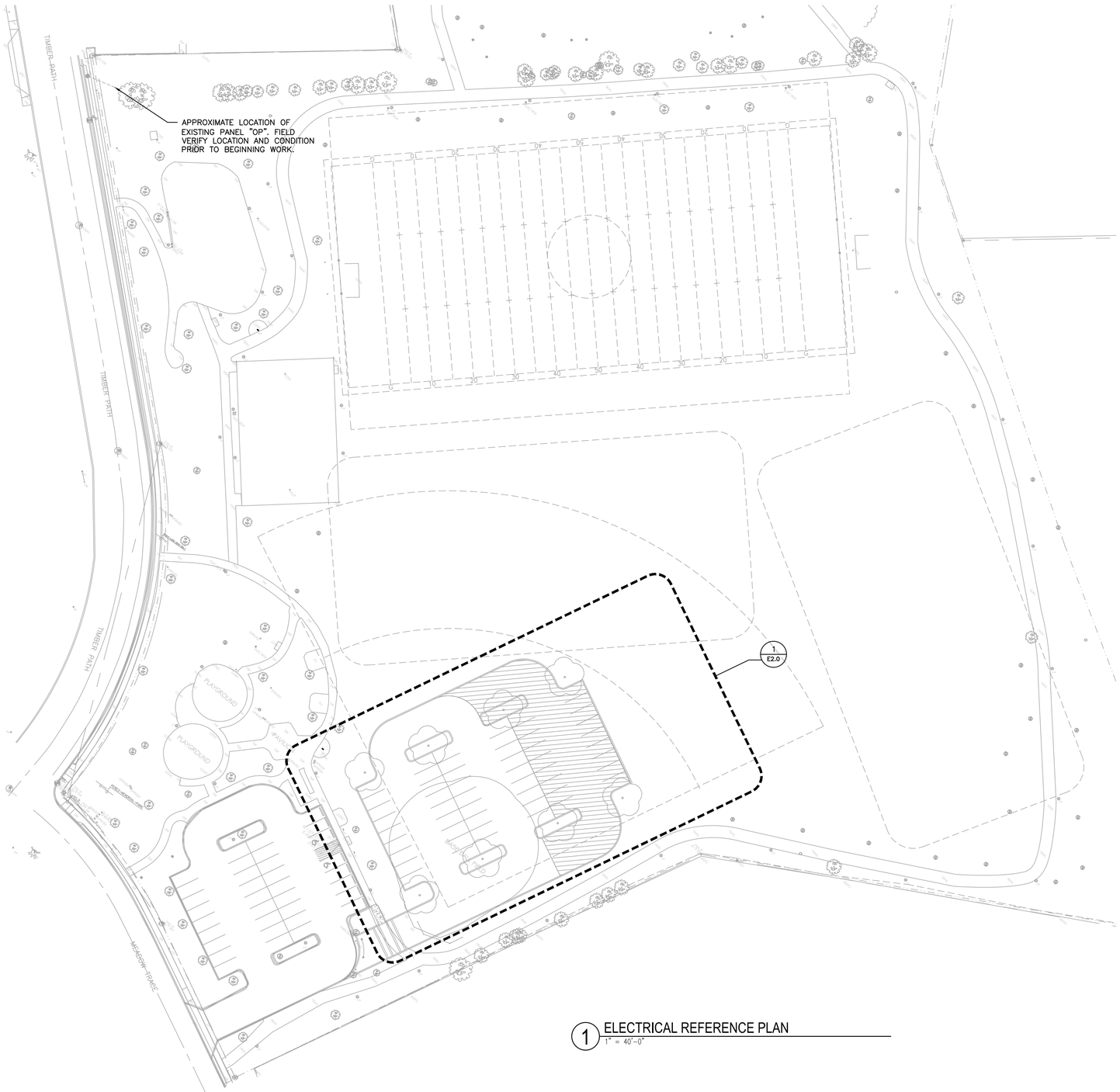
ENGINEER'S LICENSURE

BWCD Proj. No. : | Drawn By : HM3

SHEET TITLE & NO. :

ELECTRICAL SYMBOLS & ABBREVIATIONS

E0.0



1 ELECTRICAL REFERENCE PLAN
1" = 40'-0"

GENERAL NOTES:

A. ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE CURRENT NEC WITH ALL CITY AMENDMENTS.

B. PERIMETER GROUND RODS SHALL BE MINIMUM 3/4 INCH AND 8 FOOT LONG COPPER OR COPPER CLAD, BURIED VERTICALLY TO A MINIMUM DEPTH OF 8 FOOT 6 INCH BELOW GRADE. DRIVE ALL GROUND RODS INTO EXPOSED EARTH. IF DUE TO CONSTRUCTION, THE EARTH HAS BEEN DISTURBED AT THE GROUND ROD POINT, COMPACT THE LOCATION AND INSTALL GROUND ROD.

C. EXPOSED GROUNDING CONDUCTORS SHALL BE SUPPORTED BY MECHANICAL MEANS AND PROPERLY PROTECTED FROM DAMAGE. ALL GROUNDING CONDUCTORS SHALL BE SLEEVED THROUGH BUILDING WALLS.

D. MINIMUM CIRCUIT SIZE IS 2 #12 AND 1 #12 GROUND IN 3/4"CONDUIT FOR INDIVIDUAL CIRCUITS, 3/4"CONDUIT FOR MULTIPLE CIRCUITS. ALL CONDUCTORS SHALL BE 75 DEGREE (MINIMUM) COPPER THHN, COLOR CODED AS PER NEC AND LOCAL AMENDMENTS WITH SIZE, TEMPERATURE, AND VOLTAGE PERMANENTLY PRINTED ON THE JACKET. ALL JOINTS SHALL BE MADE UP USING SELF LOCKING, TWIST-ON, COLOR CODED, SQUARE WIRE SPRING GRAB, LONG SKIRT, WIRE CONNECTORS WITH SWEPT WINGS.

E. PROVIDE #10 AWG MIN NEUTRAL FOR ALL MUTLIWIRE BRANCH CIRCUITS AND PROVIDE HANDLE TIES FOR CIRCUIT BREAKERS AS REQUIRED BY NEC 210.4

F. CONDUCTOR SIZES INDICATED ASSUME NO MORE THAN (3) SINGLE POLE BRANCH CIRCUITS IN EACH CONDUIT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DE-RATE CONDUCTORS PER NEC TABLE 310.15(B)(2)(a) FOR CONDUITS WITH MORE THAN (3) CURRENT "CARRYING CONDUCTORS". THE NEUTRAL CONDUCTOR SHALL BE CONSIDERED "CURRENT CARRYING" FOR ALL BRANCH CIRCUITS SERVING MORE THAN (4) COMPUTERS.

G. REFER TO VOLTAGE DROP FEEDER SCHEDULE FOR BRANCH CIRCUITS EXCEEDING 100' IN LENGTH.

H. ALL EQUIPMENT SHALL HAVE A LOCAL DISCONNECTING MEANS, EITHER CORDED PLUG AND RECEPTACLE OR SWITCHED DISCONNECT. VERIFY FROM EQUIPMENT SUBMITTED OR RELOCATED IF DIRECT CONNECT OR RECEPTACLE. IF DIRECT CONNECT, PROVIDE SWITCH AS PER NEC OTHERWISE, PROVIDE RECEPTACLE, CORD PLUG AS REQUIRED BY EQUIPMENT SUBMITTAL.

I. CONTRACTOR SHALL VERIFY LIGHT FIXTURE AND SYSTEM VOLTAGE PRIOR TO INSTALLING ANY FIXTURE.

CONSTRUCTION DOCUMENTS

HM3 ENGINEERING CONSULTANTS
2902 NORTH FLORES
SAN ANTONIO, TEXAS 78212
210.393.1840 PHONE
SAN ANTONIO - RGV
TBPE FIRM REGISTRATION NO. 13361

ISSUE DATE

No.	Date	Issue Description
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Oscar Perez park Site Improvements

8601 Timber Path
San Antonio, Texas 78250

OWNER
City of San Antonio, TCI
Contact:_
Project Manager
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ELECTRICAL ENGINEER
HM3 ENGINEERING
902 N. Flores
San Antonio, Texas 78212
(210) 393-1840

ENGINEER'S LICENSURE

STATE OF TEXAS
ALFREDO HERNANDEZ
101108
LICENSED
PROFESSIONAL ENGINEER
6/21/19

BWCD Proj. No. :	Drawn By : HM3

SHEET TITLE & NO. :

ELECTRICAL REFERENCE PLAN

E1.0

Date: Jun 21, 2019, 10:00am User ID: WESLEY
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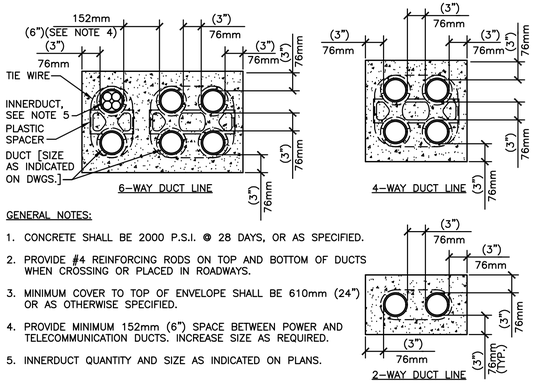
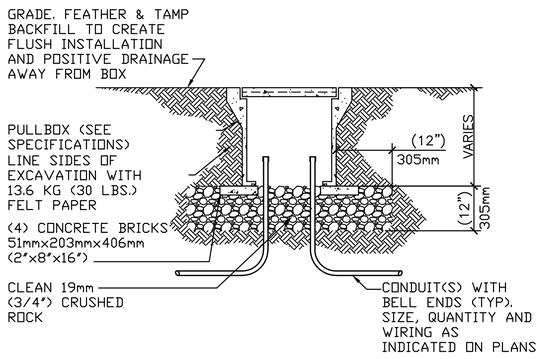


GENERAL NOTES:

1. CONCRETE SHALL BE 2000 P.S.I. @ 28 DAYS, OR AS SPECIFIED.
2. PROVIDE #4 REINFORCING RODS ON TOP AND BOTTOM OF DUCTS WHEN CROSSING OR PLACED IN ROADWAYS.
3. MINIMUM COVER TO TOP OF ENVELOPE SHALL BE 610mm (24") OR AS OTHERWISE SPECIFIED.
4. PROVIDE MINIMUM 152mm (6") SPACE BETWEEN POWER AND TELECOMMUNICATION DUCTS. INCREASE SIZE AS REQUIRED.
5. INNERDUCT QUANTITY AND SIZE AS INDICATED ON PLANS.

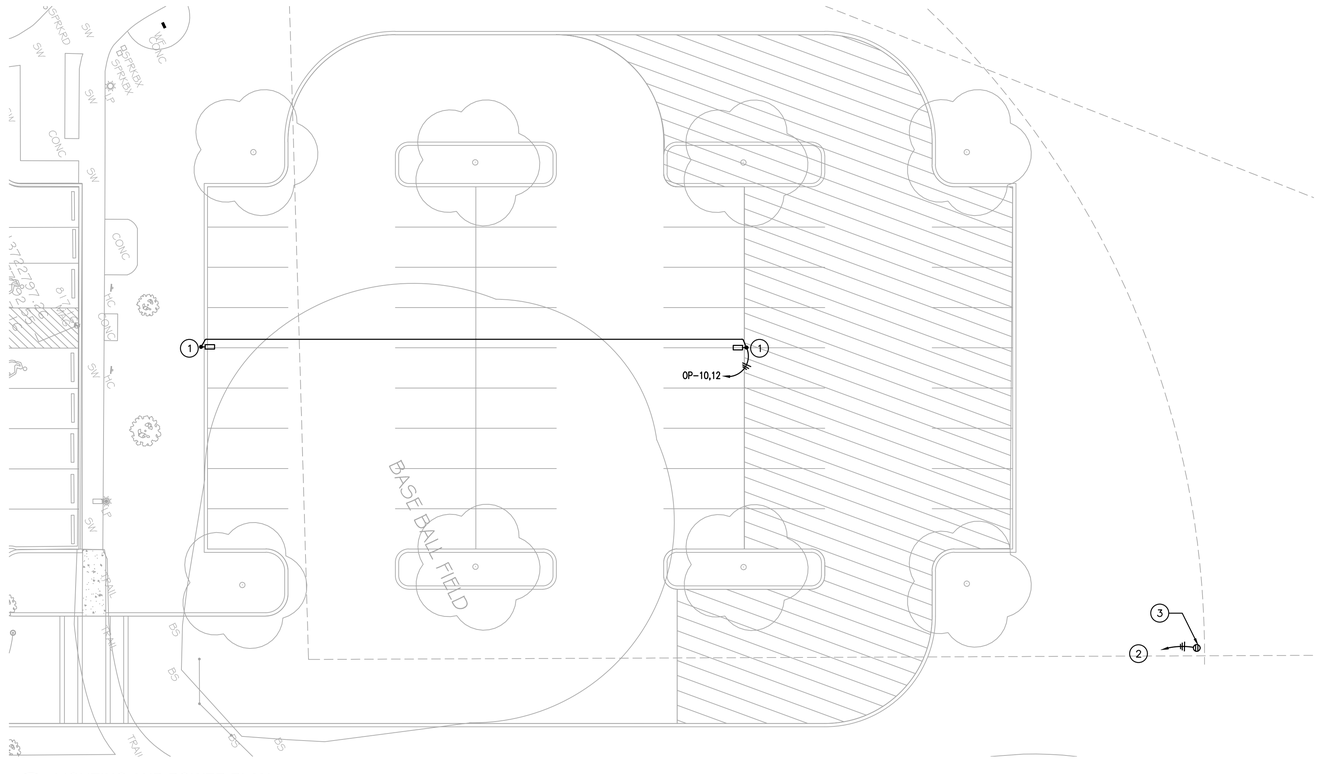
1 DUCT BANK DETAILS

NTS SD260541-02



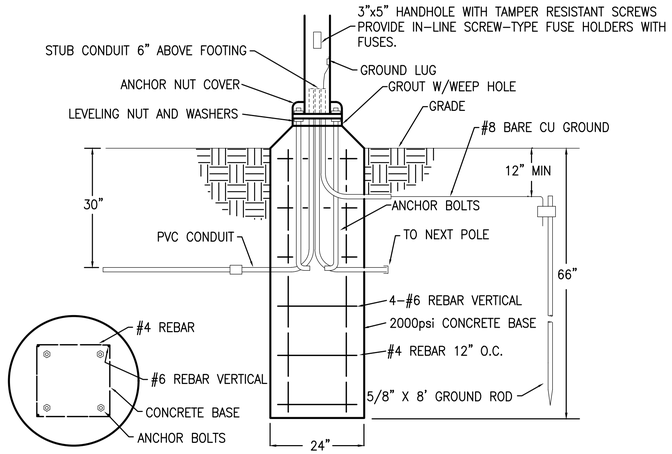
2 UNDERGROUND CONCRETE PULLBOX

NTS SD260541-05



1 LIGHTING AND POWER PLAN

1/16" = 1'-0"



NOTE: USE MANUFACTURER'S TEMPLATE TO POSITION ANCHOR BOLTS.

3 POLE BASE DETAIL - PEDESTRIAN

NTS SD265600-02

ELECTRICAL KEYED NOTES:

1. PROVIDE LITHONIA LITE POLE FIXTURE, CATALOG NO. DSX1 LED P4 40K T4M MVOLT RPA MOUNTED TO LITHONIA 25' SS POLE. CONNECT TO EXISTING CIRCUIT AS INDICATED. REFER TO VOLTAGE DROP SCHEDULE FOR BRANCH CIRCUIT SIZING. REFER TO POLE BASE DETAIL ON THIS SHEET.
2. CONNECT TO 120V, 20A CIRCUIT IN EXISTING PANEL 'OP'. REFER TO VOLTAGE DROP SCHEDULE FOR BRANCH CIRCUIT LIGHTING.
3. PROVIDE AND INSTALL WEATHER-PROOF GFCI PEDESTAL RECEPTACLE.

20A CIRCUIT VOLTAGE DROP		
120V 20A		
CONDUCTOR	CONDUIT	MAX DISTANCE FROM PANEL TO LOAD
2-#12 and 1-#12 GRD	3/4"C	120 FEET
2-#10 and 1-#10 GRD	3/4"C	200 FEET
2-#8 and 1-#10 GRD	3/4"C	320 FEET
2-#6 and 1-#8 GRD	3/4"C	500 FEET
2-#4 and 1-#8 GRD	1"C	760 FEET
2-#2 and 1-#6 GRD	1 1/4"C	1100 FEET

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SAN ANTONIO - RGV
TBPE FIRM REGISTRATION NO. 13361

CONSTRUCTION DOCUMENTS

ISSUE DATE

No.	Date	Issue Description
	06/ 18 /2019	Construction Documents

Oscar Perez park Site Improvements

8601 Timber Path
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OWNER
City of San Antonio, TCI
Contact: _
Project Manager
Tel: _

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ENGINEER'S LICENSURE

STATE OF TEXAS
ALFREDO HERNANDEZ
101108
LICENSED
PROFESSIONAL ENGINEER
6/21/19

BWCD Proj. No. :
Drawn By : HM3

SHEET TITLE & NO. :

ELECTRICAL PLAN

E2.0

Date: Jun 21, 2019, 10:00am User ID: WESLEY
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SPECIFICATIONS FOR:

OFFICER OSCAR PEREZ PARK IMPROVEMENTS
CONSTRUCTION DOCUMENTS

MAYOR
RON NIRENBERG

CITY COUNCIL
ROBERTO C. TREVIÑO
JADA ANDREWS - SULLIVAN
REBECCA J. VIAGRAN
ADRIANA ROCHA GARCIA
SHIRLEY GONZALES
MELISSA CABELLO HAVRDA
ANA SANDOVAL
MANNY PELAEZ
JOHN COURAGE
CLAYTON PERRY

FUNDING:
2017-2022 BOND FUNDS

CITY ADMINISTRATION

CITY MANAGER
ERIK WALSH

INTERIM DIRECTOR OF TRANSPORTATION & CAPITAL IMPROVEMENTS
RAZI HOSSEINI, P.E.

DIRECTOR OF PARKS AND RECREATION
XAVIER URRUTIA

PROJECT MANAGER
ARTHUR ROSSMAN- TCI

LANDSCAPE ARCHITECT:
BENDER WELLS CLARK DESIGN
830 N. ALAMO STREET
SAN ANTONIO, TEXAS 78215
(210) 692-9221

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS
P.O. BOX 839966
SAN ANTONIO, TX 78283
(210) 207-3392

SECTION 00 01 07

PROFESSIONAL SEALS

OWNER

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS DEPARTMENT
114 W. COMMERCE
SAN ANTONIO, TX 78205

LANDSCAPE ARCHITECT

BENDER WELLS CLARK DESIGN
830 N. ALAMO
SAN ANTONIO, TX 78215
TEL.: 210-692-9221 FAX: 210-223-8582

SECTION 00 01 10

TABLE OF CONTENTS

Unless otherwise specified, the items referenced in these specifications shall refer to City of San Antonio specifications. The latest editions of these can be found at:
CIVIL/TECHNICAL SITE SPECIFICATIONS – Contractor to verify latest specifications.
City of San Antonio Specifications for Public Works Construction (June 2008 or latest revision)
https://www.sanantonio.gov/Portals/0/Files/CIMS/StandardSpecifications/CIMSConstructionSpecifications062008.pdf

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Officer Oscar Perez Park Improvements, , San Antonio, Texas 782.

B. Owner's Name: City of San Antonio - TCI.

C. Design Consultant's Name: Bender Wells Clark Design, 830 N. Alamo Street, SA, TX 78215.

D. The Project consists of the construction of grading, lit parking addition, sidewalk, limited tree planting, and re-location of existing softball field. Alternates include dog park fencing and additional parking.

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price

1.03 OWNER OCCUPANCY

A. Owner intends to occupy a certain portion of the Project prior to the completion date for the conduction of normal operations.

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Contractor shall maintain an accessible route for public and emergency ingress and egress to facility at all times. Contractor shall coordinate with Owner as required.

1.04 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on drawings.

B. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Use of site and premises by the public.

C. Provide access to and from site and facilities as required by law and by Owner:

D. Do not obstruct roadways, sidewalks, or other public ways without permit.

E. Limit disruption of utility services to hours the site is unoccupied.
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.

1.05 WORK SEQUENCE

A. The Project is to be completed as specified in the contract for construction.
   1. Liquidated damages shall be as specified in contract.

1.06 SPECIFICATION SECTIONS APPLICABLE TO CONTRACT

A. Unless otherwise noted, all provisions of the sections listed below apply to the contract. Specific items of work listed under individual contract descriptions constitute exceptions.

B. Section 01 30 00 - Administrative Requirements.

C. Section 01 40 00 - Quality Requirements.

D. Section 01 50 00 - Temporary Facilities and Controls.

E. Section 01 60 00 - Product Requirements.

F. Section 01 70 00 - Execution Requirements.

G. Section 01 78 00 - Closeout Submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project is bid as a lump sum amount. List of unit prices included will be used in adding or deleting elements of the work.

B. Measurement and payment criteria applicable to both prior approved additional Work and Work added or deducted from scope.

1.02 COSTS INCLUDED

A. Unit Prices included on the Bid Form shall include full compensation for all required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.03 UNIT QUANTITIES SPECIFIED

A. Quantities indicated in the Bid Form are for additions/deletion purposes only.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.

B. Measurement by Area: Measured by square dimension using mean length and width or radius.

C. Linear Measurement: Measured by linear dimension, at the item centerline or mean chord.

D. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as a completed or deducted item or unit of the Work.

1.05 PAYMENT

A. Payment for Work governed by unit prices will be made on the basis of the actual measurements and quantities of Work which is incorporated in and accepted by the Design Consultant, multiplied by the unit sum/price.

1.07 SCHEDULE OF UNIT PRICES *(See attached Form 024 – Unit Pricing Form)*

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 23 00

ALTERNATIVES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Documentation of changes to Contract Price.

1.02 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option.
   1. Accepted alternates will be identified in the Owner-Contractor Agreement.
   2. Numerical sequence of the alternates does not indicate priority of selection.
   3. Selection of any or all of the alternates is at the sole discretion of the Owner for the best value to the Owner including Base Bid and the selected Alternate(s).

B. Coordinate related work and modify surrounding work to integrate the Work of each alternate.

1.03 SCHEDULE OF ALTERNATES

A. Add Alternate No. 1 – Additional Parking:
   1. Add Alternate Item encompasses the construction of additional parking as shown on plans.
   2. Base Bid Item includes new parking attached to the existing parking lot.

B. Add Alternate No. 2 – Dog Park fencing and amenities:
   1. Add Alternate Item encompasses the construction of fencing and pet waste station as described on plans.
   2. Base Bid Item includes no work at the area identified as the dog park.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Site mobilization meeting.

C. Progress meetings.

D. Construction progress schedule.

E. Submittals for review, information, and project closeout.

F. Number of copies of submittals.

G. Submittal procedures.

1.02 RELATED SECTIONS

A. Section 01 70 00 - Execution Requirements: Additional coordination requirements.

B. Section 01 78 00 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.

B. During construction, coordinate use of site and facilities through the Project Coordinator.

C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

E. Coordinate field engineering and layout work under instructions of the Project Coordinator.

F. Make the following types of submittals to the Design Consultant:
   1. Requests for interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Manufacturer's instructions and field reports.
   6. Applications for payment and change order requests.
   7. Progress schedules.
   8. Coordination drawings.
   9. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Owner will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Design Consultant(s).

3. Contractor.

C. Agenda:
1. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
2. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
3. Scheduling.

3.02 SITE MOBILIZATION MEETING

A. Owner will schedule a meeting at the Project site prior to Contractor occupancy if necessary.

B. Attendance Required:
1. Contractor.
2. Owner.
3. Design Consultant.
4. Special Consultants.
5. Contractor's Superintendent.

C. Agenda:
1. Use of premises by Owner and Contractor.
2. Owner's requirements and occupancy prior to completion.
3. Construction facilities and controls provided by Owner.
4. Temporary utilities provided by Owner.
5. Security and housekeeping procedures.
6. Schedules.
7. Application for payment procedures.
8. Procedures for testing.
9. Procedures for maintaining record documents.
10. Requirements for start-up of equipment.
11. Inspection and acceptance of equipment put into service during construction period.

D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Design Consultant, Owner, participants, and those affected by decisions made.

3.03 PROGRESS MEETINGS

A. Progress meetings to be held at intervals approved and coordinated with the City and Design Professional.

B. Attendance Required: Job superintendent, Owner, Design Consultant, and Design sub-consultants as appropriate to agenda topics for each meeting.

C. Agenda:
1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems which impede planned progress.
5. Review of submittals schedule and status of submittals.
6. Review of off-site fabrication and delivery schedules.
7. Maintenance of progress schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Maintenance of quality and work standards.
11. Effect of proposed changes on progress schedule and coordination.
12. Other business relating to Work.

3.04 CONSTRUCTION PROGRESS SCHEDULE

A. Shall be submitted per the City of San Antonio's General Conditions

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Design Consultant for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 78 00 - CLOSEOUT SUBMITTALS.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Other types indicated.

B. Submit for Design Consultant's knowledge as contract administrator or for Owner.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Sheets, Not Larger than 8-1/2 x 11 inches: Submit through PrimeLink for Consultant review.

B. Documents for Information: Submit through PrimeLink for Consultant review..

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed.

D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Design Consultant.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. Transmit each submittal with approved form.

B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

D. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

E. Deliver submittals to Design Consultant at business address.

F. Schedule submittals to expedite the Project, and coordinate submission of related items.

G. For each submittal for review, allow 14 calendar days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Design Consultant review stamps.

J. When revised for resubmission, identify all changes made since previous submission.

K. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

L. Submittals not requested will not be recognized or processed.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Mock-ups.

D. Control of installation.

E. Tolerances.

F. Testing services.

G. Manufacturers' field services.

1.02 RELATED SECTIONS

A. Section 01 30 00 - Administrative Requirements: Submittal procedures.

B. Section 01 60 00 - Product Requirements: Requirements for material and product quality.

1.03 REFERENCES

A. ASTM C 802 - Standard Practice for Conducting an Interlaboratory Test Program to Determine the Precision of Test Methods for Construction; latest edition.

B. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation; latest edition.

C. ASTM E 329 - Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction; latest edition.

D. ASTM E 543 - Standard Practice for Agencies Performing Nondestructive Testing; latest edition.

1.04 SUBMITTALS

A. Design Data: Submit for Design Consultant's knowledge as contract administrator or for the Owner, for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

B. Test Reports: After each test/inspection, promptly submit two copies of report to Design Consultant and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Design Consultant, provide interpretation of results.
   2. Test reports are submitted for Design Consultant's knowledge as contract administrator or for the Owner, for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

C. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Design Consultant, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

D. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

E. Manufacturer's Field Reports: Submit reports for Design Consultant's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

F. Erection Drawings: Submit drawings for Design Consultant's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Design Consultant or Owner.

1.05 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Design Consultant before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Design Consultant shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.06 TESTING AGENCIES

A. Owner will employ services of an independent testing agency to perform specified testing only (Quality Assurance Testing) as indicated in the City’s General Conditions and Contract for Construction.

B. The Owner will select and pay for an independent testing agency (ITA) to perform inspections and tests of portions of the Work specifically scheduled herein (Quality Assurance Testing). The Owner reserves the right to obtain or perform additional tests as deemed necessary.
   1. Associated Service: Contractor shall cooperate with testing technicians while they are engaged in performing inspections and tests, and assist them with necessary auxilliary services when requested by them.
   2. Contractor shall provide minimum 48-hour notice to the ITA, Owner or Engineer when respective testing activities are scheduled.
   3. Contractor shall provide for security and protection of samples and test equipment at the Project site.

4. Costs for Retesting: Contractor shall absorb all costs for retesting when initial test results prove unsatisfactory or do not indicate compliance with Contract Documents.

C. Duties directed to the testing agency: Cooperate with Owner, Engineer, and Contractor in the performance of the work, and provide qualified personnel to perform the specified inspections and tests.
   1. Notice: Notify promptly the Inspector and the Contractor of deficiencies observed during performance of its services.
   2. Restrictions: Make no cause to release, revoke, alter, or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
   3. Reports: Submit a certified written report of each inspection and test to the Owner, the Inspector, the Landscape Architect and the Contractor.

D. Submittals: Have ITA provide certified written report of each inspection and test to the Owner, the Inspector, the Landscape Architect and the Contractor.

E. Employment of agency in no way relieves Contractor of obligation to perform Work or quality control testing in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Design Consultant before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.

B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

C. Accepted mock-ups shall be a comparison standard for the remaining Work.

D. Where mock-up has been accepted by Design Consultant and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Design Consultant before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING

A. Have ITA perform the following laboratory and field tests in accordance with the requirements specified for the respective section referenced and per the City's General Conditions and Contract for Construction.
   1. Contractor is responsible for all quality control testing. Contractor to coordinate with City of San Antonio along with Contractor's Testing Geotechnical Consultant. Location of test will be determined by City.

B. See individual specification sections for additional information concerning testing required. At a minimum, testing will include but not be limited to:
   1. Earthwork: At sub-grade and at each compacted fill and backfill layer, at least 1 test for every 2,000 sq. ft. or less of paved area or building slab, but in no case fewer than 3 tests.
   2. Cement Concrete Paving: Obtain at least 1 composite sample for each 5,000 sq. ft. or fraction thereof of each concrete mix placed each day.
   3. Aggregate Base Course: One test for each 500 square yards of each layer of aggregate base course.
   4. Concrete: 1 - set of 4 - cylinders (paving, curbs and walls) Break at 3 days; 7 days; and 28 days.
   5. Cement Stabilized Base (pugmill): Obtain at least 1 composite sample for each 5,000 sq. ft. or fraction thereof of each cement stabilized base mix placed each day.
   6. Stabilized Soil (insitu): Obtain at least 1 composite sample for each 5,000 sq. ft. or fraction thereof of each stabilized soil mix placed each day.
   7. Topsoil: Fertility samples as required by specifications.

C. Testing Agency Duties:
   1. Test samples of mixes submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Design Consultant and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Design Consultant and Contractor of observed irregularities or non-conformance of Work or products.
   6. Perform additional tests and inspections required by Design Consultant.
   7. Submit reports of all tests/inspections specified.

D. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

E. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Design Consultant, Owner, and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
   5. Employ services of an independent qualified testing laboratory and pay for additional

samples, tests, and inspections required by Contractor beyond specified requirements.

6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

F. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Design Consultant. Payment for re testing will be charged to the Contractor by deducting testing charges from the Contract Price.

1. When testing agency reports the sub-grades, fills or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact and retest until required density is obtained.

3.05 MANUFACTURER'S FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, and letter of conformation, ex. playground, as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Design Consultant, it is not practical to remove and replace the Work, Design Consultant will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary sanitary facilities.

C. Temporary Controls: Barriers, enclosures, and fencing.

D. Security requirements.

E. Vehicular access and parking.

F. Waste removal facilities and services.

1.02 TEMPORARY UTILITIES

A. Provide and pay for all electrical power, lighting, and water required for construction purposes.

B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

A. Construction: Contractor's option. Contractor has option to provide security fencing until construction of improvements requires the removal of the fence.

1.06 SECURITY

A. Contractor is responsible for providing security and facilities to protect work.

1.07 VEHICULAR ACCESS AND PARKING

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and maintain access to fire hydrants, free of obstructions.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Provide temporary parking areas to accommodate construction personnel. Contractor shall be responsible to make arrangements off-site.
   1. Parking on site is to be limited to the new drive and new parking lot.

1.08 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and

orderly condition.

B. Provide containers with lids. Remove trash from site daily.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.09 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 2 feet.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Prevention of erosion due to construction activities.

B. Prevention of sedimentation of waterways, open drainage ways, and storm and sanitary sewers due to construction activities.

C. Restoration of areas eroded due to insufficient preventive measures.

D. Compensation of Owner for fines levied by authorities having jurisdiction due to non-compliance by Contractor.

1.02 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

PART 3 EXECUTION

2.01 EXAMINATION

A. Examine site and identify existing features that contribute to erosion resistance; maintain such existing features to greatest extent possible.

2.02 PREPARATION

A. Schedule work so that soil surfaces are left exposed for the minimum amount of time.

2.03 SCOPE OF PREVENTIVE MEASURES

A. In all cases, if permanent erosion resistant measures have been installed temporary preventive measures are not required.

B. Construction Entrances: Traffic-bearing aggregate surface.
   1. Width: As required; 20 feet, minimum.
   2. Length: 50 feet, minimum.
   3. Provide at each construction entrance from public right-of-way.
   4. Where necessary to prevent tracking of mud onto right-of-way, provide wheel washing area out of direct traffic lane, with drain into sediment trap or basin.

C. Linear Sediment Barriers: Made of silt fences.
   1. Provide linear sediment barriers:
      a. Along downhill perimeter edge of disturbed areas, including soil stockpiles.
      b. Along the top of the slope or top bank of drainage channels and swales that traverse disturbed areas.
      c. Along the toe of cut slopes and fill slopes.
      d. Perpendicular to flow across the bottom of existing and new drainage channels and swales that traverse disturbed areas or carry runoff from disturbed areas; space at maximum of 200 feet apart.
      e. Across the entrances to culverts that receive runoff from disturbed areas.
   2. Space sediment barriers with the following maximum slope length upslope from barrier:
      a. Slope of Less Than 2 Percent: 100 feet.
      b. Slope Between 2 and 5 Percent: 75 feet.
      c. Slope Between 5 and 10 Percent: 50 feet.
      d. Slope Between 10 and 20 Percent: 25 feet.
      e. Slope Over 20 Percent: 15 feet.

C. Soil Stockpiles: Protect using one of the following measures:

1. Cover with polyethylene film, secured by placing soil on outer edges.
2. Cover with mulch at least 4 inches thickness of pine needles, sawdust, bark, wood chips, or shredded leaves, or 6 inches of straw or hay.

2.04 INSTALLATION

A. Traffic-Bearing Aggregate Surface:
   1. Excavate minimum of 6 inches.
   2. Place geotextile fabric full width and length, with minimum 12 inch overlap at joints.
   3. Place and compact at least 6 inches of 1.5 to 3.5 inch diameter stone.

B. Silt Fences:
   1. Store and handle fabric in accordance with ASTM D 4873.
   2. Where slope gradient is less than 3:1 or barriers will be in place less than 6 months, use nominal 16 inch high barriers with minimum 36 inch long posts spaced at 6 feet maximum, with fabric embedded at least 4 inches in ground.
   3. Where slope gradient is steeper than 3:1 or barriers will be in place over 6 months, use nominal 28 inch high barriers, minimum 48 inch long posts spaced at 6 feet maximum, with fabric embedded at least 6 inches in ground.
   4. Where slope gradient is steeper than 3:1 and vertical height of slope between barriers is more than 20 feet, use nominal 32 inch high barriers with woven wire reinforcement and steel posts spaced at 4 feet maximum, with fabric embedded at least 6 inches in ground.
   5. Install with top of fabric at nominal height and embedment as specified.
   6. Embed bottom of fabric in a trench on the upslope side of fence, with 2 inches of fabric laid flat on bottom of trench facing upslope; backfill trench and compact.
   7. Do not splice fabric width; minimize splices in fabric length; splice at post only, overlapping at least 18 inches, with extra post.
   8. Fasten fabric to steel posts using wire, nylon cord, or integral pockets.
   9. Wherever runoff will flow around end of barrier or over the top, provide temporary splash pad or other outlet protection; at such outlets in the run of the barrier, make barrier not more than 12 inches high with post spacing not more than 4 feet.

2.05 MAINTENANCE

A. Inspect preventive measures weekly, within 24 hours after the end of any storm that produces 0.5 inches or more rainfall at the project site, and daily during prolonged rainfall.

B. Repair deficiencies immediately.

C. Silt Fences:
   1. Promptly replace fabric that deteriorates unless need for fence has passed.
   2. Remove silt deposits that exceed one-third of the height of the fence.
   3. Repair fences that are undercut by runoff or otherwise damaged, whether by runoff or other causes.

D. Clean out temporary sediment control structures weekly and relocate soil on site.

E. Place sediment in appropriate locations on site; do not remove from site.

2.06 CLEAN UP

A. Remove temporary measures after permanent measures have been installed, unless permitted to remain by Design Consultant.

B. Clean out temporary sediment control structures that are to remain as permanent measures.

C. Where removal of temporary measures would leave exposed soil, shape surface to an acceptable grade and finish to match adjacent ground surfaces.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Spare parts and maintenance materials.

1.02 RELATED SECTIONS

A. Section 01 40 00 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Notice to Proceed.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:

1. Made of wood from newly cut old growth timber.

C. Provide interchangeable components of the same manufacture for components being replaced.

2.03 PRODUCT OPTIONS

A. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Provide spare parts, maintenance, and extra products of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the substitution as for the specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner and Design Consultant for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
3. The Design Consultant will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Demonstration and instruction of Owner personnel.

H. Closeout procedures, except payment procedures.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures.

C. Section 01 40 00 - Quality Requirements: Testing and inspection procedures.

D. Section 01 50 00 - Temporary Facilities and Controls: Temporary Facilities and Controls.

E. Individual Product Specification Sections:
   1. Advance notification to other sections of openings required in work of those sections.

1.03 QUALIFICATIONS

A. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in Texas.

1.04 PROJECT CONDITIONS

A. Grade areas of work to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

D. Erosion and Sediment Control: Plan and execute work by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
   1. Minimize amount of bare soil exposed at one time.
   2. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
   3. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
   4. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

E. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

F. Pest Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

G. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

1.05 COORDINATION

A. See Section 01 10 00 for occupancy-related requirements.

B. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate occupancy requirements.

C. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

D. Notify affected utility companies and comply with their requirements.
   1. Contractor is to notify Texas One Call (800-245-4545) 72 hours in prior to any excavation. Contractor shall be responsible for making himself familiar with all underground utilities, pipes and structures.
   2. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities whether or not Texas One Call is notified.

E. Verify utility requirements and characteristics of operating equipment are compatible with site utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 60 00.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that demolition is complete in alterations areas and areas are ready for installation of new work.

C. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

D. Examine and verify specific conditions described in individual specification sections.

E. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

F. Verify that utility services are available, of the correct characteristics, and in the correct locations.

G. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move, or remove items as necessary for access to alterations and renovation work. Replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new work and finishes.

E. Clean substrate surfaces prior to applying next material or substance.

F. Seal cracks or openings of substrate prior to applying next material or substance.

G. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a pre-installation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Design Consultant four days in advance of meeting date.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Design Consultant of any discrepancies discovered.

C. Contractor shall locate and protect survey control and reference points.

D. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

E. Promptly report to Design Consultant the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

F. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Design Consultant.

G. Utilize recognized engineering survey practices.

H. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.

I. Periodically verify layouts by same means.

J. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Design Consultant before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   3. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to Plumbing and Electrical): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

E. Adapt existing work to fit new work:
   1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Design Consultant.

2. Where a change of plane of 1/4 inch or more occurs in existing work, submit recommendation for providing a smooth transition for Design Consultant review and request instructions.

F. Refinish existing surfaces as indicated:
   1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
   2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
      a. Patch as specified for patching new work.

G. Clean existing systems and equipment.

H. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

I. Do not begin new construction in alterations areas before demolition is complete.

J. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

B. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

C. Employ skilled and experienced installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

D. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

E. Restore work with new products in accordance with requirements of Contract Documents.

F. Fit work air tight to pipes, sleeves, conduit, and other penetrations through surfaces.

G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

H. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

I. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

C. Collect and remove waste materials, debris, and trash/rubbish from site daily and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Protect finished concrete work, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Prohibit traffic from landscaped areas.

F. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.11 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Use cleaning materials that are non-hazardous.

C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

D. Clean site; sweep paved areas, rake clean landscaped surfaces.

E. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.12 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.
   1. Provide copies to Design Consultant and Owner.

B. Notify Design Consultant when work is considered ready for Substantial Completion.

C. Submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Design Consultant's review.

D. Correct items of work listed in executed Certificates of Substantial Completion.

E. Notify Design Consultant when work is considered finally complete.

F. Complete items of work determined by Design Consultant's final inspection.

END OF SECTION

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and Bonds.

1.02 RELATED SECTIONS

A. General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.

B. Section 01 30 00 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 01 70 00 - Execution Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Design Consultant with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit 1 copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Design Consultant comments. Revise content of all document sets as required prior to final submission.
   2. Submit 3 sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. Make submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
2. Field changes of dimension and detail.
3. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
1. Description of unit or system, and component parts.
2. Identify function, normal operating characteristics, and limiting conditions.
3. Include performance curves, with engineering data and tests.
4. Complete nomenclature and model number of replaceable parts.

B. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

C. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

D. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

E. Include manufacturer's printed operation and maintenance instructions.

F. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

G. Additional Requirements: As specified in individual product specification sections.

3.04 OPERATION AND MAINTENANCE MANUALS

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

B. Prepare data in the form of an instructional manual.

C. Binders: Commercial quality, 8-1/2 x 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

F. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Design Consultant, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Operating instructions.
      b. Maintenance instructions for equipment and systems.
      c. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
   3. Part 3: Project documents and certificates, including the following:
      a. Shop drawings and product data.

3.05 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Include originals of each in operation and maintenance manuals, indexed separately on Table of Contents.

F. Manual: Bind in commercial quality 8-1/2 x 11 inch three D side ring binders with durable plastic covers.

G. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

H. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

I. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 10 00 - Summary: Sequencing and staging requirements.

C. Section 01 10 00 - Summary: Description of items to be salvaged or removed for re-use by Contractor.

D. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

E. Section 01 57 13 - Temporary Erosion and Sedimentation Control.

F. Section 01 60 00 - Product Requirements: Handling and storage of items removed for salvage and relocation.

G. Section 01 70 00 - Execution Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products.

H. Section 31 10 00 - Site Clearing: Vegetation and existing debris removal.

I. Section 31 22 00 - Grading: Topsoil removal.

J. Section 31 22 00 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

K. Section 31 23 23 - Fill and Backfill: Filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCES

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; latest edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; latest edition.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 PROJECT CONDITIONS

A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

B. Comply with other requirements specified in Section 01 70 00.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 23 23 - Fill and Backfill

PART 3 EXECUTION

3.01 SCOPE

A. Remove other items indicated, for salvage, relocation, recycling, and return to the Parks Department.

B. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Provide, erect, and maintain temporary barriers and security devices.
   4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   6. Do not close or obstruct roadways or sidewalks without permit.
   7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Do not begin removal until vegetation to be relocated has been removed and specified measures have been taken to protect vegetation to remain.

E. If hazardous materials are discovered during removal operations, stop work and notify Design consultant and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

F. Hazardous Materials: Comply with 29 CFR 1926 and state and local regulations.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.
   1. Contractor shall be responsible to notify Texas One Call (800-245-4545) a minimum of 72 hours prior to initiation of any demolition of excavation activity.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.
   1. Note dimensioned locations of underground abandoned items left in place on record drawings.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on field observation, limited surveys, and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Design Consultant before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00.

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

D. Protect existing work to remain.
   1. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   2. Repair adjacent construction and finishes damaged during removal work.
   3. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 07 90 00

JOINT SEALERS (SITEWORK)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing for sidewalks.

1.02 REFERENCES

A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; latest edition.

B. ASTM C 1193 - Standard Guide for Use of Joint Sealants; latest edition.

C. ASTM D 1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; latest edition.

D. ASTM D 1667 - Standard Specification for Flexible Cellular Materials--Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam); latest edition.

E. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; latest edition.

F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; latest edition; www.aqmd.gov.

1.03 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

C. Samples: Submit two samples, 1x1 inch in size illustrating sealant colors for selection.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.05 COORDINATION

A. Coordinate the work with all sections referencing this section.

1.06 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Polyurethane Sealants:
   1. Bostik, Inc: www.bostik-us.com.
   2. Pecora Corporation: www.pecora.com.
   3. Degussa Building Systems/Sonneborn: www.chemrex.com.
   4. Tremco, Inc.

2.02 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.

B. Type GPX - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.

1. Color: Color as selected.
2. Applications: Use for:
   a. Control, expansion, and soft joints in masonry.
   b. Joints between concrete and other materials.
   c. Joints between metal frames and other materials.
   d. Other exterior joints for which no other sealant is indicated.

C. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Class 25, Uses T, I, M and A; single component.
1. Color: Color to match concrete.
2. Applications: Use for:
   a. Joints in sidewalks and vehicular paving.

D. Nonsag Polyurethane Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, None M, A; single component, chemical curing, non-staining, non bleeding, non-sagging type.
1. Color: Colors as selected.
2. Applications: Use for:
   a. Vertical Expansion Joints.

2.03 ACCESSORIES

A. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

B. Joint Backing: Round foam rod compatible with sealant; ASTM D 1056, sponge or expanded rubber; oversized 30 to 50 percent larger than joint width.

C. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces and joint openings are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter which might impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C 1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.

D. Install bond breaker where joint backing is not used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

H. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION OF FINISHED WORK

A. Protect sealants until cured.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Clearing and protection of vegetation.

B. Removal of existing debris.

1.02 RELATED SECTIONS

A. Section 01 10 00 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 50 00 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01 57 13 - Temporary Erosion and Sedimentation Control.

D. Section 01 70 00 - Execution Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products.

E. Section 02 40 00 - Demolition: Removal of built elements and utilities.

F. Section 31 22 00 - Grading: Topsoil removal.

G. Section 31 22 00 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

H. Section 31 23 23 - Fill and Backfill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

I. Section 31 23 23 - Fill and Backfill: Filling holes, pits, and excavations generated as a result of removal operations.

J. Section 32 01 90.33 – Tree Preservation: Protection and pruning of existing trees to remain.

1.03 PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 70 00.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 00 00 - Grading

PART 3 EXECUTION

3.01 EXISTING UTILITIES AND BUILT ELEMENTS

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Protect existing structures and other elements that are not to be removed.

3.02 VEGETATION

A. Scope: Remove brush, and stumps in areas to be covered by new improvements.
   1. Stake out layout of improvements for approval by Landscape Architect and Owner prior to

initiating clearing activity.
2. Place barricade fencing:
   a. Obtain approval of installation of barricade fencing from COSA Tree Inspector, Landscape Architect and Owner prior to initiating clearing activity.
3. Adjustments in location of pedestrian paving and trails as may be required for field conditions including but not limited to existing trees/vegetation and site features as may be directed by Landscape Architect and Owner to the extent that the overall value of the work is not substantially changed.
   a. In the event of a substantial change in the work, as determined by agreement between Contractor and Owner, a Field Alteration/Change Order will be issued.

B. Do not begin clearing until vegetation to be relocated has been removed.

C. Do not remove or damage vegetation beyond the following limits:
1. 5 feet each side of roadway curbs.
2. 5 feet; 2 feet each side of walkways and trails.
3. 5 feet; 3 feet each side of utility trenches.
4. 5 feet each side of roadway curbs, walkways, and main utility trenches.
5. Exception: Specific trees and vegetation indicated on drawings to be removed.
6. Exception: Selective thinning of undergrowth specified elsewhere.

D. Install substantial, highly visible fences at least 4 feet high to prevent inadvertent damage to vegetation to remain:
1. Around trees to remain within vegetation removal limits; locate no closer to tree than at the drip line.

E. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.03 DEBRIS

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal and storage of topsoil.

B. Rough grading the site for paving.

C. Topsoil and finish grading.

1.02 RELATED SECTIONS

A. Section 01 57 13- Temporary Erosion Control

B. Section 31 10 00 - Site Clearing.

C. Section 31 23 16 - Excavation.

D. Section 31 23 23 - Fill and Backfill: Filling and compaction.

E. Section 32 92 19 - Seeding: Finish ground cover.

F. Section 32 01 90.33 – Tree Preservation: Protection of existing trees.

1.03 UNIT PRICES

A. Topsoil:
   1. Measurement Method: By the cubic yard.
   2. Includes: Excavating existing topsoil; or Supplying topsoil; stockpiling, scarifying substrate surface, placing where required, and compacting.

1.04 PROJECT CONDITIONS

A. Protect above - and below-grade utilities that remain.

B. Protect plants and other features not indicated to be removed from excavating equipment and vehicular traffic.

C. Protect bench marks, survey control points, existing structures, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 MATERIALS

A. Topsoil: See Section 31 23 23.

B. Other Fill Materials: See Section 31 23 23.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.
   1. Contractor is to notify Texas One Call (800-245-4545) 72 hours in prior to any excavation. Contractor shall be responsible for making himself familiar with all underground utilities, pipes and structures.

2. Contractor shall take sole responsibility for any cost incurred due to damage of said utilities whether or not Texas One Call is notified.

3.03 ROUGH GRADING (SEE PLAN SHEETS FOR NOTES)

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, marked areas; entire site; or to prevent mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded; marked areas; entire site; or as directed.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. See Section 31 23 23 for filling procedures.

G. Benching Slopes: Horizontally bench existing slopes greater than 1:4 to key fill material to slope for firm bearing.

H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL and STOCKPILING

A. Stockpile excavated topsoil on site for reuse on site.

B. Stockpile topsoil to be re-used on site; remove remainder from site.

C. Remove excavated topsoil from site.

D. Stockpile excavated subsoil on site for use on site.

E. Stockpile subsoil to be re-used on site; remove remainder from site.

F. Remove excavated subsoil from site.

G. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet; protect from erosion.
   1. Area(s) to be determined on site with approval of Owner.

3.05 FINISH GRADING (SEE PLAN SHEETS FOR NOTES)

A. All areas disturbed by grading are to receive topsoil and finish grading.

B. Before Finish Grading:
   1. Verify trench backfilling has been inspected.
   2. Verify subgrade has been contoured and compacted.

C. At subgrade, remove debris, roots, branches, stones, in excess of 2 inch in size. Remove soil contaminated with petroleum products.

D. Where topsoil is to be placed, scarify surface to depth of 3 inches.

E. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 6 inches.

F. Place topsoil in areas where seeding, sodding, and planting are indicated.

G. Place topsoil to establish finish grade and where required to level grade.

H. Place topsoil where required to level finish grade.

I. Place topsoil to the following compacted thicknesses in areas disturbed by grading unless directed otherwise in field by Landscape Architect:
   1. Areas to be Seeded with Grass: 6 inches or as shown on the plans.

J. Place topsoil during dry weather.

K. Remove roots, weeds, rocks, and foreign material while spreading.

L. Near plants spread topsoil manually to prevent damage.

M. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
   1. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.
   2. Applies to areas not disturbed by grading.

N. Lightly compact placed topsoil by rolling.

O. See plan sheets for specific grading notes for soccer fields.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

B. Top Surface of Finish Grade: Plus or minus 1/2 inch.

3.07 FIELD QUALITY CONTROL

A. See Section 31 23 23 for compaction density testing.

3.08 CLEANING AND PROTECTION

A. Protect plants, lawns, rock outcroppings, existing boundaries, fences, sidewalks, paving, and curbs not indicated to be removed from excavating equipment and vehicular traffic.

B. Remove unused stockpiled topsoil and subsoil. Grade stockpiled area to prevent standing water.

C. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 23 16

EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Trenching for utilities.

1.02 RELATED SECTIONS

A. Section 31 22 00 - Grading.

B. Section 31 23 23 - Fill and Backfill: Fill materials, filling, and compacting.

C. Section 32 01 90.33 – Tree Preservation: Protection of existing tree and vegetation.

1.03 PROJECT CONDITIONS

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Protect plants, lawns, and other features to remain.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 22 00 for additional requirements.

C. Locate, identify, and protect utilities that remain and protect from damage.

3.02 EXCAVATING

A. Excavate to accommodate construction operations.

B. Notify Landscape Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

C. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

D. Cut utility trenches wide enough to allow inspection of installed utilities.

E. Hand trim excavations. Remove loose matter.

F. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.

G. Correct areas that are over-excavated surfaces that are disturbed

H. Grade top perimeter of excavation to prevent surface water from draining into excavation.

I. Remove excavated material that is unsuitable for re-use from site.

J. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 22 00.

K. Remove excess excavated material from site.

3.03 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.

B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

3.04 PROTECTION

A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.

END OF SECTION

SECTION 31 23 23

FILL AND BACKFILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for utilities.

B. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

C. Topsoil placement in landscape areas.

1.02 RELATED SECTIONS

A. Section 31 00 00 - Grading: Site grading.

B. Section 31 23 00 - Excavation: Removal and handling of soil to be re-used.

C. Section 32 01 90.33 – Tree Preservation: Preservation of existing trees.

1.03 UNIT PRICES

A. See Section 01 22 00 - Unit Prices, for general requirements applicable to unit prices for earthwork.

B. General Fill:
   1. Measurement Method: By the cubic yard.
   2. Includes: Excavating existing soil, supplying fill; stockpiling, scarifying substrate surface, placing where required, and compacting.

1.04 REFERENCES

A. ASTM C 33 - Standard Specifications for Concrete Aggregates; latest edition.

B. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; latest edition.

C. ASTM D 448 - Standard Classification for Sizes of Aggregate for Road and Bridge Construction; latest edition.

D. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); latest edition.

E. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; latest edition.

F. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); latest edition.

G. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; latest edition.

H. ASTM D 2940 - Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports; latest edition.

I. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); latest edition.

J. ASTM D 4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; latest edition.

1.05 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: As required to establish finish grade elevations.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Samples: 10 lb sample of each type of fill; submit in air-tight containers to testing laboratory or as required by testing laboratory.

C. Materials Sources: Submit name of imported materials source.

D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

E. Compaction Density Test Reports.

1.07 PROJECT CONDITIONS

A. Provide sufficient quantities of fill if needed to supplement material obtained from the site to meet project schedule and requirements. When necessary, store materials on site in advance of need.

B. When fill materials need to be stored on site, locate stockpiles where designated by Owner's Representative.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General: Provide approved borrow soil materials from off-site when sufficient approved soil materials are not available from excavations.

B. General Fill- Backfill and fill materials ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM: free from rock or gravel larger than 2 inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious matter and having a plasticity index (PI) of less than 30.
   1. Unsatisfactory soil materials include ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT.
   2. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

C. Subbase and Base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand, ASTM D 2940, with at least 95 percent passing a 1-1/2 inch sieve and not more than 8 percent passing a No. 200 sieve.

D. Topsoil (stripped from site): Topsoil stripped from site for use in landscape work shall be screened to remove all stone debris and undesirable matter 1/2 inch in size or greater.

E. Topsoil (supplemental): Topsoil to be furnished, when required to supplement topsoil stripped from site, shall be secured from an approved off-site location. It shall be fertile, friable, natural loam containing a liberal amount of humus and shall be capable of sustaining vigorous plant growth. It shall be free of stone, lumps and clods of hard earth 1/2 inch diameter and greater, plants or their roots, sticks and other extraneous matter. Under no circumstances will topsoil be accepted unless it is free of the aforementioned contaminants. Use of non-cohesive "sandy loam" shall not be acceptable.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

D. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Sections 31 22 00 and 31 23 16 for additional requirements.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using unfrozen materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

H. Slope grade away from structures and improvements minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

I. Correct areas that are over-excavated.
   1. Load-bearing foundation surfaces: Fill with concrete.
   2. Load-bearing foundation surfaces: Use structural fill, flush to required elevation, compacted to 100 percent of maximum dry density.
   3. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

J. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving, slabs-on-grade, and similar construction; 95 percent of maximum dry density.
   2. At other locations: 90 percent of maximum dry density.

K. Reshape and re-compact fills subjected to vehicular traffic.

3.04 FILL AT SPECIFIC LOCATIONS

A. Use general fill unless otherwise specified or indicated.

B. Structural Fill:
   1. Use structural fill.
   2. Fill up to subgrade elevations.
   3. Maximum depth per lift: 6 inches, compacted.
   4. Compact to minimum 95 percent of maximum dry density.

D. Over Buried Drain Piping from Drinking Fountain:
   1. Bedding: Use sand.
   2. Cover with general fill.
   3. Fill up to subgrade elevation.
   4. Compact in maximum 8 inch lifts to 95 percent of maximum dry density.

F. At Lawn Areas:
   1. Use general fill.
   2. Fill up to 6 inches below finish grade elevations.
   3. Compact to 95 percent of maximum dry density.
   4. See Section 31 22 00 for topsoil placement.

G. At Sports Fields:
   1. Use general fill.
   2. Fill up to 6 inches below finish grade elevations.
   3. Compact to 95 percent of maximum dry density.
   4. See notes and drawings for sports field soils placement.

H. Under Monolithic Paving:
   1. Compact subsoil to 95 percent of its maximum dry density before placing fill.
   2. Use general fill.
   3. Fill up to subgrade elevation.
   4. Compact to 95 percent of maximum dry density.
   5. See Section 32 11 23 for aggregate base course placed over fill.

3.05 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.06 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.

B. Perform compaction density testing on compacted fill in accordance with ASTM D1556 or ASTM D2167

C. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor").

D. If tests indicate work does not meet specified requirements, remove work, replace and retest. See Section 01 40 00 for procedures.

E. Frequency of Tests: as per contract requirements.

F. Proof roll compacted fill at surfaces that will be under slabs-on-grade, pavers, and paving.

3.07 CLEAN-UP

A. Leave unused materials in a neat, compact stockpile.

B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpiled area to prevent standing surface water. Unused material may be distributed on site at approval of Owner's Representative.

C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 01 90.33

TREE PRESERVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Protection, pruning and feeding of existing trees to be saved within the limits of project.

B. Installation of protection barricade fence.

C. Installation of tree armor.

1.02 RELATED SECTIONS

A. Section 02 41 00 - Demolition

B. Section 31 10 00 - Site Clearing

C. Section 31 22 00 - Grading

D. Section 31 23 16 - Excavation

E. Section 31 23 23 - Fill and Backfill

1.03 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
2. ANSI Z60.1 (Latest edition) Nursery Stock.
3. ANSI Z133.1 (Latest edition) Tree Care Operations- Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush.Maintenance - Standard Practices.
4. ANSI A300 (Latest edition)

1.04 SITE CONDITIONS:

A. Inspection:

1. Contractor, Arborist, Owner’s Representative and Design Consultant shall review pruning work to be completed prior to initiating work.
2. Obtain approval of installation of tree barricade fencing from COSA Tree Inspector, Owner and Design Consultant prior to the initiation of any removal of vegetation and construction.

1.05 QUALITY CONTROL:

A. Employ qualified certified Arborist for pruning and feeding as approved by the Design Consultant. Arborist shall have the following minimum qualifications:

1. Membership in:
   a. NAA - National Arborist Association
   b. ISA - International Society of Arborists
2. Meet state requirements for insurance.
3. Licensed for application and use of pesticides.
4. Bonded.

1.06 SUBMITTALS:

A. Furnish at Design Consultant's office, prior to installation, the following samples:

1. Certification: Copy of Arborist qualifications.
2. Mulch: Label from bag (Supplier's statement of analysis if bulk), and 1-gallon container of mulch sample.
3. Fertilizer: Label from bag or Supplier's brochure.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Fertilizer for Trees: Davey Arbor Green, 30-10-7 for liquid suspended application, distributed by The Davey Company in San Antonio, Texas (210) 698-0515 or approved equal.

B. Tree Barricade Fencing: Fabric of square link orange 4' width, high density polyethylene with 5-7 year life. Posts of 6' height studded T-posts with painted on finish for rust protection.

C. Mulch: Mulch shall be free of deleterious material and shall be stored as to prevent inclusion of foreign material. Mulch shall be native shredded hardwood mulch, manufactured by Gardenville Horticultural Products, San Antonio, Texas, 210-651-6115.
   1. Mulch resulting from double shredding/grinding of trees removed from the site would be an acceptable alternative.

D. Tree Wound Paint: Bituminous based paint of standard manufacture specifically formulated for tree wounds.

PART 3 - EXECUTION

3.01 PROTECTION FOR EXISTING TREES TO BE PRESERVED:

A. All trees to be preserved on the property shall be protected against damage from construction operations.
   1. Includes associated understory.

B. Only those trees located within the limits of improvements to be constructed, or as indicated, are to be removed.
   1. All trees to remain shall be flagged for review after the location of improvements to be constructed are staked in the field.
   2. Any tree to be removed shall be reviewed by the Design Consultant and Owner for approval prior to removal.
   3. Trees to be preserved are represented by a solid line. Trees to be removed are represented by a dashed or ghosted line. Trees to be planted are graphically differentiated from existing trees.
   4. Obtain approval of installation of tree barricade fencing from COSA Tree Inspector, Owner and Design Consultant prior to the initiation of any removal of vegetation and construction.

C. Erect fencing and armor protection prior to beginning any clearing, demolition or construction activity, and unless otherwise instructed, maintain in place until construction is completed.
   1. Obtain approval of installation of tree barricade fencing from COSA Tree Inspector, Owner and Design Consultant prior to the initiation of any removal of vegetation and construction.
   2. Tree protection barricade shall be erected at the edge of the dripline where possible; in extreme circumstances and with the approval of the Design Consultant, fencing may be located at the edge of the root protection zone.
      a. For trees 10 inch caliper and less, the minimum distance the barrier shall be erected is ten (10) feet from the trunk of tree or clump of trees.
   3. Trees immediately adjacent to and within one hundred feet (100) of any construction activities are to be protected by barricade fencing; subject to approval of the Design Consultant and Owner.
   4. Trees exposed to construction activity within the dripline or within twenty-five (25) feet of any construction activity are to have trunks protected with tree armor in addition to barricade fencing.
   5. The tree protection barricade shall be placed before any excavating or grading is begun and maintained in repair for the duration of the construction work unless otherwise directed.
   6. No material shall be stored or construction operation shall be carried on within the tree protection barricade.
   7. Tree protection barricade shall remain until all work is completed.

8. Remove tree protection barricade at commencement of finish grading.
9. Remove tree armor immediately prior to Substantial Completion.

D. Protect tree trunk with tree armor to a height of 8' or to the limits of lower branching (when exposed to construction activity within the drip line) with 2x4's butted side to side completely around trunk.
   1. Wire wrap do not nail, around trees.

E. Protect trees that are to remain, whether within barricade fencing or not, from the following:
   1. Compaction of root area by equipment or material storage; construction materials shall not be stored closer to trees than the farthest extension of their limbs (dripline).
   2. The proposed finished grade within the root protection zone of any preserved tree shall not be raised or lowered more than three (3) inches.
      a. Retaining methods can be used to protect and/or provide lateral support to the area outside the root protection zone.
   3. Trunk damage by moving equipment, material storage, nailing or bolting.
   4. Strangling by tying ropes or guy wires to trunks or large branches.
   5. Poisoning by pouring solvents, gas, paint, etc., on or around trees and roots.
   6. Cutting on roots by excavating, ditching, etc.
      a. Prior to excavation within the tree drip lines or the removal of trees adjacent to other trees that are to remain, make a clean cut between the disturbed and undisturbed root zones with a rock saw or similar equipment to minimize root damage.
      b. Refer to EXCAVATION AROUND TREES for additional information.
   7. Damage of branches by improper pruning.
   8. Drought from failure to water or by cutting or changing normal drainage pattern past roots. Contractor shall provide means as necessary to ensure positive drainage.
   9. Changes of soil pH factor by disposal of lime base materials such as concrete, plaster, lime treatment at pavement subgrade, etc. When installing concrete adjacent to the root zone of a tree, use a minimum 6 mil. plastic vapor barrier behind the concrete to prohibit leaching of lime into the soil.
   10. Do not cut roots 3/4" in diameter or over without approval of Owner's Representative. All excavation and earthwork within the drip line of trees shall be done by hand.
   11. Protect all existing trees near areas to be stabilized from underground contaminations by placing a 6 mil. Plastic film barrier along exposed vertical cut extending a minimum 12" into undisturbed subgrade below depth of stabilization.
   12. No vehicular traffic shall occur within the drip line of any tree; including parking of vehicles.
   13. No soil shall be spread, spoiled or otherwise disposed of under any tree within the drip line.

F. Any damage done to existing tree crowns or root systems shall be repaired by the Arborist to the satisfaction of the Design Consultant and Owner's Representative.
   1. Broken branches shall be cut cleanly.
   2. Any roots cut shall be cut cleanly with a saw other means approved by the Design Consultant and Owner's Representative.

G. Repairs to the trees necessitated by damage caused through negligence of Contractor or his employees will be completed at the Contractor's expense.
   1. When trees other than those approved for removal are destroyed or killed, or badly damaged as a result of construction operations, the contract sum will be reduced by the value of the tree as determined by using the accepted International Society of Arboriculture's formula.

3.02 ROOT PROTECTION ZONE:

A. The root protection zone (RPZ) is measured with a radius from the trunk of 12" for each caliper inch of trunk measured at four and one-half (4-1/2') feet above grade or at the point where the smallest diameter closest to the branching occurs.
   1. No disturbance shall occur closer to the tree than one-half the radius of the RPZ or within five (5) feet of the tree whichever is greater.

3.03 ROOT PROTECTION ZONE IMPACTS:

A. Those trees to remain which have some encroachment on their root protection zone shall have the following maximum allowable impacts:
   1. Minimum Protection Criteria 'A': No disturbance of natural grade, e.g. trenching or excavation, can occur closer to the tree than one-half the radius of the RPZ or within five (5) feet of the tree whichever is greater.
   2. Minimum Protection Criteria 'B': No cut or fill greater than three (3) inches will be located closer to the tree trunk than ½ the RPZ radius distance.

B. Trees impacted shall have a minimum of a six (6) inch layer of mulch placed and maintained over the root protection zone and the undisturbed area within the dripline.
   1. Immediate pruning and fertilization shall occur per the pruning and fertilization sections of this specification.
   2. Provide water in a slow drip manner to impacted trees as approved by the *Design Consultant* and Owner's Representative.
   3. Provide water to apply equivalent to 1 inch once per week to deeply soak in over the area within the dripline of the tree during periods of hot, dry weather.
   4. Spray tree crowns periodically to reduce dust accumulation on the leaves.

3.04 EXCAVATING AROUND TREES

A. Excavate within the dripline of trees only where required and when absolutely necessary.
   1. Any excavation within the dripline of trees shall be under the direction of the Arborist.
   2. Arborist shall be at site at all times while excavation is occurring within the dripline.
   3. Refer to ROOT PROTECTION ZONE.

B. When excavating for new construction is required within dripline of trees, hand excavate to minimize damage to root systems.
   1. Use narrow tine spading forks and comb soil to expose roots.
   2. Relocate roots back into backfill areas wherever possible.
   3. If large main lateral roots are encountered, expose beyond excavation limits as required to bend and relocate without breaking.
   4. If root relocation is not practical, clean cut roots using sharp ax approximately three (3) inches back from new construction.

C. Where existing grade is above new finish grade, carefully excavate within the dripline to the new finish grade.
   1. Carefully hand excavate an additional eight (8) inches below the finish grade.
   2. Use narrow tine spading forks to comb the soil to expose the roots, and prune the exposed root structure as recommended by the Arborist.
   3. Keep the exposed roots damp.
   4. Treat the cut roots as specified and as recommended by the Arborist.
   5. After pruning and treatment of the root structure is complete, backfill to finish grade with eight (8) inches of approved plant mix.

D. Temporarily support and protect roots against damage until permanently relocated and covered with recommended landscape material.

3.05 GOVERNING STANDARDS:

A. Work procedures will be guided by the current provisions of the American National Standard Institute. Complete detail of the provisions are to be found in the references listed. The two basic objectives of the pruning operation shall include:
   1. Hazard Reduction Pruning: Hazard reduction pruning shall be completed to remove visible hazards in a tree. Hazard pruning shall consist of one or more of the maintenance pruning types.
   2. Maintenance Pruning: Maintenance pruning shall be completed to maintain and improve tree health and structure and includes hazard reduction pruning.

B. City of San Antonio, Texas Tree Preservation Ordinance, Ordinance No. 85262. trees are to have a one (1) year warranty; refer to Section EXTERIOR PLANTS.

3.06 APPROVAL: No major limbs or structure will be cut or removed without prior approval of the Design Consultant and Owner's Representative.

3.07 FERTILIZATION OF PRESERVED TREES:

A. All existing trees to be reserved impacted by construction activities taking place within the dripline, including but not limited to trenching and grading, shall be fertilized.

B. Feeding of existing trees to be impacted by construction shall be accomplished in accordance with the following specifications:
   1. Feeding shall be completed prior to construction of permanent improvements adjacent to all trees including site fill or paving including trenching operations.
   2. Liquid tree fertilizer applied with a standard hydrant sprayer at a pressure of 100 to 200 psi shall be injected in slightly slanted holes approximately twelve (12) inches in depth.
   3. Concentration of suspension to be forty (40) pounds of fertilizer for trees in each 100 gallons of water. Application rate: six (6) pounds of actual nitrogen per 1,000 square feet of area under drip-line.
   4. Holes are to be made in concentric circles and 3' on center around the tree with the last ring located at the dripline of the foliage of the trees.
   5. Area beneath the dripline of the trees is to be well watered after the fertilization is placed.

3.08 MULCH:

A. Mulch base of all existing trees four (4') feet radius with 6" deep mulch layer.
   1. If existing trees are grouped, the entire area is to be mulched in between the trees.

B. Mulch base of all existing trees impacted by construction activities ten (10') feet radius past dripline of canopy with 6" deep mulch layer.
   1. If existing trees are grouped, the entire area is to be mulched in between the trees.

3.09 CLEANUP:

A. Wood and debris shall become property of the Contractor and shall be removed from the site. Cost of disposal to be paid by Contractor.

B. If acceptable to Owner, wood from tree removal and pruning activities can be double shredded/grinded and used on site as mulch at locations as approved by Design Consultant and Owner.

END OF SECTION

SECTION 32 01 90

LANDSCAPE MAINTENANCE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Maintenance of the landscape to be provided.

1.02 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
   1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
   2. ANSI Z60.1 (Latest edition) Nursery Stock.
   3. ANSI Z133.1 (Latest edition) Tree Care Operations- Pruning, Trimming, Repairing, Maintaining, and Removing Trees and Cutting Brush.
   4. ANSI A300 (Latest edition) Tree, Shrub and Other Woody Plant Maintenance- Standard Practices.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Section 32 01 90.33 – Tree Preservation

B. Section 32 92 19 - Seeding

. Section 32 93 00 – Exterior Plants

1.04 QUALITY ASSURANCE

A. Landscape maintenance must be supervised by a staff member of the Contractor who possesses at least one of the following:
   1. Certified Landscape Professional Contractor (CLPC) as administered by Texas Association of Landscape Contractors (TALC).
   2. College degree relating to the landscape industry or an approved equivalent.

1.05 SUBMITTALS

A. After completion of the project, submit the following:
   1. Watering Schedule.

1.06 JOB CONDITIONS

A. Maintenance operations shall be conducted under favorable weather conditions during the seasons which are normal for such work as determined by acceptable practice in the locality.

B. Maintenance operations:
   1. Conduct for a minimum 90 day period after substantial completion for turf areas.
   2. Conduct for a minimum 1 year period after substantial completion for trees.
   3. Terminate after Final Acceptance of Project (or otherwise specified).

PART 2 - PRODUCTS

2.01 MATERIALS- Refer to respective landscape sections for applicable materials.

PART 3 - EXECUTION

3.01 GENERAL

A. Obtain and follow the maintenance instructions provided by the installer of new plant materials.

B. General Cleanup: Remove debris from from turf areas before each mowing.
   1. Debris consists of trash, rubbish, dropped leaves, downed branches and limbs of all sizes, dead vegetation, rocks, and other material not belonging in landscaped areas.

2. Remove debris from site and dispose of properly.

C. Watering, Soil Erosion, and Sedimentation Control: Comply with Federal, state, local, and other regulations in force; prevent over-watering, run-off, erosion, puddling, and ponding.
   1. Repair temporary erosion control mechanisms provided by others.
   2. Repair eroded areas and replant, when caused by inadequate maintenance.
   3. Prevent sediment from entering storm drains.

D. Earth Mound Watering Basins: Maintain in good condition and as required to permit efficient application of water without waste; reapply mulch if soil surface shows.

D. Trees:
   1. Exercise care to avoid girdling trees.
   2. Provide protective collars if necessary.
   3. Remove protective collars at end of maintenance period.

E. Fertilizing: Apply fertilizer only when necessary.

F. Earth Mound Watering Basins: Maintain in good condition and as required to permit efficient application of water without waste; reapply mulch if soil surface shows.

G. Drainage Channels: Remove obstructions in gutters, catch basins, storm drain inlets, yard drains, swales, ditches, and overflows.

H. Health Maintenance: Inspect all plants regularly for health:
   1. Eradicate diseases and damaging pests, regardless of severity or speed of effect.
   2. Treat accidental injuries and abrasions.
   3. If a plant is unhealthy but not yet dead, according to specified definitions, determine reason(s) and take remedial action immediately.
   4. Remove dead plants immediately upon determining that they are dead.

I. Pesticide and Herbicide Application: Comply with manufacturer's instructions and recommendations and applicable regulations.
   1. Obtain Owner's approval prior to each application.
   2. Apply in manner to prevent injury to personnel and damage to property due to either direct spray or drifting, both on and off Owner's property.
   3. Use backflow preventers on hose bibbs used for mixing water; prevent spills.
   4. Inspect equipment daily before application; repair leaks, clogs, wear, and damage.
   5. Do not dispose of excess mixed material, unmixed material, containers, residue, rinse water, or contaminated articles on site; dispose of off site in legal manner.
   6. Rinse water may be used as mix water for next batch of same formulation.
   7. Contractor is responsible for all recordkeeping, submissions, and reports required by laws and regulations.

3.02 MAINTENANCE

A. Maintain trees, shrubs and other plants by pruning removal of dead wood, cultivating, watering, weeding and mulching as required for normal, healthy growth.
   1. Restore planting saucers.
   2. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required.
   3. Spray as required to keep trees and shrubs free of insects and disease.
   4. Water until Final Acceptance to provide 1 inch water per week.
      a. period requires equivalent of 4- 5 gallon buckets of water minimum per week.

B. Maintain turf/grass areas by watering, fertilizing, weeding, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable turf, free of eroded or bare areas (total bare area no greater than 2 percent of total area).
   1. Mowing shall be accomplished to maintain grass at a 1-3/8- to 1½-inch height.
      a. Mowing shall not remove more than 1/3 height of the grass at each mowing.

2. Water turf/grass areas until Final Acceptance of project.
3. Water to provide an equivalent of 1 inch water per week for the establishment of all turf/grass areas to the satisfaction of the Owner.
4. Keep turf relatively free of thatch, woody plant roots, diseases, nematodes, soil-borne insects, stones larger than 1-1/2 inches in diameter, and other materials detrimental to grass growth.
5. Limit broadleaf weeds and patches of foreign grass to a maximum of 2 percent of the total area.

C. Fertilize all turf/grass areas within the project limits, 30 days following initial installation as per recommendation of fertilizer analysis at rate to provide 1# nitrogen/1,000 SF.

3.03 OPERATIONAL INSTRUCTIONS

A. Watering Schedule:
1. The watering schedule is to include the duration and frequency each irrigation zone will run per week.
2. This will be worked out jointly with the Landscape Irrigation Contractor and shall be programmed on to the controller after review by Owner.
3. Program shall be submitted to the Owner as part of the final acceptance process.

3.04 CLEANUP AND PROTECTION

A. Protect existing vegetation, pavements, and facilities from damage due to maintenance activities; restore damaged items to original condition or replace, at no extra cost to Owner.

B. Remove and dispose of general cleanup debris and biodegradable debris in a proper manner.
1. Biodegradable Debris: Owner's trash collection facilities may not be used; dispose of off site in accordance with applicable regulations.
2. Non-Biodegradable Debris: Owner's trash collection facilities may not be used; dispose of off site in accordance with applicable regulations.

C. After maintenance operations are finished, all paved areas which may have become strewn with soil or other material shall be thoroughly cleaned by sweeping, and if necessary, power washing.

D. Protect landscape work from damage due to maintenance operations, operations by other contractors and trades and trespassers.
1. Treat, repair or replace damaged landscape work as directed.

3.05 INSPECTION AND ACCEPTANCE

A. When maintenance period is complete, Owner will, upon written request by the Contractor, make an inspection to determine acceptability.

B. Where inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by the Owner and found to be acceptable.

END OF SECTION

SECTION 32 13 13

PORTLAND CEMENT CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete sidewalks and concrete pads.

1.02 RELATED SECTIONS

A. Section 31 00 00 - Grading: Preparation of site for paving and base.

B. Section 31 23 23 - Fill and Backfill: Compacted subbase for paving.

C. Section 07 90 00 - Joint Sealers: Sealant for joints.

D. Section 32 17 23 - Pavement markings.

1.03 UNIT PRICES

A. See Section 01 22 00 - Unit Prices, for additional unit price requirements.

B. Concrete Placed: By the square yd per specified inch thickness. Includes preparing base, placing, floating and finishing, testing.

1.04 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; latest edition.

B. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; latest edition.

C. ACI 305R - Hot Weather Concreting; American Concrete Institute International; latest edition.

D. ACI 306R - Cold Weather Concreting; American Concrete Institute International; latest edition.

E. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; latest edition.

F. ASTM C 33 - Standard Specification for Concrete Aggregates; latest edition.

G. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; latest edition.

H. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; latest edition.

I. ASTM C 150 - Standard Specification for Portland Cement; latest edition.

J. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; latest edition.

K. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; latest edition.

L. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; latest edition.

M. ASTM C 494/C 494M - Standard Specification for Chemical Admixtures for Concrete; latest edition.

N. ASTM C 685/C 685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing; latest edition.

O. ASTM C 1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete; latest edition.

P. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); latest edition.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on joint filler, admixtures, and curing compound.

C. Samples: Provide sample panel a minimum 5' X 5' X 4" thick indicating concrete finish and other detailing for approval by *Design Consultan*t. Provide number of samples as required until acceptable. Approved sample is to be maintained for duration of project. Remove sample(s) after completion of concrete paving work. Sample may be portion of sidewalk to be constructed pending acceptance of Owner.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form Materials: Conform to ACI 301.

B. Wood or Steel form material, profiled to suit conditions.

C. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751).
   1. Thickness: 1/2 inch.

2.02 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 40 (280); deformed billet steel bars; unfinished finish.

B. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60; unfinished finish. Cut bars true to length with ends square and free of burrs.

2.03 CONCRETE MATERIALS

A. Concrete Materials: As specified in Section 03 30 00.

B. Cement: ASTM C 150 Normal - Type I Portland type, grey color.

C. Use one brand of cement throughout project, unless otherwise acceptable to Landscape Architect.

D. Normal Weight Aggregates: ASTM C 33, and as herein specified. Provide aggregates from a single source for exposed concrete.

E. For exterior exposed surfaces, do not use fine or course aggregates containing spalling-causing deleterious substances.

F. Course Aggregate: Crushed rock or washed gravel with minimum size between 3/4 inch and 1 1/2 inch, and with a maximum size number 4.

G. Fine Aggregate: Natural washed sand of hard and durable particles varying from fine to particles passing a 3/8 inch screen, of which at least 12% shall pass a 50- mesh screen.

H. Water: Clean, and not detrimental to concrete.

I. Air Entrainment Admixture: ASTM C 260.

J. Chemical Admixtures: ASTM C 494/C 494M, Type A - Water Reducing.

2.04 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1;1-D, or 2, Class A.

B. Joint Sealer: Type as specified in Section 07 90 00.

2.05 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Design Consultant for preparing and reporting proposed mix designs.
   2. Do not use Owner's field quality-control testing agency as the independent testing agency.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Fiber Reinforcement: Add to mix at rate of 1.5 pounds per cubic yard, or as recommended by manufacturer for specific project conditions.

E. Concrete Properties:
   1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3,000 psi. As scheduled; or As indicated on drawings.
      a. General Pedestrian Paving: 3,000 psi.
      b. Skate Park Slab: 6,000 psi.
   2. Cement Content: Minimum 480 lb per cubic yard.
   3. Water-Cement Ratio: Maximum 40 percent by weight.
   4. Total Air Content: 4 percent, determined in accordance with ASTM C 173/C 173M.
   5. Maximum Slump: 5 inches.
   6. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows with a tolerance of plus or minus 1 1/2 percent.
      a. Air Content: 5.5 percent for 1 1/2 inch maximum aggregate.
      b. Air Content: 6.0 percent for 1 inch maximum aggregate.
      c. Air Content: 6.00 percent for 3/4 inch maximum aggregate.
   7. Mix adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.
   8. Maximum Aggregate Size: 1 1/2 inch. Minimum size between 3/4 inch and 1 1/2 inch and with a maximum size number 4.

2.06 MIXING

A. Transit Mixers: Comply with ASTM C 94, except as may be modified by the following:
   1. Delete references for allowing additional water to be added to batch for material with slump. Addition of water to the batch will not be permitted.
   2. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.
   3. When air temperature is in between 85 degrees F and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. See Section 31 23 23 for construction of base for work of this Section.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

B. Notify Design Consultant minimum 24 hours prior to commencement of concreting operations.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement as indicated on plans and details.

B. Interrupt reinforcement at expansion joints.

C. Place dowels; or reinforcement to achieve pavement alignment as detailed.

D. Provide doweled joints 24 inch on center at transverse joints; interruptions of concrete; with one end of dowel set in capped sleeve to allow longitudinal movement.

3.06 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during placement of concrete.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

D. Place concrete to pattern indicated.

E. Apply surface retarder to all exposed surfaces in accordance with manufacturer's instructions.

3.07 JOINTS

A. Align sidewalk joints.

B. Place 1/2 inch wide expansion joints at 20 foot; 40 foot maximum intervals and to separate paving from vertical surfaces and other components and in pattern indicated; or None - N/A.
   1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
   2. Secure to resist movement by wet concrete.

C. Provide scored or sawn joints:
   1. At intervals equal in width to pavement unless indicated otherwise.

D. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.08 FINISHING

A. Area; or Paving: Light broom, texture perpendicular to pavement direction.

B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel; Light broom, texture parallel to direction of travel; Wood float; Exposed aggregate; or with troweled and radiused edge 1/4 inch radius.

C. Direction of Texturing: Transverse to pavement direction or as indicated.

D. Pedestrian Ramps: Medium Broomed perpendicular to slope.

E. Inclined Vehicular Ramps: Medium Broomed perpendicular to slope.

F. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 JOINT SEALING

A. See Section 07 90 00 for joint sealer requirements.

3.11 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.12 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests.
   1. Provide free access to concrete operations at project site and cooperate with appointed firm.
   2. Submit proposed mix design of each class of concrete testing firm for review prior to commencement of concrete operations.
   3. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 75 cu yd or less of each class of concrete placed.
   1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
   2. Perform one slump test for each set of test cylinders taken.

C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.13 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian or vehicular traffic over pavement until 75 percent design strength of concrete has been achieved.

3.14 SCHEDULES

A. Parking Area and Drive Pavement: 4,000 psi 28 day concrete, 5 inches thick, #4 rebar at 12 inch on center each way reinforcement, wood float finish or as shown in details.

B. Pedestrian Walk: 3,000 psi 28 day concrete, 5 inches thick, #4 rebar at 18 inch on center each way reinforcement, wood float finish or as shown in details.

END OF SECTION

SECTION 32 31 16

WELDED WIRE FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

1.2 SUMMARY

A. This Section includes the following:

1. Fencing System complete with all hardware, posts, gates, and accessories necessary for a complete and aesthetically balanced installation.
2. Swing gates and related hardware.
3. Sliding gates and related hardware.
4. Concrete foundation for posts.

B. Related Sections
1. 03 30 00 Cast in Place Concrete
2. 31 00 00 Earthwork

1.3 REFERENCES

A. American Society for Testing and Materials:

1. ASTM A53 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
2. ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
3. ASTM A1064 Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete
4. ASTM A500 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
5. ASTM A501 Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing
6. ASTM A641 Standard Specification for Zinc- (Galvanized) Coated Carbon Steel Wire
7. ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus
8. ASTM B633 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
9. ASTM C33 Standard Specification for Concrete Aggregates
10. ASTM C150 Standard Specification for Portland Cement
11. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes
12. ASTM D1654 Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments
13. ASTM D2248 Standard Practice for Detergent Resistance of Organic Finishes
14. ASTM D2794 Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation
15. ASTM D3359 Standard Test Methods for Measuring Adhesion by Tape Test
16. ASTM D3363 Standard Test Method for Film Hardness by Pencil Test

17. ASTM D4141 Standard Practice for Conducting Black Box and Solar Concentrating Exposures of Coatings
18. ASTM F2408 Standard Specification for Ornamental Fences Employing Galvanized Steel Tubular Pickets
19. ASTM F2919 Standard Specification for Welded Wire Mesh Fence Fabric

B. American Concrete Institute:

1. ACI 301 Specifications for Structural Concrete

1.4 SYSTEM DESCRIPTION

A. The Manufacturer shall supply a Fencing System complete with all hardware, posts, gates and accessories necessary for a complete and aesthetically balanced installation.

B. Design Requirements: Fencing system, foundation and installation shall be engineered to withstand [90] mph wind load. (Where applicable, wind load rating to be based on IBC 2003 or local code if more stringent.)

1.5 SUBMITTALS

A. Product Data: For each product indicated, include manufacturer's product literature, shop drawings, and product performance data indicating compliance with this specification.

B. Installation Drawings: Show layout, locations, components, materials, dimensions, sizes, weights, finishes of components, installation and operational clearances, gate swings, post sizes, spacing and mesh type, gate details/dimensions, details of post anchorage, and post attachment/bracing.

C. Samples: Submit color selections and samples for finishes on fence and accessories if requested by the specifier.

1.6 QUALITY ASSURANCE

A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and the materials and techniques specified. Review and follow manufacturer's installation instructions.

B. Provide fence system and gates, as a complete unit produced by a single manufacturer, including necessary erection accessories, fittings and fastenings.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with a minimum of 10 years documented experience.

D. Field Quality Control to be conducted by (Owner's Project Manager) (General Contractor) (Manufacturers Technical Specialist).

1.7 DELIVERY, HANDLING AND STORAGE

A. Deliver fence materials, gates, posts, and accessories to project site, completely pre-finished. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping. Materials shall be handled and stored properly to protect against damage and theft.

B. Handle fence components to protect finish coating from any scuffs, abrasion or other damage during unloading and installation. Excessive damage to factory applied coatings will be cause for rejection.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Betafence USA, Ennis, TX 75119, fax: 972-878-4703, 888-650-4766, or

Email: fence@betafenceusa.com, or approved equal.

2.2 MATERIAL

A. Fencing System: Subject to the performance and design requirement specified herein, fence and gates shall be manufactured from the following materials:

1. Wire Mesh Panels: Panels shall be 8.20' wide x 3'-6" and 5' high.
   a. Panels shall be welded by resistance as per ASTM A1064 using 6.5 gauge (.185") Galvanized coated steel wire.
   b. The wire shall have a tensile strength of at least 70,000 lbs. / in^2, and 2100 lbs. break strength.
   c. Horizontal and Vertical wires shall be welded to form a 2" x 6" rectangle.
   d. Panels shall have the number of folds per the table below depending on the respective height of the panel.

Panel Height	3'-6"	4'	5'	6'	7'	8'
Reinforcement Ribs	2	2	3	3	4	4

   f. Exterior surface shall have a 2 to 4 mil polyester coating applied after fabrication as described in section 2.3.

   g. The vertical wires of the mesh shall extend 1" from the last or first horizontal wire thereby creating a spiked top or bottom, depending on its position when installed.

2. Square Tubular Posts:
   a. Steel Posts to be per ASTM F2408 with increased strength to minimum yield strength of 45,000 psi.
   b. Material greater than 8 ga and larger than 4 inch O.D. shall be formed per ASTM A53, ASTM A500 Grade B, or ASTM A501, with a minimum yield of 46,000 psi and shall be hot dipped galvanized in accordance with ASTM A123.
3. Fittings and Fasteners:
   a. Post caps shall be of press on type steel caps zinc plated to ASTM B633, Service class II or malleable steel caps galvanized to ASTM A123, finished to match fence finish and color.
   b. Post brackets shall be galvanized or stainless steel with stainless, galvanized or zinc plated fasteners or Nylon face mount bracket. All brackets shall be finished to match fence finish and color.
4. Swing Gates: Design of gates shall be as shown on the Drawings.

a. Gate Frames and Infill Panels: Materials as described above.
b. Frame Members: Shall be MIG welded. If necessary, truss rods or cables to be used to prevent gate sag and allow for future adjustment.
c. Gate Posts and Foundation: Size as determined by Engineer, based on gate size, local wind loading requirements, and installation type.
d. Hinges: Manufacturer's standard hinges, structurally capable of supporting gate leaf and allow opening and closing without binding. Non-lift-off type hinge design shall permit gate to swing 180º (degrees). Hinge pins shall be non-removable.
e. Latch: Capable of retaining gate in closed position and have provision for padlock.
f. Keeper: Provide keeper for each gate leaf over 5 feet wide. Gate keeper shall consist of mechanical device for securing free end of gate when in full open position.

5. Slide, Cantilever and Overhead Track Gate Design of gates shall be as shown on the Drawings.
   a. Gate Frames and Infill Panels: Materials as described above in 2.2.1.1.
   b. Frame members: Shall be MIG welded. If necessary, truss rods or cables to be used to prevent gate sag and allow for future adjustment.
   c. Gate Posts: Size as determined by Engineer, based on gate size, local wind loading requirements, and installation type.

2.3. POWDER COATED FACTORY FINISH

A. Coating Material: Posts, post caps, rails, pales, brackets and security mesh shall be finished with a factory applied TGIC polyester powder coating of the "Super-Durable" class. Powder coated finish shall meet or exceed the following performance criteria. Color shall be Black.

B. Applicable Requirements to Validate the Coating Process:

1. Adhesion Resistance: ASTM D3359, Measuring Adhesion by Tape Test, Method B.
   a. Minimum Performance Requirement: Coating retention of not less than 95%.
2. Impact Resistance: ASTM D2794, Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
   a. Minimum Performance Requirement: resistance to impact – Pass, 9 N m.
3. Film Hardness ASTM D3363, Film Hardness by Pencil Test
   a. Minimum Performance Requirement – Minimum Hardness: 2H.
4. Solar Concentration Exposure: ASTM D4141, Conducting Black Box and Solar Concentrating Exposures of Coatings, Method C. (Equivalent to EMMAQUA NTW)
   a. Minimum Performance Requirement - coating must test to a minimum of 50% Gloss Retention at 1,400 MJ/m2 with no film failure, chalking, cracking or checking and no more than 10% fading.
5. Film Thickness: ASTM G12, 2.0 min.
6. Flexibility: ASTM D-1737-89, No breaks, flakes or cracks on Q-panel 5B (100% adhesion to the substrate).
7. Gloss 60 angle: ASTM D-523-89. 50- 60
8. Abrasion Resistance: ASTM D1044, 90-95 mg weight loss
9. Accelerated Weathering: ASTM G-23, 1000 hours (70% gloss retention, ΛE: <2.0).
10. Humidity: ASTM D2247, 1000 hours – No blisters
11. Thickness: Provide film thickness of 2-4 mils as measured by manufacturer's standard powder coat measurement and inspection procedures.
12. Pretreatment: The fence sheeting and framework shall be prepared using a 7 stage Zinc Phosphate wash line. The pre-treatment cleaning system will remove foreign material and to properly prepare the surface to achieve the coating system requirements specified above.
13. Curing: Heat cure in accordance with powder manufacturer's prescribed cure schedule to properly crosslink and bond finish to metal substrate.
14. Chemical Resistance: ASTM B117

a. Corrosion Resistance:
   1) Procedure: Preparation of Test Specimens- Perform a single scribe the length of the specimen, within one inches of any edge and deep enough to expose the base metal. Expose the specimen for 1,000 hours per ASTM B117-07 using a 5% salt solution and 95°F operational temperature. After exposure, remove specimens and wipe dry. Immediately apply tape (Permacel 99 or equal) over scribed are by pressing down firmly against the coating. Sharply pull the tape off at a right angle to the surface being tested.
      a) Performance: The required is a minimum of seven on the scribed edge and minimum blister rating of eight within the test specimen field in accordance with tables in ASTM D1654.

2.4 CONCRETE FOOTINGS

This section shall be superseded by requirements of anti-ram barrier system if used in conjunction with this installation

A. General: Comply with ACI 301 for cast-in-place concrete; materials consisting of Portland cement complying with ASTM C150, aggregates complying with ASTM C33, and potable water.

B. Concrete Mixes: Normal-weight concrete air entrained with not less than 3000-psi (20.7-MPa) compressive strength (28 days), 3-inch (75-mm) slump, and 1-inch (25-mm) maximum size aggregate.

C. Footings: Footings shall be minimum 3,000 psi after twenty-eight (28) days concrete. Footing sizes shall be determined by Engineer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Verify areas to receive fencing.

B. Coordinate fence installation with work of other sections listed in these specifications.

C. Examine conditions under which fencing and gates are to be installed. Notify Contractor of unsatisfactory conditions. Do not proceed with work until conditions are satisfactory to the installer.

3.2 INSTALLATION

A. Install fence and gates in accordance with manufacturer's instructions and approved installation drawings. Install fencing to withstand wind load as specified.

B. Handle fence components to protect finish coating from any scuffs, abrasion or other damage during installation. Excessive damage to factory applied coatings will be cause for rejection.

C. Space posts at dimensions indicated in the installation drawings. Attach fence rails to posts using stainless steel or galvanized steel, panel hanger brackets or nylon face mount bracket supplied by manufacturer. Field welding of panels to posts is unacceptable as it will cause significant damage to the galvanizing and powder coat protective finishes.

D. Concrete Footings: Place concrete around posts and vibrate or tamp for consolidation. Verify that posts are set plumb, aligned, and at correct height and spacing, and stabilized in

position during placement and finishing operations until concrete is sufficiently cured. Protect portion of posts above ground from concrete splatter.

E. Install gates level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust gate to operate smoothly, easily, and quietly throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

F. Avoid unnecessary cutting, drilling and welding of pre-finished fence components. If necessary to cut drill, weld or otherwise modify product due to field conditions, repair factory finish in accordance with item below.

G. Touch-up any necessary areas by lightly sanding; apply a zinc-rich cold galvanizing primer followed by a high quality acrylic lacquer paint to match finish. (Touch-up paint available from manufacturer) Note: field applied touch-up cannot match the performance of factory applied finishes and should be limited in use.

3.3 CLEANING

A. Fence contractor shall remove packing materials and unused product and level uneven areas due to excavations created by fence installations.

END OF SECTION 32 31 16

SECTION 32 92 19

SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Seeding or hydroseeding; mulching and fertilizer.

B. Maintenance.

1.02 RELATED SECTIONS

A. Section 31 22 00 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

B. Section 31 23 23 - Fill and Backfill: Topsoil material.

C. Section 32 01 90 Landscape Maintenance: Post-occupancy maintenance.

1.03 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.04 SUBMITTALS

A. Products:
   1. Mulching Agent.
   2. Certification of seed.

1.05 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.07 MAINTENANCE SERVICE

A. Furnish maintenance of seeded areas for three months from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 SEED MIXTURE

A. Seed Mixture:
   1. Grass Seed: Provide fresh, clean, new crop seed complying with tolerance for purity and germination established by the U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act and the Texas Seed Law.
      a. Seed which has become wet, moldy or otherwise damaged in transition in storage will not be accepted.
      b. Seed to be completely free of any objectionable foreign material that will hinder proper distribution.
      c. Seed to be treated with an approved fungicide by commercial or state laboratory not more than 6 months prior to date of planting.

d. Seed rate to be Pure Live Seed (PLS). Minimum percent of PLS to be 85%. Seed type to be planted at the mixture, rate and planting conditions as follows:
   1) Bermudagrass (warm season grass) - 4 pounds per 1,000 square feet- March 20 to September 1.

2.02 ACCESSORIES

A. Mulching Agent: Weyerhauser virgin wood fiber mulch, Silva Fiber distributed by James Lincoln Corp., Garland, Texas 972/840-2440 or approved equal.

B. Starter Fertilizer: 13-13-13 water soluble fertilizer.

C. Lawn Fertilizer: Premium Plant Care Formula (with soil microbes) by Agrigro, available at Gardenville or approved equal.

D. Recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis.

E. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

F. Herbicide: Post emergent herbicide Round-Up by Monsanto Corp., or approved equal.

2.03 TESTS

A. Provide analysis of topsoil fill under provisions of Section 01 40 00.

B. Submit minimum 10 oz; 16 oz sample of topsoil proposed. Forward sample to approved testing laboratory in sealed containers to prevent contamination.

C. Testing is not required if recent tests are available for imported topsoil. Submit these test results to the testing laboratory for approval. Indicate, by test results, information necessary to determine suitability.

D. Provide recommendations on fertilization requirements for turf.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this Section.

3.02 PREPARATION

A. Prepare subgrade in accordance with Section 31 22 00 and notes on drawings.

B. Place topsoil in accordance with Section 31 22 00.

3.03 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions; or at a rate recommended by the soils analysis.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

3.04 HYDROMULCH SEEDING APPLICATION

A. Apply hydromulch slurry with a hydraulic seeder at rate of 45 pounds per 1,000 square feet mulching agent and 7.6 pounds per 1,000 square feet starter fertilizer.
   1. Include seed at rate noted.

B. Apply water with a fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

C. Maintain watering as required to establish grass.

3.05 SEED PROTECTION

A. Staking of perimeter: Identify seeded areas with 3/8” x 2” x 48” wood surveyor’s laths (stakes) and string around area periphery. Set string height to 12 inches. Space stakes at 36 inches.

B. Erosion fabric: Cover seeded slopes where grade is 20% slope (1:5) or greater with erosion fabric.

1. Roll fabric onto slopes without stretching or pulling.

2. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.

3. Lay blanket smoothly on surface, bury top end of each section and overlap adjacent rolls per manufacturer's instructions. Backfill trench and rake smooth, level with adjacent soil.

4. Secure outside edges and overlaps at 36 inch intervals with stakes.

5. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.

6. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.06 MAINTENANCE

A. Begin maintenance immediately after seeding. Maintenance shall continue until final acceptance of the project. Refer to Section 32 01 90 Landscape Maintenance.

B. Water to prevent grass and soil from drying out.
1. Water for a minimum 30 day period after grass installation for acceptance of grass per approval of Project Inspector.

C. Roll surface to remove minor depressions or irregularities.

D. Control growth of weeds. Apply herbicides in accordance with manufacturer's instructions. Remedy damage resulting from improper use of herbicides.

E. Immediately reseed areas which show bare spots. Bare spots over 6 inch diameter in size will not be acceptable.

F. 30 days following establishment of the turf, fertilize the turf with lawn fertilizer at the rate to apply 1 pound of nitrogen per 1,000 square feet.

3.08 CLEAN UP AND PROTECTION

A. After seeding operations are finished, all paved areas shall be thoroughly cleaned by sweeping, and if necessary power washing.

B. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

SECTION 32 93 00

EXTERIOR PLANTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Tree, shrub and ground cover planting.

1.02 RELATED SECTIONS

A. Section 31 22 00 - Grading

B. Section 31 23 23 - Fill and Backfill

C. Section 32 92 19 - Seeding

D. Section 32 92 23 - Sodding

E. Section 32 01 90.33 – Tree Preservation

1.03 REFERENCES

A. Plant material shall conform to the following documents which are to be considered part of these Specifications:
   1. "Standardized Plant Names," American Joint Committee on Horticultural Nomenclature, latest edition. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.
   2. "American Standard for Nursery Stock," American Association of Nurserymen, Inc., latest edition. A plant shall be dimensioned as it stands in its natural position.
   3. "Grades and Standards for Nursery Stock," Texas Association of Nurserymen.
   4. "Principles and Practice of Planting Trees and Shrubs" by Gary W. Watson and E.B. Himelikc.

1.04 SITE CONDITIONS

A. Verification of Dimensions:
   1. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and sizes, etc., and shall assume full responsibility for the correctness of all such items.

B. Existing Conditions:
   1. New work shall be tied to existing conditions and controls such as existing grades.
   2. Finished grades shall bear proper relationship to such controls. The Contractor shall adjust new work as necessary and as directed to meet existing conditions and fulfill intent of the plans.

C. Obstructions:
   1. If any unknown utilities and obstacles are encountered during the construction period, stop work and immediately contact the Design Consultant before proceeding.
   2. Such obstructions shall be removed or relocated or the work adjusted as directed by the Design Consultant.
   3. If work proceeds without contacting the Design Consultant, shall be held liable for any and all damages.

D. Underground Utilities: Prior to initiating any work of this section, the Contractor shall contact the appropriate authorities in order that their personnel can locate existing underground utilities that may be encountered.

E. Existing Vegetation:
   1. Portions of the existing vegetation shall remain as indicated on the drawings.
   2. Take all means necessary to protect the existing vegetation.

3. Any existing vegetation to remain that is damaged shall be replaced.
4. New work shall be tied to existing conditions and controls such as existing planting beds.
5. Bed expansions shall bear proper relationship to such controls.
6. Adjust new work as necessary and as directed to meet existing conditions and fulfill intent of the plans.

1.05 DEFINITIONS

A. Weeds: Any plant life not specified or scheduled. Includes:
   1. Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, Brome Grass and Green Briar.

1.06 QUALITY ASSURANCE

A. Landscape installation and maintenance must be supervised by a staff member of the Contractor who possesses at least one of the current certifications/designations:
   1. Certified Landscape Professional Contractor (CLPC) as administered by Texas Association of Landscape Contractors (TALC).
   2. College degree relating to the landscape industry or an approved equivalent.
   3. It is the obligation of the Contractor to provide the Owner or Design Consultant with documentation that the above qualification is met.

B. Source Quality Control:
   1. General: Planting materials shall meet or exceed the Specifications of Federal, State and local laws requiring inspection for plant disease and insect control.
   2. All plants shall be nursery grown under climatic conditions similar to those in the locality of the project.
   3. Stock furnished shall be at least the minimum size indicated.
      a. Larger stock is acceptable, at no additional cost and providing that the larger plants will not be cut back to size indicated.
      b. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated.
   4. Provide "specimen" plants with a special height, shape or character of growth.
      a. Tag specimen trees or shrubs at the source of supply.
      b. The Design Consultant shall inspect specimen selections at the source of supply for suitability and adaptability to selected location.
      c. When specimen plants cannot be purchased locally, provide sufficient photographs of the proposed specimen plants for approval.
   5. Contractor shall provide written notice of request for inspection to the Design Consultant a minimum of two (2) weeks prior to date of inspection.
   6. Plants may be inspected and approved at the place of growth for compliance with specification requirements for quality, size and variety.
      a. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.
   7. Analysis and Standards:
      a. Package standard products with manufacturer's certified analysis.
      b. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.
   8. Label at least one plant of each variety in each delivery with a securely attached waterproof tag bearing legible designation of botanical and common name.
      a. Same species with different flower color varieties shall have a label on each plant.
   9. Inspections:
      a. All necessary state, federal, and other inspection certificates shall accompany the invoice for each shipment or order for plant materials as may be required by law.

b. All plants shall be subject to inspection and approval at the site or elsewhere. The Design Consultant reserves the right to reject, at any time or place, prior to final acceptance of the work, any or all of the plants which fail to meet requirements of these specifications.

10. Trees, shrubs, perennials and annuals that are undersized or in poor and unviable condition, if planted, shall not be accepted and must be replaced to accomplish the landscape contract.
11. Conditions where the site is left at an irregular grade are not acceptable.

1.07 EXPLANATION OF DRAWINGS

A. Due to the scale of drawings, it is not possible to indicate all conditions affecting work.
   1. The Contractor shall carefully investigate the structural and finished conditions affecting all of his work and plan his work accordingly, furnishing such elements as may be required to meet such conditions.
   2. Drawings are generally diagrammatic and indicative of the work to be installed.
   3. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, existing planting and trees and other construction on site.

B. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

C. The Contractor shall not willfully install the planting as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in design.
   1. Such obstructions or differences should be brought to the attention of the Owner's authorized representative and Design Consultant.
   2. In the event this notification is not performed, the contractor shall assume full responsibility for any revisions necessary.

D. Contractor shall be responsible for all costs involved with work.

1.08 SUBMITTALS

A. Furnish at Design Consultant's office, prior to installation, the following samples:
   1. Soil Conditioner: Label from bag (Supplier's statement of analysis if bulk), and one ounce sample.
   2. Soil Amendment: Label from bag (Supplier's statement of analysis if bulk), and one ounce sample.
   3. Mulch: Label from bag (Supplier's statement of analysis if bulk), and 1-gallon container of mulch sample.
   4. Fertilizer: Label from bag or Supplier's brochure.
   5. Herbicide: Label from container or Supplier's brochure.
   6. Root Stimulator: Label from container or Supplier's brochure.
   7. Erosion Control Netting: Supplier's brochure and 12" x 12" section of fabric.
   8. Edging: Sample minimum 12" length.
   9. Gravel: 1-pound sample.
   10. Drainage Fill: 1-pound sample.
   11. Soil Separation Fabric: Suppliers brochure and 12" x 12" section of fabric.
   12. Weed Barrier Fabric: Suppliers brochure and 12" x 12" section of fabric.
   13. Decomposed Granite: One (1) quart container.
   14. Plant Schedule: Indicate quantities and species of plant material, with complete source information (nursery name, address, phone number).

1.09 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Packaged Materials:
   1. Deliver packaged materials in original containers showing weight, analysis and name of manufacturer.
   2. Protect materials from deterioration during delivery, and while stored at site.

B. Trees and Shrubs:
   1. Do not prune prior to delivery unless otherwise approved by Design Consultant.
   2. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape
   3. Provide protective covering during delivery to prevent wind burn.
   4. Spray deciduous plants in foliage with approved anti-desiccant immediately after digging to prevent dehydration.

C. Deliver plant materials after preparations for planting have been completed and plant immediately.
   1. Protect all plants from drying out.
   2. Use all means necessary to protect plant materials before, during and after installation and to protect the installed work and materials of all other trades.

D. Do not remove container grown stock from containers until planting time.
   1. Do not drop stock during delivery; broken and loose balls shall not be accepted.

1.10 ABBREVIATIONS

A.	Balled & Burlapped	B&B
B.	Gallon Container Size as Indicated	Gal.
C.	Multi-Trunk	M.T.
D.	On Center	O.C.
E.	Square Yard	S.Y.
F.	Square Feet	S.F.
G.	Caliper	Cal.
H.	Linear Feet	L.F.
I.	Tree-form	T.F.
J.	Height	Ht.
K.	Spread	Sprd.

1.11 JOB CONDITIONS

A. Basic Regulations:
   1. Planting operations shall be conducted under favorable weather conditions during the seasons which are normal for such work as determined by acceptable practice in the locality.
   2. Contractor is hereby notified of active utilities and caution shall be exercised to avoid interruption of services.
   3. The Contractor is responsible for replacement of any existing buried utilities, irrigation lines, etc., if they are broken during the planting operations.
   4. Contact the appropriate utility to get the locations of underground utilities. The replacement costs are at the Contractor's expense.
   5. Protect curbing or walks, protection against damage when it is necessary to cross paved areas.
   6. When conditions detrimental to plant growth are encountered during soil preparation or planting, such as rubble fill, adverse drainage conditions, or obstructions, notify Design Consultant before planting.

B. Work Sequence:
   1. Plant trees and shrubs after final grades are established and prior to planting of turf, unless otherwise acceptable to Design Consultant.
   2. If planting of trees and shrubs occurs after turf work, protect turf areas and promptly repair

damage to turf resulting from planting operations.

C. Planting Period:
   1. Plant materials as a standard are to be provided as nursery grown containerized condition.
   2. Conditions in which B&B plant material to be utilized shall only be with approval of Owner and Design Consultant and with equitable adjustment.
   3. B&B plant material shall not be planted within the period of April - August; only container grown stock is to be installed during this period.
   4. Soil Preparation (weed treatment):
      a. Initiate a minimum 8 weeks prior to planting.
      b. Complete post emergent herbicide applications at a minimum of 2 week intervals. Four applications or as required to be provided.

1.12 WARRANTY & GUARANTEES

A. TREE, SHRUB AND GROUNDCOVER:
   1. Warranty trees and shrubs and groundcovers for a period of one (1) year following the date of final acceptance to be alive and in satisfactory growth at the end of the warranty period.
      a. Plants damaged or killed as a result of hail, winds over 75 miles per hour, lightning, fire, winter kill caused by extreme cold and severe winter conditions not typical of the planting area, theft, vandalism, occupancy of the building, or Owner neglect of proper maintenance are not covered by the warranty.
   2. Replacement:
      a. By the end of the guarantee period, any plant that is dead or 50 percent or more of the main branch structure dead, or not in satisfactory growth as determined by the Owner or the Design Consultant, shall be removed from the site and shall be replaced.
      b. All replacements shall be plants of the same kind and size as specified in the plant list and shall be furnished and planted as originally specified.
      c. Cost of such replacements shall be borne by the Contractor.
      d. Replacement plants shall be guaranteed for one (1) year or as noted in the warranty.
      e. Replacement shall be made within 10 days after notification, or as soon as weather conditions are satisfactory for planting.

1.13 POST CONSTRUCTION PHASE WARRANTY WALKTHROUGH

A. Conduct quarterly inspections over the one year warranty period.

B. 3rd quarter inspection to be at 3 months prior to 1 year expiration date.

C. Submit written report to Owner and Design Consultant stating overall condition of work under warranty and items requiring replacement/repair.

PART 2 - PRODUCTS

2.01 SOIL ADDITIVES

A. Soil Conditioner: Compost, composted for a period of eight (8) weeks or longer, organic, derived from animal manure, wood shavings, hay, seed hulls, stable bedding, or other organic residue, without dust, objectionable odors, viable weed seed; aerobic and friable, manufactured by Gardenville, San Antonio, Texas, (210) 651-6115 or approved equal. A maximum of 10% cedar flakes/shavings is allowed in conditioner.

B. Soil Amendment (Lawn): Lawn Dressing (sand and compost), screened, manufactured by Gardenville, San Antonio, Texas, (210) 651-6115, or approved equal.

C. Planting Bed Soil: Reference material specified in Section 31 23 23 - Fill and Backfill.

D. Sand: Clean, No. 4 to 100 Colorado River Sand, i.e., sharp or torpedo sand. Trinity River Sand is acceptable.

E. Fertilizer for Trees: Davey Arbor Green, 30-10-7 for liquid suspended application, distributed by The Davey Company in San Antonio, Texas (210) 698-0515.

F. Fertilizer for Shrubs and Groundcovers: Agriform 10 and 21 gram tablets manufactured by Sierra Chemical Co. Composition by weight 20-10-5 tablet form, dry and unbroken or approved equal.

G. Pre-Emergence Weed Control (for use after cultivation): XL-2G by Dow Elanco or approved equal.

H. Post-Emergence Herbicide: Round-Up by Monsanto Corp., or approved equal.

I. Root Stimulator:
   1. Super Thrive 2% solution.
   2. Up Start by Ortho.
   3. Medina Soil Activator.

2.02 PLANT MATERIALS

A. Plant Quantities:
   1. The quantities of plants calculated and shown on the plans define only the general magnitude of plants required.
   2. The Contractor shall furnish the number of plants at the specified spacing required to accomplish the planting.

B. Plant Schedule: Refer to Plant Schedule indicating plant material, common and botanical name and size specifications indicated on the drawings.

C. Quality:
   1. Provide trees, shrubs, and ground covers of size, genus, species and variety shown and scheduled for landscape work as per the following:
      a. Provide plants typical of their species or variety; with normal, densely-developed branches and vigorous, fibrous root systems.
         1) Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation.
            (a) All plants shall have a fully developed form without voids and open spaces.
      b. Dig balled and burlapped plants with firm, natural balls of earth sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant.
         1) Provide ball sizes complying with the latest edition of the “American Standard for Nursery Stock”. Cracked or mushroomed balls are not acceptable.
   2. All plant materials and trees shall be nursery grown; field collected materials are not acceptable without prior approval of Design Consultant.
      a. All plants to be container grown.

D. Bare root plants are not acceptable.

E. Container Grown stock:
   1. Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.
   2. No plants shall be loose in the container.
   3. Container stock shall not be pot bound.

F. Trees:
   1. Provide tree species that mature at heights over 25'-0" with a single main trunk. Trees that have the main trunk forming a “Y” shape are not acceptable.
   2. Height of branching should bear a relationship to the size and variety of tree specified and with the crown in good balance with the trunk. Trees shall not be "poled" or the leader removed.
   3. Trunk shall be reasonably straight and symmetrical with crown and have a persistent main leader for single-stem trees.
   4. For multi-stem trees, all countable stems, in aggregate, shall average the size specified.

To be considered a stem, there should be no division of the trunk which branches more than six (6) inches from ground level.

5. For specimen trees, a plant shall be provided that is well branched and pruned naturally according to the species. The form of growth desired, which may not be in accordance with natural growth habit, shall be as indicated.

G. Plant Size:
   1. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated in the plant list.
   2. Shrubs and small plants shall equal or exceed the requirements for spread and height indicated in the plant list.
      a. The measurements for height shall be taken from the ground level (top of root ball) to the average height of the top of the plant and not the longest branch.
      b. Single stemmed or thin plants will not be accepted.
      c. Side branches shall be generous, well-twigged and the plant as a whole well-bushed to the ground.
      d. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.

H. No pruning wounds shall be present with a diameter of more than one (1) inch and such wounds must show vigorous bark on all edges.

I. Matched:
   1. Plants planted in rows shall be matched in form.
   2. Plants labeled as matched on plans or plant schedule shall select stock chosen for uniform height, spread and general character; label with number to assure symmetry in planting.

J. Substitutions:
   1. Permitted only upon submission of proof at least sixty (60) days prior to planting that the plant specified is not reasonably obtainable.
   2. The substitution shall be authorized by the Owner by change order.

2.03 MISCELLANEOUS LANDSCAPE MATERIALS

A. Dress Mulch: Regular, double shredded, unscreened hardwood or approved equal.

B. Wound Dressing: Cabot Tree Paint or approved equal.

C. Water: Furnished by the Contractor. Hose and other watering equipment to be provided by Contractor.

D. Decomposed Granite: Hard, durable particles or fragments of Texas Hill Country decomposed granite gravel with fines evenly mixed throughout the aggregate, available from Keller Material, Inc., San Antonio, Texas, (210) 648-4221.

E. Soil Separation Fabric: Mirafi 140N as manufactured by Mirafi, Inc., Charlotte, N.C., or approved equal.

F. Wood Edging: Of sizes shown on following wood species:
   1. Redwood, all heartwood
   2. Tidewater Red Cypress, all heartwood
   3. Western Red Cedar, all heartwood
   4. Southern Yellow Pine, pressure treated with water-borne preservative for ground contact use complying with AWPB LP-22.
   5. Provide wood stakes of treated Southern Yellow Pine, 2"x2"x18" long and hot dipped galvanized nails for anchoring stakes to edging.

G. Steel Edging: 3/16" x 4" commercial steel edging fabricated in sections to receive stakes. Provide tapered steel stakes 16" long. Finish shall be manufacturer's standard green paint.

H. Gravel: Crushed, hard, durable gravel, washed free of soil, sand, clay and other foreign

substances. Provide the following stone, color and size range:

1. Limestone: Uniform tan/beige color range.
2. Modified Grade 3, TCS Code #369.
   a. Standard Limestone Base, TCS Code #115.
   b. Railroad Ballast, TCS Code #066.
   c. Rip Rap, TCS Code #012.
3. Granite: Readily available natural gravel color range acceptable to Design Consultant.
4. River Rock: Readily available material gravel, color range acceptable to Design Consultant.
   a. Size Range: 3/8" to 3/4"
   b. Size Range: 3/8" to 1-1/2"
   c. Size Range: 3/4" to 1-1/2"

I. Drainage Fill: AASHTON M43 #6 (3/8 to 3/4 inch) clean uniformly graded stone or gravel.

J. Anti-Desiccant: Emulsion type, film forming agent designed to permit transpiration but retard excessive loss of moisture from plants.

K. Plastic Sheet: Black, weather-resistant polyethylene sheeting complying with FS-L-P512, type III, 0.008" (8 mils) thick.

L. Weed Barrier Fabric: Pro-5 Weed Barrier as manufactured by DeWitt Company or approved equal.

M. Erosion Control Netting: "Soil Saver", a heavy, woven jute mesh with one inch openings as manufactured by Jim Walls, Co., Dallas, Texas or approved equal.

N. Erosion Control Netting: Polyjute, open weave geotextile as distributed by A.M. Leonard, Inc., 800/543-8955.

O. Tree Guard: Arbor-Guard polyethylene with U.V. inhibitors (minimum eight inch high for up to four inch caliper tree) by Deep Root Corporation, Westminster, California, 714-898-0563 or approved equal.

2.04 MATERIALS FOR STAKING TREES

A. Stakes: Six (6) foot height studded T-posts with painted finish for rust protection.

B. Wire: Provide wire ties to 2-strand, pliable galvanized iron wire not lighter than l0 gauge.

C. Plastic Chain Ties: Adj-A-Tye, as manufactured by A.M. Leonard, Inc., Piqua, Ohio, or approved equal.

D. Hose (to encase wires): 2 ply reinforced green rubber or plastic garden hose, 3/4" in diameter cut to required lengths to protect tree trunk from damage by wire guy wires.

PART 3 – EXECUTION

3.01 PLANTING DETAILS

A. Planting details regarding tree planting, shrub pit planting, shrub and groundcover planting, and planting bed soil preparations are included on the drawings.

3.02 PLANTING LAYOUT

A. Layout individual tree, shrub and planting bed areas for plantings.
   1. Stake tree locations, pit planted shrubs and outline planting bed areas.
   2. The Design Consultant reserves the right to inspect all layouts prior to the start of, during, and after planting work.
   3. Make adjustments as may be requested at no additional cost to the Owner.

B. Set plant material in the planting pit to proper grade and alignment.
   1. Set plants upright, plumb, and faced to give the best appearance or relationship to each

other or adjacent structure.
2. No filling will be permitted directly over root ball or around trunks or stems.
3. Do not use frozen or muddy mixtures for backfilling.
4. Form a ring of soil around the edge of each planting pit to retain water.

C. Groundcover and shrubs shall be set at a level that, after settlement, they shall bear the same relationship to the finish grade as specified in PLANTING TREES AND SHRUBS IN PITS, this section.

D. After plants are in place, muddle planting soil mixture around sides of balls and fill all voids.

E. Prior to backfilling with planting soil mixture, remove all burlap, ropes, and wires from the top 1/3 of balls on all balled and burlapped plant material.

3.03 PLANTING GROUND COVER AND SHRUBS IN BEDS

A. Space ground cover plants in accordance with indicated dimensions providing the quantity of plants necessary to evenly fill planting bed area.
1. Plant layout is to be equidistantly triangular spaced.
2. Plant to within 12 inches of the trunks of trees and shrubs within planting bed and to within 6 inches of edge of bed but in no instance less than ½ the spacing distance of the plant.

B. All plant material shall be set at a level that, after settlement, they shall bear the same relationship to the finish grade that they bore to the soil from which they were dug/grown.

C. When plants are set at proper elevation, planting soil shall be replaced around the ball and compacted, avoiding injury to the roots and filling all voids.
1. Absolutely no topsoil or planting soil shall be placed over top of any rootball or portion of rootball.

D. Place fertilizer tablets, at rate shown in table under fertilization section, when approximately half the backfill is in place.

E. Planting beds shall be raked smooth and thoroughly watered and then water allowed to soak away.

F. After settlement, add planting soil as necessary to bring bed to finish grade and again thoroughly water entire plant bed.

G. After planting operation and prior to mulching, pre-emergent weed control shall be applied to the entire bed area according the manufacturer's recommendations.

H. Prune, thin out and shape shrubs in accordance with Standard Horticultural Practice if deemed necessary by Design Consultant.
1. Prune shrubs to retain natural character.
2. Pruning shall be limited to the minimum necessary to remove injured twigs and branches.

I. Following a minimum two (2) week waiting period after planting is completed, all beds shall be inspected by the Contractor and treated as required with an appropriate post-emergent herbicide to remove weed growth.
1. Treatment shall be continued as necessary to remove weeds.
2. No beds shall be accepted with weeds.

3.04 PLANTING TREES AND SHRUBS IN PITS

A. Planting Pits:
1. Excavate pits with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage.
2. Minimum diameter is twice the diameter of rootball or size pit to receive rootball.

B. Drainage Holes:
1. Where tree pits are dug in rock, a 4-inch diameter drainage hole will be drilled to drainage

material or rock fracture and filled with gravel.
   a. The drain hole must meet the test of draining the pit filled with water within a 24 hour period of time.
   b. Additional drain holes shall be drilled if required to meet drainage test herein described.
   c. Prior to planting tree, place soil separation fabric over drainage holes.
2. Where tree pits are dug in clay, a 4-inch diameter drainage hole will be drilled to drain and backfill with gravel when required to insure proper drainage.
   a. The drain hole must meet the test of draining the pit filled with water within a 24 hour period of time.
   b. Additional drain holes shall be drilled if required to meet drainage test herein described.
   c. Prior to planting tree place soil separation fabric over drainage holes.
3. Fill excavations for trees and shrubs with water and allow to percolate out before planting.

C. Elevation:
1. All plants, other than trees, shall be set at a level so that, after settlement, they shall bear the same relationship to the finished grade of the surrounding soil from which they were dug or from the container they were grown in.
2. Set trees 2 to 3 inches above finish grade.

D. Setting Plants:
1. After placing the plant in the specified pit, planting soil shall be placed around the ball and compacted to avoid injury to the roots and to fill all voids.
2. When pits are nearly filled with soil, add water and allow to soak away.
3. Fill the pit to finished grade with planting soil allowing for mulching material.
4. Form a shallow saucer around each plant by placing a ridge of planting soil around the edge of each pit to retain water.

E. Absolutely no topsoil or planting mixture shall be placed over top of rootball.

F. Trees and shrubs shall not be set plumb by adjusting the ball.

G. When plants are set at proper elevation, planting soil shall be replaced around the ball and compacted, avoiding injury to the roots and filling all voids.

H. Place fertilizer tablets in planting of shrubs, at rate shown in table under fertilization section, when approximately half the backfill is in place.

I. Planting beds/pits shall be raked smooth and thoroughly watered and then water allowed to soak away.

J. After settlement, add planting soil as necessary to bring bed to finish grade and again thoroughly water entire plant bed.

K. After planting operation and prior to mulching, pre-emergent weed control shall be applied to the entire pit/basin area according the manufacturer's recommendations.

L. When pit planted plants are in a mass two or more rows in depth, the entire bed area shall be receive pre-emergent herbicide and mulch as specified for planting beds.

M. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice.
1. Prune trees to retain required height and spread.
2. Unless otherwise directed by Owner or Design Consultant, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any.
3. Prune shrubs to retain natural character.
4. Cuts on plants over 3/4-inch in diameter to be cut back to sound tissue, smoothed and shaped so as not to hold rain water and painted with an approved tree wound paint.
5. Remove and replace excessively pruned or misformed stock resulting from improper pruning.

N. Maintain a minimum 3'-0" diameter saucer at base of trees within lawn areas clear of any grass.

O. All tree and shrub pits are to receive a treatment of pre-emergent herbicide just prior to placement of mulch.

P. Staking trees:
   1. Stake trees immediately after planting, only when required to maintain a plumb condition due to wind, weight of plant material, etc.
   2. Under no circumstances is a tree to be plumbed with extreme tautness of guy wires or cable.
   3. Locate and drive stakes at equal spaced intervals outside the tree pit(s). Provide wire ties from each stake to encircle trunk at 40% to 50% of the tree height. Encase tie wire at tree in rubber hose. Slightly tighten wire tie to hold trunk firmly, but under no circumstances is tree to be plumbed by extreme tautness of ties.
   4. Provide 3- stakes when required to keep trees plumb on slopes or in varying wind conditions.

Q. PVC Tree Guard: Provide tree guards at all trees located within lawn areas.

3.05 FERTILIZATION OF NEWLY PLANTED TREES

A. Fertilization of new trees shall be accomplished after soil preparation work is complete in accordance with the following specifications:
   1. Concentration of suspension to be 40 pounds of fertilizer for trees in each 100 gallons of water. Application rate shall be 6 pounds of actual nitrogen per 1,000 square feet of area under dripline.
   2. Suspended tree fertilizer applied with a standard hydrant sprayer at a pressure of 100 to 200 psi shall be injected in slightly slanted holes approximately 12 inches in depth. Injection time at full concentration is 3 to 4 seconds; at half concentration (20 pounds per 100 gallons) for 6 to 8 seconds.
   3. Suspended tree fertilizer is to be applied in both the planting pit and the parent undisturbed soil surrounding the pit.
   4. Apply suspended tree fertilizer at tree ball within the tree pit at full concentration. In parent soil 12 inches beyond the edge of the pit with holes made at 1-1/2 to 2 feet on center inject half concentration mixture.

B. Liquid fertilization within the tree pit shall be injected according to the following schedule:
   1. Trees 1 to 2" Caliper: One (1) injection
   2. Trees 2-1/2 to 3-1/2" Caliper: Two (2) injections
   3. Trees 4 to 5-1/2" Caliper: Three (3) injections
   4. Trees 6" and Greater Caliper: Inject at 3 feet o.c. in concentric circles around tree with last ring located at drip line. First ring to be located at edge of root ball.

C. Area beneath dripline of the trees is to be well watered after the fertilization is placed.

3.07 FERTILIZATION FOR SHRUBS AND GROUND COVER

A. For Shrubs and Ground Cover: When plant pit has been backfilled 50% place fertilizer tablets, equally spaced around rootball in accordance with the following schedule:
   1. 1 gallon 3 tablets 10 gram
   2. 5 gallons 3 tablets 21 gram
   3. 7 gallons 4 tablets 21 gram
   4. 15 gallons 8 tablets 21 gram
      a. * Reduce number of tablets as per manufacturer's recommendation for plants less than 1 gallon.

3.08 MULCHING:

A. Dress Mulching:
   1. Within two days after planting not less than four (4) inches of dress mulch shall be placed

on entire area of planting beds, and not less than four (4) inches over shrub and tree pits.
2. Keep mulch six (6) inches away from tree trunk.

3.09 RECONDITIONING EXISTING PLANTING BEDS

A. Recondition existing planting beds to remain:
   1. Replace any plantings damaged by Contractor's operations including storage of materials and equipment and movement of vehicles to restore the beds to the satisfaction of the Owner and Design Consultant.
   2. Remove weeds from all existing beds; apply pre-emergent herbicide and dress mulching as here before specified.
   3. Work shall conform with all requirements of this Section.

3.10 MISCELLANEOUS LANDSCAPE WORK

A. Steel Edging: Install steel edging where shown. Anchor with steel stakes spaced not more than 3 feet o.c., and driven at least 1 inch below top elevation of edging or as directed by manufacturer.
   1. Provide edger to separate bed areas and lawn areas.

B. Erosion Control Matting: Install erosion mat on slopes of greater than 3:1. Install according to manufacturers instructions for the particular situation, including method of attachment and overlapping required.

C. Weed Barrier Fabric: Place fabric according to manufacturer's recommendation over surface of planting beds after application of pre-emergent herbicide and prior to placement of mulch.

D. Gravel Mulch:
   1. Place gravel mulch where shown.
   2. Compact soil subgrades before placing gravel.
   3. Place filtration/separation fabric over compacted subgrade prior to placing gravel.

3.11 MAINTENANCE

A. Begin maintenance immediately after each plant is planted. Maintenance shall continue until final acceptance of the project. Refer to Section - Landscape Maintenance.

3.12 CLEANUP AND PROTECTION

A. During landscape work, all rope, wire, burlap, empty containers, rocks, clods and other debris, shall be removed daily and the site kept neat at all times.

B. Any excess excavated subsoil or topsoil shall be removed from the site.

C. After planting operations are finished, all paved areas which may have become strewn with soil or other material shall be thoroughly cleaned by sweeping, and if necessary, power washing.

D. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades and trespassers.
   1. Maintain protection during installation and maintenance periods.
   2. Treat, repair or replace damaged landscape work as directed.

3.13 INSPECTION AND ACCEPTANCE

A. When landscape work is completed, including maintenance, Design Consultant will, upon written request by the Contractor, make an inspection to determine acceptability.

B. Where inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by the Owner or Design Consultant and found to be acceptable.
   1. Remove rejected plants and materials promptly from the project site.

END OF SECTION