INVITATION TO BID NO: 09-R-2208544

STATE OF ALABAMA

DEPTARTMENT OF FINANCE
DIVISION OF PURCHASING

INVITATION TO BID

REQ. AGENCY	: 012167 BUREAU OF AERONAUTICS
AGENCY REQ. NO.	: G53-903685
T-NUMBER	:
DATE ISSUED	: 07/21/09
VENDOR NO.	:
VENDOR PHONE NO.	:
SNAP REQ. NO.	: 1418278
BUYER NAME	: SUSAN JANA
BUYER PHONE NO.	: (334) 242-7173-
PURCHASING PHONE NO	: (334) 242-7250

FOR: FUEL DISPENSER SYSTEM

BID MUST BE RECEIVED BEFORE:
DATE: 08/19/09 TIME: 5:00 PM

BIDS WILL BE PUBLICLY OPENED:
DATE: 08/20/09 TIME: 10:00 AM

TO BE COMPLETED BY VENDOR

INFORMATION IN THIS SECTION SHOULD BE PROVIDED, AS APPROPRIATE. BID RESPONSE MUST BE IN INK OR TYPED WITH ORIGINAL SIGNATURE AND NOTARIZATION.

1. DELIVERY: CAN BE MADE _____ DAYS OR _____ WEEKS AFTER RECEIPT OF ORDER

2. TERMS: _____(DISCOUNTS ARE TAKEN WITHOUT REGARD TO DATE OF PAYMENT.)

3. PRICE VALID FOR ACCEPTANCE WITHIN _____ DAYS.

4. VENDOR QUOTATION REFERENCE NUMBER, IF ANY: _____
(THIS NUMBER WILL APPEAR ON THE PURCHASE ORDER.)

5. E-MAIL ADDRESS: _____

INTERNET WEBSITE: _____

6. GENERAL CONTRACTOR'S LICENSE NO: _____

TYPE OF G.C. LICENSE: _____

RETURN INVITATION TO BID:

US MAIL

STATE OF ALABAMA
DEPARTMENT OF FINANCE
DIVISION OF PURCHASING
P O BOX 302620
MONTGOMERY, AL 36130-2620

COURIER

STATE OF ALABAMA
DIVISION OF PURCHASING
RSA UNION BUILDING
100 N. UNION ST., SUITE 192
MONTGOMERY, AL 36104

***** IMPORTANT NOTE: *****
BIDDERS MUST COMPLY WITH ALL "BID RESPONSE INSTRUCTIONS" ON PAGE 2, TO INCLUDE ITEM 7 - COPY REQUIREMENT.

SIGNATURE AND NOTARIZATION REQUIRED

I HAVE READ THE ENTIRE BID AND AGREE TO FURNISH EACH ITEM OFFERED AT THE PRICE QUOTED. I HERBY AFFIRM I HAVE NOT BEEN IN ANY AGREEMENT OR COLLUSION AMONG BIDDERS IN RESTRAINT OF FREEDOM OF COMPETITION BY AGREEMENT TO BID AT A FIXED PRICE OR TO REFRAIN FROM BIDDING.

SWORN TO AND

SUBSCRIBED BEFORE ME THIS

_____ DAY OF _____

_____
NOTARY PUBLIC

TERM EXP: _____

_____ FEIN OR SSN

_____ COMPANY NAME

_____ MAIL ADDRESS

_____ CITY, STATE, ZIP

_____ PHONE INCLUDING AREA CODE

_____ AUTHORIZED SIGNATURE (INK)

_____ TYPE/PRINT AUTHORIZED NAME

_____ TITLE

_____ TOLL FREE NUMBER

_____ FAX NUMBER

VENDOR NAME :

VENDOR NUMBER: -
ITB NO. : 09-R-2208544 PAGE 2
OPEN DATE : 08/20/09 TIME: 10:00 AM

RETURN DATE: 08/19/09 TIME: 5:00 PM

AUTHORITY:
THE DEPARTMENT OF FINANCE CODE OF ADMINISTRATIVE PROCEDURE, CHAPTER 355-4-1 EFFECTIVE DECEMBER 20, 2001 IS INCORPORATED BY REFERENCE AND MADE A PART OF T HIS DOCUMENT. TO RECEIVE A COPY CALL (334)242-7250, OR OUR WEBSITE WWW.PURCHASING.ALABAMA.GOV .

INFORMATION AND ASSISTANCE TO MINORITY BUSINESSES IN THE TECHNICAL COMPLETION OF REQUIRED FORMS MAY BE OBTAINED FROM THE OFFICE OF MINORITY BUSINESS ENTERPRISE, 1-800-447-4191.

BID (ITB) RESPONSE INSTRUCTIONS REV: 04/07/09

1. TO SUBMIT A RESPONSIVE BID, READ THESE INSTRUCTIONS, ALL TERMS, CONDITIONS AND SPECIFICATIONS.

2. BID ENVELOPES/PACKAGES/BOXES MUST BE IDENTIFIED ON FRONT, PREFERABLY LOWER LEFT CORNER AND BE VISIBLE WITH THE BID NUMBER AND OPENING DATE. EACH INDIVIDUAL BID (IDENTIFIED BY A UNIQUE BID NUMBER) MUST BE SUBMITTED IN A SEPERATE ENVELOPE. RESPONSES TO MULTIPLE BID NUMBERS SUBMITTED IN THE SAME ENVELOPE/COURIER PACKAGE, THAT ARE NOT IN SEPARATE ENVELOPES PROPERLY IDENTIFIED, WILL BE REJECTED. THE DIVISION OF PURCHASING DOES NOT ASSUME RESPONSIBILITY FOR LATE BIDS FOR ANY REASON INCLUDING THOSE DUE TO POSTAL, OR COURIER SERVICE. BID RESPONSES MUST BE IN THE DIVISION OF PURCHASING OFFICE PRIOR TO THE "RECEIVE DATE AND TIME" INDICATED ON THE BID.

3. BID RESPONSES (PAGE 1, PRICE SHEET AND ADDENDUMS (WHEN SIGNATURE IS REQUIRED)) MUST BE IN INK OR TYPED ON THIS DOCUMENT. OR EXACT FORMAT WITH SIGNATURES BEING HANDWRITTEN ORIGINALS IN INK (PERSON SIGNING BID, NOTARY, AND NOTARY EXPIRATION), OR THE BID WILL BE REJECTED. UNLESS INDICATED IN THE BID, ALL PRICE PAGES MUST BE COMPLETED AND RETURNED. IF AN ITEM IS NOT BEING BID, IDENTIFY IT AS NB (NO-BID). PAGES SHOULD BE SECURED. THE DIVISION OF PURCHASING DOES NOT ASSUME RESPONSIBILITY FOR MISSING PAGES. FAXED BID RESPONSES WILL NOT BE ACCEPTED.

4. THE UNIT PRICE ALWAYS GOVERNS REGARDLESS OF THE EXTENDED AMOUNT. A UNIT PRICE CHANGE ON A LINE MUST BE INITIALED BY THE PERSON SIGNING THE BID, OR THAT LINE WILL BE REJECTED. THIS INCLUDES A CROSS-OUT, STRIKE-OVER, INK-OVER, WHITE-OUT, ERASURE, OR ANY OTHER METHOD CHANGING THE PRICE.

5. A "NO BID" MUST BE RETURNED TO REMAIN ON A CLASS/SUBCLASS. RETURN PAGE 1 MARKED "NO-BID". IDENTIFY IT ON THE ENVELOPE AS A "NO-BID". FAILING TO RESPOND TO 3 ITB'S WITHIN THE SAME CLASS/ SUBCLASS WILL AUTOMATICALLY PURGE THE VENDOR FROM THAT CLASS/SUBCLASS. RESPONDING WITH 6 "NO-BIDS" WITHIN THE SAME CLASS/SUBCLASS WILL AUTOMATICALLY PURGE THE VENDOR FROM THAT CLASS/ SUBCLASS. A "NO-BID" RECEIVED LATE IS CONSIDERED A NO RESPONSE.

6. THE DIVISION OF PURCHASING IS NOT RESPONSIBLE FOR MISINTERPRETATION OF DATA FAXED FROM THIS OFFICE.

7. THE DIVISION OF PURCHASING REQUIRES AN ORIGINAL AND A MINIMUM OF ONE COMPLETE EXACT COPY (TO INCLUDE SIGNATURE AND NOTARY) OF THE INVITATION-TO-BID RESPONSE. THE ORIGINAL AND THE COPY SHOULD BE SUBMITTED TOGETHER AS A BID PACKAGE.

8. AN IMPROPERLY SUBMITTED BID, LATE BID, OR BID THAT IS CANCELLED ON OR BEFORE THE OPENING DATE WILL BE HELD FOR 90 DAYS AND THEN DESTROYED. THE BID MUST BE RETRIEVED DURUIG REGULAR WORK HOURS, MONDAY - FRIDAY, EXCEPT STATE HOLIDAYS. AFTER THE BID IS DESTROYED, THE DIVISION OF PURCHASING ASSUMES NO RESPONSIBILITY FOR THE DOCUMENT.

DISQUALIFIED/CANCELLED BID

BIDS THAT ARE IMPROPERLY SUBMITTED OR RECEIVED LATE WILL BE A RESPONSE FOR RECORD, BUT WILL NOT BE RETURNED OR A NOTIFICATION MAILED.

THE FOLLOWING IS A PARTIAL LIST WHEREBY A BID RESPONSE WILL BE DISQUALIFIED:

BID NUMBER NOT ON FACE OF ENVELOPE/COURIER PACKAGE/BOX
RESPONSES TO MULTIPLE BID NUMBERS IN SAME ENVELOPE NOT PROPERLY IDENTIFIED
BID RECEIVED LATE
BID NOT SIGNED/NOT ORIGINAL SIGNATURE
BID NOT NOTARIZED/NOT ORIGINAL SIGNATURE OF NOTARY AND/OR NO NOTARY EXPIRATION
NOTARIZED OWN SIGNATURE
REQUIRED INFORMATION NOT SUBMITTED WITH BID
FAILURE TO SUBMIT THE ORIGINAL BID AND A COMPLETE EXACT COPY WILL RESULT IN REJECTION OF THE BID RESPONSE
FAILURE TO MARK RESPONSES AS "ORIGINAL" AND/OR "COPY" COULD RESULT IN THE ENTIRE BID RESPONSE BEING REJECTED

CERTIFICATION PURSUANT TO ACT NO. 2006-557

ALABAMA LAW (SECTION 41-4-116,CODE OF ALABAMA 1975) PROVIDES THAT EVERY BID SUBMITTED AND CONTRACT EXECUTED SHALL CONTAIN A CERTIFICATION THAT THE VENDOR, CONTRACTOR, AND ALL OF ITS AFFILIATES THAT MAKE SALES FOR DELIVERY INTO ALABAMA OR LEASES FOR USE IN ALABAMA ARE REGISTERED, COLLECTING, AND REMITTING ALABAMA STATE AND LOCAL SALES, USE, AND/OR LEASE TAX ON ALL TAXABLE SALES AND LEASES INTO ALABAMA. BY SUBMITTING THIS BID, THE BIDDER IS HEARBY CERTIFYING THAT THEY ARE IN FULL COMPLIANCE WITH ACT NO. 2006-557, THEY ARE NOT BARRED FROM BIDDING OR ENTERING INTO A CONTRACT PURSUANT TO 41-4-116, AND ACKNOWLEDGES THAT THE AWARDING AUTHORITY MAY DECLARE THE CONTRACT VOID IF THE CERTIFICATION IS FALSE.

INTENT TO AWARD

EFFECTIVE MAY 1, 2008, THE STATE OF ALABAMA - DIVISION OF PURCHASING WILL ISSUE AN 'INTENT TO AWARD' BEFORE A FINAL AWARD IS MADE. THE 'INTENT TO AWARD' WILL CONTINUE FOR A PERIOD OF FIVE (5) CALENDAR DAYS, AFTER WHICH A PURCHASE ORDER WILL BE PRODUCED. UPON FINAL AWARD, ALL RIGHTS TO PROTEST ARE FORFEITED. A DETAILED EXPLANATION OF THIS PROCESS MAY BE REVIEWED IN THE ALABAMA ADMINISTRATIVE CODE - CHAPTER 355-4-1(14).

ALTERNATE BID RESPONSE

UNLESS STATED ELSEWHERE IN THIS INVITATION-TO-BID (ITB) THE STATE OF ALABAMA WILL ACCEPT AND EVALUATE ALTERNATE BID SUBMITTALS ON ANY ITB'S. ALTERNATE BID RESPONSES WILL BE EVALUATED ACCORDING TO THE REQUIREMENTS AS ALL OTHER RESPONSES TO THIS ITB.

INTERNET WEBSITE LINK'S

INTERNET AND/OR WEBSITE LINKS WILL NOT BE ACCEPTED IN BID RESPONSES AS A MEANS TO SUPPLY ANY REQUIREMENTS STATED IN THIS ITB (INVITATION-TO-BID).

PRODUCT DELIVERY, RECEIVING AND ACCEPTANCE

IN ACCORDANCE WITH THE UNIVERSAL COMMERCE CODE (CODE OF ALABAMA, TITLE 7), AFTER DELIVERY, THE STATE OF ALABAMA HAS THE RIGHT TO INSPECT ALL PRODUCTS BEFORE ACCEPTING. THE STATE WILL INSPECT PRODUCTS IN A REASONABLE TIMEFRAME. SIGNATURE ON A DELIVERY DOCUMENT DOES NOT CONSTITUTE ACEPTANCE BY THE STATE. THE STATE WILL ACCEPT PRODUCTS ONLY AFTER SATISFACTORY INSPECTION.

SALES TAX EXEMPTION

PURSUANT TO THE CODE OF ALABAMA, 1975, TITLE 40-23-4 (A) (11), THE STATE OF ALABAMA IS EXEMPT FROM PAYING SALES TAX. AN EXEMPTION LETTER WILL BE FURNISHED UPON REQUEST.

INVOICES

INQUIRIES CONCERNING PAYMENT AFTER INVOICES HAVE BEEN SUBMITTED ARE TO BE DIRECTED TO THE RECEIVING AGENCY, NOT THE DIVISION OF PURCHASING

BID RESPONSES AND BID RESULTS

UNEVALUATED BID RESPONSES (NOT BID RESULTS) ARE AVAILABLE ON OUR WEB SITE AT WWW.PURCHASING.ALABAMA.GOV. BID RESULTS WILL BE MADE AVAILABLE FOR REVIEW IN THE DIVISION OF PURCHASING OFFICE, BUT ONLY AFTER THE BID HAS BEEN AWARDED. WE DO NOT FAX OR MAIL COPIES OF BID RESULTS. IF A VENDOR WISHES TO REVIEW BID RESULTS IN OUR OFFICE, THEY SHOULD FAX THEIR REQUEST TO REVIEW THE BID TWO DAYS IN ADVANCE TO THE "BID REVIEW CLERK" AT (334) 242-4419. BE SURE TO REFERENCE THE BID NUMBER.

FOREIGN CORPORATION - CERTIFICATE OF AUTHORITY

ALABAMA LAW PROVIDES THAT A FOREIGN CORPORATION (AN OUT-OF-STATE COMPANY/FIRM) MAY NOT TRANSACT BUSINESS IN THE STATE OF ALABAMA UNTIL IT OBTAINS A CERTIFICATE OF AUTHORITY FROM THE SECRETARY OF STATE. SECTION 10-2B-15.01, CODE OF ALABAMA 1975. TO OBTAIN FORMS FOR A CERTIFICATE OF AUTHORITY, CONTACT THE SECRETARY OF STATE, CORPORATIONS DIVISION, (334) 242-5324. THE CERTIFICATE OF AUTHORITY DOES NOT KEEP THE VENDOR FROM SUBMITTING A BID.

BID IDENTIFICATION

REFERENCE PAGE 2, ITEM 2. DUE TO THE POSTAL SERVICE PUTTING BAR CODE LABELS ON ENVELOPES, IT CONCEALS THE BID NUMBER AND DATE IF THE VENDOR HAS WRITTEN THEM OTHER THAN THE LOWER LEFT CORNER, THEREFORE THE BID WOULD BE REJECTED FOR NOT BEING PROPERLY IDENTIFIED.

****

AWARD:
AWARD WILL BE MADE "ALL OR NONE" TO THE LOWEST RESPONSIBLE BIDDER MEETING ALL SPECIFICATIONS.

DELIVERY, INSTALLATION, SITE PREP:
THE VENDOR IS REQUIRED TO PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR FOR THE ENTIRE PROJECT. THE BID UNIT PRICE MUST INCLUDE ALL TRANS-PORTATION, UNLOADING, INSTALLATION, REMOVAL OF DEBRIS, AND SITE PREP. THESE CHARGES MUST NOT BE SHOWN SEPARATELY ON THE ITB OR INVOICE. ADDITIONAL CHARGES OF ANY KIND ARE UNACCEPTABLE AND WILL NOT BE PAID.

PRORATION:
ANY PROVISION OF A CONTRACT RESULTING FROM THIS BID TO THE CONTRARY NOTWITHSTANDING, IN THE EVENT OF FAILURE OF THE STATE TO MAKE PAYMENT HEREUNDER AS A RESULT OF PARTIAL UNAVAILABILITY, AT THE TIME SUCH PAYMENT IS DUE, OF SUCH SUFFICIENT REVENUES OF THE STATE TO MAKE SUCH PAYMENT (PRORATION OF APPROPRIATED FUNDS FOR THE STATE HAVING BEEN DECLARED BY THE GOVERNOR PURSUANT TO SECTION 41-4-90 OF THE CODE OF ALABAMA 1975), THE CONTRACTOR SHALL HAVE THE OPTION, IN ADDITION TO THE OTHER REMEDIES OF THE CONTRACT, OF RENEGOTIATING THE CONTRACT (EXTENDING OR CHANGING PAYMENT TERMS OR AMOUNTS) OR TERMINATING THE CONTRACT.

MATERIALS, SUPPLIES AND/OR EQUIPMENT:
ALL MATERIALS, SUPPLIES AND/OR EQUIPMENT BEING BID AND DELIVERED TO THE STATE SHALL BE NEW, UNUSED, OF RECENT MANUFACTURE, FIRST CLASS IN EVERY RESPECT, AND SUITABLE FOR THEIR INTENDED PURPOSE.

REQUESTED INFORMATION:
ANY ADDITIONAL INFORMATION REQUESTED FROM A VENDOR MUST BE FURNISHED WITHIN FIVE (5) BUSINESS DAYS FROM RECEIPT OF REQUEST.

THE FOLLOWING CONFERENCES WILL BE HELD

CONFERENCE	LOCATION
MANDATORY PRE-BID CONFERENCE DATE: 08/13/09 TIME: 2:00 PM	SAINT ELMO AIRPORT 10050 HIGHWAY 90 ST. ELMO, AL 36568

PRICE SHEET

VENDOR NAME :

VENDOR NUMBER: -

INVITATION TO BID

ITB NO. : 09-R-2208544 PAGE 6

OPEN DATE : 08/20/09 TIME: 10:00 AM

RETURN DATE: 08/19/09 TIME: 5:00 PM

LINE NO.	COMMODITY/SERVICE DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED AMOUNT
	UNLESS SPECIFIED OTHERWISE BELOW: SHIP TO: 012167 / 012M01 BUREAU OF AERONAUTICS ACCOUNTANT 1409 COLISEUM BLVD. SUITE T-264 MONTGOMERY AL 36130				
00001	COMMODITY CODE: 720-33-080996 FUEL DISPENSER SYSTEM, AUTOMATED, CUSTOM BUILT ALABAMA TANK OR EQUAL SEE ATTACHED SPECIFICATIONS	1	EA	_____	_____

PAGE TOTAL _____

BID TOTAL _____

SPECIFICATION

#09-R-2208544
G53-903685
1418278

1-12,000 Gal. Flameshield double wall steel tank

Flameshield double wall steel storage tank with support cradles, rainguard and platform
Southwest Research 2 hour fire tested
Emergency Vents
Epoxy coating for jet fuel Interior
Carboline Exterior coating
MFG: Alabama Tank, Model # Built to Specifications
OR EQUAL

1-8" Thick concrete pad reinforced with rebar for 2 tanks
1-1 1/2 HP Sub-pump with floating suction
1- 1 1/2" Stainless steel fire valve
1-1 1/2" Stainless steel solenoid valve
1- 1/2" Stainless steel expansion relief valve
1-1 1/2" Stainless steel ball valves
1- Overfill valves
1- Line strainers
1- Aluminum drop tubes
1-918 Clock gauge with alarm
2- 3" Stainless steel ball valves
1- 15 Gallon remote spill container with 3" dual points with 4" slab
2- Grounding rods
1- Single phase control boxes
1- STP-CBS boxes
1- 2" Vent Pipes with vent cap
2- 4" Fill adaptors
1 - Vapor Cap
1 - Fill Cap
1 1/2" Over wing fuel nozzle with Deadman
1 - Emergency shut off button with sign
1 - Vapor Recovery Adaptor
1 - Weatherproof Box with back plate
Bury 650' of 4" conduit & run Power to Fueling site form hanger
1- Petrovend 3000 with credit card capability and software
1 - 200 AMP subpanel
1 - Throw switch for Backup power
1 - Gasboy FH515 60 GPM Digital Retail Dispenser with pulse output Board & 75' hose
1- 12" Drainpipe & fill dirt for ditch
1 1/2" Black Pipe for product line
3" Black Pipe for fill
3/4" Rigid pipe for electrical wiring
20 x 70 x 8" Concrete drive for delivery truck

Contractor will be responsible for Site Prep

Mandatory pre-bid conference to be held.
Date: August 13, 2009 @ 2:00 P.M.
At Saint Elmo Airport
10050 Highway 90
St. Elmo, Alabama 36568

VOLKERT
& ASSOCIATES, INC.

1925-2005 80 VOLKERT

www.volkert.com

3809 Moffett Road (36618)
P.O. Box 7434
Mobile, Alabama 36670-0434
251.342.1070
Fax 251.342.7962
volkert@volkert.com

August 20, 2009

VIA EMAIL

ALDOT No. 09-R-2208544
V.A. Contract No. 766006.10
Construct Fuel Dispenser
System at St. Elmo Airport
St. Elmo, Alabama

TO: **PLAN HOLDERS**

SUBJECT: **ADDENDUM NO. 2**

Information included in this Addendum No. 2 shall be considered in preparation of the proposal for the above referenced project.

Item 1. Resume of Meeting – Pre-bid Conference of August 13, 2009 attached.

Item 2. Project Drawings
- Project Layout
- Project Details
- Foundation Plan and Details

Item 3. The Contract Time for the above referenced project shall be 150 calendar days. Liquidated damages shall be in accordance with Section 108 of the ALDOT Standard Specifications for Highway Construction 2008 Edition.

Item 4. The Contractor shall be responsible for required startup and testing of the proposed fueling system. The Contractor shall provide all materials, equipment, labor, etc. necessary to comply with all required testing and start up procedures.

Item 5. The Contractor shall provide all applicable labels, signage, placards, etc. for the proposed fueling system.

VOLKERT

Item 6. The specifications and drawings provided as part of this project are not intended to sole source equipment or manufactures. References made to specific equipment, vendors, etc. are intended to establish a level of performance.

Sincerely,

Bobby Odom, P.E.
Project Manager

/ms

Enclosures

VOLKERT
& ASSOCIATES, INC.

1925-2005 80 VOLKERT

www.volkert.com

3809 Moffett Road (36618)
P.O. Box 7434
Mobile, Alabama 36670-0434
251.342.1070
Fax 251.342.7962
volkert@volkert.com

August 17, 2009

ALDOT No. 09-R-2208544
Contract No. 766006.10
Construct Fuel Dispenser
System at St. Elmo Airport
St. Elmo, Alabama

RESUME OF MEETING
PRE-BID CONFERENCE

A mandatory pre-bid meeting was held at 2:00 p.m. on August 13, 2009, at the St. Elmo Airport Hangar Office. The purpose of this meeting was to provide an overview of the project and to provide prospective bidders the opportunity to ask questions concerning the project.

See the attached list for attendees.

The proposed project layout was reviewed using the attached agenda and various sheets from the bid package. A summary of the discussion follows:

1. Review of Scope

   ✈ Fuel Dispenser System

   - The project shall include the acquisition and installation of one Fuel Dispenser System.
   - The Fuel Dispenser System shall be in accordance with the specifications.
   - The Fuel Dispenser System shall be located on the south side of the existing apron between the apron and access road as shown on the project layout.
   - The fuel system shall contain one (1) -12,000 gallon above ground, horizontal, 360 degree flamesheild double wall, storage tank with support cradles, raingaurd and platform.
   - The tank foundation shall be sized for two (2) fuel systems. The layout shown on the plans includes a 30ft x 30ft. concrete foundation. The contractor may adjust the size as needed based on manufacture requirements.
   - The contractor shall install electrical service to fuel dispenser system from power panel in existing hangar as shown on the plans. The electrical service shall include a 100 AMP panel on a required galvanized rack located at the proposed fueling location. See plans for breaker and circuit requirements.
   - The Contractor shall install one (1) – 2 inch conduit with three (3) - 1/0 THHN conductors to supply required electrical panel.
   - The contractor shall install telephone service to fuel dispenser system from existing hangar. The contractor shall in stall one (1) - 1inch conduit with one (1) - 8-pair telephone cable.
   - Under the existing access roads, the contractor shall install two (2) - 4 inch PVC conduits via directional drilling as shown on the plans.

- The contractor shall install one (1) area light at the required fueling system. The light shall be 250 watt metal halide cobra head on a two (2) foot mast arm and shall have an integral photocell. The light shall be installed on a 35ft-5 penta treated pole as described on the plans.

✈ Fuel Tanker Access Road

- Fuel Tanker Access Road requires a 8-inch Reinforced Concrete Pavement for 20-ft wide and 98-ft long.
- The typical section shown in the plans was reviewed.
- The contractor shall excavate as need to provide 2-ft of fill below the 8-inch concrete surface.
- Excess excavated material shall be disposed of offsite.
- The required drainage structure shall be installed per ALDOT specifications and placed along the existing ditch profile.
- The contractor shall seed all disturbed areas. Seeding shall be performed according to ALDOT specifications.
- The area around the headwalls shall be sodded per ALDOT specifications.

✈ The Contractor shall field locate all utilities prior to construction and take care not to damage any existing utilities such as existing overhead power lines, propane fuel tank, generator, buried conduit, etc.

✈ Materials of Construction will be ALDOT specifications for materials and components incorporated in the work.

2. Work Sequence

✈ Excavation
✈ Install Drainage Structures
✈ Install Required Utilities
✈ Place Fill
✈ Place Concrete
✈ Final Grading
✈ Seeding
✈ Sodding
✈ Clean up
✈ Final Inspection – A joint inspection will be performed between the Contractor, Volkert, and representatives from ALDOT.

3. Airport Safety Plan

✈ The Contractor will use Airport Entrance Road as a haul route. The Contractor will not use any airfield pavements as haul routes.

✈ It shall be the Contractor's responsibility to inspect onsite and offsite haul routes to determine that his equipment, means, and methods shall not cause damage to the haul route. Any damage caused by the Contractor's activities shall be repaired by the Contractor at no cost to the Owner.

✈ The Contractor Staging Area will be east of the existing apron north of the Airport Entrance Road and will not block Airport access.

✈ A field trailer is not required as part of this project.

✈ The Contractor shall not enter the runway or taxiway safety areas.

4. Security - The Contractor will confine his activities to the project site and is responsible for the security of his facilities onsite.

5. Schedule

- ✈ Bid Date – Bids will be received until August 19, 2009 at 5:00PM by ALDOT
- ✈ Bid Opening – Bid opening will be held on August 20, 2009 at 10:00 AM by ALDOT
- ✈ Contract Time – Contract time will be addressed by Addendum
- ✈ Request for rescheduling the bid opening will be addressed by Addendum

6. DBE and Labor Requirements

- ✈ No DBE participation will be required under this project.

7. NOTAMS - NOTAMS will be issued as needed by the Owner. The Contractor is required to provide a 48-hour notice when requesting a NOTAM.

8. Miscellaneous

- ✈ Erosion control shall be the responsibility of the Contractor. The contract shall have a detailed erosion control plan developed and submitted the engineer prior to any construction activities start.
- ✈ The Contractor shall be responsible for locating all utilities prior to construction.
- ✈ Bollards are required in this project. Bollard location will be shown on project layout. Details for bollard construction will be included in the Addendum
- ✈ The contractor shall continuously monitor the air traffic on frequency 122.9 MHZ.
- ✈ The contractor may use the onsite restroom facilities.
- ✈ The project will be awarded to the lowest responsive lump sum proposal.

Submitted by:

Bobby Odom, P.E.
Project Manager

Attachments

c All Attendees
Dr. John C. Eagerton, IV, Chief – Aeronautics Bureau

MANDATORY PRE-BID CONFERENCE SIGN-IN SHEET

08/~~05~~09 2:00 PM 8-13-09

#09-R-2208544

FEDERAL ID #	COMPANY NAME	ADDRESS (OR EMAIL)	REPRESENTATIVE NAME
	Jordan Petroleum 675 Jordan Rd Lineville Al 36266	jor pet @ centurytel 256-396-5530	Don Jordan
	Meco Inc 12606 Bolton's Branch Mobile Al. 36604	dave. Sanders @ mecomgm.com 251-471-4311	Dave Cole
	Glenn Kossow Volkert & Assoc Brett Morrow	251 463-2931	
	Mike Wilson South Al. Electric	256 476-2891 SAEmike@comcast.net	Mike Wilson
	Doug Maze MW Equipment	doug.maze@knology.net 256-880-7188	Doug Maze
	Keith Wichmann Wiltew	251 648 3210	K.wichmann@wiltew.com
	John Eagerton ALDOT/Aero.	eagertonj@dot.state.al.us	John Eagerton
	Harris Electric	suite E Hallmill Rd	John Summrall
	Mckinney Petriem	doc@mckinneypetroleum.com kjw@mckinneypetroleum.com	Doc Blair Kevin Wichmann

CONSTRUCT FUEL DISPENSER SYSTEM
PRE-BID AGENDA
VOLKERT PROJECT NO. 766006.10
August 13, 2009

I. INTRODUCTION

II. REVIEW OF SCOPE

- Location
- Fuel System
- Access Roads
- Typical Sections
- Site Work
- Drainage
- Electrical
- Telephone
- Material of Construction

III. WORK SEQUENCE

- Excavation
- Install Drainage Structures
- Install Required Utilites
- Place Fill
- Place Concrete
- Final Grading
- Seeding
- Sodding
- Clean up
- Final Inspection

IV. AIRPORT SAFETY PLAN

- Contractor Haul Routes
- Contractor Site Access
- Contractor Staging Areas

V. SECURITY

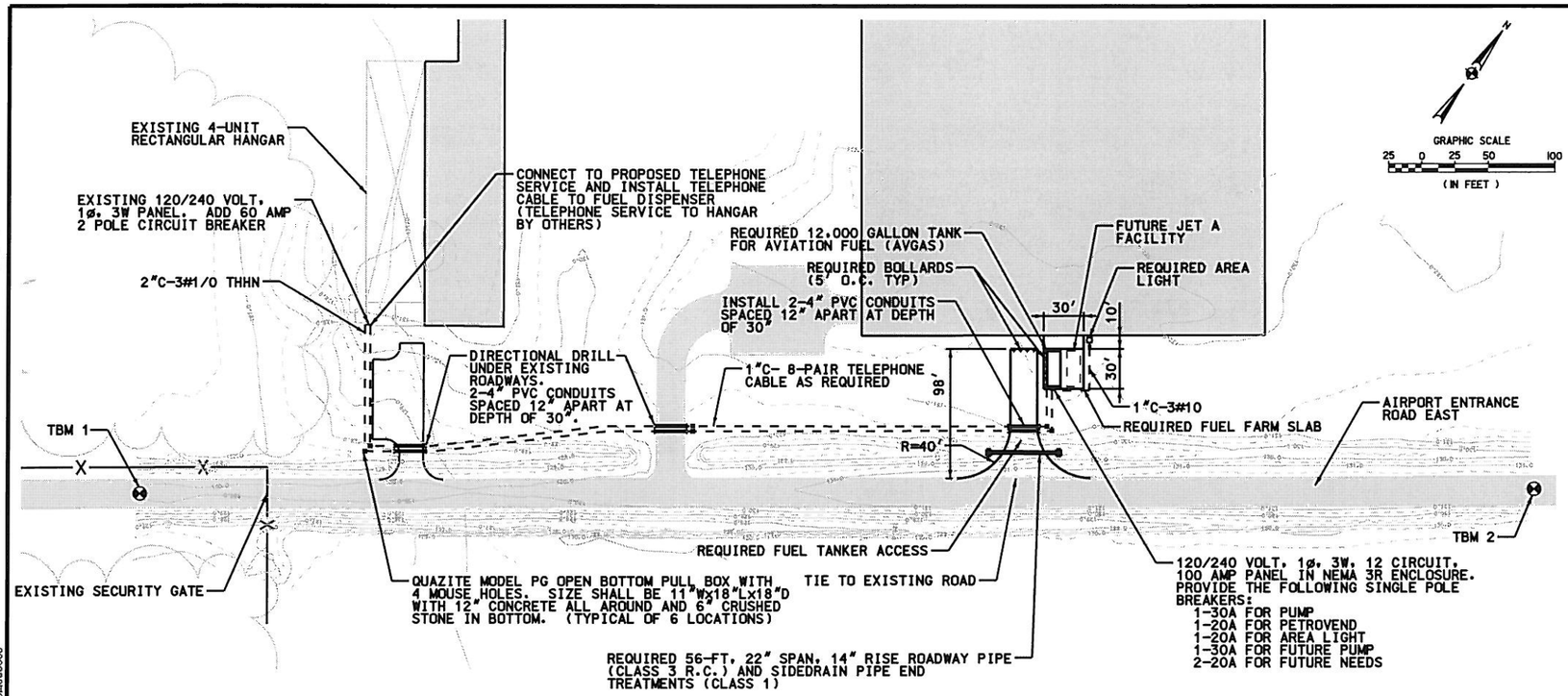
VI. SCHEDULE

VII. DBE AND LABOR REQUIREMENTS

VIII. NOTAMS

IX. MISCELLANEOUS

ALDOT NO.	PROJECT NO.	SHEET NO.
09-R-2208544	766006.10	1



ELECTRICAL SPECIFICATIONS:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE(NEC) AND ALL LOCAL RULES, REGULATIONS AND ORDINANCES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL OBTAIN ALL REQUIRED PERMITS.
3. ALL UNDERGROUND CONDUIT SHALL BE PVC, SCHEDULE 40, SIZE AS SHOWN OR AS REQUIRED.
4. ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL(RGS). THE TRANSITION FROM PVC TO RGS SHALL BE UNDERGROUND.
5. CONDUIT INSTALLED BY DIRECTIONAL DRILL SHALL BE PVC, SCHEDULE 40, HDPE, SIZE AS SHOWN.
6. ALL CONDUCTORS SHALL BE STRANDED COPPER, SIZE AS SHOWN OR AS REQUIRED AND SHALL HAVE 600 VOLT, TYPE THHN INSULATION.
7. ELECTRICAL EQUIPMENT AND CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 500 OF THE NEC WHERE APPLICABLE.
8. AREA LIGHT SHALL BE 250 WATT METAL HALIDE COBRA HEAD ON TWO(2) FOOT MAST ARM AND SHALL HAVE INTEGRAL PHOTOCELL. FIXTURE SHALL BE MOUNTED ON 35'-5 PENTA TREATED POLE. POLE SHALL BE SET 5'-6" IN THE GROUND WITH LIGHT FIXTURE MOUNTED AT TOP OF THE POLE. CONTRACTOR SHALL INSTALL ¾" RGS CONDUIT WITH 3# 10 AWG CONDUCTOR TO SERVE THE LIGHT FIXTURE. STRAP CONDUIT TO POLE WITH 2 HOLE STRAPS AND LAG BOLTS AT 4' MAXIMUM SPACING. POLE SHALL BE GROUNDED WITH #6 AWG SOLID BARE COPPER CONDUCTOR.
9. HDPE CONDUIT CASINGS SHALL BE INSTALLED BY DIRECTIONAL DRILLING WHERE SHOWN ON THE PLANS. CASINGS UNDER THE DRIVE TO THE PUMP AREA MAY BE INSTALLED BY TRENCHING PRIOR TO DRIVEWAY CONSTRUCTION.
10. ELECTRICAL SERVICE SIZE SHOWN IS BASED ON THE USE OF 1.5 HP, 120 VOLT PUMPS. SIZE OF SERVICE MAY BE INCREASED TO ACCOMMODATE LARGER PUMPS; HOWEVER 100 AMP FEEDER IS MAXIMUM SIZE ALLOWED. SERVICE SHALL BE NO SMALLER THAN SHOWN. INSTALL ¾" X 10' COPPERCLAD STEEL GROUND ROD AT PANEL.
11. CONTRACTOR SHALL FABRICATE GALVANIZED RACK TO MOUNT PANEL.
12. CONTRACTOR SHALL INSTALL GROUND RODS AT FUEL DISPENSER SYSTEM IN ACCORDANCE WITH MANUFACTURES INSTRUCTIONS WITH A MINIMUM OF 2 - ¾" X 10' COPPERCLAD STEEL RODS WITH #4 AWG BARE COPPER CONDUCTOR CONNECTED TO FUEL DISPENSER SYSTEM.
13. STATIC GROUND ROD FOR AIRCRAFT GROUNDING SHALL BE CONNECTED TO FUEL DISPENSER SYSTEM GROUND WITH #4 AWG BARE COPPER.
14. INSTALL TELEPHONE TERMINAL BOX ON BACK SIDE OF PANEL RACK FOR CONNECTION OF TELEPHONE CABLE TO FUEL DISPENSER SYSTEM.

CONSTRUCTION CONTROL POINTS

MONUMENT	NORTHING	EASTING	ELEVATION	DESCRIPTION
TBM 1	183029.2727	1725487.2513	130.10	PK NAIL
TBM 2	183555.5520	1726392.6130	131.84	PK NAIL

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION CONTROL ONSITE AND SHALL SUBMIT A DETAILED PLAN PRIOR TO THE START OF CONSTRUCTION ON THE METHOD TO ACCOMPLISH EROSION CONTROL.
2. DRAINAGE PIPES SHALL BE INSTALLED PER SECTION 530 OF THE ALDOT STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION (2008 ED.). REQUIRED DRAINAGE PIPES SHALL BE PLACED AT THE EXISTING DITCH SLOPE.
3. END TREATMENTS SHALL BE INSTALLED PER SECTION 619 OF THE ALDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 2008 EDITION AND PER THE FOLLOWING SPECIAL AND STANDARD DRAWINGS CONTAINED IN THE ALDOT STANDARD DRAWING BOOK (2009 EDITION).

INDEX NO.:	DRAWING NO.:	DRAWING TITLE:
415	HW-614-SP	CONCRETE SLOPED PAVED HEADWALL AND GRATE FOR SIDEDRAIN PIPE

4. THE CONTRACTOR SHALL GRADE THE AREA AROUND THE REQUIRED END TREATMENTS.
5. THE CONTRACTOR SHALL PLACE A 3-FT STRIP OF SOD AROUND THE END TREATMENTS.
6. THE CONTRACTOR SHALL EXCAVATE AS NEEDED TO PROVIDE A MINIMUM OF 2-FT OF BORROW EXCAVATION BELOW REINFORCED CEMENT CONCRETE PAVEMENT.
7. THE EXACT SIZE OF FUEL FARM SLAB SHALL BE ADJUSTED TO MEET THE REQUIREMENTS OF THE FUEL DISPENSER SYSTEM MANUFACTURE.
8. PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE INSTALLED PER SECTION 450 OF THE ALDOT STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION (2008 ED.).
9. EXCAVATION AND EMBANKMENT SHALL BE INSTALLED PER SECTION 210 OF THE ALDOT STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION (2008 ED.).
10. TOPSOIL SHALL BE INSTALLED PER SECTION 650 OF THE ALDOT STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION (2008 ED.).

NO.	DATE	DESCRIPTION	BY
		REVISIONS	

DESIGNED: G.B.M. CHECKED: B.R.O.
DETAILED: G.B.M. CHECKED: B.R.O.
SCALE: AS NOTED DATE: 08/06/09

VOLKERT & ASSOCIATES, INC.

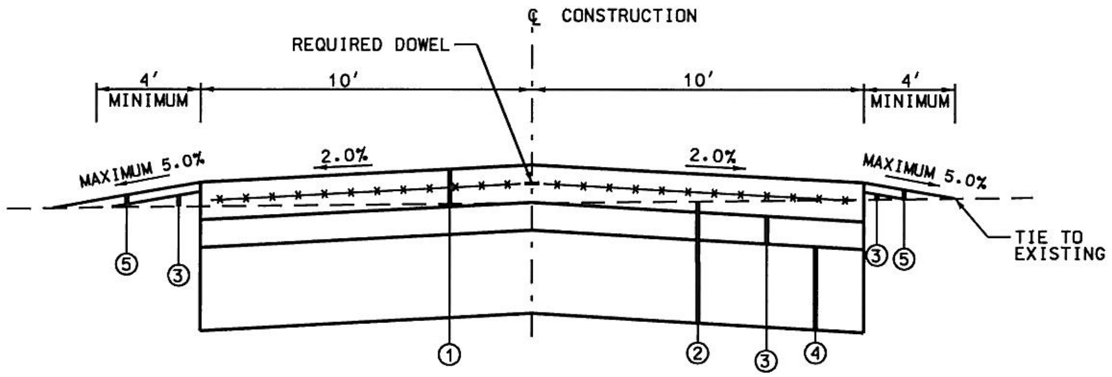
ST. ELMO AIRPORT
ST. ELMO, ALABAMA

PROJECT LAYOUT

FUEL DISPENSER SYSTEM

PROJECT NO. 766006.10
SHEET NO. 1

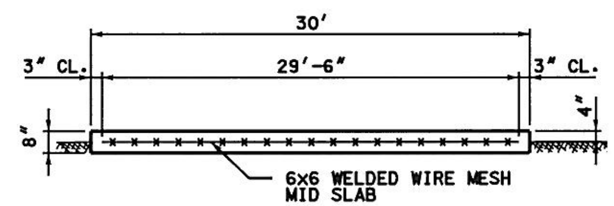
ALDOT NO.	PROJECT NO.	SHEET NO.
09-R-2208544	766006.10	2



FUEL TANKER ACCESS - TYPICAL SECTION

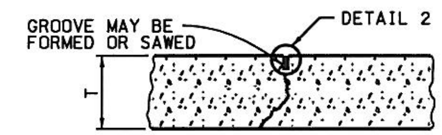
N.T.S.

LEGEND	ITEM
1	REINFORCED CEMENT CONCRETE PAYMENT, 8 INCHES THICK 4000 P.S.I.
2	UNCLASSIFIED EXCAVATION (SEE NOTE 6)
3	BORROW EXCAVATION 6" SAND CLAY (95% SPD)
4	BORROW EXCAVATION 18" CLEAN COURSE SAND (95% SPD)
5	TOPSOIL (4" COMPACTED THICKNESS)



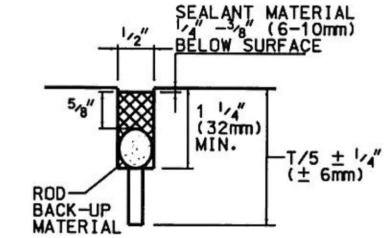
FUEL FARM SLAB SECTION

N.T.S.



CONTRACTION JOINT

N.T.S.

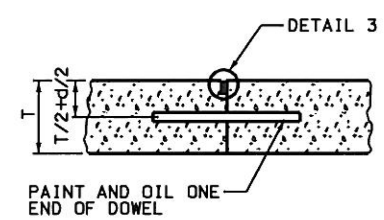


DETAIL 2

N.T.S.

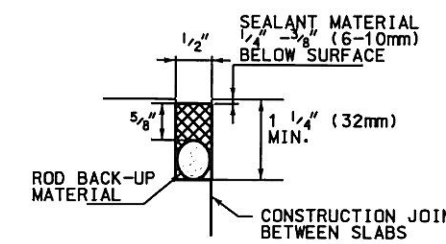
DETAIL NOTES:

1. CONCRETE SHALL BE BROOM FINISHED.
2. CONTRACTION JOINTS SHALL BE EQUALLY SPACED ALONG ACCESS. (MAXIMUM 10')
3. JOINT SEALING MATERIAL SHALL MEET THE REQUIREMENTS OF ASTM D 7116 STANDARD SPECIFICATION FOR JOINT SEALANTS, HOT APPLIED, JET FUEL RESISTANT TYPES, FOR PORTLAND CEMENT CONCRETE OR OWNER APPROVED EQUAL.



TYPE D-DOWELED

N.T.S.

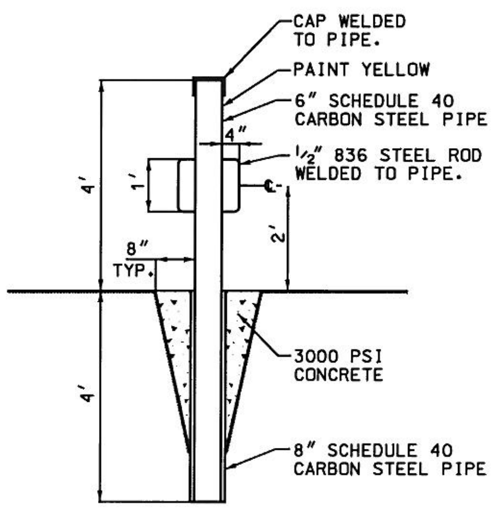


DETAIL 3

N.T.S.

CONSTRUCTION JOINTS

DOWEL DIMENSIONS AND SPACING			
SLAB THICKNESS	DIAMETER	LENGTH	SPACING
ALL	1 INCH	19 INCH	12 INCH



REMOVABLE BOLLARD DETAIL

N.T.S.

NO.	DATE	DESCRIPTION	BY
REVISIONS			

DESIGNED: G.B.M.	CHECKED: B.R.O.
DETAILED: G.B.M.	CHECKED: B.R.O.
SCALE: AS NOTED	DATE: 08 /06 /09

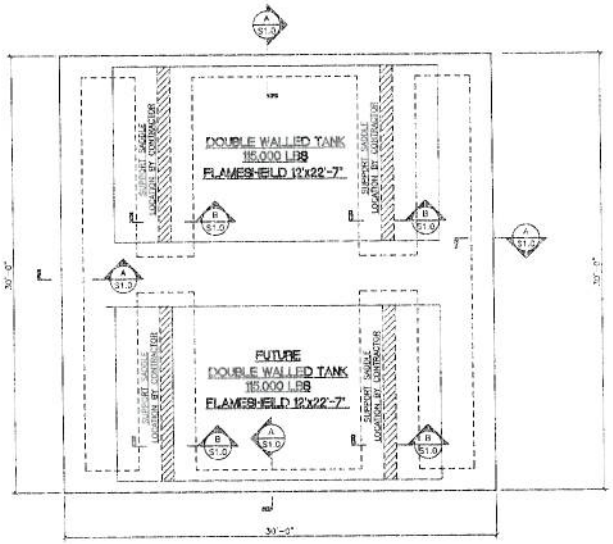
VOLKERT & ASSOCIATES, INC.

ST. ELMO AIRPORT
ST. ELMO, ALABAMA

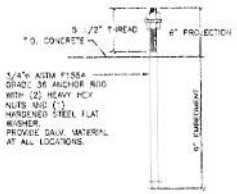
PROJECT DETAILS

FUEL DISPENSER SYSTEM

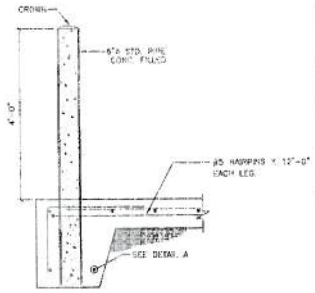
PROJECT NO. 766006.10
SHEET NO. 2



TANK FARM FOUNDATION PLAN
1/4" = 1'-0"

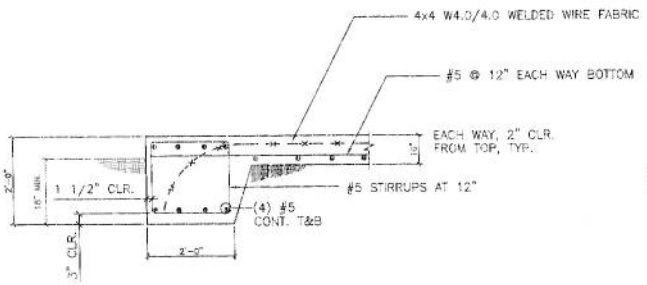


3/4" DIA. ANCHOR ROD DETAIL

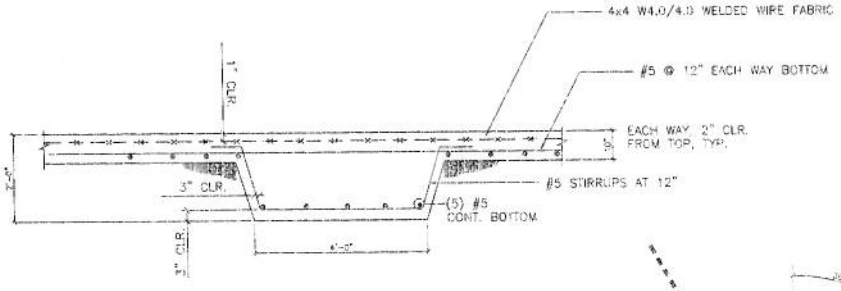


OPTIONAL BOLLARD @ PERIMETER FOOTING

SECTION
1" = 1'-0"



SECTION
1/2" = 1'-0"



SECTION
1/2" = 1'-0"

#5 HAIRPIN DETAIL

J. Martin Pitts P.E.
Civil Engineering
Structural Engineering

ST. ELMO AIRPORT
FUEL DISPENSER
VOLKERT & ASSOCIATES
MOBILE, ALABAMA

DATE
DESIGNED BY
DRAWN BY
PROFESSIONAL
PROJECT ARCHITECT
VOLKER PROJECT NUMBER

SHEET TITLE
FOUNDAITON
PLAN
AND
DETAILS

SHEET NUMBER
S1.0

ALABAMA DEPARTMENT OF TRANSPORTATION

STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

2008 EDITION

107.23 Hazardous and Toxic Waste.

When the Contractor's operations encounter or expose any abnormal, or potentially abnormal, condition which may indicate the presence of a hazardous and/or toxic waste, such operations shall be discontinued in the vicinity of the abnormal condition and the Engineer shall be notified immediately. The presence of barrels, discolored earth, metal, wood, visible fumes, abnormal odors, excessively hot earth, smoke or anything else which appears abnormal may be indicators of hazardous and/or toxic wastes and shall be treated with extraordinary caution.

The Contractor shall not resume operations in the vicinity of the abnormal condition until so directed by the Engineer. Disposition of the hazardous and/or toxic waste shall be made in accordance with the requirements and regulations of the Alabama Department of Environmental Management, these specifications, and as directed by the Engineer.

Where the Contractor performs work necessary to dispose of hazardous and/or toxic waste, payment will be made at the unit prices for pay items included in the contract which are applicable to such work. When the contract does not include such pay items, payment will be made as provided in Article 109.04 for extra work.

SECTION 108
PROSECUTION AND PROGRESS

108.01 Subletting and Assignment.

(a) SUBLETTING.

1. LIMITATIONS OF THE EXTENT OF SUBLETTING.

The Contractor shall not sublet the contract or any portion thereof, or of his right, title, or interest therein, without written consent of the Engineer. If such consent is given, the Contractor will be permitted to sublet a portion of the work, but shall perform with his own organization, work amounting to not less than 30 percent of the total contract cost. A Contractor that does not perform at least 30 percent of the work with his own organization may be disqualified from further bidding and may not be approved for work in any role or capacity on an ALDOT project.

Work performed without sublet approval will be designated as unauthorized work as noted in Article 105.11.

Any items designated in the contract as "specialty items" may be performed by subcontract and the cost of such specialty items performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the contractor with his own organization. No subcontracts, or transfer of contract, shall relieve the Contractor of his liability under the contract and bonds.

The Department reserves the right to disapprove a request for permission to sublet when the proposed Subcontractor has been disqualified from bidding for those reasons listed in Subarticle 102.02(b).

2. SUBCONTRACTOR'S STATUS.

A Subcontractor shall be recognized only in the capacity of an employee or agent of the Contractor and his removal may be required by the Engineer, as in the case of an employee.

(b) ASSIGNMENT.

The performance of the contract may not be assigned, except upon the written consent of the Director. Consent will not be given to any proposed assignment which would relieve the original Contractor or his surety of their responsibilities under the contract nor will the Director consent to any assignment of a part of the work under the contract.

The Contractor may assign moneys due or to become due him under the contract, if such assignment is approved by the Director, to the extent permitted by law, but any assignment of moneys shall be subject to all proper set-offs in favor of the Department and to allow deductions provided for in the contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the Department for the completion of the work in the event that the Contractor should be in default therein.

An assignment by operations of law or assignment for the benefit of creditors, or the bankruptcy of the Contractor, shall not vest any right in this contract in the Trustee in bankruptcy, the Contractor's creditors, or the agent of the creditors.

In no case will the Department make the warrant payable to anyone other than a party to the contract and; therefore, if the contractor assigns the proceeds of his contract to a bank or other individual or company, approval of the assignment by the Director only constitutes an agreement to make the warrants payable to the contractor and for it to be mailed to the address of the party to which the contract is assigned.

108.02 Notice to Proceed.

(a) GENERAL.

A notice to proceed shall be issued by the Engineer within 15 calendar days after final execution of the contract by the Director and approval by the Governor, unless both parties agree in writing to a stipulated extension in time for the issuance of a notice to proceed. Unless the Contractor is otherwise notified in writing, it shall be understood that the mailing or the delivery to the Contractor or his authorized agent, of a copy of the executed and approved contract and bonds or the mailing of written notice by the Engineer or receipt of telegraphic notice from the Engineer, that the contract has been approved by the Governor, shall constitute the notice to proceed. If the Contractor is notified in writing that none of the above shall constitute notice to proceed, he shall not commence work until receipt of a written notice to proceed signed by the Engineer.

(b) TIME OF BEGINNING WORK.

Unless otherwise directed in writing by the Engineer, the Contractor will be expected to begin work within 15 calendar days after issuance of notice to proceed.

108.03 Progress Schedule of Operations.

Prior to the Preconstruction Conference, the Contractor shall submit a satisfactory, comprehensive bar graph schedule of operations to the Division Engineer on all projects which have a contract time in excess of 90 working days or 180 calendar days. This schedule shall be on Form C-10 furnished by the Department at the time of contract award. Said schedule of operation shall provide a bar for each major phase of construction such as, but not limited to, clearing and grubbing, grading, drainage structures, bridges, base, shoulders, paving, etc. with an estimated start and completion date for each bar and an overall project completion date, all within the specified contract time. The Engineer may order the submittal of a bar graph schedule of operation on any project which has a contract time less than that specified above should he deem such necessary for project control.

A revised bar graph schedule and completion update may be required within ten days of the occurrence of any one of the following conditions: (1) at each major change from the original submitted, (2) when a time extension is granted, and (3) when a revised bar graph schedule is requested by the Engineer.

When a Critical Path schedule is required in the proposal, this schedule will be used in lieu of the bar graph schedule of operation in evaluating work progress. In such case, the same time frame noted in this Article for the original submittal along with the update requirements will apply.

The Engineer's approval of the aforementioned Schedule of Operations does not waive any contract requirements.

108.04 Prosecution of Work.

(a) PRECONSTRUCTION CONFERENCE.

The Contractor and Subcontractors shall attend a preconstruction conference scheduled by the Engineer and shall be prepared to describe how the work will be prosecuted.

The preconstruction conference will be held after the award of the contract and prior to the commencement of any field work on any contract pay item.

(b) SOIL EROSION AND STORMWATER MANAGEMENT.

1. COMPLIANCE AND PROGRESS.

If the Contractor fails to comply with the requirements given in the Erosion and Sediment Control Plan (ESCP), the accepted Stormwater Management Plan (SWMP) or the directions of the Engineer, the Engineer may order the Contractor to discontinue all operations except the work involved in erosion control until the requirements are met. Failure of the Engineer to observe the work of the Contractor does not relieve the Contractor of responsibility for the prevention of soil erosion and the control of sediment.

Should regulatory enforcement actions or complaints of damage to public or private property arise from sediment leaving ALDOT rights of way, the Contractor shall participate in the

investigation, reporting and mitigation that is required to address these actions and complaints. The Contractor shall obtain professional services that may be required to assist with the mitigation. The Contractor will only be reimbursed for the portion of the cost of the mitigation work that the Engineer determines should be paid for by the Department. The Contractor is not expected to make direct response to regulatory agencies when the Contractor is not listed by name on the permit for the work.

The installation of temporary soil erosion and sediment control BMPs shall be done in coordination with the installation of the permanent erosion control features to assure effective continuous erosion control throughout the life of the project. The Contractor will be required to construct, install and maintain all permanent erosion control features as grading advances.

2. MANUFACTURER RECOMMENDATIONS FOR MANUFACTURED DEVICES.

The Contractor shall furnish the manufacturer's recommendations for material selection, installation and maintenance of any manufactured BMP or manufactured component of a BMP. This information shall be provided to the Engineer prior to any manufactured BMP or component being installed.

3. STORMWATER MANAGEMENT PLAN.

The contractor shall prepare a Stormwater Management Plan (SWMP). Three copies of the plan shall be submitted to the Division Construction Engineer prior to the preconstruction conference. The plan shall provide sequences and details of all erosion and sediment control work, clearing and grubbing operations, grading operations and operations establishing permanent erosion control features. The SWMP shall include operational details and personnel and equipment that will be dedicated to implementing the plan at all phases of the work. Written acknowledgement of the filing of Notices of Registration (NORs) for any offsite waste areas or pits should be included in the plan. The details for proposed temporary encroachments into streams, water bodies and wetlands and requests to store fuel tanks on ALDOT right of way should also be included in the plan.

The SWMP is required for all projects regardless of the type of work, funding or regulatory permitting. The SWMP is required for all projects regardless of whether or not an "Erosion and Sediment Control Plan" is shown in the plans. Work may not begin until the SWMP has been accepted as complete by the Engineer.

An electronic SWMP template provided by ALDOT shall be used to create the submitted plan. Submitted SWMPs will not be considered complete if the provided template has been modified.

4. FUEL TANKS.

Any requests to store a fuel tank on the project right of way shall be included in the SWMP. If requested, the SWMP shall also contain a spill prevention control and countermeasures (SPCC) Plan developed to meet requirements of ADEM and EPA. The use of onsite fuel storage tanks will not be allowed if this is shown to be prohibited on the plans.

5. EROSION AND SEDIMENT CONTROL PLAN.

When an "Erosion and Sediment Control Plan" (ESCP) is included in the plans, the Contractor shall comply with the requirements of the design details as shown. The ESCP may be modified by the accepted SWMP or by the Engineer as conditions warrant. BMPs shall be installed in an effective manner and at all locations directed or permitted by the Engineer regardless of the BMP quantities and locations depicted on the ESCP.

6. QUALIFIED CREDENTIALED INSPECTOR.

The Contractor shall assign a Qualified Credentialed Inspector (QCI, certified by ADEM and verified by ALDOT) to each project. ADEM certification and ALDOT verification will not be required for the Contractor QCI assigned to bridge coating projects where there is no potential for ground disturbance and no potential for the project to be considered a significant source of pollutants to a waterbody of the State. The name, phone numbers and credentials of this person shall be included in the SWMP presented prior to the preconstruction conference and whenever a substitute Contractor QCI is requested by the Contractor. The Contractor QCI shall have full authority for the implementation of the SWMP. Along with other duties, the Contractor QCI shall:

- be assigned the authority by the Contractor to mobilize crews to make immediate repairs to controls during working and non working hours;
- inform the Contractor's superintendent and management of all stormwater related issues;
- inspect BMPs on a daily basis to ensure that all controls are in place at all times and ensure conformance with the contract documents;

- be knowledgeable of the location and condition of all discharge points within the project limits;

- guide and direct the Contractor's forces during the installation, maintenance and correction of all BMPs;

- accompany ADEM and ALDOT inspectors on all regulatory stormwater inspections described in Section 107;

- work with the project personnel to ensure that any unsatisfactory or noncompliant issues are addressed in a timely manner.

There will be no direct compensation for the assignment of a Contractor QCI to the project. Having a QCI certified Superintendent is encouraged and is to the benefit of both the Contractor as well as ALDOT.

7. STORMWATER MEETING.

A Stormwater meeting shall take place after the preconstruction conference and prior to the beginning of work. This meeting shall take place at the project site. Attendees should include ADEM representatives, ALDOT construction personnel including the Division Stormwater Coordinator, the Contractor's QCI, the Contractor's superintendent and any subcontractors that will be involved in clearing, earthwork, seeding or erosion and sediment control operations. The ESCP, the SWMP, clearing limits and sequence of construction shall be among items discussed. Project discharge points, adjacent property and water bodies should be observed and discussed during this meeting. Any existing storm water problems or issues should also be discussed and documented. The Contractor shall notify all subcontractors of this meeting. ALDOT will notify all applicable regulatory agencies.

8. LIMIT OF EXPOSURE OF ERODIBLE MATERIAL.

No more than 17 acres {7.0 ha} of erodible material shall be exposed at any time without prior approval of the Engineer. Consideration for increasing this limit will be given upon written request and presentation of an acceptable justification for the increase. The written request shall include an operation plan ("mass haul" diagram) and descriptions of personnel and equipment to be utilized for this work. The request shall be included in the SWMP submitted prior to the preconstruction conference. Any approval to increase the area of exposure will be rescinded if adequate erosion and sediment control measures are not satisfactorily installed and maintained. Requests for approval for unnecessary clearing will be considered only if provisions for erosion control are proposed to be implemented at the Contractor's expense.

(c) NOTICE OF INTENT.

The Contractor shall give the Engineer definite notice of his intention to start work at least 72 hours in advance of beginning work and at least 24 hours in advance of beginning particular features of construction, such as driving piles, placing concrete, et cetera. Should prosecution of the work be discontinued by the Contractor with the consent of the Engineer, the Contractor shall give the Engineer at least 48 hours notice in writing before resuming operations.

(d) CONTINUOUS PROSECUTION OF THE WORK.

The Contractor shall prosecute the work continuously and diligently in the order and manner set out in his schedule or prescribed by the Engineer. He shall provide sufficient satisfactory materials, labor, and equipment to guarantee the completion of the project in accordance with the plans and specifications within the time specified in the contract.

Should the Contractor fail to maintain a satisfactory rate of progress, the Engineer will require that additional forces and equipment be placed on the work to bring the project up to schedule and maintain it at that level. Failure to maintain the quality and progress of the work shall be cause for the Engineer to withhold all estimates which are or may become due, until satisfactory quality and progress are maintained; or the contract may be annulled as provided in Article 108.12.

(e) UNSATISFACTORY PROGRESS.

Should the Contractor fail to maintain a satisfactory rate of progress in performance of the work, prior to expiration of the contract, the following regulation shall apply:

After preparation of the Contractor's monthly estimate, the Department will review the progress of the work. The dollar amount of the work performed will be the total dollar amount that has been paid minus the dollar amount of partial payments for stored materials. The percentage of work performed will be based on the dollar amount of work performed and the total contract amount. This will be compared to the percentage of contract time elapsed. If the percentage of the work performed, as compared to the percent of contract time elapsed, is behind by more than 25

percentage points, a warning notice of possible disqualification will be sent to the Contractor by certified mail, return receipt requested (appropriate credit will be allowed for any extension previously approved in conformity with Article 108.09). Said warning notice will note the unsatisfactory progress revealed by the computation and that ten days will be allowed from the date of receipt of the warning in which to bring his progress within the allowed 25 percent, complete the project, or furnish acceptable reasons why he should not be given a final notice of disqualification. At the end of the 10-day period, if the Contractor's progress is not within the allowed percentage, nor has acceptable reason been furnished to waive final disqualification, the Department will issue a final notice of disqualification.

108.05 Limitation Of Operation.

The Contractor shall conduct the work at all times in such a manner and in such sequence as will insure the least interference with traffic. He shall have due regard to the location of detours and to the provisions for handling traffic. The Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional section if the opening of such section is essential to public convenience.

108.06 Character of Workmen, Methods, and Equipment.

The Contractor shall at all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these specifications.

All workmen shall have sufficient skill and experience to perform properly the work assigned to them. Workmen engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily.

Any person employed by the Contractor or by any Subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or Subcontractor employing such person, and shall not again be employed in any portion of the work without the approval of the Engineer.

Should the Contractor fail to remove such person or persons as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other highways will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that he demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the contract.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods of equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in contract time as result of authorizing a change in methods or equipment under these provisions.

108.07 Temporary Suspension of Work.

(a) AUTHORITY TO SUSPEND.

The Engineer shall have the authority to suspend the work wholly or in part by written order to the Contractor for such period or periods as he may deem necessary due to either of the following reasons:

1. Failure on the part of the Contractor to carry out orders given or to perform any provision of the contract in which case time will be charged and no time extension will be granted, or

2. Unsuitable weather or other essential conditions of a highly unusual or unpredictable nature which he considers unfavorable for the suitable prosecution of the work in which case either time charges will be suspended or a time extension will be granted.

Upon suspension, the work shall be put in proper and satisfactory condition, carefully covered and properly protected, as directed by the Engineer. Reference is made to Article 105.13.

(b) LEGAL STOPPAGE OR TERMINATION.

Should the progress of the work be stopped by a temporary injunction, court restraining order, process of judgment of any kind directed to either of the parties hereto, then such period of delay will not be charged against the contract time. The State shall not be liable to the Contractor for the said legal delays of 120 calendar days or less, or for termination of the contract because of a legal order except as provided in Subarticle 108.14(b). Consideration will be given to properly documented added costs for a legal delay in excess of 120 calendar days, if submitted in accordance with Section 110, Claims. If a herein noted delay is of such duration as not to be in the best interest of the State, as determined by the Director, he may, by written order, terminate the contract in the same manner prescribed in Subarticle 108.14(c) for termination of a contract.

(c) AUTOMATIC TIME SUSPENSION.

Time will be suspended on calendar day projects during periods when no work can be performed on the project due to operational check periods or seasonal limitations when such periods are required by the specifications. Time will also be suspended for specification mandated curing periods for placement of permanent traffic stripe when all other work has been completed and the traveling public has full use of the highway.

(d) SUSPENSION CONSIDERATIONS.

If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Engineer will notify the Contractor of his determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

108.08 Determination of Contract Time.

(a) GENERAL.

The number of working days or calendar days allowed or the calendar date specified for completion of the work included in the contract will be fixed by the Department, will be stated in the proposal and contract, and will be designated as the contract time.

(b) BEGINNING AND END OF CONTRACT TIME.

Contract time charges shall begin when the Contractor begins work on a pay item or on incidental work that will interfere with traffic, but in no case later than 15 calendar days after date of issue of "notice to proceed." Time charges shall end upon satisfactory completion of all pay items in the contract.

(c) DAYS WORK NOT PERMITTED.

The Contractor shall not permit work on any pay item to be done on Sundays and the following holidays: National Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day, except with written permission of the Engineer.

(d) MONTHLY STATEMENT AND TIME CHARGES.

1. CONTRACTS ON A WORK DAY BASIS.

For projects on a working day basis, the Engineer will furnish the Contractor a monthly time statement for the preceding month. This time statement will show the number of working days charged as outlined in the definition of Working Day in Subarticle 101.01(b), the number of working days in the contract, and the number of working days remaining to complete the contract.

Under the provisions of Article 105.01, the Engineer will determine the controlling item or items of work based on consideration of the Contractor's approved Schedule of Operations and the operations that should be in progress at the time to provide for the orderly completion of the work within the contract time. Consideration to not charging time will be given when delays of six hours or more occur when the causes for delays may be due to, but not restricted to the following:

1. Unavoidable causes beyond the control of the Contractor, without fault or negligence on his part.
2. Contractor's proof (in form of letters from suppliers) of inability to obtain materials due to a regionwide shortage of such materials.
3. Failure on the part of a utility company to diligently perform work not under the control of the Contractor.
4. Acts of the Department.
5. Recovery Time.
6. Strikes.

A working day will not be charged when the placement of hot mix asphalt is the controlling item of work and the start up operation is in an adjustment period unless the plant resumes production.

Upon receiving the monthly time statement, the Contractor shall review the statement and compare the time charges with his records. If the Contractor disagrees with the time charges on the statement, he shall file a written protest setting forth the reasons why he considers the monthly time statement incorrect. The Contractor is encouraged to file any such protest as soon as possible after receiving the time statement.

2. CONTRACTS ON A CALENDAR DAY OR DATE BASIS.

For projects on a calendar day or calendar date basis a similar statement will be furnished the Contractor indicating the number of calendar days remaining in the contract.

108.09 Extension of Contract Time.

(a) GENERAL.

An extension of contract time will be granted in the event the total cost of the completed work exceeds the total contract bid price. For the purpose of this item, the following costs will be excluded from the computation for total cost: (i) supplemental agreements on which time has been granted, (ii) bituminous material price adjustments, (iii) liquidated damages, (iv) incentive or disincentive payments, (v) price adjustments for pavement rideability, and (vi) compensation for delay claims. The extension of contract time shall be in the same ratio as the increase in the total cost.

If the Contractor finds it impossible for reasons beyond his control to complete the work within the contract time as specified or as extended in accordance with the provisions of this Article, he may at any time prior to the expiration of the contract time as extended, make a written request to the Engineer for an extension of time setting forth therein the reasons which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect the same as though it were the original time for completion. If the Contractor disagrees with the decision of the State Construction Engineer, he may appeal directly, in writing, to the Director. The Director shall have final authority to approve or disapprove the request for an extension of time. The Director may, at his discretion, refer the appeal to the Claims Committee for a recommendation before

making his decision. Reference is made to Section 110, Claims. Time extension requests will not be referred to the Claims Appeal Board.

(b) CONTRACTS ON A WORKING DAY BASIS.

When the time set for completion of the work is a number of working days, extensions of contract time will be handled as outlined in Subarticle (a) above.

(c) CONTRACTS ON A CALENDAR DAY OR CALENDAR DATE BASIS.

When the time set for completion of the work is a number of calendar days or a calendar date, working days are not applicable. Extension of time beyond the said calendar days or date will be made as follows:

When the notice to proceed is delayed more than 15 calendar days after execution of the contract, the date of completion will be extended the number of calendar days in excess of 15 days between the date of execution of the contract and the date of actual issuance of the notice to proceed.

Where work is suspended by order of the Engineer due to no fault of the Contractor, and time is not suspended, a time extension will be granted for the number of calendar days the work is so suspended.

A time extension will be granted as provided in Subarticle 107.08(b).

A time extension will be granted as outlined in the first paragraph of Subarticle (a) above.

The following are valid reasons for time extensions when delays due to these causes are considered by the Department of Transportation to be beyond the control of the Contractor:

1. Utility Work being performed by others not under the Contractor's control that prohibit the Contractor's construction operations from proceeding with the normal working forces he would otherwise employ in performing the controlling item, or items, of work which normally would be in progress at the time said Utility work is being accomplished.
2. Recovery time as defined in Article 101.01.
3. If in the course of work material delivery time is in excess of that normally anticipated due to demands beyond the supplying industries' capabilities provided such materials are necessary for the prosecution of the controlling items of work at that time and such can be substantiated by the Contractor in the form of letters from suppliers, the Department will consider a time extension for the delay caused by the lack of available materials.
4. If in the course of this project the Contractor feels he has been unjustly penalized because of delays in Departmental decisions, he may submit for consideration by the Engineer written specific data covering the item or items and the time element involved. The Department will consider only an extension for the actual work delay caused by the delay in obtaining a decision.
5. If in the course of the work, strikes occur while the Contractor is working in good faith and such was not caused by action of the Contractor, the Department will consider a time extension for the delay caused by the strike.

When allowing a time extension under the provisions noted in this Subarticle, consideration in determining the adjusted completion date for the work will be given to allow additional time to compensate for seasonal conditions, weather and other factors not under control of the Contractor. Should the Contractor, after exercising a concerted effort to diligently prosecute the work taking full advantage of every available work day, not be able to complete the work within the adjusted completion time because of non-availability of days in which work can be performed, the Department may consider an additional extension of time for the work.

108.10 Failure to Complete Work Within Contract Time.

Should the Contractor, or in case of default, the surety, fail to complete the work within the time stipulated in the contract or the adjusted time as granted under the provisions of Article 108.09, a deduction for each calendar day or work day that any work shall remain uncompleted, an amount indicated by the Liquidated Damages Schedule shown in Article 108.11 or provided in the contract documents shall be deducted from any monies due the Contractor on monthly estimates. Any adjustments due to approved time extensions or overruns in the contract amount will be made on the monthly, semi-final or final estimate as may be appropriate.

Liquidated damages assessed as provided in these Specifications is not a penalty, but is intended to compensate the State for increased time in administering the contract, supervision, inspection and engineering, particularly that engineering and inspection which requires maintaining normal field

project engineering forces for a longer time on any construction operation or phase than originally contemplated when the contract period was agreed upon in the contract.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Department of any of its rights under the contract.

108.11 Schedule of Liquidated Damages.

Original Contract Amount		Liquidated Damages Daily Charge	
More Than	To and Including	Calendar Day or Fixed Date	Work Day
$ 0	$ 500,000	$ 250	$ 500
500,000	1,000,000	500	1000
1,000,000	2,000,000	900	1800
2,000,000	5,000,000	1300	2600
5,000,000	10,000,000	1600	3200
10,000,000	- - - - -	1800	3600

When the contract time is on the calendar day or date basis, the schedule for calendar days shall be used. When the contract time is on a work day basis, the schedule for work days shall be used.

108.12 Default of Contract.

If the Contractor:

1. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or
2. Fails to perform the work with sufficient workmen and equipment or with sufficient materials to assure the prompt completion of said work, or
3. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
4. Discontinues the prosecution of the work, or
5. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
6. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
7. Allows any final judgement to stand against him unsatisfied for a period of 10 days, or
8. Makes an assignment without the consent of the surety and approval of the Department, or
9. Fails to furnish documentation necessary for final acceptance and payment, or
10. Fails to carry out provisions of the contract, or
11. For any other cause whatsoever, fails to carry on the work in an acceptable manner,

the Engineer will give notice in writing to the Contractor and his surety for such delay, neglect, or default.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Department will, upon written notification from the Engineer of the fact of such delay, neglect or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Department may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Department, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due said Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the Surety shall be liable and shall pay to the Department the amount of such excess.

Notice to the Contractor shall be deemed to be served when delivered to the person in charge of any office used by the Contractor, to his representative at or near the work, or by certified letter, return receipt requested, addressed to the Contractor at his last known place of business.

In addition to the provisions provided in this Article, failure of the Contractor to sign the final estimate within the time limits prescribed in Subarticle 109.12(d) will be classified as a default.

108.13 Blank.

108.14 Termination of Contractor's Responsibility.

(a) GENERAL.

The Contract will be considered complete when all work has been finished, the final inspection made by the Engineer, the project accepted by the Department, the necessary advertisements published, all in accordance with the provisions of Article 105.15, and the final estimate paid. Upon completion of the above, the Contractor's responsibility will then cease, except as set forth in his bonds.

(b) SPECIAL CONDITIONS.

Should the Department find that the Contractor is unable to complete his contract work due to the inability to obtain specified materials or satisfactory substitutes therefor or labor, because of laws, rules or regulations placed into effect or the inability of industry to produce specified materials within a reasonable time; the Director may, by written notice, relieve the Contractor from that portion of the contract which cannot be performed. Also, should the State determine that further prosecution of the work on a project will not be in the best interest of the public, the Director may, by written order, eliminate or delete any or all remaining items of work on a contract.

The deletion or elimination of work under the above conditions will in no way affect the unit prices bid in the contract. Work actually performed will be paid for at the contract unit prices. Should relief from performance of the contract or any portion thereof directly cause the loss of any work or materials already furnished under the terms of the contract, the Contractor will be reimbursed for the actual cost of salvaging the materials or as mutually agreed to.

Materials obtained by the Contractor, which have been inspected, tested and accepted by the Engineer but not incorporated into the work may, at the option of the Engineer, be purchased in accordance with the provisions of Article 109.06.

If, by the deletion of work items, the volume of work completed is too small to compensate for the organization and moving of equipment to and from the work, consideration will be given to reimbursement for actual costs thereof; the intent being that an equitable settlement be made; compensation for this, however, shall not exceed the percentage differentiation between plan quantities and actual quantities performed, and if 75% of the estimated work was performed, no compensation for the organization and moving of equipment to and from the work will be allowed. In no event will a claim for loss of anticipated profits be considered. The deletion or elimination of work under the above conditions shall in no way relieve the Contractor from his responsibility for work actually performed nor any just claims as a result thereof.

Final termination of the contract shall be as noted in Subarticle (a) above, for the work completed.

(c) NATIONAL EMERGENCY.

The Director may, by written order, terminate the contract or a portion thereof when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When contracts, or any portion thereof, are terminated before completion of all items of work in the contract, payment will be made for the actual units or items of work completed at the contract unit price bid, or as mutually agreed for items of work partially completed or not started. No claim for loss of anticipated profits will be considered.

Reimbursement for organization of the work and moving equipment to and from the job will be considered where the volume of work completed is small to compensate the Contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained by the Contractor for the work, that have been inspected, tested, and accepted by the Engineer, and are not incorporated in the work may, at the option of the Engineer, be purchased from the Contractor in accordance with the provisions of Article 109.06.

Final termination of the contract shall be as noted in Subarticle (a) above, for the work completed.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:
209-A Mailbox Reset, ___*___ - per each
* Specify "Single", "Double", or "Multiple", etc.

SECTION 210
EXCAVATION AND EMBANKMENT

210.01 Description.

The work under this Section shall cover the excavation, hauling, disposal, or compaction of all material not being removed under some other item which is encountered within the limits of the work and is necessary for all construction in accordance with these specifications and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Engineer. All excavation covered in this section will be classified as "Unclassified Excavation", "Muck Excavation", "Channel Excavation", or "Borrow Excavation", as described in this Section.

Attention is directed to the fact that the roadbed must be treated by one of the methods specified in Section 230, 231 or 232 before the placement of an overlying subbase, base, or paving structure will be permitted.

210.02 Materials.

(a) GENERAL.

All excavation within the right of way or easement limits will be known as Roadway and Drainage Excavation and will be classified as "Unclassified Excavation", "Muck Excavation" or "Channel Excavation". Excavation outside of the right of way or easement limits will be classified as "Borrow Excavation."

(b) ROADWAY AND DRAINAGE EXCAVATION.

Soils data indicated on the plans is for estimating purposes only and the Department does not guarantee the accuracy thereof. Material designated for removal under embankment areas will be reclassified according to its condition at the time of removal.

1. UNCLASSIFIED EXCAVATION.

Unclassified Excavation shall consist of the excavation of all materials of whatever character encountered in the work, except Channel Excavation or Muck Excavation when such items are included as separate pay items in the plans or proposal.

2. CHANNEL EXCAVATION.

Channel Excavation shall consist of the excavation, removal, and disposition as noted or directed of all material necessary to provide inlet and outlet ditches or channels for drainage structures in accordance with plan details. However, unless specifically designated by plan details, such excavation will be classified as Unclassified Excavation.

3. MUCK EXCAVATION.

Material unsuitable for immediate reuse due to organic content, saturated to the extent it is somewhat fluid, and must be moved by dragline, dredge, or other similar type equipment which operates outside the area being excavated, will be classified as muck.

Unless explicitly authorized otherwise by the Engineer, before material is classified by the Engineer as muck, the Contractor will be required to demonstrate that the material cannot be removed by conventional methods and equipment normally used in the unclassified excavation operation. Conventional equipment includes all types of scrapers and dozers. If no item for Muck Excavation is provided in the plans or proposal, such excavation will be classified as Unclassified Excavation and payment will be made as outlined in Item 210.10(a)1.

(c) BORROW EXCAVATION.

Prior approval of all borrow sources must be given; however, this does not relieve the Contractor from the full responsibility for the quality and quantity of the material used. Materials for borrow shall be in accordance with the following:

1. EMBANKMENT.

Materials furnished for embankments above water and below subgrade shall be any stable material which can be compacted to the specified density.

2. IMPROVED ROADBED.

Materials furnished for the improved roadbed shall be any stable material meeting the requirements of Soil Classification A-1, A-2, A-3, or A-4, as determined by AASHTO M 145, within the following limitations.

a. Materials in the A-1 or A-3 Classification will not require consideration of a CBR value.

b. Materials in the A-2 or A-4 Classification shall have a CBR value of not less than 10.

c. Materials of the cherty or float gravel type which have a maximum of 50% passing the Number 8 {2.36 mm} sieve, 100% passing the 4 inch {100 mm} sieve, and CBR value of at least 25 will not be required to conform to the Soil Classification noted above.

d. Industrial waste, a residue from a manufacturing operation, may be used provided the material is taken from "cold" piles which are approved by the Materials and Tests Engineer and the material is broken down by roadway operations or pit operations or crushing methods to allow approximately 100 percent passing the 4 inch {100 mm} sieve. However, isolated oversize particles up to a maximum diameter of 1 inch {25 mm} less than the thickness of the compacted layer may be used, provided such does not exceed 10 percent of the weight {mass} based on 1 square yard {1 m^2}, 6 inches {150 mm} deep. The weight {mass} of 1 square yard {1 m^2} will be calculated on the weight {mass} per cubic foot {cubic meter} of the material. This material shall have a unit weight {mass} of not less than 100 pounds per cubic foot {1600 kg/m^3}, dry as determined by AASHTO T 99, Method "A" or "C", and conform to the following Composition Table:

Composition Sieve	% Passing By Weight {Mass}
4" {100 mm}	100
Liquid Limit (L.L.)	25 Max.
Plasticity Index (P.I.)	6 Max.
CBR	12 Min.

Material meeting this specification will not be required to conform to any Soil Classification noted above.

3. UNDERWATER BACKFILL MATERIAL.

Material for underwater backfill shall be selected sandy material of an A-3 Classification or an approved A-1 or A-2 material of which not more than 15 percent passes the Number 200 {75 µm} sieve. A rocky material that will form a firm foundation when deposited under water may also be acceptable.

4. UNDERWATER EMBANKMENT MATERIALS.

Material for underwater embankment shall be secured from quarries designated on the plans or from other approved sources, producing equally satisfactory material. The material shall consist of 1/2 cubic yard {0.5 m^3}, and smaller, size stone taken from approved natural rock formations. The material shall be free from earth or other foreign material consisting of predominantly larger size stones. Material to be used for choking or blanketing the surface of the underwater embankment shall be of sandy or fragmentary nature, such as stone spalls or screenings, float gravel, or gravel. Material that will slake or become plastic in water shall not be used as choking material or in the blanket course. NOTE: Certain materials within the roadway excavation limits may be authorized for use as improved roadbed material, underwater backfill, or underwater embankment; however, such authorization shall be in accordance with the provisions of Article 106.08.

210.03 Construction Requirements.

(a) GENERAL.

Prior to beginning excavation and embankment operations in any area, all necessary clearing and grubbing of the area shall have been performed in accordance with the provisions of Section 201, Clearing and Grubbing. Grading operations should commence as soon as possible after the beginning of the clearing and grubbing operations. Once grading operations begin, the work shall be continuous towards completing excavation and embankment unless approved otherwise in writing by the Engineer. Exposed erodible cuts shall be final dressed, topsoil shall be placed, and the ground surface shall be stabilized with mulch and permanent seeding. The mulch and permanent seeding shall be placed in vertical increments not exceeding 20 feet {6 m} as the work progresses. Embankments shall be

constructed with temporary earth berms to divert runoff to cut slopes or temporary pipe as the work progresses. Final grading and permanent stabilization measures shall be initiated for cut slopes within 48 hours of meeting the limits of vertical grading increments or upon suspension or completion of grading operations in a given area. Final grading and permanent stabilization of embankments shall be initiated within 48 hours of reaching subgrade.

Special attention is directed to the requirements given in Section 665 and Sections 651 through 659 pertaining to the establishment of temporary and permanent erosion and sediment control measures.

The excavation and embankment for the work shall be constructed and maintained so as to properly drain and have reasonably smooth and uniform surfaces. The final subgrade elevation and section of both cuts and fills shall be in reasonably close conformity to that specified by the plans or directed (i.e. plus or minus 1 inch {25 mm} from the designated grade and slope elevations). No material shall be wasted without permission of the Engineer. Excavation operations shall be so conducted that material outside of the limits of the slopes will not be disturbed.

Choice of equipment to perform the work shall be that of the Contractor. The type and number of units shall be such as to perform the excavation and embankment operations in conformity with these specifications and secure the density specified. Supplemental equipment shall be furnished as necessary to keep the work properly shaped.

When the Contractor's excavation operations encounter artifacts of historical or archeological significance, the operations shall be temporarily discontinued. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation, unless otherwise provided, will be considered and paid for as extra work.

(b) ROADWAY EXCAVATION.

1. GENERAL.

All intersecting roads, approaches, entrances, and driveways shall be graded and completed concurrently with the roadway grading and shall be kept passable at all times. During the grading operation, the area being graded shall be maintained reasonably smooth and well drained. Material used as directed by the Engineer for temporary surface to permit public use of the project will be paid for at the contract unit price of the materials so used. The Contractor shall maintain this temporary surface.

Cuts may be widened and the slopes varied as directed during construction, according to the stability of the material encountered and the need for embankment material; however, benching of backslopes in order to obtain material will not be permitted unless authorized in writing. If widening of a cut is necessary after the backslope is completed, a width sufficient to accommodate normal grading equipment will be allowed. Unauthorized excavation beyond the required slope will not be paid for.

Old roadways within the Right of Way shall be obliterated as directed. Roadway obliteration will be paid for as Unclassified Excavation, unless otherwise designated on the plans.

2. REMOVAL OF TOPSOIL.

Topsoil within the construction limits shall be removed in the areas and to the depth as directed by the Engineer. Topsoil may include sod, but not tall vegetation or other debris, and shall be kept free from subsoil. It shall be stockpiled in approved locations with each stockpile not less than 4 feet {1.2 m} high, and containing not less than 200 hundred cubic yards {150 m^3}. Each stockpile shall be shaped as necessary to permit accurate cross sections. The work of removal and stockpiling of topsoil will be paid for as Unclassified Excavation.

3. SELECTIVE GRADING.

Certain designated zones or portions of cuts which afford the more suitable soils for roadbed construction shall be reserved as directed for use in forming the upper graded earth layer or layers for embankments or cuts, for backfilling, and for other purposes. Should it become necessary to stockpile selected material for use below the subgrade elevation of the same cut, it may be stockpiled nearby so that the excavated material can be measured for payment for the rehandling.

4. UNDERCUTTING.

a. Soil.

Unless noted otherwise on the Plans, cuts in soil shall be undercut 1 foot {300 mm} where improved roadbed is required. Undercut areas shall be further undercut if the Engineer determines that this is necessary for the removal of soft or yielding areas. The areas of increased

undercutting shall be shaped to drain, backfilled with a suitable material and uniformly compacted to the density specified for embankment.

The length of a section of undercutting shall be a minimum of 25 feet {7.5 m}.

Areas where improved roadbed is not required shall also be undercut if the Engineer determines that this is necessary for the removal of soft or yielding areas. These areas shall also be shaped to drain, backfilled with suitable material and uniformly compacted to the density specified for embankment.

All depressions in undercut sections shall be cleaned out and provisions shall be made for drainage. The depressions shall be backfilled and compacted with selected materials approved by the Engineer.

Undercutting will be measured and paid for as Unclassified Excavation.

b. Rock.

Cuts in rock shall be undercut 1 foot {300 mm} only where the rock does not extend above the subgrade across the full width of the improved roadbed.

All depressions in cuts in rock shall be cleaned out and provisions shall be made for drainage. The depressions shall be backfilled with a crushed aggregate base material meeting the requirements of Section 825 or a quarry crusher-run material suitable for the intended purpose. The backfill shall be compacted as directed by the Engineer.

There will be no direct payment for the material required to fill depressions made in rock cuts where the depressions resulted from the removal of rock.

5. EXCAVATION AND BACKFILL OF MUCK.

Excavation and backfill of muck areas shall be performed in a manner, acceptable to the Engineer, that will not permit the entrapment of muck within the backfill. The backfilling of the excavated area shall follow immediately behind the excavation so that any soft material that is pushed ahead of the backfill can be removed. After muck removal, the Contractor shall allow the Engineer adequate time to take all elevations and measurements necessary for determining the volume removed.

Normally, the material used to backfill the excavated muck areas will be selected Unclassified Excavation or Borrow Excavation, Item 210-A or 210-D, as shown on the plans or directed by the Engineer.

When directed in writing by the Engineer, the material used to backfill the excavated muck areas will be Borrow Excavation (Underwater Backfill or Underwater Embankment), Item 210-E or 210-F, meeting the requirements of Subarticle 210.02(c).

Backfill material placed in water shall be so deposited that its weight {mass} will displace and force any remaining muck outward and ahead of the backfill, and prevent trapping of muck pockets. Back-pressure from displaced muck against the toe of the advancing backfill shall be relieved promptly by excavating the displaced muck as fast as it accumulates. Dikes ordered constructed within the right of way limits for controlling the muck will be paid for as Unclassified Excavation.

In addition to the requirements of Article 210.05 for disposal areas, where directed, dikes shall be built (without extra compensation) to keep the deposited muck within the limits of the designated areas and as soon as the surface condition of the deposited material will permit, the Contractor shall remove all visible stumps, roots, logs, and other debris from the waste pile and shall dispose of them as specified in Subarticle 201.03(e) without extra compensation. Before acceptance of the work, all parts of the waste pile shall be drained and dressed to a pleasing and reasonably uniform surface and any necessary erosion control work performed, all as directed by the Engineer.

6. EXCAVATION OF ROCK.

Unless otherwise shown on the plans, the Contractor shall use the presplitting technique to split the face of the rock cut in a relatively smooth plane along the designated backslope, prior to shooting the interior portion of the cut. Presplitting shall be accomplished by drilling holes at intervals of approximately 1.5 feet {500 mm} to 3 feet {1 m} to the proper depth along the designated slope, loading and stemming such holes with an appropriate light charge of explosive and detonating all holes simultaneously. The Contractor will not be required to presplit on slopes flatter than one to one. In the event the cut is too deep for the presplitting to be done in one operation, an 18 inch {450 mm} offset will be allowed for the subsequent presplitting operations after the initial presplitting and interior blasting.

Any material outside the designated side slopes that has been loosened or shattered by blasting shall be removed to provide a reasonably smooth and uniform slope. No rock shall project more than 1 foot {300 mm} inside the designated slope. Payment will be made for overbreakage and necessary backfill material for a distance not to exceed 1 foot {300 mm} outside the designated slopes or 1 foot {300 mm} below the designated elevation for undercutting; however, where presplitting is required, no overbreakage on side slopes will be paid.

All overbreakage in excess of the noted limits shall be removed and necessary backfill performed by the Contractor without additional compensation.

When authorized in writing, rock from roadway excavation may be used under other sections of the Specifications. In such event, payment will be made under the appropriate Section for which the rock is so used, and as provided in Section 106 for the replacement of materials for use in the embankment.

All rock that is not required for other construction shall be placed in embankment, insofar as possible, in accordance with the provisions for embankments. Large rock or boulders that cannot be used in embankment shall be disposed of by the Contractor.

7. BENCHING.

In cuts where unstable soil conditions occur, the plans may designate or the Engineer may direct the use of benching. The benching shall be accomplished by suitable drilling and blasting equipment when so directed. This benching will be measured and paid for as Unclassified Excavation.

Benching may also be ordered to provide a more stable foundation for heavy embankment. Benching shall be accomplished by excavating horizontally along the hillside down to or into rock or other suitable undisturbed foundation material, forming a series of stepped benches. Each bench shall be in excavation for its entire width. The benches generally shall parallel contour lines. They shall be constructed at least 10 feet {3 m} wide and may be required to be wider for better support of embankment. Benching of embankment will be measured and paid for as Unclassified Excavation only if it is required to be loaded onto equipment and hauled to another location.

(c) BORROW EXCAVATION.

All stumps, logs, brush, roots, and other debris resulting from clearing and grubbing work in borrow pits shall be removed and disposed of as specified in Subarticle 201.03(e). No separate payment will be allowed for this operation.

Material unsuitable for use in the work shall be disposed of in a satisfactory manner and the amount of such deducted or eliminated from quantities measured for pay purposes.

All borrow areas shall be bladed and left in such shape as to permit accurate measurements after excavating has been completed. The Contractor shall notify the Engineer in sufficient time before beginning excavation so that the necessary cross sections may be taken. The finished borrow areas shall be left in a condition satisfactory to the Engineer and the property owner. Attention is directed to Subarticle 106.01(b) for conditions governing local pit operations.

The selection of areas of the source for use and sequence of excavation shall be as directed by the Engineer in order that material of the best available gradation and soil characteristics may be secured.

(d) EMBANKMENT.

1. GENERAL.

Only suitable, approved materials shall be used in the work. The Engineer shall be the sole judge of the suitability of materials and may require such selection of materials as may be necessary to insure a satisfactory embankment. Sandy or rocky materials available shall be used to the extent practical across wet areas to form a floor for supporting the required embankment.

After Clearing and Grubbing of the embankment areas is complete, all cavities and irregularities shall be enlarged to permit use of compaction equipment, backfilling and compacted as required. Foundation preparation shall consist of the work required to provide a stable foundation for the embankment. This may consist of undercutting and backfilling, flooring sufficient to support equipment, or other work as may be directed. Foundation preparation and compaction will be as directed by the Engineer.

Where embankment is to be placed on old concrete pavements or pavements having concrete bases, the treatment of the old concrete shall be as specified on the plans. Where embankment is to be placed on any other type of roadway pavement or surface, the existing pavement or surface shall be scarified to the extent necessary to provide ample bond between old and new material.

2. EMBANKMENT FORMATION.

Rocks, broken concrete, or other solid materials shall not be placed in embankment areas where piling is to be placed or driven.

Roadway embankment of earth material shall be placed in reasonably uniform layers not exceeding 8 inches {200 mm} (loose measurement) and, insofar as practical, the full width of the embankment section. Each layer shall be compacted as specified before the next overlying layer is placed. Care shall be taken during the compaction operations so that uniform density is obtained.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the thickness prescribed without crushing, pulverizing, or further breaking down of the pieces resulting from excavation methods, such material may be placed in the embankment as directed in layers not exceeding 2 feet {600 mm} in thickness. Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments or earth. These type lifts shall not be constructed above an elevation of two feet {600 mm} below the finished subgrade. The balance of the embankment shall be composed of suitable material (no material larger than 4 inches {100 mm}) smoothed and placed in layers not exceeding 8 inches {200 mm} in loose thickness and compacted as specified for embankments.

Placing of large stones, up to two-thirds the remaining embankment height at the point of placement, will be allowed provided they are spaced so as to permit free access of proper equipment to compact the intervening fill in normal layers. Other large stones may be placed on fill slopes as directed.

When new embankment is to be placed against existing embankments, or when embankment is built one-half width at a time and slopes are steeper than 4:1 {1:4} when measured at right angles to the embankment, the old embankment shall be continuously benched and the new work brought up in layers. Benching shall be of sufficient width to permit operations of placing and compacting equipment, but in no case less than 6 feet {2 m}. Material thus cut out shall be recompacted along with the new embankment material at the Contractor's expense.

Underwater backfill and underwater embankment shall be deposited in one layer for the full width of the embankment, or as directed, to the elevation designated on the plans or directed. In the formation of underwater embankment, the rock shall be fully choked with a blanket of approved choking material before placement of the remaining embankment.

Embankment over, under, and around structures (pipes, culverts, arches, bridges and like), except pipes and arches 48 inches {1200 mm} or less in diameter, shall be selected embankment material placed and compacted or tamped as noted herein in a manner and by methods that will avoid unbalanced loading, cause movement, or place undue strain on any structure. Attention is directed to Section 530 for pipes and arches 48 inches {1200 mm} or less in diameter. The Contractor shall be solely responsible for protecting the structures and any damage to any part of a structure due to not providing proper protection shall be cause for ordering its replacement without additional compensation.

3. EMBANKMENT COMPACTION.

Layers of embankment shall be compacted as specified in Subarticle 306.03(b). Strict moisture control will not be required; however, it will be the Contractor's responsibility to maintain the moisture content necessary to satisfactorily compact the material. Compaction in a semi-dry condition will not be permitted.

Where improved roadbed design is specified, the layers up to the bottom of the improved roadbed shall be compacted as noted above and finished true to required line, grade, and cross section. The improved roadbed layers shall then be constructed as provided in Article 230.03.

Where improved roadbed design is not specified, the embankment layers shall be continued up to subgrade elevation with the same compaction requirement as noted herein. Just before placing a subbase or other material on this graded earth roadbed, the top 6 inches {150 mm} shall be reconstructed as provided in Subarticle 230.03(c) of these specifications.

No compaction or density test will be required for underwater embankment or underwater backfill.

210.04 Use of Materials.

All suitable materials removed from the Roadway Excavation shall be used, insofar as practicable, in the formation of the embankment, roadbed, base layers, shoulders, slopes, bedding, and backfill for culverts, and for such other purposes and places as directed. Suitable materials shall be defined as those suitable for any of the above listed uses.

No excavated material shall be wasted unless permitted in writing by the Engineer but shall be used uniformly to widen embankments, to adjust grades, to flatten slopes, or shall be deposited in such places and for such other purposes as may be directed. Such material shall be handled as follows:

Suitable Material.

Suitable material shall be used at the time of excavation for any of the purposes outlined herein in this Article. It is not intended to stockpile suitable material unless ordered in writing by the Engineer. Payment for second handling will be made only when reused from stockpiles previously ordered by the Engineer.

Unsuitable Material.

Unsuitable material that cannot be used at the time of excavation may, at the option of the Contractor, be temporarily stockpiled within the right-of-way, or the Contractor may make written request for disposal as waste in an approved area on or off the right-of-way. Payment for the second handling of stockpiled unsuitable material will be made only when ordered in writing for use by the Engineer for a specific pay item. The remainder of the stockpiled material may be used to widen embankments, flatten slopes, etc. as allowed by the Engineer, with no payment for the second handling, or shall otherwise be disposed of off the right-of-way with no payment for the second handling.

No payment will be made for the second handling of unsuitable material deposited outside the construction limits at the time of excavation and later spread onto a fill slope, etc. by use of a dozer or similar equipment.

Channel Excavation shall be used to fill old channels, in the construction of embankments, the flattening of slopes, or shall be disposed of as approved by the Engineer. If permitted by the Engineer, waste channel excavation may be spread in uniform layers, neatly leveled, shaped, and grassed with sufficient openings provided to permit surface drainage of adjacent lands; however, in no case will waste material piles be permitted to remain within 10 feet {3 m} of the edge of any ditch, channel, or cut. No payment will be made for any necessary rehandling of Channel Excavation material unless ordered for use by the Engineer from stockpiles for a specific pay item.

210.05 Disposal Areas for Surplus Material.

If no disposal areas are shown on the plans, the Contractor shall provide at his own expense disposal areas and submit along with the permission of the property owner a plan for treatment of the area which is acceptable to the Engineer. Said plan shall provide for dressing, grassing, or other treatment to avoid unsightly appearance and not create a public nuisance or incur future maintenance problems.

Disposal areas will not, in general, require clearing and grubbing or compaction of the waste pile; however, if clearing and grubbing or compaction is required, such will be designated by plan details or in the proposal.

Reference is made to Item (f) of paragraph 3 of Article 107.13 concerning handling of waste material and treatment of areas.

210.06 Finishing and Dressing.

All the completed work shall be dressed and maintained substantially to the lines, grades, and cross sections shown on the plans or as directed by the Engineer. Slopes shall be shaped, rounded, finished, or trimmed in a neat workmanlike manner to conform to the slope lines shown on the plans or as modified by the Engineer. Care shall be exercised that no material be loosened beyond the required slopes.

Compensation for all such finishing and dressing shall be included in the contract unit prices and no direct payment will be made for this work.

210.07 Erosion Control.

The Contractor shall incorporate into the work all permanent erosion control features provided in the contract at the earliest practical date. In addition, temporary erosion control features may be ordered by the Engineer to facilitate protection until the permanent control features can be installed. Particular attention is directed to Section 665 and Article 107.21 of these Specifications.

210.08 Blank.

210.09 Method of Measurement.

(a) GENERAL.

Measurement for all accepted Excavation, except for Borrow Excavation for Underwater Embankment, will be either by the cubic yard {cubic meter} of the material in its original position computed from cross sections by the average end area method or per ton {metric ton} as specified by the unit measure of the pay item.

Measurement for Borrow Excavation for Underwater Embankment will be either by the ton {metric ton} or by the cubic yard {cubic meter}, loose volume, of the material in the hauling vehicle at the point of use as specified by the unit measure of the pay item.

Embankment will not be measured for payment. All of the operations required for embankment formation described herein shall be considered necessary work incidental to and for which compensation is included in the contract unit prices for the pay items of the materials composing the embankment.

Muck excavation as described in Subarticle 210.03(b) will require the use of the following modified cross section and average end area method. The volume will be measured between theoretical vertical side slopes, a station or substation at a time, immediately after completion of muck excavation and before backfill is placed. No measurement or allowance will be made for necessary excavation of material for sloughing, subsidence, flattening sides, slumps, or rehandling materials or for shaping and dressing disposal areas. The sloughing, subsidence, flattening, or slump of side slopes in muck will not be classed as slides.

(b) MEASUREMENT LIMITATIONS.

Measurement of pay quantities will not include any excavated material used for purposes other than those designated except as provided under Article 106.08. Where material has been excavated beyond the designated slope line and wasted, the unauthorized wasted material will be measured and deducted from the excavation quantities. Any material excavated prior to the staking out and cross sectioning of the borrow sources by the Engineer, or in excess of that ordered for the work, will not be included in the quantity measured for payment. If the Contractor places more borrow than is necessary, thereby causing a waste of excavation, the amount of such waste will be deducted from the borrow excavation as measured in the borrow source. When a borrow area is adjacent to the right of way, the dividing line between unclassified excavation and borrow excavation shall be either a vertical plane through the right of way line or the proposed backslope as shown on the plans, whichever is most economically advantageous to the State.

210.10 Basis of Payment.

(a) UNIT PRICE COVERAGE.

1. ROADWAY AND DRAINAGE EXCAVATION.

The accepted volume of Unclassified Excavation - Item No. 210-A, Channel Excavation - Item 210-B, and Muck Excavation - Item No. 210-C, when provided in the plans or proposal, measured as provided above, will be paid for at the contract unit prices bid for these items which shall be payment in full for: excavation; disposal of surplus and unsuitable materials (see Articles 210.04 and 210.05); hauling; formation and compaction of embankment; preparation and completion of subgrade and shoulders except when this work is included in other pay items; the completion of all cuts, embankments, and channel excavation to conform to the lines, grades, and cross section indicated on the plans or otherwise directed; and the completion of the roadway together with its appurtenances of intersecting roads, streets, driveways, approaches, temporary drainage facilities, and other related incidental work for which the proposal contains no contract unit prices. The said contract unit prices for the excavation item shall be payment in full for all equipment, tools, labor, and incidentals necessary to complete the work.

If no contract items for Channel Excavation and/or Muck Excavation are provided, such work will be paid for as Unclassified Excavation.

Exceptions to the above will be made in the event of the following:

a. If a backslope already completed and dressed is destroyed by a slide, or if the Engineer orders additional material taken from a completed and dressed backslope, any redressing required will be paid for as provided in Article 104.03.

b. If a slide occurs after completion of the subgrade to line and grade or during subsequent work in the immediate area and is of such nature and extent that the Engineer, in order to

avoid damage to the previous work, directs its removal, and such requires equipment other than equipment normal to the project, an adjustment in price may be made. However, in no case shall such increase exceed 25 percent of the unclassified excavation contract unit price.

c. If no item for Muck Excavation is provided in the plans or proposal, such excavation will be classified as Unclassified Excavation and payment will be made at two times the unit bid price for Unclassified Excavation.

2. BORROW EXCAVATION.

The accepted volume of Borrow material designated under Items 210-D, 210-E and 210-F, measured as noted above, will be paid for at the contract unit price bid for the items, which shall be payment in full for the royalty and other expenses incidental to procurement, construction and maintenance of haul roads, clearing and grubbing, stripping, excavating, loading, hauling, source moves, dumping, spreading, and also for formation and compaction of embankment, trimming slopes, disposing of surplus materials, preparation and completion of subgrade, shoulders, and intersecting roadways and furnishing of all equipment, labor and incidentals necessary to complete the work. This pay item also includes any necessary work as may be required by the Engineer or Owner in the final dressing of the pit, including grassing or other landscape work.

(b) BLANK.

(c) PAYMENT WILL BE MADE UNDER ITEM NO.:

210-A Unclassified Excavation - per cubic yard {cubic meter}
210-B Channel Excavation - per cubic yard {cubic meter}
210-C Muck Excavation - per cubic yard {cubic meter}
210-D Borrow Excavation - per cubic yard {cubic meter}
210-E Borrow Excavation(Underwater __*) - per cubic yard {cubic meter}
210-F Borrow Excavation(Underwater __*) - per ton {metric ton}
* Specify either Backfill or Embankment.

SECTION 212
MACHINE GRADING SHOULDERS

212.01 Description.

This Section shall cover the work of reconstructing the shoulder of a roadway where the grading is of such character that the material can be moved, mixed, and shaped with a motor patrol of adequate power and weight {mass}.

In general this work shall consist of clipping the shoulder, where directed, prior to resurfacing and blading the shoulder after the resurfacing has been completed. Any additional material needed to bring the shoulder to the desired profile will be classified and paid for under the appropriate section for the type material furnished.

If seeding or other items are needed for erosion control, such items will be shown on the plans and paid for under the appropriate specification section.

Unless otherwise noted by plan details, the completed work shall conform to the shoulder requirements for lines, grades, and typical section indicated by the plans or established by the Engineer.

212.02 Material.

Material used under this Section shall be of the quality and character noted on the plans or ordered by the Engineer, suitable for the purpose intended and consistent with the requirements for such material noted in other parts of this specification.

212.03 Construction Requirements.

(a) GENERAL.

Clipping, or blading, of grass and soil from the shoulder, as provided by the plans or directed, shall be completed in advance of resurfacing operations. The removed material shall be windrowed a sufficient distance and in such a manner as not to pose a safety hazard to the motoring public. Where directed, the entire width of the shoulder shall be plowed, scarified or otherwise loosened. The shoulder then shall be re-formed by blading the material from the windrows, or by the addition of extra material as specified or directed, with the machine grader and compacting it to the satisfaction

After being placed and shaped to proper crown and grade the surface shall be shaped at frequent intervals as directed and shall be kept free of ruts and holes. New material shall be added and bladed as needed and as directed. The surface shall be maintained in satisfactory condition in the manner described above until the contract is accepted.

430.04 Method of Measurement.

The quantity of surfacing material placed on the roadbed will be measured in cubic yards {cubic meters} in accordance with the provisions of Subarticle 109.01(i), or per ton {metric ton} measured by weight {mass} in accordance with the provisions of Subarticle 109.01(h).

430.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

Surfacing material ordered and accepted, measured as noted above, will be paid for at the contract unit price bid which shall be full compensation for the material complete in place on the roadbed and includes all costs incident to furnishing and producing the material, all hauling, spreading, mixing, watering, compacting, shaping, and for all equipment, tools, labor, and incidentals necessary to complete the work. Additional material used in the maintenance will be measured and paid for under this item.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:

430-A Soil Type Surfacing(Kind Material) - per cubic yard {cubic meter}
430-B Aggregate Surfacing(ALDOT Size of Material) - per ton {metric ton}

SECTION 450
PORTLAND CEMENT CONCRETE PAVEMENT

450.01 Description.

The work covered by this Section consists of constructing a pavement of Portland Cement Concrete.

450.02 Materials.

(a) REFERENCES FOR MATERIAL REQUIREMENTS.

All materials shall conform to the requirements given in Division 800, Materials.

The requirements given in the following Sections are directly applicable to the materials furnished for the concrete pavement:

Section 801	Coarse Aggregate
Section 802	Fine Aggregates
Section 804	Bituminous Materials
Section 806	Mineral Admixtures
Section 807	Water
Section 808	Air Entraining Additives
Section 809	Chemical Admixtures for Concrete
Section 815	Cement
Section 830	Concrete Curing Material
Section 832	Concrete Joint Fillers, Sealers, and Waterstop Material
Section 835	Steel Reinforcement

(b) AGGREGATES.

1. FINE AGGREGATE.

Sand shall be natural sand except that it may include 20 percent crushed quartzite particles. A blend of two natural sands will be permitted.

2. COARSE AGGREGATE.

a. Gradation.

The Contractor will be allowed to select either #57, #357 or #467 coarse aggregate. Coarse aggregate size #357 shall be made up of approximately 50 % size #57 and 50 % size #3. Size #467 shall be made up of approximately 50 % size #67 and 50 % size #4 with each component size stockpiled separately at the batching plant.

b. Coarse Aggregate.

The types of allowable coarse aggregate are dependent upon where the concrete is placed (mainline, shoulder, ramp) and in which pavement layer the concrete is placed (upper, lower, one layer only). The types of allowable coarse aggregate are given in the following table.

TYPES OF ALLOWABLE COARSE AGGREGATE FOR CONCRETE PAVEMENT							
TYPE OF AGGREGATE	MAINLINE PAVEMENT		INSIDE SHOULDERS		OUTSIDE SHOULDERS		RAMPS
	Upper Layer	Lower Layer	Upper Layer	Lower Layer	Upper Layer	Lower Layer	One Layer Only
Granite	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Sandstone	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Quartzite	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Gravel With Specific Gravity > 2.550	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
Gravel With Specific Gravity ≤ 2.550	Not Allowed	Allowed	Not Allowed	Allowed	Not Allowed	Allowed	Not Allowed
Limestone	Not Allowed	Allowed	Not Allowed	Allowed	Not Allowed	Allowed	Not Allowed

(c) PORTLAND CEMENT.

The concrete producer may use Type I, II Portland cement. The concrete producer may substitute any of these types of cement for Type III cement, provided prior approval is given by the Materials and Tests Engineer and is included in the proposed mix design.

(d) ADMIXTURES.

1. CHEMICAL ADMIXTURE.

Chemical admixtures may be allowed if they are submitted as part of the proposed concrete mix design. If chemical admixtures are part of the proposed mix design they shall also be used during production.

2. MINERAL ADMIXTURE.

Mineral admixtures may be substituted for cement up to the following percentages by weight {mass} in the concrete mix: 10% for silica fume, 20% for fly ash, and 30% for ground granulated blast furnace slag. The minimum substitution ratio of a mineral admixture to the cement it replaces shall be one to one.

(e) CONCRETE MIX DESIGN.

1. SUBMITTAL OF MIX DESIGN.

At least 45 calendar days prior to beginning paving, the Contractor shall submit a proposed mix design to the Materials and Tests Engineer for approval. The Contractor shall establish the proportion of materials following the guidelines described in ALDOT-170, *"Method of Controlling Concrete Operations for Structural Portland Cement Concrete"*.

2. MIX DESIGN CRITERIA.

Instead of the reference to the Master Proportion Table given in ALDOT-170, the concrete producer shall submit a mix design that shall have:

- a maximum water to cementitious material ratio of 0.50;
- a maximum slump of 2.5 inches;
- an entrained air percentage by volume between 2.0 and 5.0;
- a minimum flexural strength of 650 psi at 28 days;
- a minimum compressive strength of 4000 psi at 28 days (or higher strength as required for the correlation with the minimum allowable flexural strength).

3. CORRELATION OF COMPRESSIVE STRENGTH WITH FLEXURAL STRENGTH.

In addition to the requirements listed in Item 5 of ALDOT-170, the concrete producer shall also submit a correlation of the flexural strength versus the compressive strength. This submittal shall be made at the same time as the submittal of the proposed mix design.

A correlation of the flexural strength versus the compressive strength for 7, 14, and 28 day strengths shall be made and shall be based on at least 10 tests for each age from the proposed concrete mix. The minimum flexural strength shall be 650 psi. The flexural strength shall be obtained from beam specimens made in accordance with the requirements given in AASHTO T 126, *"Making and Curing Concrete Test Specimens in the Laboratory"* and tested in accordance with the requirements given in AASHTO T 97, *"Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)"*. The minimum allowable compressive strength (f'c) shall be the compressive strength determined from the correlation of compressive strength with the minimum required flexural strength.

Separate correlation mix design tests shall be performed for each combination of cementitious materials and each combination of chemical admixtures proposed for use. Separate correlation mix design tests shall be performed for the different types of aggregates used. Separate correlation mix design tests shall also be made for concrete for any conveying or placing method proposed which requires special properties. Changes in a mix design, other than those allowed by the Department, shall require a new mix design correlation.

(f) STEEL.

Tie bars shall be new billet steel; other bars may be either billet or rail steel. The Grade of the tie bars shall be as shown on the plans.

The material requirements given in Section 502 shall apply to the reinforcing steel for the concrete pavement.

(g) QUALITY CONTROL PLAN.

The Contractor shall submit a Quality Control (QC) plan to the Materials and Tests Engineer for review. Construction shall not begin until the QC plan is accepted as being complete and has been distributed for inspection of the construction work. The Contractor shall include a description of the required Concrete Plant Laboratory as part of the QC plan. No direct payment will be made for the laboratory.

(h) SAMPLING AND INSPECTION.

1. AVAILABILITY OF PLANT AND OTHER FACILITIES FOR INSPECTION.

Preparation of the mix shall be subject to inspection at all times. The Engineer shall have access at any time to all parts of the plant and other facilities for inspecting and checking all equipment, operations, and materials involved in preparation of the concrete mix. Any unsatisfactory equipment or operation shall be changed and improved as required.

2. PAVEMENT TESTING UNIT.

A pavement testing unit shall be defined as a 528 foot long incremental length, or fraction thereof, of roadway lane, ramp, or shoulder. The Engineer will include transitional areas of pavement in adjacent pavement testing units. A complete pavement unit shall be removed and replaced in accordance with the details shown on the plans if the quality of the pavement in any portion of the pavement testing unit is unacceptable.

3. TABLE OF SAMPLING AND TESTING REQUIREMENTS.

SAMPLING AND TESTING REQUIREMENTS FOR PORTLAND CEMENT CONCRETE PAVEMENT						
Control Parameter	Sample Size	Sampling Methods	Sampling Location	Testing Methods	ALDOT Testing Frequency	Remarks
1. Compressive Strength	Set of 2 Cylinders	AASHTO T 23 & AASHTO T 141	ALDOT 210	AASHTO T 22	1 per Pavement Testing Unit	Sampled and Tested by the Department
2. Air Entraining	Minimum of One	AASHTO T 141	ALDOT 210	AASHTO T 152	Minimum of 1 per Pavement Testing Unit	Sampled and Tested by the Department
3. Slump	Minimum of One	AASHTO T 141	ALDOT 210	AASHTO T 119	Minimum of 1 per Pavement Testing Unit	Sampled and Tested by the Department
4. Thickness	1 Core	AASHTO T 24	ALDOT 210	AASHTO T 148	1 per Pavement Testing Unit	Contractor shall extract core, Department will test

4. SAMPLES FOR TESTING BY THE DEPARTMENT.

The Contractor shall furnish, without extra compensation, samples of materials for making test specimens and performing tests as required to comply with Departmental material testing procedures. Additional materials and an increase in the frequency of testing will be required if deemed necessary by the Engineer.

The Engineer will establish the location for the sampling of the concrete in accordance with the requirements given in ALDOT 210, *"Selecting Samples by the Random Numbers Method"*.

5. SAMPLING AND TESTING OF AGGREGATES AND CEMENTITIOUS MATERIALS.

Aggregates and cementitious materials from approved sources will be accepted in accordance with the requirements given in the Department's Testing Manual.

6. TESTING CONCRETE DURING MIXING AND PLACEMENT.

The Engineer will sample and test the properties of the concrete as it is being mixed and placed. Sampling and testing will be performed at the same time, and from the same sample obtained for casting the compressive strength test specimens. Concrete that is not within the following limits during placement shall not be used:

- SLUMP: Slump will be determined in accordance with AASHTO T 119, *"Slump of Hydraulic Cement Concrete"* and shall not exceed the maximum slump of 2.5 inches.

- AIR CONTENT: Air content will be determined in accordance with AASHTO T 152, *"Air Content of Freshly Mixed Concrete by the Pressure Method"*, Type "B". The air content shall be between 2.0 % and 5.0 % by volume.

- CONCRETE TEMPERATURE: Concrete Temperature will be determined in accordance with ASTM C 1064, "Temperature of Freshly Mixed Portland Cement Concrete". The temperature of the concrete, at the time of placement, shall not be less than 50 °F nor more than 90 °F.

7. TESTING COMPRESSIVE STRENGTH OF CONCRETE.

The Engineer will prepare one set of compressive strength test specimens in accordance with AASHTO T 23, *"Making and Curing Concrete Test Specimens in the Field"*. A set of test specimens will be made for every lift of concrete placed in each 528 foot incremental length, or fraction thereof, of roadway lane, ramp or shoulder. These specimens will be tested in accordance with AASHTO T 22, *"Compressive Strength of Cylindrical Concrete Specimens"*. A set of specimens will consist of two 6 in x 12 in {150 mm x 300 mm} cylinders to be tested at 28 days.

The specimens shall be initially cured in a protected environment in accordance with the requirements given AASHTO T 23. The protective environment shall be available at the time of the concrete placement and shall be maintained until all specimens have been transported to the testing laboratory. The Contractor shall furnish, without extra compensation, a protected environment for all concrete test specimens. The protective environment shall consist of at least one curing box (more may be required) with a capacity to hold at least 22 test cylinders that are 6 inch x 12 inch {150 mm x 300 mm} in size. Each curing box shall be equipped with heating/cooling capabilities, automatic

temperature control, and a maximum/minimum (high/low) temperature readout. The protective environment shall be approved by the Materials and Tests Engineer prior to beginning any concrete placement.

8. SAMPLING AND TESTING OF SEPARATE CONCRETE MIXES PLACED IN SEPARATE LIFTS.

If the Contractor chooses to construct the pavement using two different concrete mixes placed in separate lifts, the testing procedures and testing frequency will apply to each mix.

450.03 Construction Requirements.

(a) PLACEMENT OF CONCRETE IN ONE LIFT OR SEPARATE LIFTS.

1. OPTION OF CONSTRUCTION PAVEMENT IN LIFTS.

If shown to be allowed on the plans, the mainline, inside shoulder and outside shoulder pavements may be constructed in two separate lifts of concrete. The use of different concrete mixes for the mainline and inside shoulder pavements placed in lifts will result in separate acceptance testing (compressive strength, slump, air content and temperature) for the concrete in each lift.

Ramps shall be constructed with one layer of concrete.

2. REQUIRED THICKNESS OF LIFTS.

The required thickness of the upper and lower lifts of concrete will be shown on the plans. The concrete for the upper layer shall be placed before the concrete in the lower layer has reached an initial set. A cold joint will not be allowed between the upper layer and the lower layer.

(b) EQUIPMENT.

1. CERTIFICATION OF CONCRETE BATCH PLANTS.

All concrete batching plants shall be certified by the National Ready Mix Concrete Association (NRMCA) to be in conformance with the NRMCA Plant Certification Checklist. The concrete producer shall submit proof of NRMCA certification to the Concrete Engineer (Materials & Tests Bureau) prior to any batching of concrete.

All batching plants shall meet the requirements of the Standard Specifications and ALDOT-352, "*Certification Program for Portland Cement Concrete Producers*". Producers who request that their batching plants be placed on the Portland Cement Concrete Producers List will be charged a submittal fee as specified by ALDOT-355, "*General Information Concerning Materials, Sources, and Devices With Special Acceptance Requirements*".

2. SCALES.

The scales for determining the weight {mass} of aggregates, mineral admixtures, and cement shall be an integral unit of the batching plant and meeting the requirements of Subarticle 109.01(h).

3. MIXERS.

Concrete may be mixed at the site of construction or at a central point. Each mixer shall have attached to it in a prominent place a manufacturer's plate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades for both mixing and agitation.

An automatic graduated measuring device, accurate within three percent shall be provided at the mixer for measuring each amount of air-entraining agent and other chemical admixtures to be added to each batch requiring such admixture.

Mixers shall be equipped with an approved device for accurately measuring water within ± 1% of the reading indicated. The requirements given in Item 501.03(b)2 applies for concrete transit mixers.

4. SPREADING AND FINISHING EQUIPMENT.

Minimum spreading and finishing equipment shall consist of a mechanical spreader and/or strike-off screed, a finishing machine, vibrators for full width vibration of the paving slab, smoothing float, 16 foot straightedge, floats, burlap drags, and curing equipment.

5. VIBRATION EQUIPMENT.

Vibration equipment shall be used to vibrate the concrete for the full width and depth of the pavement without coming in contact with steel bars, other internal materials and the underlying layer. The vibration equipment shall be capable of being stopped when the vibration equipment is not moving along the pavement.

Internal (spud) and surface (pan) vibrators shall be used. Spud vibrators shall operate at a frequency of between 8000 and 12,000 vibrations per minute. Pan vibrators shall operate at a frequency of between 3000 and 6000 vibrations per minute.

6. CONCRETE SAWS.

Equipment shall be provided for the sawing of joints. An adequate number of saws shall be utilized to complete the sawing within time to prevent cracking of the concrete.

7. FORMS.

Forms shall be substantial enough in size and strength to allow the proper placement and finishing of the concrete.

8. LIGHTING.

Lighting shall be in accordance with the requirements given in Subarticle 104.04(a).

(c) PRECIPITATION AND TEMPERATURE.

1. PRECIPITATION.

Pavement damaged by rain or hail shall be removed and replaced in accordance with the details shown on the plans without additional compensation.

2. TEMPERATURE.

a. Range of Acceptable Concrete Temperature for Placement.

The temperature of the concrete, at the time of placement and spreading, shall not be less than 50 °F nor more than 90 °F.

b. Cold Weather Operations.

Concrete shall not be placed on an underlying surface that is colder than 35 °F.

When concrete is placed during seasons when there is a probability of ambient temperatures lower than 40 °F, heating equipment and materials shall be available to protect the concrete from the cold weather. The heating equipment and materials shall be used to enclose the uncured concrete and keep the air temperature inside the enclosure within the allowable ranges of temperature for the minimum required amount of time.

If there is a possibility that ambient temperatures will be below 40 °F during the first three days after placement of concrete, the concrete shall be protected from cold temperatures by keeping the surface at a temperature above 50 °F for the first 72 hours after placement and above 32 °F for an additional 72 hours. After these periods of time, the protective covering shall remain in place until the temperature inside the protective covering reaches that of the surrounding atmosphere.

The Contractor shall furnish two "continuous temperature reading" thermometers for the measurement of the concrete surface temperature. The measurements shall me made as directed by the Engineer.

The aggregates and mixing water shall not be heated to a temperature in excess of 150 °F. Aggregates from frozen stockpiles shall not be incorporated into the mix. Materials entering the mixer shall be free from ice, snow, and frozen lumps. Salts, chemicals, or other materials shall not be incorporated in the concrete to prevent freezing. Care shall be taken to heat all materials uniformly and avoid hot spots that will burn or overheat the materials.

c. Hot Weather Operations.

If there is a possibility that ambient temperatures will be above 90 °F during the placement of concrete an approved retarder admixture shall be used in the concrete mix. Cooling of the mixing water and/or aggregates or placing the concrete during the cooler part of the day may be allowed to keep the concrete below the maximum allowable temperature. In no instance shall a concrete mix be placed when the temperature of the concrete is above 90 °F {32 °C}. Concrete shall not be placed against any surface (in particular steel surfaces) when the temperature of that surface is greater than 120 °F.

(d) PRECONDITIONING OF UNDERLYING LAYER PRIOR TO PLACEMENT OF CONCRETE.

All high areas of the layer under the concrete shall be corrected before the concrete is placed. Low areas shall be filled with concrete integral with the concrete pavement.

The underlying layer shall be thoroughly wetted the previous night or not less than six hours prior to placing of the concrete. The underlying layer shall be sprinkled just before the placement of the concrete so as to be uniformly moist. The method of sprinkling shall not result in mud or pools of water.

(e) FIXED FORMS.

Fixed forms shall not be used for mainline pavement (including shoulders) when the total amount of concrete pavement required to be placed is greater than 10,000 square yards.

Fixed forms shall be used in areas where slip form pavers cannot be used such as areas with a sharp radius and at the transition areas of ramps.

(f) SLIP FORM METHOD.

1. ALLOWABLE AND REQUIRED USE OF SLIP FORM METHOD.

The slip form method shall be used when the total amount of concrete pavement required to be placed for this project is greater than 10,000 square yards. The slip form method may be used instead of fixed forms when the total amount of concrete pavement required to be placed for this project is less than 10,000 square yards.

2. SLIP FORM PAVER.

The slip form paver shall be designed to spread, consolidate, screed, and float-finish the freshly placed concrete in one complete pass of the paver. Concrete shall be placed so that only minor hand finishing will be necessary to provide a dense and homogeneous concrete pavement.

The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed. The vibration shall be accomplished with vibrating tubes or arms working in the concrete and with a vibrating screed or pan operating on the surface of the concrete.

The sliding forms shall be rigidly held together, laterally to prevent spreading of the forms, and shall trail behind the paver for such a distance that no appreciable slumping of the concrete will occur.

The paver shall be operated with a continuous forward movement. All operations of mixing, delivery, and spreading concrete shall be coordinated as to provide uniform progress with stopping and starting of the paver held to a minimum. If, for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately.

All tractive force applied to move the paver shall be operated by controls on the paver.

3. EDGE SLUMP.

The edge slump shall be measured within an area that is 6 inches from the longitudinal edges of each pavement slab.

The edge of the finished surface shall not vary more than 1/4 of an inch from a 10 foot straightedge placed perpendicular (at a right angle) to the edge of the outside (shoulder edge not adjacent to another concrete slab) of the pavement slab.

The edge of the finished surface shall not vary more than 1/8 of an inch from a 10 foot straightedge placed perpendicular (at a right angle) to the edge of a pavement slab that is adjacent to another pavement slab.

Pavements slabs where the edge slump is excess of the allowable amount (1/4 inch or 1/8 inch) shall be removed and replaced in accordance with the details shown on the plans without additional compensation.

(g) PLACING CONCRETE.

1. WATER EVAPORATION RATE DURING PLACEMENT.

Prior to and during the placement of concrete, the water evaporation rate shall be determined in accordance with the requirements given in Subitem 501.03(k)2.a. for bridge deck slabs. Preventive action shall be taken to eliminate plastic shrinkage cracking in accordance with the requirements given in that Subitem.

2. REDUCTION OF EVAPORATION DURING THE SCREEDING OPERATIONS.

If the evaporation rate measured in accordance with the requirements given in Subitem 501.03(k)2.a. exceeds the maximum allowable rate, continuous fogging or an evaporation barrier material (monomolecular film) shall be used to maintain moisture on the surface of the pavement. Continuous fogging or an evaporation barrier shall be applied to the pavement no further than five feet behind the screeding operations.

If fogging is used, a continuous fog or mist spray shall be maintained until the curing procedures begin. Intermittent fogging is not acceptable if there is drying of the concrete surface. If water begins to pond on the pavement, the Contractor shall adjust the rate of fogging to minimize the ponding of water.

If an evaporation barrier material is used, it shall be applied immediately behind the screeding operation. The entire top portion of the concrete slab shall be covered with a uniform film of the barrier material. The rate of application and the means of application shall be in accordance with the manufacturer's recommendations. The Contractor shall submit the manufacturer's recommended application procedures to the Engineer at least 7 days prior to the placement. Acceptable evaporation barrier products will be listed on the plans.

3. CONCRETE IN ADJACENT SLABS.

Where concrete is placed adjacent to a previously placed concrete pavement, the previously placed pavement shall be at least 10 days old or shall have attained a compressive strength of at least 3000 psi as determined by tests of standard specimens cured under the same climatic and moisture conditions as the slab.

4. VIBRATORS.

Vibrators shall not come in contact with a joint assembly, the layer under the concrete or forms. Single unit vibrators shall be used along the side forms, joints, and at other locations not thoroughly vibrated by the vibrator assembly. In no case shall the vibrator be operated longer than 15 seconds in any one location. Carriage mounted vibrators shall be equipped to cut off automatically when the vibrator carriage stops. Vibration shall be completed ahead of the finishing machine screed.

(h) EXPANSION JOINTS.

Expansion joint assemblies shall be installed in proper sequence ahead of placement of concrete. Concrete shall be deposited as near to an expansion joint as possible without disturbing it.

(i) PLACEMENT OF STEEL.

Care shall be taken before and during paving operations to insure that steel, including reinforcing steel, dowels and tie bars will stay within the plan tolerances after the finishing operations.

(j) JOINTS.

1. ESTABLISHING LOCATION OF JOINTS.

The Contractor shall be responsible for marking locations of joint steel in advance of placement of concrete so that sawed joints will be properly located over dowels and tie bars.

2. SAWING CONCRETE FOR JOINT CONSTRUCTION.

All joints except expansion joints shall be prepared by sawing. Sawing shall be done with a concrete saw equipped with a guide frame or other approved device that will assure cutting of the joint within 1/4 of an inch of the designated alignment and to the required joint size shown on the plans. All vertical joints shall be constructed perpendicular to the pavement surface.

Because of the importance of sawing the joints at the proper location and at the proper time, early sawing is imperative.

All cracked pavement shall be removed and replaced in accordance with the details shown on the plans without additional compensation from the Department.

3. TYPES OF REQUIRED JOINTS.

Joints shall be constructed of the type, dimensions, lengths, arrangement, spacing, and at the locations shown on the plan. A joint shall be a designed separation, formed by material extending full depth of the slab or a saw cut extending part way through the slab.

A contraction joint is a transverse joint located at regular intervals in a slab to control transverse cracking or at other designated sites to control longitudinal cracking.

An expansion joint is one providing space for expansion of the slab without damage. For clarity, all expansion joints, including those in intersections at whatever angle, are regarded as transverse joints.

A construction joint is one made necessary by interruption of more than 30 minutes in continuous placing of concrete, including a transverse joint placed at the end of a day's operation or at the point of a breakdown, or a longitudinal joint where adjacent lanes are constructed at different times.

Longitudinal joints shall be constructed coincident with or parallel to the pavement centerline. Transverse joints shall be constructed as shown on the plans.

4. TIE BARS FOR LONGITUDINAL JOINTS.

a. Tie Bar Location and Strength.

Deformed steel tie bars shall be placed perpendicular across the longitudinal joints at the location and at the spacing shown on the plans. The required strength of the tie bars will be shown on the plans.

b. Tie Bars in Fixed Forms.

When using the fixed form method, the use of a keyway with a sectional tie bar or a straight tie bar bent against the form of the first slab constructed is acceptable.

c. Tie Bars in Slip Form Paving.

When using the slip-form method, the tie bars shall be inserted in the fresh concrete or anchored in appropriately sized holes drilled into the previously placed pavement.

Drilled holes shall not be greater than 1/8 inch larger than the diameter of the tie bar. Drilling of holes will not be allowed until the concrete has obtained a compressive strength of 2500 psi or is seven days old. Tie bars shall be anchored in the drilled holes with an approved adhesive material meeting the requirements given in Article 870.04.

Tie bars shall meet a 7200 pound, minimum, pull-out requirement. The Department will perform the pull-out tests in accordance with ALDOT-366, *"Test Method for Pull On Steel Tie Bars Secured in Concrete with Epoxy"*. The Contractor shall supply the equipment necessary to perform the pull-out test. The equipment shall be suitable for the performance of the tests at the frequency specified in Section 450 of the Acceptance Sampling and Testing Schedule of the Testing Manual. There will be no direct payment for the pull-out test equipment furnished by the Contractor for use by the Department.

5. WEAKENED PLANE JOINT FOR ADJACENT LANES CONSTRUCTED SIMULTANEOUSLY.

A weakened plane joint shall be constructed by sawing the concrete when adjacent lanes of pavement are constructed at the same time by the simultaneous placement of concrete. The requirements for the size and sealing of the weakened plane joint are shown on the plans. The joint shall be sealed with an approved joint sealer.

6. DOWEL BARS FOR TRANSVERSE JOINTS.

Dowel bars shall be installed as shown on the plans. The dowel bars shall be installed with a supporting assembly capable of rigidly maintaining the dowel bars in the proper horizontal and vertical alignment during and after the concrete placing and finishing operations.

Dowel bars shall be Type B meeting the requirements given in Article 835.05, unless otherwise noted by plan detail, with the ends ground or dressed to eliminate any projections due to cutting operations.

Dowel bars at expansion joints shall have a cap or sleeve over the expansion length (length embedded in one slab) of each bar with one end of the sleeve fitting tightly around the bar and the other end closed and watertight. The cap or sleeve shall be provided with an expansion space not less than the width of the joint being constructed.

7. TRANSVERSE EXPANSION JOINTS.

The transverse expansion joints shall be constructed in accordance with the details shown on the plans. Dowels and supports shall be assembled off the underlying layer and shall be placed into position as a unit.

8. TRANSVERSE CONTRACTION JOINTS.

Transverse contraction joints shall consist of planes of weakness created by sawing grooves in the surface of the pavement in accordance with the details shown on the plans. All contraction joints shall be sealed as shown on the plans.

9. TRANSVERSE CONSTRUCTION JOINTS.

Transverse construction joints shall be constructed when there is an interruption of more than 30 minutes in the concreting operations. A transverse joint shall not be constructed within 10 feet of an expansion or contraction joint. If sufficient concrete has not been mixed at the time of interruption to form a slab at least 10 feet long, the excess concrete shall be removed back to the last preceding joint.

The construction joint shall be formed by placing the concrete against a header board set so as to form a joint at right angles to the pavement centerline vertically and horizontally. The board shall be shaped to the cross slope of the pavement and shall be sufficiently rigid to prevent bending or movement during finishing operations. Grinding will be allowed for a distance of 25 feet either side of the construction joint or header that is placed when the paving operation ends each day.

(k) SURFACE SMOOTHNESS AND CROSS SLOPE.

1. MEASUREMENT OF SURFACE SMOOTHNESS AND CROSS SLOPE,

Surface smoothness shall be checked by the use of straightedges, levels and strings. The Contractor shall furnish levels, straightedges, string, and the personnel to make and record measurements as directed by the Engineer.

2. SURFACE SMOOTHNESS.

Surface smoothness tests shall be made continuously during and after concrete placement so that irregularities may be reduced while the concrete is still workable.

The finished surface shall not vary more than 1/4 of an inch from a 10 foot straightedge placed perpendicular (at a right angle) to the centerline of the roadway anywhere on the surface.

The surface shall not vary more than 1/4 of an inch from a 16 foot straightedge placed parallel to the centerline anywhere on the surface.

The finished surface shall not vary more than 3/8 of an inch in any 25 foot section from a taut string applied parallel to the surface. The surface shall be checked 1 foot inside of the edges of pavement, at the centerline, and at other points designated by the Engineer. The tolerance from the designated grade shall not exceed plus or minus 1/2 of an inch in 100 feet.

3. CROSS SLOPE.

The required cross slope shall not vary by more than 0.20% from the required slope in any 10 foot distance over which the slope is measured. (If, for example, a 2.0% slope is required, the measured cross slope shall not be greater than 2.2% or less than 1.8%.)

All pavement that is not within the required cross slope tolerance shall be replaced in accordance with the details shown on the plans without extra compensation.

(l) FINISHING.

1. SEQUENCE OF FINISHING REQUIREMENTS.

After the concrete has been placed, consolidated, and struck off, the finishing, floating, surface corrections, texturing, and edging shall be performed.

2. TRANSVERSE FINISHING.

A finishing machine shall be used to screed the surface of the concrete to a uniform texture and to the required grade and cross slope.

3. FLOAT FINISH.

After transverse finishing, further finishing shall be performed by the means of a float.

4. PRELIMINARY STRAIGHTEDGING AND SURFACE CORRECTION.

After the finishing has been completed and the excess water removed, but while the concrete is still workable, the surface of the concrete shall be tested by the Contractor for with a accurate 16 foot floating straightedge.

Depressions in the surface shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. The surface across joints shall meet the requirements for smoothness. Straightedge testing and surface correction shall continue until the entire surface is found to conform to the straightedge and the slab conforms to the required grade and cross slope.

5. SURFACE TEXTURE.

The pavement surface shall be finished with a burlap drag. The burlap drag finish shall consist of dragging longitudinally along the full width of the pavement with a seamless strip of damp burlap or cotton fabric which will produce a gritty texture. The drag shall be maintained in such condition that the resultant surface is of uniform appearance. Drags shall be maintained clean and free from encrusted mortar. Drags which cannot be cleaned shall be discarded.

Immediately after the pavement has been finished by the burlap drag, the surface shall be grooved. Grooving shall be produced by mechanical equipment designed for grooving plastic concrete utilizing rectangular shaped spring steel tines that will produce clean cut transverse grooves in the hardened surface. The tines shall be randomly spaced at intervals between center as shown on the plans. The tines shall produce grooves in the hardened surface which are 1/16 to 1/8 of an inch in width and from 1/8 to 3/16 of an inch {3 mm to 5 mm} in depth.

The completed grooved surface finish shall meet the groove depth requirements given in ALDOT-248, *"Method of Test for Measuring the Depth of Grooves in Concrete Pavements and Bridge Decks with a Tire Tread Depth Gauge"*, and all straightedge requirements. Any grooved surface

damaged or destroyed may be restored if the concrete is still plastic; otherwise, it shall be regrooved after the concrete has obtained its designed strength. Grooving after the concrete has hardened shall be done by equipment designed specifically for grooving pavements.

(m) CURING.

1. DURATION OF CURING.

Immediately after the finishing operations have been completed and as soon as marring of concrete will not occur, the entire pavement surface shall be covered and cured using either the application of an impervious membrane or by continuous moist curing. Curing shall be for a minimum period of 72 hours.

2. OPTIONAL CURING METHODS.

The Contractor shall cure the concrete by either placing an impervious membrane or by moist curing. The curing method chosen by the Contractor shall be sufficient to prevent plastic shrinkage cracking.

a. Curing by Using an Impervious Membrane.

The impervious membrane shall meet the requirements given in Section 830.

The impervious membrane material shall be applied in accordance with the requirements given in Section 830 except that the rate of application shall be a minimum of 1 gallon per 100 square feet of surface area or a greater rate if recommended by the manufacturer. The impervious membrane material shall be applied under pressure by mechanical sprayers in two applications. Spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be thoroughly mixed. During application, the compound shall be stirred continuously by mechanical methods. Hand spraying of areas of irregular widths or shapes and on surfaces exposed by form removal will be permitted.

The impervious membrane shall not be applied to the inside faces of joints to be sealed.

b. Moist Curing

Moist curing shall be either by fog spraying or by saturated burlap or burlap sheeting in accordance with the following.

- FOG SPRAYING:

Fog spraying shall be done with nozzles or sprinklers designed for this purpose. When using this method, the Contractor shall maintain a complete and continuous moist condition of the concrete surface. Intermittent fog spraying is not acceptable. Care shall be taken that erosion of the surface does not occur.

- BURLAP OR BURLAP SHEETING:

Saturated burlap or saturated white-burlap-polyethylene sheeting may be used for curing. The burlap and white-burlap-polyethylene sheeting shall be furnished in accordance with the requirements given in Section 830. These curing materials shall be clean and free from any injurious substances that can cause deleterious effects to the concrete or cause discoloration. The burlap and burlap sheeting shall be completely saturated before being placed on the concrete and shall be maintained in that condition for the entire curing period. All edges of burlap and burlap sheeting shall extend at least 18 inches beyond the concrete surface. Where two individual sheets join, their edges shall overlap at least 12 inches. All edges and overlaps shall be secured to ensure that the concrete surface is completely covered during the entire curing period. The burlap material shall be kept in contact with the concrete surface at all times. Alternate cycles of wetting and drying will not be allowed.

(n) SEALING JOINTS.

Before the pavement is opened to traffic, and as early as is feasible, all joints, both longitudinal and transverse, shall be filled with joint sealing material of a type specified by the plans. The joint faces shall be clean and surface dry when the seal is applied. Suitable tools for installing the seal to the proper depth and dimensions shall be used. The joints shall be sealed as outlined in Section 454.

(o) REMOVAL OF FORMS.

Forms shall not be removed from freshly placed concrete until it has set for at least 12 hours, except auxiliary forms used temporarily in widened areas. They shall be removed carefully so as to avoid damage to the pavement. After the forms have been removed, the ends of all joints shall be cleaned, after which the sides of the slab shall be covered with earth or other approved curing agent.

As soon as the side forms have been removed, honeycombed areas will be considered as defective work and shall be removed and replaced in accordance with the details shown on the plans. Any area or section so removed shall be not less than 10 feet in length nor less than the full width of the lane involved. If the area to be removed extends to a point less than 10 feet {3 m} from a joint, it shall be extended on to the joint.

(p) REINFORCED BRIDGE END SLABS.

Special pavement slabs, reinforced as shown on the plans, shall be constructed adjacent to bridges using concrete of the same type and proportions that are in the adjoining concrete pavement. No direct payment will be made for reinforced steel used in the bridge end slabs.

The end slabs shall be constructed in the same manner required for the construction of concrete pavement. Where the bridge end slab will be covered with a bituminous overlay, the final screeding of the surface of the concrete shall be by any means that will leave a slightly roughened surface. Where the bridge end slab will not have a bituminous overlay, the final screeding of the surface of the concrete shall be done with a mechanical longitudinal screed and the hardened surface of the concrete shall be machine grooved in accordance with the requirements given for grooving the surface of concrete bridge decks.

(q) PROTECTION OF PAVEMENT.

The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by his own employees and agents. Any material deposited on the pavement considered detrimental to the surface shall be removed immediately. This requirement shall include erection and maintenance of warning signs, lights, watchmen to direct traffic, pavement bridges, or crossovers, etc., as needed or directed by the Engineer.

(r) OPENING PAVEMENT TO TRAFFIC.

The Contractor shall protect the concrete pavement from vehicular traffic during the curing period. Completed portions of the concrete pavement may be opened to light construction traffic (small pick-up trucks and cars) when the compressive strength of the concrete pavement reaches 2500 psi but not earlier than 72 hours. Traffic shall not be parked on the pavement during the curing period and any curing compound and/or moisture removed by the traffic tires shall be replaced immediately.

The pavement may be opened to unrestricted traffic after 7 days if the 28-day compressive strength has been achieved and the Engineer has accepted the pavement without restriction.

If the ambient temperature drops below 40 °F, the period of time that the temperature is below 40 °F will be added to the minimum time to opening. Any part of the pavement damaged by traffic or other causes prior to its final acceptance shall be repaired or replaced at no additional cost to the Department in a manner acceptable to the Engineer.

450.04 Profilograph for Measuring Rideability.

(a) PROFILOGRAPH DEVICE.

1. DESCRIPTION.

The testing device shall be a longitudinal profilograph including all accessories and chart paper herein described. The chart paper containing the log of the smoothness index shall become the property of the Department at the time the measurements are taken. The following categories cover the furnishing and disposition of the profilograph:

Pay Item 450-E - The furnishing, by the Contractor, of a new profilograph, including chart paper, and its reconditioning, if deemed necessary by the Engineer, and title transfer to the Department upon completion of its use on the project.

Pay Item 450-F - The furnishing, by the Department, of a profilograph for use on the project. The Contractor shall furnish the chart paper.

Pay Item 450-G - The furnishing, by the Contractor, of a new or acceptable used profilograph, including chart paper, for use on the project with the Contractor retaining ownership of the profilograph.

2. PROFILOGRAPH EQUIPMENT REQUIREMENTS.

The profilograph shall be a California type profilograph, completely equipped with all necessary accessories. The profilograph shall be hand-propelled and shall have multiple averaging wheels.

When the profilograph is required to be furnished by the Contractor, the Contractor shall calibrate the profilograph prior to delivery to the project and shall maintain the profilograph during

the time its use is required on the project. When the profilograph is furnished by the State, the Department will calibrate and maintain the profilograph.

Chart paper for the profilograph shall be furnished in sufficient quantities for all calibration, test runs, and actual tests deemed necessary by the Engineer.

3. PROFILOGRAPH DELIVERY.

The profilograph shall be delivered to the project a minimum of two weeks before the beginning of the paving operation of the pavement layer to be tested to allow time for checking the profilograph.

(b) RIDEABILITY TESTING PROCEDURE.

1. DESCRIPTION.

The actual testing procedure shall be as outlined in ALDOT-335, *"Measuring Profile Index of a Paved Surface"*. This procedure is posted on the ALDOT Internet site in the pages of the Materials and Tests Bureau. Test sections (generally 528 feet long as defined in ALDOT-335) will be defined within each lane of the mainline pavement and within the inside shoulder of the mainline pavement. (The inside shoulder will be converted to a lane for traffic in a future contract.)

The profilograph test shall be performed as soon as practical after the pavement hardens sufficiently to prevent damage to the surface finish but no later than the next work day after placement of the concrete, unless otherwise authorized by the Engineer. The Contractor shall furnish the necessary personnel to operate the profilograph under the direction of the Engineer.

The profilograph test is considered a part of the paving operation and will be performed immediately in the proper sequence, in a satisfactory manner, even to the exclusion of other work.

2. RIDEABILITY REQUIREMENTS.

The results of the profilograph tests will be evaluated by Department personnel as outlined in ALDOT-335.

If a Profile Index of 50 inches per mile {800 mm/km} is exceeded in any test section of any daily paving operation, the paving operation will be suspended immediately after results of the unacceptable test section are obtained. The paving will not be allowed to resume until corrective action is taken by the Contractor.

Except for a distance of 25 feet either side of a construction joint or header placed when the paving operation ends each day, grinding will only be allowed to correct the surface to a Profile Index of less than 50 inches per mile. Grinding shall be for the full width of the pavement test section. Where grinding is allowed to bring the Profile Index to less than 50 inches per mile, payment for the test section will be 80 % of the contract price. All sections of pavement where the profile index remains greater than 50 inches per mile shall be removed and replaced (in accordance with the details shown on the plans) by the Contractor without additional compensation.

When the Profile Index is 20.0 inches per mile {320 mm/km}, or more, per section, a price adjustment will be made to the compensation for the pavement. When the Profile Index is below 10.0 inches per mile {160 mm/km} per section, a unit price increase will be added.

The price adjustments for rideability are given in Subarticle 450.08(b).

450.05 Tolerance in Pavement Thickness.

Pavement (main roadway, shoulders, intersections, entrances, crossovers, ramps, etc.) thicknesses will be checked for compliance with plan required thickness by measuring cores in accordance with the requirements given in AASHTO T 148, *"Measuring Length of Drilled Concrete Core"*. Pavement with deficient thickness will be paid for on an adjusted unit price as described in Subarticle 450.08(b). The description of a "pavement testing unit" is given in 450.02(h)2.

(Pavement testing units will be designated for acceptance and payment based on rideability and concrete strength as well as pavement thickness.)

The Contractor shall obtain cores for the determination of pavement thickness. The Engineer will designate the location where the cores must be taken in accordance with the requirements given in ALDOT 210, and will measure the length of the cores to determine pavement thickness. Thickness measurements shall be made after all operations, if applicable, have been performed to improve rideability.

Pavement that is deficient from the required thickness by more than 0.75 inches shall be replaced in accordance with the details shown on the plans at no cost to the Department.

All voids resulting from coring operations shall be filled and consolidated with the same concrete mix used during paving. Voids shall be filled by the Contractor without additional compensation on the

same day that the cores are taken. The Engineer may take random samples of the concrete used to fill the voids to insure that its strength is the minimum compressive strength derived from the correlation with the required flexural strength.

450.06 Acceptance of Concrete Based on Compressive Strength.

1. COMPRESSIVE STRENGTH FROM TESTING CONCRETE CYLINDERS.

Compressive strength from concrete cylinders will be accepted when the average of two consecutive cylinder test results, obtained at the same age, equals or exceeds the required 28-day compressive strength, and neither cylinder test result is below 95% of the required 28-day compressive strength. The sampling location will be recorded and the test specimens will be marked to correspond with that location.

Extra cylinders may be cast at the Contractor's expense to monitor strength at different ages or to early opening to traffic.

(Pavement units, also called "test sections", will be designated for acceptance and payment based on rideability and pavement thickness as well as concrete strength.)

2. COMPRESSIVE STRENGTH FROM TESTING CONCRETE CORES.

If the compressive strength of the concrete indicated by the testing of concrete cylinders is less than the required strength, cores shall be taken and tested to determine the in-place compressive strength. Concrete coring and testing shall be completed within 42 calendar days after the placement of the concrete.

Coring and testing shall be done at the Contractor's expenses and shall be performed by a laboratory qualified by the Department. The Contractor shall arrange for the Engineer to witness the coring and testing. A list of qualified laboratories may be obtained from the Concrete Section of the Bureau of Materials and Tests.

The strength shall be the average of three core test results. If the average compressive strength of the cores is equal to or greater than 100 % of the required 28-day compressive strength, the concrete will be accepted with no price reduction. If the average compressive strength of the cores is 85 % or greater but less than 100 % of the required 28-day compressive strength, a price adjustment will be applied to the applicable pay item for the increment of pavement represented by the low break. The formula for the determination of the price adjustment is given in Article 450.15.

If the strength determined by testing the cores is less than 85 % of the required strength, the concrete pavement shall be removed and replaced in accordance with the details shown on the plans without additional compensation.

All voids resulting from coring operations shall be filled and consolidated with the same concrete mix used during paving. Voids shall be filled by the Contractor without additional compensation on the same day that cores are taken. The Engineer may take random samples of the concrete used to fill the voids to insure that its strength is the minimum compressive strength derived from the correlation with the required flexural strength.

450.07 Method of Measurement.

The amount of concrete pavement to be paid for under this section shall be the number of square yards {square meters} of pavement completed and accepted, measured in place and calculated to the nearest square yard {square meter}. The width will be the width of the pavement shown on the typical cross section of the plans plus additional widening where called for, or directed by the Engineer in writing. The width will be the outside to outside measurement of the pavement including any area covered by integral curb or concrete median strip. The length will be measured along the surface of the centerline.

Reinforced concrete bridge end slabs will be measured in square yards {square meters} and will be paid for separately.

The number of profilographs measured for payment will be the actual number of units ordered and accepted.

450.08 Basis of Payment, Price Adjustments and Pavement Replacement.

(a) GENERAL.

The square yardage {square meters} of concrete pavement and bridge end slab, measured as provided above, will be paid for at the contract unit price bid per square yard {square meter}, which payment shall be full compensation for furnishing and placing all materials, including any reinforcing steel and supports, anchor concrete, sleeper slab concrete, steel beams, dowels, and all other joint

material, any additives, and for all materials, equipment, tools, labor, and incidentals required to complete the work (including the finishing, grooving, or tining of the surface).

No additional payment over the contract unit bid price will be made for any pavement which has an average thickness in excess of that shown on the plans.

Integral curb, measured as provided above, will be paid for at the contract unit price per linear foot {meter} which shall be payment in full for all materials and work required in completing the item.

The ordered and accepted profilographs, measured as noted above, will be paid for at the contract unit price bid which shall be full compensation for furnishing the unit and includes all equipment, tools, labor, calibration, maintenance, services, supplies, chart paper, and incidentals necessary to complete these items of work.

(b) PRICE ADJUSTMENTS AND DEFICIENCIES REQUIRING PAVEMENT REPLACEMENT.

1. PRICE ADJUSTMENT BASED ON RIDEABILITY.

The Profile Index shall be measured as noted in Subarticle 450.04(b).

The Profile Index and corresponding price adjustments are given in the following table:

Profile Index Inches/mile/section {millimeters/kilometer/section	Contract Price Adjustment Percent of Pavement Unit Contract Price
Under 10.0 {Under 160}	105 - (Profile Index/2.0) {105 - (Profile Index/32.0)}
10.0 to less than 20.0 {160.0 to less than 320.0}	100
20.0 through 50.0 {320 through 800}	100 - [(Profile Index - 20.0)/1.5] {100 - [(Profile Index - 320.0)/24.0]}
Over 50.0 {Over 800}	Unacceptable

Where grinding is allowed to bring the Profile Index to less than 50 inches per mile, payment for the test section will be 80 % of the contract price.

2. PRICE ADJUSTMENT BASED ON PAVEMENT THICKNESS.

Where the thickness of pavement, measured as described in Article 450.05, is deficient from the required thickness, payment will be made at an adjusted price as shown in the following table.

PRICE ADJUSTMENT FOR DEFICIENCY IN PAVEMENT THICKNESS	
Deficiency in Pavement Thickness Determined from Cores	Price Adjustment
Greater than 0.00" to less than or equal to 0.10"	100 %
Greater than 0.10" to less than or equal to 0.25"	90 %
Greater than 0.25" to less than or equal to 0.40"	80 %
Greater than 0.40" to less than or equal to 0.55"	70 %
Greater than 0.55" to less than or equal to 0.75"	60 %
Greater than 0.75"	Replace Pavement Testing Unit

3. PRICE ADJUSTMENT BASED ON COMPRESSIVE STRENGTH.

Payment for concrete pavement will be adjusted based on compressive strength (from cores) as described in Article 450.06.

The price adjustment shall be determined from the following formula:

$$\text{Price Adjustment (\% Payment)} = 100 \times (1.0 - [\,(f'_c - f_{c\,AVG}) / (0.30\, f'_c)\,])$$

f'_c = Required 28-day Compressive Strength (psi) {MPa} as designated from the correlation of the compressive strength with the required flexural strength;

$f_{c\,AVG}$ = Average Compressive Strength of Test Cores (psi) {MPa};

The price reduction shall be rounded to the nearest tenth of a percent.

4. RANGE OF PRICE ADJUSTMENTS AND ASSESSMENT OF COMBINED PRICE ADJUSTMENTS.

The range of price adjustment based on rideability is 105 % to 80 %.

The range of price adjustment based on pavement thickness is 100 % to 60 %.

The range of price adjustment based on compressive strength shall be 100 % to 50 %.

If more than one price adjustment is required, the product of the price adjustments (decimal values of the percentage price adjustments multiplied together) will be applied to the contract price for the pavement.

5. DEFICIENCIES REQUIRING PAVEMENT REPLACEMENT.

The pavement shall be removed and replaced without extra compensation if the following price adjustments occur:

- the profile index is greater than 50 inches per mile per section;
- the deficiency in pavement thickness exceeds 0.75 inches;
- the price adjustment based on compressive strength is less than 50 %, or;
- the product of the price adjustments for pavement thickness and compressive strength is less than 50 %.

(c) PAYMENT WILL BE MADE UNDER ITEM NO.:

450-A __*__ Cement Concrete Pavement, ___ inches {mm} Thick - per square yard {square meter}
450-B Reinforced Cement Concrete Bridge End Slab - per square yard {square meter}
450-C Integral Curb - per linear foot {meter}
450-E Profilograph - per each
450-F State Furnished Profilograph - per each
450-G Contractor Retained Profilograph - per each
* Plain, Reinforced, Plain High Early Strength, Reinforced High Early Strength, Continuous Reinforced

SECTION 452
SLABJACKING OF PORTLAND CEMENT CONCRETE PAVEMENT

452.01 Description.

The work covered by this Section consists of the raising and leveling of concrete pavements that have settled by the injection of grout under the pavement using hydraulic pressure to raise the pavement to its designated grade.

Due to the variations in quantities that can be experienced in this type work, the quantities for the items in this Section cannot be accurately determined before the work is done; therefore, the items in this Section shall be excluded from those items which may have their unit price adjusted as allowed by Subarticle 104.02(a). At any time during the life of the project, should any process or work herein be deemed ineffective or unnecessary by the Engineer, the Engineer may order any and/or all work under this Section stopped, reduced, and/or eliminated. In such case, the Contractor will be paid for all work ordered and performed. No claim will be considered because of elimination or reduction of work under this Section.

452.02 Materials.

(a) GENERAL.

Materials furnished for use shall conform to the appropriate requirements of Division 800, Materials, and the requirements noted in this Article.

(b) GROUT.

The grout used in slabjacking shall consist of one of the mixtures shown in Table I with the materials complying with the following:

Type I or III Cement - Article 815.01 and 815.03
Calcium Chloride - Section 805 Type I
Fly Ash - Section 806 Modified to waive the Loss on Ignition requirement
Water - Section 807
Admixtures - Sections 808 and 809

All portions of the wall constructed outside the limits of measurement outlined above will be considered incidental to construction of that particular type of wall and will not be measured for payment.

All other items of work, including but not limited to selected backfill material for all components of the wall, the furnishing and installation/construction of all footings/leveling pads, copings, traffic barriers, fence, caps, reinforcing strips, reinforcing mesh, permanent and temporary facing, and specified devices for monitoring settlement shall be included in the contract price for the retaining wall and will not be measured separately for payment.

The cost of all excavation within 4 feet {1.3 m} of the front face (exposed face) of the wall and all excavation behind the wall shall be included in the square foot contract price for the wall. Excavation beyond 4 feet {1.3 m} from the front face of the wall that is required for roadway construction will be paid for under other items of work.

529.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The concrete retaining wall, complete in place and accepted, measured as noted above, shall be paid for at the contract unit price bid per square foot {square meter} which shall be full compensation for all required designs and submittals and for furnishing all materials, fabrication, erection, and construction, and for all excavation and selected backfill material, equipment, tools, labor, and incidentals necessary to complete this item of work.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:

529-A Retaining Wall - per square foot {square meter}

SECTION 530
ROADWAY PIPE CULVERTS

530.01 Description.

This Section shall cover the work of furnishing and installing pipe type culverts of the size, shape, wall thickness, type material, and appropriate strength designated on the plans or in the proposal. The installation shall be at the locations shown on the plans or designated in conformity with the lines and grades shown by the plans or designated by the Engineer. The work shall include the furnishing and construction of such joints, cuttings, and connections to other pipes or structures as may be necessary to complete the work as shown on the plans or directed.

The following abbreviations will be used:

Concrete Pipe	P.C. for plain concrete R.C. for reinforced concrete
Corrugated Metal	C.M. for any acceptable corrugated metal pipe covered by these specifications
Protective Coating	C. for any protective coating of metal pipe allowed by these specifications
Paved Invert	P.I.
Corrugated Steel	C.S. for Plain Corrugated Steel C.C.S. for Coated Corrugated Steel C.C.S.P.I. for Coated C.S. Paved Invert
Corrugated Aluminum	C.A. for Plain Corrugated Aluminum C.C.A. for Coated C.A. C.C.A.P.I. for Coated C.A. Paved Invert
Concrete Lined	C.L.

Unless a specific type of pipe is designated by the plans or proposal, the Contractor may use one of the optional types of pipe shown by the plans or proposal. However, an installation, once started, shall be made with the same type of pipe throughout unless specifically designated otherwise by plan details, or directed in writing. The Contractor, at his option, may furnish a stronger grade pipe than specified provided no additional cost is incurred by the State for such installation.

The Contractor shall also have the option to use Horizontal Elliptical (H.E.) Pipe in lieu of Concrete Arch Pipe provided the H.E. pipe equals or exceeds the Arch pipe in strength and equivalent opening. If the Contractor elects to use H.E. pipe, he shall still be paid under the Pay Item for which the H.E. pipe replaces.

530.02 Materials.

Materials furnished for use shall conform to the appropriate provisions of Division 800, Materials, with specific reference made to Sections 831 and 854 and the following:

Section 846 - Pipe Culvert Joint Sealers

Section 850 - Roadway Pipe

If H.E. pipe is used as outlined in Article 530.01, the pipe shall meet the requirements of AASHTO M 207 {M 207M}. The test reports shall also state the size and class of Arch pipe for which the H.E. pipe is substituted.

530.03 Construction Requirements.

(a) GENERAL.

1. PIPE INSPECTION.

Pipe shall be laid only in the presence of the Engineer or his authorized representative, and shall not be covered until approved. Pipe installed contrary to this requirement will be rejected and shall be replaced by the Contractor without additional compensation.

2. GRADE AND ALIGNMENT.

The pipe shall be laid with ends abutting and with not more than a 1 inch {25 mm} variation from established alignment at the vertical centerline or from grade at the flowline. The Engineer will provide in the designated grade sufficient camber to prevent development of sag or reverse slope due to foundation settlement under embankment load.

3. CULVERT EXTENSIONS.

3. PIPE CULVERT EXTENSIONS.

The Contractor shall extend existing pipe culverts using the same construction methods and materials required for the installation of new pipe culverts. A pipe that extends from an existing manhole, inlet, or junction box, and a pipe that is extended from the installation of a collar shall be a pipe extension. A pipe that is extended from the installation of a new junction box is not a pipe extension and will be considered to be just a roadway pipe.

4. DEPTH OF FILL.

The fill height for determining the class or wall thickness of pipe will be the distance from the elevation of the top of the pipe to elevation at the top of the base course.

5. COATED, PAVED INVERT, AND CONCRETE LINED PIPE.

In the installation of coated, paved invert, or concrete lined pipe, care shall be taken not to damage the protective coating, lining, or the paved invert. Any damage shall be repaired with approved material or replaced as directed.

6. CORRUGATED STEEL OR CORRUGATED ALUMINUM PIPE.

Where aluminum pipe is to be connected to galvanized or other metal pipe, the surfaces shall be separated from contact by an approved type of gasket.

7. GALVANIZED PIPE.

Any damage to galvanizing shall be painted with two coats of approved galvanizing repair paint, Section 855, or approved zinc spelter paint.

(b) EXCAVATION OF TRENCH.

Details of trenching and bedding of pipe will be shown on the plans. All pipe 48 inches {1200 mm} or less in horizontal diameter shall be laid in a trench extending at least 1 foot {300 mm} above the elevation of the top of the pipe. For such pipe, where the ground surface is less than 1 foot {300 mm} above the elevation of the top of the pipe, the Contractor shall first construct and compact the fill to a minimum height of 1 foot {300 mm} above the elevation of the top of the pipe and for a minimum distance of 10 feet {3 m} in each direction from the outside edge of the pipe. The trench shall then be excavated as specified in Section 214. Caution shall be used to keep the sides of the trench vertical and to specified dimensions. Extra wide excavation to accommodate pans or other unsuitable excavating equipment will not be permitted. Excavation above subgrade will be classified and paid for as roadway excavation. Excavation below subgrade will be classified and paid for as structure excavation except that no payment will be made for excavating that part of a fill section placed more than 1 foot {300 mm} above the top of the pipe.

For pipe over 48 inches {1200 mm} in horizontal diameter, trenching will be required only where the original ground is above the elevation of the bottom of the pipe, and backfilling shall be performed as specified in Item 210.03(d)2.

Should the material encountered at the elevation of the trench floor not be suitable to support the structure, removal of unsuitable material and placement of foundation backfill shall be performed and will be paid for as specified in Section 214. Temporary drainage necessary for proper installations shall be provided by the Contractor without additional compensation.

(c) PIPE BEDDING.

1. GENERAL.

All pipe culverts placed under this Section shall be placed in a prepared bed of one of the types noted herein. Unless otherwise provided, a Class "C" Bedding shall be used.

2. CLASS A BEDDING.

The pipe culvert shall be bedded in a continuous concrete cradle conforming to plan details.

3. CLASS B BEDDING.

The pipe shall be bedded with ordinary care in a prepared foundation bed to a depth of not less than 30 percent of the vertical diameter of the pipe plus 4 inches {100 mm}. The thickness of the foundation bed shall be a minimum of 4 inches {100 mm} in thickness and shall be shaped to fit the pipe for at least 15 percent of the vertical outside diameter. Recesses in the trench bottom shall be shaped to accommodate the bell of the pipe when bell and spigot type pipe is used.

"Ordinary" care in this Article shall mean sufficient care to insure that the permissible variations listed in Item 530.03(a)2 will not be exceeded.

The bedding material shall be sand or an approved selected sandy soil.

4. CLASS C BEDDING.

The pipe shall be bedded with ordinary care in a loosened soil foundation shaped to fit the lower part of the pipe exterior with reasonable closeness for at least 10 percent of its overall height. Use of a template for shaping will not be required. The shaped foundation shall be loosened by pulverizing the soil to a minimum depth equal to 0.125 times the diameter of the pipe or 3 inches {75 mm} maximum. "Ordinary care" in this Article shall mean sufficient care to insure that the permissible variations listed in Item 530.03(a)2 will not be exceeded.

Where ledge rock, rocky or gravelly soil, hard pan, or other unyielding foundation material is encountered at a culvert site, the pipe shall be bedded as follows: The hard unyielding material shall be excavated below the elevation of the bottom of the pipe, or pipe bell, for a depth of at least 12 inches {300 mm}, or 1/2 inch for each foot {40 mm for each meter} of fill over the top of the pipe, whichever is greater, but not more than 24 inches {600 mm}. Payment for this material shall be made under Structure Excavation. The width of the excavation shall be 12 inches {300 mm} greater than the outside diameter or span of the pipe and shall be filled with selected fine compressible material, such as silty clay or loam taken from selected grading operations or areas beyond the right of way and paid for as Foundation Backfill. This material shall then be lightly compacted in 6 inch {150 mm} compacted lifts and shaped as specified above.

5. CLASS C-1 BEDDING.

When so specified on the plans, Class C-1 bedding or imperfect trench method shall be used as follows:

The pipe shall be placed and backfilled as specified in Subarticles 530.03(d) and (e) to a point 1 foot {300 mm} above the top of the pipe. The fill shall then be continued as specified in Section 210 for a minimum distance of 10 feet {3 m} in each direction from the outside edge of the pipe and to a height equal to outside diameter of the pipe plus 1 foot {300 mm} above the top of the pipe.

Next, a trench equal in width to the outside diameter of the pipe shall be dug in the fill directly over the culvert down to an elevation 1 foot {300 mm} above the top of the pipe. Care shall be exercised to keep the sides of this trench as nearly vertical as possible. The trenches shall then be refilled with loose, highly compressible soil, except that straw, hay, cornstalks, leaves, brush, or sawdust may be used to fill the lower 1/4 to 1/3 of the trench. After this loose backfill is completed, the remainder of the fill up to subgrade elevation shall be constructed as specified in Section 210.

Compensation for the extra excavation and backfill involved in the imperfect trench method shall be included in the unit price of other items and no direct payment will be made for this

work. At the Contractor's option, the embankment may be constructed full height prior to laying the pipe.

(d) PLACING PIPE.

1. GENERAL.

Proper facilities shall be provided for lowering the sections of pipe into the prepared trench.

The pipe laying shall begin at the downstream end of the pipe line. The lower segment of the pipe shall be in contact with the shaped bedding throughout its full length. Bell or groove ends of rigid pipe and outside circumferential laps of flexible pipe shall be placed facing upstream. Flexible pipe shall be placed with longitudinal laps or seams at the sides.

Paved invert pipe shall be laid so that the longitudinal center line of the paved segment coincides with the designated flow line.

All flexible (C.S. or C.A.) pipes 48 inches {1200 mm} or larger in diameter shall be shop elongated or field strutted except for arch pipe and concrete lined pipe. Details for field strutting shall be as provided by the plans and shall be accomplished prior to placing any embankment adjacent to the structure. Only horizontal ties shall be used in strutting paved invert pipe. The pipe shall be laid in the trench with the separate sections firmly joined together and with outside laps of circumferential joints pointing up stream and with longitudinal laps on the sides. Any metal in joints which is not protected by galvanizing shall be coated with suitable asphaltum paint. If headwalls are to be placed, the ends of the pipes laid on a skew shall be neatly cut off parallel with the centerline of the highway and flush with the outside face of the headwalls.

2. MULTIPLE PIPE CULVERTS.

Where multiple lines of pipe are used, they shall be spaced far enough apart to permit thorough tamping of earth between adjacent lines. To this end the adjacent sides of circular pipe shall be at least 0.5 times the nominal pipe diameter apart, or 3 feet {1 m}, whichever is less. Spacing for arch pipe shall be as shown on the plans.

3. JOINING PIPE.

a. Rigid Pipe (Concrete, C.I.)

Rigid pipe may be of bell and spigot, tongue and groove, or other approved design unless a specific type is specified. The method of joining pipe sections shall be such that the ends are fully entered and the inner surfaces are reasonably flush and even.

Joints shall be sealed with mortar, bituminous plastic cement, rubber type gaskets, or other type sealers that may be approved. Joints shall be thoroughly cleaned before being sealed and shall be sealed for the full circumference of the joint unless otherwise directed.

When mortar is used for sealing joints, the procedure shall be as follows: Before each succeeding section of pipe is laid, the hub of the pipe shall be moistened and the lower half filled on the inside with cement mortar of sufficient thickness to bring the inner surfaces of abutting pipes flush and even. After the pipe is laid, the remainder of the joints shall be moistened and filled with mortar and sufficient additional mortar used to form a bead around the joint. No joint shall be entirely cemented until the next two joints in advance, if any, are laid. The inside of the joint shall be wiped and finished smooth. Mortar on the outside of the pipe shall be protected from the air and sun by one of the curing methods provided for concrete, Section 501, or by covering with moist earth.

When bituminous plastic cement or other mastic sealers are used, the interior surface of the hub, beginning at the lip of the normal interior surface of the pipe, shall be coated with a layer of sealing material that will cover at least 0.33 times the distance, measured along the surface of the hub, parallel to the normal length of the pipe. The thickness of the mastic placed shall be such that it will provide a uniform seal between the edges of the pipe sections being joined (approximately 1/2 of an inch {10 mm} on the inside shoulder of the hub and approximately 1/8 of an inch {3 mm} of material on the remaining area to be covered). No joint shall be considered satisfactory when the space between the edges of the pipes being joined exceeds 1/2 of an inch {10 mm} for more than 0.33 times the circumference of the pipe. The inside of the joint shall be wiped and finished smooth.

When rubber or other types of gaskets are used for sealing joints, they shall be installed as recommended by the manufacturer,

b. Flexible Pipe (C.S., C.A.)

Flexible pipe shall be firmly joined by coupling bands of an approved type. Joints shall be thoroughly cleaned before being joined and shall be sealed for the full circumference of the joint with an approved sealer unless otherwise directed.

4. INSPECTION.

All pipe shall be inspected before any backfill is placed. Any pipe found to be out of alignment, unduly settled, or damaged shall be taken up and relaid or replaced.

(e) BACKFILLING PIPE.

1. GENERAL.

After the pipe has been installed, the pipe trench shall be backfilled with the best of the suitable material excavated from the trench; if none of this excavated material is suitable, material from the roadway shall be used and paid for as such, or suitable material shall be hauled in and used with payment being made under the classification of the material ordered used. For backfilling above a point 1 foot {300 mm} above the top of the pipe, material from the trench may be used unless unsuitable for embankment.

Backfilling will not be permitted until authorized by the Engineer. When mortar joints are used, backfilling shall not begin until the joints have cured or until authorized by the Engineer.

2. PLACING AND COMPACTION OF BACKFILL.

The backfill material shall be compacted at near optimum moisture content, in layers not exceeding 6 inches {150 mm} compacted thickness, to a density of not less than 95 percent of AASHTO T 99 density by methods detailed in Section 210. Mechanical tampers shall be used unless another method of compaction is approved in writing; inundation or jetting will not be permitted unless specified on the plans. Care shall be exercised to thoroughly compact the backfill under the haunches of the pipe and to insure that the material is in intimate contact with the pipe. The backfill shall be brought up evenly in layers on both sides of the pipe for its full length until the trench is filled or up to subgrade elevation if the trench is in cut.

When the top of the pipe is exposed above the top of the trench, embankment material shall be placed and compacted for a width on each side of the pipe equal to at least twice the horizontal inside diameter of the pipe, or 12 feet {4 m} whichever is less. The embankment on each side of the pipe, for a distance equal to the horizontal inside diameter of the pipe, shall be of the same material and compacted in a normal manner except where the Class C-1 (imperfect trench) method is prescribed. All pipe, after being bedded and backfilled as specified in this Section, should be protected by a 3 foot {0.6 m} cover of fill before heavy equipment is permitted to cross during construction of the roadway.

3. PROTECTION OF PIPE.

The Contractor shall exercise necessary care in installing and backfilling pipe, and it shall be his responsibility to see that the pipe is not damaged by lateral forces during backfilling, by heavy loads operating over the pipe, or by other causes. All damaged pipe shall be replaced or repaired by the Contractor at his own expense at the option of, and to the satisfaction of, the Engineer.

Any pipe not true to designated alignment and grade within specified tolerances, or any pipe that shows settlement due to faulty installation, shall be relaid or replaced by the Contractor without additional compensation. Any pavement that settles or breaks over a pipe shall be replaced or repaired by the Contractor, at the option of the Engineer, without additional compensation. All pipe lines shall be thoroughly cleaned out prior to final acceptance.

530.04 Method of Measurement.

The accepted length of pipe culverts laid as ordered will be measured along the bottom flowline, or invert, of the pipe complete in place. Measurements will be made between inside walls of designated structures (junction boxes, inlets, etc.) and along the centerline of the flowline of special fittings (elbows, wyes, etc.). The above applies to round or arch, beveled or unbeveled, pipe. However, in no case will measurement be made for lengths greater than the sum of the nominal laying lengths of the pipe sections used or for lengths greater than the length of culvert ordered by the Engineer. No separate measurement for payment will be made for the excavation and/or backfill volume needed to reroute water for temporary drainage which might be necessary for the proper installation of the pipe or to perform the imperfect trench method of installation.

Structure excavation and foundation backfill, including that necessary for the installation of roadway pipe of a temporary nature, when ordered will be measured and paid for as prescribed in Section 214.

530.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The accepted length of pipe culverts, measured as above provided, will be paid for at the respective contract unit prices for the various sizes, and types of pipe provided in the proposal, complete in place, which shall be payment as herein provided and also for all work, equipment, materials, and incidentals connected with the execution of the Class Bedding specified for installation, except that Foundation Backfill and Structure Excavation shall be paid for separately.

(b) ITEM NUMBER AND ITEM NAME.

The internal diameter of circular pipe, the span and rise of arch pipe, the class of pipe, the class of pipe bedding, if other than Class "C", and the type or types of pipe allowed will be shown in the item name.

(c) PAYMENT WILL BE MADE UNDER ITEM NO.:

530-A ___ inch {mm} Roadway Pipe, Class __* Bedding (__**) - per linear foot {meter}

530-B ___ inch {mm} Span, ___ inch {mm} Rise Roadway Pipe, Class __* Bedding (__**) - per linear foot {meter}

* If other than Class "C", so note.

** Show acceptable types of pipe.

Examples:

Specific Type: Class ____ R.C., or ____ gage {mm} C.C.S.P.I., or ____ gage {mm} C.C.S., or ____ gage {mm} C.C.A.P.I., or____ gage {mm} C.C.A.

Optional Types: Class ____ R.C. or equal strength C.C.M.P.I. or Class ____ R.C. or equal strength C.C.M.

SECTION 531
CORRUGATED METAL STRUCTURAL PLATE PIPE, ARCH PIPE, AND ARCH CULVERTS

531.01 Description.

This Section shall cover the work of furnishing corrugated metal structural plate pipe, arch pipes, and arches (coated and uncoated) of the sizes, plate thickness, and dimensions required by the plans and installing such at the locations shown by the plans or designated, all in conformity with these specifications to the lines and grades given. The corrugated metal plate pipe shall be full circle or other approved pipe shapes. Corrugated metal plate arches shall be part of circle construction anchored on footings, floor, or grillage of description shown on the plans.

531.02 Materials.

All materials shall conform to the provisions of Division 800, Materials. Specific reference is made to Section 841, Corrugated Metal Structural Plate for Pipe and Arches.

531.03 Construction Requirements.

(a) GENERAL.

The pipe or arch structure shall be carefully erected according to plans and erection drawings and true lines and grades, as given, on approved foundations. Arches shall be set in galvanized steel shapes on concrete or masonry footings, or on timber grillages or concrete floors built in full compliance with the specifications for Sections 501, 509, or 611. The structure shall be erected on its permanent foundations.

(b) ERECTION.

Structural plate pipe, pipe arches, and arches shall be erected in their final position by connecting the plates with bolts at longitudinal and circumferential seams. Drift pins may be used to facilitate matching of holes. Each plate shall have legible identification numerals to designate its position in the structures. All plates shall be placed in the order recommended by the manufacturer with joints staggered so that not more than three plates come together at any one point. All bolts shall be drawn tight before beginning the backfill and shall have not less than 200 nor more than 300 foot-

Where continuous runs of walks or drives are 80 feet {24 m} or longer, transverse expansion joints shall be provided; one joint for each additional 80 feet {24 m} or fraction thereof, of length.

Where walks or drives are confined longitudinally by other concrete units and the width of the walk or drive is in excess of 15 feet {5 m}, one longitudinal expansion joint will be required for each additional 15 feet {5 m}, or fraction thereof, of width.

Expansion joints shall be formed using a filler and sealer specified in Articles 832.01 and 832.02.

Unless shown otherwise by plan details, the joint filler shall be from the bottom of the walks or drives to 1 inch {25 mm} from the top; the sealer shall be 3/4 of an inch {19 mm} thick and shall be recessed 1/4 of an inch {6 mm} from the top.

(h) CURING AND PROTECTING.

Immediately after the finishing operations have been completed, the entire surface of the newly laid concrete shall be protected against rapid drying out and cured as provided in Subarticle 450.03(m), unless the Contractor elects to use Type III portland cement, in which case the total curing time will be reduced. No vehicles shall be permitted on the new concrete for seven days and pedestrians shall not be permitted thereon for at least 72 hours unless the Contractor elects to use Type III portland cement, in which case the time limit will be reduced to 24 hours for walks and four days for driveways.

(i) BACKFILLING.

After the concrete has set sufficiently, the side forms shall be removed and the spaces on both sides shall be backfilled with suitable material. This backfill shall be compacted to a level 1 inch {25 mm} below the walk or driveway and left in a neat and workmanlike condition.

618.04 Method of Measurement.

The quantity of accepted sidewalks or driveways will be measured, complete in place, and the area computed in square yards {square meters}. Measurement for separate payment for foundation backfill will only be made when Item 214-B is provided in the proposal and such is ordered by the Engineer.

618.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The accepted quantity of sidewalk or driveway will be paid for at the contract unit price for Concrete Sidewalks or Concrete Driveways, complete in place, which shall be payment in full for furnishing all materials (including joints), for the hauling, preparation, and placing of all materials, for the preparation of the subgrade backfilling and for all labor, equipment, tools, and incidentals necessary to complete the work.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:

618-A Concrete Sidewalk, ____ inch(es) {mm} Thick - per square yard {square meter}

618-B Concrete Driveway, ____ inch(es) {mm} Thick - per square yard {square meter}

SECTION 619
PIPE CULVERT END TREATMENTS

619.01 Description.

This Section shall cover the work of constructing a pipe culvert end treatment in accordance with these specifications and the plan details, at the locations shown on the plans or directed.

Unless specified otherwise on the plans or in the proposal, the Contractor may, for the required end treatment, either furnish and install a prefabricated pipe culvert concrete end section or construct a slope paved headwall, all in accordance with plan details and these specifications.

Class 1 shall designate those end treatments which do not require a grate. Class 2 shall designate those end treatments which do require a grate.

619.02 Materials.

All materials furnished for use shall conform to the appropriate requirements of Section 614, Division 800, Materials, plan details, and the following:

Concrete end sections shall comply with the requirement shown by plan details and Section 850 for Class 3 pipe except that the three-edge-bearing test will not be required.

Concrete end sections with metal sleeves shall comply with the provisions noted above. The metal sleeve shall comply with the appropriate provisions of Articles 850.02 and 850.03. Metal sleeves used in conjunction with coated and/ or paved invert pipe shall be coated using the same coating, with the exception of paved invert, used in the pipe culvert to which the sleeves are attached. In lieu of the bituminous coating, the Contractor may substitute a polymeric coating meeting the requirements specified in Item 850.02(c)2.

Safety grates, when required, shall be fabricated in accordance with plan details.

619.03 Construction Requirements.

(a) EXCAVATION AND BACKFILL.

All excavation involved shall be in accordance with the provisions of the Sections for the type pipe involved and Section 214. Backfilling shall be as specified under Sections 210, 214 and the applicable Pipe Culvert Section.

(b) INSTALLATION OF END TREATMENTS.

When prefabricated end sections are used, they shall be installed and securely affixed to the pipe line as shown on the plans or directed, all in conformity with the established lines and grades for the structure.

When slope paved headwalls are used, they shall be constructed as shown on the plans.

619.04 Method of Measurement.

The number of end treatments measured for payment will be the actual number of end treatments of the designated size and class, complete in place, on each designated pipe culvert.

619.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The ordered and accepted pipe culvert end treatment of the designated class for each size and appropriate type of pipe to which the end treatment is attached, measured as noted above, will be paid for at the contract unit price bid for the end treatment. Such price shall be full compensation for the furnishing of all materials and the installation and construction thereof, except for the items of Structure Excavation and Foundation Backfill, necessary for the complete construction of the end treatment, and for all labor, tools, equipment, and incidentals necessary to complete the work.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:

619-A ___ inch {mm} __* Pipe End Treatment, Class ____ - per each

619-B ___ inch {mm} Span, ___ inch {mm} Rise __* Pipe End Treatment, Class ____ - per each

* Specify Roadway or Side Drain.

SECTION 620
MINOR STRUCTURE CONCRETE

620.01 Description.

This Section shall cover the work of constructing minor concrete structures such as pipe culvert headwalls, inlets and junction boxes, concrete steps, coping walls, and other miscellaneous items. All of which shall be constructed in accordance with the details shown on the plans and these specifications to the lines and grades established by the plans or directed.

620.02 Materials.

All materials furnished for use shall conform to the requirements of Division 800, Materials, and the following:

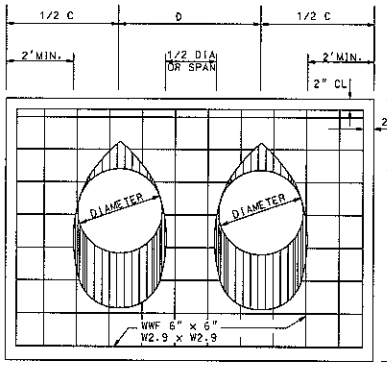
Section 501	Structure Concrete
Section 502	Reinforcing Steel

620.03 Construction Requirements.

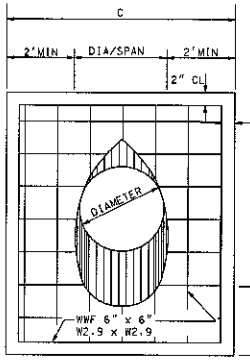
(a) GENERAL.

The concrete mix used for minor structure work shall be Class "A", Type 2 unless otherwise provided by plan details, all in accordance with the appropriate provisions of Section 501.

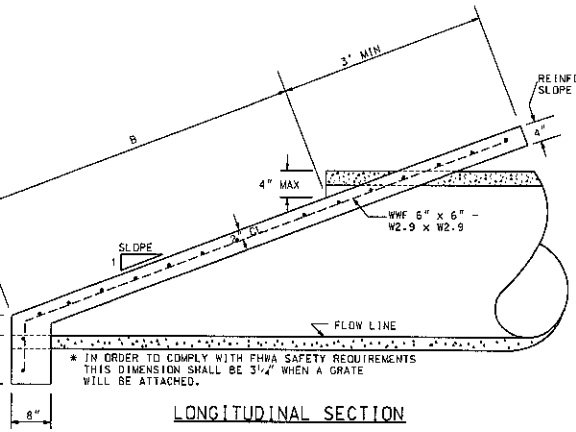
REFERENCE PROJECT NO.	FISCAL YEAR	SHEET NO.



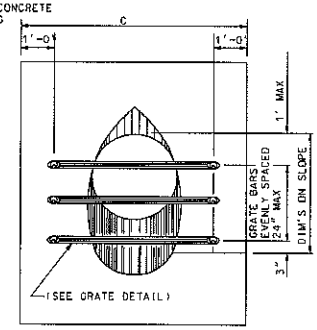
END ELEVATION DOUBLE BARREL



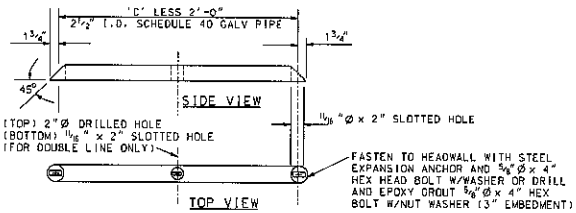
END ELEVATION SINGLE BARREL



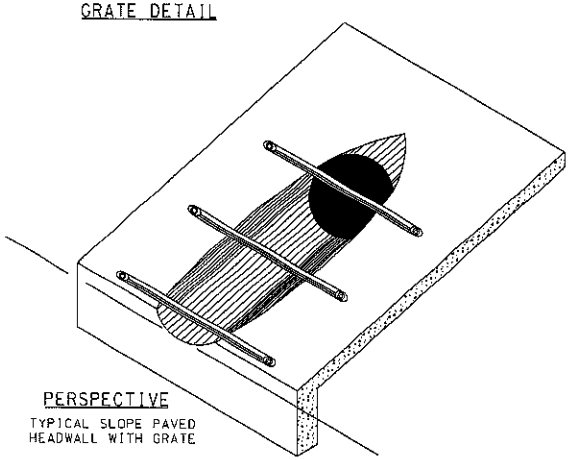
LONGITUDINAL SECTION



END ELEVATION WITH GRATE



GRATE DETAIL



PERSPECTIVE

TYPICAL SLOPE PAVED HEADWALL WITH GRATE

DIMENSIONS AND QUANTITIES							
PIPE SIZE	AREA SQ. FT.	SLOPE	B	C	D	CU. YDS. ONE BBL	CU. YDS. ADD'L. BBL
15"Ø	1.2	4:1	2'-5"	5'-3"	1'-11"	0.92	0.30
18"Ø	1.8	4:1	3'-6"	5'-6"	2'-3"	1.06	0.36
24"Ø	3.1	4:1	5'-6"	6'-0"	3'-0"	1.32	0.52
30"Ø	4.9	4:1	7'-7"	6'-6"	3'-9"	1.60	0.72
36"Ø	7.1	4:1	9'-8"	7'-0"	4'-6"	1.86	0.94
42"Ø	9.6	4:1	11'-9"	7'-6"	5'-3"	2.20	1.20
48"Ø	12.6	4:1	13'-9"	8'-0"	6'-0"	2.40	1.46
54"Ø	15.9	4:1	15'-10"	8'-6"	6'-9"	2.60	1.76
15"Ø	1.2	6:1	3'-7"	5'-3"	1'-11"	1.04	0.30
18"Ø	1.8	6:1	5'-1"	5'-6"	2'-3"	1.22	0.40
24"Ø	3.1	6:1	8'-1"	6'-0"	3'-0"	1.58	0.60
30"Ø	4.9	6:1	11'-2"	6'-6"	3'-9"	1.94	0.84
36"Ø	7.1	6:1	14'-2"	7'-0"	4'-6"	2.30	1.12
42"Ø	9.6	6:1	17'-3"	7'-6"	5'-3"	2.68	1.42
48"Ø	12.6	6:1	20'-3"	8'-0"	6'-0"	3.04	1.78
54"Ø	15.9	6:1	23'-4"	8'-6"	6'-9"	3.40	2.18
15"Ø	1.2	10:1	5'-10"	5'-3"	1'-11"	1.24	0.32
18"Ø	1.8	10:1	8'-4"	5'-6"	2'-3"	1.54	0.46
24"Ø	3.1	10:1	13'-5"	6'-0"	3'-0"	2.08	0.72
30"Ø	4.9	10:1	18'-5"	6'-6"	3'-9"	2.66	1.06
36"Ø	7.1	10:1	23'-5"	7'-0"	4'-6"	3.20	1.46
42"Ø	9.6	10:1	28'-6"	7'-6"	5'-3"	3.78	1.90
48"Ø	12.6	10:1	33'-6"	8'-0"	6'-0"	4.32	2.42
54"Ø	15.9	10:1	38'-6"	8'-6"	6'-9"	4.88	3.02
15"Ø	1.2	20:1	11'-9"	5'-3"	1'-11"	1.84	0.42
18"Ø	1.8	20:1	16'-8"	5'-6"	2'-3"	2.40	0.62
24"Ø	3.1	20:1	26'-8"	6'-0"	3'-0"	3.38	1.06

GENERAL NOTES

1. THE FILL IS TO BE PLACED AND ALL SHORING REMOVED BEFORE THE SLOPE PAVING IS PLACED.
2. QUANTITIES SHOWN INCLUDE TWO (2) SLOPE PAVED HEADWALLS WITH TOE WALLS.
3. DIMENSIONS AND QUANTITIES SHOWN APPLIES TO CONCRETE, CORRUGATED METAL PIPE, AND CORRUGATED HDPE PIPE. CONCRETE QUANTITIES ARE SUFFICIENT WHEN HEADWALLS FOR ARCH PIPE IS DESIRABLE.
4. CONCRETE PIPE SHALL BE BEVELED BY SAWING AFTER SLOPE PAVING HAS BEEN PLACED AND SUFFICIENTLY CURED (SOME HAND FINISHING MAY BE NECESSARY.) METAL PIPE SHALL BE SHOP CUT. CORRUGATED HDPE PIPE MAY BE FIELD BEVELED PRIOR TO PAVING OR SHOP CUT.
5. CONTRACTOR SHALL INSURE THROUGH MECHANICAL MEANS OR OTHER APPROVED DEVICES THAT CONNECTION BETWEEN BEVELED PIPE END AND CONCRETE WILL NOT BE DETACHED. CORRUGATED HDPE PIPE SHALL HAVE ½"Ø x 6" GALVANIZED HOOK BOLTS WITH WASHERS LOCATED AT 30° O.C. FOR THE TOE AND ½"Ø x 6" GALVANIZED THREADED HEX HEAD BOLTS WITH WASHERS LOCATED ON 2'-0" CENTERS FOR SIDES. ANCHOR BOLTS INTO CONCRETE.
6. SLOPE PAVED HEADWALL WITHOUT GRATE SHALL BE CLASS 1. SLOPE PAVED HEADWALL WITH GRATE SHALL BE CLASS 2.
7. PIPES LARGER THAN 24"Ø SHALL HAVE A CLASS 2 END TREATMENT WHEN TERMINATED WITHIN THE CLEAR ZONE.
8. PIPE FOR GRATE SHALL BE SCHEDULE 40, GALVANIZED (ASTM A53) HARDWARE SHALL BE GALVANIZED ACCORDING TO SPECIFICATIONS.
9. RAW METAL EXPOSED BY CUTTING AND DRILLING OF PIPE FOR GRATE ASSEMBLY WILL REQUIRE A GALVANIZING REPAIR PAINT IN ACCORDANCE WITH SECTION 855.31 OF A.L.D.O.T. SPECIFICATIONS.

N.T.S.

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

REVISIONS
1. Changed notes 3,4,& 5 to allow the use of HDPE pipe. 09-12-97 by C.J.S.

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

DESIGN BUREAU SPECIAL DRAWING

CONCRETE SLOPE PAVED HEADWALL AND GRATE FOR SIDEDRAIN PIPE

DRAWN BY:
DATE DRAWN: 02-08-91

SPECIAL DRAWING NO. HW-614-SP

INDEX NO. 415

out of roundness, and any other deformations. Anomalies shall not exceed 2% of the nominal pipe diameter or excessive ovality greater than 5% of the nominal pipe diameter.

649.04 Method of Measurement.

Encasement pipe will be measured by the linear foot {meter}.

649.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The encasement pipe will be paid for at the contract unit price bid for the type of installation required. The unit price bid shall be compensation in full for furnishing and installing the pipe, all excavation and backfill, vent pipes, spacers, end treatments, disposal of excess material and all labor, material, tools, equipment and incidentals necessary to complete the work.

(b) PAYMENT WILL BE MADE UNDER ITEM NO.:

649-A ___ inch {mm} __* Encasement Pipe, Type __** Installation - per linear foot {meter}

* Show Type: Steel; High Density Polyethylene(HDPE);etc.

** Show Type: 1, 2 or 3

SECTION 650
TOPSOIL

650.01 Description.

This Section shall cover the work of furnishing topsoil material, or the use of State furnished material from stockpiles, and the incorporation of the topsoil material into the work as plating material on shoulders, medians and slopes, or for other uses as may be designated.

The use of the Item of "Topsoil" requires that the Contractor provide the material from sources he has obtained. The use of the item "Topsoil from Stockpiles" denotes the State will provide the material in stockpiles established under the provisions of Section 210.

Basic work consists of loading, hauling, spreading, manipulating, and compacting the topsoil material, all in accordance with these Specifications, to the lines, grades and cross section indicated on the plans or directed by the Engineer.

650.02 Materials.

(a) DEFINITION.

Topsoil is defined as a natural, workable, friable, loamy soil without admixture of subsoil, refuse, or foreign materials, reasonably free from hard lumps, stiff clay, hardpan, gravel, noxious weeds, brush, or other undesirable material, and suitable for growing grasses, legumes, or other vegetative ground cover.

(b) REQUIREMENTS.

Acceptable topsoil shall have demonstrated by the occurrence upon it of healthy vegetative growth that it is well drained, and that it does not contain toxic amounts of either acid, alkaline, or other phytotoxic elements. The areas from which topsoil is secured shall possess such uniformity of soil depth, color, texture, drainage and other characteristics as to offer assurance that, when removed in quantity, the product will be homogeneous in nature and of acceptable quality.

(c) SOURCES OF MATERIAL.

1. TOPSOIL FURNISHED BY CONTRACTOR.

Where the plans specify the Item of Topsoil, the Contractor shall furnish the topsoil material and shall obtain it from areas, arranged for and furnished by him from outside of the right of way. However, both material and areas must be approved and attention is directed to Subarticle 106.01(b) for treatment of area after removal of material.

2. TOPSOIL FURNISHED BY STATE FROM STOCKPILES.

Where the plans specify the Item of Topsoil From Stockpiles, the Contractor shall use topsoil from stockpiles established under Subarticle 210.03(b).

650.03 Construction Requirements.

(a) SOURCE AREA OPERATIONS.

All areas from which topsoil is to be stripped shall be cleaned of all refuse which will hinder or prevent seedbed preparation or growth. In securing topsoil from approved areas, should unforeseen strata or seams of material occur which do not meet the requirements for topsoil, such material shall be removed from the topsoil and disposed of as directed, or if directed, the area shall be abandoned.

(b) HAULING TOPSOIL.

Topsoil shall be hauled in vehicles suitable for the purpose. Scrapers of a reasonable capacity will be considered as acceptable; however, excessive spillage will not be tolerated and loads shall be controlled to prevent such. Topsoil spilled on subgrade or other base or pavement structure layers shall be removed immediately.

(c) CONDITIONING OF AREA TO RECEIVE TOPSOIL.

Unless otherwise directed, before depositing topsoil upon any area, all shaping and dressing of such area shall have been completed and approved.

(d) APPLICATION OF TOPSOIL.

After the application of the topsoil to such a depth as indicated or directed, the area shall be harrowed and disked entirely through the layer of topsoil and into the subsoil to a depth of at least 2 inches {50 mm} in order to secure proper bond of the topsoil with the subsoil. At this stage all large lumps, large rocks, roots, or other objectionable matter shall be gathered up and disposed of. On such areas where the application of topsoil involves primarily the backfilling of rills or small washes, ground preparation, if directed, may be delayed until just before the application of fertilizer and grassing operations.

(e) COMPACTION.

It is intended that the grassing operation shall follow immediately after the placing of topsoil in which case such grassing operation would require satisfactory compaction in order to prevent erosion. In the event that grassing operations are delayed, the layer of topsoil shall be mixed, tilled, or compacted until satisfactory.

(f) MAINTENANCE.

The Contractor shall maintain the topsoil that has been placed, without extra compensation, in connection with any seeding, sodding, planting, or other work, until final completion of the project. Maintenance shall consist of preserving, protecting, and such other work as may be necessary to keep the work in a satisfactory condition.

650.04 Method of Measurement.

(a) TOPSOIL, ITEM 650-A.

This item covers topsoil material furnished by the Contractor complete in place on the roadbed and will be measured in cubic yards {cubic meters}, loose measure in the delivery vehicle at the point of delivery on the roadbed.

(b) TOPSOIL FROM STOCKPILES, ITEM 650-B.

This item covers topsoil material taken from State furnished stockpiles on the Right of Way and will be measured in cubic yards {cubic meters} by the cross-section and average end areas method at the stockpile.

650.05 Basis of Payment.

(a) UNIT PRICE COVERAGE.

The volume for the Item of Topsoil measured as provided above will be paid for at the contract unit price per cubic yard {cubic meter}, which price shall be full payment for cleaning and removing refuse from the topsoil; for ground preparation; for furnishing the material including royalty and related costs, handling, hauling, spreading, shaping, bonding to subsoil, and compacting in its final position; for satisfactory disposal of surplus material; and for furnishing all equipment, tools, labor and incidentals necessary to complete the work.

The volume for the Item of Topsoil from Stockpiles, measured as provided above, will be paid for at the contract unit price per cubic yard {cubic meter}, which price shall be full payment for ground preparation; for cleaning and removing debris from the topsoil, for all handling, hauling,

INVITATION TO BID NO: 2208544 ADDENDUM NO: 02

STATE OF ALABAMA

DEPTARTMENT OF FINANCE
DIVISION OF PURCHASING

INVITATION TO BID ADDENDUM

FOR: FUEL DISPENSER SYSTEM

REQ. AGENCY	: 012167 BUREAU OF AERONAUTICS
AGENCY REQ. NO.	: G53-903685
T-NUMBER	:
DATE ISSUED	: 08/26/09
VENDOR NO.	:
VENDOR PHONE NO.	:
SNAP REQ. NO.	: 1418278
BUYER NAME	: SUSAN JANA
BUYER PHONE NO.	: (334) 242-7173

BID MUST BE RECEIVED BEFORE:
DATE: 09/02/09 TIME: 5:00 PM

BIDS WILL BE PUBLICLY OPENED:
DATE: 09/03/09 TIME: 10:00 AM

PLEASE READ ALL INSTRUCTIONS CAREFULLY

THE FOLLOWING CHANGES ARE HEREBY ADDED TO AND MADE A PART OF
(INVITATION TO BID NUMBER 2208544)

THE PURPOSE OF THIS ADDENDUM IS TO PROVIDE VENDORS WHO ATTENDED THE MANDATORY SITE VISIT WITH REVISED SPECIFICATIONS AND ADDITIONAL INFORMATION.

SEE ATTACHMENTS:
FUEL SYSTEM OVERVIEW (2 PAGES)
FUEL SYSTEM PREBID RESUME (5 PAGES)
FUEL SYSTEM PROJECT DRAWINGS (2 PAGES)
FUEL SYSTEM FOUNDATION DESIGN (1 PAGE)
FUEL SYSTEM ALDOT SPECS (47 PAGES)

THIS ADDENDUM IS REQUIRED TO BE SIGNED AND RETURNED, INCLUDING A COPY OF THE SIGNED ADDENDUM FOR THE REQUIRED COPY OF THE BID, OR THE BID WILL BE REJECTED.

THE BID RETURN/OPEN DATES/TIME HAVE BEEN CHANGED, AS SHOWN ABOVE.

SDJ

* * * * * * * * * * * * * * * * END OF ADDENDUM * * * * * * * * * * * * * * * * *

STATEMENT OF UNDERSTANDING

I UNDERSTAND THE ADDENDUM AND THAT IT MUST BE SIGNED IN INK AND RETURNED (UNLESS INDICATED OTHERWISE) WITH THE BID OR SEPARATELY, PROPERLY IDENTIFIED AND RECEIVED PRIOR TO DATE AND TIME SPECIFIED.

_____ COMPANY NAME	_____ AUTHORIZED SIGNATURE (INK)
_____ MAIL ADDRESS	_____ TYPE/PRINT AUTHORIZED NAME
_____ CITY, STATE, ZIP	_____
_____ PHONE INCLUDING AREA CODE	_____

ADDENDUM NOTARIZATION NOT REQUIRED

INVITATION TO BID NO: 2208544 ADDENDUM NO: 01

STATE OF ALABAMA

DEPTARTMENT OF FINANCE
DIVISION OF PURCHASING

INVITATION TO BID ADDENDUM

FOR: FUEL DISPENSER SYSTEM

REQ. AGENCY	: 012167 BUREAU OF AERONAUTICS
AGENCY REQ. NO.	: G53-903685
T-NUMBER	:
DATE ISSUED	: 08/18/09
VENDOR NO.	:
VENDOR PHONE NO.	:
SNAP REQ. NO.	: 1418278
BUYER NAME	: SUSAN JANA
BUYER PHONE NO.	: (334) 242-7173

BID MUST BE RECEIVED BEFORE:
DATE: 09/02/09 TIME: 5:00 PM

BIDS WILL BE PUBLICLY OPENED:
DATE: 09/03/09 TIME: 10:00 AM

PLEASE READ ALL INSTRUCTIONS CAREFULLY

THE FOLLOWING CHANGES ARE HEREBY ADDED TO AND MADE A PART OF
(INVITATION TO BID NUMBER 2208544)

THE PURPOSE OF THIS ADDENDUM IS TO DELAY THE RETURN/OPENING OF THE ABOVE REFERENCED ITB WHILE SPECIFICATIONS ARE BEING REVIEWED.

ADDENDUM #02 WILL BE ISSUED AT A LATER DATE WITH THE REVISED SPECS.

THIS ADDENDUM (ADDENDUM #01) IS NOT REQUIRED TO BE SIGNED OR RETURNED.

THE BID RETURN/OPEN DATES/TIMES HAVE BEEN REVISED, AS SHOWN ABOVE.

SDJ

* * * * * * * * * * * * * * * * END OF ADDENDUM * * * * * * * * * * * * * * * * *

STATEMENT OF UNDERSTANDING

I UNDERSTAND THE ADDENDUM AND THAT IT MUST BE SIGNED IN INK AND RETURNED (UNLESS INDICATED OTHERWISE) WITH THE BID OR SEPARATELY, PROPERLY IDENTIFIED AND RECEIVED PRIOR TO DATE AND TIME SPECIFIED.

ADDENDUM NOTARIZATION NOT REQUIRED

_____ COMPANY NAME	_____ AUTHORIZED SIGNATURE (INK)
_____ MAIL ADDRESS	_____ TYPE/PRINT AUTHORIZED NAME
_____ CITY, STATE, ZIP	_____
_____ PHONE INCLUDING AREA CODE	_____