PRAIRIEVILLE PARK RENOVATIONS

38430 LA 929
PRAIRIEVILLE, LA
ASCENSION PARISH, LA

OCTOBER 2024

CLIENT

PARISH OF ASCENSION GOVERNMENT

CLINT COINTMENT — PARISH PRESIDENT

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RICKY COMPTON — INFRASTRUCTURE DIRECTOR
RANDY MULLIS — PROJECT MANAGER

VICINITY MAP
SCALE 1" = 1000'

PARISH OF ASCENSION GOVERNMENT

615 E WORTHEY ST.
GONZALES, LA

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UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811
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BY LAW, ANYONE PLANNING MECHANIZED DIGGING OR EXCAVATION WORK IN LOUISIANA MUST NOTIFY LOUISIANA ONE CALL BY CALLING 811 OR 1-800-272-3020 OR BY GOING TO THEIR WEBSITE AT WWW.LOUISIANA811.COM AT LEAST TWO FULL BUSINESS DAYS PRIOR TO THE PROJECT'S START DATE

PLANS PREPARED AND ISSUED BY:

THOMAS E. TAYLOR, PLA
QUALITY ENGINEERING & SURVEYING, L.L.C.

10/02/24
DATE:

THOMAS E. TAYLOR
Reg. No. 5284
LICENSED LANDSCAPE ARCHITECT
STATE OF LOUISIANA
NOT FOR CONSTRUCTION
10-02-2024

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_01-TI.dwg

Project No.:	23-270	Date:	OCTOBER 2024	Sheet: L0.0
Checked By:	TT	Drawn By:	TT	

PRAIRIEVILLE PARK RENOVATIONS

PROJECT GENERAL NOTES AND DEFINITIONS:

PROJECT DESCRIPTION:
THE PROPOSED PROJECT INCLUDES THE DEMOLITION AND REPLACEMENT OF THE SOFTBALL FIELD, BACKSTOP, AND SURROUNDING PAVING. THE PROJECT ALSO INCLUDES ALL ASSOCIATED EARTHWORK AND SUBSURFACE DRAINAGE, INCLUDING A SUBSURFACE COLLECTOR SYSTEM BENEATH THE INFIELDS.

PROJECT REQUIREMENTS:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE PROJECT IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM ANY GOVERNING BODIES AND AGENCIES NEEDED FOR CONSTRUCTION.

UTILITIES & PIPELINES:
THE PROJECT SITE INCLUDES SEVERAL EXISTING UTILITIES, OVERHEAD AND UNDERGROUND, WHICH WILL REQUIRE ATTENTION DURING THE WORK. ALL UTILITIES WILL REQUIRE LOCATION BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR MUST CONTACT LOUISIANA ONE CALL (1-800-272-3020) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UTILITIES FIELD LOCATED. IF ANY UNFORESEEN UTILITY LINE, ETC., IS OBSTRUCTING SCOPE OF WORK, NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY.

THE UTILITIES INDICATED ON THE DRAWINGS WILL REQUIRE ACCURATE LOCATION BY THE CONTRACTOR PRIOR TO BEGINNING WORK. CLOSE MONITORING OF EXCAVATION AND EMBANKMENT ACTIVITIES AROUND THESE UTILITIES WILL ALSO BE REQUIRED BY THE CONTRACTOR DURING CONSTRUCTION.

THE CONTRACTOR SHALL MAINTAIN PROPER CLEARANCES FROM ALL OVERHEAD AND UNDERGROUND UTILITIES, AND SHALL CONTACT EACH UTILITY FOR SPECIFIC REQUIREMENTS.

PRIOR TO ALL CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS/HER OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. SHOULD A GRADE DIFFERENCE, UTILITY CONFLICT OR OBSTRUCTION TO CONSTRUCTION OCCUR, THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK IN THAT AREA.

CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY DAMAGED UTILITIES AT NO ADDITIONAL COST TO THE OWNER.

THE UTILITY CONTACTS ARE AS FOLLOWS:

ELECTRIC: DEMCO
15095 LA HWY 931
GONZALES, LA
(225) 693-3626

PHONE: AT&T
(800) 288-2747

GAS: ATMOS ENERGY
40492 ABBY JAMES RD
PRAIRIEVILLE, LA
(225) 622-2167

WATER: ASCENSION WATER COMPANY
14169 AIRLINE HWY.
GONZALES, LA
(225) 675-5644

SEWER: PRIVATE TREATMENT PLANT

PROJECT CONTROL:
ALL SPECIFIED CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.

ANY DISCREPANCIES BETWEEN ACTUAL SITE CONDITIONS AND THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT IN A TIMELY MANNER TO NOT ADVERSELY AFFECT PROGRESS OF WORK.

STAGING FOR MATERIALS AND EQUIPMENT SHALL BE COORDINATED WITH OWNER. CONTRACTOR SHALL BE REQUIRED TO KEEP STREETS FREE OF MUD AND DIRT AT ALL TIMES.

EQUIPMENT SHALL NOT BE ORDERED OR INSTALLED UNTIL IT IS APPROVED BY LANDSCAPE ARCHITECT. EQUIPMENT LOCATIONS MAY BE ADJUSTED ONLY WITH PERMISSION OF LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL FURNISH AS-BUILT DRAWINGS WHICH SHOW THE FINAL INSTALLED LOCATIONS OF ALL EQUIPMENT AND UNDERGROUND PIPES/CONDUITS.

ALL CONSTRUCTION TO COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.

CONTRACTOR SHALL BE FAMILIAR WITH ACTUAL SITE CONDITIONS BEFORE PROCEEDING WITH WORK.

CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION AND DEMOLITION DEBRIS FROM SITE IN ACCORDANCE WITH ALL APPLICABLE STATE, FEDERAL AND LOCAL REGULATIONS. NO CONSTRUCTION DEBRIS IS TO BE BURIED OR DEPOSITED ON SITE.

LAYOUT, GEOMETRY & DIMENSIONS OF ALL PROPOSED PAVING MAY REQUIRE ADJUSTMENTS IN THE FIELD. FINAL STAKING OF ALL PROPOSED WALKS AND PAVING AREAS MUST BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLACING CONCRETE PAVING MATERIAL. LAYOUT OF FORMWORK SHOULD BE DONE IN A MANNER THAT RESULTS IN SMOOTH TANGENTS AND RADII AS INDICATED ON THE LAYOUT PLAN. ERRATIC FORMWORK WILL BE REJECTED.

CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL EXISTING GRADES DAMAGED DURING CONSTRUCTION, IN ORDER TO PROVIDE POSITIVE DRAINAGE.

PROJECT SEQUENCE:
THESE DOCUMENTS DO NOT DESCRIBE THE MEANS, METHODS AND PROCEDURES FOR ACCOMPLISHING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR SETTING THESE GUIDELINES TO SUCCESSFULLY COMPLETE THE PROJECT IN THE TIME PROVIDED. BASIC ELEMENTS OF THE PROJECT INVOLVE SEQUENCING IN ORDER FOR THE CONSTRUCTION TO PROCEED IN AN ORDERLY MANNER.

PROJECT COMPONENTS:
EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION AS INDICATED ON PLANS. CONTRACTOR SHALL PROVIDE SILT FENCING AS DIRECTED BY THE LANDSCAPE ARCHITECT TO PREVENT ANY SEDIMENT OR POLLUTION FROM WASHING INTO EXISTING CATCH BASINS, CURB INLETS AND DRAINAGE CANALS WITHIN THE AREAS OF THE PROJECT THAT WILL RECEIVE EARTH MOVING AND GRADING OPERATIONS. SILT FENCING SHALL BE PROVIDED AND INSTALLED AS PER PLANS AND SPECIFICATIONS.

EARTHWORK - EXCAVATION AND EMBANKMENT FOR FIELD, OPEN SPACES, AND DRAINAGE AS SHOWN ON THE PLANS AND SECTIONS.

BACKFILL AGAINST NEW SIDEWALK EDGES, TYPICALLY HOLDING BACKFILL APPROXIMATELY 1 1/2" TO 2" BELOW TOP OF SIDEWALK (IN AREAS TO RECEIVE SOD) AS TO AVOID HOLDING WATER ON PAVEMENT. FILL SHOULD BE GRADED TO ELIMINATE LARGE CLODS OF DIRT.

CONCRETE PAVING:
ALL MIXING, TRANSPORTING, PLACING AND CURING OF CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS.

ALL SIDEWALKS SHALL BE A MINIMUM OF 4" THICK, 3500 PSI, REINFORCED WITH 6"x6" W 2.1 W.W.F. - CONCRETE SHALL BE LIGHTLY BROOM FINISHED PERPENDICULAR TO DIRECTION OF WALK.

ALL SIDEWALKS SHALL MAINTAIN A MINIMUM OF 1:100 AND MAXIMUM OF 1:50 CROSS SLOPE. ALL SIDEWALK CROSS SLOPES MUST SLOPE TOWARDS EXISTING AND OR NEW CATCH BASINS AND OR TOWARDS THE SIDE THAT IS NEARER A LOWER CONTOUR. SIDEWALKS CROSS SLOPED INTO CONTOUR'S ON THE HIGH SIDE CAUSING WATER TO BE TRAPPED WILL NOT BE ACCEPTED.

CONTRACTOR SHALL MAKE SMOOTH, FLUSH TRANSITION BETWEEN ALL EXISTING AND PROPOSED PAVEMENTS.

CONTRACTOR SHALL PROVIDE EXPANSION JOINTS AT MAXIMUM 80' INTERVALS OR FOR 350 SQ. FT. MAXIMUM AREAS. EXPANSION JOINT SHALL ALSO BE PLACED BETWEEN INTERSECTING PAVING AND ANY FIXED STRUCTURE SUCH AS BUILDINGS AND CURBING. EXPANSION JOINTS TO BE FILLED WITH 1/2" THICK PRE-FORMED EXPANSION MATERIAL AND EXTEND THE FULL WIDTH AND DEPTH OF THE PAVING WITH THE TOP 3/4" RECESSED BELOW FINISH GRADE. TOP 3/4" OF JOINT TO BE SEALED WITH AN APPROVED JOINT ELASTOMERIC SEALANT.

PROVIDE 1" DIAMETER SMOOTH PLASTIC-COATED STEEL DOWELS @ 12" O.C. AT ALL SIDEWALK EXPANSION JOINT LOCATIONS. DOWEL BARS SHALL BE SLEEVED ON ONE SIDE. DOWELS SHALL BE SPACED SO THAT IT IS NOT MORE THAN 6" FROM THE EDGE OF CONCRETE.

CONTRACTOR SHALL PROVIDE WEAKENED PLANE JOINTS BY A JOINTING TOOL OR OTHER ACCEPTABLE MEANS. THE JOINT SHALL EXTEND INTO CONCRETE A LEAST 1/4 OF THE PAVEMENT DEPTH.

CONTRACTOR IS RESPONSIBLE FOR SECURITY OF FRESHLY POURED CONCRETE UNTIL CONCRETE HARDENS. PROTECT CONCRETE FROM VANDALISM AND ADVERSE WEATHER CONDITIONS.

SHOP DRAWINGS:
SHOP DRAWINGS FOR ALL REQUIRED ITEMS SHALL BE PROVIDED BY THE CONTRACTOR FOR APPROVAL, IN DETAIL SUFFICIENT TO FABRICATE & INSTALL ALL MEMBERS & PIECES NECESSARY FOR COMPLETION. NO WORK OR INSTALLATION SHALL BE STARTED ON ANY OF THESE ITEMS UNTIL FINAL APPROVAL OF SHOP DRAWINGS HAS BEEN OBTAINED FROM LANDSCAPE ARCHITECT. REVIEW & APPROVAL OF THESE DRAWINGS & OTHER REQUIRED SUBMITTALS WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY UNDER THIS CONTRACT.

PROTECTION OF EXCAVATIONS:
ALL SLOPE SIDES OF EXCAVATIONS AND/OR TRENCHES FOR INSTALLING CONDUIT SHALL COMPLY WITH OSHA REGULATIONS AND ANY APPLICABLE LOCAL CODES AND ORDINANCES. SHORE AND BRACE WHERE SLOPING IS NOT POSSIBLE BECAUSE OF SPACE RESTRICTIONS OR STABILITY OF MATERIAL EXCAVATED. MAINTAIN SIDES AND SLOPES OF EXCAVATIONS IN A SAFE CONDITION UNTIL COMPLETION OF BACKFILLING.

UNDERGROUND CONDUITS SHALL BE HAND PLACED INSIDE THE TRENCH, AND THE TRENCH BACKFILLED THE SAME DAY TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT. TRENCH SHALL BE PACKED IN 6" LIFTS TO ENSURE COMPACTION & REDUCE SETTLING.

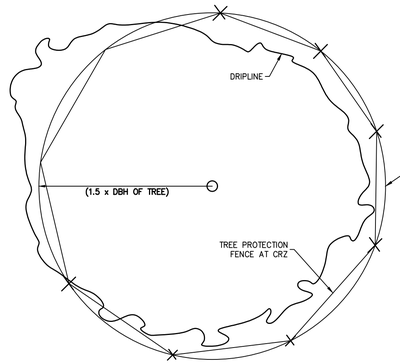
WHEREVER LAWN IS DISTURBED, KILLED OR LEFT IN AN UNHEALTHY CONDITION AS DETERMINED BY THE LANDSCAPE ARCHITECT, IT IS TO BE RE-SODDED BY THE CONTRACTOR WITH BERMUDA SOD AS DIRECTED BY LANDSCAPE ARCHITECT. REFER TO THE SPECIFICATIONS FOR INSTALLATION REQUIREMENTS.

DEMOLITION GENERAL NOTES:

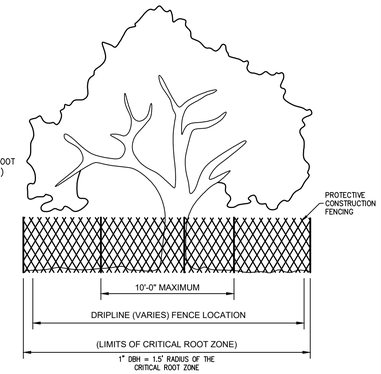
1. CONTRACTOR SHALL COORDINATE AND BE IN COMPLIANCE WITH ALL STATE AND LOCAL MUNICIPALITIES AS WARRANTED.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND/OR OBTAINING ALL REQUIRED PERMITS AND APPROVALS PRIOR TO COMMENCING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR HORIZONTALLY AND VERTICALLY LOCATING AND PROTECTING ALL PUBLIC AND PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE AT LEAST 48 HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY (CALL LA ONE CALL - 1.800.272.3020).
4. EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO VERIFY THE LOCATION OF ALL UTILITIES. ANY DAMAGE TO UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CORRECT.
5. CONTRACTOR TO USE CAUTION WHEN WORKING IN VICINITY OF EXISTING OVERHEAD UTILITY LINES. CONTRACTOR TO INSTALL APPROPRIATE WARNING SIGNS.
6. ALL DEMOLITION AND CONSTRUCTION TO BE KEPT WITHIN THE BOUNDARIES OF THE SITE OR AS DESIGNATED.
7. PROTECT STRUCTURES, UTILITIES, VEGETATION, PAVING AND OTHER FACILITIES TO REMAIN FROM DAMAGE CAUSED BY DEMOLITION AND NEW CONSTRUCTION.
8. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICT AND/OR DISCREPANCIES IN THE CONSTRUCTION DOCUMENTS, PRIOR TO THE START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE OWNER AND LANDSCAPE ARCHITECT ANY UNFORESEEN OR ADVERSE CONDITIONS DISCOVERED DURING DEMOLITION AND CONSTRUCTION OPERATIONS.
10. ANY DISCREPANCIES FOUND BETWEEN OR WITHIN THE DRAWINGS AND EXISTING SITE CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE WITHOUT CONSULTING WITH THE LANDSCAPE ARCHITECT AFTER THE DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
11. DEVIATION FROM PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER, HIS/HER REPRESENTATIVE, OR THE LANDSCAPE ARCHITECT MAY BE CAUSE FOR WORK TO BE DEEMED UNACCEPTABLE.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITY TO EXISTING ELEMENTS THAT ARE TO REMAIN AT NO COST TO THE OWNER.
13. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL MUD, DIRT, GRAVEL AND OTHER MATERIALS TRACKED ONTO ANY PRIVATE OR PUBLIC STREETS OR SIDEWALKS. THE CONTRACTOR MUST CLEAN THESE AS NECESSARY. THE CONTRACTOR MUST USE WATER OR OTHER ACCEPTABLE METHODS TO KEEP AIRBORNE DUST TO A REQUIRED MINIMUM.
14. CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION AND DEMOLITION DEBRIS IN ACCORDANCE WITH ALL APPLICABLE STATE, FEDERAL AND LOCAL REGULATIONS. NO CONSTRUCTION DEBRIS IS TO BE BURIED OR DEPOSITED ON SITE.
15. CONTRACTOR SHALL SAW CUT PAVEMENT AT ALL LOCATIONS WHERE REQUIRED PAVEMENT REMOVAL MEETS AND IS FLUSH WITH PAVEMENT WHICH IS TO REMAIN, UNLESS OTHERWISE NOTED ON PLANS. REFER TO LAYOUT SHEETS FOR LIMITS OF PROPOSED PAVEMENT.
16. SURPLUS TOPSOIL MAY BE STOCKPILED ON SITE TO BE USED AS FILL MATERIAL, AS NEEDED. COORDINATE LOCATIONS WITH OWNER.
17. SILT FENCING SHALL REMAIN FOR DURATION OF PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SILT FENCE AT ALL TIMES.

TREE PROTECTION NOTES:

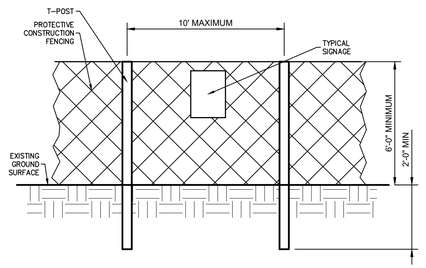
1. CONTRACTOR TO PROVIDE PROTECTION AND MAINTENANCE PLAN FOR ALL TREES BEFORE AND DURING CONSTRUCTION. (SEE SPECIFICATIONS)
2. REPLACEMENT COSTS FOR DAMAGED OR DEAD TREES WILL BE THE CONTRACTOR'S RESPONSIBILITY AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR TO BRING ANY DISCREPANCIES BETWEEN TREE PROTECTION PLAN AND ACTUAL SITE CONDITIONS TO THE ATTENTION OF OWNER IMMEDIATELY SO THAT WITH PROPER RESPONSE TIME, THERE WILL BE NO DELAY IN CONSTRUCTION SCHEDULE..
4. CONTRACTOR SHALL NOT ALLOW ANY VEHICULAR TRAFFIC, PARKING OF VEHICLES, OR STOCKPILING OF EXCAVATED MATERIAL OR CONSTRUCTION MATERIALS INSIDE OF TREE PROTECTION FENCING OR THE DRIPLINE OF TREES INDICATED TO BE PRESERVED.
5. CONSTRUCTION EQUIPMENT MAY NOT OPERATE WITHIN THE DRIP LINE OF A TREE. IF NECESSARY, WRITTEN PERMISSION AND WRITTEN APPROVAL MUST BE ACQUIRED PRIOR TO WORK BEING PERFORMED. WHEN NECESSARY FOR THE PERFORMANCE OF INDICATED WORK, SUCH OPERATIONS SHALL BE CONDUCTED WITH SPECIAL CARE TO AVOID DAMAGING THE TREE AND UNDER DIRECTION OF THE OWNERS REPRESENTATIVE.
6. PROTECT TREE ROOT SYSTEMS FROM DAMAGE DONE BY STRIPPING AND REGRADING. IF ANY EXCAVATION AND GRADING WORK SHALL BE DONE IN AREAS NEAR THE PROTECTED TREE ZONES, IT MUST BE DONE BY HAND TOOLS WHILE WORKING NEAR AND WITHIN TREE DRIPLINES.
7. PROTECT TREE ROOT SYSTEMS FROM DAMAGE DUE TO NOXIOUS MATERIALS, SPILLAGE, OR DRAINAGE FROM STORED MATERIALS.
8. MAINTAIN TREE PROTECTION FENCING IN GOOD CONDITION AT ALL TIMES. TREE PROTECTION FENCING SHALL BE IN PLACE PRIOR TO BEGINNING ANY WORK AND SHALL NOT BE REMOVED UNTIL ALL CONSTRUCTION WORK IS COMPLETE.
9. ALL TREE PROTECTION FENCING MUST BE IN PLACE PRIOR TO ANY CLEARING OR SITE WORK. FAILURE TO INSTALL AT APPROPRIATE TIME WILL RESULT DELAY. TREE PROTECTION FENCING SHALL FOLLOW THE SHAPE OF TREE'S DRIPLINE.
10. FENCING AND POSTS MUST AT ALL TIMES BE KEPT A MINIMUM OF 15'-0" FROM TREE TRUNKS. FENCING INSTALLED PAST DRIP LINE MUST BE FAR ENOUGH TO PROTECT LIMBS FROM TRUCKS AND MOVING OBJECTS.
11. LANDSCAPE ARCHITECT SHALL PROVIDE WRITTEN PERMISSION FOR ANY INCURSIONS INTO TREE PROTECTION AREAS.
12. CONTRACTOR RESPONSIBLE FOR MINIMAL PRUNING AND TRIMMING OF THE EXISTING TREES ON SITE, UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT, ONCE CONSTRUCTION IS COMPLETE.



TREE PROTECTION ZONE
PLAN VIEW



TREE PROTECTION ZONE
ELEVATION VIEW



TREE PROTECTION ZONE
POST AND FENCE DETAIL

1 TREE PRESERVATION DETAILS
TREE PROTECTION FENCING SCALE: N.T.S.

UTILITY NOTE:

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Client:
PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: GENERAL NOTES

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\[23-270_01-ELev]

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18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. T-226
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270

Sheet:
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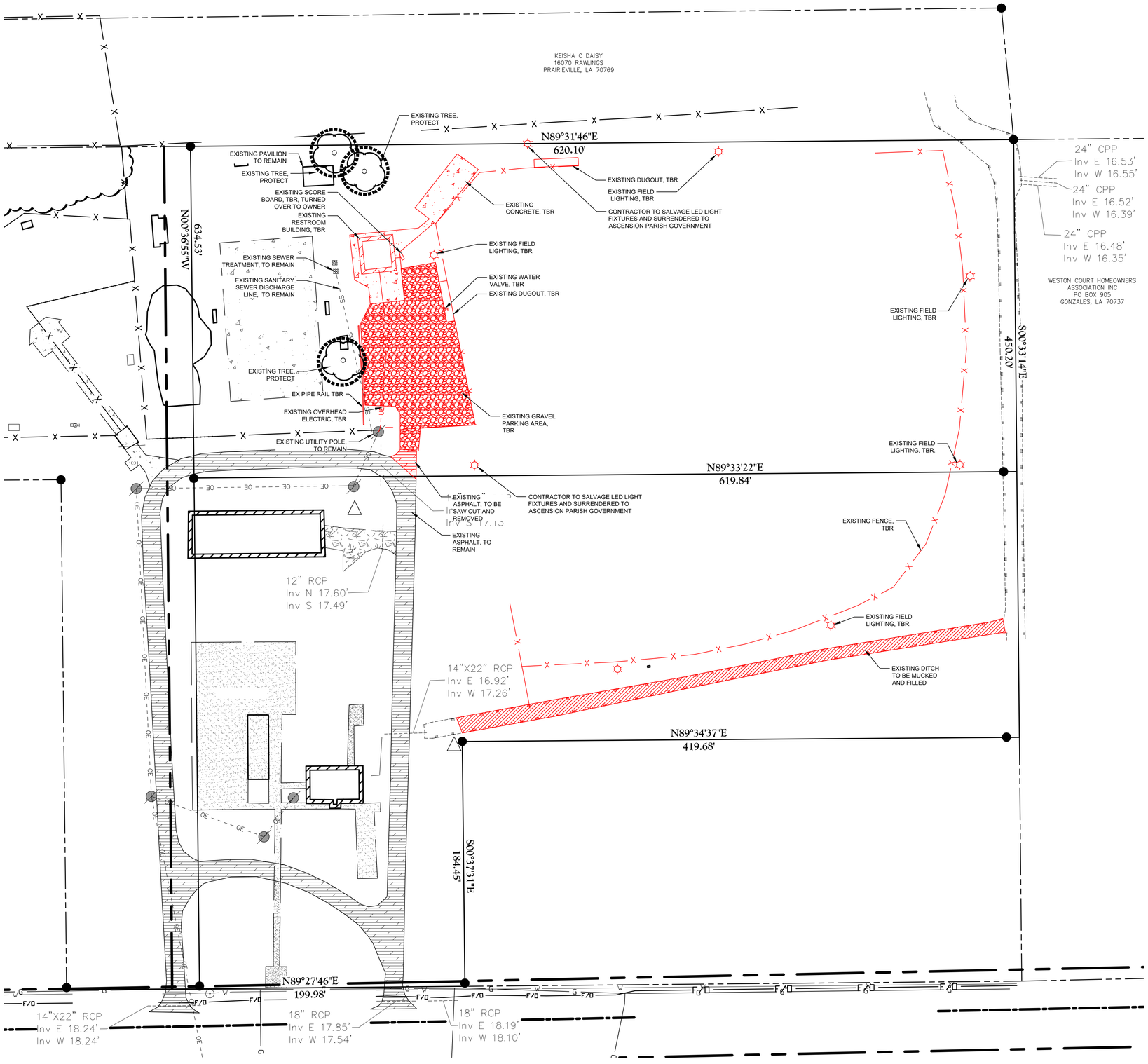

40 0 40 80

SCALE: 1"=40'

N

LEGEND:

- EXIST. SANITARY SEWER SERVICE LINE
- EXIST. OVERHEAD ELECTRIC LINE
- EXIST. WATER LINE
- EXIST. GAS LINE
- EXIST. GRATE INLET
- EXIST. DROP INLET
- EXIST. JUNCTION BOX
- EXIST. SANITARY SEWER MANHOLE
- EXIST. SANITARY SEWER CLEAN OUT
- EXIST. POWER POLE
- EXIST. UTILITY POLE
- EXIST. LIGHT POLE
- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. TREE (SIZE/TYPE VARIES)
- EXIST. FENCE
- FOUND 1/2" IRON PIPE
- TBR — TO BE REMOVED
- GRAVEL TO BE REMOVED (7,566 Sq. Ft.)
- CONCRETE TO BE REMOVED (2,286 Sq. Ft.)
- ASPHALT TO BE REMOVED (240 Sq. Ft.)
- REQUIRED TREE PROTECTION (3)

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615 E WORTHEY ST.
GONZALES, LA

Project: PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: EXISTING CONDITIONS & DEMOLITION

Description: LOCATED IN SECTION 38, TOWNSHIP 8 S., RANGE 2E, South Eastern District of the Mississippi, ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_01-ECI.dwg

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18320 Hwy 42 Port Vincent, LA 70726
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Stamp:
STATE OF LOUISIANA
THOMAS C. TAYLOR
REG. NO. T-226
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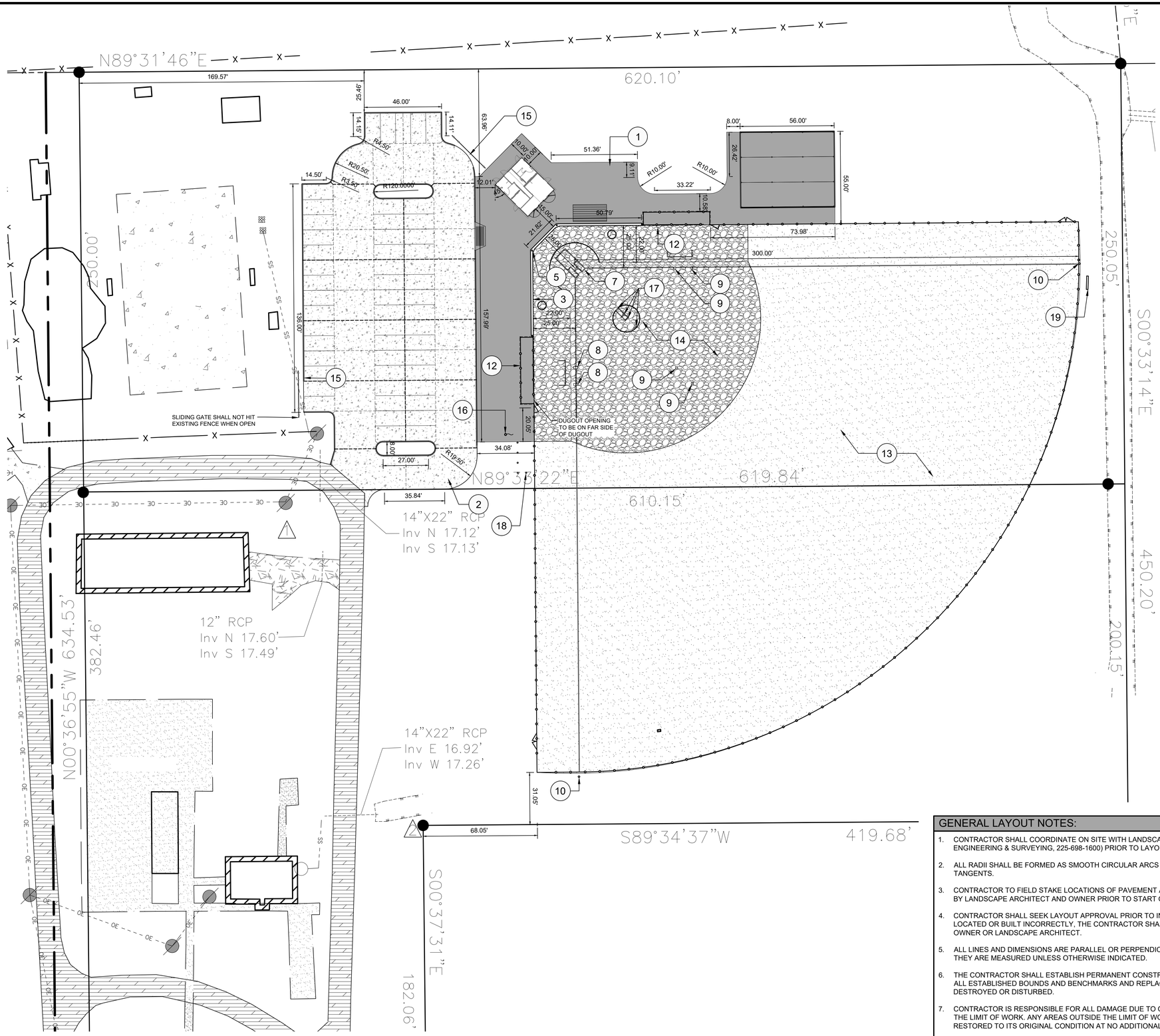
Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L0.2



30 0 30 60

SCALE: 1"=30'

N

KEY NOTE SCHEDULE:		
CODE	DESCRIPTION	DETAIL
1	4" CONCRETE	1/L5.0
2	6" CONCRETE	2/L5.0
3	BACKSTOP WALL	1/L6.1
5	BACKSTOP NETTING	6/L6.1
7	HOMEPLATE FORMING SYSTEM	2/L6.2
8	DOUBLE SOCKET BASE ANCHOR	3/L6.4
9	SINGLE SOCKET BASE ANCHOR	3/L6.4
10	FOUL POLE	4/L6.2
12	DUGOUT SHADE STRUCTURE	1/L6.4
13	SAND BASE SOD OUTFIELD	2/L6.2
14	SYNTHETIC TURF	1/L6.2
15	PIPE RAIL GATE	5/L6.4
16	FLAG POLE	12/L5.0
17	PITCHING RUBBER	6/L6.2
18	BOLLARD	6/L6.4
19	SCOREBOARD	3/L6.3

LEGEND:

- PROPOSED 4" CONCRETE
- PROPOSED 6" CONCRETE
- PROPOSED GRAVEL INFIELD BASE
- PROPOSED SAND OUTFIELD BASE
- PROPOSED FENCE
- EXIST. DITCH
- SS — EXIST. SANITARY SEWER SERVICE LINE
- OE — EXIST. OVERHEAD ELECTRIC LINE
- W — EXIST. WATER LINE
- X — EXIST. FENCE
- EXIST. DROP INLET
- EXIST. POWER POLE
- EXIST. LIGHT POLE
- EXIST. FIRE HYDRANT

GENERAL LAYOUT NOTES:

1. CONTRACTOR SHALL COORDINATE ON SITE WITH LANDSCAPE ARCHITECT (QUALITY ENGINEERING & SURVEYING, 225-698-1600) PRIOR TO LAYOUT AND START OF CONSTRUCTION.
2. ALL RADII SHALL BE FORMED AS SMOOTH CIRCULAR ARCS WITH NO KINKS, FACETS OR TANGENTS.
3. CONTRACTOR TO FIELD STAKE LOCATIONS OF PAVEMENT AND SITE AMENITIES FOR APPROVAL BY LANDSCAPE ARCHITECT AND OWNER PRIOR TO START OF CONSTRUCTION.
4. CONTRACTOR SHALL SEEK LAYOUT APPROVAL PRIOR TO INSTALLATION. IF FEATURES ARE LOCATED OR BUILT INCORRECTLY, THE CONTRACTOR SHALL REDO WORK AT NO COST TO THE OWNER OR LANDSCAPE ARCHITECT.
5. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.
6. THE CONTRACTOR SHALL ESTABLISH PERMANENT CONSTRUCTION BENCHMARKS. MAINTAIN ALL ESTABLISHED BOUNDS AND BENCHMARKS AND REPLACE AS DIRECTED ANY WHICH ARE DESTROYED OR DISTURBED.
7. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE DUE TO OPERATIONS INSIDE AND OUTSIDE OF THE LIMIT OF WORK. ANY AREAS OUTSIDE THE LIMIT OF WORK THAT ARE DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
8. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT / BACK OF CURB UNLESS OTHERWISE NOTED

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

BY LAW, ANYONE PLANNING MECHANIZED DIGGING OR EXCAVATION WORK IN LOUISIANA MUST NOTIFY LOUISIANA ONE CALL BY CALLING 811 OR 1-800-272-3020 OR BY GOING TO THEIR WEBSITE AT WWW.LOUISIANA811.COM AT LEAST TWO FULL BUSINESS DAYS PRIOR TO THE PROJECTS START DATE.

Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: GEOMETRIC LAYOUT PLAN

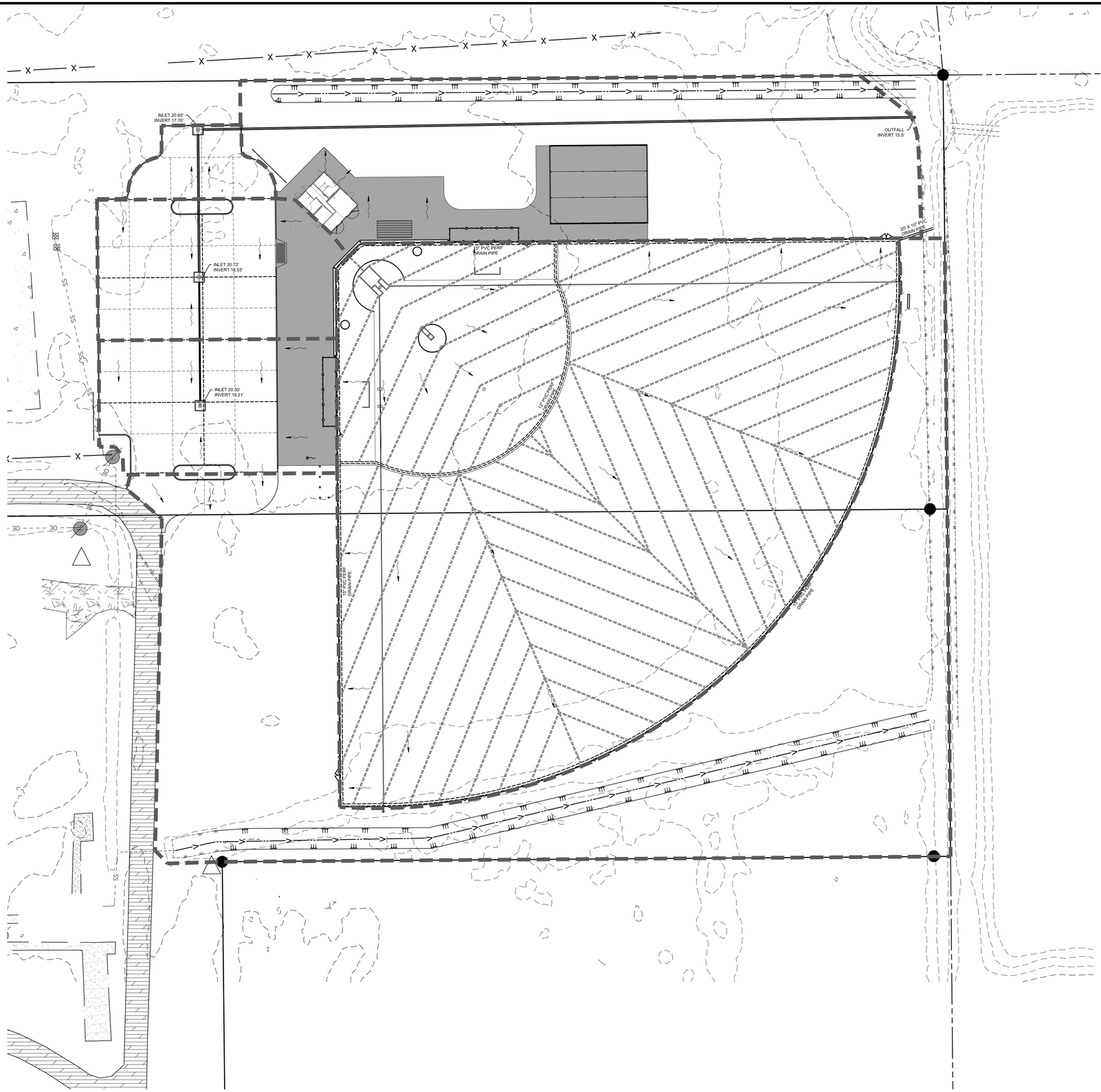
Description: LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

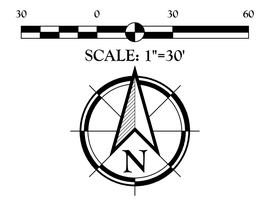
DWG Path: P:\-2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_02-CM.dwg

QUALITY
ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS TAYLOR
REG. NO. 2242
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L1.0





"A" PIPE SUMMARY:			
FROM	TO	LENGTH (FT.)	SIZE (IN.)
A1	A1.1	74'	8"
A1.1	A1.2	85'	12"
A1.2	A1.3	413'	12"

"A" STRUCTURE SUMMARY:			
NODE	TOP	INVERT	TYPE
A1	20.7'	19.21'	CPS 702-20GI
A1.1	20.7'	18.53'	CPS 702-20GI
A1.2	20.9'	17.70'	CPS 702-20GI
A1.3	16.8'	15.50'	PIPE END

PIPE NOTES:

1.) CONTRACTOR SHALL INSTALL ALL PIPE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS FOR EACH TYPE PIPE MATERIAL AND PROJECT SPECIFICATIONS.

2.) PIPE IS BEING INSTALLED WITH MINIMAL COVER AND CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN SUFFICIENT COVER OVER PIPE DURING CONSTRUCTION.

3.) PVC DRAINAGE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM F949 AND INSTALLED IN ACCORDANCE WITH ASTM D2321 FOR TYPE IV SOILS. JOINTS SHALL MEET REQUIREMENTS OF ASTM D3212 WITH GASKETS PER ASTM F477 AS MANUFACTURED BY CONTECH CONSTRUCTION PRODUCTS OR APPROVED EQUAL.

4.) RCP SHALL BE ASTM C76, CLASS III AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE TO PROJECT SPECIFICATIONS.

LEGEND:

- PROPOSED 24" GRATE INLET
- PROPOSED DRAIN PIPE
- PROPOSED PERFORATED PIPE
- PROPOSED FLAT COMPOSITE DRAIN
- PROPOSED DITCH TOP OF BANK
- PROPOSED DITCH CENTERLINE
- FLOW ARROW

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

STRUCTURE NOTES:

1.) THE MATERIALS AND INSTALLATION USED IN THE CONSTRUCTION OF ALL CATCH BASINS AND DRAINAGE STRUCTURES (I.E. GRATE INLETS, JUNCTION BOXES, ETC.) SHALL CONFORM TO PROJECT SPECIFICATIONS.

2.) CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-74 CLASS 30B STANDARDS.

3.) TOP ELEVATIONS OF ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL, UNLESS OTHERWISE NOTED, MATCH THE PROPOSED PAVEMENT ELEVATIONS.

4.) ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL HAVE EXPANSION MATERIAL ADJACENT TO EDGE.

Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
DRAINAGE LAYOUT PLAN

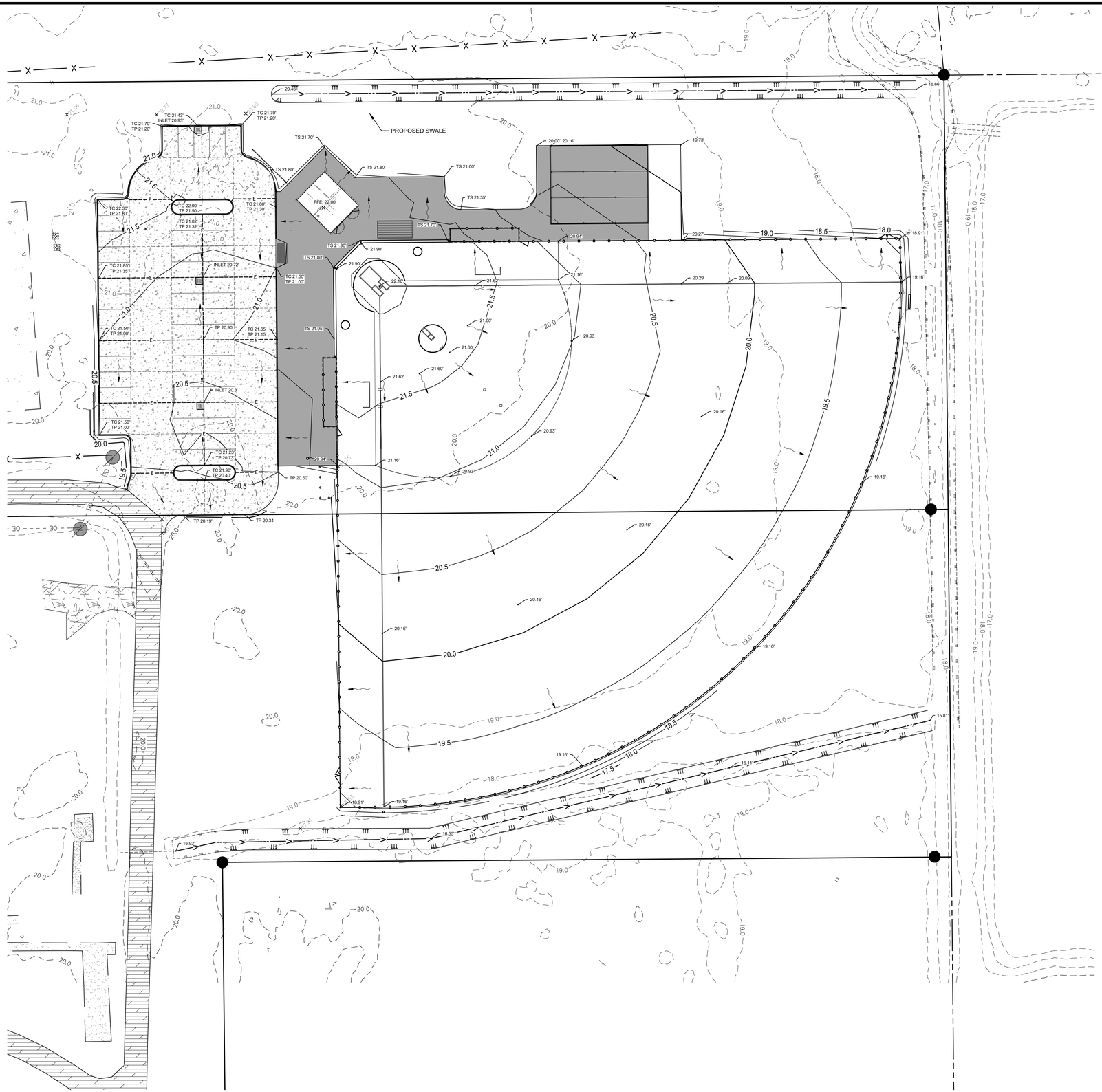
Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\-2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_03-DP.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. 15261
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L2.0



PAVEMENT NOTES:

1.) SEE SHEET L6.0 FOR PAVING DETAILS.

2.) TOP ELEVATIONS OF ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL, UNLESS OTHERWISE NOTED, MATCH THE PROPOSED PAVEMENT ELEVATIONS.

3.) ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL HAVE EXPANSION MATERIAL ADJACENT TO EDGE

4.) ALL ELEVATIONS FOR PAVEMENT SHOWN HEREIN, UNLESS OTHERWISE NOTED, ARE TOP OF PAVEMENT ELEVATIONS.

5.) THE PORTLAND CEMENT CONCRETE USED FOR PAVEMENT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000-PSI AND CONFORM TO PROJECT SPECIFICATIONS.

6.) ALL PAVEMENT JOINT CONSTRUCTION AND SEALING DETAILS SHALL CONFORM TO THE LADOTD STANDARD PLAN NO. CP-01 FOR PORTLAND CEMENT CONCRETE PAVEMENT DETAILS. JOINT MATERIAL SHALL BE A POLYURETHANE SEALANT AND SHALL CONFORM TO PROJECT SPECIFICATIONS.

7.) WHERE SAW CUT JOINTS ARE USED, THE SAWING OPERATOR SHALL BEGIN AS SOON AS CONCRETE HAS REACHED SUFFICIENT STRENGTH TO SUPPORT EQUIPMENT. THE SAWING OPERATION SHALL BE COMPLETED WITHIN 12 HOURS OF THE INITIAL POUR.

LEGEND:

- PROPOSED GRADE
- PROPOSED DITCH TOP OF BANK
- PROPOSED DITCH CENTERLINE
- PROPOSED 4" CONCRETE
- PROPOSED 6" CONCRETE
- PROPOSED FLOW DIRECTION
- PROPOSED TOP OF PAVEMENT
- PROPOSED TOP OF CURB
- PROPOSED TOP OF SIDEWALK
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING GRADE

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
GRADING LAYOUT PLAN

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_04-08.dwg

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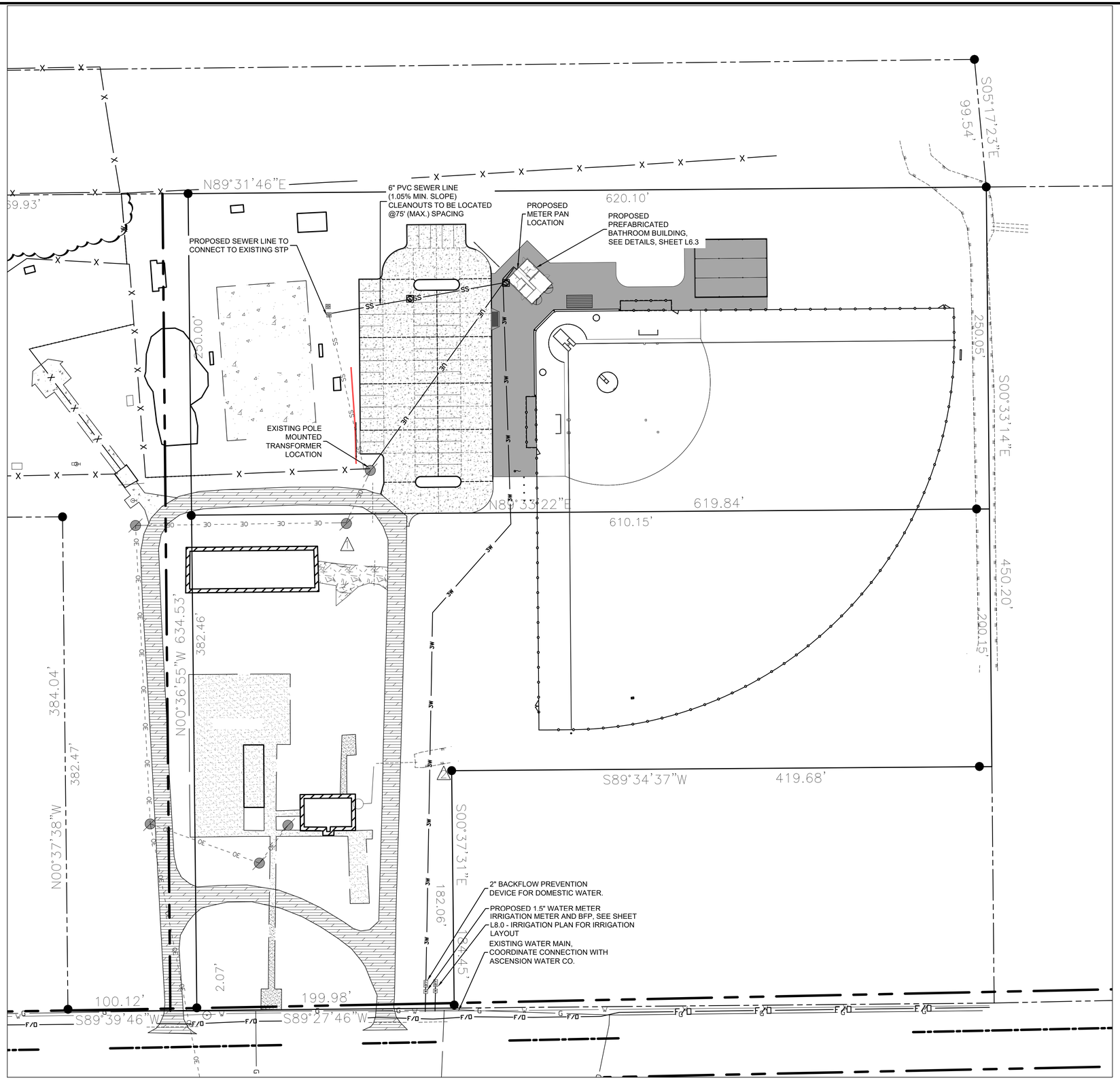
Stamp:
STATE OF LOUISIANA
CHARLES TAYLOR
REG. NO. 5126
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L3.0



40 0 40 80

SCALE: 1"=40'

NOTES:

SEE ELECTRICAL ENGINEERING PLANS FOR FULL ELECTRICAL DESIGN

UTILITY NOTES:

1.) THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND FLOW LINES OF ALL EXISTING SANITARY SEWERS AND WATER LINES PRIOR TO CONNECTION. ALL CONNECTIONS SHALL COMPLY WITH ALL LOCAL CODES AND/OR UTILITY COMPANY REQUIREMENTS.

2.) CONTRACTOR SHALL COORDINATE INSTALLATION OF WATER IMPROVEMENTS WITH THE APPROPRIATE WATER UTILITY COMAPNY AND NOTIFY CIVIL ENGINEER BEFORE WORK IS DONE TO ALLOW REQUIRED PRE-CONSTRUCTION MEETING TO BE CONDUCTED BY ENGINEER. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO ANY UTILITY WORK BEING DONE. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ALL RECORDS AND AS-BUILTS REQUIRED BY THE PARISH. ALL UTILITIES ARE TO BE INSTALLED ACCORDING TO ALL APPLICABLE STANDARDS AND REQUIREMENTS.

3.) ALL WATER PIPES SHALL CONFORM TO AWWA C-900 CLASS 150 WITH A SDR OF 18 OR THICKER. PIPE SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF LOUISIANA HEALTH DEPARTMENT, AND WEST FELICIANA PARISH. ALL PIPE SHALL BE MARKED WITH SOLID CORE DETECTION WIRE AND WARNING TAPE IN ACCORDANCE WITH UTILITY DEPARTMENT REQUIREMENTS. ALL WATER LINES OTHER THAN FIRE SPRINKLER LINES SHALL BE TESTED AT 150 PSI. FIRE SPRINKLER SHALL BE TESTED AT 200 PSI.

4.) ALL SEWER LINES AND MANHOLES TO BE TESTED AFTER BUILDING CONSTRUCTION IS COMPLETE TO ASSURE SOUNDNESS AND SHALL BE RETESTED AND VIDEOED IN ACCORDANCE WITH PARISH REQUIREMENTS AFTER ALL CONSTRUCTION IS COMPLETED TO ASSURE NO DAMAGE OCCURRED DURING CONSTRUCTION. ANY DAMAGES SHALL BE REPAIRED PRIOR TO ACCEPTANCE. CONTRACTOR TO VERIFY LOCATION OF SEWER SERVICE AT BUILDING WITH ARCHITECTURAL PLANS. ALL LINES WITHOUT A MANHOLE ON BOTH ENDS WILL BE INSTALLED WITH A CLEANOUT AT ALL BENDS, WYES, CONNECTIONS AND AT A MAXIMUM SPACING OF 75 FEET. ALL SEWER PIPE SHALL BE ASTM D3034 SDR35 PVC PIPE AND INSTALLED PER MANUFACTURES REQUIREMENTS. ALL PIPE SHALL BE TESTED IN ACCORDANCE WITH EAST BATON ROUGE PARISH REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER. ALL MANHOLES SHALL BE CONSTRUCTED AND INSTALLED AS REQUIRED BY EAST FELICIANA PARISH REQUIREMENTS.

5.) TOP ELEVATIONS OF ALL STRUCTURES WITHIN LIMITS OF PAVEMENT SHALL, UNLESS OTHERWISE NOTED, MATCH THE PROPOSED PAVEMENT ELEVATIONS.

LEGEND:

- W — W — PROPOSED PVC DOMESTIC WATER
- SS — PROPOSED SEWER LINE
- 3W — PROPOSED 3" PVC DOMESTIC WATER
- 2W — PROPOSED 2" PVC DOMESTIC WATER
- UE — PROPOSED UNDERGROUND ELECTRIC SERVICE
- SS — EXIST. SANITARY SEWER SERVICE LINE
- EXISTING CULVERT
- EXIST. POWER POLE
- EXIST. SANITARY SEWER MANHOLE
- PROPOSED SEWER CLEAN OUT
- BFP — PROPOSED BACK FLOW PREVENTION DEVICE
- W — PROPOSED WATER METER

UTILITY NOTE:

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Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
UTILITY LAYOUT PLAN

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_05-UT.dwg

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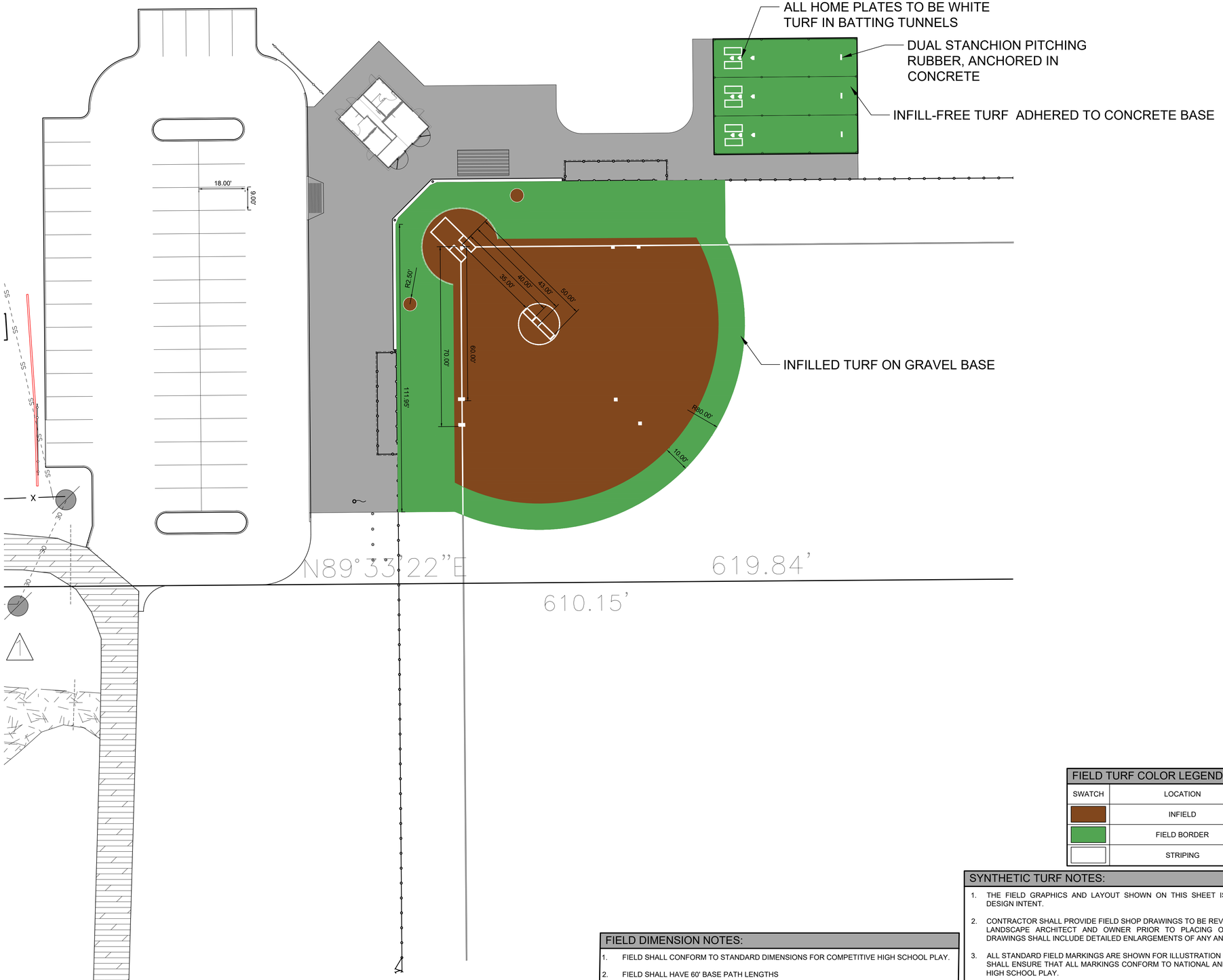
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. 1-2018
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L4.0



40 0 40 80

SCALE: 1"=40'

N

FIELD DIMENSION NOTES:

1. FIELD SHALL CONFORM TO STANDARD DIMENSIONS FOR COMPETITIVE HIGH SCHOOL PLAY.
2. FIELD SHALL HAVE 60' BASE PATH LENGTHS
3. FIELD SHALL HAVE PITCHING DISTANCES OF 50', 40' AND 35'.
4. ON DECK CIRCLES SHALL BE 5' IN DIAMETER
5. INFIELD SHALL HAVE A 10' GREEN BORDER OUTSIDE OF BROWN INFIELD
6. PITCHING CIRCLE TO BE CENTERED ON 43' PITCHING RUBBER

FIELD TURF COLOR LEGEND:

SWATCH	LOCATION	COLOR
	INFIELD	BROWN
	FIELD BORDER	GREEN
	STRIPING	WHITE

SYNTHETIC TURF NOTES:

1. THE FIELD GRAPHICS AND LAYOUT SHOWN ON THIS SHEET IS MEANT TO ILLUSTRATE DESIGN INTENT.
2. CONTRACTOR SHALL PROVIDE FIELD SHOP DRAWINGS TO BE REVIEWED AND APPROVED BY LANDSCAPE ARCHITECT AND OWNER PRIOR TO PLACING ORDER FOR TURF. SHOP DRAWINGS SHALL INCLUDE DETAILED ENLARGEMENTS OF ANY AND ALL FIELD GRAPHICS.
3. ALL STANDARD FIELD MARKINGS ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL ENSURE THAT ALL MARKINGS CONFORM TO NATIONAL AND STATE STANDARDS FOR HIGH SCHOOL PLAY.
4. CONTRACTOR SHALL PROVIDE PHYSICAL SAMPLES OF EACH COLOR TURF, INCLUDING MULTIPLE OPTIONS BASED ON COLOR AVAILABILITY, FOR EACH COLOR OF TURF DESCRIBED WITHIN THIS PLAN. SAMPLES SHALL BE SUBMITTED AT A MINIMUM SIZE OF 12" x 12" FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT AND OWNER.
5. LINES MARKINGS AND GRAPHICS SHALL BE TUFTED INTO THE FIELD SURFACING.

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
FIELD LAYOUT PLAN

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_07-FL.dwg

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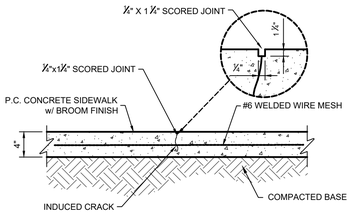
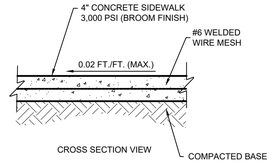
Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. T-226
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

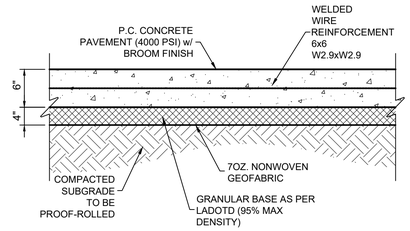
Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L5.0





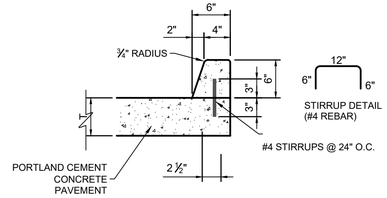
1 4" P.C. CONCRETE SIDEWALK

1" = 1'-0" 61-01



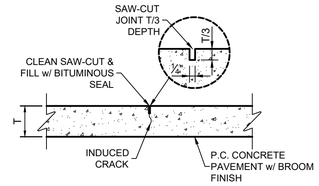
2 6" P.C. CONCRETE PAVEMENT

1" = 1'-0" 61-03



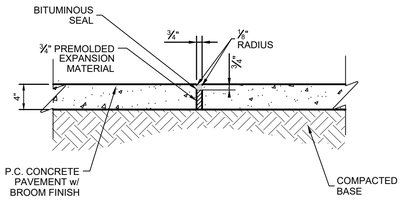
3 6" P.C. CONCRETE BARRIER CURB

1" = 1'-0" 61-04



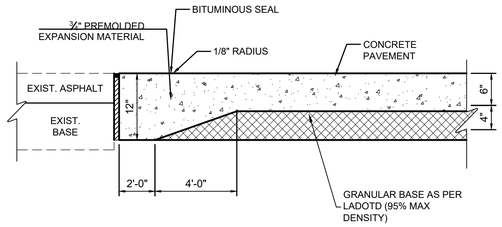
4 TYPICAL CONTRACTION JOINT

1" = 1'-0" 61-07



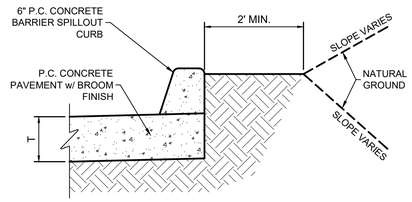
5 TYPICAL EXPANSION JOINT

1" = 1'-0" 61-12



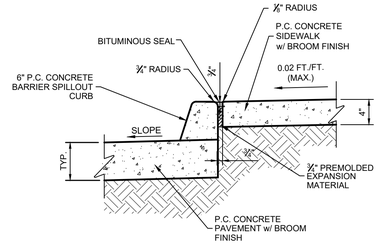
6 TYPICAL TIE TO EXISTING ASPHALT

NTS 61-10



7 TYPICAL BACK OF CURB GRADING

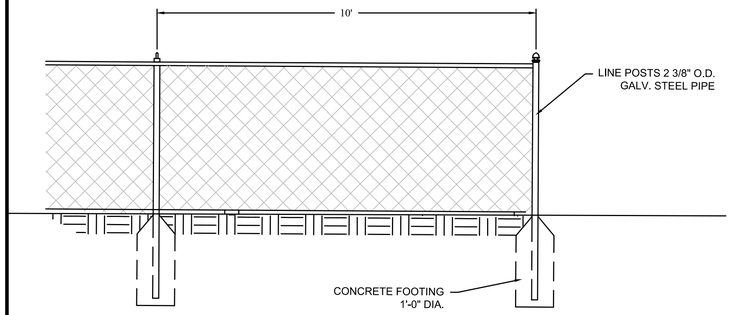
1" = 1'-0" 61-06



8 4" P.C. CONCRETE SIDEWALK AT BACK OF CURB

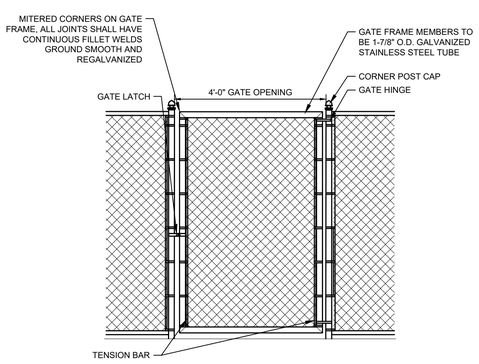
1" = 1'-0" 61-09

TOP OF FENCE SHALL BE LEVEL.
FENCE SHALL BE GALVANIZED CHAIN LINK
WITH GALVANIZED HARDWARE AND POSTS.



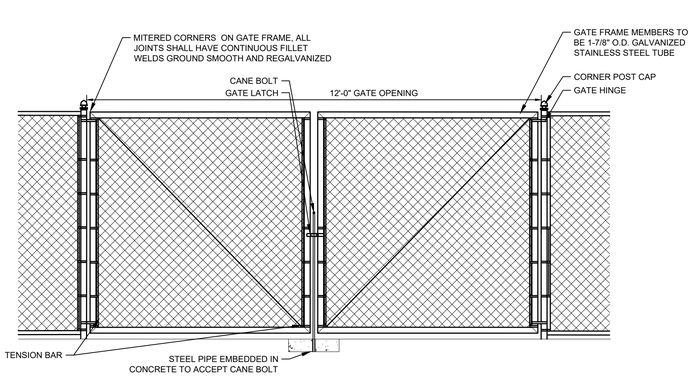
9 CHAIN LINK FENCE DETAIL

1/2" = 1'-0" 63-56



10 6' CHAIN LINK GATE - 4'

1/2" = 1'-0" 63-49

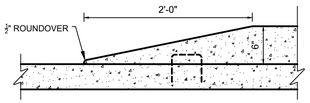


11 6' CHAIN LINK DOUBLE GATE - 12' WIDE

1/2" = 1'-0" 63-48

12 FLAGPOLE

NTS 75-32



13 TRANSITION CURB

1" = 1'-0" 61-59

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

BY LAW, ANYONE PLANNING MECHANIZED DIGGING OR EXCAVATION WORK IN LOUISIANA MUST NOTIFY LOUISIANA ONE CALL BY CALLING 811 OR 1-800-272-3020 OR BY GOING TO THEIR WEBSITE AT WWW.LOUISIANA811.COM AT LEAST TWO FULL BUSINESS DAYS PRIOR TO THE PROJECTS START DATE.

Client:
PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
DETAILS

Description:

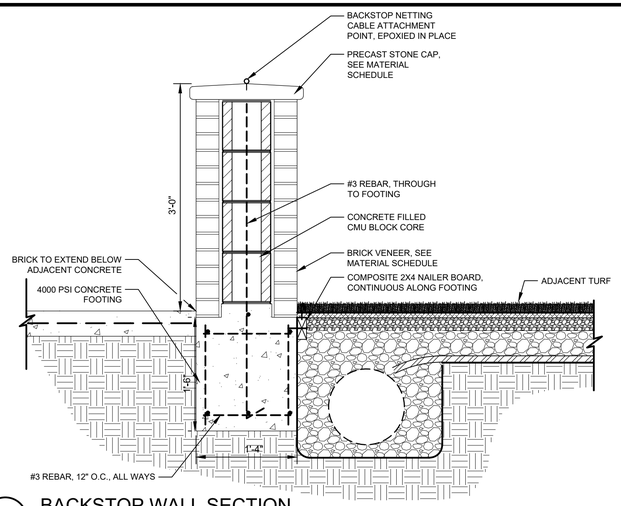
LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1 Drawings\Civil\23-270_D5-01.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

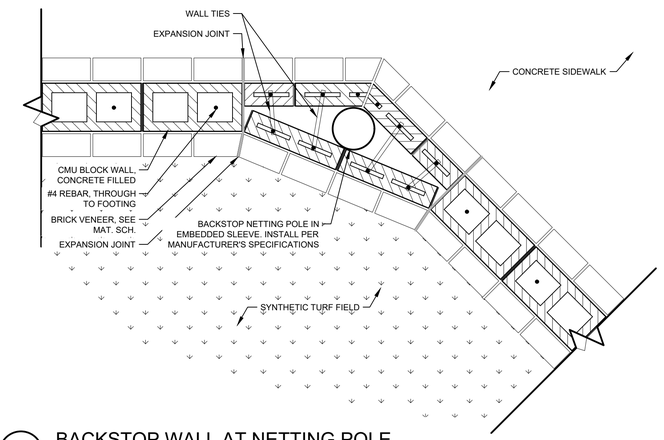
Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
No. 4927
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L6.0



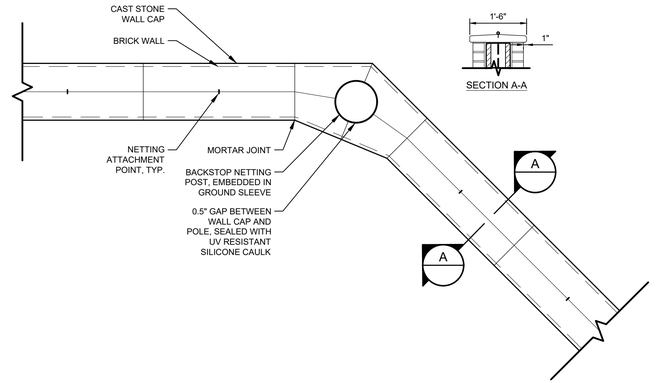
1 BACKSTOP WALL SECTION

1" = 1'-0" 74-12



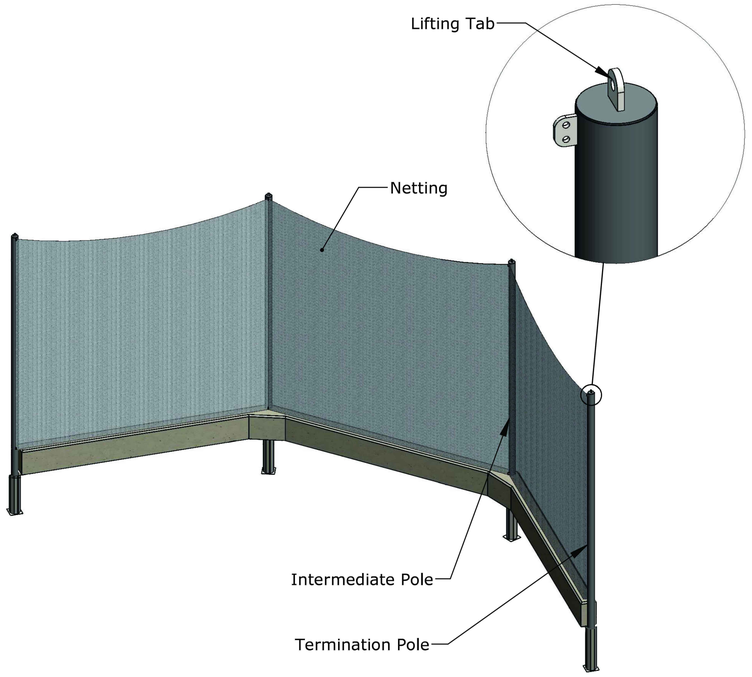
2 BACKSTOP WALL AT NETTING POLE

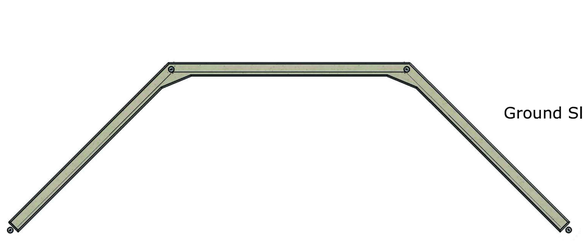
1" = 1'-0" 74-13



3 BACKSTOP WALL CAP

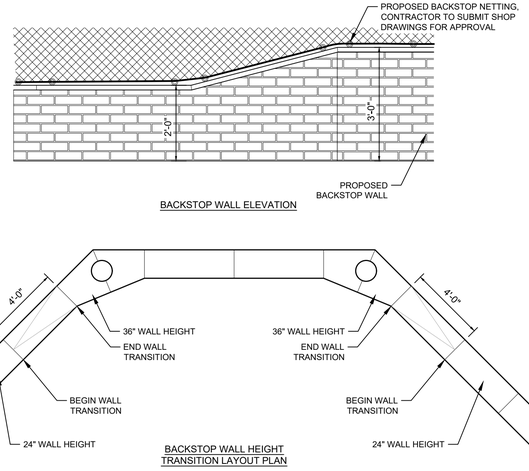
1/2" = 1'-0" 74-14





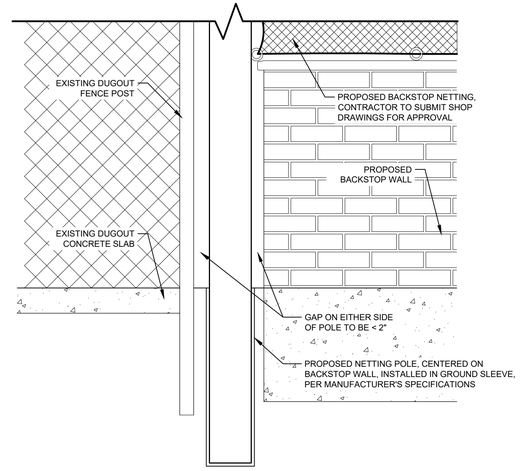
6 POLE TO POLE TENSIONED BACKSTOP NETTING

NTS 79-21



4 BACKSTOP WALL TRANSITION

1/2" = 1'-0" 76-50



5 BACKSTOP NETTING POLE

1" = 1'-0" 76-49

SPORTSFIELD SPECIALTIES

PRODUCT: POLE TO POLE TENSION BACKSTOP NETTING SYSTEM

ITEM NUMBER: TNPPUC

CONTACT: 1-888-975-3343 - WWW.SPORTFIELDSPECIALTIES.COM

NOTE:

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL PROVIDE STAMPED SHOP DRAWINGS WITH FOUNDATION DESIGN FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.
3. ALTERNATE MANUFACTURERS:
   - AMERICAN SUPER SPORTS
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE

UTILITY NOTE:

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Louisiana 811

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Client: PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project: PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: BACKSTOP DETAILS

Description:

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1 Drawings\CDs\23-270_D5-01.dwg

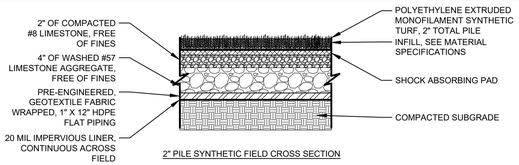
LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern Land of the Mississippi
ASCENSION PARISH, LOUISIANA

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

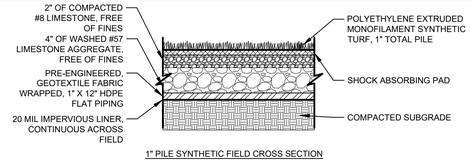
Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
No. 4077
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270

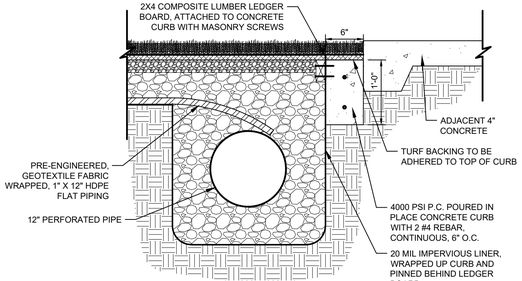
Sheet: L6.1



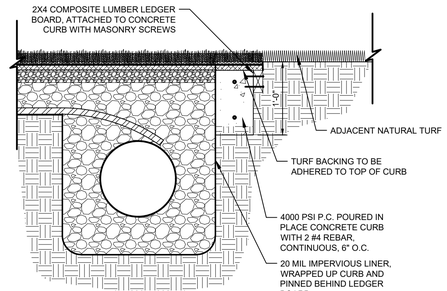
2" PILE SYNTHETIC FIELD CROSS SECTION



1" PILE SYNTHETIC FIELD CROSS SECTION



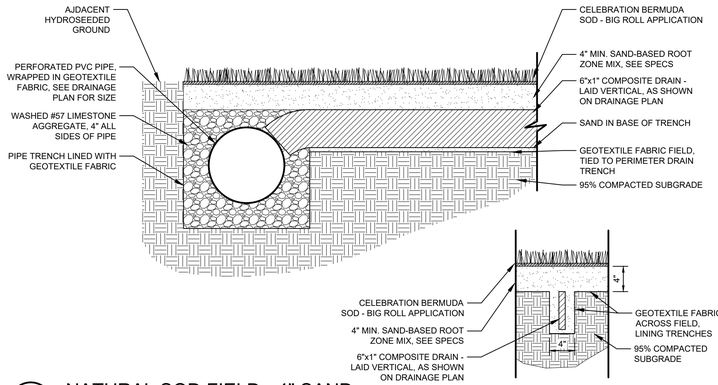
SYNTHETIC FIELD EDGE SECTION



SYNTHETIC FIELD AT OUTFIELD

1 SYNTHETIC FIELD TURF

1" = 1'-0" 76-01



2 NATURAL SOD FIELD - 4" SAND

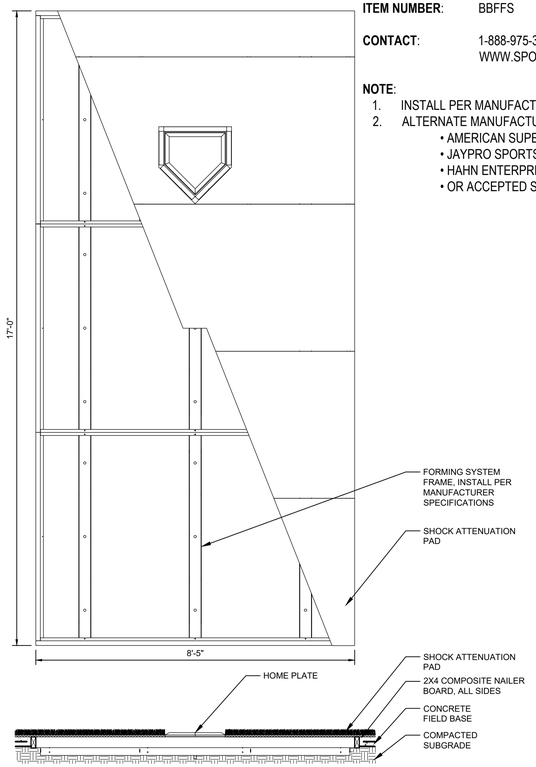
1" = 1'-0"

SPORTSFIELD SPECIALTIES
PRODUCT: SOFTBALL BATTER'S BOX FORMING SYSTEM

ITEM NUMBER: BBFFS

CONTACT: 1-888-975-3343 WWW.SPORTFIELDSPECIALTIES.COM

NOTE:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. ALTERNATE MANUFACTURERS:
   - AMERICAN SUPER SPORTS
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE



3 SOFTBALL HOME PLATE FORMING SYSTEM

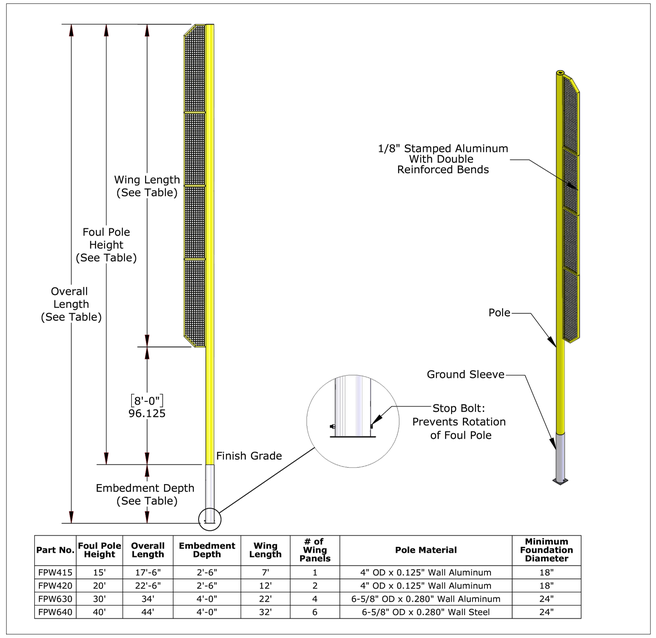
1/2" = 1'-0" 76-46

SPORTSFIELD SPECIALTIES
PRODUCT: GROUND SLEEVE FOUL POLE WITH WING

ITEM NUMBER: FPW415

CONTACT: 1-888-975-3343 - WWW.SPORTFIELDSPECIALTIES.COM

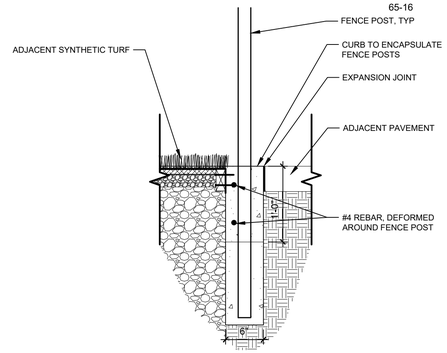
NOTE:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL PROVIDE STAMPED SHOP DRAWINGS WITH FOUNDATION DESIGN FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.
3. ALTERNATE MANUFACTURERS:
   - AMERICAN SUPER SPORTS
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE

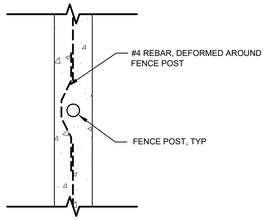


Part No.	Foul Pole Height	Overall Length	Embedment Depth	Wing Length	# of Wing Panels	Pole Material	Minimum Foundation Diameter
FPW415	15'	17'-6"	2'-6"	7'	1	4" OD x 0.125" Wall Aluminum	18"
FPW420	20'	22'-6"	2'-6"	12'	2	4" OD x 0.125" Wall Aluminum	18"
FPW630	30'	34'	4'-0"	22'	4	6-5/8" OD x 0.280" Wall Aluminum	24"
FPW640	40'	44'	4'-0"	32'	6	6-5/8" OD x 0.280" Wall Steel	24"

4 GROUND SLEEVE FOUL POLE WITH WING

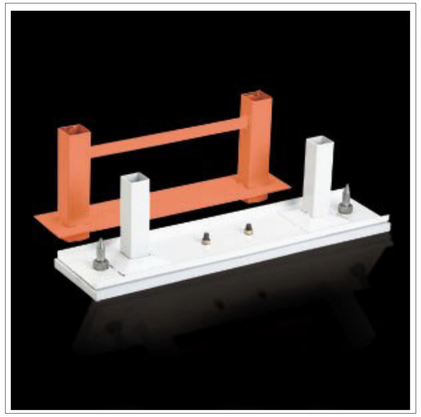
NTS 79-07





5 SYNTHETIC TURF CURB AT FENCE

1" = 1'-0" 76-53



SPORTSFIELD SPECIALTIES
PRODUCT: DUAL STANCHION PITCHING RUBBER WITH ANCHOR

ITEM NUMBER: SHLBMPR224

CONTACT: 1-888-975-3343 - WWW.SPORTFIELDSPECIALTIES.COM

NOTE:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. SHOP DRAWINGS FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.
3. ALTERNATE MANUFACTURERS:
   - AMERICAN SUPER SPORTS
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE

6 DUAL STANCHION PITCHING RUBBER

1" = 1'-0" 79-28

UTILITY NOTE:

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Louisiana 811

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Client: PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project: PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: DETAILS

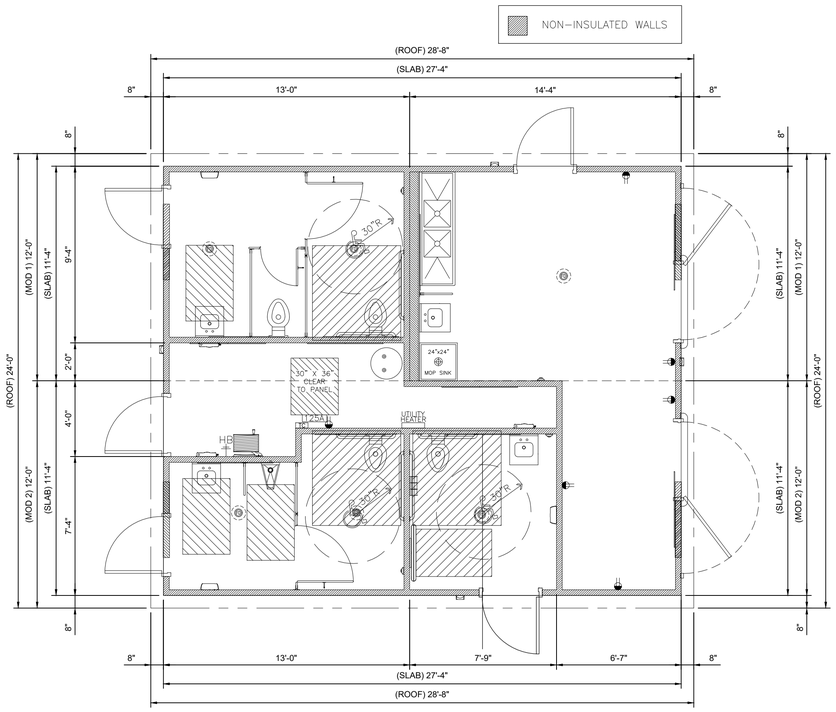
Description: LOCATED IN SECTION 38, TOWNSHIP 8 S., RANGE 2E, South Eastern District of the Mississippi, ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1 Drawings\CDs\23-270_D6-01.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp: STATE OF LOUISIANA THOMAS E. TAYLOR LICENSED LANDSCAPE ARCHITECT NO. 5224
NOT FOR CONSTRUCTION
10-02-2024

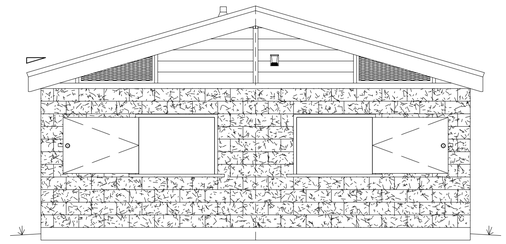
Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L6.2



1 RESTROOM BUILDING PLAN VIEW

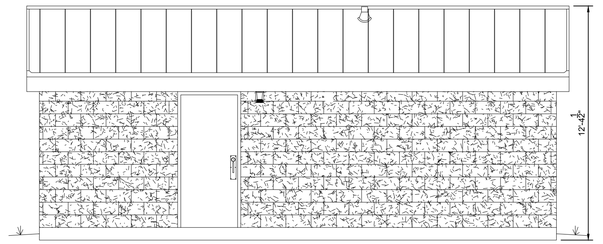
1/4" = 1'-0"

81-01



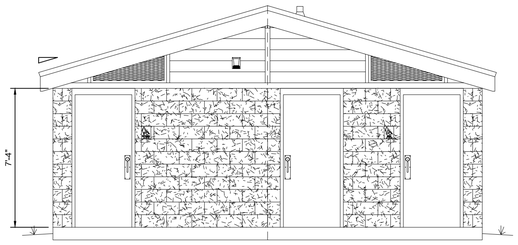
3 REAR ELEVATION

Scale: 1" = 1'



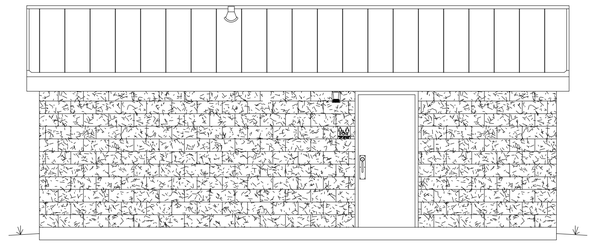
5 LEFT SIDE ELEVATION

Scale: 1" = 1'



2 FRONT ELEVATION

Scale: 1" = 1'



4 RIGHT SIDE ELEVATION

Scale: 1" = 1'

2 RESTROOM ELEVATIONS

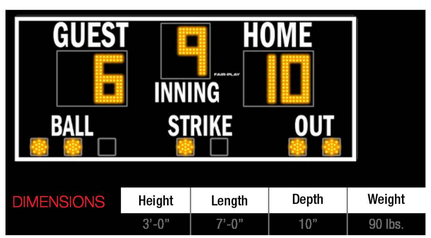
1/4" = 1'-0"

81-02

COR-WORTH RESTROOM FACILITIES
PRODUCT: RESTROOM / CONCESSION BUILDING
ITEM NUMBER: CUSTOM

CONTACT: 1-512-222-5454 - WWW.CORWORTH.COM

NOTE:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL PROVIDE STAMPED SHOP DRAWINGS WITH FOUNDATION DESIGN FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.



NOTE: SCORE BOARD TO BE MOUNTED ON STEEL POSTS, PER MANUFACTURER'S DIRECTIONS.

FAIR-PLAY
PRODUCT: 9'x4' BASEBALL SCORE BOARD
ITEM NUMBER: BA-7107-2

CONTACT: 1-800-247-0265 - WWW.FAIR-PLAY.COM

NOTE:
1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL PROVIDE STAMPED SHOP DRAWINGS WITH FOUNDATION DESIGN FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.
3. ALTERNATE MANUFACTURERS:
   - ANY SUBMITTED ALTERNATE MUST BE FULLY COMPATIBLE WITH EXISTING FAIR-PLAY EQUIPMENT OWNED BY OWNER.

3 SCOREBOARD

1/2" = 1'-0"

79 -29

UTILITY NOTE:

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Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
DETAILS

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern District of the Mississippi,
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_D5-01.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:

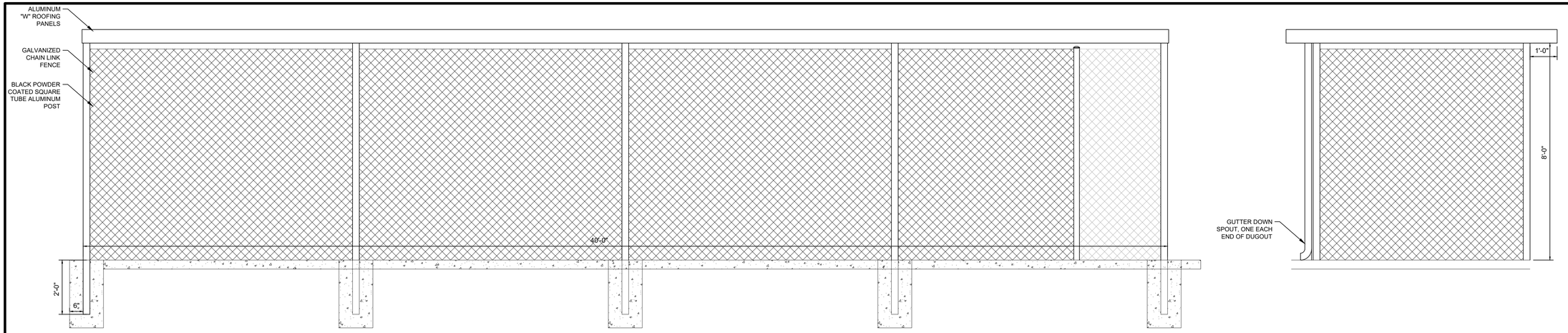
STATE OF LOUISIANA
TOMASIE L. TAYLOR
REG. NO. 1-208
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT

Date: OCTOBER 2024

Project No.: 23-270

Sheet:
L6.3



1 DUGOUT

1/2" = 1'-0"

79-27

PELICAN PLAYGROUNDS

PRODUCT: ALGONQUIN SHADE STRUCTURE
COLOR: ROOF: GREEN , POSTS: BLACK

CONTACT: 1-844-504-7529 - WWW.PELICANPLAYGROUNDS.COM

NOTE:

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. CONTRACTOR SHALL PROVIDE STAMPED SHOP DRAWINGS WITH FOUNDATION DESIGN FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT.
3. ALTERNATE MANUFACTURERS:
   - POLIGON
   - ROMTEC
   - MRC

SPORTSFIELD SPECIALTIES

PRODUCT: GROUND SLEEVE OVERHEAD BATTING TUNNEL

ITEM NUMBER: BTOST (TRIPLE - SOFTBALL)

CONTACT: 1-888-975-3343 - WWW.SPORTFIELDSPECIALTIES.COM

NOTE:

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3. ALTERNATE MANUFACTURERS:
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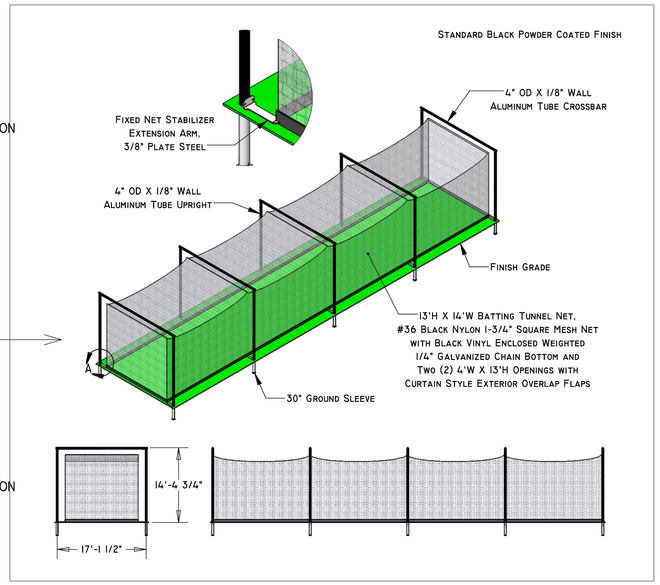
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE



2 GROUND SLEEVE OVERHEAD BATTING TUNNEL

1" = 1"

79-08

SPORTSFIELD SPECIALTIES

PRODUCT: SCHUTT HOLLYWOOD IMPACT BASE SET & IN-GROUND DOUBLE WHITE & ORANGE FIRST BASE

ITEM NUMBER: SHIBL (BASES) SHIBD (DOUBLE FIRST BASE)

CONTACT: 1-888-975-3343 - WWW.SPORTFIELDSPECIALTIES.COM

NOTE:

1. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
2. INSTALL WITH GROUND SLEEVE ANCHORS FROM SAME MANUFACTURER, 8 TOTAL.
3. SUPPLY FOAM GROUND SLEEVE PLUGS FOR EACH BASE SLEEVE LOCATION
4. ALTERNATE MANUFACTURERS:
   - AMERICAN SUPER SPORTS
   - JAYPRO SPORTS
   - HAHN ENTERPRISES
   - OR ACCEPTED SUBSTITUTE

3 BASE

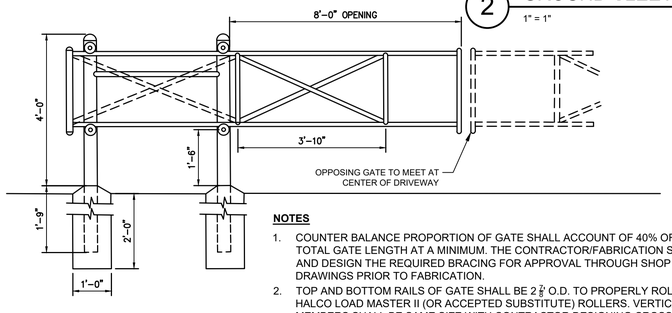
NTS

79-13

4 HOME PLATE

NTS

79-14



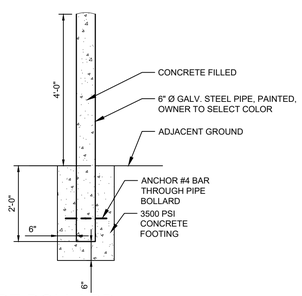
NOTES

1. COUNTER BALANCE PROPORTION OF GATE SHALL ACCOUNT OF 40% OF THE TOTAL GATE LENGTH AT A MINIMUM. THE CONTRACTOR/FABRICATION SHALL SIZE AND DESIGN THE REQUIRED BRACING FOR APPROVAL THROUGH SHOP DRAWINGS PRIOR TO FABRICATION.
2. TOP AND BOTTOM RAILS OF GATE SHALL BE 2 $\frac{1}{2}$" O.D. TO PROPERLY ROLL MASTER HALCO LOAD MASTER II (OR ACCEPTED SUBSTITUTE) ROLLERS. VERTICAL GATE MEMBERS SHALL BE SAME SIZE WITH CONTRACTOR DESIGNING CROSS BRACES.
3. EACH UNIT SHALL BE HOT DIPPED GALVANIZED. FABRICATION FROM PRE-GALVANIZED MATERIALS IS ACCEPTABLE. ALL REPAIRS SHALL BE BY HOT ZINC METHOD.

5 PIPE RAIL GATE

SCALE: NTS

63-57



6 STEEL PIPE BOLLARD

1/2" = 1'-0"

75-45

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

BY LAW, ANYONE PLANNING MECHANIZED DIGGING OR EXCAVATION WORK IN LOUISIANA MUST NOTIFY LOUISIANA ONE CALL BY CALLING 811 OR 1-800-272-3020 OR BY GOING TO THEIR WEBSITE AT WWW.LOUISIANA811.COM AT LEAST TWO FULL BUSINESS DAYS PRIOR TO THE PROJECTS START DATE.

Client: PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project: PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: DETAILS

Description:

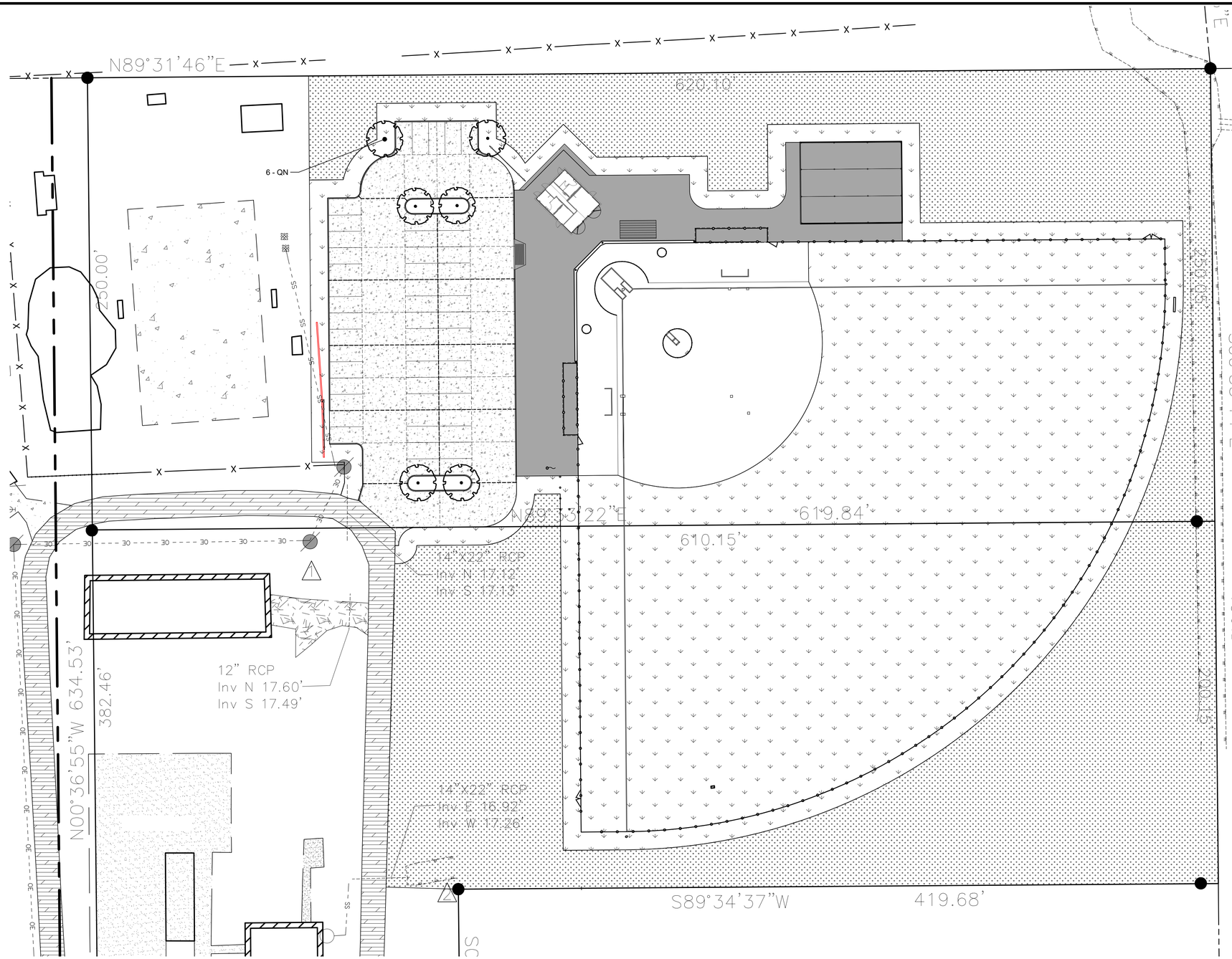
LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern District of the Mississippi,
ASCENSION PARISH, LOUISIANA

DWG Path: P:_2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_05-01.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 43 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS TAYLOR
LICENSED LANDSCAPE ARCHITECT
NOT FOR CONSTRUCTION
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270
Sheet: L6.4



30 0 30 60

SCALE: 1"=30'

N

NOTES

PRUNE AS DIRECTED BY LANDSCAPE ARCHITECT. DO NOT CUT LEADER.

WHITE FLAGGING TAPE (ONE PER WIRE)

ARBORTIE FABRIC
PLACE ABOVE 1ST TIER OF BRANCHES

IF TREE CAL. IS 2 1/2" OR LESS, NO. 12 GAUGE GALVANIZED GUY WIRE, DOUBLED AND TWISTED TIGHT.

2" x 2" WOOD STAKE-6' MINIMUM (18" BELOW GRADE) PAINT W/ FLAT BLACK EXTERIOR PAINT

3" MULCH LAYER

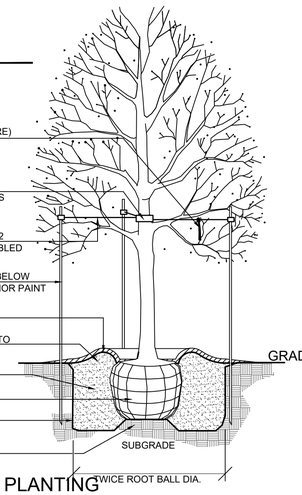
4" SAUCER RIM SLOPED GRADUALLY TO FINISH GRADE.

BACKFILL & PLANTING MIX

SET BALL 2" HIGHER THAN GRADE

SCARIFY SIDES OF PIT

LOOSEN SUBSOIL AT BOTTOM OF PIT 6" MINIMUM.



1 TYPICAL TREE PLANTING
1" = 1'-0" 65 -02

LANDSCAPE PLANTING NOTES:

1.) Contractor shall bear full responsibility in verifying locations of existing site utilities and shall be responsible for any damage to said utilities during construction.

2.) The contractor shall be responsible in determining quantities that meet the design intent.

3.) Existing trees, shrubs, and sod not designed for removal shall be replaced if damaged during construction.

4.) Remove waste materials, including grass, vegetation, and turf, and legally dispose of it off of Owner's property.

5.) Totally grub areas to receive sod and/or seed by chemically eradicating emerging vegetation, removing existing vegetation after vegetation is dead, then proceeding with proper sod and seed installation in accordance with the Planting Plan. Remove roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

6.) Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; DO NOT OVERLAP OR STRETCH. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface.

7.) Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill in depressions to meet finish grades and ensure positive drainage.

8.) Contractor shall ensure positive drainage away from buildings for all work.

9.) Provide protection to all finished work until accepted by owner.

10.) Warranty Period:
Trees: 12 months
Sod and/or Seed: 6 months

11.) Contractor is to insure that all disturbed areas on site are to be sodded and/or seeded. This may be areas in addition to what is indicated on the plan.

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONT	CAL	QTY
TREES					
	QN	Quercus nuttallii / Nuttall Oak	30g	2.5"	6

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONT	SIZE	QTY
GROUND COVERS					
	SEED	Cynodon dactylon / Bermuda Grass - Seed	Hydroseed		77,425 sf
	SOD	Cynodon dactylon 'Celebration' / Celebration Sod - Big Roll	Sod		86,812 sf

Louisiana 811

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Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: LANDSCAPE LAYOUT PLAN

Description: LOCATED IN SECTION 38, TOWNSHIP 8 S., RANGE 2E, South Eastern District of the Mississippi, ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\CDs\23-270_02-LP.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 43 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. T-226
LICENSED LANDSCAPE ARCHITECT
10-02-2024

Drawn By: TT

Date: OCTOBER 2024

Project No.: 23-270

Sheet: L7.0

LANDSCAPE PLANTING NOTES:

PART 1 - GENERAL

DESCRIPTION

Provide trees, plants, ground covers, and turf grass as shown and specified. The work includes:

1. Soil preparation.
2. Trees, plants, ground cover, and turf grass.
3. Planting mixes.
4. Mulch and planting accessories.
5. Maintenance until final acceptance by Owner's Construction Manager

Related Work:

1. Irrigation.

DEFINITIONS

1. **Backfill**: The earth used to replace or the act of replacing earth in an excavation.
2. **Duff Layer**: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
3. **Finish Grade**: Elevation of finished surface of planting soil.
4. **Manufactured Topsoil**: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
5. **Pesticide**: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
6. **Pest**: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
7. **Planting Soil**: Standardized topsoil; existing native surface topsoil; existing in-place surface soil; imported topsoil; manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
8. **Root Flare**: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.
9. **Subgrade**: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
10. **Subsoil**: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.
11. **Surface Soil**: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed area such as urban environments, the surface soil can be subsoil.

SUBMITTALS

The Landscape Contractor shall submit documentation of the following material to the Landscape Architect:

1. Scaled photographs of landscape material to be used with the name and contact information of the supplying nurseries. The Landscape Architect maintains the right to tag material.
2. Deliver samples of shredded hardwood mulch and manufactured topsoil (planting bed soil), for approval by Landscape Architect prior to the start of construction.
3. Routine soil test by approved laboratory and or state cooperative. Mix a minimum of 5 soil-cores per site for testing. Provide lab test results and recommendations for amendments to Landscape Architect for review and approval.
4. Upon plant material acceptance, submit written maintenance instructions recommending procedures and frequency for maintenance of plant materials.

QUALITY ASSURANCE

Plant Material: Plant names indicated; comply with "Standardized Plant Names" as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties not listed conform generally with names accepted by the nursery trade. Provide stock true to botanical name and legibly tagged.

Availability: Before submitting bid, the Contractor shall have investigated the sources of supply and satisfied himself that he can supply the listed plants at the minimum size (container size, plant height and width), variety and quality listed and specified. Failure to take this precaution will not relieve the Contractor from his responsibility for furnishing and installing all plant materials in strict accordance with the Contract Documents without additional cost to the Owner. This may require the Contractor for installing larger size material than bid at Contractor's expense. Landscape Architect shall approve any substitutes of plant material or changes in plant material size prior to contractor submitting a bid.

Labor and Supervision: Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

Preinstallation Conference: A "face to face" or teleconference preinstallation conference shall be conducted with the General Contractor, Landscape Contractor, Irrigation Contractor, and Landscape Architect prior to the start of any landscape or irrigation construction.

DELIVERY, STORAGE AND HANDLING

Deliver fertilizer materials in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. Store materials in a manner to prevent wetting and deterioration.

Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury. Provide protective covering over all plants during shipment and after arrival on the site. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, set plants in the shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable material. Water heeled-in plantings with a fine mist spray and soak the root area at least twice a day. No plant shall be bound with rope or wire or handled with a fork, except balled and burlapped (B&B) material.

Provide dry, friable, loose topsoil for planting bed mixes. Amend with 4 parts screened topsoil and 1-part organic material. Frozen or muddy topsoil is not acceptable.

PROJECT CONDITIONS

1. Contractor shall ensure positive drainage away from buildings for all work.
2. Contractor shall bear full responsibility in verifying locations of existing site utilities and shall be responsible for any damage to said utilities during constriction.
3. Protect existing utilities, paving, and other facilities from damage caused by landscaping operations.
4. A complete list of plants, including a schedule of sizes, quantities, and other requirements is shown on the drawings. If quantity discrepancies or material omissions occur in the plant materials list, the plantings plan shall govern.
5. The irrigation system will be installed prior to planting. Locate, protect and maintain the irrigation system during planting operations. Repair irrigation system components damaged during planting operations, all at the Contractor's expense. Do not begin landscape accessory work before completion of final grading or surfacing.
6. All new plant beds and new landscape material will be 100% irrigated.

WARRANTY

The installer agrees to (at no cost to owner) repair or replace plantings and accessories that fail in materials, workmanship, or growth within the specified warranty period.

1. Failures include, but are not limited to, the following:
   a. Death, unsatisfactory growth, unhealthy or unsightly condition, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control such as severe weather.
   b. Structural failures including plantings falling or blowing over.
2. Warranty periods shall begin at Substantial Completion and extend for the following time:
   a. Trees, Plants, and Groundcover: 12 months.
   b. Shrubs: 12 months.
   c. Turf Grass: 12 months.
   d. Annuals: 3 Months

ACCEPTANCE

Inspection by the Owner's representative or Landscape Architect shall determine acceptance of project.
1. Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.
2. The Contractor will be responsible for maintenance including watering, mowing, and weeding of ALL plant material /planting beds until final acceptance is made by the Landscape Architect.

CODES, PERMITS AND FEES

The Landscape Architect has coordinated with the local jurisdiction specific items that meet code requirements. The Landscape Contractor is responsible for installing the components from the approved "Issue for Permitting" plan set. The contractor is responsible for the entire installation fully complying with all local and state laws and ordinances, and with all established local codes.
1. Contractor shall obtain and pay for required permits for this Section of Work.

PART 2 - PRODUCTS

MATERIALS

Plant Material: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated on the Plant Schedule shown on Drawings and complying with ANSI Z60.1; and with health root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, disfigurement, weed seed, animal pathogens, and insect larvae.
1. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
2. Container-grown stock: Grown in a container for enough length of time for the root system to have developed to hold its soil together, firm and whole.
   a. No plants shall be loose in the container.
   b. Container stock shall not be pot bound or have circling roots. Circling roots will be rejected.
   c. Provide trees species that mature at heights over 25 feet with a single main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable.
   d. Plants planted in rows shall be matched in form.
   e. Plants larger than those specified in the plant list may be used when acceptable to the Landscape Architect. If the use of larger plants is acceptable, increase the spread of roots or root ball in proportion to the size of the plant.
3. Trees: Shall be uniform branching, uniform canopy, straight trunk, full head of foliage unless specified otherwise.
   a. Height measurements taken 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.
   b. Caliper shall be measured in accordance with ANSI Z60.1 standard.
   c. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.
   e. Install Treegator® slow release watering bags on each tree immediately after planting. Landscape Contractor is responsible for filling bags (10 gal./caliper inch) each week until final acceptance of project by Owner / Landscape Architect.
4. Shrubs: Shall meet the requirements for spread and height indicated in the plant list.
   a. The measurements for height shall be taken from the ground level to the height of the top of the plant and not the longest branch.
   b. Single stemmed or thin plants will not be accepted.
   c. Generous side branches, well-twigged; and the overall plant, 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.
   e. All plant material shall be container grown unless noted otherwise.

Turf Grass Sod: Class A (Superior Quality) sod containing no more than 5 plants per 100 sf of any other grasses, broadleaf weeds, or sedges per Louisiana Horticulture Law. All sod must be free of insects and disease and viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development at installation.
1. Sod will be considered achieving satisfactory cover when meeting 100 percent coverage over any 10 square feet and no bare spots.
2. At the end of the establishment period, a healthy, well-rooted, even colored viable turf grass will be considered established if free of weeds, open joints, bare areas and surface irregularities.

Turf Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.
1. Single Seed Species: State certified seed of grass species specified on Plant Schedule, with not less than 95% germination, not less than 85% pure seed, and not more than 0.5% weed seed.
2. Grass Seed Mix: Mixes shall contain each of the state certified seed of grass specie and shall match the proportions of species diversity as specified on plans.

Turf Grass Sprigs: Healthy living stems, rhizomes, or stolons with a minimum of two nodes and attached roots free of soil, of the turfgrass specified on the Plant Schedule.
1. Grass Sprigs: Class A sod, not less than 95% germination and not more than 0.5% weed seed.
2. At the end of the establishment period, a healthy, uniform close stand of grass will be considered established if free of weeds, and surface irregularities. with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5-inches by 5-inches.

Topsoil for Turf Grass: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range of between pH 6.0 and 6.8. Topsoil to be at a minimum depth of 2-inches over entire area identified to receive turf grass (sod or seed).
1. If existing sub soil or soil is determined unsatisfactory by testing completed by LSU Ag Office to be applied, supplement with import or manufactured topsoil as recommended by soil report and approved by landscape architect.

Topsoil for Planting Beds: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonably free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range of between pH 6.0 and 6.8. Topsoil to be at a minimum depth of 9-inches in planting beds.

Top-dress Mulch: Shredded hardwood, well composted (100 day minimum), stable, and weed-free organic matter, pH range of 5.5 to 8.0; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2" sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings. Pine bark and pine straw WILL NOT be accepted.

Inorganic Soil Amendments: Lime, sulfur, iron sulfate, aluminum sulfate, perlite, agricultural gypsum, sand, diatomaceous earth and zeolites.

Organic Soil Amendments:

1. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55% by weight; 100% passing through 0.5 inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent contaminants and free of substances toxic to plantings.
2. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or granular texture, with a pH range of 3.4 to 4.8.
3. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or granular texture, with a pH range of 6 to 7.5. and having a water-absorbing capacity of 1100 to 2000 percent.
4. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
5. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, or other debris, and material harmful to plant growth.

Fertilizers: Composition of nitrogen, phosphorous, and potassium shall be consistent with soil test recommendations with approval by the Landscape Architect and may include:
1. Bonemeal: Commercial, raw or steamed, finely ground; minimum of 1% and 10% phosphoric acid.
2. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20% available phosphoric acid.
3. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50% derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
   a. Composition: 1 pound/1000 square feet of actual nitrogen, 4% phosphorous, and 2% potassium, by weight.
4. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50% water-insoluble nitrogen, phosphorous, and potassium in the following composition:
   a. Composition: 20% nitrogen, 10% phosphorous, and 10% potassium, by weight.
5. Planting Tablets: Tightly compressed chip type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
   a. Size: 10-gram tablet.
   b. Composition: 20% nitrogen, 10% phosphorous, and 5% potassium, by weight plus micronutrients.
6. **Fertilizer**: Apply a pre-emergent herbicide to all bed prep areas.

Geo-textile Fabrics: Various geo-textiles may be specified by Landscape Architect on drawings.
1. Filter Fabric: A needle-punched non-woven geotextile made of 100% polypropylene staple fibers, which are formed into a random network for dimensional stability. 4.5 oz./sq. yd. minimum for stormwater filtration barriers to areas as called for in plans.
2. Weed Barrier Fabric: Woven polypropylene, needle-punched fabric with reinforced fiber for extra moisture control, 4.1 oz./sq. yd., 20-year commercial grade fabric as a weed barrier in beds located between the perennial planting soil and top-dress mulch.
3. Erosion Control Blanket: Constructed from biodegradable straw or natural wood fibers, with an additive to cause stakes to breakdown and biodegradable shall be placed at appropriate spacings to secure blanket to ground. Shall NOT be used on slopes greater than 3:1.
4. Silt Fence: Fabric erosion control barrier, constructed of woven polypropylene yarns, 2.0 oz/sq. yd. with 36" or 48" Oak stakes located every 8-feet, designed to block the sediment while letting the water slowly flowing thru the fabric.

Pesticides: Registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

Tree Staking: When conditions warrant tree staking, the Contractor shall provide the following:
1. Strapping: ArborTie®, a ½" wide, flat woven polypropylene strap, rounded weave and lock stitch with a 900 lb. tensile strength to resist fierce winds while allowing sway and preventing girdling.
2. Staking: Studded metal "T" post. 6' height, painted green when staking trees.
3. Guying: Wood stakes, driven 3' below grade to tie strapping with cinch ties to adjust tension.
4. Removal within One Year: Landscape Contractor shall remove tree staking and strapping once established, but in NO case, shall material remain on trees more than one year. The removal of staking and strapping shall be conducted at NO additional cost to the owner.

Water: Watering of plant material shall be with drinkable water. Hoses or other methods of transportation or deliver shall be furnished by the Landscape Contractor at their expense.

PART 3 - EXECUTION

Time of planting: Planting during ideal times of the year enhance plant viability. Should the Owner require planting outside of these times, the contractor shall provide the following:
1. Evergreen material: Plant evergreen materials between August 15 and October 15 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with an anti-desiccant prior to planting operations.
2. Deciduous material: Plant deciduous materials April 1 to June 1 and August 15 to November 15. If deciduous trees are planted in-leaf, they shall be sprayed with an anti-desiccant prior to planting operation.

Inspection: Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.
1. Landscape Contractor shall remove ANY debris (rocks, soil clumps, clay or Construction debris) larger than ½" in size.

Layout: The outline of bed areas shall be accurately painted, and tree locations staked to delineate the arrangement of landscape materials on the site.
1. If obstructions are encountered that are not shown on the drawings, do not proceed with planting operations. Contact Landscape Architect to determine new location.
2. All tree, shrub, and bed locations are to be laid out in the field by the Contractor and approved by the landscape architect prior to installation. Give the landscape architect 72 hours notice.
3. The contractor shall be responsible in determining quantities that meet the design intent.

Turf Area Preparation:
1. Rough Grade: It shall be the general contractor / site contractor responsibility to rough grade the site to within 2-inches of finish grades for turf grass areas as shown on the grading plan.
2. Place Topsoil: Landscape contractor shall add, mix, spread, grade, and hand-rake topsoil for all turf grass areas (sod, sprig, and/or seed) to a depth of 2 inches.
3. Provide Final Grade: It shall be the landscape contractor's responsibility to provide a finished, hand raked ground plane to the elevations shown on the grading plan and to remove ANY debris (rocks, soil clumps, clay or Construction debris) larger than ½" in size.
4. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill in depressions to meet finish grades and ensure positive depressions to meet finish grades and ensure positive drainage.

Placing Turf Grass: The landscape contractor shall be responsible for establishing turf grass to areas delineated on the landscape planting plans to a level of satisfactory coverage as indicated:
1. Sodded Turf Grass:
   a. Final (or Finish) grade of sod panels and seeded areas must be flush with top of curb and or within ¼" of pavement in a straight and uniform pattern free layout.
   b. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily and more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod. Soil needs a minimum of 2" of water a week after the first week of sod after installation until sod is fully rooted.
   c. Lay sod within 24 hours of harvesting to prevent deterioration.
   d. Sod should not be planted if temperature is expected to be below 32 degrees F. within 24 hours of planting.
   e. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; DO NOT OVERLAP OR STRETCH. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade, eliminate air pockets, and form a smooth surface.

2. Seeded Turf Grass with Erosion Control Matting:
   a. Do not broadcast seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other. Do NOT seed against existing trees. Limit extent of seed to outside edge of planting saucer. Seeds shall be applied to all common earthen areas disturbed during construction and not identified to receive sod.
   i. April to September Application – seeds shall be 'Sahara' Bermuda applied at a rate of 4 pounds per thousand square feet unless otherwise stated on plans.
   ii. October to March Application – seeds mix shall be 'Common' Bermuda (hulled) applied at a rate of 2 pounds per thousand square feet and three-way rye perennial blend also applied at a rate of 5 pounds per thousand square feet unless otherwise stated on plans.
   a. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
   b. Place erosion control blanket to seeded areas & pin in place to prevent sliding on slopes.

1. Hydro seeding Turf Grass: Mix fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseeding application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
   a. Mix slurry with fiber-mulch with manufacturer's recommended tackifier.
   b. Apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that much component is deposited at not less than 500 lb./acre dry weight, and seed component is deposited at not less than the specified seeding rate. Apply slurry cover coat of fiber mulch (hydro mulch) at a minimum rate of 88 lb./acre.
   c. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Layout temporary watering system or utilize permanent irrigation system to avoid walking over muddy or newly planted areas.
   d. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate. Watering until established is the responsibility of the Landscape Contractor at no additional expense to the owner.

4. Sprigged Turf Grass: Sprigs shall only be applied to the areas as shown on the plans and shall be "broadcast planted" and installed with a "sod to sprig" machine.
   a. Plant freshly shredded sod sprigs in furrows (1-1/2 to 2 inches deep). Place individual sprigs with roots and portions of stem in moistened soil. 6 inches apart in rows 10 inches apart, and fill furrows without covering growing tips. Lightly roll and firm soil around sprigs after planting.
   b. Broadcast sprigs uniformly over prepared surface at the specified rate per square feet and mechanically force sprigs into lightly moistened soil.
      i. Spread a ¼-inch thick layer of composting mulch and/or planting soil on sprigs.
      ii. Lightly roll and firm soil around sprigs after planting.
      iii. Water sprigs immediately after planting and keep moist by frequently watering until well rooted.
      c. Application rates:
      iv. April to June: 'Celebration' Bermuda sprigs shall be mechanically installed at the rate of 750 bushels per acre.
      v. July to March: 'Celebration' Bermuda sprigs shall be mechanically installed at the rate of 1,500 bushels per acre.
      vi. Any and all soil mixes must be free of biological containments weeds.

Bed Area Preparation:
1. Rough Grade: It shall be the general contractor / site contractor responsibility to rough grade the site to within 12-inches for planting bed areas as shown on the grading plan.
2. Place Topsoil: Landscape contractor shall add, mix, spread, grade, and hand-rake bed preparation topsoil on all planting and ground cover areas to a depth of 9 inches.
3. Provide Final Grade: It shall be the landscape contractor's responsibility to provide a finished, hand raked as shown on the Civil Engineer's / Landscape Architect's grading plan and to remove ANY debris (rocks, soil clumps, clay or Construction debris) larger than ½" in size.
a. Planting Beds: Final (or Finish) grade of planting beds shall be sloped away from building foundations and walkways to avoid flood conditions or slip hazards allowing for planting bed topsoil (bed preparation mix) and top dress mulch.
b. Provide positive drainage over entire site to not allow water to be held in lawn or planting beds next to buildings, backs of curbs, pavement and other amenities.
4. Place Weed Barrier Fabric: Place weed barrier fabric over planting bed area using adequate biodegradable stakes to hold in place.
5. Place Plants: Landscape plant material shall be placed as shown on plans with proper specie and quantities placed for inspection by Landscape Architect. Contractor shall provide 72 hours advanced notice as to when placement of material will be available for inspection.
6. Remove waste materials, including grass, vegetation, and turf, and legally dispose of it off of Owner's property.
7. Totally grub areas to receive beds and/ or sod by by chemically eradicating emerging vegetation, removing existing vegetation is dead, then proceeding with proper bed and sod installation in accordance with the Planting Plan. Remove roots, plants sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

Installation of Plants:
1. Cut circular holes in weed barrier fabric to allow for material planting.
2. Excavate circular plant pits with vertical sides, except for plants specifically indicated to be planted in beds. Provide shrub and tree pits as shown in tree and shrub planting details. Depth of pit shall accommodate the root system. Provide undisturbed sub grade to hold root ball at nursery grade as shown on the drawings. Root flare must be visible after planting.
3. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material 2"-3" above the finish grade. No filling will be permitted around trunks or stems. Backfill the pit with topsoil mix & excavated material. 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 as shown. After adjacent turf and burplanted plants are set, muddle planting soil mixture around bases of balls and fill all voids.
5. Remove all burlap, ropes, and wires from the top 2/3 of the root ball.
6. Space ground cover plants in accordance with indicated dimensions. Adjust spacing as necessary to evenly fill planting bed with indicated quantity of plants. Plant to within 24" of the trunks of trees and shrubs within planting bed and to within 12" of edge of bed.
7. Provide pre-mixed planting mixture for use around the balls and roots of the plants consisting of 50% excavated material and 50% topsoil mix. Add plant fertilizer per manufacturer's recommendation for each cu. yd. of mixture.
8. Provide pre-mixed ground cover bed planting mixture consisting of 4 parts screened topsoil to 1-part peat moss and plant fertilizer per manufacturer's recommendation for each cu. yd. of mixture.

Mulching:
1. Mulch tree and shrub planting pits and shrub beds with required (see landscape plan) mulching material 3" deep immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

Staking and Guying:
1. Stake all required trees immediately after lawn sodding operations and prior to acceptance.
   a. Stake deciduous trees 3" caliper and less.
   b. Stake evergreen trees under 8'-0" tall.
2. Guy all required trees immediately after lawn sodding operations and prior to acceptance.
   a. Guy deciduous trees over 3" caliper.
   b. Guy evergreen trees 8'-0" tall and over.

Pruning:
1. Prune branches of deciduous stock, after planting, to balance the loss of roots and preserve the natural character appropriate to the plant requirements. In general, remove 1/4 to 1/3 of the leaf and bearing buds. Remove or cut back broken, damaged, and unsymmetrical growth of new wood.
2. Multiple leader plants: Preserve the leader with will best promote the symmetry of the plant.
3. Prune evergreens only to remove broken or damaged branches.

Maintenance:
1. The Contractor shall provide as a separate bid, maintenance for a period of 1 year after final acceptance of the project landscaping. The Contractor must be able to provide continued maintenance if requested by the Owner or provide the name of a reputable landscape contractor who can provide maintenance.
2. Maintenance shall include mowing, fertilizing, mulching, pruning, cultivating, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plants and lawns free of insects and disease.
3. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.
4. Tighten and repair straps and stakes as required. Remove straps and stakes after one year. Strapping are not to be too tight as some slack is required.
5. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.
6. Water trees, plants and ground cover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance.

Cleaning:
1. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soils, debris, and equipment. Repair damage resulting from planting operations.

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

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1 LANDSCAPE PLANTING SPECIFICATIONS

Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: LANDSCAPE NOTES

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\-2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1 Drawings\Dgn\23-270_02-LP.dwg

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1500 | www.qesla.com | info@qesla.com

Stamp:
STATE OF LOUISIANA
THOMAS E. TAYLOR
REG. NO. T-226
LICENSED
LANDSCAPE ARCHITECT
10-02-2024

Drawn By: TT
Date: OCTOBER 2024
Project No.: 23-270

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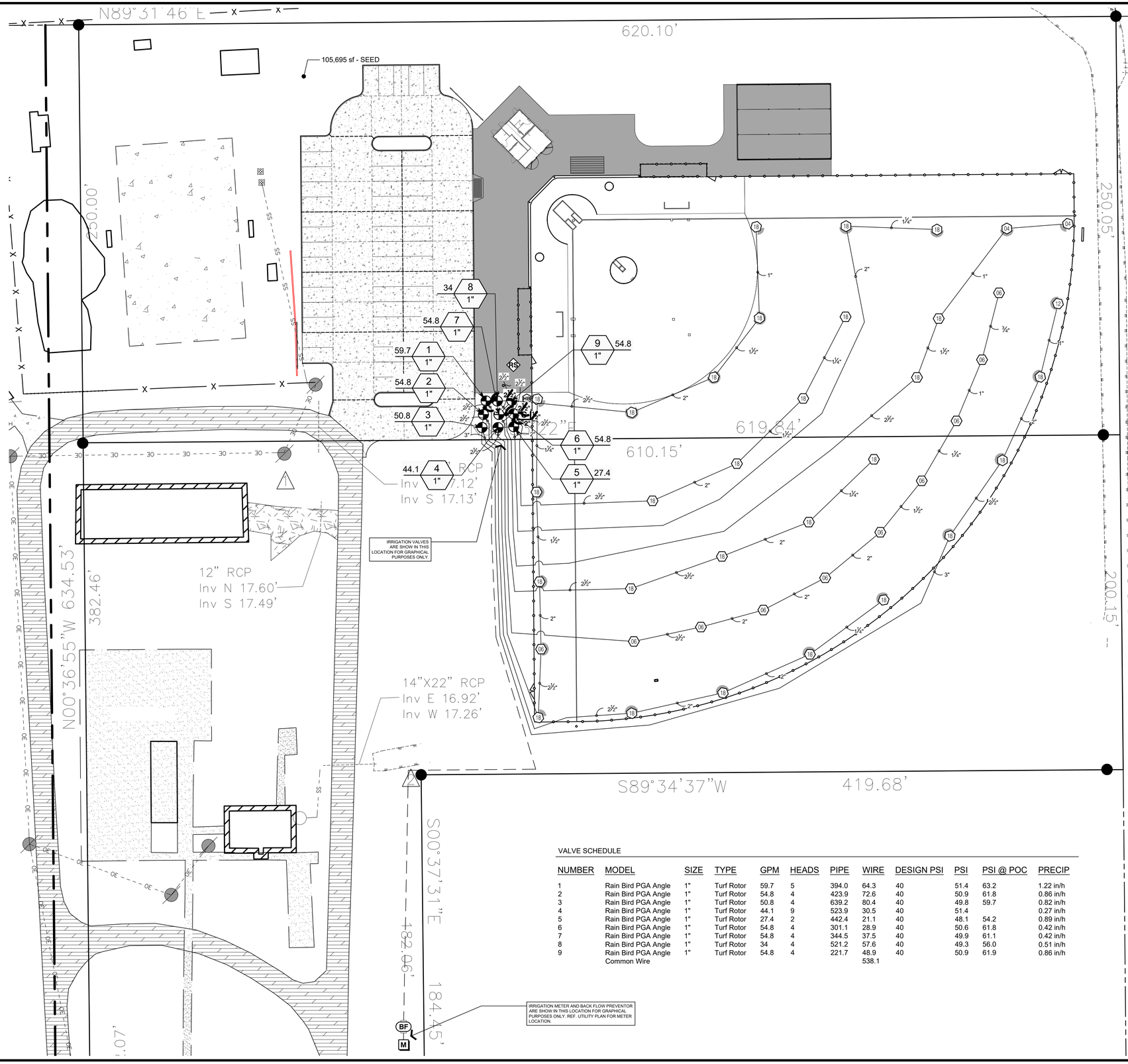
01 of 5



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SCALE: 1"=30'

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IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY	PSI	GPM	RADIUS
04	Rain Bird 6504-PC, FC-SS 04	2	40	3.3	41'
06	Rain Bird 6504-PC, FC-SS 06	10	40	4.9	45'
12	Rain Bird 6504-PC, FC-SS 12	1	40	9.7	53'
18	Rain Bird 6504-PC, FC-SS 18	27	40	13.7	59'

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Rain Bird PGA Angle 1in., 1-1/2in., 2in. Electric Remote Control Valve, Angle.	9
HB	Hose Bibb Key-Way Hose Bib	1
BF	Febco 765 1" Pressure Vacuum Breaker, brass with ball valve SOV. Install 12in. above highest downstream outlet and the highest point in the downstream piping.	1
C	Rain Bird ESPLXME2-LXMM-LXMMPED 12 Station, Traditionally-Wired, Commercial Controller. Indoor/Outdoor, Plastic Wall-Mount Enclosure. Install in LXMM-LXMMPED Powder Coated, Metal Wall-Mounted Cabinet. w/ Pedestal.	1
RS	Rain Bird RSD-BEx Rain Sensor, with metal latching bracket, extension wire.	1
	Irrigation Lateral Line: PVC Class 200 SDR 21	3,812 l.f.
	Irrigation Mainline: PVC Schedule 40	538.1 l.f.

Valve Callout
Valve Number
Valve Flow
Valve Size

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	HEADS	PIPE	WIRE	DESIGN PSI	PSI	PSI @ POC	PRECIP
1	Rain Bird PGA Angle	1"	Turf Rotor	59.7	5	394.0	64.3	40	51.4	63.2	1.22 in/h
2	Rain Bird PGA Angle	1"	Turf Rotor	54.8	4	423.9	72.6	40	50.9	61.8	0.86 in/h
3	Rain Bird PGA Angle	1"	Turf Rotor	50.8	4	639.2	80.4	40	49.8	59.7	0.82 in/h
4	Rain Bird PGA Angle	1"	Turf Rotor	44.1	9	523.9	30.5	40	51.4		0.27 in/h
5	Rain Bird PGA Angle	1"	Turf Rotor	27.4	2	442.4	21.1	40	48.1	54.2	0.89 in/h
6	Rain Bird PGA Angle	1"	Turf Rotor	54.8	4	301.1	28.9	40	50.6	61.8	0.42 in/h
7	Rain Bird PGA Angle	1"	Turf Rotor	54.8	4	344.5	37.5	40	49.9	61.1	0.42 in/h
8	Rain Bird PGA Angle	1"	Turf Rotor	34	4	521.2	57.6	40	49.3	56.0	0.51 in/h
9	Rain Bird PGA Angle	1"	Turf Rotor	54.8	4	221.7	48.9	40	50.9	61.9	0.86 in/h
	Common Wire						538.1				

CRITICAL ANALYSIS

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Water Source Information: If the pressure at the Irrigation Meter is diffrent than design static water pressure, then notify the landscape architect ASAP.

FLOW AVAILABLE
Water Meter Size: 2"
Flow Available 120 GPM

PRESSURE AVAILABLE
Static Pressure at POC: 65 PSI
Elevation Change: 0.00 ft
Service Line Size: 3"
Length of Service Line: 0 ft
Pressure Available: 65 PSI

DESIGN ANALYSIS
Maximum Station Flow: 59.7 GPM
Flow Available at POC: 120 GPM
Residual Flow Available: 60.3 GPM

Design Pressure: 40 PSI
Friction Loss: 3.53 PSI
Fittings Loss: 0.35 PSI
Elevation Loss: 0 PSI
Loss through Valve: 7.5 PSI
Pressure Req. at Critical Station: 51.4 PSI
Loss for Fittings: 0.17 PSI
Loss for Main Line: 1.72 PSI
Loss for POC to Valve Elevation: 0 PSI
Loss for Backflow: 7.28 PSI
Loss for Water Meter: 2.68 PSI
Critical Station Pressure at POC: 63.2 PSI
Pressure Available: 65 PSI
Residual Pressure Available: 1.77 PSI

UTILITY NOTE:

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Client:
PARISH OF ASCENSION GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title:
IRRIGATION PLAN

Description:
LOCATED IN
SECTION 38, TOWNSHIP 8 S, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\[23-270_06-18.dwg]

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Stamp:
STATE OF LOUISIANA
JASON P. LANDREM
REG. No. L-242
LICENSED LANDSCAPE ARCHITECT
10-01-24

Drawn By: JPL
Date: OCTOBER 2024
Project No.: 23-270

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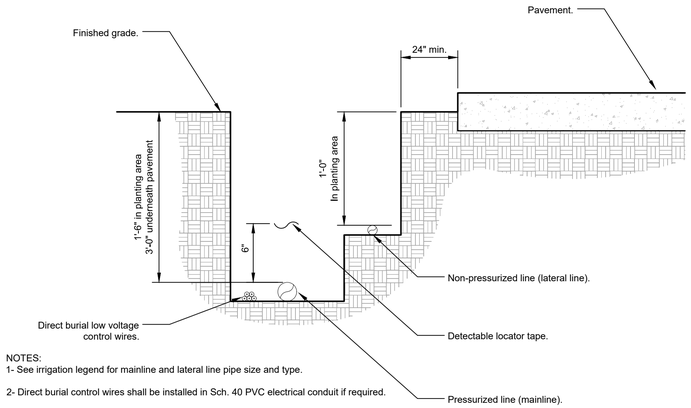

NOTES:
1- See irrigation legend for mainline and lateral line pipe size and type.

2- Direct burial control wires shall be installed in Sch. 40 PVC electrical conduit if required.

3- 2-wire irrigation wire shall be installed in Sch. 40 PVC electrical conduit.

4- Detectable locator tape shall be located six inches (6") above the entire mainline run.

1 IRRIGATION TRENCHING

1 1/2" = 1'-0"

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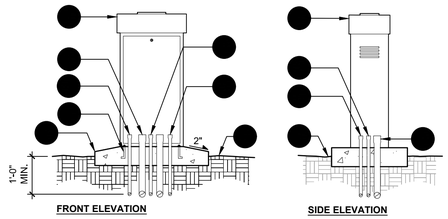

NOTES:

1. COMMON AND CONTROLLER WIRE TO BE BUNDLED USING ELECTRICAL TAPE AT 10'-0" ON CENTER.
2. GROUNDING RODS SHALL BE LOCATED BETWEEN 8'-0" AND 12'-0" AWAY FROM THE CONTROLLER. GROUNDING RODS SHALL BE 3/8" IN DIAMETER X 8' IN LENGTH. CONNECT THE GROUNDING ROD TO THE CONTROLLER USING 6 GAUGE BARE COPPER WIRE OR PER THE MANUFACTURER'S SPECIFICATIONS.SEE GROUNDING ROD DETAIL.
3. ET STATION TO BE INSTALLED NO FURTHER THAN 90' AWAY FROM THE CONTROLLER AND A MINIMUM OF 15' OFF OF THE GROUND, OUT FROM UNDER ANY OVERHEAD OBSTRUCTIONS SUCH AS, BUT NOT LIMITED TO BUILDING OVERHANGS, TREES, OR UTILITIES.

- PEDESTAL MOUNTED CONTROLLER (SEE IRRIGATION LEGEND FOR MAKE AND MODEL, INSTALL CONTROLLER PER MANUFACTURER SPECIFICATIONS)
- 1" PVC ELECTRICAL CONDUIT FOR GROUNDING WIRE
- 2" PVC ELECTRICAL CONDUIT FOR REMOTE CONTROL WIRES UP TO 24 STATIONS
- 1" PVC ELECTRICAL CONDUIT FOR INPUT POWER PER LOCAL AND NATIONAL CODES
- 1" PVC ELECTRICAL CONDUIT FOR SENSOR WIRES
- 1/2" x 4" CADIUM PLATED 'J' ANCHOR BOLTS AT FOUR LOCATIONS
- CONCRETE FOOTING (INSTALL PER MANUFACUTURER'S SPECIFICATION)
- FINISHED GRADE
- OPTIONAL 2" PVC ELECTRICAL CONDUIT FOR AN ADDITIONAL 24 STATIONS

2 PEDESTAL MOUNTED CONTROLLER

1/2" = 1'-0"

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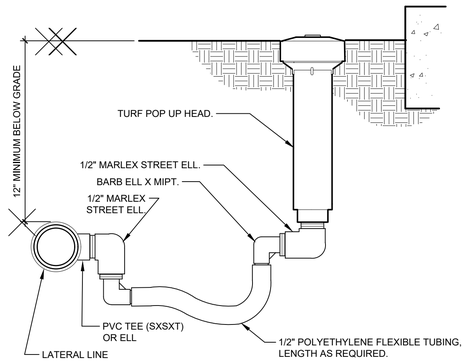

3 TURF SPRAY FLEX ASSEMBLY

3" = 1'-0"

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4 LOOSE KEY HOSE BIBB AT GARDEN

1" = 1'-0"

FX-IR-FX-HSB-03

5 ELECTRIC REMOTE CONTROL VALVE

1 1/2" = 1'-0"

FX-IR-FX-RCV-04

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30 0 30 60

SCALE: 1"=30'

Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: IRRIGATION DETAILS

Description: LOCATED IN
SECTION 38, TOWNSHIP 8 S., RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\[23-270_06-IR.dwg]

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Stamp:
STATE OF LOUISIANA
JASON P. LANDREM
REG. No. L-242
LICENSED
LANDSCAPE ARCHITECT
10-01-24

Drawn By: JPL

Date: OCTOBER 2024

Project No.: 23-270

Sheet:
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IRRIGATION SPECIFICATIONS

PART 1 - GENERAL

DESCRIPTION

Provide a complete design and installation for an underground irrigation system as specified herein. The work includes:

1. The design of an underground irrigation system using irrigation industry best practices
2. Automatic irrigation system including piping, fittings, sprinkler heads, and accessories.
3. Pump (if necessary), valves, and fittings.
4. Irrigation Meter and reduced pressure backflow preventer (Provided by the General Contractor)
5. Controller, control wire.
6. Testing.
7. Excavation and backfilling irrigation system work.
8. Associated interior and exterior plumbing, and accessories to complete the system.

Pipe sleeves are generally indicated to be supplied and installed by the General Contractor. The Irrigation Contractor shall coordinate with the General Contractor to ensure that sleeving is available in the preferred locations and that the irrigation site drawing reflects the actual installed locations of the sleeves. Sleeve locations are also shown on the Utility Plan by the Civil Engineer.

QUALITY ASSURANCE

Installer's qualifications: Minimum of 3 years experience installing irrigation systems of comparable size. All plumbing within the building and connection to meter and backflow preventer shall be installed by a licensed plumber.

Materials, equipment, and methods of installation shall comply with the following codes and standards:

1. National Fire Protection Association, (NFPA): National Electrical Code.
2. American Society for Testing and Materials, (ASTM).
3. National Sanitation Foundation, (NSF).
4. The Irrigation Association, (IA).

The Irrigation Contractor shall coordinate with the sodding and landscape contractors to insure 100% irrigation coverage of all sod and plant material. The General Contractor shall verify water pressure at the point of connection. If static water pressure is below assumed water pressure on the critical analysis on irrigation plan contact, the Landscape Architect shall be notified immediately for a redesign. The final zone design flow and operating pressure shall guarantee 100% coverage for all sod and landscape areas.

SUBMITTALS

Upon irrigation system acceptance by Landscape Architect or Owner's Project Manager, submit manufacturer's product manuals and any site specific operating and/or maintenance instructions.

1. Provide one (1) copy of irrigation system as-built directly to the Landscape Architect and on site Project Manager. Legibly mark drawings to record actual construction, valve locations, zone/station numbering, main line locations, etc.
2. Provide all manufacturers manuals.

DELIVERY, STORAGE AND HANDLING

Deliver irrigation system components in manufacturer's original undamaged and unopened containers with labels intact and legible. Protect existing trees, plants, lawns and other features designated to remain as part of the final landscape work. Promptly repair damage to adjacent facilities caused by irrigation system work operations. Cost of repairs at Contractor's expense. Promptly notify the Landscape Architect of unexpected sub-surface conditions. Minor adjustments in system layout will be permitted to clear existing fixed obstructions. Final system layout shall be acceptable to the Landscape Architect.

CODES, INSPECTIONS AND PERMITS

The entire installation shall fully comply with all local and state laws and ordinances, and with all the established codes applicable thereto. The Contractor shall take out all required permits, arrange for all necessary inspections and shall pay any fees and expenses in conjunction with the same as a part of the work under this Section. If required, the Owner will provide the City and utility companies with a "Hold Harmless" agreement for sprinklers on public lands and easements.

GUARANTEE

For a period of one (1) year from date of final acceptance of work performed under this Section, the Contractor shall promptly furnish and install any and all parts and equipment which prove defective in material, workmanship or installation at no additional cost to the Owner.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS

Manufacturers:
a. Rain Bird, Contractor Division, Glendale, CA or equal
b. Hunter Irrigation or equal

MATERIALS

General:
1. Provide only new materials, without flaws or defects and of the highest quality of their specified class and kind.
2. Comply with pipe sizes indicated. No substitution of smaller pipes will be permitted. Remove damaged and defective pipe
3. Provide pipe continuously and permanently marked with manufacturer's name or trademark, size schedule and type of pipe, working pressure at 73 degrees F, and National Sanitation Foundation (NSF) approval.
4. All materials subject to acceptance of the Landscape Architect and Owner.

Plastic pipe, fittings, and connections:
1. Polyvinyl chloride pipe: ASTM D2241, rigid, unplasticized PVC, extruded from virgin parent material. Provide pipe homogeneous throughout and free from visible cracks, holes, foreign materials, blisters, wrinkles and dents.
2. Polyethylene pipe: ASTM D2239 flexible polyethylene pipe rated at 100 PSI minimum working pressure.
3. PVC pipe fittings: ASTM D2241 schedule 40 PVC molded fittings suitable for solvent weld, slip joint ring tight seal, or screwed connections. Fittings made of other materials are not permitted.
   a. Size slip fitting socket taper to permit a dry unsoftened pipe end to be inserted no more than halfway into the socket. Saddle and cross fittings are not permitted.
   b. Schedule 80 PVC pipe may be threaded.
   c. Use male adapters for plastic to metal connections. Hand tighten male adapters plus one turn with a strap wrench.
4. Insert fittings: ASTM D2466 insert type fittings.
5. Saddle tees for lateral lines:
6. Kwik-seal saddle tee as manufactured by Dawn Industries, Inc. 4410 Washington Street, Denver, CO 80216, or approved equal.
   a. Brass Saddle with stainless steel screws.
1. Sprinkler Riser:
   a. Cut-off polyethylene riser mounted on saddle tees.
   b. Riser height as required.
7. Swing joints: See detail.

Sprinkler heads, pumps, valves and associated equipment:

1. The following items are as specified on the Drawings unless noted otherwise.
   a. Spray type sprinkler heads, rotary type sprinkler heads
   b. Pressure compensating drip line
2. Manual isolation valves - gate valve for lines 2" and under, mechanical lines for valves greater than 2"
3. Electric remote control valves (ensure water tight connections)
4. Quick couples valves - each with key having 3/4" male top pipe thread for hose connection
5. Backflow preventer - comply with codes of local or county agency (Provided by General Contractor)
6. Pump if necessary
7. Irrigation meter - comply with codes of local or county agency (Provided by General Contractor)
8. Mainline and associated lateral lines with sizes

Controls:

1. The following items are as specified on the Drawings unless noted otherwise.
   a. Controller as specified on the drawings.
   b. Pump starter (if necessary)

Electrical control wire:

1. Electrical control and ground wire: Type UF direct burial 600 volt AWG control cable #12 neutral and #14 control "hot" wire.
2. Aluminum wire and #18 bundled wires will be rejected.
3. Wire color code: Provide control or "hot" wires either black or red in color. Provide common or "ground wires" white in color.
4. Provide "DBY" connectors for all electrical wire connections.

ACCESSORIES

Drainage fill: 1/2" to 3/4" washed pea gravel.

Fill: Clean soil free of stones larger than 2" diameter foreign matter, organic material and debris.

1. Provide imported fill material as required to complete the work. Obtain rights and pay all costs for imported materials.
2. Suitable excavated materials removed to accommodate the irrigation system work may be used as fill material subject to the Landscape Architect's review and acceptance.

Clamps: Stainless steel, worm gear hose clamps with stainless steel screws or ear type clamps.

Low voltage wire connectors: Socket seal type wire connectors and 3M DBY Direct Bury Splice Kit.

Valve access boxes: Tapered enclosure of rigid plastic material comprised of fibrous components chemically inert and unaffected by moisture corrosion and temperature changes. Provide lid of same material, green in color.

1. 12" deep x 18" long x 13" wide base dimensions.
2. 9" deep x 10" diameter base dimension.

PART 3 - EXECUTION

INSPECTION

Examine final grades and installation conditions. Do not start irrigation system work until unsatisfactory conditions are corrected.

PREPARATION

Layout and stake the location of each pipe run and all sprinkler heads and sprinkler valves.

Coordinate with the General Contractor to expose the irrigation sleeves. Irrigation sleeves installed by the General Contractor.

INSTALLATION

General: Prior to any work, the Contractor will test the pressure and flow of the existing water line and make necessary adjustments to the system design. Pressure at the irrigation meter connection shall meet designed intent as stated on plan, if different contractor to contact Landscape Architect ASAP.

Excavating and backfilling:

1. Excavation shall include all materials encountered, except materials that cannot be excavated by normal mechanical means.
   a. Rock excavation: Submit a unit cost per foot of trench for rock excavation. Include in price additional backfill materials required to replace excavated rock.
2. Excavate trenches of sufficient depth and width to permit proper handling and installation of pipe and fittings.
3. If the pulling method is used, the pipe "plow" shall be a vibratory type. Starting and finishing holes for pipe pulling shall not exceed a 1'-0" by 3'-0" opening.
4. Excavate to depths required to provide 2" depth of earth fill or sand bedding for piping when rock or other unsuitable bearing material is encountered.
5. Fill to match adjacent grade elevations with approved earth fill material. Place and compact fill in layers not greater than 8" depth.
   a. Provide approved earth fill or sand to a point 4" above the top of pipe.
   b. Fill to within 6" of final grade with approved excavated or borrow fill materials free of lumps or rocks larger than 3" in any dimension.
   c. Provide clean topsoil fill free of rocks and debris for top 6" of fill.
6. Except as indicated, install irrigation mains with a minimum cover of 16" based on finished grades. Install irrigation laterals with a minimum cover of 12" based on finished grades. In roadways or parking areas, minimum cover of 24" based on top of pavement.
7. Excavate trenches and install piping and fill during the same working day. Do not leave open trenches or partially filled trenches open overnight.

Plastic pipe:

1. Install plastic pipe in accordance with manufacturer's installation instructions. Provide for thermal expansion and contraction.
2. Saw cut plastic pipe. Use a square-in-sawing vice, to ensure a square cut. Remove burrs and shavings at cut ends prior to installation.
3. Make plastic to plastic joints with solvent weld joints to slip seal joints. Use only solvent recommended by the pipe manufacturer. Install plastic pipe fittings in accordance with pipe manufacturer's instructions. Contractor shall make arrangements with pipe manufacturer for all necessary field assistance.
4. Make plastic to metal joints with metal male adapters.
5. Make solvent weld joints in accordance with manufacturer's recommendations.
6. Allow joints to set at least 24 hours before pressure is applied to the system.
7. Uncoil poly-pipe and insert full depth. Secure poly-pipe to insert fittings with stainless steel clamps. Double clamp pipe 1" diameter or greater.
8. Maintain pipe interiors free of dirt and debris. Close open ends of pipe by acceptable methods when pipe installation is not in progress.

Sprinklers, fittings, valves and accessories:

1. Install fittings, valves, sprinkler heads, risers, and accessories in accordance with manufacturer's instructions, except as otherwise indicated.
   a. Provide concrete thrust blocks where required at fittings and valves.
2. Set sprinkler heads perpendicular to finished grades, except as otherwise indicated.
3. Install pop-up spray heads with polyethylene "cut-off" nipples.
4. Locate sprinkler heads to assure proper coverage of indicated areas. Do not exceed sprinkler head spacing distances indicated.
5. Install isolation ball valves in a 10" valve box according to the plans.
6. Install quick-coupling valves on an adjustable 360 degree swing joint riser assembly. Install quick-coupling valves in a 10" valve box according to the plans.
7. Install backflow prevention valve, pump, suction line, booster pump, fittings, and accessories as shown or required to complete the system.
8. Install controller.
   a. Locate in back of store, or at the direction of the owner or landscape architects.
   b. Ground Controller in accordance with manufacturer's recommendations.
   c. Connect to 120v outlet on separate circuit.
9. Install in-ground control valves in a valve access box as indicated.
10. Install valve access boxes on a suitable base of gravel (minimum 4") to provide a level foundation at proper grade and to provide drainage of the access box.
11. Seal threaded connections on pressure side of control valves per manufacturer's recommendations.
12. Install self cleaning pressure compensating dripper line per manufacturer's recommendations (where specified). Provide all fittings, accessories, valves and filters for a finished, complete functioning system.
13. Install drip line where specified on finished grade in plant beds using Techline staples to hold in place, and cover with a 3" depth of specified mulch. Coordinate installation with shrub and groundcover placement.

Control wiring:

1. Install electric control cable in the piping trenches wherever possible. Place wire in trench adjacent to pipe. Install wire with slack to allow for thermal expansion and contraction. Expansion joints in wire may be provided at 200-foot intervals by making 5-6 turns of the wire around a piece of 1/2" pipe instead of slack. Where necessary to run wire in a separate trench, provide a minimum cover of 12".
2. Provide sufficient slack at site connections at remote control valves in control boxes, and at all wire splices to allow raising the valve bonnet or splice to the surface without disconnecting the wires when repair is required.
3. Connect each remote control valve to one station of a controller except as otherwise indicated.
4. Connect remote control valves to a common ground wire system independent of all other controllers.
5. Make wire connections to remote control electric valves and splices of wire in the field, using wire connectors and sealing cement in accordance with manufacturer's recommendations.
6. Provide tight joints to prevent leakage of water and corrosion build-up on the joint.
7. A separate common neutral wire is required from controller along entire mainline.
8. Provide one spare control wire from controller along entire mainline.

Interior plumbing:

1. Install piping to provide complete drainage of the system, toward the source wherever possible. Provide drain valves at all drainage points on pipes. Cut pipe accurately to measurements established at the building and installed without springing or forcing. After cutting and reaming, and before assembling, remove interior scale, dust and foreign matter. Installed pipe shall follow building lines, clearing all doors and other openings. No diagonal piping will be accepted. Install piping to allow installation of 1" thickness pipe installation covering. Provide for thermal expansion and contraction of pipe.
2. Insulate piping with 1" thickness of fibrous glass insulation, 35 degree service, with white Kraft paper jacket and .001" aluminum foil vapor barrier.
3. Stub-out from mechanical room floor to turf or planting area at 18" below finish grade and install a male pipe thread connection at the turf end.

Sleeves: (TO BE INSTALLED BY GENERAL CONTRACTOR)

1. Utilize existing sleeves for installation of the irrigation system.
2. Provide new sleeves as per 2",4",6" Sch. 40 PVC as noted details on drawing for all locations where existing sleeves are not indicated. Install new sleeves prior to paving installation.
3. Install pipe sleeves under existing concrete or asphalt surface by jacking, boring or hydraulic driving of the sleeve. Obtain Owner's permission before cutting existing concrete and asphalt surfaces. Where piping is shown under paved areas which are adjacent to turf areas, install the piping in the turf areas.
4. Install permanent benchmark in the top of curbs and other hardscapes for reference of sleeve locations.

Flushing, testing and adjustment:

1. After sprinkler piping and risers are installed and before sprinkler heads are installed, open control valves and flush out the system with full head of water.
2. Perform system testing upon completion of each section. Make necessary repairs and re-test repaired sections as required.
3. Adjust sprinklers after installation for proper and adequate distribution of the water over the coverage pattern. Adjust for the proper arc of coverage.
4. Tighten nozzles on spray type sprinklers after installation. Adjust sprinkler adjusting screw on lateral line or circuit as required for proper radius. Interchange nozzles patterns as directed by the Landscape Architect, to give best arc of coverage.
5. Adjust all electric remote control valve pressure regulators and flow control stems for system balance and optimum performance.
6. Test and demonstrate the controller by operating appropriate day, hour and station selection features as required to automatically start and shut down irrigation cycles to accommodate plant requirements and weather conditions.

DISPOSAL OF WASTE MATERIAL

Stockpile, haul from site, and legally dispose of waste materials, including unsuitable excavated materials, rock, trash, and debris. Maintain disposal route clear, clean, and free of debris.

ACCEPTANCE

Test and demonstrate to the Landscape Architect and Owner the satisfactory operation of the system free of leaks. Instruct the Owner's designated personnel in the operation of the system, including adjustment of sprinklers, controller, valves and pump controls. Upon acceptance by Landscape Architect, the Owner will assume operation of the system.

CLEANING

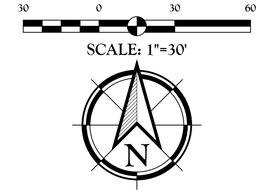
Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair all damage resulting from irrigation system installation.

SPECIAL INSTRUCTIONS

The Contractor shall coordinate and cooperate with the Landscape Architect, General Contractor, Mechanical/Electrical Contractors, and all subcontractors, during the installation of this system. Installation of sleeves to be coordinated between the Irrigation Contractor and the General Contractor.

During the bidding period the Irrigation Contractor shall inform the Construction Manager of any system items or elements that are required for operation of the system specified herein, but installed or finished by others.

It is the intent and mandatory requirement that the irrigation system be installed and fully operational before planting operations begin. (Except for drip tubing which shall be installed after planting but prior to mulch installation.)



Client:
PARISH OF ASCENSION
GOVERNMENT
615 E WORTHEY ST.
GONZALES, LA

Project:
PRAIRIEVILLE PARK
RENOVATIONS
38430 LA-929
PRAIRIEVILLE, LA

Title: IRRIGATION SPECIFICATION

Description:
LOCATED IN
SECTION 38, T10S-R2E, RANGE 2E,
South Eastern District of the Mississippi
ASCENSION PARISH, LOUISIANA

DWG Path: P:\~2023 Projects\23-270 - Prairieville Park Renovations\2 - Landscape Architecture\1_Drawings\[23-270_06-16.dwg]

QUALITY ENGINEERING & SURVEYING
18320 Hwy 42 Port Vincent, LA 70726
225.698.1600 | www.qesla.com | info@qesla.com

UTILITY NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, DEPTH AND SIZE OF ALL UNDERGROUND UTILITIES AND STRUCTURES AND SHALL BE LIABLE FOR ANY DAMAGE CAUSED BY FAILURE TO COMPLY WITH THESE INSTRUCTIONS.

Louisiana 811

BY LAW, ANYONE PLANNING MECHANIZED DIGGING OR EXCAVATION WORK IN LOUISIANA MUST NOTIFY LOUISIANA ONE CALL BY CALLING 811 OR 1-800-272-3020 OR BY GOING TO THEIR WEBSITE AT WWW.LOUISIANA811.COM AT LEAST TWO FULL BUSINESS DAYS PRIOR TO THE PROJECTS START DATE.

Stamp:
STATE OF LOUISIANA
JASON P. LANDREM
REG. No. L-242
LICENSED
LANDSCAPE ARCHITECT
10-01-24

Drawn By: JPL
Date: OCTOBER 2024
Project No.: 23-270

Sheet:
I-1.2

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

1.2 DEFINITIONS

A. Protection Zone: Area surrounding individual trees, groups of trees to be protected during construction as indicated on Drawings.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: protection-zone fencing

C. Tree Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.

D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

F. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

1.4 QUALITY ASSURANCE

A. Arborist Qualifications: Certified Arborist as certified by ISA, licensed arborist in jurisdiction where Project is located, current member of ASCA, or registered Consulting Arborist as designated by ASCA.

B. Pre-installation Conference: Conduct conference at Project site. Coordinate with all appropriate parties.

1.5 PROJECT CONDITIONS

A. The following practices are prohibited within protection zones:

Storage of construction materials, debris, or excavated material.
Parking vehicles or equipment.
Foot traffic.
Erection of sheds or structures.
Impoundment of water.
Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

B. Do not direct vehicle or equipment exhaust toward protection zones.

C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil: Natural or cultivated top layer of the soil profile or manufactured topsoil; containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch (25 mm) in diameter; and free of weeds, roots, and toxic and other non-soil materials.

B. Organic Mulch: Shredded hardwood free from deleterious materials.

C. Chain-Link Fencing:

1. Chain-Link Protection-Zone Fencing: Galvanized-steel fencing fabricated from minimum 2-inch (50-mm) opening, 0.148-inch- (3.76-mm-) diameter wire chain-link fabric; with pipe posts, minimum 2-3/8-inch- (60-mm-) OD line posts, and 2-7/8-inch- (73-mm-) OD corner and pull posts; with 1-5/8-inch- (42-mm-) OD top rails and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.
2. Height of Fencing: 6 feet (1.8 m)
3. Gates: Swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones.

D. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes pre-punched and reinforced; legibly printed with non-fading lettering.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

C. Protection Zones: Mulch areas inside protection zones and other areas indicated with 4-inch (100-mm) average thickness of organic mulch. Do not place mulch within 1' of tree trunks.

3.2 PROTECTION ZONES

A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones in a manner that will prevent people from easily entering protected area except by entrance gates.

1. Chain-Link Fencing: Install to comply with ASTM F 567 and with manufacturer's written instructions.
2. Posts: Set without concrete footings per plan details.

B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Architect.

C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Landscape Architect.

D. Maintain protection-zone fencing and signage in good condition as acceptable to Landscape Architect and remove when construction operations are completed, and equipment has been removed from the site.

3.3 EXCAVATION

A. Trenching near Trees: Where utility trenches are required within protection zones, hand excavate under or around tree roots or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning.

B. Do not allow exposed roots to dry out before placing permanent backfill.

3.4 ROOT PRUNING

A. Prune roots that are affected by temporary and permanent construction. Prune roots as follows:

1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
2. Temporarily support and protect roots from damage until they are permanently covered with soil.
3. Cover exposed roots with burlap and water regularly.
4. Backfill as soon as possible according to requirements in Division 31 Section "Earth Moving."

B. Root Pruning at Edge of Protection Zone: Prune roots by cleanly cutting all roots to the depth of the required excavation.

C. Root Pruning within Protection Zone: Clear and excavate by hand to the depth of the required excavation to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.

3.5 CROWN PRUNING

A. Prune branches that are affected by temporary and permanent construction. Prune branches as follows:

1. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
2. Pruning Standards: Prune trees according to ANSI A300 (Part 1)
3. Cut branches with sharp pruning instruments; do not break or chop.
4. Do not apply pruning paint to wounds.

B. Chip removed branches and spread over areas identified by campus arborist and owner's agent.

3.6 REGRADING

A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

C. Minor Fill within Protection Zone: Where existing grade is 2 inches (50 mm) or less below elevation of finish grade, fill with topsoil. Place topsoil in a single un-compacted layer and hand grade to required finish elevations.

3.7 FIELD QUALITY CONTROL

A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 REPAIR AND REPLACEMENT

A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Landscape Architect.

1. Have arborist perform the root cutting, branch pruning, and damage repair of trees and shrubs.
2. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
3. Perform repairs within 24 hours.
4. Replace vegetation that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove excess excavated material, displaced trees, trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 015639

SECTION 022000 - SITE PREPARATION AND RESTORATION

PART ONE - GENERAL

1.1 DESCRIPTION

A. This section includes all materials, labor, tools, etc., necessary for the removal and relocation or disposal of site improvements as required for the new work and as indicated on the drawings. At completion of the project, restoration of remaining site items damaged by the work to original conditions.

B. The CONTRACTOR'S attention is directed to any Soil Erosion and Sediment Control Ordinances in force in the Parish. The CONTRACTOR shall comply with all applicable sections of these ordinances.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General, Supplementary and Special Conditions of the Contract and Division 1 Specification Sections, apply to this Section.

1.3 SECTION REQUIREMENTS

A. Inspection of site: Carefully examine the premises to determine the extent of work and the conditions under which it must be done. No extra payments will be allowed for claims for additional work that could have been determined or anticipated by such inspection.

B. Protections:
Existing work – Take necessary precautions to protect existing areas of compacted fill, etc., that are to remain on this or adjacent sites from any sort of damage due to these operations.
Utilities – Support and protect any existing active sewers, water, gas, electric, telephone and similar utilities from damage due to these operations.
Removal of protections – Temporary protections shall be removed at completion of the project.
Responsibility for repair of damage – If, for any reason, damage to existing work or utilities is unavoidable, submit written notification of this before signing the Contract. In the absence of such notification, the Contractor assumes full responsibility for damage and the cost of satisfactorily repairing or replacing the damaged work.

1.4 REMOVALS

A. Paving, walks, curbs, site improvements: Where shown to be removed or required to be removed by new construction, removal shall be to earth.

1.5 CLEARING AND STRIPPING

A. Obstructions: Submit prompt notification of any existing obstruction, not specifically shown or specified to be removed, that will interfere with construction operations.

1.6 SITE AND WORK DESCRIPTION

A. Any trees removed shall be properly disposed of by the CONTRACTOR. Burning of trees will not be permitted. CONTRACTOR is to clear and grub only minimum areas, removing and disposing of trees and stumps.

B. CONTRACTOR shall not impede natural drainage patterns. Any areas overfilled by the CONTRACTOR or with drainage patterns impeded by the CONTRACTOR'S work shall be graded and repaired by the CONTRACTOR. CONTRACTOR shall perform this repair work immediately after being instructed by the ENGINEER.

C. CONTRACTOR shall not remove or damage any trees on private properties adjacent to the work site. CONTRACTOR is to backfill all holes and to fill, compact and grade the work area.

1.7 RESTORATION

A. Original Condition Record: At start of work contractor shall submit photographs and a narrative of all found defects in site improvements shown to remain, to record damage and/or defects not attributable to the work. All unrecorded damage and/or defects found in such work at completion shall be restored as specified following, with matching work of like kind to conditions originally found, and as otherwise additionally shown.

B. Earth Work: Rough grade all areas disturbed by the work beyond the boundaries of contract improvements to their original contours in accordance with Spec. Earthwork. Restore topsoil, fine grade and sprig and strip sod with matching grass and fertilize and maintain to final completion all such lawn areas in accordance with Spec. Landscape or acceptable practice. Leave all new lawns and existing lawns within the construction site and along its boundaries mowed to match owners' practice at Substantial Completion.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CLEARING

A. The surface of the ground, for the area to be cleared and grubbed, (if applicable) shall be completely cleared of all trees, timber, brush, stumps, roots, grass, weeds, rubbish, and all other objectionable obstructions resting on or protruding through the surface of the ground. However, those trees which are designated by the ENGINEER shall be preserved as hereinafter specified. Clearing operations shall be conducted to prevent damage to existing structures and installations, and to those under construction, so as to provide for the safety of employees and others.

3.2 GRUBBING

A. Grubbing shall consist of the complete removal of all stumps, roots larger than 1-1/2 inches in diameter, matted roots, brush, timber, logs, and any other organic or metallic debris not suitable for foundation purposes, resting on, under, or protruding through the surface of the ground to a depth of eighteen (18) inches below the subgrade. All depressions excavated below the original ground surface for or by the removal of such objects, shall be refilled with suitable materials and compacted to a density conforming to the surrounding ground surface.

3.3 STRIPPING

A. In areas so designated, topsoil shall be stockpiled. Topsoil so stockpiled shall be protected until it is placed as specified. Any topsoil remaining after all work is in place shall be stockpiled and/or spread on-site at a location designated by the Owner.

3.4 DISPOSAL OF CLEARED AND GRUBBED MATERIAL

A. The CONTRACTOR shall dispose of all material and debris from the clearing and grubbing operation by hauling such-material and debris off site. The cost of disposal (including hauling) of cleared and grubbed material and debris. shall be considered a subsidiary obligation of the CONTRACTOR; the cost of which shall be included in the contract prices for the various classes of work.

3.5 PRESERVATION OF DEVELOPED PRIVATE PROPERTY

A. Trees, shrubbery, gardens, lawns, and other landscaping, which in the opinion of the ENGINEER must be removed, shall be replaced, and replanted to restore the construction site to the condition existing prior to construction.
B. Improvements to the land, such as fences, walls, outbuildings, and other structures which of necessity -must be removed, shall be replaced with equal quality materials and workmanship.
C. The CONTRACTOR shall clean up the construction site directly after construction is completed, upon approval of the ENGINEER.

END OF SECTION 022000

SECTION 022100 - GRADING

PART ONE - GENERAL

1.1 DESCRIPTION

A. This section includes all grading work required for the construction of the facilities shown on the Drawings within the project area. Grading operations shall include rough and finish grading as indicated on the Drawings to provide adequate drainage for the project area.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GRADING

A. Site shall be graded to meet existing contours of the construction site so as to provide positive drainage into existing catch basins or other drainage structures.

END OF SECTION 022100

SECTION 024100 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Selective demolition of building elements for alteration purposes.

1.2 RELATED REQUIREMENTS

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

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

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

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

E. Section 01 73 00 – Execution and Closeout Requirements: Project conditions; protection of benchmarks; survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.3 REFERENCES STANDARDS

A. 29 CFR 1926 – U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 SCOPE

A. Remove other items indicated, for salvage, relocation, and recycling.

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.

3.2 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. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.
   4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   5. Do not close or obstruct roadways or sidewalks without permit.
   6. 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.
   7. 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. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

3.3 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record document only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Engineer before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

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

C. Services (including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in services until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.
   4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

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.

3.4 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 024100

SECTION 029990 – MISCELLANEOUS WORK AND CLEANUP

PART ONE - GENERAL

1.1 SCOPE OF WORK

A. This section includes operations which cannot be specified in detail as separate items but can be sufficiently described as to the kind and extent of work involved. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals to complete the work under this section.

B. The work of the section includes, but is not limited to, the following:
   1. Restoring of fences
   2. Crossing utilities
   3. Restoring easements (servitudes) and rights-of-way
   4. Cleaning up
   5. Incidental

1.2 WORK SPECIFIED UNDER OTHER SECTIONS

A. All work shall be completed in a workmanlike manner by competent workmen in full compliance with all applicable sections of these specifications.

PART TWO - PRODUCTS

2.1 MATERIALS

A. Materials required for this section shall be of at least the same type and quality as materials which are to be restored. Where possible, the CONTRACTOR shall reuse existing materials which are removed and then replaced, except for paving.

PART THREE - EXECUTION

3.1 RESTORING OF FENCES AND GUARDRAILS

A. At several locations it may be necessary for the CONTRACTOR to remove, store, and replace existing fences during construction. Only the section directed by the ENGINEER shall be removed. If any section of fence is damaged due to the CONTRACTOR'S negligence, it shall be replaced with fencing equal to or better than that damage at no cost to the OWNER, and the work shall be satisfactory to the ENGINEER.

3.2 CROSSING UTILITIES

A. This item shall include any extra work required in crossing culverts, water courses, drains, water mains, and other utilities, including all sheeting and bracing, extra excavation and backfill, or any other work required for the crossing, whether shown on the drawings.

3.3 CROSSING OR WORKING AJACENT TO EXISTING GAS LINES, TELEPHONE LINES, ELECTRIC LINES, AND CABLE TV LINES

A. The CONTRACTOR shall notify the proper authority of the utility involved when work adjacent to these lines is required. The CONTRACTOR shall coordinate all work by the utility so that the progress of construction will not be hampered. CONTRACTOR is to notify the utility company at least forty-eight (48) hours in advance.

3.4 RESTORING THE EASEMENTS (SERVITUDE) AND RIGHTS-OF-WAY

A. Existing lawn surfaces damaged by construction shall be regraded and resodded. These areas shall be maintained until all work under this contract has been completed and accepted.

3.5 CLEANING UP

A. The CONTRACTOR shall remove all construction material, excess excavation, buildings, equipment, and other debris remaining on the job as a result of construction operations and shall render the site of the work in a neat and orderly condition.

3.6 INCIDENTAL WORK

A. Do all incidental work not otherwise specified, but obviously necessary, for the proper completion of the contract as specified and as shown on the drawings.

END OF SECTION 029990

SECTION 033053 - MISCELLANEOUS CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. Comply with ACI 301 (ACI 301M).

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M.
2. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33/C 33M, 1-1/2-inch (38-mm) nominal maximum aggregate size.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

E. Water: ASTM C 94/C 94M.

2.4 RELATED MATERIALS

A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

2.5 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth or cotton mats.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

2.6 CONCRETE MIXTURES

A. Normal-Weight Concrete:

1. Minimum Compressive Strength: 3500 psi at 28 days.
2. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
3. Slump Limit: 4 inches, plus or minus 1 inch.
4. Air Content: Maintain within range permitted by ACI 301. Do not allow air content of trowel-finished floor slabs to exceed 3 percent.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116 and furnish batch ticket information.

1. When air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT INSTALLATION

A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:

C. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

3.5 CONCRETE PLACEMENT

A. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

B. Consolidate concrete with mechanical vibrating equipment according to ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections exceeding 1/2 inch.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch.

1. Apply to concrete surfaces exposed to public view and to receive a rubbed finish.

C. Rubbed Finish: Apply the following rubbed finish, defined in ACI 301, to smooth-formed-finished as-cast concrete where indicated:

1. Smooth-rubbed finish.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.7 FINISHING UNFORMED SURFACES

A. General: Comply with ACI 302.1R for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on surface.

1. Do not further disturb surfaces before starting finishing operations.

C. Slip-Resistive Broom Finish: Apply a slip-resistive finish to surfaces indicated and to exterior concrete platforms, steps, and ramps. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.

B. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

C. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:

1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Tests: Perform according to ACI 301.
1. Testing Frequency: Obtain at least one composite sample for each 100-cu. yd. or fraction thereof of each concrete mixture placed each day.

END OF SECTION 033053

SECTION 10 70 00 – PROTECTIVE COVERS

PART 1 GENERAL

1.1 SUMMARY

A. Work in this section includes furnishing and installation of A shelter as indicated on drawings.

B. shelter is four-sided with pre-fabricated structure and flat roof.

1.2 RELATED ITEMS AND CONSIDERATIONS

A. Concrete for shelter footings.

i. Standard models are surface mounted with anchor bolts supplied by installer.

ii. Top of footings shall be sloped to allow water drainage away from post.

1.3 SUBMITTALS

A. Furnish shop drawings and confirm dimensions prior to fabrication.

B. Complete shop drawings available showing structural component locations and positions, material dimensions, and details of construction and assembly.

C. Structural engineer sealed drawings and calculations available if required.

1.4 QUALITY ASSURANCE

A. Shelter must conform to applicable national and local building codes.

B. Manufacturer Qualifications: Minimum 60 years experience in the manufacturing of protective covers of the type specified.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store all shelter components in protected areas until time of installation.

1.6 WARRANTY

A. Shelter must include a twenty-five (25) year limited warranty on steel against material failure. Ten (10) year warranty against peeling, cracking, blistering, or crazing of the surface finish of aluminum and steel components. One (1) year warranty against defects in material and workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Americana Outdoors, #2 Industrial Drive, P.O. Box 1290, Salem, IL 62881;

1-800-851-0865
P.O. Box 1290 - Salem IL 62881 - 1-800-851-0865
Americana Outdoors, Inc | PW Athletic Mfg Co – Patterson Williams, LLC | L.A. Steelcraft

2.2 MATERIALS

A. Roof Panels

1. Option: 10" V Panel

a) Aluminum alloy 3105-H14

b) 2 ¾" tall, 10" wide interlocking design

c) Available thickness: .032" and .038"

2. Option: 8" Flush Panel
    a) Aluminum alloy 3105-H14
    b) 2 ¾" tall, 8" wide interlocking design
    c) Available thickness: .032"; .038"

3. Option: 24" Wide Multi-Rib Panel
    a) Aluminum alloy 3004-H34
    b) 2 ½" tall, 24" wide interlocking design
    c) Aluminum Available thickness: .024"; .038"
    d) ASTM A792, Grade 50 Galvalume steel
    e) Galvalume Available thickness: 24 gauge

4. Option: 6" Wide Flush Extruded Panel
    a) Aluminum alloy 6063 T6
    b) 2-7/8" tall, 6" wide interlocking design
    c) Available thickness: .065"

B. Fascia
1. 5" Tall Gutter fascia extruded from aluminum alloy 6105-T6.
2. 5" Tall Projection fascia extruded from aluminum alloy 6105-T5.

C. Structure
1. Extruded aluminum tubing is used throughout the shelter and shall be fabricated from aluminum alloy 6063-T6 or 6061-T6. Size to be determined by engineering calculations

2. Steel plate is used throughout the shelter and shall conform to ASTM A36. Thickness and size to be determined by engineering calculations.

2.3 ACCESSORIES

A. Fasteners
1. High strength bolts conform to ASTM A325. Bolts shall be hot dip galvanized. Sizes vary from ½" to ¾" diameter, to be determined by engineering calculations.
2. #12-24 and #8-18 hex washer head, self-drilling screws shall be stainless steel or coated with zinc.

P.O. Box 1290 - Salem IL 62881 - 1-800-851-0865
Americana Outdoors, Inc | PW Athletic Mfg Co – Patterson Williams, LLC | L.A. Steelcraft

2.4 FABRICATION

A. Welding shall conform to the American Welding Society's specification for the material being welded. Welding electrodes shall be E70XX. Welders shall be AWS D1.1 certified with welding inspector on staff.
B. All structural components shall be shop fabricated so that field assembly of components can be performed using only bolting and screw placement.

2.5 FINISHES

A. All aluminum components are coated with anti-graffiti polyester triglycidyl isocyanurate (TGIC) powder and baked/cured at 400° F. This finish meets AAMA 2604-2 specification.

B. All steel components are blasted to near-white condition and cleaned with a 3-stage process. Components are sprayed with an alkaline cleaner/phosphatizer, rinsed with ambient water, and a final rinse with a chemical sealer. Components are then coated with anti-graffiti polyester triglycidyl isocyanurate (TGIC) powder and baked/cured at 400° F. This finish meets AAMA 2604-2 specification.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates upon which shelter will be installed with installer present for compliance with requirements for conditions affecting performance or work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.
C. Installer shall confirm dimensions and elevations to be as shown on drawings provided by Americana Outdoors.
D. Installation shall be performed by an experienced installer and scheduled after all concrete and masonry in the area are completed.

3.2 INSTALLATION

A. Installation shall be in strict accordance with manufacturer's shop drawings. General installation guidelines are supplied with each shelter.
B. Particular attention should be given to protecting the finish during handling and installation.
C. After installation, entire system should be left in a clean condition.

END OF SECTION

SECTION 116600 – ATHLETIC EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Softball Batter's Box Forming System
2. The Hall Base Set
3. In-Ground Double White & Orange First Base
4. Hollywood Dual Stanchion Removable Pitching Rubber
5. Ground Sleeve Foul Pole with Wing
6. Pole to Pole Tension backstop Netting System
7. Scoreboard

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed finish.

C. Material Certificates: Signed by manufacturers.

D. Maintenance Data.

1.3 QUALITY ASSURANCE

A. Fabrication and installation of site improvements by experienced craftsmen with excellent record of performance on completed projects of comparable size, scope, and quality.

1.4 FIELD MEASUREMENTS

A. Contractor shall verify position and layout of all athletic field equipment. Verify dimensions by field measurements.

PART 2 - PRODUCTS

2.1 SOFTBALL BATTER'S BOX FORMING SYSTEM

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Softball Batter's Box Forming System (Model # BBFSS)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.2 BASE SET

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Schutt Hollywood Impact Bases (set of 3) (Model # SHIBL)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.3 DOUBLE FIRST BASE

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Schutt Hollywood Impact Double First Base (Model # SHIBD)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.4 DUAL STANCHION PITCHING RUBBER

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Hollywood Dual Stanchion Pitching Rubber (Model # SHLBMPR224)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.5 GROUND SLEEVE FOUL POLE WITH WING

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Ground Sleeve Foul Pole with Wing (Model # FPW415 – Softball)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.6 POLE TO POLE TENSION BACKSTOP NETTING SYSTEM

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Sportsfield Specialties (1-888-975-3343) – Pole to Pole Tension Backstop Netting System (Model # TNPPUC)

2. Alternate Products:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

2.7 SCOREBOARD

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Fair-Play (1-800-247-0265) – 9x4 Baseball Scoreboard (Model #BA-7309-2)

2. Any accepted substitutes must be fully compatible with existing Fair-Play systems owned by owner

EXECUTION

2.7 INSTALLATION, GENERAL

A. All athletic equipment shall be installed as recommended with manufacturer's written directions, and as indicated on the drawings.

END OF SECTION 116600

SECTION 11 68 33.33 Baseball Field Equipment

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide all equipment and materials, and do all work necessary to furnish and install the batting cage, as indicated on the drawings and as specified herein. Athletic equipment shall include, but not be limited to:

1. Overhead Softball Triple Batting Tunnel

1.02 RELATED WORK

A. Examine contract documents for requirements that affect work of this section. Other specification divisions and sections that directly relate to the work of this section include, but are not limited to:

1. Division 03 – Concrete; Sections: Cast-in-Place Concrete
2. Division 31 – Earthwork; Sections: Excavation and Backfill and Establishment of Sub-Grade Elevations
3. Division 32 – Exterior Improvements; Sections: Athletic and Recreational Surfacing, Concrete and Asphalt

1.03 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1. National Federation of State High School Associations (NFHS)
2. National Collegiate Athletic Association (NCAA)
3. World Athletics (WA), Formerly International Association of Athletics Federations (IAAF)
4. American Sports Builders Association (ASBA)
5. Manufacturers Data and Recommended Installation Requirements

1.04 SUBMITTALS

A. Manufacturers Product Data

1. Provide manufacturers product data prior to actual field installation work, for Architects or Owners representatives review.

B. Shop Drawings

1. Provide drawings of the manufacturers recommended installation and foundation requirements prior to actual field installation work, for Architects or Owners representatives review.

1.05 QUALITY ASSURANCE

A. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to industry standards and inspection requirements. The Manufacturer shall have a current American Sports Builders Association (ASBA) Supplier Certificate of Distinction designation.

1.06 PRODUCT DELIVERY AND STORAGE

A. Materials delivered to the site shall be examined for damage or defects in shipping. Any defects shall be noted and reported to the Owners representative. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule. Sound materials shall be stored above ground under protective cover or indoors so as to provide proper protection.

PART 2 PRODUCTS

2.01 Overhead Softball Triple Batting Tunnel

A. BASE: BTOST Overhead Softball Triple Batting Tunnel as Manufactured and/or Supplied by:

Sportsfield Specialties, Inc.
P.O. Box 231
41155 State Highway 10
Delhi, NY 13753
p. 888-975-3343
www.sportsfieldspecialties.com

ALTERNATIVE PRODUCTS:

American Super Sports (1-800-543-9020)
Jaypro Sports (1-800-243-0533)
Hahn Enterprises (1-504-488-3536)

B. COMPONENTS:

1. BTOST Overhead Softball Triple Batting Tunnel:
    a. Sixteen (16) Upright Poles Fabricated of 4" Aluminum (4" O.D. x 0.125" Wall) Tube
        i. Alignment Notch
    b. Twelve (12) Crossbars Fabricated of 4" Aluminum (4" O.D. x 0.125" Wall) Tube
    c. Ground Sleeve:
        i. 30" Depth
        ii. Aluminum Construction
        iii. Welded Leveling Plate
        iv. Alignment Bolt
        v. Press Fit Ground Sleeve Plug

d. Fixed Net Stabilizer Extension Arms Fabricated of 3/8" Steel Plate x 18"L
e. Super Durable Black Powder Coated Finish
    i. Enhanced Resistance to UV
f. Three (3) 13'H x 14'W x 55'L Softball Nets
    i. #36 Black Nylon 1-3/4" Square Mesh Net
        a. #36 Twisted Knotted Netting
        b. 100% Nylon Construction
        c. 2.6mm (0.1023") Diameter Twine
        d. 87% Open Mesh Area (See-Through Visibility)
        e. 13,363 psi Minimum Breaking Strength
        f. 1-3/4" (44mm) Maximum Square Mesh Size
        g. 0.0425 lbs. per Square Foot
        h. Black Multi-Filament Polypropylene Solid Braid Derby Rope Sewn Binding on Perimeter Edges – ¼" Diameter, 530 lb. Minimum Breaking Strength
        i. UV and Weather Treated
    ii. Two (2) 4'W x Full Height Openings with Curtain Style Exterior Overlap Flaps
    iii. Weighted Rope Bottom
        a. Factory-Sewn / Integrated into Batting Tunnel
        b. Flexible / Easy to Handle
        c. 2,000 lbs. Average Strength
        d. 250 lbs. per 100 Fathoms Material Weight (0.42 lbs/ft)
g. Fully Retractable Double Pulley System
h. Model Specific Hardware Kit and Installation Instructions

PART 3 EXECUTION

3.01 INSTALLATION OF EQUIPMENT

A. All Overhead Batting Tunnels shall be installed as recommended per manufacturer's written instructions and as indicated on the drawings. Concrete anchoring foundations to be determined by others based on local soil conditions and building codes. Installer should have a minimum of five (5) baseball/softball equipment installations or similar experience in the previous three (3) years.

END OF SECTION

SECTION 133400 – FABRICATED ENGINEERED STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Pre-engineered, fabricated restroom/concession structure

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed finish.

C. Material Certificates: Signed by manufacturers.

D. Maintenance Data.

E. Stamped Shop Drawings by Louisiana Licensed Architect/Engineer.

F. Building System Warranty (1 Year labor/installation with 5 Year Structure)

1.3 QUALITY ASSURANCE

A. Fabrication and installation of building and building systems by experienced craftsmen with excellent record of performance on completed projects of comparable size, scope, and quality.

PART 2 - PRODUCTS

2.1 FLOOR / FOUNDATION

A. The floor / foundation for the modular restroom shall be a prefabricated 8-inch thick monolithic 6,000 psi concrete mat slab shipped integral with the restroom building. The slab reinforcing shall be #3 and #5 grade 60 deformed rebar, placed and tied per the structural engineered drawings continuously throughout. #3 grade 60 vertical rebar for CMU walls shall be incorporated into the slab reinforcing rebar to a minimum length of 18", bent to vertical 90 degrees and extended above the concrete slab a minimum of 24" unless otherwise noted on plan. Doweling of the vertical CMU reinforcing steel into the mat slab is not permitted. The slab shall be designed to allow relocation of the slab and building intact at any future date with built-in lifting hardware.

B. Concrete shall cure for a minimum of 7 days before moving and have a minimum 28 day compressive strength of 6,000 psi.

C. The floor / foundation shall contain a concrete encased electrode consisting of 20' of bare copper conductor (No. 4 AWG) located near the bottom of the foundation and encased in a minimum of 2" of concrete. Ground conductor to be stubbed up through the foundation near the panel board location.

D. Structural engineering drawings shall supersede specifications.

2.2 WALL SYSTEMS

A. Walls to 7'-4" above finish floor (AFF) shall be hollow load-bearing concrete masonry units and shall conform to UBC Standard 21-4, Grade N, and ASTM C-90. All units shall be medium weight. Wall system to be solid grout filled and to receive steel reinforcement throughout according to structural engineer drawings.

B. Walls above 7'-4" shall be framed with 2x kiln dried, #2 or better SPF at 16" on center, nominal. Framing to be coated with Techwood 4400 (TW4400) which is a proprietary broad spectrum anti-fungal, mold and termite blend with fire inhibiting chemicals, OR ACCEPTED SUBSTITUION. Series 4400 by Chemical Technologies Holding Corporation is an approved product treatment through testing in accordance with ICC-ES Acceptance Criteria demonstrating full compliance as stated with an Engineering Services Report.

C. Exterior framed walls to be dual sheared for wind and seismic loads with 5/8" and ½" structural rated exterior grade OSB (TW4400 coated), nailed and glued to walls in pattern per code.IN-GROUND DOUBLE WHITE & ORANGE FIRST BASE

2.3 INTERIOR FINISHES (OR ACCEPTED SUBSTITUTION)

A. Restroom floors to receive one coat H&C Colortop solvent based stain, and one coat H&C Colortop Clearshield Sealer.

B. Chase / storage floor to receive a light broom finish with Insul-X Sure Step anti-slip acrylic latex coating. Color to be Gray.

C. Restroom walls to 7'-4" AFF to be CMU block, standard finish. To receive one coat of prime and fill acrylic block filler, one coat of 100% acrylic primer, and two finish coats of 100% block / stucco paint. Color to be White.

D. Restroom walls above 7'-4" to be fiber reinforced cement (FRC) panels. Panels to be installed with factory finish visible, and to manufacturers specifications. To receive one coat of 100% acrylic primer and two finish coats of 100% acrylic semi-gloss enamel paint. Color of paint to be White.

E. Restroom ceilings to be exposed 2"x6" T&G planks over engineered wood beams. Plank and beams to receive two coats of Superdeck stain or equal. Color of stain to be Classic Barn Red.

F. Chase walls to 7'-4" AFF to be CMU block, standard finish. To receive one coat of acrylic primer. Color to be Gray.

G. Chase walls above 7'-4" to be open framing. To receive one coat of 100% acrylic primer. Color to be Gray.

2.4 DOORS (OR ACCEPTED SUBSTITUTION)

A. Restroom and Chase doors to be 1 ¾" thick, full-flush, 16 gauge steel face with stiffening ribs. Door jambs shall be 16 gauge steel. Doors and jambs to receive one coat of DTM acrylic urethane Gray primer and two coats of DTM acrylic urethane tint base. Owner to make color selection from manufacturer's provided color chart.

B. Door hardware is as follows (or equal):

Single-User Restroom Door
Select Products Ltd. SL2483CLH continuous hinge
B660P deadbolt
Ives 8111-5 pull handle Dorma 8616DST door closer
Ives 8400, 10" high stainless steel kick plate (push side only)

Multi-User Restroom Doors
Select Products Ltd. SL2483CLH continuous hinge
Schlage B663 classroom deadbolt
Ives 8111-5 pull handle Dorma 8616DST door closer
Ives 8400, 10" high stainless steel kick plate (push side only)

Chase Door
Select Products Ltd. SL2483CLH continuous hinge
Schlage B660P deadbolt
Ives 8111-5 pull handle
Wright Door Retainer chain stop

C. Restroom doors to receive electronic door lock system using magnetic locks on a digital timer with battery backup.

2.5 ROOF (OR ACCEPTED SUBSTITUTION)

A. Roof structure to be 2x6 v-joint, tongue and groove, kiln dried #2 or better SPF decking over 4x6 kiln dried #2 or better SPF rafters at 48" on center, nominal unless otherwise noted on plan.

B. Roof finish to be Metal Sales Image II or equal 26 gauge standing seam metal panels over 30 lb. felt paper or equal. Owner to make color selection from Manufacturers provided color chart.

C. Rake and fascia to be 2"x8" Widsor 1 material with 24 gauge galvanized metal drip edge below roofing material. To receive on coat of DTM acrylic urethane Gray primer and two coats of DTM acrylic urethane tint base. Owner to make color selection from manufacturer's provided color chart.

2.6 EXTERIOR FINISHES (OR ACCEPTED SUBSTITUTION)

A. Exterior of block to be split face. To receive one coat of prime and fill acrylic block filler, one coat of 100% acrylic primer, and two finish coats of block / stucco paint. Owner to make color selection from manufacturers provided color chart.

B. Exterior finish above 7'-4" to be James Hardie Hardiplank or equal fiber reinforced cement horizontal lap siding with 7" weather. To receive one coat of 100% acrylic primer and two finish coats of 100% acrylic semi-gloss enamel paint. Owner to make color selection from manufacturer's provided color chart.

2.7 VENTILATION

A. Vent screens shall be 1/8" thick, 9 gauge expanded ¾"x1-1/4", type 304 stainless steel, in a flattened de-burred pattern.

2.8 ACCESSORIES AND SIGNAGE (OR ACCEPTED SUBSTITUTION)

A. All wall mounted accessories to be installed with stainless steel tamper-resistant screws.

B. Toilet partitions to be 1" high-density polyethylene plastic (HDPE). Partitions to receive stainless steel mounting hardware. Each toilet stall door to receive one (1) coat hook. Color of partitions and doors to selected from manufacturer's provided color chart.

C. Accessories are as follows (or equal):

36" Stainless Steel Grab Bar	Bobrick B6806.36
48" Stainless Steel Grab Bar	Bobrick B6806.48
Stainless Steel 3-Roll TP Holder	Royce Rolls TP-3
18"x30 Stainless Steel Mirrors	Bobrick B-1556 1830
Baby Changing Station	Koala KB300-01
Soap Dispenser, Surface Mounted	Bobrick B-2111

D. Signage to be in compliance with local, State, and / or ADA regulations for restroom entrances.

2.9 PLUMBING (OR ACCEPTED SUBSTITUTION)

A. Plumbing drain, waste, and vent piping shall be schedule 40 PVC with solvent welded connections. All vents through roof shall be cast iron.

B. Water lines shall be Pex B above ground and Type K copper below ground. Water supply in building shall have a built-in valve combo including a pressure-reducing valve to 80 psi, an in-line 30-micron filter, and two 160 psi pressure gauges.

C. Incoming water service shall be a 1-1/2" line, 50 gpm and 60 psi minimums.

D. Each fixture shall be isolated with a ball valve or plumbing fixture flush valve. All flush valves and P-traps shall be concealed in the chase.

E. Plumbing fixtures shall be vitreous china as follows (or equal):

Water Closet	Metcraft 4110HS-HET Sloan Flushometer 992 Valve
Urinal	Metcraft 7130-17" deep max Sloan Flushometer 995 Valve
Lavatory	Metcraft 5683 T&S B-0712-VF05 Metering Faucet

F. A single hose bibb shall be mounted in the plumbing chase and shall be installed with a vacuum breaker, to code. Hose bibb to be Woodford 24 ¾" or equal.

G. Floors shall drain to an integral floor drain with trap primers. Floor drains to be MIFAB 112-T-5-1 with 5" B strainer or equal.

H. A commercial grade hose reel with 50' of hose shall be installed in the chase.

I. Tankless on-demand electric water heater(s) to be located in chase to provide tempered water to the lavatories or other fixtures as needed. Water heater to be Chromite 20L/208-MM or equal and as needed.

2.10 ELECTRICAL (OR ACCEPTED SUBSTITUTION)

A. Building shall have a 125 amp, 120/240V, 1-phase, 3-wire, 30-space, NEMA type 1 load center with snap-in breakers. Panel to be a Siemens PN3030B1125C or equal.

B. Restroom lights shall be LED light bar(s) at 4.2 Watts per foot, as shown on plans.

C. Restroom lights to be controlled by manual switch, wired to motion sensor.

D. Exterior lights shall be RAB BRISK S17L-740 or BRISK S17L-740/PCU. Color of housing to be Dark Bronze.

E. Exterior light(s) shall be controlled by a Tork 3010 photo cell, and a Tork E101B time clock (or equal).

F. Chase / Storage light(s) shall be Galco TCPGPS4UZDA850K 4', 32 watt LED.

G. Each restroom shall receive one high speed, energy efficient, ADA compliant, vandal resistant World Slimdri hand dryer with built in automatic activation. Color to be White.

H. Each restroom shall receive one Fastaire HD03 manually operated hand dryer with cast aluminum nozzle, universal type 1/6 hp motor with lubricant ball bearings, 2-stage blower and filter, 30 second activated timer after start, 50 cfm airflow and 120VAC, 60Hz, 7.5A power. Motor and blower to be located in chase.

I. Building shall have one Leviton 7899W or equal, 20 amp, 125 volt, GFCI duplex receptacle located in chase. Color to be White.

J. Building to be grounded per local code.

2.11 EXTERNAL UTILITY CONNECTIONS

A. Building Vendor will provide underground piping for electrical, sewer, and water, extending up to 6 feet from slab perimeter. General Contractor shall provide licensed contractors to install manufacturer supplied underground plumbing kit, manufacturer supplied water line, and manufacturer supplied electrical conduit to pre-established tie-in points. Contractors will also make connections between underground plumbing kit stub-ups to internal plumbing of building located in the chase, as well as pulling and connecting supply wire to pre-installed electrical panel.

B. General Contractor shall be responsible for final connections to utilities.

2.12 FINAL SPECIFICATIONS

A. Final specifications will be listed on stamped shop drawings to be reviewed and approved by landscape architect.

PART 3 - EXECUTION

3.1 SURVEY STAKES

A. Provide ten foot offset stakes and locate front corners of building, existing utilities, and inverts within the area of construction. Locate and mark final slab elevation.

3.2 SUBGRADE PAD

A. Detailed instructions to prepare the building site are as follows:

i. Excavate down ten inches below the finish floor elevation (the slab is eight inches thick on top of a two-inch sand bed).

ii. Import six inches of ¾ - road base rock and pour for a footing and/or piers.

iii. Compact to 95%, or to local code requirement. If RFL installer questions 95% compaction Client will be required to sign off on approval of setting of the building.

iv. Compact one foot over in all directions (over build).

v. Supply approximately five cubic yards of clean sand, on the side of site, for fine grading.

vi. Excavate and backfill trenches up to and within building pad for RFL supplied underground utility service kits.

vii. Provide water and inspection for RFL supplied underground sewer kit.

viii. All irrigation should be turned off prior to delivery to allow the surrounding soil to dry and bear the weight of the truck and crane. Any damage to area after verification of path in is the responsibility of the Client.

ix. Check corner locations against plans for proper sizing.

x. Verify finish floor elevation for concrete slab (shipped fully attached to the building.)

xi. Excavate one foot perimeter footing if required by local code to specified depth.

xii. Verify that pad is level and flat and at correct elevation.

3.3 SITE ACCESS AND STORAGE

A. Provide suitable safe clear access to allow a crane (minimum 110 tons), and the building on a semi-trailer (up to 40 tons) to reach site (14' width, 70' length, and 14' in height). If path to site is over existing utilities, sidewalks, or other damageable areas, proper marking, plating or other appropriate protection must be provided by and PROVIDED BY GC. GC is responsible for removing any overhead obstructions (i.e. power lines, trees). GC is responsible for scheduling and paying for the de-energizing of any power lines. GC is responsible for rerouting or blocking of traffic to ensure safe and clear access, or if required by local or State jurisdiction, to delivery site and will be responsible for associated costs. Upon agreed delivery schedule GC will be responsible for additional crane and trucking charges if any delays are incurred due to weather, lack of inspections, lack of pad being prepared, or any other cause for delay.. This proposal provides for a 110 ton

crane with access to within 25' of the building pad. The proposal is based on four (4) hours of crane time.

3.4 UTILITIES

A. GC shall bring water, sewer, and power (if applicable) utilities into point of connection Christy boxes (supplied by BUILDING VENDOR), within six feet of the building line at the location shown on our plan.

i. Water: BUILDING VENDOR will furnish a water point of connection (isolation valve), from mechanical chase to a Christy box six feet from the building line. GC must have a licensed plumber install and connect service to valve.

ii. Sewer: BUILDING VENDOR will furnish a sewer point of connection from mechanical chase to a Christy box six feet from the building line. GC must have a licensed plumber install and connect service. Depth of sewer line (below finished floor elevation) will be approximately 30" at bottom of sewer line at a distance of 6' from building. It is the responsibility of the GC to meet up with BUILDING VENDOR's supplied sewer line at this depth. GC will be responsible for hiring of licensed plumber to acquire appropriate plumbing permit, to install prefabricated underground plumbing kit into pre dug trench, and to make connections between underground stub-ups and internal building plumbing located in plumbing chase within the building. BUILDING VENDOR installer will be on site to answer any questions or give direction as to proper installation of said plumbing kit as requested by licensed plumber or GC.

iii. Electrical: BUILDING VENDOR will furnish and install a PVC conduit and a Christy box to the point of connection six feet from the building line. GC to pull the electrical service line through the conduit and connect to the main panel lugs inside the building. All electrical inside the building will be furnished and installed by BUILDING VENDOR, except as noted above in exclusions.

iv. A minimum 1½" line with 50 gpm at 60 psi pressure minimum is required to ensure that water closets will operate as designed. If this is not available an auxiliary holding tank may be required.

3.5 SPECIAL CONDITIONS AND COSTS

A. If specifications and / or local ordinances by owner and / or local jurisdiction require any testing, work by licensed plumbers, work by licensed electricians, or special inspections, costs, if any, shall be borne by GC.

3.6 PERMITS AND FEES

A. All building permits and fees shall be borne by GC.

3.7 INSPECTIONS

A. BUILDING VENDOR to require that all inspections be scheduled with adequate notice to ensure that the underground plumbing and electrical work is approved prior to placement of building. BUILDING VENDOR to require that final inspection and acceptance by owner and building officials be performed immediately following BUILDING VENDOR'S completion of installation. BUILDING VENDOR to also require final inspection and acceptance immediately following BUILDING VENDOR conclusion of any correction items.

3.8 SITE CLEANUP AND DEBRIS REMOVAL

A. GC shall provide an on-site trash bin for disposal of one pick up load of debris. All excess spoils shall be the responsibility of the GC. All rough and final grading shall be by GC.

3.9 VERIFICATION OF PREPARED PAD

A. GC must verify elevation, compaction of pad as well as the pad being flat and level prior to delivery of building(s).

END OF SECTION 133400

SECTION 260000 – ELECTRICAL SYSTEMS

PART ONE - GENERAL

1.1 DESCRIPTION

A. These Specifications are intended to provide for labor, materials, equipment, and services and performing all operations required for the complete electrical system as specified herein or shown on the accompanying drawings. Obtain all necessary permits and work orders required and pay for all fees for such permits. Include all such fees in bid.

1.2 GENERAL CONDITIONS

A. The Instructions to Bidders, General Conditions and Special Supplementary Conditions all contained in the General Specifications, shall be part of this section of the Specifications the same as if attached hereto. The Electrical Contractor is instructed to read and be thoroughly familiar with all provisions of the General Specifications.

1.3 MANUFACTURERS OR TRADE NAMES

A. The Electrical Contractor shall furnish the items as specified or an equal as listed by addendum. Review of substitutions shall be requested in writing with hard copies sent to electrical consultant and architect. The substitution submittal shall contain specification sheets for all equipment being substituted to indicate equality to product that was specified. No electronic or faxed substitution request will be reviewed. All items shall be new unless specifically noted otherwise.

1.4 PRIOR REVIEW

A. The Electrical Contractor shall submit six copies of manufacturer's data and descriptive literature and drawings, including complete model numbers, for all equipment and material. This literature shall contain all pertinent information necessary for the Architect to properly evaluate the item. No item of equipment or material shall be placed on order until Final Review is received from the Architect. Unless noted otherwise, all distribution equipment, transformers, fire alarm equipment, wiring devices and lighting fixtures, all as applicable, shall be submitted for review. Requests for review shall comply with the above or will not be considered for review.

1.5 ORDINANCES, RULES AND REGULATIONS

A. All work shall conform to the requirements of all building codes, the latest edition of the National Electrical Code and laws and ordinances in force in the locality in which the work is to be done. All work and all equipment used shall conform to the requirements of the National Fire Protection Association and Underwriter's Laboratories.
B. Work called for in these Plans and Specifications shall be executed by competent workmen.
C. The drawings show approximate locations only of feeders, branch circuits, outlets, etc., except where specific routing or dimensions are indicated. The Architect reserves the right to make reasonable changes in locations

indicated, before roughing-in, without additional cost to the Owner.

1.6 EXISTING CONDITIONS

A. The Electrical Contractor shall visit the building site to determine existing conditions and will be held responsible for allowing for these conditions in his bid.

B. Note that this area of work will have storm drainage, mechanical and electrical utilities located underground and within and under the buildings. It is part of this work for the Electrical Contractor to determine the scope and location of all utilities to be installed with this project and arrange his work around others. There will be no extra consideration for work discovered as being hidden after the bid, and no change orders for extra cost that may be caused by unknown after bid conditions.

1.7 GUARANTEE

A. The Electrical Contractor shall guarantee the work installed by him for one year from the date of final acceptance of the project and shall furnish free of cost to the Owner materials and labor necessary to repair or replace defective items or workmanship. The Electrical Contractor shall guarantee all equipment to be of the quality and capacity specified.

1.8 PROTECTION OF APPARATUS

A. The Electrical Contractor shall always take precautions necessary to properly protect his apparatus from damage. Failure on the part of the Contractor to comply with the above to the Architect's satisfaction shall be sufficient cause for the rejection of the piece of apparatus in question.

1.9 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Provide three copies of typewritten systems operating instructions and three copies of operating and maintenance brochures for each piece of equipment including manufacturer's descriptive bulletins with wiring diagrams, parts lists and specific maintenance instructions, warranties and guarantees. Brochures shall be bound in permanent type binders and suitably indexed.

B. At project completion and before the final observation of the work, provide to the Owner written, oral and hands-on demonstrations of the operation, function, and maintenance of each piece of equipment provided under this contract. Instruction to the Owner should be sufficient for the Owner to completely understand the operation and maintenance for each piece of equipment.

PART TWO – PRODUCTS

2.1 EQUIPMENT LABELS

A. Panelboards, safety switches, equipment cabinets, motor starters and other equipment shown on the drawings and furnished and/or installed under this section of the Specifications shall be labeled with laminated plastic nameplates inscribed to identify equipment with description shown on the drawings for panels, the name of the equipment controlled for motor starters or the system or function involved for other equipment. Nameplates shall be white with black etched letters. Provide typewritten panelboard directories indicating the equipment served, final approved room numbers, etc., as shown on the Plans or as directed by the Architect.

PART THREE – EXECUTION

3.1 COORDINATION OF TRADES

A. Where work is near the work of other contractors, the Electrical Contractor shall review plans of other contractors and coordinate his work with theirs. The Electrical Contractor shall verify the location of lighting fixtures, light switches, beams, structural members, conduit, ductwork, pipes or other obstructions before beginning his work in the area. The Electrical Contractor to coordinate all light switch locations with Architectural room layouts to provide light switch installation on strike side of door. Notify the Architect where proper clearances do not occur or where the work of others would interfere with the safe and/or proper operation of this work.

3.2 SUPPORTS AND FOUNDATIONS

A. Support all items covered by this Specification directly from building structural members independent of any ceilings or any other installed item. Panelboards and switches may be attached to suitably reinforced walls. Ground or slab mounted equipment to be mounted on a separate four-inch-high concrete slab.

B. Do not attach items of this Specification to HVAC ductwork, ceiling grids and ceiling support members, piping or other equipment unless specifically shown otherwise. Where applicable, all equipment including conduit is to be supported from overhead wall, floor or roof structures using galvanized channel or angle members for a rigid support. Position supports and equipment such that access through lay-in ceilings or panels is not impaired and all Code required clearances are maintained.

C. Where applicable, under no circumstances is the Electrical Contractor to attach to or support from any bar joist bridging. Any supports to the bar joists or any structural systems are to be approved by the Architect.

D. All supplemental angle or channel iron required to support equipment of this Specification is to be furnished by the Electrical Contractor.

3.3 EQUIPMENT LAYOUT

A. The physical location and arrangements of electrical equipment is shown on the Plans and is to be used by the Electrical Contractor as a guideline in construction. It is the responsibility of the Electrical Contractor to review the Plans with the proposed equipment and equipment of other contractors that are affected, and to ensure that all Code required clearances, wiring distances and maintenance accesses, including equipment heights, of all items are maintained. Alternate arrangements to accomplish the above due to field conditions or changes in physical size of the equipment proposed for the project are to be submitted to the Architect for review before any work is begun or equipment ordered. The alternate arrangement is to be presented in a 1/4-inch scaled drawing showing all equipment, including those of other contractors. Include shop drawing cut sheets and applicable information. Indicate on the drawing by dimension all required Code clearances, wiring distances and maintenance access requirements. Where equipment heights are required to be coordinated with architectural or other items, indicate revised heights. Refer to "MOUNTING HEIGHTS."

END OF SECTION 260000

SECTION 260050 – MINOR ELECTRICAL DEMOLITION FOR REMODELING

PART ONE - GENERAL SCOPE

1.1 DESCRIPTION

A. Provide demolition of existing electrical installation as required to suit project intent. Extend existing installation and repair/replace existing equipment as specified herein.

PART TWO - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work shall be as specified in individual Sections.

PART THREE - EXECUTION

3.1 EXAMINATION

A. Verify field measurements and existing circuiting arrangements. Verify that abandoned wiring and equipment serve only abandoned facilities. Demolition Drawings are based on casual field observation. Report discrepancies to Architect/Engineer before disturbing existing installation. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

A. Disconnect electrical systems scheduled for removal.
B. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
   1. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner and Architect/Engineer at least 7 days before partially or completely disabling system. Minimize outage duration.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Remove, relocate, and extend existing installations to accommodate new construction. Remove abandoned wiring to source of supply.
B. Remove exposed abandoned conduit, including abandoned conduit. Cut conduit flush.
C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed.
D. Disconnect and remove electrical devices and equipment serving equipment that has been removed.
E. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
F. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.4 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused. Expose and inspect existing branch circuit wiring terminations. Correct any deficient methods or materials to bring the installation into first class working condition.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

END OF SECTION 260050

SECTION 310000 - EARTHWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Staking and grades

B. Existing utilities

C. Earthwork general requirements

D. Subsurface extraction

E. Excavation

F. Subgrade preparation

G. Foundation preparation

H. Compaction

I. Backfilling

J. Finish grading

K. Field quality control

1.2 RELATED SECTIONS

A. Trenching and Backfilling for Utilities is specified in Section 31 23 33 – Excavation, Trenching and Backfilling.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM C 131 Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
   2. ASTM C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates
   3. ASTM C 535 Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
   4. ASTM D422 Method for Particle-Size Analysis of Soils
   5. ASTM D653 Terminology Related to Soil, Rods, and Contained Fluids
   6. ASTM D1140 Test Method for Amount of Material in Soils Finer Than the 200 (75-urn) Sieve
   7. ASTM D1557 Test Methods for Moisture-Density Relations of Soils and Soil- Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop
   8. ASTM D2216 Test Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
   9. ASTM D2487 Test Method for Classification of Soils for Engineering Purposes

10. ASTM D2922 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
11. ASTM D2974 Test Method for Moisture, Ash, and Organic Matter of Peat and Other Organic Materials
12. ASTM D3017 Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
13. ASTM D4253 Test Methods for Maximum Index Density of Soils Using a Vibratory Table
14. ASTM D4254 Test Methods for Minimum Index Density of Soils and Calculation of Relative Density
15. ASTM D4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

1.4 DEFINITIONS

A. Earthwork Terminology: Terms used in this Section and not defined herein shall be interpreted in accordance with the definitions given in ASTM D653.

B. Soil Classification: Soil classification is based on the Unified Soil Classification system given in ASTM D2487. Group symbols, when used, conform with the symbols of ASTM D2487.

C. Fill: Soil or soil-rock material placed to raise the subgrade or natural grade of the site.

D. Backfill: Soil or soil-rock material used to backfill excavations and to backfill excavated spaces around foundation walls, building walls, retaining walls, head walls, and abutments.

E. Embankment: Soil or soil-rock material for embankment construction. Embankment construction includes constructing embankments and dikes, including the preparation of the areas upon which they are to be placed, and the construction of temporary surcharge embankment above the grading plane.

F. Borrow: Soil or soil-rock material used for fill, backfill, embankment, or other construction that is excavated from an off-site location and hauled in.

G. Unsuitable Material: Excavated material or material below the natural ground surface in embankment areas or below sub grade elevation in excavated areas, which is unsuitable for its planned use. Unsuitable material is further defined as material determined to be:
   1. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content; or
   2. Too wet to be properly compacted and circumstances prevent suitable drying prior to incorporation into the work; or
   3. Otherwise unsuitable for the planned use.

H. The presence of excessive moisture in a material is not, by itself, sufficient cause for determining that the material is unsuitable. The existence of unsuitable material may be indicated in the Contract Documents or may be determined by the Engineer during the progress of the work.

I. Relative Compaction: The ratio, expressed as a percentage, of the in-place dry density of material as compacted in the field to the maximum dry density of the same material as determined by laboratory test ASTM D1557.

J. Optimum Moisture Content: The water content at which a soil can be compacted to a maximum dry unit weight by a given compactive effort

K. Relative Density: Mass per unit volume as specified in ASTM D4253 and ASTM D4254, as applicable to the soil and test method employed.

1.5 CLASSIFICATION OF EARTHWORK

A. For specification purposes, earthwork shall be classified as follows:
   1. Excavation-Common: All excavation involved for demolition of the existing walls and construction of new retaining walls is classified as common excavation. Excavation- Common includes excavation of pavements and other obstructions visible on ground surface and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.
   2. Excavation - Rock: Includes removal of material in place which cannot be loosened or broken down with one pass of a crawler tractor weighing not less than 55,000 pounds, with a maximum draw-bar pull of not less than 56,000 pounds-force, pulling a single 24-inch hydraulic ripper tooth approved by the tooth manufacturer for use with the tractor under full hydraulic down pressure, or equipment of equivalent ripping capacity at one mile per hour (Caterpillar D8K or larger) or excavated by a front-end loader with a minimum bucket breakout force of 25,600 pounds (Caterpillar 977 or larger).
      a. Typical of materials classified as rock are solid rock, rock in ledges, and rock-hard continuous aggregate deposits.
      b. Intermittent drilling or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.
      c. Do not perform rock excavation work until material to be excavated has been cross- sectioned and classified by Owner. Such excavation will be paid on basis of contract conditions relative to changes in work.
      d. Rock payment lines are limited to the following:
         1) Two feet outside of concrete work for which forms are required, except footings.
         2) One-foot outside perimeter of footings.
         3) In pipe trenches, 6" below invert elevation of pipe and 2 ft. wider than inside diameter of pipe, but not less than 3 ft. minimum trench width.
         4) At outside dimensions of concrete work where no forms are required.
         5) Under slabs on grade, 6" below bottom of concrete slab.
   3. Structure Backfill: Structure backfill includes furnishing structural fill material and placing and compacting structural fill material around structures to the lines and grades indicated. Structure backfill includes borrow excavation and material when required.
   4. Fill for Raising Grade: Includes raising of sub grade or grade to indicated elevation with structural fill, including moisture conditioning and compaction of placed fill material. Structural fill material includes borrow excavation and material when required.
   5. Pervious Backfill: Includes furnishing, placing, and compacting pervious backfill material behind abutments, wingwalls, and retaining walls, as indicated.

6. Salvaging Topsoil: Salvaging topsoil is the removal of topsoil, stockpiling the material on-site, and maintaining the stockpile until the material is reused in the work. Salvaging of topsoil shall be classified as Excavation - Common.
7. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Owner. Unauthorized excavation, as well as remedial work directed by Owner, will be at Contractor's expense.
    a. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be acceptable if approved by Owner.
    b. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Owner.

1.6 DESCRIPTION

A. Provide excavation for pavement; excavation and placement of compacted fill and backfill for structures and subsurface and surface drainage; placement of pervious backfill; construction of embankments; sub grade and foundation preparation; subsurface extraction of miscellaneous structures and facilities indicated or required to be removed; and finish grading.

1.7 SUBMITTAL

A. General: Refer to Section 01 30 00 Administrative Requirements for submittal requirements and procedures.

B. Test Reports: Contractor shall coordinate quality control testing to be performed by Testing Laboratory engaged by the Owner.

C. Samples: Furnish and deliver samples of fill and backfill materials for testing and analysis.

D. Delivery Tickets: Submit a delivery ticket with each load of imported borrow material delivered to the site, stating the type of fill material and the quantity.

1.8 QUALITY CONTROL

A. Quality Control: The Contractor shall provide proper quality control measures to assure compliance with specified requirements. Foundation and sub grade preparation and the placement and compaction of fills shall be performed under the surveillance of a Louisiana registered geotechnical engineer employed by the Owner. Contractor shall coordinate quality control inspections and testing to be performed by Testing Laboratory engaged by the Owner.

B. Tests: The Owner shall engage the services of an approved independent soils testing laboratory to perform tests.
   1. Testing Requirements:
      a. Compaction tests in accord with ASTM D-698.
      b. Field density tests for area fills for each 1'-0" lift, in accord with ASTM D-698, one test for each 2,500 sq. ft. of fill. A minimum of three (3) tests for fill placed in isolated areas.
      c. Field density tests for trench excavations for each 1'-0" lift, in accord with ASTM D-698, one test for each 100 linear feet of trench under buildings and pavement, one test for each 200 linear feet otherwise.
      d. Inspection and testing subgrades and proposed fill materials.
      e. Inspection of excavation bracing system, including furnishing, installing and monitoring slope indicator devices and settlement gauges.
      f. Contractor's duties relative to testing include:
         1) Provide representative fill soil samples to Testing Agency for test purposes. Provide 50 lb. samples of each fill soil.
         2) Advise Testing Agency sufficiently in advance of operations to allow for completion of quality tests and for assignment of personnel.
         3) Be responsible for paying costs of additional testing if initial tests reveal nonconformance with specified requirements.
            a) Test report on borrow material.
            b) Verification of each footing subgrade.
            c) Field density test reports.
            d) Verification of classification of soil type used in fill and backfill.
            e) One optimum moisture-maximum density curve for each type of soil encountered.
            f) Report of actual unconfined compressive strength and/or results of bearing tests of each strata tested.

C. Tolerances:
   1. Construct finished surfaces to plus or minus 1/2-inch of the elevations indicated.
   2. Complete embankment slopes to plus or minus 6 inches of the slope line indicated. Do not encroach on the roadbed.
   3. Maintain the moisture content of fill material as it is being placed within plus or minus two percent of the recommended moisture content of the material.

1.9 SITE CONDITIONS

A. Unfavorable Weather Conditions:
   1. Excavating, filling, backfilling, and grading work shall not be performed during weather conditions which might damage or be detrimental to the condition of existing ground, in-progress work, or completed work. When the work is interrupted by rain, excavating, filling, backfilling, and grading work shall not resume, until the site and soil condition (moisture content) are suitable for compaction.
   2. Sub grade shall be free from mud, snow, ice, and deleterious material when work is resumed.
   3. Soil material that is too wet for compaction shall be left to drain, to be aerated and dried by disking and harrowing or other approved methods until the moisture content of the area is uniform and within the specified limits.

B. Prevention of Erosion: Comply with requirements specified in Section 31 25 00 Erosion and Sediment Controls, and the following:
   1. Prevent erosion of stockpiles, ditches, embankments, filled, backfilled, and graded areas until such time as permanent drainage and erosion control measures have been installed.
   2. Perform protective grading to provide positive drainage and to minimize ponding of surface water.
   3. Any repairs or mitigation due to erosion will be the responsibility of the Contractor.

PART 2 - PRODUCTS

2.1 FILL AND BACKFILL MATERIALS - GENERAL REQUIREMENTS

A. Material used for fill, backfill, and embankment construction shall be an inert, inorganic soil, free from deleterious substances, and of such quality that it will compact thoroughly without the presence of voids when watered and rolled. (Inorganic soil is defined as soil containing less than two percent by weight of organic material when tested in accordance with ASTM D2974.) Excavated on-site material will be considered suitable for fill, backfill, and embankment construction if it is free from organic matter and other deleterious substances and conforms to the requirements specified herein.
   1. Satisfactory soil materials are defined as those with no organics, a plasticity index of less than 20 and a maximum particle size of four inches, with not more than 30% greater than 3/4 inch. It shall be clean material and rock no larger than 1/2 cu. ft. Fill material shall be tested and approved by Testing Agency for degree of compaction required by its intended use.
   2. Unsatisfactory soil materials are defined as those complying with ASTM D 2487 soil classification groups OH and PT or soil materials not capable of being compacted to density and moisture requirements of this section, debris, organic material and soil containing organic material.

B. Excavated material that is suitable for fill, backfill, and embankment construction shall be conditioned for reuse and properly stockpiled for later filling and backfilling operations. Conditioning shall consist of spreading material in layers not to exceed 8 inches and raking free of debris and rubble. Rocks exceeding 6 inches in largest dimension and deleterious material shall be removed from the site and disposed of as specified herein under Disposal of Surplus Material.

C. Where conditions require the importing of fill or backfill material, the material shall be an inert soil or soil-rock material free of organic matter and meeting or exceeding the minimum requirements specified herein for the location.

D. All material to be used for filling, backfilling, and embankment construction requires written approval of the Engineer.

2.2 SOURCE QUALITY CONTROL

A. Fill, backfill, and embankment materials proposed to be used in the work shall be tested in the laboratory for compliance with specified requirements as follows:
   1. Moisture-Density Relationship: ASTM DI 557.
   2. Moisture Content: ASTM D2216.
   3. Liquid Limit: ASTM D4318.
   4. Plastic Limit and Plasticity Index: ASTM D43 18.
   5. Percentage of Wear: ASTM C131 or C535 as applicable.
   6. Sieve Analysis: ASTM D422, and ASTM C136, as applicable.
   7. Percent Passing No 200 sieve: ASTM DI 140.
   8. Sand Equivalent: California Test 217.
   9. Organic Content of Soils: ASTM D2974.

B. Where classification of soils is necessary to meet specified requirements, perform laboratory tests in accordance with ASTM D2487.

C. Submit certified test reports of all tests as herein specified under Submittals.

D. Provide samples as requested by the Engineer for preparing checklists. Provide three samples of each type of material proposed for use from locations selected by the Engineer.

PART 3 - EXECUTION

3.1 STAKING AND GRADES

A. Lay out the work, establish all necessary markers, benchmarks, grading stakes, and other stakes as required. Layout work shall be done under the supervision of an engineer or land surveyor, registered in the State of Louisiana, familiar with construction layout work, at no additional cost to the Owner.

B. Protect all grade stakes during the grading and filling operations and reset any grade stakes and line stakes destroyed.

C. Verify and flag all property corners and benchmarks within 50 feet of any clearing or grading operations. Protect same during construction. If disturbed or destroyed, replace. If found at variance with Drawings, notify Owner before proceeding to layout work.

3.2 EXISTING UTILITIES

A. Verify on site the location and depth (elevation) of all existing utilities and services before performing any excavation work. Excavation within 2 feet of an active utility line shall be performed by hand. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

1. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Engineer and then only after acceptable temporary utility services have been provided.
   a. Provide minimum of 48-hour notice to Owner and notify LA One Call (Dial 811) and comply with provisions of Part VII of Chapter 8 of Title 40 (RS 40: 1750 to 1761 by Acts 1988, No 923, 51). Utility service to be provided to the facility at all times.

B. Abandoned sewers, piping, and other utilities encountered in the progress of the excavating shall be removed and the ends plugged. Coordinate with utility companies for shut-off of services if lines are active. All trench excavations resulting from removal of utility lines shall be backfilled with Structural Fill.

C. Active utility lines encountered, which are not indicated in the Contract Documents, shall be reported immediately to the Engineer and utility owners involved. The Engineer and utility owners shall be permitted free access to determine the measures deemed necessary to repair, relocate, or remove the utility. Cooperate with Owner and utility companies in keeping respective services and facilities in operation.

Repair damaged utilities to satisfaction of utility owner.

3.3 EARTHWORK GENERAL REQUIREMENTS

A. Dust Control: Refer to Section 31 25 00 Erosion and Sedimentation Controls, for dust control requirements.

B. Erosion Protection: Prevent erosion of the site at all times. Construct temporary berms and dikes and cut temporary swales to promote natural drainage of site. Refer to Section 31 25 13 Erosion Controls, for additional requirements.

C. On-Site Excavation or Borrow Pits: Do not excavate or remove any material from the project site or right-of-way which is not within the designated excavation, as indicated by the slope and grade lines, without written authorization from the Engineer.

D. Salvaging Topsoil:
   1. Salvage topsoil from stripped and excavated areas, and stockpile on the site at appropriate locations. Prevent topsoil from contamination by other materials and provide adequate drainage and erosion protection.
   2. Place stockpiled topsoil in areas to be landscaped as indicated on the Contract Drawings or as directed by the Engineer.

E. Stockpiling of Fill and Backfill Material:
   1. Excavate and separately stockpile suitable fill and backfill material, as indicated, during the progress of the excavation work. Save sufficient suitable excavated material, if available, for later filling, backfilling, and embankment construction. Place, grade and shape stockpiles for proper drainage.
   2. Store materials from required excavations that are suitable for fill, backfill, and embankment as excavated, in stockpiles segregated by type.
   3. Establish excavated material stockpiles on site only in locations where they will not interfere with the progress of the work.
   4. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

F. Maintenance of Excavations, Slopes, and Embankments:
   1. Excavate and remove material outside the limits of the excavation which is unstable and constitutes potential slides, and material which comes into excavations for any reason including from the driving of piles.
   2. Maintain slopes and embankments until substantial completion and acceptance of the work. Promptly repair slides, slipouts, washouts, settlements, and subsidences that occur for any reason, and refinish the slope or embankment to the indicated lines and grades. Any settlement or washing that occurs during and until completion of project and prior to acceptance of the work shall be repaired immediately and grades reestablished to the required elevations and slopes. Fill to required subgrade levels any areas where settlement occurs.
   3. Temporary Grading and Drainage: Provide effective drainage at all times. No impoundment of water shall be permitted except as provided. Pools, puddles or inundated excavations shall be drained immediately. The Contractor is fully responsible for any and all water damage within the Limit of Work and all water damage to the site or installed work.
   4. Safeguarding of Structure Walls: Heavy equipment shall not be operated within 4 feet of structure walls.

G. Use of Explosives: The use of explosives is not permitted unless approved by the Owner.

H. Protection of Persons and Property:
   1. Barricade open excavations occurring as part of this work and post with warning lights.
   2. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

I. Codes and Standards: Perform excavation work in compliance with applicable requirements of Standard Building Code (International Building Code) with Louisiana Title 40 Amendments.

3.4 SUBSURFACE EXTRACTION

A. Remove subsurface facilities and obstructions to the extent indicated.

B. When subsurface facilities are encountered during excavation which interfere with new construction, and such facilities are not indicated, notify the Engineer promptly for corrective determination.

3.5 EXCAVATION

A. General Excavation Requirements:
   1. Perform excavating as indicated and required for roadway and parking lot beds, for concrete footings, foundations, retaining walls, exterior paving, floor slabs, concrete walks, and for site levels and grading, and provide shoring, bracing, underpinning, cribbing, pumping, and planking as required.
   2. The bottoms of excavations shall be level, firm, undisturbed earth, clean and free from loose material, debris, and foreign matter.
   3. Excavate to the lines and grades indicated on the Contract Drawings.

4. Excavations shall be supported and maintained by providing structural support of earth walls as specified in Section 31 50 00 - Excavation Support and Protection, so that sides are stable and will not move. Excavations may be maintained by sloping cut faces where space permits, if calculations, sealed and signed by a civil or structural engineer currently registered in the State of Louisiana, show that the slopes are safe. Calculations shall consider all existing conditions, including adjacent traffic, construction loading, and other local effects.
5. Limits of excavations shall allow for adequate working space for installing forms, wall waterproofing, and as required for safety of personnel. Cut excavations in solid rock accurately to the lines indicated on the Contract Drawings, or to the width of the ductbank or concrete encasement.
6. Dewater excavation as specified in 3.06.C. - Dewatering. Construct berms around excavations as required to prevent surface water and runoff from entering the excavation.
7. Remove unstable bottom material. Remove large stones, debris, and compressible soils from excavation bottoms to a minimum depth of 12 inches. Where required to excavate to rock, it shall be understood to mean sound bedrock. Remove loose and unsound material.
8. Except as otherwise indicated, preserve the material below and beyond the lines of excavations. Where an excavation is carried below the indicated grade, backfill to the indicated grade as herein specified.
9. Place excavated material at a sufficient distance from edge of excavation to avoid causing cave-ins or bank slides, but in no case closer than 3 feet from the edge of excavations.
10. Unauthorized over excavations for footings and foundations shall be filled with lean concrete to indicated elevations.
11. Excavated earth material that is suitable for fill, backfill, or embankment shall be conditioned for re-use and properly stockpiled for later filling and backfilling operations as herein specified. Test, screen, and mix as necessary to meet specified requirements.

B. Rock Excavation:
1. Rock, which cannot be broken up and removed by ripper equipment, shall be excavated and removed by drilling and blasting. The use of explosives requires written approval of the Engineer.
2. Where footings or foundations are to be placed on rock which is not horizontal, key the center of the foundation approximately 12 inches in depth throughout an area approximately equal to the dimensions of the column or footing to be placed on the rock, or the entire width of the slab, at not more than 10-foot intervals. Remove loose fragments, and clean and fill all seams with lean concrete.
3. Rock excavation beyond or below the indicated cross section shall be at the Contractors expense. Fill overbreakage to required invert with lean concrete at no additional expense to the Owner.
4. Leave the side slopes of rock cuts with reasonably uniform faces whether the excavation is carried beyond the specified side slopes or not. Remove all loose rock on cut slopes immediately after blasting. Sloped surfaces shall conform to the typical section indicated or to natural cleavage planes, where these are compatible with the typical section.
5. Exposed rock faces shall be mapped by a Contractor-employed, Louisiana registered geotechnical engineer or engineering geologist. If structural mapping indicates that unstable planes or other features are exposed which jeopardize the stability of the slope, the Contractor shall modify the slope as required.

C. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.
   1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
   2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

3.6 SUBGRADE PREPARATION

A. Remove vegetation, unsuitable soil materials, obstructions and deleterious materials from ground surface prior to placement of fills. Break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

B. Perform all cutting, blading, and shaping as required to cut and shape the subgrade to the grades and elevations indicated. Sub grade preparation includes fine grading, reworking as necessary, and preparation of cut, fill, or embankment upon which the structure will be placed.

C. Finish subgrade to straightedge or template within specified tolerances with the finished surface bladed to a uniform, dense, smooth texture.

3.7 FOUNDATION PREPARATION

A. Complete construction of the excavation support and dewatering systems prior to construction of structure and equipment foundations.

B. Avoid disturbing bottom of excavation. If bottom is disturbed, restore and stabilize the bearing foundation with compacted pervious backfill material as specified herein.

C. If material at bottom of the excavation is rock, remove loose material and roughly level the bearing foundation to indicated elevation. If the bottom contains occasional rock outcroppings or rock in only a portion of the area, remove such rock to a depth of 6 inches below indicated subgrade and backfill with lean concrete.

D. Where unsuitable material is encountered at the elevations indicated for foundations, all soft, loose, or unsuitable material shall be removed. The area shall be scarified to a minimum depth of 12 inches, and the planned elevation shall be re-established by backfilling with structural backfill, moisture-conditioning, and compacting to a minimum dry density of 95 percent of the maximum laboratory dry density as determined in accordance with ASTM D l557.

3.8 COMPACTION

A. Compaction Density: Compact each layer of embankment, fill, and backfill material to not less than the indicated or specified compaction. Required compactions are defined as Class I and Class II, as follows:
   1. Class I Compaction: 95 percent relative compaction as determined by ASTM D698.
   2. Class II Compaction: 98 percent relative compaction as determined by ASTM D698.

B. Required Compactions:
   1. Embankment or Fill where the Surface will be Bearing Foundation: Class II for full depth. Where embankment construction exceeds 8 feet in depth, provide minimum Class I compaction below the top 8 feet.
   2. Backfill around Structures: Class I below top 36 inches; Class II for top 36 inches.
   3. Where not otherwise indicated or specified and where structures are not involved, provide Class I compaction to minimize settlement.

C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
   1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
   2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to a satisfactory value.
   3. Perform moisture density determinations for each soil type used, to provide data for quality control. The natural moisture content at the time of compaction must be within moisture content limits that will allow the specified compaction to be obtained, but not in excess of 3% above or below the optimum moisture content.

3.9 COMPACTION (NON-STRUCTURAL FILL)

A. Perform compaction of soil materials for fills using mechanical soil compaction equipment for type and size materials to be compacted. Hand compact materials in areas inaccessible to machinery and within 5'-0" of below grade walls.

B. Percentage of Maximum Density Requirements: Provide not less than the following percentages of maximum dry density by the Standard Proctor test, ASTM D698.
   1. Lawn or Unpaved Areas: Compact top 6" of subgrade & each layer of backfill or fill material at 90% maximum dry density.

C. Moisture Control: Where subgrade or soil layer must be moisture conditioned before compaction, apply water to surface of subgrade or soil layer. Scarify and air-dry soil material that is too wet to permit compaction to specified density. Control soil moisture content of in place fill to within 3% of optimum moisture content.

D. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread where directed by Owner and permitted to dry, until moisture content is reduced to satisfactory value, as determined by moisture density relation tests. When accepted by Testing Agency, soil material may be used in compacted backfill or fill.

3.10 BACKFILLING

A. Use materials removed from site excavations if such material meets specified requirements.

B. Backfilling is required around all substructures. Fill all abandoned vaults, shafts, airways, holes, pits, and other voids.

C. Place backfill in layers not to exceed eight inches of loose material and compact each layer to specified density before the next layer is placed.

D. Place backfill material in such manner that unbalanced horizontal loads will not be applied to a newly placed structure or portion of structure, utility, or pipeline. Do not backfill around portions of structures requiring backfill on only one side or on less than all sides, until the concrete has reached the specified 28-day strength to withstand the earth pressures on structures.

E. When placing material for backfill around waterproofed structures, protect such structures and the waterproofing thereof with a shield when necessary to prevent displacement or injury by stones or other hard substances in the backfill.

F. Do not backfill on or against structural concrete until the specified 28-day concrete strength has been attained.

3.11 FINISH GRADING

A. Finish grade all areas to elevations and grades indicated. In areas to receive topsoil and landscape planting, finish grading shall be performed to a uniform 7 to 8 inches below the grades and elevations indicated.

B. Place and spread stockpiled topsoil to a uniform thickness, approximately 1/2 inch below finish grades indicated.

C. Coordinate with the landscape requirements of Division 32.

D. Finish grade entire site obtaining uniform levels or slopes between points where elevations are shown or between such points and existing grades.

E. At completion of finish grading operation, entire site is to be ready for grassing.

F. Where finish grading meets or abuts curbs, walks or pavements, uphill grades are to be slightly higher than pavements to permit drainage.

G. Protection of graded areas: Protect newly graded surfaces from traffic and erosion. Keep free of debris. Where graded or compacted surfaces are damaged by subsequent operations, return to indicated grade and state of compaction.

3.12 FIELD QUALITY CONTROL

A. Regulatory Requirements: In compliance with the International Building Code, the Contractors earthwork operations shall be performed under the observance and inspection of an Owner employed geotechnical engineer currently registered in the State of Louisiana, as follows:
   1. Site preparation, cutting and shaping, excavating, filling, backfilling, and embankment construction shall be carried out under the inspection of the geotechnical engineer, who will perform appropriate field and laboratory tests, as determined by the geotechnical engineer, to evaluate the suitability of fill and backfill material, the proper moisture content for compaction, and the degree of compaction achieved. Fill or backfill that does not meet the specified requirements shall be removed or recompacted until the requirements are satisfied.
   2. Cutting and shaping, excavating, conditioning, filling, backfilling, and compacting procedures require approval of the geotechnical engineer as they are successively performed. Work found to be unsatisfactory or work disturbed by subsequent operations before approval is granted shall be corrected in an approved manner as approved by the geotechnical engineer.

B. Density Tests: Compacted fill, backfill, and embankment shall be tested to verify compliance with specified requirements in accordance with ASTM D2922. Frequency of tests shall be in accordance with the Contractors Quality Plan, but not less than the following:

C. Compaction Tests: Tests for compaction shall be performed in accordance with test procedures specified in ASTM DI557, Method D, as applicable. Field-testing of soils or compacted fill in place shall be performed in accordance with applicable requirements of ASTM D2922.

D. Moisture Content Tests: Compacted fill, backfill, and embankment shall be tested to verify compliance with specified requirements in accordance with ASTM D3017. Minimum frequency of tests shall be as specified above for density tests.

END OF SECTION 310000

SECTION 311000 - SITE CLEARING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Protecting existing vegetation to remain.
   2. Removing existing vegetation.
   3. Clearing and grubbing.
   4. Stripping and stockpiling topsoil.
   5. Removing above- and below-grade site improvements.
   6. Disconnecting, capping or sealing, site utilities.
   7. Temporary erosion and sedimentation control.

B. Related Requirements:

   1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; and free of weeds, roots, toxic materials, or other non-soil materials.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.

F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
   1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
   1. Do not proceed with work on adjoining property until directed by Engineer.

C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises.

D. Utility Locator Service: Notify LA One Call: 811 (1-800-272-3020) for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.

F. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
   1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."

C. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable To Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.
   1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
   1. Arrange with utility companies to shut off indicated utilities.
   2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Engineer not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Engineer's written permission.

3.4 CLEARING AND GRUBBING

A. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
   1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm) and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.
   1. Remove subsoil and non-soil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches (50 mm) in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
   1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
   2. Do not stockpile topsoil within protection zones.
   3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
   4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.6 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Excavating and filling for rough grading the Site.
   2. Preparing subgrades for walks, pavements, turf and grasses, and plants.
   3. Drainage course for concrete slabs-on-grade.
   4. Subbase course for concrete walks and pavements.
   5. Subsurface drainage backfill for walls and trenches.
   6. Excavating and backfilling trenches for utilities and pits for buried utility structures.
   7. Shaping berms.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Uppermost surface of an excavation or the topmost surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

PART 2 - EXECUTION

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification [Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487] [Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145], or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
1. Liquid Limit: N/A
2. Plasticity Index: N/A

C. Unsatisfactory Soils: Soil Classification [Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487] [Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145], or a combination of these groups.
1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1- 1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294/D 2940M 0; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch (25- mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and zero to 5 percent passing a No. 8 (2.36-mm) sieve.

I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and zero to 5 percent passing a No. 4 (4.75-mm) sieve.

J. Sand: ASTM C 33/C 33M; fine aggregate.

K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:
1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:
1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
   1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
   1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.
   1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.
   1. Clearance: 12 inches (300 mm) each side of pipe.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
   1. For pipes and conduit less than 6 inches (150 mm) in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
   2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
   3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
   4. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.
   1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:
   1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
   2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
   3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.6 UNAUTHORIZED EXCAVATIONS

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Engineer.
   1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Engineer.

3.7 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, sub-drainage, damp-proofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for Record Documents.
   3. Testing and inspecting underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring, bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings

D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:
   1. Soil Backfill: Place and compact initial backfill of subbase material free of particles larger than [1 inch (25 mm)] in any dimension, to a height of 12 inches (300 mm) over the pipe or conduit.
      a. Carefully compact initial backfill under pipe haunches and compact evenly upon both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
   2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches (300 mm) over the pipe or conduit. Coordinate backfilling with utilities testing.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use satisfactory soil material.
   3. Under steps and ramps, use engineered fill.
   4. Under building slabs, use engineered fill.
   5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
   2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than [8 inches (200 mm)] in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698
   1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
   2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
   3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
   4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
   1. Turf or Unpaved Areas: Plus or minus [1 inch (25 mm)]
   2. Walks: Plus or minus [1 inch (25 mm)].
   3. Pavements: Plus or minus [1/2 inch (13 mm)].

C. Grading inside Building Lines: Finish subgrade to a tolerance of [1/2 inch (13 mm)] when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
   1. Shape subbase course and base course to required crown elevations and cross-slope grades.
   2. Place subbase course and base course 6 inches (150 mm) or less in compacted thickness in a single layer.
   3. Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
   4. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95percent of maximum dry unit weight according to ASTM D 698.

3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
   1. Place drainage course 6 inches (150 mm) or less in compacted thickness in a single layer.
   2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Engineer.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactorily soil, trash, and debris, and legally dispose of them off owner's property.

B. Transport surplus satisfactory soil to designated storage areas on owner's property. Stockpile or spread soil as directed by Engineer.
   1. Remove waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off owner's property.

END OF SECTION 312000

SECTION 312200 – GRADING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and all applicable specification sections, apply to this section.

1.2 DESCRIPTION

A. This Section specifies the requirements for earthwork, including excavation, utility protection, filling, backfilling compaction, stabilization, grading and disposal of unacceptable and excess excavated material including but not limited to the following.

B. Provide subbase materials, drainage fill, and common fill materials for slabs, pavements and site improvements.

C. Provide suitable fill from off site if on site quantities are insufficient or unacceptable. Stockpile excess excavated material at a location designated by the Owner's Representative.

D. Refer to Section 01010-Summary of Work for sequence of construction.

1.3 QUALITY ASSURANCE

A. Reference Standards Applicable to this Section:

1. ASTM: American Society for Testing and Materials
   a. D 698: Test Methods for Moisture-Density Relations of Soils and soil Aggregate Mixtures Using 5.5 lb. Rammer and 12 in. Drop.
   b. D 1785: Specification for Poly (Vinyl Chloride) (PVC) Pipe, Schedules 40, 80, and 120. Schedules 40, 80, and 120.
   c. D 2487: Test Method for Classification of Soils for Engineering Purposes.
   d. D 4318: Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
2. Grading Tolerances Outside Building Lines: Finish excavations and grade within a tolerance of 5/8" above or 1 1/4" below required grades. Do not leave depressions in graded areas. Haul off excess excavated material not required for fill off site and dispose of same.
3. Grading Tolerance for Fill under Building Slabs: Plus or minus 1/2 inch measured with a 10 foot straight edge.

C. Submittals:

1. Refer to Section 01340, Submittals.
2. Test reports:
   a. Fill materials: Report and certification of fill materials.

D. Job Conditions:

1. Site information: Refer to Drawings.
2. Use of explosives: The use of explosives will not be permitted.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

A. Classification: Acceptable material shall be as classified in ASTM D 2487, Groups GW, GP, GM, SM, SW, and SP.

B. Common Fill:

1. Mineral soil substantially free from organic and unsuitable materials and free from rock or gravel larger than 2" in diameter; 80 percent passing No. 40 sieve and not more than 50 percent passing No. 200 sieve.
2. Common Fill is intended to be used for construction of berms and excavated areas and to achieve proposed elevation prior to placement of topsoil.

B. Topsoil

1. Secure adequate topsoil from an approved off-site location if on site quantities ore insufficient or unacceptable. 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, clods of hard earth, plants or their roots, sticks and other extraneous matter. The natural organic content by oven dry weight as measured by the "wet digestion" method shall not be less than 1.5%.
2. The pH of the topsoil shall not be less than 5.5 and shall not exceed 7.2. Sand content shall not exceed 50%, oven dry weight. Soil tests shall be run prior to topsoil sample approval and at Owners Representative's discretion throughout topsoil installation. Tests shall be done at Contractor's expense and results will suffice for fertilizer requirements in Section 02930 Planting. Topsoil not meeting these requirements will not be accepted.

D. Planting Backfill Mix: As specified in Section 329300 Plants.

E. Crushed Limestone Gravel Base Material

1. Intended use: Gravel base material is intended for use under concrete walks, brick pavers, and flagstone.
2. Gradation: Type A, Grade 2. No variances from this specification will be allowed.

Sieve Size	Percent Retained
1 3/4"	0-10
No. 4	45-75
No. 40	60-85

3. Plasticity Characteristics: Minimum Liquid Limit = 40; Maximum Plasticity Index = 12.

4. Compassion Specification: A minimum of 95 percent of ATM D 698-78, Method D maximum dry density at a moisture content slightly dry of optimum. Lift thicknesses should not exceed six inches compacted thickness.
5. Generic Name(s): Crushed Limestone Base.

G. Gravel Drain Material

1. Intended use: Gravel drain material is intended to be used as drainage backfill in conjunction with planting underdrains and cloth covered ADS pipe.
2. Gradation: ASTM C 33-82, Size 6T.

Sieve Size	Percent Retained
1"	0
3/4"	0 - 10
3/8"	45 - 80
No. 4	90 - 100
No. 8	95 - 100

3. Plasticity Characteristics: Non-plastic
4. Compaction Specification: Compact by vibratory means a range of 70 to 85 percent of TEX-113-E maximum dry density. Lift thickness should not exceed eight (8) inches. Compaction by flooding is not acceptable.
5. General Name(s): Pea Gravel.

H. Sharp Sand: Sand shall be thoroughly washed, coarse grade sharp, construction or brick sand, free of clay balls, weeds, and grass. So-called cushion sand, blow sand, or creek silt is not acceptable for substitution where sharp sand is specified.

PART 3 EXECUTION

3.1 EXCAVATION

A. General

1. Contractor shall inspect the site and confirm actual grades and levels, and existing conditions under which the work is to be performed.
2. If unsuitable material or soft spots are encountered at the required subgrade elevations at the time of excavation or when compacting the subgrade, notify the Owners Representative.
3. The following materials shall be classed as unsuitable when found in the subgrade zone:
   a. Abandoned structures such as pipes or conduits, underground equipment, vaults, septic tanks, floor slabs or other similar constructions.
   b. Deposits of refuse or debris.
4. Embankments or fills shall be constructed in successive horizontal layers, not exceeding 8 in. in thickness. Each layer shall extend across the entire fill and shall be compacted to the required dry density as specified in Article 3.02 of this Section.

B. Preparation

1. Protection: Provide adequate protective measures of shoring, bracing, piling, planking and cribbing to protect existing adjacent construction.
   a. Protect all reference points, bench marks and monuments from dislocation or damage. Replace or repair immediately any points damaged, destroyed, or dislocated.
   b. Sprinkle and dampen all dusty material from the beginning of work to its completion.
   c. Protect and maintain all conduits, drains, inlets, sewers, pipes and wires that are to remain on the property.
   d. Provide, erect and maintain all lights, barricades, warning signs, and guards as necessary.
2. Layout: All work shall be laid out by a licensed surveyor employed by the Contractor. Cost of all layout work shall be borne by Contractor. Refer to Special Conditions. Contractor shall be responsible for all elevations, dimensions and verifications of actual conditions. Refer discrepancies to Owners Representative for interpretation or necessary modifications.
3. Site preparation (refer to Section 02100): Remove topsoil, grass, weeds, trees, shrubbery, roots and other vegetation from the areas to be excavated, filled or graded.
4. Construction Slopes: No slopes shall be constructed or excavated that violate the provisions of OSHA (Occupational Safety and Health Administration) criteria given in Article 1926, Sub-Part P, Table P-1, without having the geotechnical consultant specifically analyze such slopes. Refer to Special Conditions for other requirements.

C. Unauthorized Excavation

1. Unauthorized excavation shall consist of removal of materials beyond indicated subgrade elevations, limits or dimensions.
2. Remedial work shall be equal to that specified for normal earthwork in this Section.

D. Dewatering

1. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding the site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footing, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
3. Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits. Do not use trench excavations as temporary drainage ditches.
4. Notify Owners Representative in writing of work delays due to water or water-affected conditions.

3.2 COMPACTION

A. General: Control soil compaction during construction and attain the minimum percentage of density specified in this Section.

B. Required Density and Moisture

1. Compact fill material to 95 percent of the maximum dry density as determined in accordance with ACT D 698, Method A (Standard Proctor).
2. Obtain the specified compaction for fill material at a moisture content above optimum moisture. Determine optimum moisture in accordance with ACT D 698, Method A.

C. Moisture Control: Earthwork materials shall not be placed, spread, rolled or compacted during inclement weather. If such operations are interrupted by rain, operations shall not resume until the Contractor has determined that the moisture content and density of the previously placed material are within the specified limits.

3.3 BACKFILL AND FILL

A. Earthwork

1. Excavate to lines, elevations, and limits required by drawing details, plus sufficient distance and space to permit erection of forms, shoring and inspections. Excavate as required, regardless of types, conditions or moisture content of materials encountered. Refer to Uniform General Conditions for trenching requirements.
2. Grades: Cut all areas accurately to required cross-sections and grades. Take care to prevent excavation below required grades.
3. Materials shall be disposed of outside the limits of the project site and at the Contractor's responsibility. Make all necessary arrangements and obtain all permits required for traffic control during hauling operations.

B. Filling

1. Fill (or excavate as required) under items of construction as specified previously.
2. Filling: All granular fill shall be installed in loose lifts and uniformly compacted as specified for the types listed.
3. Preparations for filling:
   a. Complete stripping operations in advance of fill construction. Any material found in fill areas after stripping operation which, in the opinion of the Owners Representative, is unsuitable shall be removed from site.
   b. Areas on which any compacted earth fill is to be placed shall be rough graded, spot filled and leveled, and uniformly prepared to receive fills by means of power equipment.
4. All vegetation and root systems shall be removed prior to any select fill placement or construction. The resulting grade shall be proof-rolled, and any loose or soft spots shall be filled and compacted with an approved fill material. Fill materials used beneath vault, fountain and pool shall be a select, non-expansive soil meeting the Type I or Type II Select Fill gradation, plasticity and compaction criteria.

5. Placing Fill:
   a. Construct fill at location and to lines and grades required by drawings. Equipment for placing fills shall be capable of obtaining required density.
   b. Combined excavation and fill placing operations shall be such that materials when compacted in fill will be blended sufficiently to secure best practicable degree of compaction. Dump successive loads of material and spread and mix to give a horizontal layer of not more than specified in depth, loose measurement.
   c. No fill material shall be compacted until the layer of material has a uniform moisture content which will permit proper compaction, and material in each layer of fill, while being compacted, shall be maintained as nearly as practical at that degree of moisture content which is optimum for obtaining required compaction.
   d. If fill is to be placed on existing slopes that are steeper than 5 (horizontal) to 1 (vertical), such as could occur during undercutting of existing fill materials, then the new fill materials should be benched into the existing slopes in such a manner as to provide a good contact between the two materials, remove potential sliding planes, and allow relatively horizontal lift placement.
   e. After material has been brought to a uniform and satisfactory moisture content, each horizontal layer of all fill material shall be compacted as specified for each type.

C. Placing Topsoil

   l. General: Topsoil shall be placed in all areas to receive hydromulch or solid sod.
   2. Procedures: Excavate areas to receive topsoil a minimum depth of 2". Till or rake with fork bar to break-up compaction to 8" depth prior to placing topsoil.
   3. Place topsoil for final grading as per Section 31 22 00 - Grading.

D. Backfilling

   1. General: Backfilling includes filling and compaction beneath concrete paving and structural concrete; against and around concrete after forms have been removed and inspection completed. Compact backfills as specified.
   2. Procedures:
      a. Do not begin backfilling until construction below finish grade has been approved, underground utilities inspected; tested and approved, forms removed, and excavation cleaned of trash and debris. Bring backfields to required grades.
      b. Backfill shall not be placed in wet or frozen areas. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundations, curbs, or walls than a distance equal to the height of backfill above the top of structural members; the area remaining shall be compacted by power driven hand tampers suitable for the material being compacted.

E. Reconditioning Subgrade Where Approved Compacted Subgrades are Distributed Contractor's subsequent operations or adverse weather: Scarify and compact subgrade to the required density prior to further construction thereon.

F. Grading

1. Establishment of grades: The Contractor shall be responsible for establishment of all grades by means of grade stakes placed at all abrupt changes of grade and elsewhere as required.
2. Rough grading: Rough grade to elevations required by drawings. Remove soft and unstable materials which will not readily compact when rolled and tamped. Fill resulting depressions with stable material and roll until required compaction is obtained.

3. Finish grade: Finish grade to elevations required by drawings less topsoil. All areas to be hydromulched or sodded shall receive imported topsoil to a depth indicated on drawings. At intermediate points for which finish grades are not indicated, finish grades shall be of uniform level or slope between points for which elevations are given. Round any abrupt changes in elevations. Make certain that finish grades slope away from structures in all directions to assure positive drainage.

G. Pavement Areas

1. Prepared subgrade for new pavement: Prior to pavement construction, the subgrade shall be scarified 6", uniformly recompacted to a minimum of ninety-five (95) percent of ASTM D-698, at, or slightly above, the optimum moisture determined by that test and maintained in a moist condition until the pavement is placed.
2. Restore, without extra cost to Owner, all paved areas of existing parking areas, streets, curbs, etc. that may be opened or damaged in performance of the work included in contract. Pavement work and lawn areas shall match existing and shall comply with the requirements of applicable governing ordinances.

H. Grading Around Existing Trees: Refer Section 2100, Site Preparation.

I. Field Testing Earthwork: All earthwork shall be field tested by a recognized independent testing agency selected and paid for by the Owner. Payment for service authorized by Owner will be by the Owner, directly to the Testing Lab, unless specifically specified to the contrary. Proof test of materials and mixes shall be by Lab selected by the Owner but paid for by the Contractor. After approval, all authorized successful tests are paid for by the Owner.

J. Adjustments and Cleaning

1. Settlement or washing: Settlement or washing that occurs in areas, prior to acceptance of the work, shall be repaired and grades reestablished to the required elevations and slopes.
2. Clean up all debris caused by work of this section, keeping premises neat and clean at all times.

END OF SECTION 312200

SECTION 312333 - EXCAVATION, TRENCHING & BACKFILLING

All excavation will meet the most current OSHA Regulations.

PART 1 - GENERAL

1.1 DESCRIPTION

A. The work to be performed under this Specification shall consist of furnishing all labor, equipment and materials and performing all operations in connection with the excavating, trenching, and backfilling for pipelines as shown on the plans and as specified herein.

1.2 MEASUREMENT AND PAYMENT

A. All trench excavation backfill and compaction are not considered pay items. Payment for these items shall be included in the unit price laid in the Proposal for each size of pipe at their respective depths. This unit price shall be full remuneration for performing the trench and backfill complete including grading, bell holes, sheeting, dewatering, tamping, and water soaking; and including the furnishing of sewer pipe, all equipment, labor, materials, power, teams, tools, and transportation necessary or incidental thereto; but not including tunneling, or boring, all of which will be paid for as a separate item.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials for pipe embedment will meet LDHH Regulations for depth of bury and class of pipe and local requirements for embedment.

B. Concrete (For encasement or blocking) See SECTION 32 13 13 – CONCRETE PAVING.

Material shall conform to ASTM C94. The compressive strength of the concrete shall be at least 2,000 psi and shall contain at least four (4) sacks of cement per cubic yard.

C. Cement stabilized sand.

2.2 TESTING REQUIREMENTS

A. Compaction tests for all backfill may be required for every 200 linear feet of trench and for each twelve-inches (12") vertically. Density tests shall be measured as one unit for each test. The Owner shall pay for Geotechnical tests ordered that meet the requirements of the plans and specifications. Failed tests shall be charged to the Contractor.

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. CONTROL OF WATER

Provide sufficient pumping equipment, in good working order, available at all times to remove any water that accumulates in excavations. When the excavation crosses a drainage pathway, the contractor shall provide for means of alternate drainage. The discharge of dewatering equipment shall not cause damage to private or public property.

B. SHEETING, SHORING, AND BRACING

In caving ground, or in wet, saturated, or flowing materials, the contractor shall sheet, shore, or brace the sides of the trench so as to maintain the excavation properly in place. When excavations are made adjacent to existing building or other structures or in paved streets, particular care must be taken to adequately sheet, shore, and brace the sides of the excavation to prevent undermining of, or settlement beneath, the structures or pavement. Underpinning of adjacent structures or pavement shall be done by the Contractor at his own cost and expense, in a manner satisfactory to the Engineer and when required by the Engineer. The pavement shall be removed, the void satisfactorily refilled and compacted, and the pavement replaced by the Contractor. The entire expense of such removal and subsequent replacement thereof shall be borne by the Contractor. Sheeting, shoring, and bracing shall not be left in place, unless otherwise provided for in the contract or authorized by the Engineer. The removal of sheeting, shoring and bracing shall be done in such a manner as not to endanger or damage either new or existing structure, private or public properties, and to avoid cave-ins or sliding of the banks. All holes or voids left by the removal of the sheeting, shoring, or bracing shall be immediately and completely filled and compacted with suitable materials.

C. GUARANTEE

1. Guarantee the backfilling of excavation and trenches against settlement for a period of one (1) year after the final completion of the contract under which the work is performed.
2. Make all repairs or replacements made necessary by settlement, including refilling, compacting, and reseeding or re-sodding the upper portion of the ditch and repairing broken or settled pavements, driveways, and sidewalks within five (5) days after notice from the Engineer.

D. PREPARATION

1. <u>Site Preparation</u>
   Prepare the construction site for construction operations by removing and disposing of all obstructions and objectionable materials in accordance with contract documents.
2. <u>Alignment, Grade and Minimum Cover</u>
   a. General
      The water and sewer mains shall be laid and maintained to lines and grades established by the plans and specifications with fittings, valves, hydrants, manholes and clean-outs at the required locations, unless otherwise pre-approved by the Engineer. Valve-operating stems shall be oriented in a manner to allow proper operation. Hydrants shall be installed plumb.

b. Cut sheets shall be provided to the Inspector. The contractor shall determine the alignment and grade or elevation of the pipeline from offset stakes. The contractor shall also provide a continuous chalk line along the alignment of the trench for use by the operator of the excavating equipment. The contractor shall provide a laser beam and grade pole to assist in grading the ditch to the proper elevation.

c. Should the ditch be graded below the required elevation, bring subgrade to the required elevation with cement stabilized sand or rounded pea gravel. The use of excavating materials for this application will not be allowed.

d. Where pipe grades or elevations are not definitely fixed by contract drawings, trenches shall be excavated to a depth sufficient to provide a minimum depth of backfill cover over the pipe. Greater pipe cover depths may be necessary for clearance beneath existing pipes, conduits, drains, drainage structures, or other obstructions encountered at normal pipe grades. Measurement of pipe cover depth shall be made vertically from the outside top of pipe to finished ground or pavement surface elevations.

3. Prior Investigation

Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care should be exercised by the Contractor during excavation avoid damage to existing structures.

4. Unforeseen Obstructions

When obstructions that are not shown on the plans are encountered during the progress of work and interfere so that an alteration of the plans is required, the Engineer will alter the plans or order a deviation in line and grade or arrange for removal, relocation or reconstruction of the obstructions.

5. Clearance

When crossing existing pipelines or other structures, alignment and grade shall be adjusted as necessary, with the approval of the Engineer, to provide clearance as required by federal, state or local regulations or as deemed necessary by the Engineer to prevent future damage or contamination of either structure.

E. EXCAVATION

All excavation shall meet the most current OSHA regulations.

1. Classification

Excavation of trenches for pipelines is unclassified. Soils will be classified utilizing OSHA Standards and Regulations. The Contractor shall assume that the site contains the worse type of soils and make provisions for shoring the work area.

2. Trench Excavation

a. General

The trench shall be excavated to the required alignment, depth and width and in conformance with all federal, state and local regulations for the protection of the workmen.

b. Trench Preparation
   1) Trench preparation shall proceed in advance of pipe installation for only as far as pipe will be laid that day.
   2) The contractor shall keep the trench dry from both storm water and seepage from the sides of the trench. Discharge from any trench dewatering pumps shall be conducted to natural drainage channels, storm sewers or a pre-approved reservoir. Do not discharge into any municipal sewer system without municipal approval. The contractor shall be responsible for cleaning any storm drain system, which was used for dewatering discharge.
   3) Excavated material shall be placed in a manner that will not obstruct the work nor endanger the workmen, obstruct sidewalks, driveways, or other structures and shall be done in compliance with federal, state, or local regulations.

3. Pavement Removal

Removal of pavement and road surfaces shall be a part of the trench excavation, and the amount removed shall depend upon the width of trench required for installation of the pipe and the dimensions of area required for the installation of valves, hydrants, specials, manholes or other structures. The dimensions of pavement removed shall not exceed the dimensions of the opening required for installation of pipe, valves, hydrants, specials, manholes and other structures by more than twelve (12") inches in any direction, unless otherwise required or pre-approved by the Engineer.

4. Width

See LDOTD Standard Bedding and Trench Detail.

5. Bell Holes

Holes for the bells shall be provided at each joint but shall be no larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide support for the full length of the pipe barrel, except that a slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

6. Subgrade in Earth
   a. Where a firm and stable foundation for the pipe can be obtained in the natural soil, and where special embedment is not shown on the plans, or specified herein, carefully and accurately trim the bottom of the trench to fit the lower portion of the pipe barrel. The bottom of the trench shall be firm, stable and free of standing water.
   b. If water is allowed to collect in an originally dry trench after a reasonable time has passed to complete the embedment of the pipe, as determined by the Engineer, the contractor shall place a minimum of four (4") inches of clean rounded pea gravel in the ditch and pump out all accumulated water before placing the pipe. No deleterious materials will be allowed in the gravel. No extra compensation will be allowed for this work.
   c. Where wet, soft, or spongy material is encountered in the excavation at subgrade level, the contractor shall remove such material at the direction of the Engineer and replace it with crushed stone of sufficient quantity such that when fully compacted, the subgrade is firm and stable.

7. Subgrade in Rock
   a. When excavation of rock is encountered, all rock shall be removed to provide a clearance of at least six (6") inches below and on each side of all pipe, valves and fittings for pipe sizes twenty-four (24") inches or smaller, and nine (9") inches for pipe sizes thirty (30") inches and larger. When excavation is completed, the proper embedment material shall be placed on the bottom of the trench to the previously mentioned depths, leveled and tamped.
   b. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris or subterranean structures, such as masonry walls, piers or foundations that may be encountered during excavation.
   c. The installation procedures specified in this section shall be followed when gravel formations containing loose boulders greater than eight (8") inches in diameter are encountered.
   d. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection or point of rock, boulder or stones of sufficient size and placement, which, in the opinion of the Engineer, could cause a fulcrum point.

F. CONCRETE ENCASEMENT

The Contractor shall place 2,000 psi concrete encasement under and around pipe as shown on the embedment detail and provide necessary anchors to prevent the pipe from floating out of place. The contractor shall remove and relay any pipes that are floated out of proper position

G. BACKFILLING
1. General
   a. The Contractor shall not begin backfilling until approval has been obtained from the Inspector. Backfilling includes refilling and consolidation of the fill in trenches and excavations up to the natural ground surface or road grade.
   b. Backfill shall be accomplished in accordance with the specified laying condition as shown on the plans.
2. Backfill Material
   a. All backfill material shall meet latest edition of ASTM D2321 unless otherwise specified by the Engineer.
   b. If excavated material is indicated on the drawings or specified for backfill, and there is a deficiency due to a rejection of part thereof, the contractor shall provide the required amount of sand, gravel or other pre-approved material.
3. Do not leave trenches open overnight without backfilling to the natural ground level.
   Steel plates (1/2" in thickness) may be used to cover open trenches only with the approval of the Engineer.
4. Compaction
   Compaction requirements are as specified on the plans.

END OF SECTION 312333

SECTION 312513 – EROSION CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes installing, maintaining and removing:
   1. Silt Fence
   2. Temporary Construction Entrances
   3. Diversion Channels
   4. Sediment Traps
   5. Rip Rap
   6. Stone Check Dams
   7. Inlet Protection
   8. Site Stabilization

B. Related Sections:
   1. Section 31 10 00 - Site Clearing.
   2. Section 31 23 16 - Excavation and Fill.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-pound) rammer and a 457-mm (18-inch) drop.

B. ASTM International:
   1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
   2. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).
   3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
   4. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

C. LDOTD Standard Specifications:
   1. Standard Specifications for Roads and Bridges, 2006, published by the Louisiana Department of Transportation.

1.3 SUBMITTAL

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on geotextile, posts, woven wire, concrete mix design, and pipe.

C. Manufacturer's Certificate: Certify products and aggregates meet or exceed specified requirements.

D. Closeout Submittals: Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

1.4 QUALITY ASSURANCE

A. Standard of quality shall conform to the standards and practices set forth in: "Louisiana Storm Water Management and Sedimentation Control Handbook for Land Disturbance Activities", February 1998 or latest edition.

B. Maintain one copy of document on site.

1.5 PRE-INSTALLATION MEETINGS

A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this Section.

PART 2 – PRODUCTS

2.1 GEOTEXTILE MATERIALS

A. Engineering Fabric Materials: Non-biodegradable conforming to Section 815.02 of LDOTD Standard Specifications:
1. Silt Fence: Type 3, Class A or B Engineering Fabric.
2. Under Rip Rap or Construction Entrances: Type 2 Engineering Fabric.

2.2 STONE, AGGREGATE, AND SOIL MATERIALS

A. Stone for Sediment Trap and Check Dam: Class B erosion control stone conforming to Division 800 of the LDOTD Standard Specifications. Minimum size 5 inches, midrange size 8 inches, and maximum size 12 inches equally distributed.

B. Stone for Rip Rap: Class 1 erosion control stone conforming to Division 800 of the LDOTD Standard Specifications. Minimum size 5 inches, midrange size 10 inches, and maximum size 17 inches equally distributed.

C. Washed Stone: Coarse aggregate, Gradation No. 57 conforming to Division 800 of the LDOTD Standard Specifications.

D. Aggregate for Construction Entrance: Coarse aggregate, Gradation No. 4 or larger with maximum size of 3 inch, conforming to Division 800 of the LDOTD Specifications.

E. Soil Fill: Clean natural soil with a plasticity index of 15 or less that is free of clay, rock, or gravel lumps larger than 2 inches in any dimension; debris; waste; frozen material; and any other deleterious material that might cause settlement. Suitable material excavated from the site may be used as soil fill under optimum moisture conditions.

2.3 PLANTING MATERIALS

A. General: Conform to rules and regulations as specified in the LDOTD Standard Specifications for seed, agricultural ground limestone, fertilizers, and mulch.

B. Temporary Seed Mixture:
   1. Late winter and early spring: Rye
   2. Summer: Common Bermuda
   3. Fall: Rye and Common Bermuda

C. Fertilizer: Commercial grade; recommended for grass.

D. Lime: ASTM C602, Class O agricultural ground limestone containing a minimum 80 percent calcium carbonate equivalent.

E. Mulch: Wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

2.4 CONCRETE

A. Concrete: Class B concrete conforming to Section 701 of the LDOTD Standard Specifications.
   1. Compressive strength of 2,500 psi at 28 days.
   2. Air entrained.
   3. Water cement ratio of 0.488 with rounded aggregate and 0.567 with angular aggregate.
   4. Maximum slump of 2.5 inches for vibrated concrete and 4 inches for non-vibrated concrete.
   5. Minimum cement content of 508 lbs per cubic yard for vibrated and 545 lbs per cubic yard for non-vibrated concrete.

2.5 PIPE MATERIALS

A. Pipe: Corrugated steel pipe and fittings conforming to Section 715.2.3 of LDOTD Standard Specifications.

2.6 ACCESSORIES

A. Posts for Silt Fence and Inlet Protection: Steel posts 5 feet long, 1-3/8 inches wide, minimum weight 1.25 lbs/ft. conforming to Section 815.4.6 of the LDOTD Standard Specifications.

B. Woven Wire Fence for Silt Fence: Minimum 32 inches high, minimum 5 horizontal wires, vertical wires spaced 12 inches apart, minimum 10 gage top and bottom wires, and minimum 12-1/2 gage; all other wires conforming to Section 815 of the LDOTD Standard Specifications.

C. Attachment Devices for Silt Fence: No. 9 staple, minimum 1-1/2 inches long, or other approved attachment devices.

D. Hardware Cloth for Inlet Protection: 24 gage, 1/4-inch mesh opening hardware cloth.

2.7 SOURCE QUALITY CONTROL (AND TESTS)

A. Section 01 40 00 - Quality Requirements: Testing, inspection, and analysis requirements.

B. Perform tests on cement, aggregates, and mixes to ensure conformance with specified requirements.

C. Make rock available for inspection at producer's quarry prior to shipment. Notify Architect/Engineer at least seven days before inspection is allowed.

D. Allow witnessing of inspections and tests at manufacturer's test facility. Notify Architect/Engineer at least seven days before inspections and tests are scheduled.

PART 3 EXECUTION

3.1 EXAMINATION

A. Section 01 30 00 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify compacted subgrade is acceptable and ready to support devices and imposed loads.

C. Verify gradients and elevations of base or foundation for other work are correct.

3.2 SILT FENCE

A. Install in accordance with Section 815 of the LDOTD Standard Specifications at locations shown on Drawings.

B. Use wire fence with Class A fabric.

C. Class B fabric may be used without woven wire backing subject to the following:

1. Fabric is approved by Architect/Engineer.
2. Maximum post spacing is 6 feet.
3. Posts are inclined toward runoff source not more than 20 degrees from vertical.

3.3 TEMPORARY CONSTRUCTION ENTRANCES

A. Excavate and compact subgrade as specified in Section 31 23 16.

B. Install construction entrances at the dimensions and locations as shown on Drawings. Minimum thickness is 6 inches.

C. Mound aggregate near intersection with public road to prevent site runoff entering road.

D. Periodically dress entrances with 2-inch thick course aggregate when aggregate becomes clogged with soil.

3.4 DIVERSION CHANNELS

A. Excavate channel

B. Windrow excavated material on low side of channel.

C. Compact to 95 percent maximum density.

D. On entire channel area, apply soil supplements and sow seed

E. Mulch seeded areas with hay

3.5 SEDIMENT TRAPS

A. Clear site as specified in Section 3100 00.

B. Construct trap by excavating and forming embankments as specified in Section 31 23 16.

C. Place coarse aggregate or rock at outlet as indicated on Drawings.

D. Place geotextile fabric as specified for rocklining.

E. On entire sediment trap area, apply soil supplements and sow seed as specified in Section 32 92 19.

F. Mulch seeded areas with hay as specified in Section 32 92 19.

G. Clean trap of accumulated sediment when directed but no less than when trap is half full of sediment.

3.6 ROCK LINIG (RIP RAP)

A. Excavate to depth of rock lining as indicated on Drawings or nominal placement thickness as follows. Remove loose, unsuitable material below bottom of rock lining and replace with suitable material. Thoroughly compact and finish entire foundation area to firm, even surface.

B. Lay and overlay geotextile fabric over substrate. Lay fabric parallel to flow from upstream to downstream. Overlap edges upstream over downstream and upslope over downslope. Provide a minimum overlap of 3 feet. Offset adjacent roll ends a minimum of 5 feet when lapped. Cover fabric as soon as possible and in no case leave fabric exposed more than 4 weeks.

C. Carefully place rock on geotextile fabric to produce an even distribution of pieces

with minimum of voids and without tearing geotextile.

D. Unless indicated otherwise, place full course thickness in one operation to prevent segregation and avoid displacement of underlying material. Arrange individual rocks for uniform distribution.

3.7 STONE CHECK DAM

A. Determine length required for ditch or depression slope and excavate, backfill, and compact foundation area to firm, even surface.

B. Place Class B erosion control stone in an even distribution of rock pieces with minimum voids to the indicated shape, height, and slope.

C. Construct washed stone filter blanket against upstream face of stone check dam to the thickness indicated on Drawings.

3.8 INLET PROTECTION

A. Install four posts around drainage structure and attach hardware cloth as indicated on Drawings.

B. Place Class B erosion control stone at base of fabric and mound at approximately 2:1.

C. Place washed stone filter blanket on upstream side(s).

3.9 SITE STABILIZATION

A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.

B. Construct, stabilize, and activate erosion controls before site disturbance within tributary areas of those controls.

C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2:1 or flatter.

D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.

1. During non-germinating periods, apply mulch at recommended rates.
2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year in accordance with Section 32 92 19 at 75 percent of permanent application rate with no topsoil.
3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 32 92 19 permanent seeding specifications.

E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

3.10 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

C. Perform laboratory material tests in accordance with ASTM D1557 or AASHTO 180.

D. Perform in place compaction tests in accordance with the following:
   1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
   2. Moisture Tests: ASTM D3017.

E. When tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

F. Frequency of Tests: Twice per lift for every 10,000 square feet.

3.11 CLEANING

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for cleaning.

B. When sediment accumulation in sedimentation structures has reached a point one-half depth of sediment structure or device, remove and dispose of sediment.

C. Do not damage structure or device during cleaning operations.

D. Do not permit sediment to erode into construction or site areas or natural waterways.

E. Clean channels when depth of sediment reaches approximately one-half channel depth.

3.12 SCHEDULES

A. Erosion Control Schedule:

Erosion Control Element	Location	Size
Silt Fence		
Temporary Construction Entrance		
Diversion Channel		
Sediment Trap		
Rock Lining (Rip Rap)		
Stone Check Dams		
Inlet Protection		
Sediment Pond		

END OF STION 312513

SECTION 313213 – LIME SOIL STABILIZATION

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Excavating, treatment, and placement of lime treated subsoil mix.

1.2 RELATED REQUIREMENTS

A. Section 310000 – Earthwork.

B. Section 312000 – Earth Moving.

C. Section 312200 – Grading.

1.3 PRICE AND PAYMENT PROCEDURES

A. See Section 012200 – Unit Prices, for unit price requirements and Louisiana Uniform Public Works Bid Form, Unit Price Form for included quantity and unit price requirements.

B. Measurement Method: By ton of material delivered to site and placed.

1.4 REFERENCE STANDARDS

A. AASHTO M 216 – Standard Specification for Lime for Soil Stabilization; American Association of State Highway and Transportation Officials; 2005.

B. ASTM C977 – Standard Specification for Quicklime and Hydrated Lime for Stabilization; 2010.

1.5 SUBMITTALS

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

B. Samples: Submit 5 lb. sample of lime, in airtight containers, along with material analysis from source, to testing laboratory for processing.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with State of Louisiana DOTD standards.

1.7 FIELD CONDITIONS

A. Do not mix subgrade and lime in wind more than 10 mph or when temperature is below 40 degrees F.

PART 2 – PRODUCTS

2.1 MIX MATERIALS

A. Subsoil: Existing reused.

B. Lime: AASHTO M 216 hydrated lime.

2.2 ACCESSORIES – N/A

2.3 EQUIPMENT

A. Equipment: Capable of excavating subsoil, mixing and placing materials, wetting, consolidation, and compaction of material.

2.4 LIME/SOIL MIX

A. Mix materials in accordance with State of Louisiana DOTD standard.

B. Carefully add water to the mix to achieve a consistent mixture, without lumping, yet not create a wet-plastic consistency.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Do not place fill over frozen or spongy subgrade surfaces.

3.3 EXCAVATION

A. Protect adjacent structures from damage by this work.

B. Proof roll subgrade to identify soft areas; excavate those areas.

C. Notify Engineer of unexpected subsurface conditions. Discontinue affected Work in area until notified to resume work.

D. Stockpile excavated material in designated area on site.

3.4 SOIL TREATMENT AND BACKFILLING

A. Site mix subsoil, back fill and compact.

B. Maintain optimum moisture content of mix materials to attain required stabilization.

C. Compact to 95 percent of maximum density determined in accordance with ASTM D698.

D. Shape to required line, grade and cross section.

3.5 CURING

A. Allow blended subsoil to "mellow" for a period of forty-eight (48) hours prior to testing for compaction, via on-site density testing.

3.6 TOLERANCES

A. Top surface of Fill: Plus, or minus one-half inch from required elevations.

3.7 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 40 00.

B. Compression test and analysis of hardened fill material will be performed in accordance with ASTM D698.

C. Frequency of Tests: Four (4) evenly spaced density tests of subgrade.

END OF SECTION 313213

SECTION 321313 - CONCRETE PAVING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes Concrete Paving. Including the Following:
   1. Driveways.
   2. Roadways.
   3. Parking lots.
   4. Curbs and gutters.
   5. Walks.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each exposed product and for each color and texture specified.

C. Other Action Submittals:
   1. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready- mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
   1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

PART 2 – PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 (ACI 301M) unless otherwise indicated.

2.2 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
   1. Use flexible or uniformly curved forms for curves with a radius of 100 feet (30.5 m) or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from as-drawn steel wire into flat sheets.

B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

C. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars [zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating]. Cut bars true to length with ends square and free of burrs.

D. Tie Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
   1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
   2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

2.4 CONCRETE MATERIALS

A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
   1. Portland Cement: ASTM C 150/C 150M, white portland cement Type I.
   2. Fly Ash: ASTM C 618, Class C or Class F.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, [Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B, dissipating.

2.6 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

B. Slip-Resistive Aggregate Finish: Factory-graded, packaged, rustproof, nonglazing, abrasive aggregate of fused aluminum-oxide granules or crushed emery aggregate containing not less than 50 percent aluminum oxide and not less than 20 percent ferric oxide; unaffected by freezing, moisture, and cleaning materials.

2.7 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301 (ACI 301M), for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
   1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
   2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.

B. Cementitious Materials: Use admixtures according to manufacturer's written instructions.

C. Concrete Mixtures: Normal-weight concrete.
   1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
   2. Maximum W/C Ratio at Point of Placement: 0.45
   3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
   4. Air content 6% or +/- 15%

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.

C. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.

D. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

E. Screed paving surface with a straightedge and strike off.

F. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.7 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed water sheen has disappeared, and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:

1. Elevation: 3/4 inch (19 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-feet- (3-m-) long; unleveled straightedge not to exceed 1/2 inch (13 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.10 REPAIR AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Engineer.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321373 – CONCRETE PAVING JOINT SEALANTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Cold-applied joint sealants.
   2. Hot-applied joint sealants.
   3. Cold-applied, fuel-resistant joint sealants.
   4. Hot-applied, fuel-resistant joint sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch-(150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Paving-Joint-Sealant Schedule: Include the following information:
   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1.5 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer [or are below 40 deg. F (5 deg. C)].
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 – PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type SL.

2.3 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.5 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of joint-sealant backings.
   2. Do not stretch, twist, puncture, or tear joint-sealant backings.
   3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
   1. Place joint sealants so they fully contact joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Non-sag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
   1. Remove excess joint sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

END OF SECTION 321373

SECTION 321600 – SIDEWALKS, CURBS, AND GUTTERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Concrete WORK shall consist of air entrained Portland cement constructed on a prepared subgrade in accordance with these SPECIFICATIONS. The completed WORK shall conform to the thicknesses and typical cross-sections shown on the DRAWINGS. The completed WORK shall conform to the lines and grades shown on the DRAWINGS or to those established by ENGINEER at the job site.

1.2 RELATED SECTIONS

A. The following is a list of SPECIFICATIONS which may be related to this section:
   1. Section 31 23 00, Excavation and Fill.
   2. Section 31 23 19, Dewatering.
   3. Section 31 23 33, Trenching and Backfilling.

1.3 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Association of State Highway and Transportation Officials (AASHTO):
      a. M6, Standard Specification for Fine Aggregate for Hydraulics Cement Concrete.
      b. M80, Standard Specification for Coarse Aggregate for Hydraulics Cement Concrete.
      c. M148, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
      d. M154, Standard Specification for Air-Entraining Admixtures for Concrete
      M171, Standard Specification for Sheet Materials for Curing Concrete.
      f. M182, Standard Specification for Burlap Cloth Made from Jute or Kenaf and Cotton Mats.
      g. M194M/M194, Standard Specification for Chemical Admixtures for Concrete.
      h. T22, Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
      i. T23, Standard Method of Test for Making and Curing Concrete Test Specimens in the Field.
      j. T26, Standard Method of Test for Quality of Water to Be Used in Concrete.
      T27, Sieve Analysis of Fine and Coarse Aggregates
      l. T96, Standard Method of Test for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
      m. T11, Standard Method of Test for Clay Lumps and Friable Particles in Aggregate.
      n. T119M/T119, Standard Method of Test for Slump of Hydraulic Cement Concrete.
      o. T121M/T121, Standard Method of Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
      p. T141, Standard Method of Test for Sampling Freshly Mixed Concrete.

q. T152, Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method.
r. T176, Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
s. T199, Standard Method of Test for Air Content of Freshly Mixed Concrete by the Chace Indicator.

2. ASTM International (ASTM):
   a. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
   b. C920, Standard Specification for Elastomeric Joint Sealants.
3. Louisiana Department of Transportation (CDOT):
   a. Section 703.01, Fine Aggregate for Concrete.
   b. CP30, Sampling of Aggregates.
   c. CP31A, Sieve Analysis of Fine and Coarse Aggregates.
   d. CP60, Determining Surface Moisture in Fine and Coarse Aggregates.

1.4 SUBMITTALS

A. CONTRACTOR shall cooperate with ENGINEER in obtaining and providing samples of all specified materials.

B. CONTRACTOR shall submit certified laboratory test certificates for all items required in this section.

C. Contractor shall submit mix design for concrete in writing to ENGINEER for approval prior to placement of concrete.

D. CONTRACTOR shall submit batch tickets for each load of concrete. Tickets shall show weight of all materials and additives used in each batch.

PART 2 PRODUCTS

2.1 MATERIALS

A. Concrete Conformance:

1. Concrete shall conform to the following requirements:

Concrete Requirements	
28-Day Field Compressive Strength	3,500 psi
Cement/Fly Ash	600 lbs./cu. yd.
Max. Water/Cement Ratio	0.53
Air Content % Range	5-8
Maximum Slump	4"
Fine Aggregate (max. % of total Aggregate)	50%

2. This material shall consist of a mixture of course and fine aggregates, Portland

cement, water and other materials or admixtures as required. The type of cement shall be Type I, II, or I/II unless sulfate conditions dictate otherwise. If sulfate conditions exist, Type V cement shall be used.

B. Concrete Aggregates: The grading and composition requirements for coarse and fine aggregates for concrete shall conform to the following tables.

Coarse Aggregates for Portland Cement Concrete	
Sieve Size or Test Procedure	% Passing or Test Requirement
1 inch	100
¾ inch	90-100
⅜ inch	20-55
No. 4	0-10
No. 8	0-5
% Wear	45, Max
Clay Lumps * Friable Particles, %	2.0, Max
Coal & Lignites, %	0.5, Max
Sodium Sulfate Soundness %	12, Max

Fine Aggregates for Portland Cement Concrete	
Sieve Size or Test Procedure	% Passing or Test Requirement
⅜ inch	100
No. 4	95 - 100
No. 16	45 - 80
No. 50	10 - 30
No. 100	2 - 10
No. 200	3, Max
Friable Particles, %	1.0, Max
Coal & Lignite, %	1.0, Max
Deleterious Material (AASHTO T112),%	3, Max
Sand Equivalent (AASHTO T176),%	80, Min
Fineness Modules	2.50 - 3.50
Sodium Sulfate Soundness, %	20.0, Max

Fine Aggregates for Portland Cement Concrete	
Sieve Size or Test Procedure	% Passing or Test Requirement
⅜ inch	100
No. 4	95 - 100
No. 16	45 - 80
No. 50	10 - 30
No. 100	2 - 10
No. 200	3, Max
Friable Particles, %	1.0, Max
Coal & Lignite, %	1.0, Max
Deleterious Material (AASHTO T112),%	3, Max
Sand Equivalent (AASHTO T176),%	80, Min
Fineness Modules	2.50 - 3.50
Sodium Sulfate Soundness, %	20.0, Max

C. Coarse Aggregate for Concrete: Coarse aggregates shall conform to the requirements of AASHTO M80, except that the percentage of wear shall not exceed forty-five (45) when tested in accordance with AASHTO T96. Coarse aggregate shall conform to the grading in above table.

D. Fine Aggregate for Concrete: Fine aggregates shall meet Louisiana Department of Transportation requirements and gradation as shown above. Fine aggregate for concrete shall conform to the requirements of AASHTO M6. The amount of deleterious substances removable by elutriation shall not exceed three percent (3%) by dry weight of fine aggregate when tested in accordance with AASHTO T11, unless otherwise specified. The minimum Sand Equivalent, as tested in accordance with AASHTO T176 shall be eighty (80), unless otherwise specified. The Fineness Modules shall not be less than two and five-tenths (2.50) nor greater than three and five-tenths (3.50), unless otherwise approved.

E. Fly Ash and Water: Upon approval based on a satisfactory trial mix, CONTRACTOR shall have the option of substituting approved fly ash for Portland cement, up to a maximum of twenty percent (20%) by weight. The total weight of cement and fly ash shall not be less than the specified mix design.

1. Fly ash for concrete shall conform to the requirements of ASTM C618, Class C or Class F. All chemical requirements of ASTM C618 Table 1-A shall apply with the exception of footnote A.

    a. Class C fly ash will not be permitted where sulfate resistant cement is required.

    b. CONTRACTOR shall submit certified laboratory test results for the fly ash. Test results that do not meet the physical and chemical requirements may have been taken to ensure that the material meets the SPECIFICATIONS.

2. Water used in mixing or curing shall be clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substance injurious to the finished product. Water shall be tested in accordance with and shall meet the suggested requirements of AASHTO T26. Water known to be of potable quality may be used without test. Where the source of water is relatively shallow, the intake shall be enclosed to exclude silt, mud, grass, or other foreign materials.

F. Concrete Curing Materials and Admixtures:

1. Curing Materials: Curing materials shall conform to the following requirements as specified:
    a. Burlap Cloth made from Jute or Kenaf: AASHTO M182.
    b. Liquid Membrane-Forming Compounds Curing Concrete: AASHTO M148.
    c. Sheet Materials for Curing Concrete: AASHTO M171.
    d. Straw shall not be used for curing unless approved by ENGINEER.
2. Air-Entraining Admixture: Air-entraining admixtures shall conform to the requirements of AASHTO M154. Admixtures which have been frozen will be rejected. No chloride containing additives shall be permitted.

3. Chemical Admixtures: Chemical admixtures for concrete shall conform to the requirements of AASHTO M194M/M194. Admixtures which have been frozen will be rejected.
4. Joint Fillers: The joint fillers shall meet the requirements of ASTM C920.

PART 3 EXECUTION

3.1 SUBGRADE PREPARATION

A. The subgrade shall be excavated or filled to the required grades and lines. All soft, yielding, or otherwise unsuitable material shall be removed and replaced with suitable material with ENGINEER's approval. Filled sections shall be compacted and compaction shall extend a minimum of six (6) inches outside the form lines.

B. The moisture content of the subgrade shall be brought within +/- two percent (2%) of optimum moisture content and compacted to ninety-five percent (95%) of the maximum standard Proctor density (ASTM D698) for subgrade materials classified as A-4 through A-7 or ninety five percent (95%) of modified proctor density for materials classified as A-1 through A-3.

3.2 CONCRETE PLACEMENT

A. General:
1. Concrete transported in truck mixers or truck agitators shall be delivered to the site of the WORK and completely discharged within a period of ninety (90) minutes after the cement comes in contact with the mixing water or with the combined aggregates containing free moisture in excess of two percent (2%) by weight.
2. The concrete shall be placed either by an approved slip form/extrusion machine, by the formed method, or by a combination of these methods.
3. The subgrade shall be conditioned to provide a uniformly moist surface when concrete is placed.

B. Machine Placement: The slip form/extrusion machine shall be so designed to place, spread, consolidate, screed, and finish the concrete in one (1) complete pass in such a manner that a minimum of hand finishing will be necessary to provide a dense and homogenous concrete section. The machine shall shape, vibrate, and/or extrude the concrete for the full width and depth of the concrete section being placed. It shall be operated with as nearly a continuous forward movement as possible. All operations of mixing, delivery, and spreading concrete shall be so coordinated as to provide uniform progress, with stopping and starting of the machine held to a minimum.

C. Formed Method:
1. The vertical face of previously sawed and adjacent asphalt pavement may NOT be used as a forming surface. CONTRACTOR shall use forms on front and back of all curb and gutter, sidewalks and crosspans.

2. The forms shall be of metal or other suitable material that is straight and free from warp, having sufficient strength to resist the pressure of the concrete without displacement and sufficient tightness to prevent the leakage of mortar. Flexible or rigid forms of proper curvature may be used for curves having a radius of one hundred (100) feet or less. Division plates shall be metal. Where directed by ENGINEER, CONTRACTOR shall use a thin metal back form to preserve landscaping, sprinklers, etc. Form shall be straight and rigid and shall be approved by ENGINEER prior to use on PROJECT.
3. The front and back forms shall extend for the full depth of the concrete. All of the forms shall be braced and staked so that they remain in both horizontal and vertical alignment until their removal. No wooden stakes will be allowed. They shall be cleaned and coated with an approved form-release agent before concrete is placed against them. The concrete shall be deposited into the forms without segregation and then it shall be tamped and spaded or mechanically vibrated for thorough consolidation. Low roll or mountable curbs may be formed without the use of a face form by using a straight edge and template to form the curb face. When used, face forms shall be removed as soon as possible to permit finishing. Front and back forms shall be removed without damage to the concrete after it has set. In the asphalt patch detail to properly correct failed concrete sections, CONTRACTOR shall remove and replace said asphalt pavement beyond all failures to provide a smooth repair. ENGINEER shall be notified prior to commencing any additional asphalt removal.

3.3 FINISHING

A. The plastic concrete shall be finished smooth by means of a wood float and then it shall be given final surface texture using a light broom or burlap drag. Concrete that is adjacent to forms and formed joints shall be edged with a suitable edging tool to the dimensions shown on the DRAWINGS.

3.4 JOINTING

A. Contraction Joints:
   1. Contraction and construction joints shall be placed at the standard spacing of ten (10) feet in curb, gutter, sidewalks, crosspans, trickle channel, etc. A minimum spacing of five (5) feet shall be allowed for repairs.
   2. Transverse weakened-plane contraction joints shall be constructed at right angles to the curb line at intervals not exceeding ten (10) feet for curb and gutter or five (5) feet for sidewalk. Joint depth shall average at least one-fourth (1/4) of the cross-section of the concrete.
   3. Contraction joints may be sawed, hand-formed, or made by one-eighth inch (1/8") thick division plates in the formwork. Sawing shall be done early after the concrete has set to prevent the formation of uncontrolled cracking. The joints may be hand-formed either by (1) using a narrow or triangular jointing tool or a thin metal blade to impress a plane of weakness into the plastic concrete, or (2) inserting one-eighth inch (1/8") thick steel strips into the plastic concrete temporarily. Steel strips shall be withdrawn before final finishing of the concrete.

Where division plates are used to make contraction joints, the plates shall be removed after the concrete has set and while the forms are still in place.

B. Expansion Joints:
1. Expansion joints shall be constructed at right angles to the curb line at immovable structures and at points of curvature for short radius curves. Filler material for expansion joints shall conform to requirements of the requirements of ASTM C920 and shall be furnished in a single one-half inch (1/2") thick piece for the full depth and width of the joint.
2. Expansion joints in a slip-formed curb or curb-and-gutter shall be constructed with an appropriate hand tool by raking or sawing through partially set concrete for the full depth and width of the section. The cut shall be only wide enough to permit a snug fit for the joint filler. After the filler is placed, open areas adjacent to the filler shall be filled with concrete and then troweled and edged. CONTRACTOR may choose to place the filler and pour the concrete around it.
3. Alternately, an expansion joint may be installed by removing a short section of freshly extruded curb-and-gutter immediately, installing temporary holding forms, placing the expansion joint filler, and replacing and reconsolidating the concrete that was removed. Contaminated concrete shall be discarded.
4. Construction joints may be either butt or expansion-type joints. Curbs or combined curbs-and-gutters constructed adjacent to existing concrete shall have the same type of joints as in the existing concrete, with similar spacing however, contraction joint spacing shall not exceed ten (10) feet.

3.5 PROTECTION

A. CONTRACTOR shall always have materials available to protect the surface of the plastic concrete against rain. These materials shall consist of waterproof paper or plastic sheeting. For slip-form construction, materials such as wood planks or forms to protect the edges shall also be required. Concrete damaged by rain shall be required to be removed and replaced at CONTRACTOR's expense.

B. Concrete being placed in cold weather during which the temperature may be expected to drop below thirty-five degrees Fahrenheit (35°F), shall be suitably protected to keep the concrete from freezing until it is at least ten (10) days old. Concrete injured by frost action shall be required to be removed and replaced at CONTRACTOR's expense.

C. CONTRACTOR shall be responsible for correcting any vandalism or defacement (graffiti) that occurs on the concrete prior to final acceptance.

3.6 CURING

A. Concrete shall be cured for at least seven (7) days after placement to protect against loss of moisture, rapid temperature change, and mechanical injury prior to any overlay or reconstruction work. Moist burlap, waterproof paper, white polyethylene sheeting, white liquid membrane compound, or a combination thereof may be used as the curing material. Membrane curing shall not be permitted in frost-affected areas when the concrete will be exposed to deicing chemicals within thirty

(30) days after completion of the curing period.

3.7 BACKFILLING

A. The spaces in front and back of curbs shall be refilled with suitable material to the required elevations after the concrete has set sufficiently. The fill material shall be thoroughly tamped in layers.

3.8 SEALING

A. Where required, concrete shall be sealed with a mixture of one-half (1/2) linseed oil and one-half (1/2) diesel fuel, unless otherwise specified by ENGINEER.

3.9 TOLERANCE

A. Forms shall not deviate from true line by more than one-quarter (1/4) inch at any point.

B. Mixed concrete shall be not less than fifty degrees Fahrenheit (50°F), nor more than eighty degrees Fahrenheit (80°F) at the time of placement in forms, unless otherwise directed.

C. If air temperature is thirty-five degrees Fahrenheit (35°F) or less at the time of placing, ENGINEER shall require water and/or aggregate heated to not less than seventy degrees Fahrenheit (70°F), or more than one-hundred fifty degrees Fahrenheit (150°F).

D. Finished joints shall not deviate more than one-quarter (1/4) inch in the horizontal alignment from a straight line.

E. Any localized humps and or depressions greater than one-quarter (1/4) inch shall require removal and replacement of the WORK in question at CONTRACTORS expense

F. No ponding of water greater than three-eighths (3/8) inch shall be allowed.

G. Combination curb, gutter and walk and/or vertical curb and gutter flowline depth shall not vary from adopted standards by more than +/- one-half (1/2) inch, measured vertically from the top of curb to the gutter invert.

H. Pedestrian walks shall have a minimum of two percent (2.0%) and a maximum of two- and one-half percent (2.5%) slope toward the roadway.

I. Heave or settlement of sidewalk, relative to separate curb pour, greater than one-half (1/2) inch shall be cause for corrective action. This provision shall not apply to transverse sidewalk joints.

3.10 QUALITY CONTROL

A. Testing: Concrete testing and testing laboratory services required shall conform to the following unless otherwise determined by ENGINEER.

Section Type of Test	Project Acceptance Frequency	Point of Sampling Acceptan	Procedures	
			Test Sampling	Project Testing
Sidewalks (Concrete Aggregat	1/1000 square yards or fraction thereof for each size aggregate of	Stockpile, Belt or Bin	LDOTD	LDOTD
Curbing (Concrete Aggregat	1/2000 lineal feet or fraction thereof for each size aggregate of concrete placed		LDOTD	LDOTD
Moisture Content (Fine	1 per day and as often as needed for quality control		LDOTD	LDOTD

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Section Type of Test	Project Acceptance Frequen	Point of Sampling Acceptan	Procedures	
			Test Sampling	Project Testing
Moisture Content (Coarse Aggregat e)	1 per day min. where moisture content is greater than +0.5% from SSD condition	Stockpile, Belt or Bin	LDOTD	LDOTD
Slump	1 set of tests for every 1000 square yards or fraction thereof of concrete placed per day	The slump, air content, unit weight and compressive strength tests shall be carried out on the first truck of concrete for the daily placement and thereafter in conformance with this table by sampling from the mixer discharge or pumper truck discharge hose	AASHTO T141	AASHTO T119M/ T119
Air Content	1 set of tests for every 1000 square yards or fraction thereof of concrete placed per day		AASHTO T141 T199	AASHTO T152
Yield and Cement	4 tests for every 2000 lineal feet or fraction thereof of concrete placed per a day		AASHTO T141	AASHTO T121M/ T121
Compressive (Sidewalks)	1 set (4) of cylinders per 1000 square yards or fraction thereof of concrete placed per day		AASHTO T141 T23	AASHTO T22
Compressiv e (Curbing)	1 set (4) of cylinders per 2000 lineal feet or fraction thereof of concrete placed per day		AASHTO T141 T23	AASHTO T22

B. Repair:
   1. Prior to backfilling and after forms are removed, honeycombed, defective or damaged areas of concrete shall be repaired. Repairs shall be made within seven (7) days after the forms are removed.
   2. At the time of final acceptance inspection, the repair of all cracks shall be completed.
      a. Cracks that are less than one-quarter (1/4) inch wide, exhibit no horizontal or vertical shifting, may at the discretion of the OWNER, be sealed by routing approximately three-quarter (3/4) inch to one (1) inch deep by one-quarter (1/4) inch wide and filling with Sikaflex 1-A or equivalent.
      b. Any crack that extends through a joint shall require removal and replacement of the entire cracked area.
      c. Any longitudinal cracked section of concrete shall require complete removal and replacement of that section between joints.
      d. Repair action for hairline cracks as determined in 1, above, may be waived at the discretion of OWNER. For the purpose of this section, a hairline crack is one that is reasonably immeasurable and without separation as determined by ENGINEER.

3.11 CLEAN-UP

A. The surface of the concrete shall be thoroughly cleaned upon completion of the WORK and prior to the substantial completion walk through, and the site left in a neat and orderly condition.

END OF SECTION 321600

SECTION 321713 - PARKING BUMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01, apply to this Section.

B. Refer to Document 00 21 13, Instructions to Bidders, for substitution of materials and products.

C. Addenda issued during the bidding period that affect this section of the specifications.

1.2 SUMMARY

A. Section includes wheel stops.

B. Related Sections
   1. Section 03 30 00, Cast-In-Place Concrete
   2. Section 32 13 13, Concrete Paving

1.3 ACTION SUBMITTALS

A. Submit product data and installation instructions for each type of product indicated.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00, Project Management and Coordination.

1.5 WARRANTY

A. Provide written warranty against defects in material and workmanship for the work of this Section for a period of one year from the Date of Substantial Completion of the Project.

B. Refer to Section 01 77 00, Closeout Procedures, for Warranty form.

PART 2 - PRODUCTS

2.1 PARKING BUMPERS

A. Concrete Wheel Stops: Precast, steel-reinforced, air-entrained concrete, 4000 psi minimum compressive strength, 6 inches high by 8 inches wide by 72 inches long. Provide chamfered corners, transverse drainage slots on underside, and a minimum of two factory-formed or -drilled vertical holes through wheel stop for anchoring to substrate.
   1. Surface Appearance: Free of pockets, sand streaks, honeycombs, and other obvious defects. Corners shall be uniform, straight, and sharp.
   2. Mounting Hardware: Galvanized-steel hardware as standard with wheel-stop manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that pavement is in suitable condition to begin installation according to manufacturer's written instructions.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install wheel stops according to manufacturer's written instructions unless otherwise indicated.

B. Securely anchor wheel stops to pavement with hardware in each preformed vertical hole in wheel stop as recommended in writing by manufacturer. Recess head of hardware beneath top of wheel stop.

END OF SECTION 321713

SECTION 321723 – PAINTED PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes painted markings applied to concrete pavement.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

PART 2 - PRODUCTS

2.1 PAVEMENT-MARKING PAINT

A. Pavement-Marking Paint: MPI #32, alkyd traffic-marking paint.

1. Color: As indicated.

PART 3 - EXECUTION

3.1 PAVEMENT MARKING

A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.

B. Allow paving to age for a minimum of 30 days before starting pavement marking.

C. Sweep and clean surface to eliminate loose material and dust.

D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils (0.4 mm).

1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils. Apply paint so that it cannot run beneath the stencil.

END OF SECTION 321723

Section 32 18 13 - Synthetic Turf Installation

1. General

1.1 Scope of Work

The work under this section includes furnishing all labor, materials, equipment, and services necessary for the complete installation of synthetic turf over a concrete slab, including surface preparation, adhesive application, and installation of synthetic turf as described herein.

1.2 References

Comply with the standards and guidelines from the following organizations where applicable:

A) ASTM International (ASTM)
B) American Concrete Institute (ACI)
C) Synthetic Turf Council (STC)

1.3 Submittals

- Product Data: Submit manufacturer's product data sheets, including product specifications, installation instructions, and maintenance guidelines.
- Samples: Submit 12" x 12" sample of synthetic turf for approval.
- Adhesive Specifications: Submit product data on adhesive, including compatibility and performance information.
- Warranty: Provide a minimum 8-year manufacturer's warranty for the synthetic turf system, starting from the date of substantial completion.

1.4 Quality Assurance

- Installer Qualifications: Installer must have a minimum of three years' experience in installing synthetic turf systems of similar scope and complexity.
- Mock-Up: Provide a mock-up of at least 100 square feet of synthetic turf for approval prior to full installation. Mock-up may be part of the final installation if approved.

1.5 Delivery, Storage, and Handling

- Deliver materials in original packaging with manufacturer labels intact.
- Store materials in a clean, dry location in compliance with manufacturer recommendations.
- Protect adhesive from freezing temperatures and extreme heat.

1.6 Environmental Requirements

- Install synthetic turf only when ambient temperature is between 40°F (4°C) and 95°F (35°C).
- Concrete slab must be fully cured (minimum of 28 days) and free of moisture, oils, or debris.

1.7 Warranty

- Manufacturer's Warranty: Provide a written warranty from the synthetic turf manufacturer, warranting the turf system against defects in materials and workmanship for a period of eight (8) years from the date of substantial completion.
- Coverage: The warranty shall cover issues such as excessive fiber wear, seam separation, UV degradation, and other defects that result in product failure under normal use conditions.
- Remedy: The manufacturer shall replace or repair any defective turf materials at no cost to the Owner, including labor and materials.

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2. Products

2.1 Synthetic Turf

- Material: Durable monofilament polyethylene fiber with backing suitable for glue-down application, intended for use without infill.
- Pile Height: 1/2 inch to 3/4 inch.
- Color: Green, UV-stabilized to prevent fading.
- Backing: Permeable or non-permeable backing suitable for direct adhesion to concrete.
- Weight: Minimum face weight of 40 oz/square yard.

2.2 Adhesive

- Type: A two-component polyurethane adhesive recommended by the turf manufacturer.
- Characteristics: Suitable for bonding synthetic turf to concrete, resistant to weather conditions, UV-stable, and compatible with both the turf backing and concrete surface.
- Application Rate: Follow manufacturer's guidelines for coverage rates.

2.3 Concrete Slab Requirements

- Surface Finish: The concrete surface must be smooth, level, and free of any loose materials.
- Moisture Content: Concrete slab moisture vapor emission rate shall not exceed 3 lbs per 1,000 sq ft per 24 hours as determined by ASTM F1869.

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3. Execution

3.1 Examination

- Inspection: Verify that the concrete slab is clean, level, and dry. Verify that there are no cracks or depressions that may affect the performance of the synthetic turf system.
- Moisture Testing: Conduct moisture testing on the concrete slab before installation. Do not proceed if results exceed manufacturer recommendations.

3.2 Surface Preparation

- Cleaning: Clean concrete slab to remove dust, debris, oils, and any other contaminants.
- Repair: Fill any cracks or voids greater than 1/8 inch with an approved concrete patching compound. Grind high spots to ensure a level surface.

3.3 Installation

- Adhesive Application: Mix and apply adhesive in accordance with the manufacturer's instructions. Spread adhesive evenly over the concrete slab with a notched trowel or roller, ensuring complete coverage.
- Synthetic Turf Installation:
    - Unroll synthetic turf and allow it to relax for at least 2 hours before cutting.
    - Lay out synthetic turf in the desired direction. Cut turf to fit as needed, ensuring that seams are tight and consistent.
    - Press synthetic turf firmly into adhesive, using a roller to ensure proper adhesion. Pay special attention to seam areas to avoid lifting.
    - Allow adhesive to cure for the time recommended by the manufacturer before allowing foot traffic.

3.4 Finishing

- Trimming: Trim all edges for a neat, even finish. Ensure that turf lies flat with no ripples or bubbles.
- Seaming: Use adhesive seaming tape and adhesive for all joints. Ensure seams are secure and properly bonded.

3.5 Inspection and Cleaning

- Final Inspection: Inspect the installed turf for defects, bubbles, or unsecured areas. Ensure that all seams are tight.
- Cleaning: Clean surface of synthetic turf by removing any debris and adhesive residue.

3.6 Protection

- Protect installed synthetic turf from heavy foot traffic, construction equipment, or any other potential sources of damage until the adhesive is fully cured.

End of Section 32 18 13

SECTION 321823 – INFILLED SYNTHETIC TURF

PART ONE - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provision of the contract, including General and Supplementary Conditions apply to this section.

1.2 SCOPE OF WORK

Furnish all labor, materials, tools, and equipment necessary to install, in place, all synthetic turf material as indicated on the plans and as specified herein. The installation of all new materials shall be performed in strict accordance with the manufacturer's written instructions, and in accordance with all approved shop drawings.

A. Prior to order of materials, the Turf Contractor shall submit the following:

1. Product Data, including Independent Test Lab Results
2. Installation Details
3. Sample Warranty
4. Field Layout and Striping Shop Drawings
5. Minimum 12" x 18" sample of the exact turf to be provided, in each color noted within the construction plans.
6. Minimum 10" x 10" sample of the exact shock pad/drainage blanket material to be provided.
7. Details on construction, especially any details that may deviate from plans and specifications.

B. Prior to the beginning of installation, the Turf Contractor/Manufacturer of the synthetic turf shall inspect the subbase and supply a Certificate of Subbase Acceptance for the purpose of obtaining manufacturer's warranty for the finished synthetic turf playing surface.

C. Prior to final acceptance, the Turf Contractor shall submit to the Owner three (3) copies of Maintenance Manuals, which will include necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and striping.

D. Project Record Documents: Record actual locations of seams, drains and other pertinent information.

E. Submit Bills of Lading/Material Delivery Receipts for synthetic turf infill materials. Bills of lading shall bear the name of the project/delivery address, quantity of materials delivered, source/location of origin of infill materials and/or manufacturer, and date of delivery.

1.3 SHOP DRAWINGS

A. Shop drawings shall be prepared at the scale of the construction documents and contain all pertinent information regarding installation. These drawings shall be submitted to the Owner for approval prior to the manufacturing and shipment of materials.

B. Submit drawings for:

1. Installation details; edge detail, goal post detail, other inserts and covers, etc.
2. Striping plan; layout showing any field lines, markings and boundaries, and field logo per project drawings.

1.4 QUALITY ASSURANCE

A. Manufacturer/Installer's Experience

The synthetic turf installer/manufacturer shall have manufactured and installed at least fifty (50) acceptable installations of full-size baseball and/or softball fields (minimum of 70,000 SF) in the United States within the past five (5) years. Provide this listing with the bid.

The installer must provide competent workmen skilled in synthetic turf installation. The designated supervisory personnel on the project must be certified by the Contractor as competent in the installation of these components. The Contractor shall have a representative on site from the beginning of the project to the final acceptance of the project to certify that the installation meets their specifications and standards through excavation, installation of concrete base and shock pad/drainage blanket, installation of the synthetic turf, markings, and infill.

B. Turf Contractor shall meet the following criteria:

a. Turf Contractor shall have proper Contractor's license, authority to do business in the state bidding, in good standing, and have never had revocation of the same.
b. Turf Contractor shall have NOT had a Surety of Bonding Company finish work on any contract within the last ten (10) years.
c. Turf Contractor shall have not been disqualified or barred from performing work for any public owner or other contracting entity in the last ten (10) years.
d. Turf Contractor shall not have any fields replaced under warranty.
e. Turf Contractor shall be a single source contractor. The Contractor must install the synthetic turf and the base construction or repair with its own employees (not subcontractors) and must self-perform 100% of total scope of work.

C. Warranty:

The Turf Contractor shall submit the synthetic turf manufacturer's warranty. The warranty guarantees the usability and playability of the synthetic turf SYSTEM for its intended uses for an eight (8) year period commencing with the date of Substantial Completion.

1. The warranty submitted must have the following characteristics:

a. Must provide coverage for eight (8) years from the date of Substantial Completion.
b. Must warrant materials and workmanship.
c. Must verify through a third party that the materials installed meet and exceed the product specifications.
d. Must have a provision to either make a cash refund or repair or replace such potions of the installed materials that are no longer serviceable to maintain a serviceable and payable surface.
e. Must be a manufacturer's warranty from a single source covering workmanship and all self-manufactured or procured materials.

D. Pre-Installation Conference: Conduct conference at project site at time to be determined by Landscape Architect. Review methods and procedures related to installation including, but not limited to, the following:

a. Inspect and discuss existing conditions and preparatory work performed under other contracts.
b. In addition to the Contractor and the installer, arrange for the attendance of installers affected by the Work, The Owner's representative, and the Architect.

1.5 SCHEDULE

A. Turf Contractor shall complete all work on the synthetic turf system in accordance with the published project schedule.

B. The Turf Contractor will be require unencumbered use of area within thirty (30) feet of the synthetic turf area(s) being installed to complete its work. Turf Contractor shall also be afforded unencumbered access through the construction site to reach the turf field area being installed.

1.6 SURFACE AREA

A. The Turf Contractor shall verify all dimensions and measurements provided within the construction plans.

1.7 UTILITIES

A. Owner shall supply necessary water, adequate lighting, and electricity for turf installation. Owner shall permit the use of toilet and wash-up facilities.

1.8 MAINTENANCE SERVICE

A. Contractor shall train the Owner's facility maintenance staff in the use of the turf manufacturer's recommended maintenance equipment.

B. Manufacturer must provide maintenance guidelines to the facility maintenance staff.

PART TWO - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Approved manufacturers are as follows:

1. Hellas Construction, Inc.
   Matrix Turf
   12710 Research Blvd., Suite 240
   Austin, TX 78759
   P: 512.250.2910

2. GeoSurfaces, Inc.
   GeoGreen Turf
   7080 St. Gabriel Ave., Suite A
   St. Gabriel, LA 70776
   P: 877.663.5968

3. Shaw Sports Turf
   B1K Turf System
   185 South Industrial Blvd.
   Calhoun, GA 30701
   P: 866.703.4004

4. FieldTurf USA
   Prestige Vertex Turf
   175 N. Industrial Blvd.
   Calhoun, GA 30701
   P: 800.724.2969

5. -or-
   Accepted Substitute

2.2 MATERIALS - SYNTHETIC TURF

The synthetic turf fibers shall be a maximum of two (2) inches (+/- 1/8") in height (See drawings for Turf Height Requirements). The tufted total weight (not including infill) shall not be less than 68-ounces per square yard. The fiber shall be 100% polyethylene, treated with UV inhibitor and shall be tufted at a yarn face weight of a minimum of 40-ounces per square yard. The gauge of the stitch line separation shall be no more than ½". The synthetic turf backing shall be a multi-layer fabric incorporating a dimensionally stable primary backing. A secondary backing shall consist of an application of polyurethane, which is heat activated to permanently lock fiber tufts in place. The polyurethane backing shall be coated at a minimum application rate of 14-ounces per yard. The backing shall be perforated. The synthetic turf shall be delivered to the project site in 15' or 12' wide rolls. The rolls shall be long enough to go from field sideline to field sideline.

The owner may randomly select a minimum 12" x 12" sample of the DELIVERD turf material and independently test the sample for conformance to the material specifications. The cost of such testing shall be borne by the CONTRACTOR. At the request of the owner, the CONTRACTOR shall replace any materials, which, according to the testing, does not comply with the performance specifications delineated herein.

2.3 PHYSICAL PERFORMANCE CRITERIA FOR SYNTHETIC TURF

The synthetic turf system shall demonstrate by independent, certified laboratory testing:

- A minimum average Tuft Bind, without infill, (ASTM D-1335) of 8 lbs-force.
- A minimum breaking strength (ASTM D-5034) of 200 lbs-force in either direction.
- An initial G-max (ASTM F-355-A) of 100, or less.
- An ultimate G-max of 135 shall be the highest attainable G-max during the warranty period.

2.4 MATERIALS – SHOCK PAD / DRAINAGE BLANKET

The following are a list of prior approved suppliers for the field shock pad / drainage blanket for the project:

1. Hellas Construction, Inc., Austin TX
    a. Phone: 512.250.2910
    b. Approved Product: Cushdrain 19 mm

2. SportsEdge, Troutman, NC
    a. Phone: 800.334.6057
    b. Approved Product: BlueLay

3. Brock International, Boulder, CO
    a. Phone: 303.544.5800
    b. Approved Product: Brock Power Base YSR

4. Global Synthetics Environmental, LLC, Baton Rouge, LA
    a. Phone: 877.663.5968
    b. Approved Product: GeoFlo+

5. -or- Accepted Substitute

2.5 MATERIALS – TURF SYSTEM INFILL

The infill material shall consist of sports field sand. The materials shall be as designated by the Contractor and delivered to the project site in appropriate containers. The infill shall consist of 2.5 pounds per square foot installed.

Infill shall be uniformly infused with no finish grade deviation of the infill materials greater than ¼" in 10'. The minimum relief of grass filaments above infill shall be ¾". After installation is completed, infill shall not be readily visible and should not move with footfalls, ball bounces or body impacts, as acceptable to owner.

Infill shall be infused in multiple applications not to exceed 10% of the total weight in each layer applied. The Owner, or its representative, prior to acceptance of the work, shall approve infill depth. Finished grade of infill shall not deviate more than ¼" under a 10' straight edge.

2.6 MATERIALS – SAND/PEA GRAVEL BALLAST

Beneath the turf infill shall be a ballast layer of sports field sand or pea gravel. The ballast layer shall consist of 4 lbs. per square foot, installed. The average particle size of the ballast material shall be between 20 and 30 mesh, single grain. Ballast material shall be infused into the turf using the same process as the infill.

2.7 PERMANENT MARKINGS

All markings shall be permanently installed per plans, and approved shop drawings.

PART THREE - EXECUTION

3.1 EXAMINATION

A. Verify that area is ready to start work, dimensions and elevations are as indicated on drawings. Beginning of installation means acceptance of existing conditions.

3.2 SUBBASE EXCAVATION AND PREPARATION

A. Remove and dispose of any vegetative layer or other material deemed undesirable.

B. Excavate to depth required to accommodate required cross-section, slope, and finished grades.

C. Contour, slope, rough grade, and compact remaining subbase to required cross-section, slope, and finished grades.

D. Using laser operation instrument, the contractor shall verify that grade has been prepared according to specifications regarding compaction, sub grade and is free of debris prior to beginning work.

3.3 BASE CONSTRUCTION

The Contactor shall install a 4" layer of compacted #57 limestone with a 2" compacted layer of #89 limestone over a 12"x1" composite drain system, over a PVC liner, as shown in typical field cross section. The subgrade and base shall be uniformly compacted to a minimum of 95% of maximum dry density. Care must be exercised to minimize segregation.

At the perimeter of the field, the contractor shall install a reinforced concrete curb, as detailed in the construction plans, using 3,000-psi concrete.

1. After base construction is complete and concrete has cured, a 2x4 composite nailer shall be installed at specific perimeter line, by ramset, tapcon, or similar method, to the newly installed concrete curbing (anchor). The finished grade of the nailer shall match the perimeter finish grade of the concrete base.

2. Contractor shall use an electronic, staked grade grid or string line, of not more than 25' separation, to establish finished grade of the concrete base, before installing the shock pad/drainage blanket or the synthetic turf. The finish grade tolerance shall not exceed ¼" under a 10' straight edge.

3.4 BASE CONSTRUCTION - ALTERNATE

The Contactor shall install a 3.35" polypropylene, high strength, engineered drainage cell system (Basis of Design: Permavoid PV85s (800.334.6057) -or- Accepted Substitute), over a PVC liner, as shown in typical field cross section. Subgrade and base shall be uniformly compacted to a minimum of 95% of maximum dry density. Care must be exercised to minimize segregation.

At the perimeter of the field, the contractor shall install a reinforced concrete curb, as detailed in the construction plans, using 3,000-psi concrete.

1. After base construction is complete and concrete has cured, a 2x4 composite nailer shall be installed at specific perimeter line, by ramset, tapcon, or similar method, to the newly installed concrete curbing (anchor). The finished grade of the nailer shall match the perimeter finish grade of the concrete base.

2. Contractor shall use an electronic, staked grade grid or string line, of not more than 25' separation, to establish finished grade of the concrete base, before installing the shock pad/drainage blanket or the synthetic turf. The finish grade tolerance shall not exceed ¼" under a 10' straight edge.

3.5 SHOCK PAD / DRAINAGE BLANKET INSTALLATION

A. Contractor shall use an electronic or staked grade grid, of not more than 25' separation, to establish finished grade of approved base, before installing the shock pad/drainage blanket. The approved base should not deviate from specified finish grade by more than 1/4" under 10' straight edge.

B. The installation of the shock pad/drainage blanket shall continue over then entire area to be covered with artificial turf including the open stone of the perimeter collector drains. The shock pad/drainage blanket shall be installed per manufacturer recommendations. All seams shall be sufficiently tight to leave no gaps or irregularities that could reflect through the synthetic grass surface; however, care should be taken to maintain the necessary separation to allow for thermal expansion.

3.6 SYNTHETIC TURF INSTALLATION

A. The installation shall be performed in full compliance with approved Shop Drawings.

B. Only trained technicians, skilled in the installation of athletic caliber synthetic turf systems working under the direct supervision of the approved installer supervisors, shall undertake any cutting, sewing, gluing, shearing, topdressing or brushing operations.

C. The designated Supervisory personnel on the project must be certified, in writing by the turf manufacturer, as competent in the installation of this material, including sewing seams and proper installation of the Infill mixture.

D. Designs, markings, layouts, and materials shall conform to all currently applicable National Collegiate Athletic Association rules, NFHS rules, and/or other rules or standards that may apply to this type of synthetic grass installation. Designs, markings, and layouts shall first be approved by the Architect or Owner in the form of final shop drawings. All markings will be in full compliance with final shop drawings.

E. The turf rolls are to be installed directly over the properly prepared base and drainage mat system. Extreme care should be taken to avoid disturbing the finished grade. The full width rolls shall be laid out across the field. Utilizing standard state-of-the-art bonding procedures, each roll shall be attached to the next. Turf shall be attached, by industrial rustproof staples (1" x 1") directly to wood nailer, around perimeter of field at maximum three-inch (3") intervals.

F. Immediately after brushing the completely installed artificial turf with a motorized rotary nylon broom, the infill material shall be spread evenly by using a drop spreader (minimum 4 foot wide), in multiple applications, each no more than 10% of the total application, at a uniform rate. Between applications, and just prior and after infilling, the area shall be brushed with the motorized broom. Infill depth shall be as required to meet performance specifications.

3.7 FIELD MARKINGS

A. Field markings shall be installed in accordance with approved shop drawings. If football is designated as the primary sport, all five-yard lines will be tufted-in.

B. Balance of sports markings will be inlaid or painted in accordance with the Drawings.

C. Center field logo shall be inlaid according to artwork indicated on Drawings and in accordance with manufacturer's standard palette of turf colors.

D. End-zone letters and logos shall be inlaid according to artwork and fonts indicated on the Drawings, and in accordance with manufacturer's standard palette of turf colors.

3.8 ADJUSTMENT AND CLEANING

A. Do not permit traffic over unprotected surface.

B. Contractor shall provide the labor, supplies, and equipment as necessary for final cleaning of surfaces and installed items.

C. All usable remnants of new material shall become the property of the Owner.

D. The Contractor shall keep the area clean throughout the project and clear of debris.

E. Surfaces, recesses, enclosures, and related spaces shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

3.9 PROTECTION OF FINISHED WORK

A. Protect installation throughout construction process until date of substantial completion.

END OF SECTION 321823

SECTION 329200 – TURF AND GRASSES

PART ONE - GENERAL

1.1 SODDING

A. SCOPE

The work under this section of the Specifications consists of furnishing all fertilizer, seed, sod and related materials, supervision, labor, equipment, appliances, and services necessary for and incidental to completing all operations in connection with the dressing, fertilizing, sodding of earthwork areas in strict accordance with these Specifications and the applicable drawings. In general, the work shall include but not be limited to, the following:

1. Dressing, Fertilizing, Sodding – lawn areas, cut and fill areas or swales, both for temporary establishment during the winter months and for permanent establishment in the warm months.
2. Establishing Lawn Areas – or erosion control and fertilizing in all other areas on the project site disturbed by construction, but not to be otherwise planted or covered.

B. SUBMITTALS

1. Soil Analysis: For each un-amended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory.

    a. The soil-testing laboratory shall oversee soil sampling.
    b. Report suitability of tested soil for plant growth.
    c. State recommendations for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
    d. Report presence of problem salts, minerals, or heavy metals; if present, provide additional recommendations for corrective action.

PART TWO - PRODUCTS

A. TOPSOIL

Topsoil: ASTM D 5268 topsoil, with pH range of 5.5 to 7, a minimum of 2 percent and maximum of 20% organic material content. Imported topsoil or manufactured topsoil from off-site sources; do not obtain from agricultural land, bogs, or marshes. Verify suitability of soil to produce viable planting soil as determined by the testing lab to meet project specifications. Clean soil of roots, plants, sod, stones, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

Sieve Sizes	Percentage Passing
1-inch	100%
½ inch	95%-100%
No. 4	75%-100%
No. 10	60%-100%
No. 200	10%-60%

Mix soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:

1. Ratio of Loose Wood Derivatives to Topsoil by Volume: 1:3
2. Volume of Sand to Topsoil by Volume.: 1:3
3. Weight of Commercial Fertilizer per 1000 Sq. Ft. (92.9 Sq. m): 3lbs

B. FERTILIZER

Fertilizer shall be 10-12-12 or other approved blend, applied at the rate of one thousand (1000) pounds per acre or as recommended by the Manufacturer, and shall be a commercial lawn starter fertilizer conforming to all applicable state laws. It shall be delivered in original, unopened containers, each bearing the manufacturer's guaranteed analysis, and shall be uniform in composition, dry and free flowing. Any fertilizer that becomes wet, caked or otherwise damaged, making it unsuitable for use will not be accepted.

C. GRASS – (Bermuda)

a. Sod – shall be in areas as shown on plans. Sod shall be live, free of weeds and nut grass, and shall be cut with a full three-quarters (3/4) inch of natural soil covering the roots. It shall be delivered to the job in twelve (12) inch wide strips and shall not have been stacked for more that twenty-four (24) hours between the time of cutting and delivery to the job site. During delivery, prior to and during the planting of the lawn areas, the sod panels shall always be protected from excessive drying and exposure of the roots to the sun.

PART THREE – EXECUTION

A. SODDING

1. Thoroughly till Areas to be Sodded – to a depth of four (4) inches with fertilizer as specified at the rate of one thousand (1000) pounds per acre. If suggested by the soil test analysis, work limestone into the soil ad required (normal application is approximately 2000 pounds per acre).

2. Fine Grade Sod Bed – to remove ridges and depressions and clear surface of weeds, grass growth, stones, and debris. Taking care not to disturb or adversely alter drainage.

3. Lay Sod Panels – tightly together to make a solid sodded lawn area. Immediately following the sod laying, the lawn areas shall be rolled with a lawn roller commonly used for such purposes and then thoroughly watered as described under "Seeding".

4. Top Dress – with builders' sand (Clean course textured sand to be approved by project landscape architect) to smooth out uneven spots in the new lawn surface, if deemed necessary by the Owner or the Landscape Architect.

B. CLEAN-UP

Thoroughly clean the entire project area of all trash and other debris and all unused or salvaged materials resulting from grassing operations. After completion of the work, remove all spoil piles and sweep or rake the entire project area clean.

C. MAINTENANCE

Maintenance of grass areas shall consist of watering, weeding, cutting, repair of any erosion and re-seeding and/or re-sodding as necessary to establish a uniform stand of the specified grass and shall continue until provisional acceptance of the entire planting and grassing work.

All lawn areas that do not show satisfactory growth within fifteen (15) days sodding shall be scarified, and re-sodded and re-fertilized as directed until a satisfactory lawn has been established. The lawns shall be considered established when they are reasonably free from weeds, green in appearance and the specified grass is vigorous and growing well, with no bare spots larger that one (1) square foot. Full coverage is required within thirty (30) days.

D. PROTECTION

All lawn areas shall be protected until accepted. All eroded and damaged areas, regardless of cause, shall be immediately repaired and re-sodded. Protect lawns against traffic.

E. FINAL INSPECTION and ACCEPTANCE

As soon as the lawns have become established as required, a final inspection of the work will be made by the Landscape Architect and the Owner. If the work is found to be satisfactory and in accordance with all requirements of the Contract documents, the work will be provisionally accepted.

F. GUARANTEE PERIOD

The entire sodded area shall be maintained for 90 days and guaranteed by the Landscape Contractor for 12 months following provisional acceptance of work.

3.1 SPECIAL LANDSCAPE PROVISIONS

Definition – the term "Contractor" as referred to in this section means only the Landscape Contractor. The Landscape Contractor shall be currently licensed to perform landscape contracting work in this state.

A. Water – will be available for the work. Contractor to coordinate with the Owner for sources. Hose or other watering equipment required for the work shall be furnished and operated by the Contractor at his own expense.

B. Finished Grading – shall be the Contractor's responsibility. It will be the Contractor's responsibility to provide whatever fine grading is required to bring areas to be planted back up to the existing finished grades or to grades specified on the Drawings or in these Specifications. This will also include grading to ensure proper drainage of all planting areas wherever necessary and shall also apply to existing slopes, berms or lawn areas damaged during the work described herein. If additional topsoil is required to accomplish these items, it will be the responsibility of the Contractor to do so unless decided otherwise by the Owner. All areas designated to be sodded shall have topsoil spread evenly and shall have a minimum depth after compaction and settlement of 4 inches.

C. Period of Establishment and Replacements

1. Upon the completion of sodding and if sod is in place, living and conforms to these Specifications, provisional acceptance will be granted.

2. The Contractor shall be responsible for replacing dead, damaged or unhealthy sod and, in general, ensuring proper plant growth for a Period of Establishment, which shall be one (1) year after the provisional acceptance is made.

3. Plant materials that have partially died so that shape, size, or symmetry has been damaged, shall be considered subject to replacement. In such cases, the opinion of the Landscape Architect shall be final.

4. Plants used for replacement shall be of the same quantity, size, kind, and quality as those originally planted, and they shall be planted as originally specified. This extra work, including all materials, labor and equipment used in these replacements shall be at no cost to the Owner. Replaced sod shall carry the same establishment period as the original. Damage, including ruts in lawn or bed areas, existing utilities, paving and other improvements, incurred while making replacements shall be immediately repaired to the satisfaction of the Owner.

5. With the approval of the Landscape Architect, plants may be replaced at the start of next year's planting or digging season but, in such cases, dead plants shall be removed from the site immediately.

6. The Contractor agrees that, for the Period of Establishment of ninety (90) days for sodded turf, he will water the sod a minimum of two (2) times each week during dry periods. Watering shall consist of thoroughly soaking each planting area to ensure that deep watering has occurred. The irrigation system may be used to accomplish all necessary watering.

7. This replacement guarantee does not apply where sod dies after final acceptance because of injury by excessive wind (hurricane), hail or vandalism.

8. Final acceptance will be made only if all sod is in place, living and is in conformance with the Drawings, Specifications, and these Special Provisions.

END OF SECTION 329200

SECTION 32 9220 - ATHLETIC FIELD TURF

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provision of the contract, including General and Supplementary Conditions.

1.2 SUMMARY

A. This section includes providing all labor, materials, and services to complete all Athletic Field Sprigging and related work shown on the drawings. This includes, but not limited to, the following:
   1. Verification of finish grade.
   2. Harvesting, delivery and installation of turf grass sprigs.
   3. Sand top dressing and rolling.
   4. Purchase and delivery of grow in materials.

B. Related Sections including the following:

   1. Section 328100- Field Irrigation System

1.3 SUBMITTALS

A. Furnish three (3) copies of manufacturer literature, samples, certifications, or laboratory analytical data for the following:

   1. Big Roll Sod:
      a. Address of grower
      b. Planting dates
      c. Fertilizer and chemical application history for past 24 months
      d. Sample of sod (12"x12" sample)

B. Soil Analysis: For each un-amended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory.

   1. The soil-testing laboratory shall oversee soil sampling.
   2. Report suitability of tested soil for plant growth.
   3. State recommendations for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
   4. Report presence of problem salts, minerals, or heavy metals; if present, provide additional recommendations for corrective action.

1.4 QUALITY ASSURANCE

A. Reference/Regulatory Requirements

1. American Sod producers Association- ASPA GSS 1988 Guideline Specifications for Sodding
2. Department of Agriculture- DOA FSA- Federal Seed Acts Rules (1985).
3. Department of Agriculture- DOA SSIR 1984 Soil survey Laboratory Methods and Procedures for Collecting Soil samples
4. Commercial Items Description- CID A-A- 1909 Fertilizer

B. Contractor Qualifications:

1. Contractor must have a minimum 5 continuous years of installation experience of sports fields.
2. Contractor must have the necessary licensing and bonding in the State of Louisiana.
3. Contractor must provide names of facilities constructed and contacts for them.
4. Contractor must provide a list of equipment and personnel to be used on this project.
5. Contractor must be able to self perform at least 85% of construction activities.
6. Contractor must supply list of all sub-contractors.
7. Contractor must provide a proposed schedule for this project.

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1.5 PROJECT SITE PROTECTION AND CONDITIONS

A. Take necessary precautions to protect existing and new work from damage during the life of the project.

B. Work shall not be done when site conditions are detrimental to quality of work as determined by the owner's agent or representative.

1.6 DELIVERY, STORAGE AND HANDLING

A. Sprigs shall be delivered to installation site no later than 4 hours after harvesting and installed within 8 hours of arrival at site. Sprigs exhibiting heat or drought stress will be subject to rejection. It is the responsibility of the installation contractor to pay for and coordinate sprig harvesting and shipping with the sprig grower. Sprig shall not be harvested or transported when moisture content (excessively dry or wet) may adversely affect survival of sprigs.

B. Bags goods should be delivered in original sealed containers with original labels intact and readable.

1.7 SCHEDULING

A. Work of this section will be coordinated with all other work contained in the contract documents.

PART 2 PRODUCTS

2.1 BIG ROLL SOD

A. Sod shall be nursery-grown Hybrid Bermuda of high quality and free of diseases, insects and noxious weeds. The variety of Hybrid Bermuda shall be Celebration Bermuda. Contractor shall purchase and reserve the quantity necessary to complete this installation.

2.2 TOPSOIL

Top Soil: ASTM D 5268 topsoil, with pH range of 5.5 to 7, a minimum of 2 percent and maximum of 20% organic material content. Imported topsoil or manufactured topsoil from off-site sources; do not obtain from agricultural land, bogs or marshes. Verify suitability of soil to produce viable planting soil as determined by the testing lab in order to meet project specifications. Clean soil of roots, plants, sod, stones, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.

Sieve Sizes	Percentage Passing
1-inch	100%
½ inch	95%-100%
No. 4	75%-100%
No. 10	60%-100%
No. 200	10%-60%

Mix soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:

1. Ratio of Loose Wood Derivatives to Topsoil by Volume: 1:3
2. Volume of Sand: 1:3
3. Weight of Commercial Fertilizer per 1000 Sq. Ft.: 3lbs

2.3 FERTILIZER

Fertilizer shall be 10-12-12 or other approved blend, applied at the rate of one thousand (1000) pounds per acre or as recommended by the Manufacturer, and shall be a commercial lawn starter fertilizer conforming to all applicable state laws. It shall be delivered in original, unopened containers, each bearing the manufacturer's guaranteed analysis, and shall be uniform in composition, dry and free flowing. Any fertilizer that becomes wet, caked or otherwise damaged, making it unsuitable for use will not be accepted.

PART 3 EXECUTION

3.1 HARVESTING SOD

A. The contractor shall be solely responsible for the safe transportation of sod to the site and condition upon arrival. Sod damaged, dehydrated or abused during transportation or storage will be rejected.

B. Coordinate harvesting and installation operations to prevent exposure of sod to sun for more than 4 hours before wetting.

3.2 INSTALLATION OF TURF AREA – SODDING

A. Verify that area is ready to start work, and that dimensions and elevations are as indicated on drawings.

B. Thoroughly Till Areas to be Sodded – to a depth of four (4) inches with fertilizer as specified at the rate of one thousand (1000) pounds per acre. If suggested by the soil test analysis, work limestone into the soil ad required (normal application is approximately 2000 pounds per acre).

C. Fine Grade Sod Bed – to remove ridges and depressions and clear surface of weeds, grass growth, stones and debris. Taking care not to disturb or adversely alter drainage.

C. Prior to sodding, the prepared base must be completely settled and smoothed to elevations and grades as indicated on drawings.

D. When installing sod, the contractor shall use great care to not disturb the finished grade of the prepared base. Contractor will make provisions to avoid rutting of the prepared base. Installation equipment shall have low ground pressure (LPG) floatation tires. Press sprigs into prepared soil with a crimper or slicer

E. Sod shall be watered immediately after installation to prevent drying during progress of work. Contractor shall make provisions to have adequate equipment available to water the sod as specified. As a section is completed it shall be watered to a 10" depth below the sod. After a short drying time, the sod shall be rolled to firm up installation.

3.3 CLEANUP AND PROTECTION

A. Upon completion of work, clean playing field and surrounding area of all debris, excess materials and equipment and remove them from project site.

B. Erect barricades and warning signs as required protecting newly sprigged areas and materials from damage from trespassers and operations by other contractors and trespassers.

3.4 ACCEPTANCE OF TURF

A. Acceptance of turf shall be upon completion of turf installation and maintenance items and Turf shall be and contractor completing all punch list items.

END OF SECTION 329220

SECTION 330500 - COMMON WORK RESULTS FOR UTILITIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: This Section includes water system piping for potable-water service outside the building.
   1. This Section does not include tapping of the utility company water main by utility company and charging directly to Owner.

B. Comply with NSF 14 for plastic potable-water-service piping.

C. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

PART 2 - PRODUCTS

2.1 PIPE AND FITTINGS

A. PVC Plastic Pipe: ASTM D 1785, Schedule 80.
   1. PVC Socket Fittings: Schedule 80, ASTM D 2467.
   2. Solvent Cement for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.

B. PVC, AWWA Pipe: AWWA C900, Class 150, with bell end with gasket and spigot end.
   1. Comply with UL 1285 for fire-service mains.
   2. PVC Fabricated Fittings:AWWA C900, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
   3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.

2.2 VALVES

A. Nonrising-Stem, Resilient-Seated Gate Valves, NPS 3 and Larger: AWWA C509, gray and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut. Include 200-psig minimum working-pressure design, interior coating according to AWWA C550, and mechanical-joint ends.

B. Nonrising-Stem Gate Valves: UL 262, FMG-approved iron body and bonnet with flange for indicator post, bronze seating material, and inside screw; 175-psig working pressure, and flanged end connections.

C. Valve Boxes: NEMA 4X Fiberglass box with top section and cover with lettering "WATER"; bottom section with base of size to fit over valve and barrel approximately 5 inches in diameter, and adjustable cast-iron extension of length required for depth of bury of valve.

D. Indicator Posts: UL 789, FMG-approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of bury of valve.

E. Curb Valves: Comply with AWWA C800. Include bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet matching service piping material.

2.3 SPECIALTIES

A. Backflow Prevention Devices: ASSE standard backflow preventers, bronze body, 150-psig working pressure, of size indicated for maximum flow rate and maximum pressure loss indicated.

B. Plastic Underground Warning Tapes: Polyethylene plastic tape, 6 inches wide by 4 mils thick, solid blue in color with metallic core and continuously printed black-letter caption "CAUTION--WATER LINE BURIED BELOW."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Connect water system piping and water-supply source and building water-distribution and fire-protection systems at the building wall in locations and pipe sizes indicated.

B. Install restrained joints for buried piping within 60 inches of building. Use restrained-joint pipe and fittings, thrust blocks, anchors, tie rods and clamps, and other supports at vertical and horizontal offsets.

C. Install fittings for changes in direction and branch connections.

D. Comply with NFPA 24 for fire-service-main piping materials and installation.

E. Install copper tube and fittings according to CDA's "Copper Tube Handbook."

F. Install PVC, AWWA pipe according to AWWA M23 and ASTM F 645.

G. Bury piping with depth of cover over top at least 30 inches, with top at least 12 inches below level of maximum frost penetration.

H. Install continuous underground detectable warning tape during backfilling of trench for underground water- service piping. Locate below finished grade, directly over piping.

I. Clean and disinfect water distribution piping according to authorities having jurisdiction.

END OF SECTION 330500

SECTION 331100 - WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Buried pipe and piping.

B. Valves.

C. Thrust blocks and harnessing.

D. Field quality control.

E. Test.

F. System disinfection.

G. Connections to existing mains.

1.2 RELATED SECTIONS

A. Trenching, bedding and backfilling for pipelines are specified in Section 31 23 33 – Excavation, Trenching and Backfilling.

B. Coordinate the work of this Section with the work of Section 22 11 16 – Domestic Water Piping and Appurtenances.

1.3 MEASUREMENT AND PAYMENT

A. General: Measurement and payment for the water distribution system will be by the lump-sum method.

B. Lump Sum: If the bid schedule indicated a lump sum for the water distribution system, the lump-sum method of measurement and payment will be in accordance with Section 01 20 00 Price and Payment Procedures.

1.4 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A126 Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
   2. ASTM A197 Specification for Cupola Malleable Iron
   3. ASTM A307 Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile
   4. ASTM D1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
   5. ASTM D1785Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

6. ASTM D2466Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
7. ASTM D2564Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC)Plastic Pipe and Fittings
8. ASTM D2855Practice for Making Solvent-Cemented Joints, with Poly (Vinyl Chloride) (PVC) Pipe and Fittings
9. ASTM D3139Specifications for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
10. ASTM F439Specification for Socket-Type Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fitting, Schedule 80
11. ASTM F477 Specification for Elastomeric Seal (Gaskets) for Joining Plastic Pipe

B. American Water Works Association (AWWA):
1. AWWA C500 Gate Valve, 3 through 48 inches NPS – for Water and Sewage System
2. AWWA C503 Standard for Wet-Barrel Fire Hydrants
3. AWWA C504 Rubber Seated Butterfly Valve
4. AWWA C508 Swing-Check Valves for Water Works Service, 2 inches through 24 inches NPS
5. AWWA C606 Grooved and Shouldered Type Joints
6. ANSI/AWWA Standard for Disinfecting Water Mains C651
7. ANSI/AWWA Specification for Polyvinyl Chloride (PVC) Pressure Pipe, 4-inch C900 through 12 inch for Water Distribution

C. Water Utility District Standards: Note that all work shall be performed and completed in accordance with the jurisdictional water utility district's standard drawings and specifications. The Contractor shall be responsible for obtaining all such standards and for compliance with such standards as applicable.

D. Underwriters Laboratories Inc. (UL):
1. UL 246 Hydrant for Fire-Protection Service

1.5 SUBMITTALS

A. Refer to Section 01 33 00 – Submittal Procedures, and Section 01 30 00 – Administrative Procedures, for submittal requirements and procedures.

B. Submit respective manufacturer's product data for manufactured materials and equipment, including all valves and fire hydrants.

C. Submit Shop Drawings showing piping layout and pipe, valves, hydrants, and locations of tie-ins, buttresses, and thrust blocks.

1.6 SUBMITTALS FOR CLOSEOUT

A. General: Refer to Section 01 70 00 – Execution and Closeout Requirements, and Section 01 78 00 – Closeout Submittals, for Submittal Requirements and Procedures.

B. Record Drawings: Record actual location of piping mains, valves, connections, and invert elevations for review.

1.7 SITE CONDITIONS

A. Excavations in which products will be buried shall be dry.

B. Coordinate the installation of the water supply system with the jurisdictional water utility owner.

C. The jurisdictional water utility district shall provide water services to the demark point indicated on the drawings. The Contractor shall be responsible for making all such arrangements.

PART 2 – PRODUCTS

2.1 BURIED PIPE AND FITTINGS

A. Requirements: Provide the types, sizes, and configurations of pipe, fittings, and miscellaneous materials and installation accessories as indicated.

B. PVC Pipe and Fittings, 3 inches and Smaller:
1. Pipe: Polyvinyl chloride (PVC), ASTM D1785, Schedule 40 or 80, as indicated, Type I, Grade
2. Fittings: ASTM D2466, socket weld, same material and schedule as pipe, or meeting requirements of ASTM F439, as applicable.
3. Joints: Socket welded with PVC solvent cement conforming to ASTM D2564 and ASTM D2855.

C. PVC Pipe and Fittings, 4inches or Larger:
1. Pipe: AWWA C900, Class 200, polyvinyl chloride (PVC) water pipe with bell and spigot ends and flexible ring joints.
2. Fittings: ASTM D1784, Type 1, Grade 1, polyvinyl chloride (PVC) fittings, Class 200, or meeting requirements of ASTM F439, as applicable.
3. Joints: ASTM D3139, gasketed bell joints with ASTM F477 gaskets.

2.2 VALVES

A. Gate Valves:
1. Gate Valves up to 2-1/2 inches: 150-pound bronze body, non-rising stem, single wedge, threaded connection.
2. Gate Valve 3 inches and Over: AWWA C500, iron body, bronze trim, non-rising stem with square nut, single wedge, mechanical joint ends with type gland and serration's designed for plastic pipe service.

B. Pressure Reducing Valves: All bronze construction, spring-loaded, single-seated, suitable for tight shutoff under dead-end conditions. Provide with renewable composition seat discs, nylon inserted diaphragm, bolted spring chamber, and threaded connection.

C. Backflow Preventer: Provide a device that is approved by the jurisdictional water utility company. As a minimum, the backflow preventer shall be a reduced pressure principle assembly with two rising-stem gate shut-off valves, two resilient seat ball-valve test cocks, two check valves replaceable resilient disks and seat with relief valve with replaceable

seat. Backflow preventer shall be suitable for 175 psig operating pressure and 140 degrees F operating temperature, and shall be of bronze construction with bronze construction with bronze internal parts and stainless steel springs, screwed inlet and outlet for 2-inch and smaller sizes, and cast iron, epoxy-coated construction with 150 pound flanged inlet and outlet for 3-inch and larger sizes.

2.3 CONCRETE FOR THRUST BLOCKS

A. Provide Class 3000, 1-inch aggregate, concrete for all thrust blocks, as specified in Section 03 05 15 – Portland Cement Concrete, with reinforcement where indicated.

2.4 MISCELLANEOUS METAL

A. Tie Rods: Stainless steel, Type 316, threaded ANSI standard, bolt threaded on both ends. Minimum 1/2 –inch diameter for 4-inch pipe, 5/8-inch minimum diameter for 6-inch and 8-inch diameter pipe, and 3/4-inch minimum diameter for 12-inch and larger.

B. Rod Couplings: Malleable iron, ASTM A197, turnbuckle design, female threaded to mate with tie rods, 5/8-inch and ¾-inch sizes to mate with both rods and mechanical joint bolts.

C. Pipe Clamps: For sizes 4 inches and larger, provide with malleable iron rod sockets. Provide washers in lieu of rod sockets where authorized, conforming with ASTM A126, Class A, cast iron. Bolts and bolting shall conform with ASTM A307.

PART 3 – EXECUTION

3.1 MAINTAINING WATER SERVICES

A. Maintain water service and conduct operations at times selected to minimize the duration and inconvenience of service interruption.

B. At least 24 hours prior to the required cutting or abandoning of an existing water main, notify the jurisdictional water utility owner, and obtain approval of the schedule. Actual cutting or abandoning of an existing water main shall be performed by the Contractor after receiving approval from the owner of the facility.

C. Keep existing water mains parallel to new water mains in service until new water mains are ready for service.

D. Where the existing water main or service is to be cut for connection to new piping, the work shall be performed by the Contractor. Initial work operations shall include the test-pitting of all points of connection (tie-in) to ensure the true location of existing linework.

E. Water valves in service shall be operated only by personnel of the jurisdictional water utility owner.

F. Except as specified otherwise herein, construction methods shall be in accordance with the applicable provisions of the jurisdictional water utility owner's standard drawings and specifications.

3.2 INSTALLATION

A. Installation Requirements:
   1. Excavate pipe trench in accordance with Section 33 05 28 - Trenching and Backfilling for Utilities. Hand trim bottom of trench to approximately 6 inches below invert of pipe.
   2. Top of pipe to finished grade shall be 30 inches unless otherwise indicated or approved by the Engineer.
   3. Place sand bedding material, meeting the requirements of Section 33 05 28 - Trenching and Backfilling for Utilities, at trench bottom, level in one continuous layer not exceeding 8 inches in compacted depth. Compact bedding to 95 percent relative density.
   4. Backfill around sides and to 6 inches above pipe with cover fill tamped in place and compacted to 95 percent relative density.
   5. Test pipe distribution system and place tracer wire on top of pipe as specified herein prior to covering pipe. Backfill trench in accordance with Section 33 05 28 – Trenching and Backfilling for Utilities.
   6. Maintain optimum moisture content of bedding material to attain required compaction density.
   7. Provide concrete thrust blocks for elbows, tees, valves, and appurtenances of buried piping. Thrust blocks shall be constructed as indicated and in accordance with AWWA requirements.
   8. Install piping true to line and grade, supported and guided to assure alignment under all conditions.
   9. Install pipe to allow for expansion and contraction without stressing pipe or joints.
   10. Install unions at each connection to valves, both sides of each valve.
   11. Make change in line with fittings. Do not spring joints to effect change of direction.
   12. Do not field cut pipe unless necessary. Make such necessary cuts by means of equipment designed for the purpose, ensuring a smooth and square end.
   13. For connection to existing pipe, provide pipe with suitable ends or adapters, after verification of size and type of existing pipe.
   14. Install tie rods and pipe clamps at every joint fitting and valve.

B. Valves:
   1. Install valves in accordance with the valve manufacturer's installation instructions.
   2. Where valves are provided by the jurisdictional water utility owner, provide suitable access for performance of such work.
   3. Where necessary, alter the typical valve manhole to suit actual conditions. Any alterations in valve manholes shall be operable from the street level. All operator nuts shall be plumb to the valve manholes.
   4. Set valve on solid bearing.
   5. Center and plumb valve box over valve. Set box cover flush with finished grade.

C. Thrust Blocks and Harnessing
   1. Provide for counteracting thrust caused by static and dynamic forces, including water hammer at bends, tees, reducers, valves, and dead ends by installing harnessing as indicated or required. For other methods, submit details for approval of the jurisdictional water utility owner prior to use.
   2. Provide concrete thrust blocks as indicated where harnessing is not practicable.

D. Water Service Connections: Provide water service connections, where necessary, in accordance with the Local Plumbing Code, the installation instructions of the service pipe and fittings manufacturer, and the utility company requirements with reduced pressure

back-flow preventer (as specified and approved by Baton Rouge Water Co.) and water meter with by-pass valves.

E. Acceptance Requirements: After installation of pipes, ends of pipes shall be either capped or plugged. No piping shall be buried before being inspected and tested.

3.3 FIELD QUALITY CONTROL

A. Refer to Section 01 40 00 – Quality Requirements, for requirements.

B. Compaction testing of related earthwork shall be performed in accordance with applicable requirements of Section 31 00 00 – Earthwork.

C. If tests indicate work does not meet specified requirements, remove such work, replace, and retest at no additional cost to the Owner.

3.4 TESTS

A. Protection from Flooding: Provide positive measures to protect exposed, installed pipe and compacted pipe bedding from flooding during testing.

B. Notice of Testing:
1. Give 48-hour notice of intention of testing to the jurisdictional water utility owner, which will furnish, install, and operate pumps, gages, meters, and individual pipe connections to test openings.
2. Designate largest sections feasible for testing and sterilizing. Testing and sterilizing operations shall be performed by the Contractor, at Contractor's expense.

C. Testing Requirements:
1. General:
   a. For hydrostatic tests, provide approved caps and plugs in sections to be tested, and remove them after testing.
   b. Prevent leakage in pipes and fittings at openings. Temporarily block plugged and capped ends to prevent displacement.
   c. Install the water source connection for testing the isolated section. The Engineer may permit the use of a tap that will be furnished and installed by utility owner.
   d. Provide labor and materials required for leakage testing, including excavation for installation and removal of pumps, gages, meters, and water source connections.
   e. Where leakage exceeds the water utility company's standards, perform necessary corrective measures.
   f. Remove and replace defective pipes, joints, fittings, valves, and other appurtenances. Reset such items if displaced.
   g. Perform hydrostatic tests in accordance with the jurisdictional water utility district's requirements. All such tests shall be witnessed by the jurisdictional water utility district's representative. The Contractor shall be responsible for making all such arrangements.

D. Testing and Flushing of Potable Water System: Test the potable water system hydrostatically in sections to a pressure of at least 150 psi for not less than 15 minutes, witnessed by the Engineer. Pressure test pipe before burial. Repair leaks and retest the system until the system is leak free. Use testing instruments calibrated by a qualified laboratory in accordance with Section 01 45 00 - Quality Control. Test sequence shall be as follows:
   1. Lines shall be fully flushed.
   2. Lines shall be hydrostatically tested.
   3. Lines shall be fully flushed.
   4. Lines shall be fully disinfected.

3.5 SYSTEM DISINFECTION

A. Before final acceptance of the water supply system, each section of the new line shall be disinfected in accordance with ANSI/AWWA C651. One of the following sources of disinfectant shall be used:
   1. Mixture of water and chlorine gas.
   2. Direct application of chlorine.
   3. Mixture of water and calcium hypochlorite; or
   4. Mixture of water and calcium chloride.

B. Before disinfecting, flush the line thoroughly to remove dirt and extraneous materials. Clean each section of the line between valves independently.

C. Retain the disinfectant solution in the pipe for at least 24 hours. Following this sterilization period, the residual chlorine content at the ends of the section and at other representative points shall be not less than five parts per million. Then, the line shall be drained and thoroughly flushed with water until the residual chlorine content is similar to that obtained from the existing water distribution system.

D. Take water samples and test in accordance with ANSI/AWWA C651.

3.6 CONNECTIONS TO EXISTING MAINS

A. Following testing and sterilization, new water distribution lines shall be connected to existing mains as indicated. Each connection shall be made at a time and in a manner that will result in the least interruption of service.

B. All connections involving shut down of jurisdictional water utility's existing facilities shall be made under the immediate supervision of the jurisdictional water utility district. No member of the Contractor's forces may operate any valve controlling the flow of water in the water utility's existing system.

C. The Contractor shall provide tie-ins to the existing system at a time that is convenient to jurisdictional water utility district, which may be in the evenings and on weekends.

END OF SECTION 331100

SECTION 333100 - SANITARY UTILITY SEWERAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Sanitary sewer pipe and fittings.
2. Underground pipe markers.
3. Connection to existing manholes.
4. Wye branches and tees.
5. Sanitary Laterals.

B. Related Sections:
1. Section 312333 – Excavation, Trenching & Backfilling, bedding and backfill requirements for trenching required by this section.

1.2 REFERENCES

A. ASTM International:
1. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.
2. ASTM A746 - Standard Specification for Ductile Iron Gravity Sewer Pipe.
3. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
4. ASTM C425 - Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
5. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
6. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
7. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals.
8. ASTM C1479 - Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations.
9. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.
10. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
11. ASTM D2564 - Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
12. ASTM D2729 - Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
13. ASTM D2751 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe and Fittings.
14. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

15. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
16. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

B. American Water Works Association:
1. AWWA C110 - American National Standard for Ductile-Iron and Grey-Iron Fittings, 3 in. Through 48 in. (75 mm through 1200 mm), for Water and Other Liquids.
2. AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
3. AWWA C153 - American National Standard for Ductile-Iron Compact Fittings for Water Service.
4. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

C. LDOTD Standard Specifications:
1. Standard Specifications for Highway Construction, 2007, published by the Louisiana Department of Transportation.

1.3 SUBMITTALS

A. Section 013000 – Administrative Requirements: Requirements for submittals.

B. Permits: Submit copies of construction permits obtained for this Work.

C. Product Data: Submit catalog cuts and other pertinent data indicating proposed materials, accessories, details, and construction information.

D. Submit reports indicating field tests made and results obtained.

E. Manufacturer's Installation Instructions:
1. Indicate special procedures required to install Products specified.
2. Submit detailed description of procedures for connecting new sewer to existing sewer line and directional drilling, or pipe jacking installation.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record location of pipe runs, connections, manholes, cleanouts, and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with SCDOT Standard Specifications.

B. Maintain one copy of document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum 3 years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Deliver and store valves in shipping containers with labeling in place.

C. Block individual and stockpiled pipe lengths to prevent moving.

D. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.

E. Do not place pipe flat on ground. Cradle to prevent point stress.

F. Store UV sensitive materials out of direct sunlight.

1.8 FIELD MEASUREMENTS

A. Verify field measurements and elevations are as indicated.

1.9 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work with local sewerage authority. Convene pre-installation meeting minimum of one week prior to starting Work of this Section.

C. Notify affected utility companies minimum of 72 hours prior to construction or as prescribed by law.

PART 2 - PRODUCTS

2.1 SANITARY SEWER PIPE AND FITTINGS

A. PVC Flexible Joint Plastic Pipe: ASTM D3034, Type PSM, Poly (Vinyl Chloride) (PVC) material; bell and spigot style rubber ring sealed gasket joint.
   1. Pipe Class: SDR 35.
   2. Fittings: PVC conforming to pipe specifications.
   3. Joints: ASTM-D 3212, elastomeric gaskets.

2.2 FLEXIBLE PIPE BOOT FOR MANHOLE PIPE ENTRANCES

A. Furnish materials in accordance with authority having jurisdiction.

B. Flexible Pipe Boot: ASTM C923, ethylene propylene rubber (EPDM), Series 300 stainless steel clamp and stainless-steel hardware.

2.3 UNDERGROUND PIPE MARKERS

A. Plastic Ribbon Tape: Brightly colored green continuously printed with "SANITARY SEWER" in large letters, minimum 6 inches wide by 4 mils thick.

2.4 CONCRETE AND GROUT

A. Concrete: Concrete conforming to Division 500 of the LADOTD Standard Specifications.
   1. Compressive strength of 3,000 psi at 28 days.
   2. Air entrained.
   3. Water cement ratio of 0.488 with rounded aggregate and 0.532 with angular aggregate.
   4. Maximum slump of 3.5 inch for vibrated concrete and 4 inch for non-vibrated concrete.
   5. Minimum cement content of 564 pounds per cubic yard for vibrated concrete and 602 pounds per cubic yard for non-vibrated concrete.

B. Grout: Non-shrink, non-metallic in accordance with LADOTD Standard Specifications with a compressive strength of at least 5,000 psi at 3 days.

2.5 BEDDING AND COVER MATERIALS

A. Bedding for Rigid Pipe (DIP and RCP): Clean sand, slightly silty sand, or slightly clayey sand having a Unified Soil Classification of SP, SP-SM or SP-SC.

B. Bedding for Flexible Pipe (PVC, ABS): Clean coarse aggregate Gradation No. 57 conforming to LADOTD Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify existing sanitary sewer utility main size, location, and inverts are as indicated on Drawings.

3.2 EXCAVATION AND BEDDING

A. Excavate pipe trench in accordance with Section 312333.

B. Excavate to lines and grades shown on Drawings or required to accommodate installation of encasement.

C. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.

D. Place bedding material at trench bottom, level continuous layer not exceeding 8-inch compacted depth; compact to 95 percent per Section 312333.

3.3 INSTALLATION - PIPE

A. Install in accordance with manufactures instructions and as indicated on Drawings.

B. Install plastic pipe, fittings, and accessories in accordance with ASTM D2321.

C. Install VCP, fittings, and accessories in accordance with ASTM C12.

D. Install RCP, fittings, and accessories in accordance with ASTM C1479.

E. Install CIP and DIP, fittings, and accessories in accordance with applicable portions of AWWA C600.

F. Seal joints watertight.

G. Lay pipe to slope gradients indicated on Drawings with maximum variation from indicated slope of 1/8 inch in 10 feet. Begin at downstream end and progress upstream.

H. Ensure entire pipe is supported by bedding.

I. Assemble and handle pipe in accordance with manufacturer's instructions except as modified on the Drawings or by Engineer.

J. Keep pipe and fittings clean until work is completed and accepted by Engineer. Cap open ends during periods of work stoppage.

K. Lay bell and spigot pipe with bells upstream.

L. Connect pipe to existing sewer system as indicated on Drawings at existing manhole or using doghouse manhole connection per Section 330514.

M. Place haunching material, rod, and tamp per Section 312317 to eliminate voids.

N. Install underground marking tape continuously 18 inches above pipeline.

3.4 CONNECTION TO EXISTING MANHOLE

A. Core drill existing manhole to clean opening. Using pneumatic hammers, chipping guns, and sledgehammers is not permitted.

B. Install watertight neoprene gasket and seal with non-shrink concrete grout.

C. Concrete encase new sewer pipe minimum of 24 inches to nearest pipe joint. Use epoxy binder between new and existing concrete.

D. Prevent construction debris from entering existing sewer line when making connection.

3.5 INSTALLATION – WYE BRANCHES AND TEES

A. Install wye branches or pipe tees at locations indicated on Drawings concurrent with pipe laying operations. Use standard fittings of same material and joint type as sewer main.

B. Maintain minimum 5 feet separation distance between wye connection and manhole.

C. Use saddle wye or tee with stainless steel clamps for taps into existing piping. Mount saddles with solvent cement or gasket and secure with metal bands. Layout holes with template and cut holes with mechanical cutter.

3.6 INSTALLATION – SANITARY LATERALS

A. Construct laterals from wye branch to terminal point at right-of-way or as indicated on Drawings.

B. Where depth of main pipeline warrants, construct riser type laterals from wye branch.

C. Maintain 3-foot minimum depth of cover over pipe.

D. Maintain minimum 5-foot separation distance between laterals.

E. Install watertight plug, braced to withstand pipeline test pressure thrust, at termination of lateral. Install temporary marker stake extending from end of lateral to 24 inches above finished grade. Paint top 6 inches of stake with fluorescent orange paint.

3.7 BACKFILLING

A. Backfill around sides and to top of pipe in accordance with Section 312333.

B. Maintain optimum moisture content of backfill material to attain required compaction density.

3.8 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Request inspection prior to and immediately after placing bedding.

C. Perform test on sanitary sewage system in accordance with and local code. Perform the following tests:
   1. Gravity Sewer Testing:
      a. Low pressure air test.
      b. Infiltration test.
   2. Deflection Testing of Plastic Piping.
   3. Manhole Testing: Vacuum Test.
   4. Notify Engineer and Owner 72 hours in advance of test and have witness test.

D. Compaction Testing: In accordance with Section 312333.

E. When tests indicate Work does not meet specified requirements, remove work, replace, and retest.

3.9 PROTECTION OF FINISHED WORK

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION 333100

SECTION 334100 - STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Storm drainage piping.
   2. Accessories.
   3. Concrete Collars.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials
   1. AASHTO M36 – Corrugated Steel Pipe, Metallic Coated, for Sewers and Drains.
   2. AASHTO M190 – Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches.
   3. AASHTO M196 – Corrugated Aluminum Pipe for Sewers and Drains.
   4. AASHTO M294 – Corrugated Polyethylene Pipe

B. ASTM International:
   1. ASTM C14 - Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
   2. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
   3. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
   4. ASTM C924 - Standard Practice for Testing Concrete Pipe Sewer Lines by Low- Pressure Air Test Method.
   5. ASTM C969 - Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
   6. ASTM C1103 - Standard Practice for Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines.
   7. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
   8. ASTM D3034 - Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
   9. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. LADOTD Standard Specifications:
   1. Standard Specifications for Roads and Bridges, 2006, published by the Louisiana Department of Transportation.

1.3 SUBMITTALS

A. Section 013000 – Administrative Requirements: Requirements for submittals.

B. Product Data: Submit data for pipe and pipe accessories.

C. Manufacturer's Installation Instructions: Submit special procedures required to install products specified.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 – Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents:
   1. Accurately record actual locations of pipe runs, connections, catch basins, cleanouts, and invert elevations.
   2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with LADOTD Standard Specification.

B. Maintain one copy of document on site.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this Section with minimum 5 years documented experience.

B. Installer: Company specializing in performing Work of this section with minimum 5 years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Block individual and stockpiled pipe lengths to prevent moving.

C. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.

D. Do not place pipe flat on ground. Cradle to prevent point stress.

E. Store UV sensitive materials out of direct sunlight.

1.8 COORDINATION

A. Section 013000 - Administrative Requirements: Coordination and project conditions.

B. Coordinate Work with local storm drain authority.

C. Notify affected utility companies minimum of 72 hours prior to construction or as required by law.

PART 2 - PRODUCTS

2.1 STORM DRAINAGE PIPING

A. Reinforced Concrete Pipe (RCP): ASTM C76, bell and spigot or tongue and groove ends.
   1. Pipe Class: Class III with Wall Type B, or as otherwise specified on Drawings.
   2. Fittings: Reinforced concrete.
   3. Joints: ASTM C443, rubber compression gasket.

B. HDPE Corrugated Polyethylene Pipe: AASHTO M294, Type S or Type D.
   1. Fittings: PVC conforming to pipe specifications.
   2. Joints: ASTM F477, elastomeric gaskets.

C. Corrugated Metal Pipe (CMP):
   1. Steel Pipe: ASSHTO M36.
   2. Aluminum Pipe: AASHTO M196.
   3. Fittings: Corrugated Steel or Aluminum to match pipe.
   4. Joints: Corrugated coupling bands, galvanized steel or aluminum to match pipe, minimum 10 inches wide; connected with two neoprene "O" ring gaskets per and two galvanized steel bolts.

D. Bituminous Coated CMP: AASHTO M 190, Coated inside and out with 0.050-inch-thick bituminous coating or polymer coating.

2.2 CONCRETE AND GROUT

A. Concrete: Concrete conforming to the LADOTD Standard Specifications with:
   1. Compressive strength of 3,000 psi at 28 days.
   2. Air entrained.
   3. Water cement ratio of 0.488 with rounded aggregate and 0.532 with angular aggregate.
   4. Maximum slump of 3.5 inch for vibrated concrete and 4 inch for non-vibrated concrete.
   5. Minimum cement content of 564 pounds per cubic yard for vibrated concrete and 602 pounds per cubic yard for non-vibrated concrete.

B. Grout: Non-shrink, non-metallic in accordance with LADOTD Standard Specifications with a compressive strength of at least 5,000 psi at 3 days.

2.3 BEDDING AND COVER MATERIALS

A. General: Compaction testing or related earthwork shall be performed in accordance with applicable requirements of 31 00 00 Earthwork.

B. Bedding for Rigid Pipe (RCP): Clean sand, slightly silty sand, or slightly clayey sand having a Unified Soil Classification of SP, SP-SM or SP-SC.

C. Bedding for Flexible Pipe (HDPE and CMP): Clean coarse aggregate Gradation No. 57 conforming to the LADOTD Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Excavate pipe trench in accordance with Section 312317.

B. Excavate to lines and grades shown on Drawings or required to accommodate installation of encasement.

C. Dewater excavations to maintain dry conditions and preserve final grades at bottom of excavation.

D. Provide sheeting and shoring in accordance with Section 312317.

E. Place bedding material at trench bottom, level continuous layer not exceeding 8-inch compacted depth; compact to 95 percent per Section 312317.

F. Maintain optimum moisture content of bedding material to attain required compaction density.

3.3 INSTALLATION – PIPE

A. Install in accordance with manufactures instructions and as indicated on Drawings.

B. Install plastic pipe, fittings, and accessories in accordance with ASTM D2321.

C. Seal joints watertight.

D. Lay pipe to slope gradients indicated on Drawings; with maximum variation from indicated slope of 1/8 inch in 10 feet. Begin at downstream end and progress upstream.

E. Assemble and handle pipe in accordance with manufacturer's instructions except as modified on the Drawings or by Engineer.

F. Keep pipe and fittings clean until work is completed and accepted by Engineer. Cap open ends during periods of work stoppage.

G. Lay bell and spigot pipe with bells upstream.

H. Connect pipe to existing sewer system as indicated on Drawings at existing manhole or using doghouse manhole connection per Section 330514.

I. Install underground marking tape continuously 12 inches above pipeline.

J. Connect to sub-drainage tile system piping. Refer to Section 33 46 00.

K. Install site storm drainage system piping to 5 feet of building and plug.

3.4 INSTALLATION – CONNECTION TO EXISTING STRUCTURES

A. Core drill existing manhole to clean opening. Do not use pneumatic hammers, chipping guns, and sledgehammers.

B. Install watertight neoprene gasket and seal with non-shrink concrete grout.

C. Concrete encase new sewer pipe minimum of 24 inches to nearest pipe joint. Use epoxy binder between new and existing concrete.

D. Prevent construction debris from entering existing sewer line when making connection.

3.5 INSTALLATION – MANHOLES, CATCH BASINS, AND CLEANOUTS

A. Install manholes in accordance with Section 330514.

B. Form bottom of excavation clean and smooth to correct elevation.

C. Form and place cast-in-place concrete base pad or pre-cast concrete base with provision for storm sewer pipe end sections.

D. Level top surface of base pad; sleeve concrete shaft sections to receive storm sewer pipe sections.

E. Establish elevations and pipe inverts for inlets and outlets as indicated on Drawings.

F. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

3.6 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Request inspection prior to and immediately after placing bedding.

C. Perform tests on storm drain system in accordance with Section 330134 and local code. Perform the following tests:
    1. Gravity Sewer Testing:
        a. Low Pressure Air Test.
        b. Infiltration Test.
    2. Deflection Testing of Plastic Piping.
    3. Manhole Testing: Vacuum Test.
    4. Notify Engineer 72 hours in advance of test and have witness test.

D. Soil Compaction Testing: In accordance with Section 312317.

E. When tests indicate Work does not meet specified requirements, remove work, replace, and retest.

3.7 PROTECTION OF FINISHED WORK

A. Section 017000 - Execution and Closeout Requirements: Protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.
    1. Take care not to damage or displace installed pipe and joints during construction of pipe supports, backfilling, testing, and other operations.
    2. Repair or replace pipe that is damaged or displaced from construction operations.

END OF SECTION 334100