DOCUMENT 00 91 01

ADDENDUM NO. 01
Dated July 10, 2025

1. GENERAL

This document includes requirements that clarify or supersede portions of the bid and/or contract requirements for the project. This Addendum is a Contract Document.

2. SUMMARY

The following changes, additions, and deletions shall be made to the following document(s) as noted in **RED**; all other conditions shall remain the same.

REPLACING BID SCHEDULE FROM BID FORM & PROPOSAL

1. Replace the original BID SCHEDULE in its entirety with BID SCHEDULE (ADDENDUM NO. 01).

REPLACING PLAN SET

1. Replace the original PLAN SET in its entirety with PLAN SET (ADDENDUM NO. 01).

REPLACING TECHNICAL SPECIFICATIONS

1. Replace the original TECHNICAL SPECIFICATIONS in their entirety with TECHNICAL SPECIFICATIONS (ADDENDUM NO. 01).

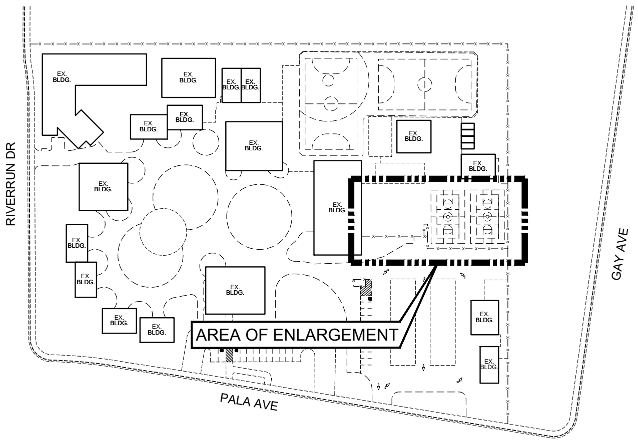
END OF DOCUMENT

EAST SIDE UHSD - FOOTHILL HIGH SCHOOL BASKETBALL COURTS
DW INFRASTRUCTURE - PLAY COURT IMPROVEMENTS (FH)
BID SCHEDULE (ADDENDUM NO. 1)

ITEM NO.	ITEM DESCRIPTION	UNIT	APPROX. QTY	UNIT PRICE	EXTENDED TOTAL
1.	Mill & Remove Ex. AC To A Depth Of 4"; Lime/Cement Treat Material To 8" Depth; Place 4" HMA	SF	16,000	$_____	$_____
2.	Apply Acrylic Seal Coat (Blue/Green/Red Color Scheme)	SF	4,200	$_____	$_____
3.	Remove & Replace PCC Sidewalk	SF	20	$_____	$_____
4.	Remove & Dispose Of Vegetation. Backfill W/Topsoil And Top Dress W/ 3" Min. Layer Of Bark Mulch	SF	450	$_____	$_____
5.	Remove & Dispose Of PCC Facilities	SF	140	$_____	$_____
6.	Remove & Replace Or Install 2x4 Redwood Headerboard	LF	250	$_____	$_____
7.	Remove & Replace Or Install 2x12 Redwood Headerboard	LF	60	$_____	$_____
8.	Install 4' High Ornamental Tubular Steel Fence w/ Ball Stop Netting	LF	180	$_____	$_____
9.	Remove Ex. Basketball Standard & Install New Basketball System	EA	3	$_____	$_____
10.	Install New Volleyball System	EA	1	$_____	$_____
11.	Adjust Utility Box To Final Grade	EA	6	$_____	$_____
12.	Remove & Replace Fence Post & Post Base	EA	3	$_____	$_____
13.	Remove Gate & Fence Fabric; Replace After Construction. Protect Ex. Post During Construction	LS	---	$_____	$_____
14.	New Paint Markings	LS	---	$_____	$_____
15.	Site Utility Allowance	LS	---	$35,000.00	$35,000.00

Estimated Construction Cost:	$_____

EAST SIDE UNION HIGH SCHOOL DISTRICT
DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
PROJECT NO. FH00000705/CP6750



SITE PLAN
NTS

SHEET INDEX	
SHEET NO.	SHEET DESCRIPTION
1	TITLE SHEET
2	SITE PLAN
3	GRADING PLAN
4	STRIPING PLAN
5	DETAILS

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL TESTING THAT MAY BE REQUIRED TO LEGALLY DISPOSE OF EXCESS MATERIAL.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANS & CONTRACT DOCUMENTS. WORK NOT COMPLYING WITH PLANS & CONTRACT DOCUMENTS WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS EXPENSE.
3. THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION DEBRIS AND LEAVE WORK AREA CLEAN DAILY.
4. ABSOLUTE ACCURACY OF DRAWING CAN NOT BE GUARANTEED. WHILE EVERY EFFORT HAS BEEN MADE TO COORDINATE THE LOCATION OF THE EXISTING EQUIPMENT, PIPING, ETC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT REQUIREMENTS GOVERNED BY ACTUAL JOB CONDITIONS.
5. AREAS NOT IN SCOPE OF WORK DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
6. PROTECT EXISTING BUILDING STRUCTURES, AND ADJACENT FINISHED SURFACES DURING CONSTRUCTION. PATCH, REPAIR AND REFINISH AREAS DAMAGED OR IMPACTED BY WORK DURING THIS PROJECT TO MATCH ADJACENT UNDISTURBED AREAS. PATCHING, REPAIRING AND REFINISHING IS TO BE PERFORMED BY WORKMEN SKILLED IN THE TRADES INVOLVED.
7. CONTRACTOR SHALL HAVE LOCATING SERVICE VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. CONTRACTOR SHALL CONTACT THE ENGINEER TO REVIEW AND ADDRESS ANY UTILITIES CONFLICTING WITH THE SCOPE OF WORK.
8. UTILITY BOXES IN CONSTRUCTION AREAS SHALL BE REUSED AND ADJUSTED TO FINISHED GRADE. IF BOXES ARE NOT REUSABLE, CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO REMOVAL.
9. ANY AND ALL IRRIGATION LINES AND SPRINKLERS IN WORK AREA SHALL BE ADJUSTED TO GRADE AS NECESSARY TO PROVIDE FULL COVERAGE.
10. CONTRACTOR SHALL CLEAN OUT ALL THE DRAINAGE STRUCTURES WITHIN LIMITS OF WORK, INCLUDING DROP INLETS. FLUSH STORM DRAIN LINES PRIOR TO COMMENCEMENT OF WORK. ANY BLOCKAGE SHALL BE CORRECTED PRIOR TO ANY CONSTRUCTION.
11. ALL MATERIALS AND WORKMANSHIP ARE SUBJECT TO REVIEW BY OWNER. ANY PORTION OF THE WORK FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE CONTRACTOR PER CONTRACT AT NO ADDITIONAL COST TO THE OWNER.
12. ALL NEW CONCRETE SHALL BE DOWELED & EPOXIED INTO EXISTING CONCRETE WITH #4 REBAR X 12" MIN. @ 24" O.C.
13. ALL AREAS OF PCC CHIPPED OR DAMAGED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED BACK TO THE NEXT JOINT.
14. CONTRACTOR SHALL NOT CUT ANY ROOTS GREATER THAN 2" IN DIAMETER WITHOUT PRIOR APPROVAL FROM THE SCHOOL DISTRICT'S ARBORIST. ANY ROOTS WITHIN 4' OF THE TRUNK OF ANY OF THE TREES IN THE PROJECT SHALL NOT BE CUT FOR ANY REASON.

ADDENDUM NO. 1 - 07/07/25

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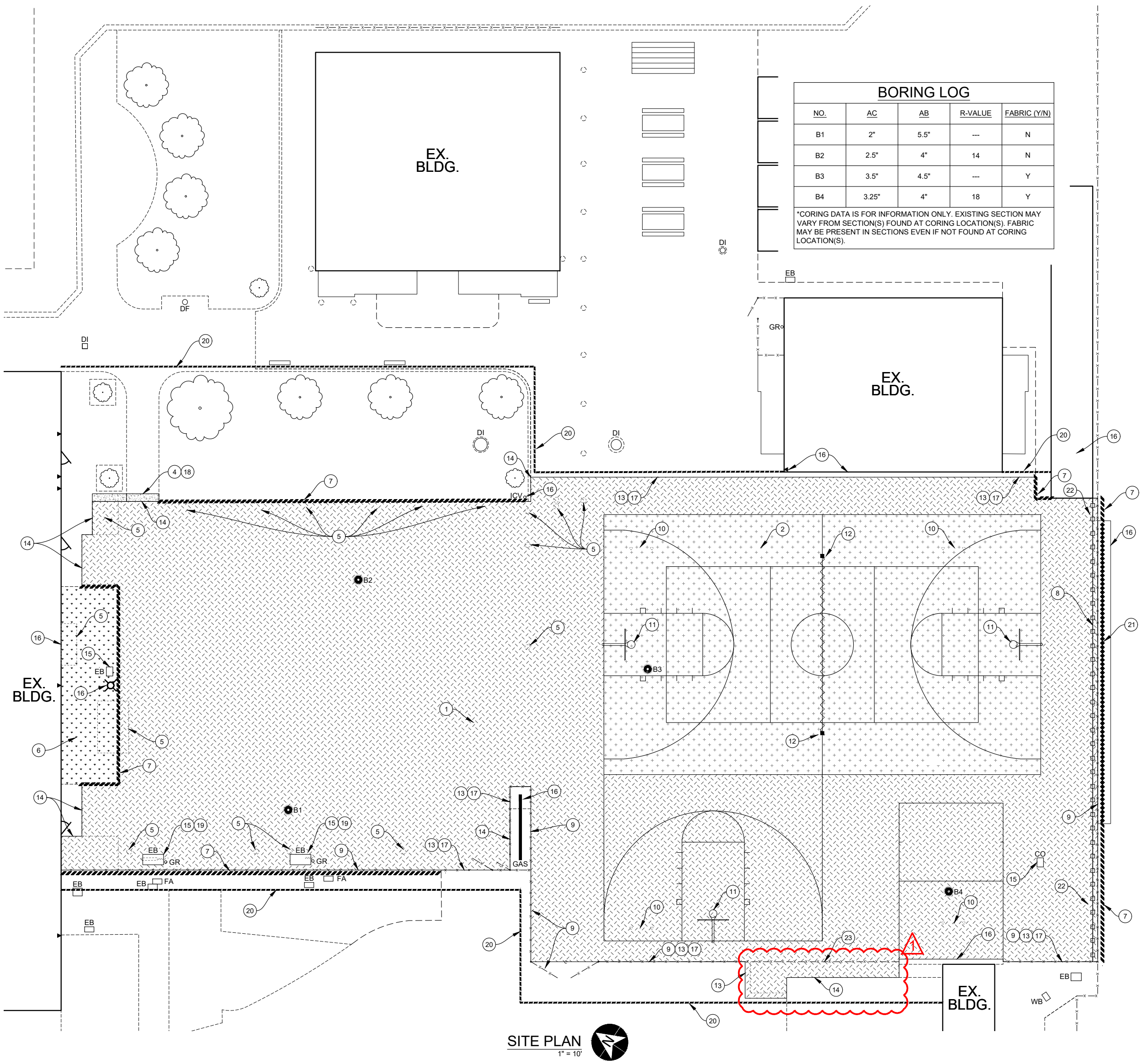
805.781.2265

FOOTHILL HIGH SCHOOL
230 PALA AVE
SAN JOSE, CA

DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
TITLE SHEET

C91624
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

DRAWN BY: JT
PROJECT NUMBER: 250155-01
SCALE: NTS
VERIFY SCALE
BAR REPRESENTS 1" ON ORIGINAL
DATE: JUNE 2025
SHEET NUMBER:
1 OF 5



SITE PLAN
1" = 10'

BORING LOG

NO.	AC	AB	R-VALUE	FABRIC (Y/N)
B1	2"	5.5"	---	N
B2	2.5"	4"	14	N
B3	3.5"	4.5"	---	Y
B4	3.25"	4"	18	Y

*CORING DATA IS FOR INFORMATION ONLY. EXISTING SECTION MAY VARY FROM SECTION(S) FOUND AT CORING LOCATION(S). FABRIC MAY BE PRESENT IN SECTIONS EVEN IF NOT FOUND AT CORING LOCATION(S).

LEGEND

- MILL, SOIL TREATMENT & HMA PAVING
- MILL, SOIL TREATMENT & HMA PAVING; APPLY ACRYLIC SEAL COAT (BLUE/GREEN/RED COLOR SCHEME)
- NEW OR RECONSTRUCT PCC FACILITIES
- REMOVE & DISPOSE OF VEGETATION; TOP DRESS W/ BARK MULCH
- REMOVE & REPLACE OR INSTALL 2X4 HEADERBOARD
- REMOVE & REPLACE OR INSTALL 2X12 HEADERBOARD
- ORNAMENTAL TUBULAR STEEL FENCE W/ BALL STOP NETTING
- TEMPORARY CONSTRUCTION FENCE
- FENCE (EX.)
- # BORE LOCATION (SEE BORING LOG)
- ROOF DRAIN (EX.)
- LIGHT STANDARD (EX.)
- HMA HOT MIX ASPHALT
- PCC PORTLAND CEMENT CONCRETE
- CO CLEAN OUT (EX.)
- DF DRINKING FOUNTAIN (EX.)
- DI DRAIN INLET (EX.)
- EB ELECTRICAL BOX (EX.)
- FA FIRE ALARM BOX (EX.)
- GR GROUND (EX.)
- ICV IRRIGATION CONTROL VALVE (EX.)
- WB WATER BOX (EX.)

CONSTRUCTION NOTES:

1. MILL & REMOVE EX. AC TO A DEPTH OF 4"; LIME/CEMENT TREAT MATERIAL TO 8" DEPTH; PLACE 4" HMA.
2. MILL & REMOVE EX. AC TO A DEPTH OF 4"; LIME/CEMENT TREAT MATERIAL TO 8" DEPTH; PLACE 4" HMA. APPLY ACRYLIC SEAL COAT W/ BLUE/GREEN/RED COLOR SCHEME. DISTRICT TO APPROVE COLOR SCHEME PRIOR ACRYLIC SEAL COAT.
3. NOT USED.
4. REMOVE & REPLACE PCC SIDEWALK.
5. REMOVE & DISPOSE OF PCC FACILITIES.
6. REMOVE & DISPOSE OF VEGETATION. BACKFILL W/TOPSOIL TO 2" MAX FROM TOP OF HMA PAVEMENT OR PCC SIDEWALK; TOP DRESS W/ 3" MIN. LAYER OF BARK MULCH.
7. REMOVE & REPLACE OR INSTALL 2X4 REDWOOD HEADERBOARD.
8. INSTALL 4' HIGH ORNAMENTAL TUBULAR STEEL FENCE W/ BALL STOP NETTING.
9. REMOVE FENCE FABRIC & REPLACE AFTER CONSTRUCTION.
10. REMOVE EX. BASKETBALL POST BASE, POST, BACKBOARD & RIM/NET.
11. DISTRICT TO PROVIDE BASKETBALL STANDARD. CONTRACTOR TO PICK UP HARDWARE AT THE DISTRICT YARD & INSTALL BASKETBALL STANDARD PER MANUFACTURER'S DIRECTIONS.
12. DISTRICT TO PROVIDE VOLLEYBALL STANDARD. CONTRACTOR TO PICK UP HARDWARE AT THE DISTRICT YARD & INSTALL VOLLEYBALL STANDARD PER MANUFACTURER'S DIRECTIONS.
13. PAVE FLUSH TO EX. ASPHALT PAVEMENT.
14. PAVE FLUSH TO EX. PCC FACILITIES.
15. ADJUST UTILITY BOX TO FINAL GRADE.
16. PROTECT EX. FACILITIES DURING CONSTRUCTION
17. SAWCUT 1' INTO EX. ASPHALT PAVEMENT.
18. SAWCUT 1' INTO EX. PCC SIDEWALK.
19. DISTRICT TO REMOVE EXPOSED UTILITY LINES & INSTALL ELECTRICAL BOX PRIOR TO CONSTRUCTION.
20. PROVIDE TEMPORARY CONSTRUCTION FENCE AROUND WORK AREA.
21. REMOVE & REPLACE OR INSTALL 2X12 REDWOOD HEADERBOARD.
22. PRUNE & REMOVE TREE ROOTS.
23. REMOVE EX. FENCE POST & PCC POST BASE. INSTALL FENCE POST TO MATCH EX.

1 ADDENDUM NO. 1 - 07/07/25

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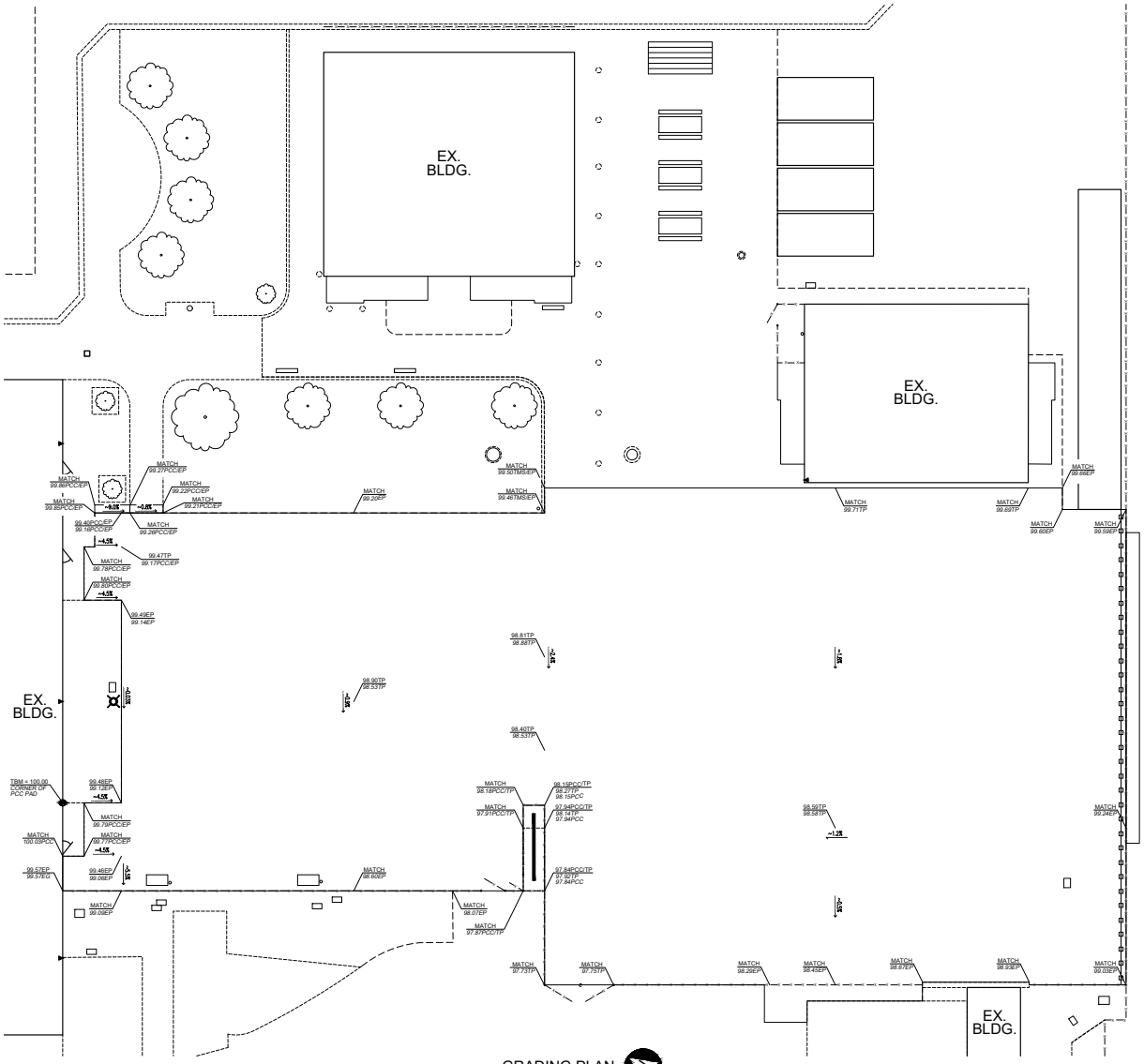
FOOTHILL HIGH SCHOOL
230 PALA AVE
SAN JOSE, CA

DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
SITE PLAN

C91624
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	JT
PROJECT NUMBER:	250155-01
SCALE:	1" = 10'
	VERIFY SCALE BAR REPRESENTS 1" ON ORIGINAL
DATE:	JUNE 2025
SHEET NUMBER:	2 OF 5



GRADING PLAN
1" = 10'

LEGEND

●	TEMPORARY BENCHMARK
⟶	DIRECTION OF GRADE
PCC	PORTLAND CEMENT CONCRETE
EG	EXISTING GRADE
EP	EDGE OF PAVEMENT
TMS	TOP OF PCC MOW STRIP
TP	TOP OF PAVEMENT
XX.XX / *XX.XX*	DESIGN ELEV. / *EXIST. ELEV.*

⚠1 ADDENDUM NO. 1 - 07/07/25

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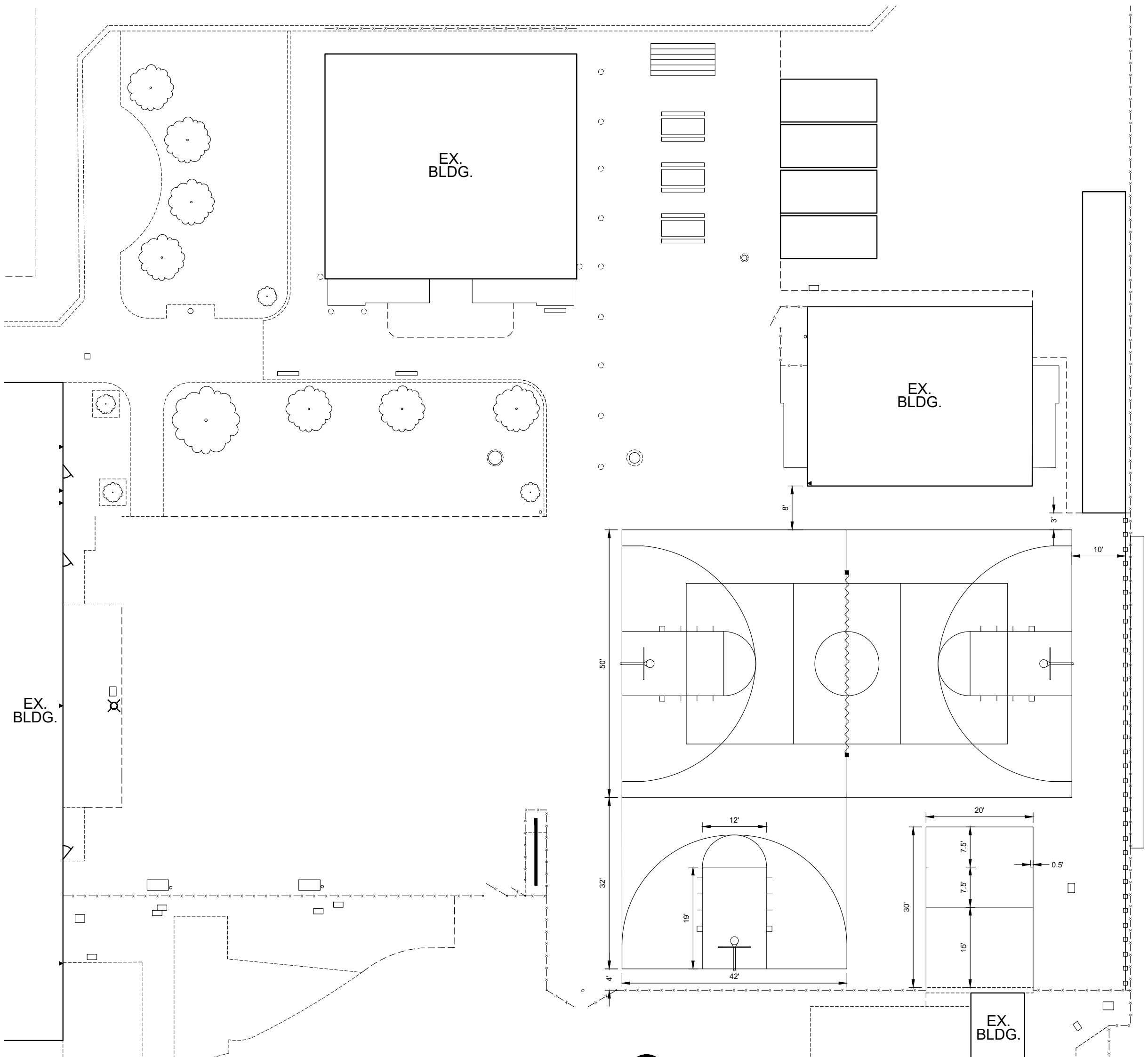
SAN JOSE, CA

DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
GRADING PLAN

CHRIS
Exp. 12-31-26

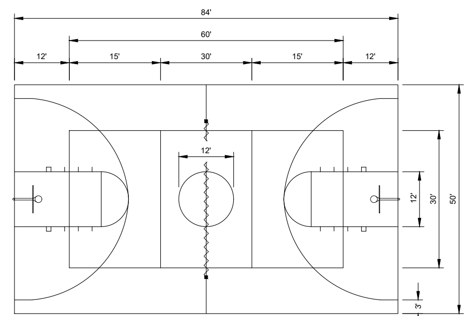
DRAWN BY: JT
PROJECT NUMBER: 250155-01
SCALE: 1" = 10"
VERIFY SCALE
BAR REPRESENTS 1" ON ORIGINAL
DATE: JUNE 2025
SHEET NUMBER: 3 OF 5



STRIPING PLAN
1" = 10'

NOTES:

1. PAINT LINES AS SHOWN. ALL LINES TO BE 2" WIDE WITH TWO COATS MINIMUM APPLICATION.
2. PAINT CIRCLES DIAMETER PER PLAN, 2" WIDE, WITH TWO COATS MINIMUM APPLICATION.
3. DISTRICT TO APPROVE COLOR SCHEME PRIOR ACRYLIC SEAL COAT.



BASKETBALL COURT W/ ACRYLIC SEAL COAT DETAIL
NTS

ADDENDUM NO. 1 - 07/07/25

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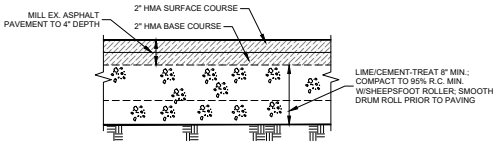
DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
STRIPING PLAN

REGISTERED PROFESSIONAL ENGINEER
C91604
Exp. 12-31-26
CIVIL
STATE OF CALIFORNIA

DRAWN BY:	JT
PROJECT NUMBER:	250155-01
SCALE:	1" = 10"
VERIFY SCALE	BAR REPRESENTS 1" ON ORIGINAL
DATE:	JUNE 2025
SHEET NUMBER:	4 OF 5



NOTES:

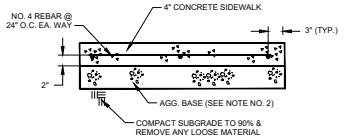
1. UNDERGROUND SERVICE ALERT (U.S.A.) SHALL BE NOTIFIED PRIOR TO ANY EXCAVATION ON THIS PROJECT. A REFERENCE NUMBER FROM U.S.A.SHALL BE PROVIDED TO CLIENT'S REPRESENTATIVE BEFORE ANY UNDERGROUND EXCAVATION WILL BE ALLOWED.
2. CONTRACTOR SHALL CONTACT ESUHSD & SCHEDULE WATER TO BE SHUT OFF PRIOR TO LIME/CEMENT-TREATING, THEN TURNED ON PRIOR TO PAVING TO AVOID PAVING OVER DAMAGED IRRIGATION LINES.
3. SEE SPECIFICATIONS FOR SOIL TREATMENT INFORMATION.

MILL, GRADING, SOIL TREATMENT & HMA PAVING

NTS

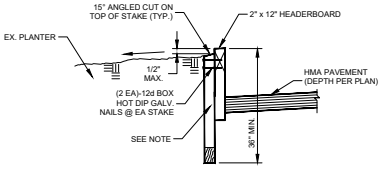
NOTES

1. CONTROL JOINTS @ 10' O.C. MAX.
2. PLACE 4" MINIMUM AGG. BASE UNDER NEW SIDEWALK; COMPACT TO 90% R.C.



PCC SIDEWALK DETAIL

NTS

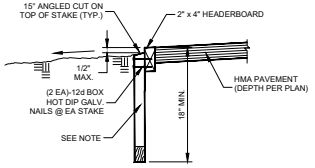


NOTE

2" x 4" x 36" MIN. STAKES @ 32" O.C. &
2" x 6" x 36" MIN. STAKES @ HEADERBOARD JOINTS

2x12 HEADERBOARD DETAIL

NTS



NOTE

2" x 4" x 18" MIN. STAKES @ 32" O.C. &
2" x 6" x 18" MIN. STAKES @ HEADERBOARD JOINTS

2x4 HEADERBOARD DETAIL

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⚠1 ADDENDUM NO. 1 - 07/07/25

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DW INFRASTRUCTURE - PLAY COURT IMPROVEMENT PROJECT
DETAILS

CIVIL
Exp. 12-31-26
STATE OF CALIFORNIA

DRAWN BY: JT
PROJECT NUMBER: 250155-01
SCALE: NTS
VERIFY SCALE
BAR REPRESENTS 1" ON ORIGINAL
DATE: JUNE 2025
SHEET NUMBER:

5 OF 5

EAST SIDE UNION HIGH SCHOOL DISTRICT

FOOTHILL HIGH SCHOOL BASKETBALL COURT
SAN JOSE, CALIFORNIA

TECHNICAL SPECIFICATIONS (ADDENDUM NO. 1)

Table of Contents

SECTION 02 41 13

SITE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Demolish and remove portions of existing site facilities as described in Contract Documents.

B. Related Sections:
   1. Section 32 00 01 - General Exterior Site Construction Requirements
   2. New and replacement work specified in appropriate specification Section.

1.2 PRICE AND PAYMENT PROCEDURES

A. If the project contains a Lump Sum price for demolition, all demolition activities shall be included under that bid price and not individual remove and replace items.

B. If the project contains Unit Prices for various items such as “Remove Roots Under Repairs”; the cost of removal shall be included in the item of work.

C. If the project is bid as a lump sum, no additional payment will be made for site demolition work.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination
   1. **Contractor shall contact an Underground Service Alert entity forty-eight (48) hours in advance of work, and have all utilities marked prior to the preconstruction meeting or ground disturbance.**
   2. Contractor shall request access to Owner’s water service controls.
   3. Contractor shall coordinate with affected utilities, transportation agencies, schools, waste disposal companies, and any other pavement users.
   4. Contractor shall coordinate with other contractors working on the site.
   5. Contractor shall us**e** approved trucking routes from the Owner on Project haul routes.

B. Preconstruction Meeting
   1. Contractor shall schedule a preconstruction meeting prior to initiating work.
   2. Attendees at the preconstruction meeting shall include but not be limited to:
      a. Owner’s Representative
      b. Contractor’s **Project Manager and General Superintendent**
      c. **Subcontractor Representatives** (if applicable)
      d. QA Representative
      e. QC Representative
      f. Other pavement users or affected parties as applicable.

C. Sequencing
   1. Contractor shall sequence the work to minimize disruption to existing project users.
   2. Contractor shall sequence the work to prevent demolition operations from damaging new and existing sitework features.
   3. Contractor shall not commence demolition until all Storm Water Protection BMPs have been installed.

D. Scheduling
   1. Construction Schedule shall include a detailed sequence of individual site demolition operations.
   2. Contractor shall coordinate with Owner for equipment and materials to be removed by Owner, if necessary.

1.4 SUBMITTALS

A. Upon Project Closeout, Contractor shall iIdentify abandoned utility and service lines and capping locations on record drawings.

1.5 CLOSEOUT SUBMITTALS

A. Owner shall be provided with documentation of disposal and recycling of site demolition material.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 EXAMINATION

A. Contractor shall examine site to determine extent of work necessary to separate work to be removed from work to remain. If separation procedure is unclear, Contractor shall request clarification from Owner's Representative at least five (5) working days in advance of demolition.

3.2 PREPARATION

A. Contractor shall notify corporations, companies, individuals, and local authorities owning conduits running to property.
   1. Conduits, drains, sewers, pipes, and wires that are to remain on the property shall be protected and maintained.
   2. Contractor shall arrange for removal of wires running to and on property and remove pipes and sewers in accordance with instructions of Owners.
   3. Locations of all underground utilities encountered including abandoned, damaged, repaired or unknown facilities shall be marked on record drawings.

B. Contractor shall be responsible for protecting soil stability underlying facilities during demolition.

C. Contractor shall be responsible for protecting existing facilities.

3.3 PERFORMANCE

A. Work shall be executed in an orderly and careful manner, with due consideration for neighbors and the public. **Contractor shall control dust.**

B. Existing items shall be carefully removed, disassembled, or dismantled as required, and stored in an approved location on site. Existing items shall be reused in completed work.

C. Concrete and Paving Removal
   1. Full depth saw cut joints between material shall be removed and material shall remain.
   2. Existing concrete site elements or pavement damaged during demolition or work shall

be resawcut and replaced at Contractor's expense.

D. Site Clearing
   1. Tree and Brush Removal
      a. Trees, shrubs, brush and vegetative growth shall be cut 12 inches maximum above ground.

      b. Stumps and roots shall be removed 12 inches below original ground surface or until stump and all roots 1 inch or larger are removed.

      c. Roots of plants that normally sprout from roots shall be entirely removed as identified by Owner's Representative.

   2. Root Pruning and Removal
      a. Trench shall be hand excavated 1 foot wide and 20 inches deep along concrete or paving to be removed.

      b. Roots encountered shall be cut with saw, axe, or pruners. Roots with excavating equipment.

      c. Roots under concrete and paving shall be removed to 12 inches below top of base or native subgrade.

   3. Stripping
      a. Existing vegetation layer shall be stripped 2 inches and removed from site prior to stripping topsoil for storage and reuse if necessary.

      b. After stripping existing vegetation layer, existing topsoil shall be stripped an additional 4 inches and stored onsite for reuse if necessary.

E. Excavation
   1. Contractor shall use excavation equipment and methods that do not cause or increase subgrade instability.
   2. Contractor shall use methods that preclude tracking of soils or debris off site or onto streets, etc.

F. Disposal
   1. all trees, shrubs, stumps, vegetative layer, asphalt concrete, removed concrete site elements and surface debris shall be immediately removed from site.
   2. Waste shall not be buried or burned.
   3. Work shall comply with all local, state, and federal disposal and recycling regulations.
   4. If hazardous materials are encountered, Contractor shall refer to the General Conditions.

G. Site Maintenance
   1. Contractor shall broom clean all remaining surfaces immediately after demolition and removal of debris. Contractor shall maintain broom clean condition.
   2. Contractor shall maintain all storm water protection measures.
   3. Contractor shall provide continuous dust control measures until work is complete.

END OF SECTION

SECTION 02 41 15

SITE UTILITY REPAIR

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Contractor shall identify the location of the existing utilities for the site using existing plans, obvious surface features, locations of facilities, locator services and other practical means **48 hours prior to ground disturbance**.
   2. At locations where identified site utilities may conflict with the planned construction, the contractor shall pothole the utility 5 days in advance of the work to ascertain if a conflict exists. If a conflict does exist, the contractor shall notify the Owner and Engineer immediately.
   3. Repair of existing utilities damaged during the course of construction.

1.2 PRICE AND PAYMENT PROCEDURES

A. Payment for Repairs
   1. A Utility Repair Allowance is included in the project Bid Schedule. The contractor shall include this amount in his total bid.
   2. Payment for site utility repairs shall be made as follows:
      a. Damaged due to Contractor's error or negligence - paid by Contractor
      b. Damage due to unidentifiable or unknown conditions – paid through Site Utility Repair Allowance.
         1) Subcontractor markup limited to 5%
         2) Own forces markup 15%
         3) "Greenbook" and Cal Trans Force Account rules do not apply to this project. Only equipment, material and personnel directly associated to repair shall be considered "extra work" by project owner.
         4) No compensation for delays related to site utility repairs.

B. Remaining monies in the Site Utility Repair Allowance at completion of job shall be credited back to owner by a change order.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination
   1. Contractor shall coordinate with affected utilities.
   2. Contractor shall coordinate with other contractors working on the site.
   3. Coordinate with site landscape maintenance company.

B. Preconstruction Meeting
   1. Contractor shall schedule a preconstruction meeting prior to initiating work.
   2. Attendees at the preconstruction meeting shall include but not be limited to:
      a. Owner's Representative
      b. Contractor's **General Foreman**
      c. Subcontractors (if applicable)
      d. QA Representative
      e. QC Representative
      f. Other site users or affected parties as applicable.

C. Scheduling
   1. The location of underground facilities shall be included as an initial schedule activity.
   2. Potholing of potential conflicting utilities shall be performed within 48 hours after the conflict is identified.

1.4 SUBMITTALS

A. The workman or subcontractors to perform the repairs shall be identified prior to the initiation of work and telephone number made available to the Owner's Representative.
   1. The contractor shall have the resources available to immediately and expeditiously repair damaged utilities, without impact to the schedule, including:
      a. site lighting
      b. irrigation lines and wires
      c. water services
      d. electrical lines

1.5 CLOSEOUT SUBMITTALS

A. Provide Owner with record drawings indicating site utility repairs with related information including photographs.

PRODUCTS

1.6 MATERIALS

A. The materials used for repairs shall be compatible and similar with the site utility to be repaired.

B. Minimum thickness of plastic pipe for irrigation repairs shall be Schedule 40.

C. Utility Boxes: Traffic-rated box and lid in pavement areas; Plastic or composite box in landscape areas.

D. Wire Connectors: 3M AY type connectors shall be used for wire splices.

PART 2 EXECUTION

2.1 PROTECTION

A. The contractor is responsible for protecting existing site utilities identified or which should have been identified by compliance with these specifications.

2.2 CONSTRUCTION

A. Repair of damaged lines or wiring due to the contractor's failure to adequately identify or protect existing utility lines shall be the contractor's responsibility.

B. Damaged utilities which were not able to be identified or protected shall be repaired by the contractor.
   1. The contractor shall make all repairs in accordance with the applicable codes. Care shall be exercised to avoid further damage to existing facilities during repairs.
   2. The repaired lines or wiring shall be tested prior to backfilling.
   3. The contractor shall be responsible for any damage to the completed work due to improper repairs of existing site utilities.
   4. Electrical splices:

a. Damaged electrical lines shall be replaced from existing pull boxes or facilities. Splices shall only be made with the express permission of the Owner.
b. Damaged irrigation wiring may be spliced with wire connectors. Splices in wiring run shall have a utility box placed over the splice.

END OF SECTION

SECTION 03 30 53

SITEWORK CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. Contractor shall remove existing concrete and related materials.
   2. Subgrade for cast-in-place concrete site elements shall be compacted as described in Contract Documents.
   3. Granular base for cast-in-place concrete site elements shall be furnished and installed as described in Contract Documents.
   4. Cast-in-place concrete site elements shall be furnished and installed as described in Contract Documents.

B. Related Sections
   1. Section 02 41 13 - Site Demolition
   2. Section 03 90 05 - Concrete Joint Sealant
   3. Section 31 23 00 - Excavation, Grading & Backfill
   4. Section 32 00 01 - General Exterior Site Construction Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Detectable Warning Surface will be measured and paid for on a square foot basis as listed in the Bid Schedule.

B. Stair Treads will be included in the bid price for stair construction and no separate payment will be made, therefor.

C. Concrete Joint Sealant will be included in the various items of work.

D. All other items of site work concrete will be measured and paid for as listed in the Bid Schedule and will be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

E. If sample panel(s) is/are required, it/they will be included in the unit cost of the work.

1.3 REFERENCES

A. American Society for Testing and Materials (Most recent version)
   1. ASTM D 1751, 'Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)'
   2. ASTM A 615, ‘Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement’
   3. ASTM C 33, ‘Standard Specifications for Concrete Aggregates’
   4. ASTM C 94, ‘Standard Specifications for Ready-Mixed Concrete’
   5. ASTM C 150, “Standard Specifications for Portland Cement’

B. 2018 Caltrans Standard Specifications immediately connected to concrete work

C. California Building Code. (most recent version)

D. Americans Disabilities Act including most recent rulings

E. Applicable Caltrans Standard Details if applicable to the work (either because within Caltrans Right of Way or by municipal reference)

1.4 DELIVERY, STORAGE, AND HANDLING

A. Reinforcing steel shall be free of mud, heavy rust scales or flakes, or other coating at time of delivery and placement. Rebar shall be properly protected on site after delivery.

1.5 SUBMITTALS

A. Concrete Mix Designs

B. Aggregate Base

C. Safety Treads

D. Detectable Warning Surface

E. Concrete Joint Primer and Sealant

F. Concrete Color

G. Concrete Stamp Patterns

1.6 ACTION SUBMITTALS

A. Delivery Tickets - Mix plant shall furnish delivery ticket for each batch of concrete. Contractor shall keep delivery tickets at job site for use of Owner's Representative. Tickets shall show the following:
   1. Name of ready-mix plant
   2. Serial number of ticket
   3. Date and truck number
   4. Name of Contractor
   5. Name and location of Project
   6. Specific class or designation of concrete in conformance with the specifications. Class or designation shall match mix approved mix design.
   7. Amount of concrete
   8. Time loaded
   9. Type, name, and amount of admixtures used.
   10. Amount and type of cement
   11. Total water content
   12. Sizes and weights of sand and aggregate
   13. Fiber additive

1.7 QUALITY ASSURANCE

A. Quality Assurance (QA) Inspection and/or Testing.
   1. Owner may, at their option, have independent quality assurance inspection and testing.
      a. Inspections may be made during or after the work.
      b. QA Inspection and testing shall be for the sole purpose of providing the Owner a greater degree of assurance that the requirements of the contract have been met. QA inspection and testing shall not relieve the Contractor of any

responsibility to comply with or perform in accordance with the Contract documents.

2. All QA concrete testing laboratories shall be CCRL, ACI, or otherwise qualified under ASTM C1077-14.

B. Notification Required – **Contractor shall allow Owner's Representative to verify grades and elevations or to schedule QA personnel. Contractor shall notify Owner's Representative forty-eight (48) hours minimum prior to placing concrete.**

PART 2 PRODUCTS

2.1 MATERIALS

A. Formwork
1. Material: Wood, metal or plastic
2. Size
   a. Straight Runs – 2-inch nominal thickness minimum.
   b. Curves - laminated to 3/4-inch thickness minimum.
   c. Depth - Within 2 inches of specified depth.
3. Staking - 2 foot maximum spacing.

B. Aggregate Base -
1. 3/4-inch Class 2 Aggregate per Section 26 of Caltrans Standard Specifications.
2. Onsite Recycled Base per Section 32 12 16.
3. Grindings from cold planing less than 2 inches in maximum dimension.

C. Expansion Joints
1. Manufactured commercial fiber type meeting requirements of ASTM D 1751 and 1/2 inch thick.

D. Concrete Reinforcing Steel
1. Grade 40 deformed bars.

E. Concrete
1. Type I/II Cement
2. All concrete except swales and PCC pads for dumpsters:
   a. 1-inch maximum aggregate size.
   b. 5 sack minimum.
   c. 2,500 psi in twenty-eight (28) days.
   d. 4-inch maximum slump.
   e. Fibermesh Polypropylene Fibers, or equivalent, 3/4 inch minimum length @ 1.5 lbs/cy (0.01% by volume).
3. Concrete swales and PCC pads for dumpsters:
   a. 1 inch maximum aggregate size.
   b. 6 sack minimum.
   c. 2,000 psi in seven (7) days.
   d. 3,500 psi in twenty-eight (28) days.
   e. 4-inch maximum slump.
   f. Fibermesh Polypropylene Fibers, or equivalent, 3/4 inch minimum length @ 3.0 lbs/cy (0.02% by volume).
4. Omit Fibermesh on colored and/or textured concrete.

F. Safety Treads - Wooster Products Inc. Type 231 complying with latest addition of CBC for placement and color.
1. Warning strip on top and bottom steps shall differ in color from intermediate stair

treads.

G. Detectable Warning Surface -
   1. Tactile warning dots per Section 1133B.8.5 of the of the California Building Code.
      a. 36 inch minimum width.
      b. Durable, slip-resistant material with a surface texture composed of raised, truncated domes in a staggered pattern with a diameter of nominal 0.9 inch at the base tapering to 0.45 inch at the top, a height of nominal 0.2 inch, and a center spacing of nominal 2.35 inch.
      c. Color as specified on Plans. If no color is specified, color shall be Safety Yellow.
      d. "Set-in-concrete' system required (No glued & screwed mat systems installed after finished concrete)
   2. Acceptable Products (in safety yellow color):
      a. "Wet-Anchor Box" by Disability Devices, Inc. http://www.disabilitydevices.com/Offset_Dome_Tactile_Warning_Mat.html
      b. "Cast-in-Place System" by Armor-Tile. http://www.armor-tile.com/truncateddomes/surface-applied-systems.htm
      c. Approved equal by Owner's Representative prior to bidding.

H. Concrete Joint Sealant
   1. Pourthane SL Product 773-A by W. R. Meadows/SealTight
   2. Sikaflex Self-Leveling Sealant
   3. Or equal

PART 3 EXECUTION

3.1 PREPARATION

A. Survey and stake site work concrete shall indicate locations and elevations required by the Contract Documents. **Notification to Owner's Representative of grades set by Contractor Required – Contractor shall allow Owner's Representative to verify grades and elevations forty-eight (48) hours minimum prior to placing concrete.**

B. Subgrade
   1. Elevations shall be fine graded required by Contract Documents with allowances for required concrete and aggregate base thickness.
   2. Native soils shall be compacted to ninety percent (90%) relative compaction at optimum moisture of plus or minus two percent (+/- 2%).

C. Aggregate Base
   1. Where required, Contractor shall place required thickness.
   2. Elevations shall be fine graded required by Contract Documents with allowances for required concrete and aggregate base thickness.
   3. Compaction shall be to ninety percent (90%) relative compaction at optimum moisture +/- 2 percent.

D. Sidewalk sample for specified finishes (not including broom-finished concrete)
   1. Prior to placing any concrete for sidewalks, Contractor shall prepare a 4-foot by 4-foot sample with the specified finish(s) for approval by the Owner's Representative.
      a. Approved sample shall remain on-site for the duration of the concrete work and shall be disposed of at the completion of the final concrete pour.
      b. Approved sample work shall not be a part of the finished work product.

E. Protection of Existing Facilities

1. All vertical surfaces within ten (10) feet of the work shall be covered to a height of 3 feet with sheet plastic
2. Existing hardscape surfaces shall be protected with tape and plastic sheeting.
3. Any damage to adjacent finishes shall be repaired to the satisfaction of the existing facility owner. Repainting shall extend across the entire plane from corner to corner.
4. Horizontal surfaces shall be protected from graffiti or other damage.

3.2 INSTALLATION

A. Site Tolerances
   1. Vertical
      a. Subgrade - 0.00 feet high.
      b. Aggregate Base - 0.00 feet high.
      c. Finish Concrete +/- 0.02 feet.
   2. Horizontal
      a. General Finish Concrete - +/- 0.10 feet.
      b. Required Widths - 0.00 to +0.10 feet.
   3. Layout
      a. Horizontal dimensions shall be within +/- 0.10 feet.
   4. Exterior Accessible Travel Paths
      a. Landings, Ramps, Crosswalks, Sidewalks, and other Pedestrian Travel Paths Cross slopes - two percent (2%) or less.
      b. Sidewalks - five percent (5%) or less longitudinal slope.
      c. Ramps - 8.33 percent or less longitudinal slope.
      d. Maximum vertical distance between landings - 30 inches.
   5. Variations in stairs
      a. Consecutive steps-
         1) Treads -1/4 inch, 11-inch minimum width.
         2) Risers - 1/4 inch, 4 inch-minimum, 7-inch maximum.
      b. Flight of stairs -
         1) Treads -3/8 inch.
         2) Risers - 3/8 inch.
   6. Landings at Doorways -
      a. 1/4-inch maximum differential between top of threshold and surface of landing.
   7. Forms
      a. Vertical surfaces shall be formed to be within 2 inches of subgrade.
      b. Gaps between forms shall not exceed 1/4 inch.

B. Joints
   1. Joints of sidewalks, curbs, and gutters shall be aligned.
   2. Expansion Joints with joint material -
      a. Spacing -
         1) Sidewalks, Curbs, and Curb & Gutters - 50 feet on-center.
         2) Mow Strips - 10 feet on-center.
         3) Flat Drainage Structures - 50 feet on-center.
         4) Retaining Walls - 36 feet on-center.
      b. Full depth of sidewalk, curbs, gutters, pads, etc.
      c. If reinforcement is required, rebar shall extend through expansion joint material.
      d. Shall be placed at corner of curb and curb & gutter.
      e. Shall be installed so top of expansion joint material is 1/4 inch below finished concrete surface.
      f. No expansion joint shall be required between curbs and walks parallel to curb.
      g. Contractor shall provide expansion joint at end of walks perpendicular to and terminating at curb.
      h. Contractor shall provide expansion joint between concrete work and buildings.

Expansion joint shall be 1/2 inch below finished concrete surface. Caulk shall be per Section 30 90 05.

3. Contraction Joint Spacing -
    1) Sidewalks, Curbs, and Curb & Gutter - 10 feet on-center.
    2) Mechanical Pads, Dumpster Enclosures, etc. - 12 feet on-center.
    3) Flat Drainage Structures - 10 feet on-center.

b. Contraction Joint Depth
    1) 1-inch minimum depth.
    2) 1/4 to 1/3 concrete thickness.

c. Location
    1) Contractor shall align sidewalk and curb and/or gutter.
    2) If placing on existing concrete, Contractor shall align with underlying contraction joints and cracks if feasible.
    3) Contractor shall place at all inside corners.
    4) At square utility boxes, Contractor shall place contraction joints at each corner.
    5) At round utility boxes, Contractor shall place joint through center to nearest edges of concrete.
    6) Spacing may be increased or decreased to 12 feet to accommodate utility boxes.

d. Type
    1) Tooled joint up to 6 inch concrete depth. Tooled joints shall be required for all sidewalks. Sawcuts shall not allowed. Tooled joint may be deepened with sawcut within twenty-four (24) hours of concrete placement if necessary.
    2) Sawcut or parting strip for concrete depths over 6 inches. All sawcuts shall be made within twenty-four (24) hours of concrete placement.

4. Inserts, Stair Treads, etc. – Contractor shall precut and place prior to concrete placement where practical.
5. Crack Repair - Cracks resulting from failure to comply with requirements shall require removal and replacement of entire panel or section of concrete to adjacent contraction joints.

C. Finish

1. Curb, Gutter, Slabs, Mow Strips, Flat Drainage Structures, And Miscellaneous
    a. Light Broom finish.
    b. Round edges including edges formed by expansion joints.
    c. Remove edger marks.
2. Sidewalk – Unless specified otherwise on Plans, sidewalks shall have a light broom finish with the following requirements:
    a. Washed, Fine Aggregate surface (3/8 inch max. size aggregate).
    b. Round edges including edges formed by expansion joints.
    c. Contractor shall remove edger marks.
3. Curb Faces -
    a. Contractor shall remove forms as soon as practical.
    b. Contractor shall fill voids with fresh concrete if necessary.
    c. Contractor shall finish face full depth with smooth steel trowel finish.
    d. Contractor shall remove any excess concrete beyond form line at bottom of curb face at time of finishing.
4. Walls -
    a. Immediately after removing forms, Contractor shall remove joints, marks, bellies, projections, loose materials, and cut back metal ties from surfaces to be exposed.
    b. Contractor shall point up voids with cement mortar, 1:2 mix, and rub exposed surface with carborundum to smooth, even surface.
5. Ramps -

a. Contractor shall medium broom finish transverse to direction of travel on ramp.

D. Special Requirements
1. Contractor shall form vertical surfaces full-depth and shall not allow concrete to flow out from under forms in any degree. Contractor shall remove any excess concrete beyond form face immediately after forms removed.
2. Sidewalks, Exterior Stairs, And Landings -
a. Slope to drain.
1) Contractor shall slope sidewalks with cross slope of one percent (1%) minimum to two percent (2%) maximum in direction of intended drainage.
2) Contractor shall slope sidewalks away from building one percent (1%) minimum.
b. Dusting with cement shall not be permitted.
c. Adding water during finish shall not be permitted.
3. At Channel Iron over Rainleaders -
a. Contractor shall grout space between pipe and channel iron at curb face and sidewalk edge.
b. Contractor shall grind 1/4-inch bevel on sawcut edge if applicable prior to concrete placement, and round over concrete edge of fresh concrete.
4. Light Pole Bases

E. Detectable Warning Surfaces -
1. Layout -
a. 36-inch minimum width, length per plan.
b. Surface flush with adjacent concrete.
2. Contractor shall install warning surface in accordance with manufacturer's recommendations.

F. Concrete Joint Sealant
1. Cleaning
a. Contractor shall remove all contaminants, including dirt, paint, curing compounds, grease, oil, or other non-compatible substances or compounds.
b. Contractor shall not use any oil-based cleaning compounds.
c. After cleaning, Contractor shall vacuum thoroughly.
2. Sealant
a. Contractor shall cure new concrete a minimum of twenty-eight (28) days prior to sealing.
b. Application
1) Surface of sealant shall be 1/16 inch to 3/16 inch below the concrete surface.
2) Contractor shall clean all sealant off adjacent concrete surfaces.
c. Protection
1) Contractor shall protect sealed joints until sealant is fully set.

3.3 FIELD QUALITY CONTROL

A. Formwork Dimensions and Grades
1. Contractor shall verify that the formwork conforms to the required dimensions and elevations prior to placement of concrete.

B. Contractor shall verify ADA travel path slopes and cross slopes, and shall check the following:
1. formwork prior to concrete placement
2. placed concrete during finishing
3. completed work prior to placing curing compound

C. Concrete Drainage Structures
   1. Contractor shall water test flowlines of drainage structures such as gutters, swales, and v-ditches during the finishing process to eliminate high or low areas and any areas of ponding.

END OF SECTION

SECTION 03 90 05

CONCRETE JOINT SEALANT

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Installation of joint sealant in concrete sidewalks.

B. Related Sections
   1. Section 32 00 01 - General Exterior Sitework Requirements

1.2 1.2 SUBMITTALS

A. Joint Sealant Primer

B. Joint Sealant

PART 2 PRODUCTS

2.1 MATERIALS

A. Joint Sealant Primer
   1. Burke 3203 U-Seal Primer, or approved equal.

B. Joint Sealant
   1. Burke by Edoco U-Seal Joint Sealant 3201, or approved equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Cleaning
   1. Remove all contaminants including dirt, paint, curing compounds, grease, oil or other non-compatible substances or compounds.
   2. Do not use any oil based cleaning compounds.
   3. After cleaning, vacuum thoroughly.

B. Priming
   1. Allow all cleaned surfaces to thoroughly dry.
   2. Prime all surfaces to be sealed.
   3. Cure primer until tack-free. Allow 2 hours minimum drying time.
   4. Apply in accordance with manufacturer's recommendations.
   5. Temperature
      a. Concrete surface and atmospheric temperatures must be 50 degrees Fahrenheit and rising.
      b. At the time of mixing, product temperature must be between 65 and 85 degrees Fahrenheit.

C. Sealant
   1. Cure new concrete a minimum of 28 days prior to sealing.
   2. Mixing
      a. Do not open container until ready to use.
      b. Temperature of both parts at the time of mixing must be between 65 and 85 degrees Fahrenheit.
      c. Mix in accordance with manufacturer's recommendations.
   3. Application
      a. Surface of sealant shall be 1/16" to 3/16" below the concrete surface.
      b. Clean all sealant off adjacent concrete surfaces.
   4. Protection
      a. Protect sealed joints until sealant is fully set.

PART 4 PAYMENT

A. Payment for all work associated with concrete joint sealant shall be included in the various items of work and no separate or additional compensation shall be allowed. Said payment shall be considered full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work described herein.

END OF SECTION

SECTION 06 15 40

HEADERBOARDS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Providing and installing headerboards as described in Contract Documents.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements

PART 2 PRODUCTS

2.1 MATERIALS

A. Wood
   1. Headerboard
      a. 2x4 or 2x6 nominal size as specified construction-heart grade redwood for straight runs.
      b. 1/2x4 or 1/2x6 resawn construction heart laminated with 3 layers per detail for curved sections.
   2. Stakes -
      a. Joints - 2x6 x 18" construction heart redwood.
      b. Field
         i. 1x3x18" construction heart redwood.
         ii. 2x4x18" construction heart redwood.

B. Fasteners
   1. Screws - galvanized No. 8 minimum
      a. 2" for 1" stakes.
      b. 2-1/2" for 2" stakes.
      c. 1-1/4" for laminating benderboard.
   2. Nails - **NOT ACCEPTED**

PART 3 EXECUTION

3.1 PERFORMANCE

A. Demolition
   1. Remove all previous headerboard and stakes in entirety.
   2. Remove asphalt concrete and/or base as necessary.

B. Placement and Alignment
   1. Top of new headerboard to match design elevation or surface of new paving.
   2. **Finished elevations shall be reviewed by owners representative prior to final grading and asphalt placement.**
   3. Align top to conform to required grade breaks for drainage.
   4. Place as designated in Contract Documents
   5. Straight alignments shall be within +/- 1/4" of stringline after paving or installation of landscape materials.
   6. Curved alignments shall be true arcs within +/- 2" of a true arc or designed alignment.

7. All joints shall be square and true. Maximum gap at joints of 1/4 inch.
8. No chain saw cuts allowed.
9. 12 foot minimum between joints on straight runs. Straight runs 20 feet or less shall be made with one piece.
10. Individual curved joints shall be staggered a minimum of 32 inches. 12 foot minimum individual board lengths. If curve radius is 12 feet or less, no joints allowed.

C. Staking
1. Stakes to be plumb, square and flush with back of headerboard.
2. Drive stakes to refusal without breaking. Replace broken or misaligned stakes.
3. Trim off top of stakes with a 20-30 degree downward slope from the headerboard outward. Do not damage headerboard. **Top of stakes shall be recessed to ¼ inch below top of headerboard.** No chain saws allowed for cutting.

D. Fastening
1. Two fasteners at each field stake.
2. Two fasteners on each piece for 2x4 stake. Three fasteners on each piece for 2x6 stake.
3. Laminated benderboard shall be fastened at 12" centers with a fastener top and bottom. Fasteners shall be 1" +/- 1/4" from edges.

PART 4 PAYMENT

A. Headerboards shall be included in the bid schedule and paid for by the lineal foot, and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

END OF SECTION

SECTION 31 23 00

EXCAVATION, GRADING & BACKFILL

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Perform rough and finish grading work required to prepare site for construction as described in Contract Documents.
   2. Perform trench excavation and backfill for site utilities.
   2. Perform excavating and compacting included in Project not covered under other Sections.

B. Related Sections
   1. Section 02 41 13 - Site Demolition
   2 Section 32 00 01 - General Exterior Site Construction Requirements

1.2 QUALITY ASSURANCE

A. Investigation
   1. Contractor shall schedule a pre-construction meeting with Owners Representative to discuss designed grades specific to this phase of project.
   2. Identify benchmark to be used in establishing grades and review Contract Document requirements for grades, fill materials, and topsoil.
   3. Examine site to pre-plan procedures for making cuts, placing fills, and other necessary work.

B. Proof Rolling
   1. Contractor shall proof roll keyways, fills and subgrades when requested to do so by Owner's representative.

C. Compaction Testing
   1. Contractor shall schedule compaction testing with Owner's Agent at least 48 hours prior to required testing.
   2. Contractor shall provide construction equipment to prepare testing sites. Minimum equipment shall be a rubber tired backhoe or equivalently weighted rubber tired machine.
   3. Contractor shall recompact all test locations if necessary.

PART 2 PRODUCTS

2.1 MATERIALS

A. Site Material - Existing excavated material on site which has been identified as not being unsuitable as defined by Section 32 00 01 is suitable for use as fill material or backfill where allowed.

B. Imported Fill/Backfill
   1. Equal to or greater than quality of onsite material in terms of "R" Value, but not less than R=25.
   2. Plasticity Index less than 15 or no expansion pressure per CTM 301.

C. Imported Topsoil
   1. Fertile, loose, friable soil meeting the following criteria:
      a. pH between 5.5 and 7.7
      b. Soluble Salts - less than 2.0 mmhos/cm
      c. Sodium Absorption Ration (SAR) - less than 3.0
      d. Organic Matter - greater than 1 percent
   2. Physical Characteristics:
      a. Gradation as defined by USDA triangle of physical characteristics as measured by hydrometer.
         Sand - 15 to 60 percent
         Silt - 10 to 60 percent
         Clay - 5 to 30 percent
      b. Clean and free from toxic minerals and chemicals, noxious weeds, rocks larger than 1-1/2 inches in any dimensions, and other objectionable materials.
      c. Soil shall not contain more than 2 percent of particles measuring over 2.0 mm in largest size.

D. Trench Backfill – CLSM per Section 32 00 01

E. Drain Rock
   1. Drain rock material shall meet the following gradation requirements:

Screen Size	Percentage passing
1-1/2”	100
3/4”	5 (max.)
No. 200	2 (max.)

PART 3 EXECUTION

3.1 PREPARATION

A. Before making cuts, remove topsoil over areas to be cut and filled that was not previously removed by stripping. Stockpile this additional topsoil with previously stripped topsoil.

B. Keyways for Fills
   1. Prepare keyway at toe of fills.
   2. Keyways shall extend a minimum of 1.5 feet below adjacent undisturbed ground.
   3. Keyways shall be a minimum of 6 feet in width.
   4. Keyways shall slope between 0 and 4 percent toward the fill.
   5. The bottom of the keyway shall be scarified, moisture conditioned and compacted to 90 percent relative compaction a minimum depth of 6 inches.
   6. Proof roll for unstable or unsuitable soils.

3.2 PROTECTION

A. General: Open excavations, trenches, and the like shall be protected with fences, covers, or railings as required to maintain safe pedestrian and vehicular traffic passage.

B. Erosion of newly backfilled areas shall be prevented during construction. Settlement or washing that occurs in backfilled areas shall be repaired and grades reestablished to the required elevations.

C. Contractor shall comply with all local, state and federal storm water protection regulations.

3.3 PERFORMANCE

A. Tolerances
   1. Maximum variation from indicated grades for rough grading shall be **+/- 0.05 foot**.
   2. Grading shall not vary from the negative to positive tolerances within 50 feet.
   3. Make proper allowances for final finish grades of pavement, top soil, planting areas or other structures.

B. When existing grade around existing plants to remain is higher than new finish grade, perform regrading by hand. Do not expose or damage existing shrub or tree roots.

C. Excavation
   1. Maximum cut slopes shall be 2H:1V or as shown on plans.
   2. Round off top 3 feet of cut slopes
   3. Do not overcut slopes by more than 0.5 feet measured perpendicularly from the cut slope.
   4. Protect existing trees and improvements from equipment damage.
   5. Finish slopes shall be graded smooth.
   6. Drainage: Ensure proper drainage in and around excavation area. Do not allow water to accumulate in excavated areas. Water in excavation areas shall be removed by pumps or other means.
   7. Excavated material becomes property of the contractor.
      a. When fill is required elsewhere on site, Contractor shall use excavated material first prior to importing additional material, unless excavated material is deemed unusable by the Owner's Agent.
      b. If not called for reuse elsewhere on the site, excavated material will be disposed of by the Contractor in a legal manner.

D. Over-excavation
   1. Excavations below indicated depths will not be permitted, except to remove unsuitable material as identified in Section 32 00 01 of these Specifications.
   2. Satisfactory material removed below the depths indicated without specific direction from the Owner's Agent shall be replaced at no additional cost to the Owner to the indicated excavation grade. Replacement material shall be approved by Owner's Agent prior to performing the work.

E. Trenching
   1. Excavate to depth and alignment as shown on plans.
   2. Bottom of trench shall be accurately graded to provide required slope and shall be stabilized if necessary, to provide a firm pipe bed.
      a. Recesses shall be excavated to accommodate bells so that the pipe will be uniformly supported for the entire length.
   3. Rock, where encountered, shall be excavated to a depth of 6 inches below the bottom of the pipe and the void backfilled with clean fill sand.
   4. No joint trenching is allowed unless otherwise shown on drawings.
   5. Provide shoring as required by Cal OSHA.
   6. Trench width shall equal pipe width plus 6 inches unless otherwise shown on plans.

F. Subgrade Preparation
   Site Tolerances
   1. Maximum variation from indicated grades for rough grading shall be **+/- 0.05 foot**.
   2. Grading shall not vary from the negative to positive tolerances within 50 feet.
   3. Make proper allowances for final finish grades of pavement, top soil, planting areas or other structures.
   4. If soft spots, water, or other unusual and unforeseen conditions affecting grading

requirements are encountered, stop work and notify Owner's Agent.

G. Fill Construction
   1. Uniformly moisture condition fill material to between optimum plus 3 percent optimum moisture prior to placing in fill.
   2. Place fills in maximum loose lifts of 8 inches.
   3. Compact fills to 90 percent relative compaction under concrete flat work areas; compact to 95 percent relative compaction under asphalt concrete paving. In landscape areas, compact to 85 percent relative compaction (do not over-compact).
   4. Correct any unstable areas.
   5. Compact fill slopes after trimming with 3 passes of a sheepsfoot roller or track roll.
   6. No fill or backfill material shall be placed during adverse weather conditions that will alter the moisture content to above optimum level.
      a. Approved compacted subgrades that are disturbed by adverse weather or by the Contractor's actions shall be scarified and re-compacted to the required density prior to further construction thereon.

H. Trench backfill
   1. CLSM or Cement Slurry per Section 32 00 01 of these Specifications, and as shown on Plans.
   2. Do not perform any trench backfill until lines have been inspected and/or tested by Owner's Agent and authorization has been given to proceed by said Agent.

I. Finish Grading
   1. Do not start finish grading until rough grading tolerances are met.
   2. Prior to finish grading or adding topsoil to planters, dig out weeds by roots and remove rocks, concrete, asphalt, wood, forming material, wire, rubble, sticks, etc.
   3. Prior to placing topsoil, remove aggregate base down to native soil in planting areas.
   4. Excavate planting areas to provide the following minimum topsoil depths below adjacent concrete or finish surfaces:
      a. Lawn and Groundcover Planting Areas - 7 inches minimum
      b. Shrub Planting Areas - 14 inches minimum.
   5. Redistribute approved existing topsoil stored on site from stripping per Section 02 41 13.
   6. Add imported topsoil as necessary to provide required topsoil depth.
   7. Fine grade topsoil 1 inch minimum to 2 inches maximum below top of concrete or finish surfaces, unless shown otherwise on plans. Rake smooth and remove all lumps, rocks, etc.
   8. Provide a minimum of 8 inches clearance from finish floor at buildings or wood structures.
   9. Slope away from buildings at ½ inch per foot for a minimum of 5 feet.
   10. Fill low spots and pockets with topsoil and grade to drain.

J. Clean up
   1. Upon completion of the work under this section, Contractor shall remove from the premises all surplus materials, tools, equipment, trash, rubbish, left-over material and debris resulting from the work at his own expense and leave the site in a clean and neat condition satisfactory to the Owner's Agent.

PART 4 PAYMENT

A. Unless specified otherwise in the bid schedule, excavation, off haul, grading and backfill shall be paid for as a part of the various items of work and no separate payment shall be made.

END OF SECTION

SECTION 31 32 14

LIME-CEMENT SOIL/AGGREGATE STABILIZATION

PART 1 GENERAL

1.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. **Contractor shall schedule a preconstruction meeting with Owners Representative to discuss designed grades specific to this phase of project.**
   2. Contractor shall prepare subgrade as described in Contract Documents.
   3. Contractor shall introduce Lime in one (1) application and stabilize to full depth the subgrade as described in Contract Documents.
   4. Contractor shall introduce Cement in one (1) subsequent application, stabilize, and compact to full depth the subgrade as described in Contract Documents

B. Related Sections
   1. Section 32 00 01 – General Exterior Site Construction Requirements
   2. Section 31 23 00 – Excavation, Grading, and Backfill
   3. Section 32 12 16 – HMA Paving

1.2 REFERENCES

A. California Department of Transportation, Standard Test Methods
   1. Caltrans Test Method 216 “Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates.”
   2. Caltrans Test Method 231 “Method of Test for Relative Compaction of Untreated Soils and Aggregates using Nuclear Gauge.”

B. California Department of Transportation, Standard Specifications
   1. Section 24, Soil Stabilization
   2. Section 30, Reclaimed Pavements

1.3 SUBMITTALS

A. Product Data: Hi Calcium Quicklime by Chemical Lime Company, 4303 South McKinley Ave., Stockton, CA 95206 (800) 284-6048.
   1. Quicklime - Submit Certificate of Compliance.
   2. Cement - Type II Portland Cement

B. Samples
   1. Quicklime – Contractor shall submit a 10 lb. sample in a sealed and labeled container.
   2. Cement - Type II Portland Cement

1.4 SEQUENCING

A. Pulverization – Pulverization of existing pavement structure and underlying material shall be performed per Section 30-4.03C of the latest edition of Caltrans Standard Specifications, and as shown in the Contract Documents

B. Rough Grading - Rough grading shall be performed to allow for placement of lime-cement-stabilized soil/aggregate as described in the following paragraphs.

C. Pavement Areas
   1. After rough grading is completed, Contractor shall perform lime-cement soil/aggregate stabilization in the designated area to the specified depth.
   2. Lime-cement soil/aggregate stabilization shall be performed after completing all site utility work.
   3. Lime-cement soil/aggregate stabilization shall be performed in a two (2)-stage, consecutive day process using equipment capable of processing all material in place, applying the lime and cement at a calibrated rate, and compacting the treated material at full depth thickness per design.

PART 2 PRODUCTS

2.1 MATERIALS

A. On-site materials to be stabilized using Quicklime and Cement shall conform to Section 24 of the latest edition of Caltrans Standard Specifications.

B. Lime Content: 1.5 ± 0.5 percent by dry weight applied first day.

C. Cement Content: 1.5 ± 0.5 percent by dry weight applied second day.

PART 3 EXECUTION

3.1 PREPARATION

A. Contractor shall perform site preparation and rough grading in accordance with Section 31 23 00 to grade lines shown on Plans.

3.2 CONSTRUCTION

A. Site Verification of Conditions
   1. Contractor shall complete all site work utility construction including testing.

B. General Application
   1. Application and construction shall conform to Sections 24-1.03 through 24-1.06 of the latest edition of Caltrans Standard Specifications, except as noted.
   2. The depth of treatment shall be per the Plans.
   3. Spread rate shall be confirmed for each product application and thoroughly blended until uniformity is confirmed to the Soils Engineer's satisfaction.

C. Compaction
   1. Contractor shall compact full depth of treatment area to ninety-five percent (95%) relative compaction at or above optimum moisture as determined by Caltrans Test Methods 216 and 231.

D. Tolerances
   1. At a minimum, the completed lime/cement treated section, after compaction and trimming, shall be equal to the design thickness. The maximum completed lime/cement-treated section thickness shall not exceed the design thickness plus 1 inch.

2. Thickness/Uniformity Verification for Lime Introduction shall occur Immediately after blending and trimming is completed. At locations selected by Soils Engineer, Contractor shall excavate a test pit for each 3,000 square feet of treated area. Test pits shall be 1 foot by 1 foot minimum, through lime-treated section. Contractor shall backfill with lime-treated material and compact immediately after verification of thickness and uniformity by **Owner's Representative**

E Curing

1. If not covered by asphalt concrete or aggregate base within forty-eight (48) hours, the exposed lime-cement stabilized soil/aggregate subgrade shall be covered with the appropriate emulsion seal as described in the referenced Caltrans Standard Specification sections within twenty-four (24) hours of completing lime stabilization.

3.3 PROTECTION

A. Contractor shall maintain subgrade in a smooth, untraveled, compacted condition until placement of aggregate. Contractor shall repair any damage to the lime-cement-stabilized subgrade by immediately replacing with similar lime-cement-treated material within twenty-four (24) hours after damage.

B. Only rubber-tired finishing vehicles or paving equipment shall be permitted on surface after compaction.

PART 4 MEASUREMENT AND PAYMENT

The contract price paid per square foot for "Pulverize 12" Pavement & Base" and "Lime/Cement Treat 8" of Material" will include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in pulverization and grading, complete in place, as shown on the Plans, as specified in the Standard Specifications and in these Special Provisions, and as directed by the Engineer.

Measurement and Payment for "Stabilization Allowance" will be on a unit cost basis as indicated in the Bid Schedule. The unit costs will include full compensation for removal of unsuitable subgrade and placement and compaction of six (6") inches of hot mix asphalt (HMA). Payment for this item will only be made on an allowance basis and only for the work completed. The Contract will have no claim to that portion of the allowance that is not necessary for the project.

END OF SECTION

SECTION 32 00 01

GENERAL EXTERIOR SITE CONSTRUCTION REQUIREMENTS

PRIOR TO, DURING AND POST CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. General procedures and requirements for Site Work.
   2. Accessibility Requirements

1.2 REFERENCES

A. American Society For Testing And Materials (most recent revisions)
   1. ASTM D 1557, 'Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort'
   2. ASTM D 2216, 'Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock'
   3. ASTM D 2487, 'Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)'4
   4. ASTM D 6938, 'Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)'
   5. ASTM D 2950, 'Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods'

B. Caltrans Test Methods (most recent revisions)
   1. CTM 216, 'Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates.
   2. CTM 301, 'Method of Test for Determination of the Resistence "R" Value of Treated and Untreated Bases, Subbases and Basement Soils by the Stabilometer'
   3. CTM 304, 'Method of Preparation of Bituminous Mixtures for Testing'
   4. CTM 308, 'Methods of Test for Bulk Specific Gravity and Weight per Cubic Footof Bituminous Mixtures'

1.3 DEFINITIONS

A. Standard Specifications - Caltrans Standard Specifications **directly associated to the work.**

B. Relative Compaction
   1. Ratio of field dry density as determined by ASTM D 2922 and ASTM D 3017 or 2216, and laboratory maximum dry density as determined by ASTM D 1557 or CTM 216F.
   2. Ratio of maximum field density as determined by ASTM D 2922 and the laboratory maximum density as determined by CTM 216G.

C. Differing Subsurface or Physical Conditions
   1. Any subsurface or physical condition at or contiguous to the site that is uncovered or revealed either:
      a. Is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided herein is materially inaccurate, or
      b. Is of such a nature as to require a change in the Contract Documents, or
      c. Differs materially from that shown or indicated in the Contract Documents, or

d. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

2. If Contractor believes that a differing subsurface or physical condition exists, Contractor shall promptly, after becoming aware thereof and before disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency), notify Owner's Agent in writing about such conditions. Contractor shall not further disturb such conditions or perform any Work in connection therewith until receipt of written order to do so.

D. Unsuitable Material
1. Soil or aggregate 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 not resulting from the Contractor's action or inaction prevent suitable in place drying prior to incorporation into the work; or
3. Otherwise unsuitable for the planned use.

E. Unstable - visible deflection or movement either horizontally or vertically under loading of construction equipment or while being proof rolled.

F. Proof Rolling - Using a loaded 10-wheel dump truck, water truck, or equivalent to load soil by driving slowly over areas designated by the Owner's Agent to check for unstable areas.

1.4 QUALITY ASSURANCE

A. Owner will pay for all testing required by the project specifications.

B. Contractor shall pay for cost of all non-complying testing.

PART 2 PRODUCTS

A. Controlled Low Strength Material (CLSM)
1. Contains maximum of 94 lbs of cement per cubic yard.
2. Compressive strength between 75 and 150 psi at 28 days.
3. Fly ash is permitted.
4. Air entrainment additives for workability.

B. Cement Slurry - Conforms to Section 19-3.062 of Caltrans Standard Specifications.

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions
1. 48 hours minimum prior to performing any work on site, contact Underground Service Alert (USA) to arrange for utility location services. If USA will not respond to the project site, the Contractor shall be required to provide a private locating service.
2. Perform minor, investigative excavations to verify location of various existing underground facilities at sufficient locations to assure that no conflict with the proposed work exists and sufficient clearance is available to avoid damage to existing facilities.

3. Perform investigative excavating 10 days minimum in advance of performing any excavation or underground work.
4. Upon discovery of conflicts or problems with existing facilities, notify Owner's Agent by phone or fax within 24 hours. Follow telephone or fax notification with letter and diagrams indicating conflict or problem and sufficient measurements and details to evaluate problem.

3.2 PREPARATION

A. Protection
   1. Spillage -
      a. Avoid spillage by covering and securing loads when hauling on or adjacent to public streets or highways.
      b. Remove spillage and sweep, wash, or otherwise clean project, streets, and highways.
   2. Dust Control -
      a. Take precautions necessary to prevent dust nuisance, both on-site and adjacent to public and private properties.
      b. Correct or repair damage caused by dust.
   3. Existing Plants and Features - Do not damage tops, trunks, and roots of existing trees and shrubs on site which are intended to remain. Do not use heavy equipment within branch spread. Interfering branches may be removed only with permission of Owner's Agent. Do not damage other plants and features which are to remain.

B. If specified precautions are not taken or corrections and repairs made promptly, Owner may take such steps as may be deemed necessary and deduct costs of such from monies due to Contractor. Such action or lack of action on Owner's part does not relieve Contractor from responsibility for proper protection of the Work.

C. Contractor shall comply with all local, state, and federal storm water protection regulations.

3.3 SURVEYING & LAYOUT

A. Benchmark – Project Plans will provide either a permanent or temporary benchmark.

B. Contractor shall provide all surveying and layout.

C. Contractor shall provide 2 personnel as requested by the Owner's Agent to perform quality assurance testing including stringlining of subgrades and verification of grades. Stringline and engineers level (or laser level) shall be provided by the Contractor and be available at all times during site work.

3.4 REPAIR / RESTORATION

A. Adjust existing covers, boxes, and vaults to grade.

B. Replace broken or damaged covers, boxes, and vaults.

C. Independently confirm size, location, and number of covers, boxes, and vaults which require adjustment.

D. Advise Owner's Agent of damage to underground site utilities. Address utility repairs per Section 02 41 15 "Site Utility Repair".

E. Site Cleaning Immediately Prior To Acceptance
   1. All surfaces shall be broom clean and free from any accumulation of debris.
   2. Clean tack coat on concrete surfaces. Tack coat within 1 inch of pavement on curbs or gutter is not required to be cleaned.
   3. Remove all traffic control devices, excess materials, debris and signage from site.
   4. Remove all debris and sediment from the existing storm drain structures.
   5. Clean existing through-curb drain pipes using ordinary methods such a garden hose with extension pipes.
   6. Bring clogged or damaged storm drain pipes or structures to attention of Owner's Agent.
   7. Replace any disturbed landscaping. Backfill planters with clean topsoil and replace surface dressing or mulch in kind.
   8. Remove all concrete debris and splatter.

3.5 ACCESSIBILITY REQUIREMENTS

A. Work shall comply with the following code requirements:
   1. Title 24, CCR: California Building Code.
   2. Latest Edition of Uniform Building Code including California Amendments.
   3. American with Disabilities Act.
   4. Code requirements shall supercede plans or specifications.

B. Coordination of Work
   1. Coordinate work elements to provide code compliance.

C. Accessible Travel Paths
   1. Includes unloading zones, crosswalks, and sidewalks.
   2. Excludes ramps and landings.
   3. Maximum cross slope of 2 percent.
   4. Maximum longitudinal slope of 5 percent.

D. Ramps and Landings
   1. Includes all travel paths between 5 and 8.33 percent.
   2. Provide handrails.
   3. Provide wheel curbs or wheel rails.
   4. Provide landings at beginning, end and every 30 inches of vertical rise. Landings shall be a minimum of 72 inches long, the width shall match the travel path, and the maximum cross slope shall be 2 percent.

E. Curb Ramps
   1. Longitudinal slopes shall be between 6.7 and 8.33 percent.
   2. Cross slopes shall be less than 2 percent.
   3. Concrete score marks per code.
   4. Provide positive drainage.
   5. Detectable Warnings per ADA and codes.

F. Door Landings
   1. Extend landing 42 inches beyond door swing, 24 inches beyond latch side of door.
   2. Maximum slope in any direction shall be 2 percent.
   3. Maximum drop at doorways of 1/4 inch from finish floor to landing.

G. Accessible Parking Stalls and Unloading Zones
   1. Maximum slope in any direction of 2 percent.
   2. Unloading Zone shall be minimum 5 feet in width, 8 feet for Van Accessible Stalls.
   3. 6 foot Parking Bumpers shall be used to protect signs and overhang into accessible sidewalk as necessary to provide a 4 foot minimum sidewalk width.

H. Signage
   1. Signage shall include required entrance signs and stall signage.
   2. Signage location preference shall be building first, landscape area second, and in pavement third.

3.6 FIELD QUALITY CONTROL

A. If work has been interrupted by weather, scheduling, or other reason, notify Owner's Agent 24 hours minimum prior to intended resumption of work.

B. Owner reserves the right to require additional testing to re-affirm suitability of completed work including compacted soils or aggregate bases which have been exposed to adverse weather conditions.

PART 4 PAYMENT

A. Payment for all work described in this section shall be included in the various items of work and no separate payment shall be made.

END OF SECTION

SECTION 32 01 17.61

ASPHALT JOINT AND CRACK FILLING COLD POUR APPLICATION

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Repair cracks in existing hot-mix asphalt pavement as described in Contract Documents.

B. Related Sections
   1. Section 32 00 01 - General Exterior Sitework Requirements

1.2 PRICE AND PAYMENT PROCEDURES

A. Unit Prices
   1. The contract unit prices indicated in the bid schedule shall apply to this work.

B. Measurement and Payment
   1. If paid by the lineal foot of sealing, Contractor shall supply documentation of area measurements.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination
   1. Contractor shall coordinate with affected utilities, transportation agencies, schools, waste disposal companies, and any other pavement users.
   2. Contractor shall coordinate with other contractors working on the site.

B. Sequencing
   1. Contractor shall not commence crack filling application until all Storm Water protection BMPs are in place

1.4 SUBMITTALS

A. Datasheet from Manufacturer confirming crack filler properties and cure time required prior to seal coat application.

1.5 QUALTIY ASSURANCE

A. Quality Assurance Inspection and/or Testing.
   1. Owner may, at their option, have independent quality assurance inspection and testing.
      a. Inspections may be made during or after the work.
      b. QA Inspection and testing is for the sole purpose of providing the Owner a greater degree of assurance that the requirements of the contract have been met. QA inspection and testing does not relieve the Contractor of any responsibility to comply with or perform in accordance with the Contract documents.

1.6 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Apply crackfiller at ambient temperatures between 50 and 110 degrees F.
   2. Do not apply crackfiller over wet pavement or when precipitation is imminent.

PART 2 PRODUCTS

2.1 MATERIALS

A. Crack Filler
   1. GUARDTOP Crackfiller by Vulcan Materials.
   2. Over Kote Crackfiller by Reed & Graham.
   3. Flex-Crac-Pourable (WC-651) by Western Colloid Products.
   4. TA 300S-M Crack Filler by Tri-American.
   5. Approved equal by owner prior to bid

PART 3 EXECUTION

3.1 PREPARATION

A. Prior to beginning crack repair, remove existing weed growth.

B. Clean all cracks greater than 1/8 inch wide to a minimum depth of ½ inch or to at least 4 times greater depth than width to a maximum depth of 2 inches.
   1. Clean with compressed air at 60 psi and 100 cu ft per minute minimum.
   2. Do not perform cleaning operations when cracks are wet or muddy.
   3. Mechanically remove debris from cracks which cannot be blown out.

3.2 APPLICATION

A. Crack Repair
   1. Apply crackfiller to full depth of crack. Smooth top of applied filler with V shaped squeegee or device leaving filler flush with paving surface.
      a. At cracks between asphalt paving and concrete, do not allow excess filler on concrete.
   2. Reapply filler multiple times to fill cracks to surface after complete drying.

3.3 CLEANING

A. Upon completion of crack filling operations, clean up and remove debris.

PART 4 PAYMENT

4.1 PAYMENT

A. All costs associated with crack filling shall be included in the items for seal coat or for slurry seal as enumerated in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein unless a separate and individual bid item is provided in the Bid Schedule.

END OF SECTION

SECTION 32 01 26.71

COLD PLANING

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Cold planing existing asphalt concrete for transitions and conforms.
   2. Removal of digout and repair areas.
   3. Reducing the thickness of existing asphalt concrete pavements.
   4. The pavement to be cold planed may contain pavement fabric.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements
   2. Section 32 12 16 - HMA Paving
   3. Section 32 12 16.05 - Hot-Mix Asphalt Repair

1.2 PRICE AND PAYMENT PROCEDURES

A. Unit Prices
   1. The contract unit prices indicated in the bid schedule shall apply to this work.

B. Measurement and Payment
   1. Contractor shall supply documentation of lineal or area measurements.
   2. Provide recycling certificate for grindings if requested by Owner prior to payment.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination
   1. Contractor shall coordinate with affected utilities, transportation agencies, schools, waste disposal companies, and any other pavement users.
   2. Contractor shall coordinate with other contractors working on the site.

B. Sequencing
   1. Contractor shall not commence cold planing until all Storm Water protection BMPs are in place.

1.4 SUBMITTALS

A. Provide recycling facility information where grindings will be disposed.

B. If required, provide truck route for grinding disposal.

1.5 CLOSEOUT SUBMITTALS

A. If requested by the Owner, proof of recycling with estimated quantity documentation shall be provided to the Owner prior to final payment.

1.6 QUALITY ASSURANCE

A. Quality Assurance Inspection and/or Testing.
   1. Owner may, at their option, have independent quality assurance inspection and

testing.

a. Inspections may be made during or after the work.
b. QA Inspection and testing is for the sole purpose of providing the Owner a greater degree of assurance that the requirements of the contract have been met. QA inspection and testing does not relieve the Contractor of any responsibility to comply with or perform in accordance with the Contract documents.

1.7 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Do not cold plane when precipitation is imminent.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Contractor shall visit the site to:
   1. Identify all utility surface features such as utility covers are clearly visible to work crews.

3.2 PREPARATION

A. Layout transitions, conforms and milling limits for Owner to review prior to proceeding with the work.

B. Lower utility facilities prior to reducing pavement thickness by cold milling.

3.3 EQUIPMENT

A. Cold planer shall be equipped with automatic controls and sensing devices. Cold planers shall produce finished surface within 0.02 foot tolerance. The width of the cold planer shall match the smallest pavement removal area. Multiple cold planers may be used.

B. Equipment shall be capable of cold planing concrete.

C. Contractor shall maintain equipment by changing teeth as often as necessary to provide a smooth surface which meets the required tolerance.

D. Cold planers shall be equipped with water spray devices to prevent the creation of dust.

E. Cold planing equipment shall not be cleaned on site using water application unless specific measures for such cleaning have been addressed in the project SWPPP.

F. Cold planer speeds shall adjusted to provide longitudinal grind lines and avoid “V” shape grinding lines on the milled surface.

3.4 APPLICATION

A. General
   1. All pavement grindings shall either be recycled or reused on site if allowed by the specifications.

2. If the depth of pavement removal extends into native material, the removal shall be performed in two steps to prevent contamination of the grindings with native material.
3. Prevent damage to gutter lips, curbs or other facilities while cold planing. If necessary, use hand removal methods.

B. Transitions
1. Cold plane to width and depth as indicated on project plans and details.
2. For full-depth transitions, cold planing may extend below existing asphalt pavement section into underlying base material to meet depth requirement. .

C. Pavement Repairs
1. Remove pavement to the limits indicated on the plans or as marked on the pavement by the Owner.
2. If excess pavement is removed due to contractor equipment selection, excess area shall be replaced per specification without any additional expense to the Owner.
3. The ends of the cold planed removal area need not be sawcut perpendicular with the pavement surface.

D. Dust Control
1. Cold planers and sweepers shall maintain spray application to prevent dust at all times.
2. Hand work areas shall use hand sprayers or other means to control dust.
3. Dust control measures shall not create ponding of applied water on the pavement or runoff into the gutters or storm drain system.

E. Finishing
1. Remove remaining material between grinding edge and concrete surface edge (gutter, swale, sidewalk, etc.). Remove high areas inaccessible to cold planer by jack hammer or other means.
2. Patch gouges or low areas by tack coating and filling with hot-mix asphalt. HMA shall be compacted using hand tamps or other means prior to the surface temperature of the patch falling below 250ºF. Patching is not required if the area will be covered by a leveling course of HMA.
3. Remove any asphalt or slurry seal material on adjacent gutters by scraping or other means approved by the Owner's representative.

F. Temporary Transitions
1. Temporary transitions shall be placed prior to opening to traffic if the drop off exceeds 0.10 feet.
2. Temporary transitions shall be constructed of cold patch asphalt. The transitions shall be 2 foot minimum and have a slope of 20H:1V, whichever is greater.

3.5 TOLERANCES

A. Cold plane to limits and depths as follows:

Vertical:	+/-0.02 feet
Horizontal:	+/- 0.5 feet
Adjacent Passes:	0.02 maximum variance
Variance from Plane: (Using Stringline)	0.01' high to 0.05' low

B. Correct any high areas by cold planing.

3.6 CLEANING

A. Sweepers shall have dust suppression spray equipment working at all times.

B. Remove all grindings and debris immediately.

C. Clean pavement by power sweeping. Areas inaccessible to power brooms shall be cleaned using hand brooms or power blowers. If power blowers are used, prevent damage to vehicles, landscaping and any other facilities. Repair any damage to property owners satisfaction.

D. Continue daily sweeping and cleaning until pavement restored.

E. Clean drop inlet protections at the end of completion of cold planing. Retain inlet protections in place until paving is completed.

END OF SECTION

SECTION 32 11 23

AGGREGATE BASE

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Prepare pavement sub-grade as described in Contract Documents to receive pavement base and paving.
   2. Furnish and install pavement base in playground, driveway and parking areas as described in Contract Documents.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements
   2. Section 31 23 00 - Excavation, Grading & Backfill
   3. Section 32 01 26.72 - Cold Planing

1.2 REFERENCES

A. Caltrans Standard Specifications, Section 26, 2010

1.3 SUBMITTALS

A. Product Data - Manufacturer's published product data on soil sterilant.

B. Quality Assurance / Control
   1. Copies of test results from tests conducted to assure compliance to Contract Document requirements.
   2. Certificate of Compliance for Aggregate Base

1.4 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Do not perform work during following conditions:
      a. Presence of free surface water or damp pavement.

PART 2 PRODUCTS

2.1 MATERIALS

A. Aggregate Base
   1. New Aggregate Base - 19mm (3/4") Class 2 aggregate base in conformance with Section 26 of the Caltrans Standard Specifications.
   2. Onsite Recycled Aggregate Base
      a. By the contract documents or by approval from Owners Representative, pulverized existing asphalt concrete pavement mixed uniformly with existing aggregate base.

b. Conform to following gradation

Sieve	Percent by Weight Passing Sieve
2-1/2 inch	100
1-1/2 inch	95 - 100
3/4 inch	60 - 100
No. 200	2 - 12

c. Quality Requirements as established by testing
   1) R-value - 78 minimum

PART 3 EXECUTION

3.1 PREPARATION

A. Survey and stake paving surfaces to indicate grading required by Contract Documents.

B. Sub-Grade
   1. Finish grade surface area to grades required by Contract Documents.
   2. In pulverized areas where grading will match existing, regrade onsite recycled base to match approximate grade of previous surface.
   3. Compact as follows:
      a. Under sitework concrete, concrete swales, concrete pads or concrete pavement - compact to 90 percent relative compaction at optimum moisture +/- 2 percent.
      b. Under HMA pavements, compact to 95 percent relative compaction at optimum moisture +/- 2 percent.
   4. Proof roll completed subgrade prior to compaction testing and stringlining to verify subgrade stability. Proof roll with full water truck or equivalent vehicle. Repair unstable, soft or yielding areas.

3.2 APPLICATION

A. Site Tolerances
   1. Sub-Grade - 0.00 inches high. Measure using stringline from curb to curb, gutter, flat drainage structure, or grade break.
   2. Base - The average base thickness shall be equal or greater than the design thickness after compaction. The minimum base thickness shall be equal to the design thickness minus **0.03 ft** The surface shall be graded to a finished tolerance of plus or minus 1/4 inch in 10 feet. Measure using stringline from curb to curb, gutter, flat drainage structure, or grade break.

B. Aggregate or Onsite Recycled Base
   1. Grade to specified tolerances.
   2. Compact as follows:
      a. Under sitework concrete, concrete swales, concrete pads or concrete pavement - compact to 90 percent relative compaction at optimum moisture +/- 2 percent.
      b. Under HMA pavements, compact to 95 percent relative compaction at optimum moisture +/- 2 percent.
   3. Remove and replace segregated areas.
   4. Remove or repair improperly prepared areas as directed by Engineer.

C. 1.. Overlay Transitions -
   a. Prepared per Section 32 01 26.72 “Cold Planing”.
   b. Place base course paving in full-depth transitions prior to overlay.

END OF SECTION

SECTION 32 12 16

HMA PAVING

PART 3 GENERAL

3.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. Contractor shall Furnish and install Hot Mix Asphalt for areas as described in Contract Plans and Documents.

3.2 REFERENCES

A. Caltrans Standard Specifications, Section 39, 2010 (Unrevised)

3.3 SUBMITTALS

A. HMA Submittals are due at preconstruction meeting

B. Product Data - Manufacturer's published product data on soil sterilant.

C. Quality Assurance / Control
   1. Mix design of hot-mix asphalt mixture.
   2. Copies of test results from tests conducted to assure compliance with Contract Document requirements.
   3. Current verified **CEM 3513 including TSR value**

3.4 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Contractor shall not perform work during following conditions:
      a. Ambient, base, or pavement temperature below 50 degrees F.
      b. Over-saturated base and sub-base materials.
         1) Base and sub-base to be wheel-rolled by loaded water truck to determine if any yielding occurs under the loading. If deflection is observed, Contractor shall not perform paving until grade is stable and unyielding.

PART 4 PRODUCTS

4.1 MATERIALS

A. Pavement
   1. Asphalt Binder - PG 64-10
   2. Aggregates

a. 3/4 inch Type A used for HMA base courses of 2-1/2 inches or thicker.

b. 1/2 inch Type A used for base courses less than 2-1/2 inches, but greater than or equal to 1-3/4 inches and surface course in vehicle traffic areas.

c. 3/8 inch Type A used for leveling courses and surface courses in playgrounds and other pedestrian areas.

B. Tack Coat
1. Tack coat shall be utilized and shall be emulsified asphalt Grade RS-1, RS-1h, SS-1, or SS-1h and shall conform to Section 94, 'Asphaltic Emulsions', of the Standard Specifications.

4.2 MIXES

A. Current verified and **PEI approved CEM 3513**
1. Mix voids targeted at 3.5%.
2. TSR to be minimum 70 in accordance with CTM 371.

PART 5 EXECUTION

5.1 PREPARATION

A. HMA Paving
1. **Contractor shall use self-propelled laydown machine for all surface courses. Laydown machine for finish course shall be equipped with automated depth and grade control.** Base courses for digouts or stabilization areas may be placed by other mechanical means that shall not destabilize subgrade.
2. Contractor shall heat joints if laid more than three (3) hours previously.
3. Compaction

a. Modify 39-2.03A Testing as follows:
"Quality Characteristic: Percent of maximum theoretical density (%) for HMA Type A to ninety-two percent (92%) to ninety-six percent (96%). Footnotes e & f shall be retained, and footnotes k through m shall be added to this requirement:

k. Contractor shall perform testing in accordance with CT 375 for acceptance, except CT 309 shall replace TMD testing.

l. Maximum lot size shall be 500 tons

1) Minimum 3 test sites per location, one (1) test for each 50 tons thereafter.
2) Each street segment or pavement area shall be an independent lot(s).
3) Compaction shall be the average compaction for the street or pavement area.

m. **Failing tests shall be verified by coring**, if requested by the Contractor. Contractor shall obtain cores at locations randomly determined by Engineer. Engineer will tests cores.
1) If requested by the Contractor and approved by the Engineer, non-nuclear gauges may be substituted for use in CT 375.

b. If cores are passing, Owner pays cost of core sampling and core testing. If cores are failing, Contractor pays for testing and core sampling. If the core density

testing produces both passing and failing cores, the cost shall be prorated between the Owner and Contractor.

c. The table for deductions indicated in the referenced Caltrans Section 39 shall apply to individual cores. The following table shall apply to deductions for average compaction of a lot:

Reduced Payment Factors for Percent of Maximum Theoretical Density			
HMA Type A Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A Percent of Maximum Theoretical Density	Reduced Payment Factor
92.0	0.0000	96.0	0.0000
91.9	0.0125	96.1	0.0125
91.8	0.0250	96.2	0.0250
91.7	0.0375	96.3	0.0375
91.6	0.0500	96.4	0.0500
91.5	0.0625	96.5	0.0625
91.4	0.0750	96.6	0.0750
91.3	0.0875	96.7	0.0875
91.2	0.1000	96.8	0.1000
91.1	0.1125	96.9	0.1125
91.0	0.1250	97.0	0.1250
90.9	0.1375	97.1	0.1375
90.8	0.1500	97.2	0.1500
90.7	0.1625	97.3	0.1625
90.6	0.1750	97.4	0.1750
90.5	0.1875	97.5	0.1875
90.4	0.2000	97.6	0.2000
90.3	0.2125	97.7	0.2125
90.2	0.2250	97.8	0.2250
90.1	0.2375	97.9	0.2375
90.0	0.2500	98.0	0.2500
< 90.0	Remove and Replace	> 98.0	Remove and Replace

d. Field compaction testing shall be performed in accordance with CTM 375 with a minimum of five (5) tests per lot and one (1) test per 50 tons.

e. Contractor shall roll with powered equipment capable of obtaining specified density and smoothness.

f. **Contractor shall execute initial compaction rolling prior to mix cooling below 250 degrees**. Contractor shall complete finish rolling so visibility of joints is minimized as soon as possible after intermediate rolling and while asphalt paving is above 120 deg F surface temperature.

g. **HMA that arrives at the job site at 260 degrees or below shall be rejected.**

4. Finish

a. Surface shall be uniform with no 'birdbaths'. Contractor shall leave finished surfaces clean and smooth. Variations from specified grades shall not exceed 1/2 inch. When tested with 10-foot straight edge, surface of complete work shall not contain irregularities in excess of 1/4 inch.

b. Completed surface shall match the texture of the machine-laid mat. Areas worked by raking shall have coarse aggregate removed rather than pushed back onto the mat. Any areas of coarse or segregated surface shall be remedied immediately and prior to finish rolling. **Failure to comply with this provision shall cause all paving to stop until mat surface corrections are performed.**

5.Thickness Tolerances

a. Total HMA thickness less than or equal to 4 inches.
   1) Minimum thickness shall be equal to or greater than design thickness

b. Total HMA thickness greater than 4 inches.
   1) Minimum thickness shall be equal to or greater than design thickness

PART 6 PAYMENT

Payment for HMA paving will be included in the various items of work in the Bid Schedule, including but not limited to digouts, overlays, pavement removal, and replacement, base course paving in full-depth transitions, and other items of work, and no separate payment will be made, therefor.

END OF SECTION

SECTION 32 12 16.05

HMA PAVEMENT REPAIR

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Remove and replace paving and/or base in specific areas as described in Contract Documents.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements
   2. Section 32 01 26.72 - Cold Planing
   3. Section 32 12 16 - HMA Pavement

PART 2 PRODUCTS

2.1 MATERIALS

A. Base -3/4" Class 2 Base for below grade fill in accordance with Section 26 of the Caltrans Standard Specifications.

B. **HMA 3/4" for Base course in digouts, 1/2" for finish course in streets or parking areas, 3/8" finish course in Playground Areas** Type A per revised Section 39 of the Caltrans Standard Specifications.

PART 3 EXECUTION

3.1 PERFORMANCE

A. Repair Of Deteriorated Pavement Areas
   1. Cut edges of pavement in rectangular shape and for one foot minimum beyond damaged material. Make vertical cuts using pavement saw or cold planer.
   2. Base - Construct per plans and Section 32 12 16.
   3. Apply emulsion tack coat to vertical edges of existing asphalt and sitework concrete to be paved against.
   4. Paving -Lifts
      i. Under overlays, place in single lift if less than 4 inch in depth.
      ii. If over 4 inches in depth, place in two lifts. Minimum lift thickness including top lift shall be 1-3/4 inches in thickness.
      b. Longitudinal bituminous joints shall be vertical, and properly tack coated if not paved same day. Transverse joints shall always be tack coated if not paved same day. Heat all cold joints on adjacent existing paving if previous mat was placed over 3 hours prior to placement of current mat.

c. Compaction -
   i. Compact per Section 32 12 16 HMA Paving.
   ii. Roll with powered equipment capable of obtaining specified density. Vibratory plate compactor may be used for areas too small for large power equipment.
d. Surface shall be uniform with no 'birdbaths'. Leave finished surfaces clean and smooth. Variations from adjacent surface shall not exceed 1/8 inch.

3.2 CLEANING

A. Upon completion of repair operations, clean up and remove debris.

PART 4 PAYMENT

A. HMA pavement repair shall be measured and paid for on a square foot basis for “Digouts” and “Remove and Replace HMA” as listed in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

END OF SECTION

SECTION 32 12 40

ACRYLIC SURFACING SEALER

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and install acrylic surfacing sealer on existing asphaltic concrete paving as described in Contract Documents.

B. Related Sections
   1. Section 32 01 17.61 – Asphalt Joint and Crack Filling
   2. Section 32 12 16.05 – HMA Pavement Repair

1.2 REFERENCES

A. United States Tennis Association

1.3 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Apply sealer at ambient temperatures between 60 and 100 deg F.
   2. Do not apply sealer over wet pavement or when precipitation is imminent.
   3. Tennis court colors to be determined by District.

1.4 SEQUENCING

A. Do not commence work of this Section until completion of pavement repair and crack filling as specified in Section 32 12 16.05 HMA Pavement Repair and 32 01 17.61 Asphalt Joint and Crack Filling.

B. Do not place sealer until all other sitework concrete, paving, miscellaneous work and cleaning (with the exception of paint markings) are complete.

PART 2 PRODUCTS

2.1 MATERIALS

A. Asphalt Refinement Course Material
   1. APOC Filler Coat by Asphalt Products Oil Corp.
   2. Surfix TT650 by Cosmicoat, Inc.
   3. Over Kote by Reed & Graham

B. Surface Sealer with Color and Filler
   1. Laykold Colercoat Series 200 by Chevron USA, Inc.
   2. 920-27 Deco-Color “MP” (multi-purpose) by Koch

C. Surface Sealer with Color
   1. Laykold Colorcoat Series 100 by Chevron USA, Inc.
   2. 920-27 Deco-Color “MP” (multi-purpose) by Koch

D. Line Paint
   1. Laykold White Line Paint

2. 920-03 Deco-Color White Line Paint

E. Water
1. The water for all mixes shall be fresh and potable

F. Plaster Sand
1. Clean sand free of silt, clay, salts, and organic matter, and meeting following grading requirements -

Sieve	Percent of Weight Passing
No. 4	100
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35
No. 100	2-15

2. The following mix shall be used for the refinement course:

2 gallons Plaster Sand
2 gallons Ashphalt Refinement Course Material
Water to make a workable mix

PART 3 EXECUTION

3.1 PREPARATION

A. Protection - Protect sign posts; street lamp posts; trees; shrubs; tops of curbs and gutters, sidewalks, buildings, enclosures, and other site improvements from being discolored by splashing material.

B. Surface Preparation
1. Grind or sand blast off existing painted lines that will not be replaced in their identical location after sealing.
2. Remove spillage of any material which has adhered to pavement without damaging the pavement.
3. Remove debris, sand, dirt, and dust from pavement using power brush, power vacuum sweeper, and blower as necessary.
4. Remove all mud or left over sawcut residue by power washing. Allow a minimum of 8 hours of drying time prior to sealing.

3.2 APPLICATION

A. Do not apply sealer until completion of pavement repair and crack filling as specified in Sections 32 12 16.05 HMA Pavement Repair and 32 01 17.61 Asphalt Joint and Crack Filling.

B. Prior to the application of any materials, the entire area shall be water flooded and all depressions holding over 1/8 inch depth of water after drainage occurs and stops shall be filled with a refinement course mix and allowed to cure.

C. Three squeegee coats of Refinement Course mix shall be applied by pouring from a can or wheeled container to continuous parallel lines and spreading immediately with rubber-faced squeegees.

D. The squeegees shall be pulled on an angle from the lines of spread so as to continually roll the material toward the operator and not overflow or “spill” on its forward edge away from the operator.

E. After each coat has dried, all ridges shall be removed with scrapers and then surface rolled.

F. The minimum application shall be at the rate of not less than 20 gallons of undiluted refinement course material per 1000 square feet.

3.3 PROTECTION

A. Keep traffic off freshly applied sealer for 24 hours minimum.

B. Remove any misapplied sealer from sitework concrete, etc. Stained painted areas shall be repainted at the Contractor’s expense.

END OF SECTION

SECTION 32 17 23

PAVEMENT MARKING

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish material and apply pavement and curb markings as described in Contract Documents.
   2. Remove existing pavement markings in sealcoat areas which will conflict with new striping layout.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements

1.2 QUALITY ASSURANCE

A. Regulatory Requirements - Paint accessible parking spaces to conform to ADA Standards and local code requirements.

B. **Notify Owners Representative 48 hours in advance of paint application to allow for review of layout.**

1.3 SUBMITTALS

A. Manufacturers Product Datasheet

1.4 PROJECT CONDITIONS

A. Project Environmental Requirements
   1. Apply only on dry surfaces, during favorable weather, and when damage by rain, fog, or condensation not anticipated.
   2. Latex Paint -
      a. Atmospheric temperature above 50 degrees F.
      b. When temperature is not anticipated to drop below 50 degrees F during drying period.
   3. Alkyd Paint -
      a. Atmospheric temperature above 40 degrees F.
      b. When temperature is not anticipated to drop below 40 degrees F during drying period.

PART 2 PRODUCTS

2.1 MATERIAL

A. Paint
   1. Non-reflectorized.
   2. Types - Either Acrylic or Latex
   3. Colors -
      a. Yellow - Parking stripes, crosswalk stripes, and safety markings.
      b. Blue And White - Accessible Parking space markings.
      c. Red - Fire lanes and no parking zones.
   4. Acceptable Products And Manufacturers -
      a. 442XX Traffic Marking Paint by Devoe, Louisville, KY (800) 654-2616Set-Fast Traffic Marking Paint by Sherwin-Williams, Cleveland, OH (800) 321-8194.
      b. Equal as approved by Owner's Agent before installation.

PART 3 EXECUTION

3.1 PREPARATION

A. Do not apply paint until hot-mix asphalt has cooled below 120 degrees F for at least one hour.

B. Surfaces shall be dry and free of grease and loose dirt particles. Scrape and wire brush chipped or damaged paint on existing curbs. Power wash curbs after paving but prior to painting with 3500 psi minimum pressure.

C. Perform layout with chalk or lumber crayon only. No blackout paint allowed.

3.2 APPLICATION

A. Site Tolerances
   1. General - Make parking lot lines parallel, evenly spaced, and with sharply defined edges.
      a. Line Widths - Parking Spaces 4 inch. Playground markings shall match existing layout and width prior to sealcoat or current plan if on new pavement.
      b. Plus or minus 1/4 inch variance on straight segments.
      c. Plus or minus 1/2 inch variance on curved alignments.

B. Provide complete coverage in **one** application at 75 sq ft per gallon, or **two** coat application, each coat with maximum coverage of 150 sq ft per gal. Do not apply second coat within three hours minimum or until first coat is thoroughly dried, whichever is longer.

C. The underlying surface shall not be visible through newly applied paint.

D. **Failure to produce satisfactory paint markings may require contractor to provide a pavement coating to entire surface prior to the repainting of pavement markings.**

3.3 CLEANING

A. Remove drips, overspray, improper markings, and paint material tracked by traffic by sand blasting, wire brushing, or other method approved by Owner's Agent prior to acceptance.

PART 4 PAYMENT

A. Parking lot striping shall be paid for on a lump sum basis for “Pavement Markings” as listed in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

B. All work associated with cleaning and painting curbs, including placement of legends on curb faces, shall be included in the lump sum price for “Pavement Markings” unless otherwise listed in the bid schedule.

END OF SECTION

SECTION 32 31 13.c

STEEL FENCING W/ BALL STOP NETTING

PART 1 GENERAL

1.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. Contractor shall furnish and install complete fence as described in Contract Documents.

1.2 REFERENCES

A. American Society For Testing And Materials
   - ASTM A653/A653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

PART 2 PRODUCTS

2.1 MATERIALS

A. Fence
   1. Steel material for fence panels and posts shall conform to the requirements of ASTM A653/A653M, with a minimum yield strength of 45,000 psi (310 MPa) and a minimum zinc (hot-dip galvanized) coating weight of 0.90 oz/ft2 (276 g/m2), Coating Designation G-90.

   2. Material for pickets shall be 1"sq x 14 ga. tubing. The rails shall be steel channel, 1.75" x 1.75" x .105". Picket holes in the rail shall be spaced 4.715" O.C. Fence posts and gate posts shall meet the minimum size requirements.

   3. Fence Post shall be 3” square powder coated tubular steel post w/ welded cap ground smooth (black).

B. Ball Stop Netting Fabric
   1. Equal to West Coast Netting, Inc. Model No. #K36T-4”
   2. Fiber content: 100% Polyester Filament
   3. Construction: Three-strand twisted twine in a knotted composition
   4. Mest Style: Manufactured on the bias (or diamond) but cut on the square for custom sizes.
   5. Yield: 58 square feet per pound
   6. Mesh Size: 3” square mesh
   7. Approx. Wind Load: 4% solid
   8. Mesh Breaking Strength: 300 pounds

C. Framework
   1. Posts and rails shall be equal to Montage II – Majestic Sleek & Modern. 2-Rail Panel

2.2 MIXES

D. Post Foundation Concrete

1. 1 cu ft cement, 2 cu ft sand, 4 cu ft gravel, and 5 gallons minimum to 6 gallons maximum water.
2. Contractor shall mix thoroughly before placing.

PART 3 EXECUTION

3.1 INSTALLATION

Fence shall be installed by mechanics skilled and experienced in erecting fences of this type and in accordance with Contract Documents.

A. Fence/Ball stop netting post shall be spaced a maximum of 8 feet center to center, plus or minus .5". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. Fence panels shall be attached to posts with brackets supplied by the manufacturer.

B. Gate posts shall be spaced according to the manufacturer's gate drawings, dependent on standard out to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturer's gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacturer of the gate and shall be installed per manufacturer’s recommendations.

C. Post Foundations

1. Except atop retaining walls, posts shall be set with concrete post foundations as specified below -

   Fence/Ball Stop Netting Posts - Diameter 16 inches, Depth 78 inches
   Gate, End, And Corner Posts - Diameter 16 inches, Depth 78 inches

   a. At mow strips, top of post foundation shall be set below grade sufficiently to allow for placing of mow strip. Contractor shall measure post foundation depth from top of mow strip.
   b. Where fences are incorporated into slabs, post foundation depth shall be measured from top of slab. Bottom of slab footing shall be extended sufficiently to allow specified amount of concrete around post. At existing slabs, Contractor shall install fence outside perimeter of slab.
   c. For fences on retaining walls, 12 inch long sleeves shall be provided to be cast into retaining wall. Contractor shall set pipe in sleeve and grout space between sleeve and post full.

3.2 CLEANING

A. Contractor shall spread dirt from foundation excavations evenly around surrounding area unless otherwise directed. Contractor shall leave area free of excess dribbles of concrete, pieces of wire, and other scrap materials.

PART 4PAYMENT

A. Payment for steel fence with ball stop netting installation will be paid for on a unit price basis as listed in the Bid Schedule. Said payment will be considered full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work described herein.

END OF SECTION

SECTION 32 84 23

UNDERGROUND IRRIGATION SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and install underground sprinkler system as described in Contract Documents complete with accessories necessary for proper function.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements

1.2 SYSTEM DESCRIPTION

A. Design Requirements
   1. Layout of Irrigation Heads and Dripline -
      a. Location of heads and/or dripline shown on Drawings is approximate. Actual placement may vary slightly as is required to achieve full, even coverage without spraying onto buildings, sidewalks, fences, etc.
      b. During layout, consult with Owner's Representative to verify proper placement and make recommendations, where revisions are advisable.
      c. Minor adjustments in system layout will be permitted to avoid existing fixed obstructions.
   2. Arrange valve stations to operate in an easy-to-view progressive sequence around site. Record sequence on controller lid.

B. Existing irrigation controller is to be replaced with a new controller with additional stations for adding new valves. See plans for new location, make and model of new controller.

C. The improvements are designed to work by connecting to salvaged portions of the existing system. If existing system does not appear to be in a condition which allows connection, Contractor shall notify Owner immediately.

1.3 SUBMITTALS

A. Product Data
   1. Manufacturer's cut sheets for each element of system.
   2. Parts lists for operating elements of system.
   3. Manufacturer's printed literature on operation and maintenance of operating elements of system.

B. Quality Assurance / Control - Results of pressure test before beginning work on system.

C. Closeout
   1. Record Drawings
      a. As installation occurs, prepare accurate record drawing to be submitted before final inspection, including -
         1) Detail and dimension changes made during construction.
         2) Significant details and dimensions not shown in original Contract Documents.
         3) Field dimensioned locations of valve boxes, quick-coupler valves, control

wire runs not in mainline ditch, sleeve locations, and any other system facilities.

4) Take dimensions from permanent constructed surfaces or edges located at or above finish grade.

5) Take and record dimensions at time of installation.

b. Two (2) copies of reduced record drawing to half-size, color key circuits, and laminate both sides with 5 mil thick or heavier plastic. Record Drawing to be delivered to Owner or Owner's Agent at completion of installation.

2. Instruction Manuals -

a. Instruction manual which lists complete instructions for system operation and maintenance to be delivered to maintenance personnel of the facility at completion of installation.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements - Work and materials shall be in accordance with latest rules and regulations, and other applicable state or local laws. Nothing in Contract Documents is to be construed to permit work not conforming to these codes.

1.5 DELIVERY, STORAGE, AND HANDLING

A. During delivery, installation, and storage, protect materials from damage and prolonged exposure to sunlight.

1.6 WARRANTY

A. Standard one year guarantee shall include -

1. Filling and repairing depressions and replacing plantings due to settlement of irrigation trenches.
2. Adjusting system to supply proper coverage of areas to receive water.

1.7 OWNER'S INSTRUCTIONS

A. After system is installed and approved, instruct maintenance personnel in complete operation and maintenance.

PART 2 PRODUCTS

2.1 MATERIALS

A. Rock-Free Soil

1. Backfill soil around PVC pipe.
2. Soil having rocks no larger than 1/4 inch in any dimension.

B. Pea Gravel

1. For use around valves, quick couplers, and where shown on plans.
2. 1/2 inch maximum round, water worn, washed rock.

C. Sand - Fine granular material naturally produced by rock disintegration and free from organic material, mica, loam, clay, and other deleterious substances.

D. Native Material - Soil native to project site free of wood and other deleterious materials and rocks over 1-1/2 inches.

E. Topsoil - Existing in-place topsoil material or imported topsoil. Remove rocks, roots, sticks, clods, debris, and other foreign matter over 1-1/2 inches longest dimension encountered during trenching.

2.2 COMPONENTS

A. Pipe, Pipe Fittings, And Connections
1. Pipe shall be continuously and permanently marked with Manufacturer's name, size, schedule, type, and working pressure.
2. Pipe sizes shown on Drawings are minimum. Larger sizes may be substituted without additional cost to Owner.
3. Pipe -
   a. Pressure Lines - Schedule 40 PVC.
   b. Lateral Lines - Schedule 40 PVC.
   c. Quick Coupler Piping - Galvanized steel
4. Fittings - Same material as pipe.

B. Sprinkler Heads
1. Each type of head shall be product of single manufacturer.
2. Conform to requirements shown on Drawings as to type, size, radius of throw, pressure, and discharge. Equal as approved by Owner's Representative before bidding.

C. Sprinkler Risers
1. Pop-up sprinkler heads, shrub spray heads, bubbler heads, and stationary spray sprinkler heads shall have risers made up one of the following ways -
   a. Three schedule 40 street ells connected to lateral tee to form an adjustable riser or pop-up riser as detailed.
   b. Risers for sprinkler heads 14 inches long minimum and 24 inches maximum.
      1) Acceptable Manufacturers -
         a) Rainbird swing pipe with spiral barb fittings and street ell as detailed.
         b) Funny Pipe by Toro
         c) Equal as approved by Owner's Representative before installation.

D. Automatic Sprinkler Control Wiring & Controller
1. Control wire shall be UF-UL listed, color coded copper conductor direct burial size 14. Do not use green color coded wire.
2. Waterproof Wire Connectors -
   a. Acceptable Products And Manufacturers -
      1) DBY or DBR by 3M
      2) One Step' by King
      3) Equal as approved by Owner's Representative before installation.
      4) Controller as specified on drawings.

E. Valves
1. Electric Valves - Make and model shown on Drawings.
2. Quick Coupling Valve - Brass two piece valve with locking top.
3. Backflow Preventer - Make and model shown on Drawings or as required by local code.
4. Pressure Regulator - Make and model shown on Drawings.
5. Pressure Reducer - Make and model shown on Drawings.

F. Valve Accessories
   1. Valve Boxes -
      a. Rectangular heavy duty
      b. Lock top or snap top lids.
      c. Large enough for easy removal or maintenance of valves.
      d. Use extensions as required.
      e. Acceptable Manufacturers -
         1) Ametek
         2) Brooks
         3) Equal as approved by Owner's Representative before installation.
   2. Valve Box Support - Standard size fired clay paving bricks without holes.

G. Dripline –
   1. TLDL6-12 Techline by Netafim, with emitters at 12" spacing.

H. Other Components
   1. Recommended by Manufacturer and subject to Owner's Representative's review and acceptance before installation.
   2. Provide components necessary to complete system and make operational.

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Verification Of Conditions - Perform pressure test at stub-out where irrigation system is to connect on site. Notify Owner's Representative if pressures over 80 psi or under 40 psi are found to determine if some re-design of system is necessary before beginning work on system.

B. Coordinate with Owner's Agent for shutting off water prior to any connections to the existing water supply.

3.2 PREPARATION

A. Protection
   1. Repair or replace work of this Section damaged during course of the Work at no additional cost to Owner. If damaged work is new, repair or replacement shall be performed by installer of original work.
   2. Do not cut existing tree roots measuring over 2 inches in diameter in order to install sprinkler lines.

B. Drawings show arrangement of piping. Should local conditions necessitate rearrangement, obtain written approval of Owner's Representative before proceeding with work.

3.3 INSTALLATION

A. Trenching And Backfilling
   1. Pulling of pipe is not permitted.
   2. Over-excavate trenches 2 inches and bring back to indicated depth by filling with rock-free soil or sand as specified under PRODUCTS. Separate out rocks larger than 1-1/2 inch in any direction uncovered in trenching operation from excavated material and remove from areas to receive landscaping.
   3. Cover pipe both top and sides with 2 inches of rock-free soil as specified under PRODUCTS.

4. Do not cover pressure main, sprinkler pipe, or fittings until Owner's Representative has inspected and approved system.

B. Installation of Pipe
   1. Install pipe in manner to provide for expansion and contraction as recommended by Manufacturer.
   2. Unless otherwise indicated on Drawings, install main lines with minimum cover of 18 inches based on finished grade. Install remaining lateral lines with minimum of 12 inches of cover based on finish grade.
   3. Install pipe and wires under driveways or parking areas in specified sleeves 18 inches minimum below finish grade or as shown on Drawings. All pipes under paved areas shall be sleeved as noted on the Drawings.
   4. Sprinkler heads immediately adjacent to mowstrips, walks, or curbs shall be one inch below top of mowstrip, walk, or curb and have one to 3 inches clearance between head and mowstrip, walk, or curb.
   5. Cut plastic pipe square. Remove burrs at cut ends before installation so unobstructed flow will result.
   6. Make solvent weld joints as follows -
      a. Do not make solvent weld joints if ambient temperature is below 40 deg F.
      b. Clean mating pipe and fitting with clean, dry cloth and apply one coat of P-70 primer to each.
      c. Apply uniform coat of 711 solvent to outside of pipe.
      d. Apply solvent to fitting in a similar manner.
      e. Re-apply light coat of solvent to pipe and quickly insert into fitting.
      f. Give pipe or fitting a quarter turn to insure even distribution of solvent and make sure pipe is inserted to full depth of fitting socket.
      g. Hold in position for 15 seconds minimum or long enough to secure joint.
      h. Wipe off solvent appearing at outer shoulder of fitting.
      i. Do not use excessive amount of solvent thereby causing obstruction to form on inside of pipe.
      j. Allow joints to set at least 24 hours before applying pressure to PVC pipe.
   7. Tape threaded connections with teflon tape.

C. Control Valves and Controller
   1. Install controller, control wires, and valves in accordance with Manufacturer's recommendations and according to electrical code.
   2. Install valves in plastic boxes with reinforced heavy duty plastic covers. Locate valve box tops at finish grade. Do not install more than two valves in single box.
   3. Place 6 inches minimum of pea gravel below bricks supporting valve boxes to drain box. Extend pea gravel 3 inches minimum beyond limits of valve box and maintain 4 inches minimum between bottom of valve and top of pea gravel. Set valve boxes over valve so all parts of valve can be reached for service. Set cover of valve box even with finish grade.
   4. Wiring -
      a. Install all new control wiring in Schedule 40 PVC pipe.
      b. Use waterproof wire connectors at splices and locate all splices within valve boxes.
      c. Use white or gray color for common wire and other colors for all other wire. Each common wire may serve only one controller.
      d. Run one extra control wire from panel continuously from valve to valve throughout system similar to common wire for use if a wire fails. Wire shall be different color than all other wires, except use of green wire is not acceptable. Mark extra control wire in control box as an extra wire. Extend extra control wires 24 inches and leave coiled in each valve box.

1) provide a minimum of one (1) extra control wire per every four (4) valves or fraction thereof.

D. Sprinkler Heads
1. Before installation of sprinkler heads, open control valves and use full head of water to flush out system.
2. Set sprinkler heads and quick-coupling valves perpendicular to finish grade.
3. Do not install sprinklers using side inlets. Install using base inlets only, unless approved otherwise in writing by Owner's Representative.
4. Set sprinkler heads at a consistent distance from existing walks, curbs, and other paved areas and to grade.

E. Sleeving
1. Install sleeving as shown on the project plans and as described herein.
2. Use one water pipe maximum per sleeve. Sleeve control wiring in separate sleeve.
3. Position sleeves with respect to buildings and other obstructions so pipe can easily be removed.

F. Dripline – Install lines per Plans.

3.4 FIELD QUALITY CONTROL

A. Site Tests - Before backfilling system, test pressure lines at 100 psi minimum for 6 hours minimum and make certain there are no leaks. Notify Owner's Representative 2 working days minimum before conducting test.

3.5 ADJUSTING

A. Adjust heads to proper grade to allow walking on it without appreciable harm. Such lowering or raising of heads shall be part of original contract with no additional cost to Owner.

B. Adjust sprinkler heads (and dripline) for proper distribution and trim to prevent extreme overspray on adjacent walks, pavement, building, etc.

C. Adjust watering time of valves to provide proper amounts of water to all plants.

PART 4 PAYMENT

A. Installation of new systems - Paid for on a lump sum basis for "Underground Irrigation System" as listed in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

B. Modification of existing systems - Paid for as part of the lump sum price for "Landscape Restoration" as listed in the bid schedule and no separate payment will be made.

END OF SECTION

SECTION 32 91 13

SOIL PREPARATION

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and apply soil additives as described in Contract Documents.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements
   2. Section 32 93 00 - General Planting Requirements

1.2 SUBMITTALS

A. Product Data - Product literature and chemical / nutrient analysis of soil amendments and fertilizers.

B. Samples - Submit sample of soil conditioner and soil amendment for approval before delivery to site. Include product analysis list.

C. Quality Assurance / Control - Submit delivery slips indicating amount of soil conditioner delivered to Project site.

PART 2 PRODUCTS

2.1 MATERIAL

A. Organic Soil Amendments And Application Rates
   1. Organic soil amendment
      a. 5 cy per 1,000 square feet of Nitrolized soil amendment (Min. 1%) over new planter areas.
      b. Equal as approved by Owner's representative before installation.

B. Acceptable Organic Soil Conditioners And Application Rates
   1. Provide one of following at 5 cu yds per 1000 sq ft -
      a. EPA Class 'A' co-compost or compost with SAR less than 3.0, EC less than 4.0, and CN ratio of 15 to 25:1 passing through 1/2 inch mesh screen as approved by Owner's representative prior to installation.

C. Acceptable Fertilizers and Application Rates
   1. 6-20-20 pelletized fertilizer at 25 pounds per 1,000 sq ft.

PART 3 EXECUTION

3.1 PREPARATION

A. Surface Preparation
   1. Seven days maximum prior before beginning seeding and planting -

a. Loosen area 4 inches deep, dampen thoroughly, and cultivate to properly break up clods and lumps.
b. Rake area to remove clods, rocks, weeds, roots, and debris.
c. Grade and shape landscape area to bring surface to true uniform planes free from irregularities and to provide drainage and proper slope to catch basins.

3.2 APPLICATION

A. Site Tolerances
1. Finish grade of planting areas prior to planting and after addition of soil additives shall be specified distances below top of adjacent pavement of any kind -
a. Sodded Areas - 2 inches below
b. Seeded Areas - One inch below
c. Shrub And Ground Cover Areas - 1 to 2 inches below
2. Fill any spots that settle and smoothly regrade finished surface to conform to depths listed above.

B. Add specified soil amendments at specified rates.
1. Roto-till or otherwise mix amendments evenly into top 6 inches of topsoil.
2. Incorporate and leach chemical soil amendments which require leaching, such as gypsum, within such time limits that soil is sufficiently dry to allow proper application of fertilizer and soil conditioners.

C. Apply fertilizers and soil conditioners over planting areas. Roto-till soil conditioner into top 6 inches of top soil until homogeneous mixture results.

3.3 FIELD QUALITY CONTROL

A. Inspections - **Notify Owner's representative 48 hours minimum prior to roto-tilling in any soil additives.**

PART 4 PAYMENT

A. Soil Preparation shall be paid for on a lump sum basis for "Soil Preparation" as listed in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

END OF SECTION

SECTION 32 93 00

GENERAL PLANTING REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Includes But Not Limited To
   1. General procedures and requirements for landscaping work.

B. Related Sections
   1. Section 32 00 01 - General Exterior Site Construction Requirements

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Protection
   1. Take care in performing landscaping work to avoid conditions which will create hazards. Post signs or barriers as required.
   2. Provide adequate means for protection from damage through excessive erosion, flooding, heavy rains, etc. Repair or replace damaged areas.
   3. Keep site well drained and landscape excavations dry.
   4. **Protect storm drain inlets using approved BMP products.**

3.2 FIELD QUALITY CONTROL

A. Inspection - Owner's Representative will review landscaping installation approximately 1 week prior to end of maintenance period. Replace landscaping that is dead or appears dead as directed by Owner's Representative prior to end of maintenance period. ***Landscaping repairs that are not made before the end of maintenance period may be cause to extend the maintenance period at the discretion of the Owner's representative.***

3.3 ADJUSTING

A. Replace damaged plantings at no additional cost to Owner.

3.4 CLEANING

A. Immediately clean up any soil or debris spilled onto pavement and dispose of all deleterious materials.

3.5 PROTECTION

A. Protect planted areas against traffic or other use immediately after planting is completed by placing adequate warning signs and barricades.

B. Provide adequate protection of planted areas against trespassing, erosion, and damage of any kind. Remove this protection after planted areas have been accepted by Owner's Representative.

PART 4 PAYMENT

A. New work described in “General Planting Requirements” shall be paid for under a lump sum basis.

END OF SECTION

SECTION 32 93 05

EXTERIOR PLANTS

PART 1 PART

1.1 SUMMARY

A. Includes But Not Limited To
   1. Furnish and install landscaping plants as described in Contract Documents.

B. Related Sections
   1. Section 32 93 00 - General Planting Requirements

1.2 REFERENCES

A. American National Standards Institute
   1. ANSI Z60.1-1990, 'American Standard for Nursery Stock'

1.3 WARRANTY

A. Guarantee shrubs, trees, ground covers, and vines to live and remain in healthy condition for one year minimum from project completion.

PART 2 PRODUCTS

2.1 MATERIALS

A. Plants
   1. Conform to requirements of Plant List and Key on Drawings and to ANSI Z60.1.
   2. Nomenclature - Plant names used in Plant List conform to 'Standardized Plant Names' by American Joint Committee on Horticultural Nomenclature except in cases not covered. In these instances, follow custom of nursery trade. Plants shall bear a tag showing the genus, species, and variety of at least 10 percent of each species delivered to site.
   3. Quality -
      a. Plants shall be sound, healthy, vigorous, free from plant disease, insect pests or their eggs, noxious weeds, and have healthy, normal root systems. Container stock shall be well established and free of excessive root-bound conditions.
      b. Do not prune plants or top trees prior to delivery.
      c. Plant materials shall be subject to approval by Owner's representative as to size, health, quality, and character.
      d. Bare root trees are not acceptable.
      e. **Provide plant materials from licensed nursery or grower produced within 50 miles from planting location unless approved by owner.**
   4. Measurements -
      a. Measure height and spread of specimen plant materials with branches in their normal position as indicated on Drawings or Plant List.
      b. Measurement should be average of plant, not greatest diameter. For example, plant measuring 15 inches in widest direction and 9 inches in narrowest would be classified as 12-inch stock.
      c. Plants properly trimmed and transplanted should measure same in every direction.
      d. Measure caliper of trees 6 inches above surface of ground. Where caliper or

other dimensions of plant materials are omitted from Plant List, plant materials shall be normal stock for type listed.

e. Plant materials larger than those specified may be supplied, with prior written approval of Owner's representative, and -
   1) If complying with Contract Document requirements in all other respects.
   2) If at no additional cost to Owner.
   3) If sizes of roots or balls are increased proportionately.

5. Shape and Form _
   a. Plant materials shall be symmetrical or typical for variety and species and conform to measurements specified in Plant List.
   b. Acceptable plant material will generally have height equal to or greater than spread. However, spread shall not be less than 2/3 height.

B. Planting Mix - Mixture of three parts topsoil and one part rotted composted manure..

C. Planting Tablets - 21 gram Agriform 20-10-5.

D. Tree Stakes - 10' minimum height
   1. 2 inch diameter lodgepole pine
   2. Steel T-posts

E. Tree Staking Ties
   1. Acceptable Manufacturers -
      a. 32-inch Cynch-Tie tree ties
      b. Equal as approved by Owner's representative before installation.

F. Pre-Emergent Herbicide
   1. Approved Manufacturers -
      a. Elanco XL
      b. Ronstar
      c. Surflan

G. Bark Or Wood Top Dressing Mulch
   1. Approved Products -
      a. Medium or large size shredded redwood bark
      b. Shredded pine bark
      c. Shredded cedar

PART 3 EXECUTION

3.1 EXAMINATION

A. Before proceeding with work, check and verify dimensions and quantities. Report variations between Drawings and site to Owner's representative before proceeding with work of this Section. **Contractor shall contact an Underground Service Alert entity 48 hours in advance of work, and have all utilities marked prior to Preconstruction Meeting or ground disturbance**

B. Plant totals are for convenience only and are not guaranteed. Verify amounts shown on Drawings. All planting indicated on Drawings is required unless indicated otherwise.

3.2 PREPARATION

A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas. Secure Owner's representative's acceptance before planting. Make minor adjustments as may be requested.

3.3 INSTALLATION

A. Interface With Other Work - Do not plant trees and shrubs until major construction operations are completed.

B. **Ensure irrigation system is functional prior to planting.**

C. Excavation
   1. If underground construction work or obstructions are encountered in excavation of planting holes, Owner's representative will select alternate locations.
   2. Plant Excavation Size -
      a. Diameter - At least two times greater in diameter than root ball or container.
      b. Depth -
         1) Shrubs - Deep enough to allow 4 inches minimum of tamped planting mix beneath root ball.
         2) Trees - 4 inches minimum deeper than bottom of root ball.
   3. Excavated material may be reused for topsoil purposes provided that it is clean and free of debris, roots, stones measuring more than 1-1/2 inches, or other deleterious material.
   4. Roughen sides and bottoms of excavations.
   5. After tree planting holes are excavated to proper depth, auger 8 inch diameter hole 6 feet deep in center of each excavation and fill with tamped planting mix.
   6. Fill holes to receive shrubs with tamped planting mix sufficient to bring plant to proper elevation after watering and settling. In holes to receive trees, provide mound of tamped planting mix of height sufficient to bring tree to proper elevation.

D. Planting
   1. Prior to planting, fill hole with water and verify that water drains away within two hours. Inform Owner's representative in writing if water does not drain properly. Do not plant trees or shrubs in holes that do not properly drain.
   2. Removing Binders And Containers -
      a. Remove top 1/3 of wire basket and burlap binders.
      b. Remove entirely plastic and twine binders from around root ball.
      c. Remove entirely wood boxes from around root ball. Remove box bottoms before positioning plant in hole. After plant is partially planted, remove remainder of box without injuring root ball.
   3. Plant immediately after removing binding material and containers. Place trees and shrubs in holes so that, after watering and settling, top of root ball shall be approximately one inch higher than finished grade.
   4. Properly cut off broken or frayed roots.
   5. Center plant in hole and backfill with specified planting mix. Except in heavy clay soils, make ring of mounded soil around hole's perimeter to form watering basin.
   6. Add planting tablets in plant pit as follows. Place tablets in relation to root ball as recommended by Manufacturer.
      a. One Gallon Shrub - 1 tablet
      b. 5 Gallon Shrub / Tree - 3 tablets
      c. 15 Gallon Tree - 4 tablets
      d. 24 inch Box Tree - 6 Tablets
   7. Settle by firming and watering to bring top of ball down to one inch higher than surrounding soil.

8. Do not use muddy soil for backfilling.
9. Make adjustments in positions of plants as directed by Owner's representative.
10. Thoroughly water trees and shrubs immediately after planting.

E. Supports for New Trees
   1. Provide new supports for trees noted on Drawings to be staked.
      a. Remove nursery stakes delivered with and attached to trees.
      b. Support shall consist of at least two tree stakes driven into hole base before backfill so roots are not damaged. Place stakes vertically and run parallel to tree trunk. Install stakes so 3 feet of stake length is below finish grade.
      c. Place tree ties 6 to 12 inches below crotch of main tree canopy. A second set of tree ties may be required 18 to 24 inches above finish grade, if directed by Owner's representative.
      d. Remove tops of tree stakes so top of stake is 6 inches below main tree canopy to prevent damage to tree branches and canopy growth.

F. Ground Covers - Container-grown unless otherwise specified on Drawings. Space evenly to produce a uniform effect, staggered in rows and intervals shown.

G. Post Planting Weed Control
   1. Apply specified pre-emergent herbicide to shrub and ground cover planting areas.
   2. Areas shall be free of existing weed growth prior to application of herbicide.

H. Mulching
   1. After application of herbicide, mulch shrub and ground cover planting areas with 3 inch deep layer of specified top dressing mulch.
   2. Place top dressing mulch to uniform depth and rake to neat finished appearance.

PART 4 PAYMENT

A. New landscape planter areas - Exterior planting shall be paid for on a lump sum basis for "Landscape Plant Materials" as listed in the bid schedule and shall be considered full compensation for all labor, equipment, and materials required to perform the work as described herein.

B. Restored landscape planter areas - Exterior planting shall be included in the lump sum price for "Landscape Restoration" as listed in the bid schedule and no separate payment will be made.

END OF SECTION

SECTION 32 93 15

LANDSCAPE RESTORATION

PART 1 GENERAL

1.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. Contractor shall restore landscape features impacted by other items of work.

B. Related Sections
   1. Section 32 84 23 - Underground Irrigation System
   2. Section 32 93 00 - General Planting Requirements
   3. Section 32 93 05 - Exterior Plants
   4. Section 32 93 23 - Lawn Sodding

PART 2 PRODUCTS

A. Components for Irrigation System Restoration shall be per Section 32 84 23 “Underground Irrigation System”

B. Plant Material Restoration shall be per Section 32 93 05 “Exterior Plants”

C. Top Dressing Mulch & Pre-Emergent Herbicide shall be per Section 32 93 05 “Exterior Plants”

PART 3 EXECUTION

3.1 RESTORATION TO IRRIGATION SYSTEMS

A. Restoration -
   1. Sprinkler heads, irrigation valves, quick coupler valves, and other features that interfere with items of new work shall be relocated.
   2. Irrigation lateral lines shall be cut and capped where landscape area is converted to hardscape (sidewalk or paving).
   3. Irrigation lateral lines and/or pressurized mainlines shall be rerouted when conflicting with items of new work.

B. Contractor shall perform all irrigation restoration work in accordance with Section 32 84 23 “Underground Irrigation System”.

3.2 RESTORATION OF LANDSCAPE PLANT MATERIAL

A. Restoration -
   1. Plants shown for temporary relocation shall be replaced at the completion of all other major work items of Project.
   2. Plants that have been damaged that are specified to be protected or to remain shall be replaced at no cost to the Owner. Minimum size for plant material restoration shall be as follows:

a. Trees (up to 10 feet existing height) - 15 gallon container
b. Trees (greater than 10 feet existing height) - 36 inch box
c. Shrubs - 5 gallon container

3. **In lawn areas adjacent to work, Contractor shall replace turf up to edges of landscape areas. Turf shall be rolled sod to match existing turf grass as closely as possible. Only if approved by Owner's Representative, Contractor shall repair lawn areas by seeding.**

B. All planting installation shall be performed in accordance with Section 32 93 05 "Exterior Plants".

3.3 MISCELLANEOUS LANDSCAPE FEATURES

A. In landscape areas behind new sidewalk, curb, headerboards, and other site facilities, Contractor shall replace soil behind work to within 1 to 2 inches from finish surface.
1. Existing site soil shall be used for backfill first, then imported topsoil per Section 31 23 00 "Excavation, Grading & Backfill" to supplement.

B. After finish grading in affected planter areas, pre-emergent herbicide shall be applied, and top-dressing mulch shall be placed over all bare soil.
1. Installation shall be performed per Section 32 93 05 "Exterior Plants."

C. Existing landscaping boulders, stepping stones, and decorative features shall be replaced as specified on Plans.

PART 4 PAYMENT

A. All work related to landscape restoration will be paid on a lump sum basis as listed in the Bid Schedule and will be considered full compensation for all labor, equipment, and materials required to perform the work as described herein

END OF SECTION

SECTION 32 93 23

LAWN SODDING

PART 1 GENERAL

1.1 SUMMARY

A. Work Shall Include but Not be Limited to the Following:
   1. Contractor shall furnish and install sodded lawn as described in Contract Documents.

B. Related Sections
   1. Section 32 93 00 - General Planting Requirements

1.2 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall harvest, deliver, store, and handle sod in accordance with requirements of 'American Sod Producers Association (ASPA) Specifications for Turfgrass Sod Materials and Transplanting/Installing.'

B. Contractor shall cut and lift sod by method acceptable to Architect. Contractor shall cut sod in pieces, approximately 3/4 to 1 inch thick. Sod shall be rolled or folded so it may be lifted and handled without breaking or tearing and without loss of soil.

C. Deliveries shall be scheduled to coincide with topsoil operations and laying. Storage shall be kept at job site to minimum without causing delays.
   1. Sod shall be delivered, unloaded, and stored on pallets within twenty-four (24) hours of being lifted.
   2. Small, irregular, or broken pieces of sod shall not be delivered.

D. During wet weather, sod shall be allowed to dry sufficiently to prevent tearing during lifting and handling. During dry weather, sod shall be protected from drying before installation. Contractor shall water as necessary to ensure vitality and to prevent excess loss of soil in handling. Sod that dries out before installation will be rejected.

1.3 SEQUENCING

A. Work of this Section shall not commence until work of Sections 32 84 23 and 32 91 13 have been completed, and approved by Owner's Representative.

PART 2 PRODUCTS

2.1 MATERIALS

A. Certified Sod
   1. Sod shall be superior grown from certified, high-quality, seed of known origin or from plantings of certified grass seedlings or stolons.

a. Contractor shall ensure satisfactory genetic identity and purity.
b. Contractor shall ensure overall high quality and freedom from noxious weeds or an excessive amount of other crop and weedy plants at time of harvest.

2. Sod shall be composed of two (2) varieties minimum of Kentucky Bluegrass.

PART 3 EXECUTION

3.1 INSTALLATION

A. Site Tolerances - Final grade of soil after sodding of lawn areas shall be 1 inch below top of adjacent pavement of any kind.

B. Laying of Sod
1. Sod shall be laid during growing season. Sodding during dry summer period, at freezing temperatures, or over frozen soil shall not be permitted.
2. Sod shall be laid within thirty-six (36) hours of being lifted.
3. Sod shall be laid in rows with joints staggered. Sections shall be butt closely without overlapping or leaving gaps between sections. Irregular or thin sections shall be cut out with a sharp knife.
4. Sod shall be laid flush with adjoining existing sodded surfaces.

C. After Sodding is Complete
1. Horizontal surface areas shall be rolled in two (2) directions perpendicular to each other.
2. Areas with depressions, lumps, or other irregularities shall be repaired and re-rolled. Heavy rolling to correct irregularities in grade shall not be permitted.
3. Sodded areas shall be watered immediately after laying sod to obtain moisture penetration through sod into top 4 inches of topsoil.

3.2 FIELD QUALITY CONTROL

A. Inspection
1. Sodded areas will be accepted at final inspection if –
a. Sodded areas are properly established.
b. Sod is free of bare and dead spots and without weeds.
c. No surface soil is visible when grass has been cut to height of 2 inches.
d. Sodded areas have been mowed at least twice.

2. Areas sodded after November 1st will be accepted the following Spring (May 1st) approximately one (1) month after start of growing season if specified conditions have been met.

END OF SECTION