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File **1994-0176** Name: Norwest Bank Parking Lot Expansion – Site Plan Review – 359 Main Street

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, items are found on the list but are not present in the scanned electronic development file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will be found on the ISYS query system in their designated categories. Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page. Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for the contents of each file.
X	X	**Table of Contents**
		***Review Sheet Summary**
X	X	***Application form**
		Review Sheets
		Receipts for fees paid for anything
X	X	***Submittal checklist**
X	X	***General project report**
		Reduced copy of final plans or drawings
		Reduction of assessor's map.
		Evidence of title, deeds, easements
		***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
		Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or non-bound reports
		Traffic studies
X	X	***Review Comments**
		***Petitioner's response to comments**
		***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X	X	Correspondence			
X	X	Planning Clearance – NOT ISSUED			
X		E-mails			
X		Deed of Trust – Bk 1187 / pg 441 – not conveyed to City			
X	X	Partial Plan			
X	X	Trench Drain Detail			
X	X	Project Manual – 10/18/94			

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street Grand Junction, CO 81501
(303) 244-1430

Receipt 1713
Date 10-26-94
Rec'd By MTD

File No. 176-94

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this: 176 94

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
[✓] Site Plan Review [ ] Subdivision Plat/Plan	[ ] Minor [ ] Major [ ] Resub		4th Str. & Colorado	B-2	Parking Lot
[ ] Rezone				From: To:	
[ ] Planned Development	[ ] ODP [ ] Prelim [ ] Final				
[ ] Conditional Use					
[ ] Zone of Annex					
[ ] Text Amendment					
[ ] Special Use					
[ ] Vacation					[ ] Right-of-Way [ ] Easement

[ ] PROPERTY OWNER [ ] DEVELOPER [ ] REPRESENTATIVE

NORWEST BANK DNTN		ROBERT D. JENKINS
Name	Name	Name
359 MAIN ST		1000 N. 9TH ST STE 35
Address	Address	Address
GRAND JCT, CO 81501		GRAND JCT, CO 81501
City/State/Zip	City/State/Zip	City/State/Zip
242-8822		256-1980
Business Phone No.	Business Phone No.	Business Phone No.

NOTE: Legal property owner is owner of record on date of submittal.

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

Robert D Jenkins 10/26/94
Signature of Person Completing Application Date

X
Signature of Property Owner(s) - Attach Additional Sheets if Necessary

SUBMITTAL CHECKLIST

SITE PLAN REVIEW

Location: 4th Str. & Colorado

Project Name: Nor West Bank Parking Expansion

17 6 9 4

ITEMS: DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● ~~City Utility Eng.~~	● ~~City Property Agent~~	● ~~City Parks/Recreation~~	● ~~City Fire Department~~	● ~~City Attorney~~	● City Downtown Dev. Auth.	○ County Planning	● ~~County Bldg. Dept.~~	○ Irrigation District	○ Drainage District	○ Water District	○ Sewer District	○ U.S. West	○ Public Service	○ GVRP	○ CDOT	○ Corps of Engineers	○ Walker Field	● ~~City Police Dept~~	TOTAL REQ'D.
● Application Fee $50	VII-1	1																					
● Submittal Checklist*	VII-3	1																					
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	/	
● Planning Clearance*	VII-3	1																					
● 11"x17" Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	/	
● Evidence of Title	VII-2	1			1			1															
○ Appraisal of Raw Land	VII-1	1			1	1																	
○ Deeds	VII-1	1			1			1															
○ Easements	VII-2	1	1	1	1			1															
○ Avigation Easement	VII-1	1			1			1															
○ ROW	VII-3	1	1	1	1			1															
○ Improvements Agreement/Guarantee	VII-2	1	1	1				1															
○ CDOT Access Permit	VII-3	1	1																				
○ Industrial Pretreatment Sign-off	VII-4	1		1																			
● General Project Report	X-7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	/	
○ Elevation Drawing	IX-13	1	1																				
● Site Plan	IX-29	2	2	1	1	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
○ 11"x17" Reduction of Site Plan	IX-29					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	/	
○ Grading and Drainage Plan	IX-16	1	2										1							1			
○ Storm Drainage Plan and Profile	IX-30	1	2										1			1	1	1					
○ Water and Sewer Plan and Profile	IX-34	1	2	1			1							1	1	1	1	1					
○ Roadway Plan and Profile	IX-28	1	2										1										
○ Road Cross-Sections	IX-27	1	2																				
○ Detail Sheet	IX-12	1	2																				
● Landscape Plan	IX-20	2	1	1																			
○ Geotechnical Report	X-8	1	1								1												
○ Final Drainage Report	X-5,6	1	2										1										
○ Stormwater Management Plan	X-14	1	2										1							1			
○ Phase I and II Environmental Report	X-10,11	1	1																				
○ Traffic Impact Study	X-15	1	2																1				

NOTES:
1) An asterisk in the item description column indicates that a form is supplied by the City.
2) Required submittal items and distribution are indicated by filled in circles, some of which may be filled in during the pre-application conference. Additional items or copies may be subsequently requested in the review process.
3) Each submitted item must be labeled, named, or otherwise identified as described above in the description column.

PRE-APPLICATION CONFERENCE

Date: 6/13/94
Conference Attendance: Rob Jenkins, Michael Drollinger
Proposal: Parking Lot Expansion
Location: 4th Str. & Colorado

Tax Parcel Number: 2945-14-15-102
Review Fee: $50
(Fee is due at the time of submittal. Make check payable to the City of Grand Junction.)

Additional ROW required? No
Adjacent road improvements required? No
Area identified as a need in the Master Plan of Parks and Recreation? No
Parks and Open Space fees required? No Estimated Amount:
Recording fees required? No Estimated Amount:
Half street improvement fees required? Estimated Amount:
Revocable Permit required? No
State Highway Access Permit required? No

Applicable Plans, Policies and Guidelines Zoning and Development Code

Located in identified floodplain? FIRM panel # No
Located in other geohazard area? No

Located in established Airport Zone? Clear Zone, Critical Zone, Area of Influence? No
Avigation Easement required? No

While all factors in a development proposal require careful thought, preparation and design, the following "checked" items are brought to the petitioner's attention as needing special attention or consideration. Other items of special concern may be identified during the review process.

● Access/Parking	○ Screening/Buffering	○ Land Use Compatibility
○ Drainage	● Landscaping	○ Traffic Generation
○ Floodplain/Wetlands Mitigation	○ Availability of Utilities	○ Geologic Hazards/Soils

○ Other
Related Files:

It is recommended that the applicant inform the neighboring property owners and tenants of the proposal prior to the public hearing and preferably prior to submittal to the City.

PRE-APPLICATION CONFERENCE

WE RECOGNIZE that we, ourselves, or our representative(s) must be present at all hearings relative to this proposal and it is our responsibility to know when and where those hearings are.

In the event that the petitioner is not represented, the proposed item will be dropped from the agenda, and an additional fee shall be charged to cover rescheduling expenses. Such fee must be paid before the proposed item can again be placed on the agenda. Any changes to the approved plan will require a re-review and approval by the Community Development Department prior to those changes being accepted.

WE UNDERSTAND that incomplete submittals will not be accepted and submittals with insufficient information, identified in the review process, which has not been addressed by the applicant, may be withdrawn from the agenda.

WE FURTHER UNDERSTAND that failure to meet any deadlines as identified by the Community Development Department for the review process may result in the project not being scheduled for hearing or being pulled from the agenda.

X _____ X Roberts Rakes
Signature(s) of Petitioner(s) Signature(s) of Representative(s)

NORWEST BANK DOWNTOWN
Parking and Landcaping Remodel

176 94

PROJECT NARRATIVE

Norwest Bank Downtown currently provides parking for 93 vehicles in two separate lots between 3rd and 4th Streets, and between Colorado Avenue and the east-west Alley between Colorado and Main Streets. The east parking lot, with 25 spaces, has access from 4th Street and from Colorado Avenue. The west lot, with 68 spaces, has access in and out of the lot from Colorado Avenue and emergency egress onto 3rd Street. Both lots are heavily landscaped. There are currently five handicap spaces (included in the 93 total spaces) and individual bike lock bars. Landscaping now represents 25.4% of the total site.

The Bank proposes to eliminate the separation between the two lots and create one, controlled access entrance/exit on Colorado Avenue. Parking would be increased to 100 total spaces, including six (6) handicap spaces, four of which would be van-accessible. Bike racks would be provided with space for sixteen (16) bicycles. The entrances to the east lot, on 4th Street and on Colorado Avenue, would be closed. The entrance/exit at the existing Control building on Colorado Avenue would be widened and would be equipped with a ticket issue machine and automatic gates. The control station would be staffed during working hours.

The landscaped area on the southeast corner of the east lot would be reduced in size. The area is overgrown and the trees and shrubs have not been well-maintained. New shrubbery and trees would be planted in the reconfigured area. Existing rose bushes located in planting beds down the center of the west lot would be removed and non-fruiting plum trees would be planted. The center planting bed, now separating the lots, would remain as is. The total proposed landscaped area would comprise 17.5% of the total site.

The remodeling of the parking lots and landscaped areas will enable the Bank to better control their parking area, to provide a few more spaces for their customers and tenants, and at the same time, to improve the quality of the landscaped site.

PROJECT MANUAL

Project Name	NORWEST Bank - DOWNTOWN Parking and Landscape Remodel
Address	359 Main Street Grand Junction, CO 81501

OWNER:	Norwest Bank - Downtown 359 Main Street Grand Junction, CO 81501

ARCHITECT:	Robert D. Jenkins/AIA/Architect 1000 N. 9th Street, Suite 35 Grand Junction, CO 81501

Project No.: 9446

Date: October 18, 1994

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SECTION 00020
INVITATION TO BID

PROJECT: NORWEST Bank - DOWNTOWN
Parking and Landscape Remodel
359 Main Street
Grand Junction, CO 81501

OWNER: Norwest Bank - Downtown
359 Main Street
Grand Junction, CO 81501

ARCHITECT: Robert D. Jenkins/AIA/Architect
1000 N. 9th Street, Suite 35
Grand Junction, CO 81501

You are invited to bid on a General Contract excluding mechanical, electrical, and landscaping work for the above project.

All Bids must be on a lump sum basis and in accordance with the Bidder's instructions.

Bids will be received until 4:00 p.m., MDT on Tuesday, November 1, 1994, at Norwest Bank - North Avenue, 2808 North Avenue, Grand Junction, CO.

Bids received after this time will not be accepted.

Drawings and Project Manuals may be examined at:

Robert D. Jenkins/AIA/Architect
1000 N. 9th Street, Suite 35
Grand Junction, CO 81501

Norwest Bank - North Avenue
2808 North Avenue
Grand Junction, CO 81501

Bona fide bidders may obtain drawings and Project Manuals at the Architect's office in accordance with the Bidder's instructions.

Bid Security in the amount of 5% of the Bid is required.

The Owner reserves the right to waive informalities in the bidding and to reject any or all Bids.

END OF SECTION 00020

SECTION 00100

NORWEST BANK - Downtown
Parking and Landscape Remodel

INSTRUCTIONS TO BIDDERS

To be considered, Bids must be made in accordance with these Bidders' Instructions:

DOCUMENTS:

Bona fide prime bidders may obtain up to three sets and subcontractors may obtain one set of Drawings and Project Manuals from the Architect upon deposit of $25.00 per set. A deposit refund may be obtained by returning sets in good condition no more than ten (10) days after Bids have been opened.

Those who do not submit prime bids may obtain one set of drawings and Project Manual upon deposit of $25.00 per set and will forfeit deposit unless set is returned in good condition within ten (10) calendar days of issuing.

Bidders may obtain additional sets of Drawings (to be returned) for the direct cost of printing on application to the Architect.

PREQUALIFICATION:

All prime bidders shall be prequalified by the Architect and the Owner.

It is the Owner's intent that as much of the work as possible be performed by local contractors, subcontractors, suppliers and workers, to the extent consistent with cost considerations and quality.

EXAMINATION:

Bidders shall carefully examine the documents and the construction sites to obtain firsthand knowledge of existing conditions. Contractors will not be given extra payments for conditions which can be determined by examining the sites and documents.

QUESTIONS:

Submit all questions about the Drawings and Project Manual in writing to the Architect. Replies will be issued to all prime bidders of record as Addenda to the Drawings and Project Manual and will become part of the Contract Documents. Neither the Architect nor the Owner will be responsible for verbal clarifications.

Questions received later than noon, five (5) calendar days prior to bid date, shall not be answered. Receipt of Addenda must be acknowledged on the Bid Form.

SUBSTITUTIONS:

The materials, products, and equipment described in the Drawings and Project Manual establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least five days prior to the date for receipt of Bids. Such requests shall include the name of the materials or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, a line-by-line comparison of the proposed substitution with the specified item. A statement setting forth changes in other materials, equipment or other portions of the Work including changes in the work of other contracts that incorporation of the proposed substitution would require shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

No substitutions will be considered after the Contract award unless specifically provided in the Contract Documents.

BASIS OF BIDS:

The Bidder must include all Alternate Bids on the Bid Form. Failure to comply may be cause for rejection of bid. No segregated bids, conditional bids or assignments will be considered.

BIDS:

Bids shall be made on an unaltered Bid Form as bound in the Project Manual. Fill in all blank spaces and submit one copy. Bids shall be signed with name typed below signature.

Where bidder is a corporation, bids must be signed with the legal name of the corporation followed by the name of State of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.

Do not remove forms from the Project Manual. Separate Bid Forms will be provided by Architect or Bid Form may be photocopied from the Project Manual.

BID SECURITY:

Bid security shall be made payable to the Owner as identified in the Invitation to Bid in the amount of five (5) percent of the Bid amount. Security shall be either certified check or bid bond issued by surety licensed to conduct business in the State of Colorado.

The successful bidder's security will be retained until he/she has signed the Contract and furnished the required payment and performance bonds. The Owner reserves the right to retain the security of the next two lowest bidders until the successful bidder enters into a contract, or until 30 days after bid opening, whichever is the shorter. All other bid security will be returned as soon as practicable.

If any bidder refuses to enter into a Contract, the Owner will retain his bid security as liquidated damages, but not as a penalty.

SUBCONTRACTORS:

Names of Subcontractors must, upon request, be submitted within 24 hours of the bid opening.

SUBMITTAL OF BIDS:

Submit Bids in accordance with the Invitation to Bid. Submit Bid and Bid Security in an opaque, sealed envelope. Identify the envelope with:

1. Project Name
2. Name of Bidder

MODIFICATION AND WITHDRAWALS:

Bids may not be modified after submittal without prior approval of the Architect. Bidder may withdraw Bid at any time before bid opening, and may re-submit Bid prior to the bid time.

No Bid may be withdrawn or modified after the bid opening, except where the award of Contract has been delayed for at least 31 days.

DISQUALIFICATIONS:

Bids may be disqualified before or after opening upon evidence of collusion with intent to defraud or other illegal practices upon the part of the bidder.

OPENING:

Bids will be opened as announced in the Invitation to Bid.

AWARD:

The Owner reserves the right to accept or reject any or all Bids as it may be deemed to be in his best interest. The Owner reserves the right to waive any informalities or irregularities in the bidding.

Determination of successful bidder or bidders may be made on the basis of the lowest Bid combining the Base Bid and those Alternates accepted by the Owner or the lowest combined bid price or prices and those Alternates accepted by the Owner. Consideration will also be given to the extent local contractors, subcontractors, suppliers and workers will be utilized.

Upon notice of acceptance of Bid (within 30 days of bid opening), the successful bidder agrees to execute a Contract for the Work on the American Institute of Architects Standard Form of Agreement A-101.

PERFORMANCE GUARANTY, SUBCONTRACTORS, INSURANCE:

Within ten (10) days after date of notice of acceptance, and prior to execution of the Contract, the successful Bidder will deliver two (2) copies of each of the following to the Architect:

Performance and Payment Bond each in amount of 100% of Contract Price, per the General Conditions and Supplements thereto.

Complete list of Subcontractors and extent of work to be performed by each.

Include in the list of Subcontractors all portions of the work to be performed by the Bidder with his own personnel, and proprietary names and suppliers of principal items or systems of material and equipment. Bidder will be required to establish to the satisfaction of the A/E and the Owner the reliability and responsibility of proposed subcontractors to furnish and perform the work described in Specifications pertaining to such proposed subcontractors' respective trades. Prior to award of the Contract, the A/E will notify the Bidder in writing if either the A/E or the Owner, after due consideration, has reasonable and substantial objection to any person or organization on the list. If the A/E or the Owner has a reasonable and substantial objection to any person or organization, the Bidder may, at his option, withdraw his Bid without forfeiture of his Bid Security, notwithstanding anything to the contrary contained in paragraph "Modification or Withdrawal of Bids." If the bidder submits an acceptable substitute with an increase in his Bid price to cover the difference in cost occasioned by such substitution, the Owner may accept the increased bid price or he may disqualify the bidder, at his discretion. Subcontractors and other persons and organizations proposed by the bidder and accepted by the A/E and the Owner must be used on the work for which they were proposed and accepted and shall not be changed except with written approval by the A/E and the Owner.

Complete Certificates of Insurances as required under General Conditions.

A complete schedule of values for the work.

The schedule of values shall contain single line item entries, identified for each major item of work and each subcontracted item of work, referenced to the number and titles of the specification section applicable for each item. The schedule shall be prepared on AIA Document G703, "Application and Certificate for Payment - Continuation Sheet." The total of all line item cost entries shall equal the total Contract Sum. Separate line item cost entries shall include the following:

1. General Condition items
2. General Requirement items
3. Division 2 through 16 specification items
4. Materials stored off-site

The schedule shall be subject to revision at the request of the Architect.

END OF SECTION 00100

SECTION 00301
BID FORM

NORWEST BANK - DOWNTOWN
Grand Junction, Colorado

We hereby submit our Bid for Scope of Work indicated below:
Norwest Bank-Downtown.
Documents titled "Project Manual", dated October 18, 1994, Drawings titled Norwest Bank - Downtown, likewise dated, numbered as listed on sheet T1.1, have been received and examined.

Addenda numbered _____ have been received and their provisions included in this Bid.

We have examined the site and all conditions affecting the construction and submit the following Bid:

BASE BID:

We will construct the following portion of the Project:

_____, for the lump sum price of:

_____Dollars

($_____).

ALTERNATES:

Alternate No. 1 - Payment and Performance Bond

_____

_____

Voluntary Alternates:

_____

_____

_____

_____

_____

_____

TIME:

To perform the work within a total of _____ calendar days (total time).

In submitting this Bid, it is agreed and understood that:

We are fully acquainted with and understand completely the extent and character of the work covered by this Bid.

We are aware of all factors and conditions affecting, or which may be affected by, the Work, its various parts and elements, and their fitting together.

We are aware of and accept the provisions of the Instructions to Bidders.

We agree:

To hold the Bid open for 30 days.

To enter into and execute a contract upon award, in accordance with the General Conditions.

To accomplish the work in accord with the Contract Documents.

For bidding purposes, the Notice to Proceed will be issued no later than Friday, December 2, 1994.

To reinstate or omit Alternates at specified amounts for 60 days after Contract Date.

The required Bid Security is attached to this Bid.

BIDDER: _____

BY: _____

ATTEST: _____

DATE: _____

END OF SECTION 00301

SECTION 00700
GENERAL CONDITIONS

The "General Conditions of the Contract for Construction," AIA Document A201, Fourteenth Edition, 1987, Articles 1 through 14 inclusive, is a part of this Contract, and is incorporated as fully as if here set forth.

END OF SECTION 00700

SECTION 00800
SUPPLEMENTARY GENERAL CONDITIONS

The following Supplements modify, change, delete from or add to the "General Conditions of the Contract for Construction" AIA Document A201, Fourteenth Edition, 1987. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplements, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

Article 3: CONTRACTOR

3.7.1 (Add)
Tap fees and charges by the Owning Utility for making connections to water and sewer utility mains shall be applied for by the Contractor to the appropriate entity. The Owner will pay the amount of such fees or charges made by the utility. All other fees, permits and licenses are the responsibility of the Contractor.

Article 4: ADMINISTRATION OF THE CONTRACT

4.3.9 (Delete original and substitute following)
Should the Contractor suffer injury or damage to person or property because of any act or omission of the Owner or any of its employees, agents or others for whose acts it is legally liable, claim shall be written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter. If a Claim for additional cost or time related to this Claim is to be asserted, it shall be filed as provided in Subparagraphs 4.3.7 or 4.3.8 of the General Conditions of the Contract for Construction.

4.5 (Delete original language of 4.5 - Arbitration and substitute the following)
All claims, disputes, or other contractual matters between the General Contractor and Subcontractors shall be resolved by Arbitration as defined in the terms of the Subcontract for Construction between the General Contractor and the Subcontractor.

Article 7: CHANGES IN THE WORK

7.3.3 (Change as follows)
Delete 7.3.3.3 and substitute:
by itemized cost breakdown as follows:

Labor hours and rates by skill or category.
Payroll taxes, worker's compensation insurance, percent of above.
Fringe benefits with documentation.
Overhead and profit, not to exceed 15%.

Materials required, quantities and unit costs as invoiced.
Plus applicable sales taxes.
Less trade discounts.
Overhead and profit, not to exceed 10%.

Fair rental value for power tools or equipment for additional time such are used in connection with the change, regardless of ownership, hours or days and rates.
Overhead and profit not to exceed 10%.

Amounts charged by Subcontractors or Sub-subcontractors with their breakdowns conforming to above paragraphs including markup limitations.
Overhead and profit on subcontract work not to exceed 10%.

7.3.6
First sentence, change "...a reasonable allowance for overhead and profit" to "...allowances for overhead and profit as set forth in Article 7.3.3.3 as modified above."

7.3.6.3
Add, after word "machinery:" "and pro-rata cost for foremen."

7.3.6.5 (delete paragraph, substitute)
Among items to be considered as overhead and not as cost are insurance premiums not listed above, superintendents, supervision, small or hand tools, time keepers, clerks, watchmen, incidental job expenses and general office expenses.

Article 8: TIME

8.3 Delays and Extensions of Time: (Add)
Extension of the contract completion time will be made for delays due to weather conditions which actually delay the work only when such conditions are more severe and extended than those reflected by the ten-year average for the month as evidenced by the Climatological Data, U.S. Department of Commerce, for the project area.

It is understood that delays due to weather conditions will be allowed on a tentative basis only and that a final decision by the Architect will be reserved until the project is substantially completed. In allowing delays for weather, the Architect will consider weather conditions prevailing throughout the entire contract period.

Extension of time due to weather or other allowable reasons will be granted on the basis of 1.4 calendar days for every working day lost with each separate extension figured to the nearest whole calendar day. No more than a 15 calendar day extension for weather will be allowed during the total construction period. Extensions for other reasons allowed by the General Conditions shall not be limited.

Article 9: PAYMENTS AND COMPLETION

9.2.1 (Add the following sentence)
The schedule of values shall be prepared in such a manner that each major item of Work and each subcontracted item of Work is shown as a single item on AIA Document G702, Application and Certificate for Payment and G703, Continuation Sheet.

9.3.1 (Add the following paragraphs)
The form of Application for Payment shall be AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet.

Until the Work is 50% complete, the Owner will pay 90% of the amount due the Contractor on account of progress payments. At the time the Work is 50% complete and thereafter, if the manner of completion of the Work and its progress are and remain satisfactory to the Architect, and in the absence of other good and sufficient reasons, he shall (on presentation by the Contractor of consent of surety for each Application), authorize any remaining partial payment to be paid in full.

The full contract retainage may be reinstated if the manner of completion of the Work and its progress do not remain satisfactory to the Architect, (or if the Surety withholds his consent), or for other good and sufficient reasons.

9.4.1 (Add)
A copy of each certified pay request will be mailed to the bonding company/agent who will notify the Owner immediately if amounts are not acceptable or representative of job progress.

9.10 Final Completion and Final Payments

9.10.1 (Add)
If the work is completed, except for delay or correction of minor defects or unavailability of materials, or other causes beyond the control of the Contractor, the Owner, at his discretion, may release to the Contractor the remainder of the Contract Sum except for an amount equal to three times the cost of completing the unfinished work and/or correcting the defective work.

9.10.2 (Add)
Upon completion of the above and the requirements set forth in Section 01701 of the Specifications, the project shall be advertised in accordance with the Notice of Contractor's Settlement, by two publications of notice, the last publication appearing at least ten (10) days prior to the time of final settlement.

On the date of final settlement thus advertised, and after the Contractor has submitted a written notice to the Owner that no claims have been filed, final payment and settlement shall be made in full.

If any unpaid claim for labor, materials, supplies or equipment is filed before payment in full of all sums due the Contractor, the Owner shall withhold from the Contractor sufficient funds to insure the payment of such claim, until the same shall have been paid or withdrawn, such payment or withdrawal to be evidenced by filing a receipt in full or in order for withdrawal signed by the claimant or his duly authorized agent or assignee. However, as provided by statute, such funds shall not be withheld longer than 90 days following the date fixed for final settlement with the Contractor, as set forth in the published notice of Contractor's Settlement unless such action at law shall be commenced within that time to enforce such unpaid claim and a notice of such action at law shall have been filed with the Owner. At the expiration of the 90-day period, the Owner shall release to the Contractor all monies as are not the subject of such action at law.

9.10.5 (Add)
Unless otherwise agreed in writing, the Contractor shall carry on the Work and maintain its progress during any dispute, arbitration and/or litigation, and, subject to the provisions of this Article 9, the Owner shall continue to make payments to the Contractor in accordance with the Contract Documents.

Article 10: PROTECTION OF PERSONS AND PROPERTY

10.2.8 (Add)
Notwithstanding any other provision herein, the Contractor shall take all necessary measures to store materials on site for which payment has been made by the Owner so that they shall not deteriorate, be damaged or stolen. The Contractor shall safeguard such materials against burglary, pilferage, fire, vandalism and mischief. The Contractor shall bear sole responsibility: (1) for the care and protection of materials and work installed in the building and materials stored on the site for which payment has been made; and (2) for the restoration of damaged work and replacement of damaged or stolen materials at no cost to the Owner.

Article 11: INSURANCE AND BONDS

11.1.1
In the first sentence, replace the word "jurisdiction" with the word "state."

(Add) The Owner, the Architect and his consultants shall be additional named insureds, except to the Workmen's Compensation Policy.

11.1.1.8 (Added)
Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises--Operations (Including X-C-U as applicable)
2. Independent Contractor's Protective
3. Products and Completed Operations
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual--including specified provision for the Contractor's obligations under Paragraph 4.18
6. Owned, non-owned and hired motor vehicles

7. Broad Form Property Damage including Completed Operations

11.1.2.1 (Add the following Clause 11.1.2.1 to 11.1.2)
The insurance required by Subparagraph 11.1.1 shall be written for not less than the following, or greater if required by law:

1. Worker's compensation--Statutory
   Employer's Liability: $100,000
2. Comprehensive general liability, (including Premises-Operations; Independent Contractor's Protective; Product and Completed Operations; Broad Form Property Damage):
   Combined single limits for bodily injury and property damage: $2,000,000 each occurrence and annual aggregate
   Products and Completed Operations to be maintained for two years after final payment.
   Property Damage Liability insurance shall provide X, C or U coverages.
3. Contractual Liability:
   Bodily Injury: $1,000,000 each occurrence and annual aggregate
   Property Damage: $1,000,000 each occurrence and annual aggregate
4. Personal Injury, with Employment Exclusion deleted: $1,000,000 each person and annual aggregate
5. Comprehensive Automobile Liability: Combined single limits for bodily injury and property damage: $1,000,000 each occurrence and annual aggregate

11.1.4 (Add)
Furnish one copy of Certificates herein required for each copy of the Agreement; specifically set forth evidence of all coverage required by Subparagraph 11.1.1, 11.1.2 and 11.1.3. The form of the Certificate shall be AIA Document G705. Furnish to the Owner, copies of any endorsements that are subsequently issued amending coverage or limits.

11.3 Property Insurance

11.3.1 (Add)
The General Contractor and all lower-tier Subcontractors will be named as additional insured.

11.3.1.5 (Added)
The form of policy for this coverage shall be "Completed Value." Provide policy in the broadest form available as of the Contract Document's date.

11.3.1.6 (Added)
If by the terms of this insurance any mandatory deductibles are required, the Contractor shall be responsible for payment of such mandatory deductibles in the event of a paid claim. Should the Owner elect to increase any mandatory deductibles or purchase deductible not otherwise required, he shall be responsible for payment of such additional deductible amounts. The amount of the mandatory deductible provision is $1,000 per occurrence.

11.3.6 (Delete the first sentence and substitute following)
The Owner shall file a certificate of insurance for all policies including insurance coverages required by Paragraph 11.3.1. with the Contractor before an exposure to loss may occur.

11.3.7 (Add)
In the first sentence, after the words "...separate contractors described in Article 6, if any, and" insert the words "any of".

11.4 (Add)
Performance Bond and Payment Bond - The Contractor shall furnish a Performance Bond and Labor and Materials Payment Bond, each in the amount of 100% of the Contract Sum, to cover the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds shall be in a form and with a surety company acceptable to the Owner. Premiums on such bonds shall be paid by the Contractor.

NOTE: Performance Bond and Labor and Materials Payment Bond shall not be included in the Base Bid. Reference Add Alternate No. 1, Section 01030. - Alternates.

Article 13: MISCELLANEOUS PROVISIONS

13.5.2 (Add)
Should such special testing, inspection or approval be caused by the Contractor's failure to follow requirements of the Contract Documents or by required tests per 7.7.1 indicating conditions not in conformance with Contract Documents, the costs of such additional testing, inspection or approval shall be borne by the Contractor regardless of the results.

Article 14: TERMINATION OF THE CONTRACT

14.2.1.1 and 14.2.1.3
Delete the word "persistently" from both paragraphs.

Article 15: EQUAL OPPORTUNITY (Added)

15.1
The Contractor shall maintain policies of employment as follows:

15.1.1
The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

15.1.2
The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

END OF SECTION 00800

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

General description of the work of the entire Project with any limitations or coordination with other contracts, if any.

1.2 GENERAL:

The work to be done under this Contract is the construction in a workmanlike manner, to the satisfaction of the Architect, of the Work as shown, documented and set forth in the Contract Documents.

If these documents or job conditions make it impossible to produce first class work or to warranty the work or its performance, or should discrepancies appear among the Contract Documents, bidders shall request interpretation, correction or clarification prior to bidding as set forth in the Bidding Requirements. If the Contractor fails to make such request, work must be performed in a satisfactory manner and no request for added cost or extension of time will be considered.

Should conflict occur in or between Drawings and Specifications, Contractor (or Installer) is deemed to have estimated on the more expensive way of doing work unless he shall have asked for and obtained written decision before submission of Bid as to which method or materials will be required.

The Contractor represents that he fully understands the nature and extent of the work, all factors and conditions affecting or which may be affected by it and characteristics of its various parts and elements and their fitting together and functioning.

1.3 PROJECT DESCRIPTION:

Briefly and without force and effect upon the contract documents, the Work of the Contract can be summarized as follows:

Identification: Parking and Landscaping Remodel
Approximate Gross Floor Area: 50,000 SF
Stories: On-grade site construction
Occupancy: N/A
Construction Type: N/A
Foundations: N/A
Structure: N/A
Exterior Walls: N/A
Roof: N/A
Partitions: N/A
Ceilings: N/A
Mechanical Systems: N/A
Electrical Systems: N/A

1.4 SPECIAL REQUIREMENTS:

Subcontractors and suppliers:

1. Equipment. The Owner will furnish all control equipment to include ticket issue machine, gates, and all subgrade wiring. Control equipment shall be installed by the Electrical Subcontractor.

2. Electrical Subcontractor. The Electrical Subcontractor shall be Paul Maynard. The electrician shall contract separately to Norwest Bank but his work shall be subordinated to and coordinated by the General Contractor.

3. Landscape Subcontractor. The Landscape Subcontractor shall be Grand Junction Nurseries Garden Center, Todd Pickford, 242-5528. The Landscape Contractor shall contract separately to Norwest Bank but his work shall be subordinated to and coordinated by the General Contractor.

4. Paving Subcontractor shall be Elam Construction and shall subcontract its work to the General Contractor.

PRODUCTS

2.1 ASBESTOS:

No asbestos or asbestos-containing materials are to be used on this project.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01010

SECTION 01030
ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Requirements and descriptions for Alternates as defined herein and as indicated.

1.2 DEFINITIONS:

"Alternates" are defined as alternate products, materials, equipment, systems, methods, units of work or major elements of the construction, which may, at the Owner's option and under the terms established by Bidders' Instructions and in the Contract or Agreement, be selected for the work in lieu of the corresponding requirements of the Contract Documents. Selection may occur prior to the Contract Date, or may, by the Agreement, be deferred for possible selection at a subsequent date.

1.3 PROCEDURES:

Include as a part of each alternate, miscellaneous devices, appurtenances, differences in utility or power requirements and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

Immediately following award of Contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.

1.4 LIMITATIONS:

The description herein of each alternate is recognized to be incomplete and abbreviated, but requires that each change must be complete for the scope of work affected. Refer to the applicable specification sections (Divisions 2 through 16), and to applicable drawings, for the specific requirements of the work. Coordinate related work and modify surrounding work as required to properly integrate with the work of each alternate.

PART 2 - PRODUCTS - (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES:

Alternate 1:

The Base Bid shall not include the Performance Bond and the Labor and Material Payment Bond. Alternate No. 1 shall add the costs of these bonds to the Base Bid. (Add Alternate)

END OF SECTION 01030

SECTION 01040
COORDINATION

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Requirements for coordination of the work for the Project.

Related Sections:

Refer to Section 01010 for descriptions of the work of the entire project within and outside of the work of this Contract.

1.2 GENERAL COORDINATION:

General:

Each entity involved in the performance of work for the entire project shall cooperate in the overall coordination of the work; promptly, when requested, furnish information concerning its portion of the work; and respond promptly and reasonably to the decisions and requests of persons designated with coordination, supervisory, administrative or similar authority.

Site Utilization:

In addition to the site utilization limitations and requirements shown on the drawings and indicated by the Contract Documents, administer the allocation of available space equitably among entities needing access and space, so as to produce the best overall efficiency in the performance of the total work of the project. Schedule deliveries so as to minimize the space and time requirements for storage of materials and equipment on the site; but do not unduly risk delays in the work.

Coordination Meetings:

Include in scheduled meetings, coordination of various entities and activities as set forth in Section 01200. Where necessary, schedule additional coordination meetings for this purpose on an as-needed basis.

Layout:

It is recognized that the Contract Documents are diagrammatic in showing certain physical relationships of the various elements and systems and their interfacing with other elements and systems. Establishment and coordination of these relationships is the exclusive responsibility of the Contractor. Do not scale the drawings. Lay out and arrange all elements to contribute to safety, efficiency and to carry the harmony of design throughout the work. In case of conflict or undimensioned locations, verify required positioning with Architect.

Substrate Examination:

The Installer of each element of the work must examine the conditions of the substrate to receive the work, dimensions and spaces adjacent to the work, tolerances for interfacing with other elements and services, and the conditions under which the work will be performed, and must notify the Contractor in writing of conditions detrimental to the proper or timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Large and Heavy Equipment:

Wherever possible, pre-arrange for the movement and positioning of large equipment into the building structure, so that enclosing walls and roofs will neither be delayed nor need to be removed.

Otherwise, advise the Contractor of opening requirements to be maintained for the subsequent entry of large equipment units. Coordinate the movement of heavy items with shoring and bracing, so that the building structure will not be overloaded during the movement and installation.

Where equipment or products to be installed on the roof are too heavy to be hand-carried, do not transport across roof deck; position by crane or other device so as to avoid overloading the roof deck.

1.3 COMPLETE SYSTEMS:

It is the intent of the Contract Documents that all systems, including mechanical and electrical, be complete and functional to provide the intended or specified performance. The Contractor shall provide all incidental items and parts necessary to achieve this requirement.

Provide correctly sized power, utilities, piping, drains, services and their connections to equipment and systems requiring them, whether or not specific items are listed in the schedule at the end of this section.

1.4 MECHANICAL/ELECTRICAL/EQUIPMENT COORDINATION:

General:

Sequence, coordinate and integrate the various elements of equipment, mechanical work and electrical work so that various systems and mechanical plant will perform as indicated and be in harmony with other work of the building. Neither the Architect or his engineering consultants will supervise the coordination, which is the exclusive responsibility of the Contractor.

Comply with the following requirements:

Install piping, duct work and similar services straight and true, aligned with other work, close to walls and overhead structure, allowing for insulation, concealed (except where indicated as exposed) in occupied spaces, and out-of-the-way with maximum passageway and headroom remaining in each space.

Install electrical work in a neat, organized manner with conduit and similar services in or parallel with building lines, and concealed unless indicated as exposed.

For all work, maintain maximum practical overhead clearance but not less than 6" above ceiling. Where exposed, maintain 7'0" minimum clearance.

Arrange all work to facilitate maintenance and repair or replacement of equipment. Locate services requiring maintenance on valves and similar units in front of services requiring less maintenance. Connect equipment for ease of disconnecting, with minimum of interference with other work.

Provide space to permit removal of coils, tubes, fan shafts, filters, other parts which may require replacement.

Locate operating and control equipment and devices for easy access. Furnish access panels where units are concealed by finishes and similar work.

Integrate mechanical work in ceiling plenums with suspension system, light fixtures and other work, so that required performances of each will be achieved.

Give the right-of-way to piping systems required to slope for drainage over other service lines and duct work.

Advise other trades of openings required in their work for accommodation of mechanical and electrical elements. Provide and place sleeves and anchors required in other work.

Access Panels:

Access panels for concealed valves, controls, dampers, pull boxes and other devices requiring access and located in concealed positions other than above lift-out ceilings will be furnished by Installer of item needing access. Furnish panels as specified in Section 08305. Coordinate locations with other trades and with Architect. Locate exact positions for installation under Sections 03310 in concrete, 04200 in masonry, 06100 and applicable Division 9 sections in other materials.

Coordination Drawings:

For locations where several elements of equipment, mechanical or combined mechanical and electrical work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination shop drawings showing the actual physical dimensions at accurate scale required for the installation. Prepare and submit coordination drawings prior to purchase/fabrication/installation of any of the elements involved in the coordination.

Lay out the mechanical and electrical work in conformity with the Contract Drawings, coordination drawings and other shop drawings, product data and similar requirements, so that the entire mechanical plant will perform as an integrated system properly interfaced with electrical work and other work.

1.5 COMPATIBILITY:

Provide products and equipment which are compatible with other work requiring mechanical/electrical interface including electrical connections, control devices, water, drain and other piping connections. Verify electrical characteristics, fuel requirements and other interface requirements before ordering equipment and resolve conflicts that may arise.

Make connections to controls directly attached to ducts, piping or equipment with flexible connections.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01040

SECTION 01045
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Descriptive requirements for cutting and patching.

1.2 DEFINITION:

"Cutting-and-patching" is hereby defined to include, but is not necessarily limited to, the cutting and patching of nominally completed and previously existing work in order to accommodate the listed requirements; and is defined to exclude integral cutting-and-patching during the manufacturing, fabricating, erecting and installing process for individual units of work. Drilling the work to install fasteners and similar operations are excluded from the definition of cutting-and-patching.

Demolition is recognized as an example of a related-but-separate category of work, which may or may not also require cutting-and-patching as defined in this section; refer to Section 02072.

1.3 RESPONSIBILITIES:

Contractor shall be responsible for all cutting, fitting and patching, including attendant excavation and backfill, required to complete the Work or to:

Make its several parts fit together properly.

Repair damage to existing buildings caused by new work.

Uncover portions of the Work to provide for installations of ill-timed work.

Remove and replace defective work or work not conforming to requirements of Contract Documents.

Remove samples of installed work as specified for testing.

Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

Refer to other sections of the specifications for specific cutting-and-patching requirements and limitations applicable to individual units of work.

1.4 SUBMITTALS:

Proposals for Cutting-and-Patching:

Submit a written request to Architect well in advance of executing any cutting or alteration which affects:

Work of the Owner or any separate contractor.

Structural value or integrity of any element of the Project.

Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.

Efficiency, operational life, maintenance or safety of operational elements.

Visual qualities of sight-exposed elements.

Include description of why cutting-and-patching cannot reasonably be avoided, how it will be performed, how structural elements will be reinforced, products to be used, firms and trades to perform the work, approximate dates of the work, and anticipated results in terms of variations from the work as originally completed (structural, operational, visual and other qualities of significance).

List utilities that will be disturbed or otherwise affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.

Approval by Architect to proceed with proposed cutting-and-patching does not waive his right to later require complete removal and replacement of work found to be unsatisfactorily cut-and-patched.

1.5 QUALITY ASSURANCE:

Requirements for Structural Work:

Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or load/deflection ratio.

Operational and Safety Limitations:

Do not cut-and-patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.

Visual Requirements:

Do not cut-and-patch work which is exposed on the exterior or exposed in occupied spaces of the building, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut-and-patch work, both as judged solely by the Architect. Remove and replace work judged by the Architect to be cut-and-patched unsatisfactorily, visually.

PART 2 - PRODUCTS

2.1 MATERIALS:

Except as otherwise indicated or acceptable to the Architect, provide materials for cutting-and-patching which will result in equal-or-better work than the work being cut-and-patched, in terms of performance characteristics and including visual effect where applicable. Comply with the requirements, and use materials identical with the original materials where feasible and where recognized that satisfactory results can be produced thereby.

PART 3 - EXECUTION

3.1 EXAMINATION:

Inspect existing conditions of Project, including elements subject to damage or to movement during cutting-and-patching.

After uncovering work, inspect conditions affecting installation of products, or performance of work.

Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further instructions.

3.2 PREPARATION:

Temporary Support:

Provide adequate support for work to be cut, to prevent failure. Do not endanger other work.

Protection:

Provide adequate protection of other work during cutting-and-patching, to prevent damage; and provide protection of the work from adverse weather exposure.

3.3 CUTTING-AND-PATCHING:

General:

Employ skilled workers to perform cutting-and-patching. Except as otherwise indicated or acceptable to the Architect, proceed with cutting-and-patching at the earliest feasible time, in each instance and perform the work promptly.

Cut work by methods least likely to damage work to be retained and work adjoining. Review proposed procedure with original installer where possible, and comply with his recommendations.

In general, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.

Comply with the requirements of applicable sections of Division 2 where cutting-and-patching requires excavating and backfilling.

Execute excavating and backfilling by methods which will prevent settlement or damage to other work.

Employ original Installer or Fabricator to perform cutting-and-patching except where work is pre-existing.

Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

Restore work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.

Where a patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch.

END OF SECTION 01045

SECTION 01078
DEFINITIONS AND EXPLANATIONS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Definitions of certain terms used in the specifications, and explanations of the language, abbreviations thereof, format and certain conventions used in the specifications and associated Contract Documents.

Limitations of Scope:

The definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the work to the extent such definitions or explanations are not stated more explicitly in other provisions of the Contract Documents.

1.2 DEFINITIONS:

Project Manual: The term "Project Manual" refers to a bound, printed volume, which includes conditions of the Contract and the Specifications. It may also include bidding requirements, contract forms, details, schedules, surveys, reports or other relevant items which may or may not be Contract Documents.

General Requirements: Provisions and requirements of other Division 1 Sections apply to the entire work of the Contract and, where so indicated, to other elements of work which are included in the Project.

Indicated: The term "indicated" is a cross reference to graphic representations, notes or schedules on the drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled" and "specified" are used in lieu of "indicated," it is for the purpose of helping the reader accomplish the cross reference, and no limitation is intended except as specifically noted.

Directed, Requested, etc.: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted" and "permitted" mean "directed by the Architect," "requested by the Architect," etc. However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

Installer: The entity (person or firm) engaged by the Contractor or his Subcontractor or Sub-subcontractor for the performance of a particular element of construction at the project site, including installation, erection, application and similar required operations. It is a general requirement that Installers be expert in the operations they are engaged to performed.

Where the specifications require Installer experience or other qualifications, such requirements apply to the firm and not to its employees or individual members. Where firm ownership has changed after the required experience occurred, Architect and Owner reserve the right to consider the ownership change as invalidating the experience requirements.

Project Site: The space available to the Contractor for the performance of the work, either exclusively or in conjunction with others performing other work as part of the project. The extent of the project site is shown on the drawings, and may or may not be identical with the description of the land upon which the project is to be built.

Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the work, either at the project site or elsewhere; and to report and (if required) interpret the results of those inspections or tests.

Approve: Where used in conjunction with the Architect's or his Engineer's response to submittals, requests, applications, inquiries, reports and claims by the Contractor, the meaning of the term "approved" will be held to the limitations of the Architect's responsibilities and duties as specified in the General and Supplementary Conditions. In no case will "approval" by the Architect be interpreted as a release of the Contractor from responsibilities to fulfill requirements of the Contract Documents or as acceptance of the work.

Contractor's Option: Where materials, products, systems or methods are specified to be at the Contractor's option, the choice of which material, method, product or system will be used is solely the Contractor's. There will be no change in Contract Price or Time because of such choice.

Furnish: The term "furnish" is used to mean, "supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations required for performance as intended."

Install: The term "install" is used to describe operations at the project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations."

Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

Guarantee: The narrow definition of the term "warranty" is hereby established as applying to both "warranty" and "guarantee" which terms are used interchangeably.

1.3 SPECIFICATION EXPLANATIONS:

General:

This article is provided to help the user of these specifications to more readily understand the format, language, implied requirements and similar conventions of content. None of these explanations will be interpreted to modify the substance of the requirements.

Specification Format:

These specifications are organized and based on the CSI 16-Division format, including subdivision of the Divisions into Sections generally conforming to CSI "Masterformat" for section titles and numbers.

Imperative Language:

Imperative language is used generally in the specifications. Requirements expressed imperatively are to be performed by the Contractor. At certain locations in the text, for clarity, contrasting subjective language is used to describe the responsibilities which must be fulfilled either indirectly by the Contractor or, when so noted, by others.

Specification Content Conventions:

Overlapping Requirements: Where compliance with two or more industry standards or sets of requirements is specified, and overlapping of this requirements also establishes different or conflicting minimums or levels of quality, the more stringent requirement will be enforced unless the Contract Documents specifically indicate otherwise.

Refer apparently equal but different requirements and uncertainties as to which level of quality is required to the Architect for decision before proceeding.

In certain circumstances, language used in specifications and other Contract Documents is of the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words will be interpreted as singular where applicable and where the full context of the Contract Documents so indicates.

Specialists: In certain circumstances, the specification requires or implies that specific elements of the work be assigned to specialists or expert entities who must be engaged to perform that element of the work. Such assignments are special requirements over which the Contractor has no choice or option. They are intended to establish which party or entity involved in a specific element of the work is considered as being sufficiently experienced in the indicated construction processes or operations to be recognized as "expert" in those processes or operations. Nevertheless, the ultimate responsibility for fulfilling all contract requirements remains with the Contractor.

These requirements should not be interpreted to conflict with the enforcement of the building codes and similar regulations governing the work. They are also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

Trades: The use of certain titles such as "carpentry" in the specification is not intended to imply that the work must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also is not intended to imply that the requirements specified apply exclusively to trade persons of that corresponding generic name.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01078

SECTION 01090
REFERENCE STANDARDS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

General information and listing of reference standards.

1.2 REFERENCE STANDARDS:

Applicability of Standards:

Except where more explicit or stringent requirements are written into the Contract Documents, applicable construction industry standards have the same force and effect as if bound into or copied directly into the Contract Documents. Such industry standards are made a part of the Contract Documents by reference. Individual specification sections indicate which codes and standards the Contractor must keep available at the project site for reference.

Referenced standards: Standards referenced directly in the Contract Documents take precedence over standards that are not referenced but generally recognized in the industry for applicability to the Work.

Unreferenced Standards: Except as otherwise limited by the Contract Documents, standards not referenced but recognized in the construction industry as having direct applicability will be enforced for performance of the work. The decision as to whether as industry code or standard is applicable, or as to which of several standards are applicable, is the sole responsibility of the Architect.

Publication Dates:

Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of Contract Documents.

Copies of Standards:

The Contract Documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with industry standards applicable to that part of the work. Copies of applicable standards are not bound with the Contract Documents.

Where copies of standards are needed for proper performance of the work, the Contractor is required to obtain such copies directly from the publication source.

1.3 ABBREVIATIONS:

Trades Associations, Standards and Abbreviations:

References in the Contract Documents to publications and recommendations, by either name or abbreviation thereof, include but are not necessarily limited to the following trade associations, technical societies, government agencies, recognized authorities and standards:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AAN	American Association of Nurserymen, Inc.
AASHTO	American Association of State Highway & Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
ACPA	American Concrete Pipe Association
ADA	Americans with Disabilities Act
ADC	Air Diffusion Council
A.F.P.A.	American Forest & Paper Association (formerly National Forest Products Associations)
AGA	American Gas Association
AHA	American Hardboard Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	The American Institute of Architects
A.I.A.	American Insurance Association (Successor to NFBU)
AIHA	American Industrial Hygiene Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALI	Associated Laboratories
ALSC	American Lumber Standards Committee
AMCA	Air Movement Control Association
ANSI	American National Standards Institute
APA	American Plywood Association
A.P.A.	American Parquet Association
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ARMA	Asphalt Roofing Manufacturer's Association
ASA	Acoustical Society of America
ASC	Adhesive and Sealant Council
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers, Inc.
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPA	American Wood Preserver's Association
AWPB	American Wood Preserver's Bureau
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturer's Association
BIA	Brick Institute of America (formerly SCPI)

BIFMA	Business & Institutional Furniture Manufacturer's Assoc.
CAGI	Compressed Air & Gas Institute
CAUS	Color Association of the United States
CBM	Certified Ballast Manufacturers
CDA	Copper Development Association
CE	Corps of Engineers (U.S. Dept. of the Army)
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CISCA	Ceiling and Interior Systems Contractors Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPSC	Consumer Products Safety Commission
CRA	California Redwood Association
CRI	The Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard of NBS (U.S. Dept. of Commerce)
CSI	The Construction Specification Institute
CTI	Ceramic Tile Institute
DHI	Door and Hardware Institute
DLPA	Decorative Laminate Products Association
DOC	Department of Commerce
DOT	Department of Transportation
ECSA	Exchange Carrier's Standards Association
EIA	Electronic Industries Association
EIMA	Exterior Insulation Manufacturer's Association
EPA	Environmental Protection Agency
ETL	ETL Testing Laboratories, Inc.
FGMA	Flat Glass Marketing Association
FHA	Federal Housing Administration (U.S. Dept. of HUD)
FM	Factory Mutual Engineering Corp.
FPL	Forest Products Laboratory (U.S. Dept. of Agriculture)
FS	Federal Specification (General Services Administration)
FTI	Facing Tile Institute
GA	Gypsum Association
GSA	General Service Administration
HEI	Heat Exchange Institute
HI	Hydronics Institute
HMA	Hardwood Manufacturer's Association
HUD	Housing and Urban Development
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineer's Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical & Electronic Engineers
IESNA	Illuminating Engineering Society of North America
IGCC	Insulating Glass Certification Council
ILI	Indiana Limestone Institute of America, Inc.
IMI	International Masonry Institute
IMSA	International Municipal Signal Association
IRI	Industrial Risk Insurers
ISA	Instrument Society of America
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturer's Association
MCAA	Mechanical Contractor's Association of America
MIA	Marble Institute of America
MIL	Military Standardization Documents(U.S. Dept of Defense)
ML/SFA	Metal Lath/Steel Framing Association
MRCA	Midwest Roofing Contractors' Association

MSS	Manufacturer's Standardization Society of the Valve & Fitting Industry
NAAMM	The National Association of Architectural Metal Manufacturers
NAPA	National Asphalt Pavement Association
NAPF	National Association of Plastic Fabricators
NCRPM	National Council on Radiation Protection & Measurement
NBGQA	National Building Granite Quarries Association, Inc.
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards (U.S. Dept. of Commerce)
NCMA	National Concrete Masonry Association
NCRPM	National Council on Radiation Protection and Measurement
NEC	National Electrical Code by NFPA
NECA	National Electrical Contractor's Association
NEII	National Elevator Industry, Inc.
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NHLA	National Hardwood Lumber Association
NKCA	National Kitchen Cabinet Association
NLMA	National Lumber Manufacturer's Association
NOFMA	National Oak Flooring Manufacturer's Association
NPA	National Particleboard Association
NPCA	National Paint & Coating Association
NRCA	National Roofing Contractor's Association
NSF	National Sanitation Foundation
NSPE	National Society of Professional Engineers
NSSEA	National School Supply & Equipment Association
NTMA	The National Terrazzo and Mosaic Association, Inc.
NWMA	National Woodwork Manufacturer's Association
NWWDA	National Wood Window & Door Association (formerly NWMA)
OSHA	Occupational Safety & Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing & Drainage Institute
PEI	Porcelain Enamel Institute, Inc.
PS	Product Standard of NBS (U.S. Dept. Of Commerce)
RFCI	Resilient Floor Covering Institute
RIC	Roof Insulation Committee
RIS	Redwood Inspection Service
RMA	Rubber Manufacturer's Association
SAMA	Scientific Apparatus Makers Association
SDI	Steel Deck Institute
S.D.I.	Steel Door Institute
SGCC	Safety Glazing Certification Council
SIGMA	Sealed Insulating Glass Manufacturer's Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal & Air Conditioning Contractor's Nat'l Assoc.
SPIB	Southern Pine Inspection Bureau
SPRI	Single Ply Roof Institute
SSPC	Steel Structures Painting Council
SWI	Steel Window Institute
TCA	Tile Council of America, Inc.
TIMA	Thermal Insulation Manufacturer's Association
TPI	Truss Plate Institute
UBC	Uniform Building Code
UL	Underwriters' Laboratories, Inc.
USDA	United States Department of Agriculture
USPS	United States Postal Service

WCLA	West Coast Lumbermen's Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Wall Covering Manufacturer's Association
WRI	Wire Reinforcing Institute
WSC	Water Systems Council
WSFI	Wood and Synthetic Flooring Institute
WWPA	Western Wood Products Association (Grading Rules)
W.W.P.A.	Woven Wire Products Association

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01090

SECTION 01105
ADMINISTRATION, PROCEDURES, CODES

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

General administrative requirements and procedures and related applicable codes.

1.2 CODES:

Obtain all permits, inspections, approvals and certificates required by law. Conform to all laws, ordinances, rules and regulations applicable to the location of the Project.

Governing Regulations:

In addition to the above, conform to the following standards and regulations:

Uniform Building Code (by ICBO, 1991 Edition) with such amendments or interpretations that have been made by the Public Safety Inspection Branch, Colorado Department of Labor and Employment
Uniform Plumbing Code (1991 Edition)
Uniform Mechanical Code (by ICBO, 1991 Edition)
National Electric Code (1990 Edition)
National Fire Codes by NFPA
Life Safety Code, NFPA 101
Planning and Zoning Regulations
Handicapped Access Standards UBC; Americans With Disabilities Act
Fire Resistance Ratings per ICBO, NFPA or Underwriters Laboratories, where not otherwise specified.
Other specific standards and regulations as specified in the individual sections.

Publication Dates:

Comply with codes and standards in effect at the date of the Contract Documents, except where a standard of a specific date or edition is indicated.

1.3 EXISTING UTILITIES:

Before starting any work disturbing, moving or penetrating the ground, call the owning utilities to locate, stake and identify depth of all buried utilities within the construction limits. Obtain location information for water and sewer lines from the appropriate entity.

1.4 SURVEYS, LAYOUTS, LEVELS:

General:

Working from lines and levels established by the property survey, and as shown in relation to the work, establish and maintain bench marks and other dependable markers to set the lines and levels for the work at each story of construction and elsewhere on the site as needed to properly locate every element of the work of the entire project.

Calculate and measure required dimensions as shown within recognized tolerances if not otherwise indicated; do not scale the drawings to determine dimensions. Continuously advise Installer performing the work of the marked lines and levels provided for use in the layout of work.

Basic Layout:

The Contractor will locate and maintain positions for building corners and primary wall lines for all Subcontractors. He will establish final grading control levels. All other layouts, grade stakes and levels required for the work are the responsibility of each Installer.

1.5 PROGRESS SCHEDULE:

Furnish Project Schedule, as required by General Conditions, not less than four (4) copies, in the form of:

Bar chart and curve showing start and completion of each activity or unit of work and overall percentage of completion against time. Provide such detail as required by the Architect. Include latest dates for decisions for work specified by allowance, selection of colors, finishes, etc.

Include listing of Subcontractors, suppliers and materials men with name of contact person, address and phone number.

The schedules shall be updated and reissued monthly and shall reflect actual job progress, delays or gains of time and any rescheduling. The original schedule and each updating shall be furnished in four (4) copies; one (1) to the Owner and three (3) to the Architect. All costs for this scheduling shall be borne by the Contractor. Submit Architect's copies as a part of each pay request which will not be processed without such updates.

1.6 DELIVERY, STORAGE AND HANDLING:

Properly carton, crate, cover and protect materials, products and equipment for shipping, handling and storing. Use appropriate means for hoisting and loading which will prevent damage or over-stress to items being handled or shipped. Store them under roof in controlled environment whenever feasible, otherwise store off the ground under suitable coverings properly secured against wind and weather. Protect all items from rain, snow, moisture, wind,

cold, heat, frost, sun, staining, discoloration, deterioration and physical damage from any cause. Refer to individual sections for specific requirements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01105

SECTION 01300
SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Requirements and procedures for submittal and review of product data, shop drawings, samples and similar items required by the specifications.

1.2 SUBMITTAL REQUIREMENTS:

General:

Make all submittals from Contractor to the Architect after Contractor has reviewed each submittal and indicated his action thereon except for samples and selection submittals.

Scheduling:

Prepare a separate listing and schedule organized by related specification section number sequence, showing the principal work-related submittals and their initial submittal dates as required for coordination of the work. Submit listing within 45 days of notice to proceed with construction or commencement of the work.

Coordinate the preparation and processing of submittals with the performance of the work so that work will not be delayed by processing and review of submittals and re-submittals, if required. No extension of time will be allowed because of failure to properly coordinate and sequence submittals.

Preparation of Submittals:

Provide permanent marking on each submittal to identify it by project, date, Contractor, Subcontractor, submittal name and similar information to distinguish it from other submittals. Show Contractor's approval markings and provide space for Architect's "action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received directly from sources other than through the Contractor's office and any "faxed" submittals will be returned "without action." Refer to appropriate sections of Divisions 15 and 16 for additional submittal requirements (if any) of mechanical and electrical work, respectively.

For revised submittals, identify changes from previous submittal.

Shop Drawings:

Provide Shop Drawings for units of work as specified by the Specification sections. Prepare on reproducible sheets, graphic information to suitable scale, drawings properly identified. Show dimensions and indicate which are based on field measurements. Do not allow copies without appropriate final action markings by

Architect to be used in connection with the work. Submit only after review and marked "action" by Contractor is stamped on Shop Drawings.

Submit initially, one sepia and one print each for Architect, and where applicable, his Consulting Engineer.

Contractor will provide prints of marked-up sepia as may be required for his use and that of his Subcontractors and suppliers.

> Final submittal shall be delivered to the Architect with sufficient copies (five minimum) so that desired distribution can be made by Contractor, one copy each to the Architect, his consulting engineer where applicable, the Contractor's field office, his home office, the Record Documents, the fabricator and any others involved in the submittal.

If initial submittal becomes final submittal, provide sufficient additional copies that may be needed to meet these requirements.

Product Data:

Submit Product Data including manufacturer's instructions and recommendations to Architect as required by the Specification sections. Collect the required data into one submittal for each material, product or system; and mark each copy to show which choices and options are applicable to the project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data for each submittal at the project site, available for reference by the Architect, Engineer or others.

Submittal is for information and record, unless otherwise indicated; and therefore, initial submittal is final submittal unless returned promptly by the Architect marked with an "action" which indicates an observed non-compliance.

Submit copies as above specified for final shop drawings. Where applicable, include additional copies for maintenance manuals. Submit a covering letter to show Contractor's review and action.

Samples:

Provide samples and submit to Architect as specified in the various Specification sections. Include "range" samples, (not less than three (3) units) where variations occur. Unless otherwise specified, submit two (2) samples or sets, properly identified as to project material, source and other required information. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the Architect, who will not "test" them (except as otherwise indicated) for other requirements, which are therefore the exclusive responsibility of the Contractor.

Quality Control Set: Maintain the returned final set of samples at the project site, in suitable condition and available for quality control comparisons by the Architect or Engineer, and by others.

Reusable Samples: Samples which are intended or permitted to be actually incorporated in the work are so indicated in the individual work sections, but must be in undamaged condition at the time of use.

Selection Submittal:

Where selections of colors, patterns, textures are specified to be made by the Architect, assemble complete samples of all specified or approved products for all specification sections and submit to Architect. Review specifications and assemble all such samples for a combined single submittal. Indicate on the Transmittal the latest date for selections to be made for each item to permit delivery of material in accordance with Progress Schedule. Architect's action is limited solely in the specified selections or rejection of submittal items not in accordance with Specifications.

Inspection and Test Reports:

Where standard tests are specified for products, including equipment, which tests are not performed at the job site, follow procedures for Product Data. For field inspection and tests specified to be performed by independent agencies, such agencies shall transmit directly one copy each to the Architect, his consulting engineer where applicable, and the Contractor with an extra copy for Record Documents.

Architect's Action:

Where action and return is required or requested, the Architect will review each submittal, mark it with his "action" and return it within two (2) weeks of receipt; except where it must be held for coordination, and the Contractor is so advised. Allow one week for Architect's review of re-submittals. Proceed in accordance with "action" indicated on the submittal.

Architect's review is for conformance to the general design concept only and does not relieve the Contractor from full compliance with Contract Documents. Refer to Article 3.12 of the General Conditions.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300

SECTION 01410
TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Inspection, testing and reports by independent agencies and their general requirements. Specific requirements for testing are set forth in the individual specification sections of Divisions 2 through 16.

1.2 PERFORMANCE:

Contractor's General Responsibility:

No failure of test agencies, whether engaged by Owner or Contractor, to perform adequate inspections or tests or to properly analyze or report results, shall relieve Contractor of responsibility for fulfillment of requirements of Contract Documents.

It is recognized that required inspection and testing program is intended to assist the Contractor, Owner, Architect, Engineers and governing authorities in nominal determination of probable compliances with requirements for certain elements of work. The program is not intended to limit the Contractor's regular quality control program, as needed for general assurance of compliance.

Failed Tests:

Where test results indicate conditions not meeting specified requirements, Architect may require additional testing or other remedial action. Such additional testing will be paid for by the Contractor at no cost to the Owner whether original tests were paid for by Owner or Contractor and regardless of the results of the additional tests.

1.3 SUBMITTALS:

Refer to Section 01300 for general requirements of submittals. Certified written report of each inspection, test or similar service will be submitted directly to Architect, except through Contractor where service is Contractor's responsibility. Submit additional copies directly to governing authorities where requested by authority.

1.4 QUALITY ASSURANCE:

Qualification of Service Agencies:

Except as otherwise indicated, the Contractor shall engage inspection and test service agencies, including independent testing laboratories, which are prequalified as complying with "Recommended Requirements for Independent Laboratory Qualification" by American Council of Independent Laboratories,

which are recognized in the industry as specialized in the types of inspections and tests to be performed and which have not less than five (5) years experience in such testing.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 COORDINATION OF TEST AGENCY WORK:

Coordination with Owner's Agencies:

Afford access and reasonable time in construction sequence for Owner's inspections and tests to be performed. Cooperate with agencies and provide incidental labor and services needed for the removal and delivery of test samples, and for inspections and taking measurements.

The Contractor shall notify such agencies not less than 16 working hours in advance of need of their services unless shorter or longer times are mutually agreed upon.

Except for specialized laboratory sampling equipment, and except as otherwise indicated, supply and operate tools and construction equipment needed to obtain test samples from the work which are not normally provided by the testing agency. Assist agencies in labeling and packaging of test samples removed from the work.

Provide adequate facilities for safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours after casting as required by ASTM C31.

Provide patching and restoration services where test samples have been removed, complying with Section 01045 and individual work sections of Division 2 through 16.

Limitations:

Do not use any materials or equipment represented by test samples until tests have been made and the materials or equipment found to be acceptable. Do not incorporate in the work any product which becomes unfit for use after acceptance.

Test Agency Responsibilities:

Test agencies, regardless of whether engaged by Owner or Contractor, are not authorized to change or negate requirements of Contract Documents. Each agency shall coordinate its assigned work with construction schedule as maintained by Contractor, and shall perform its work promptly so as not to delay the work avoidably.

Observances by agencies having a bearing on the work shall be reported to Architect, in most expeditious way possible, and shall be recorded in writing by the agency. Agency personnel shall not interfere with or assume duties of Contractor.

The testing agency shall prepare reports of inspections and laboratory tests, including analysis and interpretation of test results where applicable.

Properly identify each report and, where required, provide agency's certification of test results. Describe test methods used, and compliance with recognized test standard (if any). Complete and submit report at earliest possible date in each case.

3.2 INSPECTIONS AND TESTS:

The following is a summary of tests and inspections specified in the appropriate sections and compiled here for convenience of reference.

Testing Paid by Owner:

Fill and backfill compaction density tests: Section 02200
Concrete testing: Sections 02520 and 03310

Testing Paid by Contractor:

Asphaltic concrete paving: Section 02513

3.3 MANUFACTURER'S FIELD SERVICES:

When specified in respective Specification sections, Contractor shall require supplier or manufacturer to provide qualified personnel to observe field conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjusting and balancing of equipment as applicable, and to make appropriate recommendations.

3.4 REPAIR:

Upon completion of each test operation involving cutting or removal of construction elements and related work, restore permanent construction and finishes as specified in Section 01045.

3.5 PAYMENT:

Bills for testing which are identified as "Paid for by Owner" shall be directed to the Owner's address as stated in the Contract Documents, with a clear statement of the nature and date of the test performed.

END OF SECTION 01410

SECTION 01500
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Minimum requirements for temporary services, utilities and facilities. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Architect that such temporary activity is not required for successful completion of the work. The use of alternative facilities equivalent to those specified is the Contractor's option, subject to Architect's acceptance.

Except as otherwise indicated, the costs of providing and using temporary utility services are included in the Contract Sum.

1.2 QUALITY ASSURANCE:

Standards:

Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities including, but not necessarily limited to, code compliances, permits, inspections, testing and health, safety, pollution and environmental compliances.

Comply with NFPA Code 241 "Building Construction and Demolition Operations," ANSI A10 Series and NECA NJG-6.

Definitions:

Cold Weather Protection: Is defined as all heating required during construction period prior to enclosure of the buildings.

Temporary Heat: Is defined as all heating required after enclosure of the buildings or floors. A building or floor is closed in when it is roofed and such protection at doorways, windows and other openings as will provide a reasonable heat retention is provided. Use of permanent equipment is subject to provisions of Division 15.

1.3 PROJECT CONDITIONS:

Scheduled Uses:

Provide temporary facilities and services at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period and do not remove until no longer needed. At the earliest feasible time, and when acceptable to the Owner and Architect or Engineer, change over from the use of temporary utility service to permanent service.

Temporary Use of Permanent Facilities:

Regardless of assigned responsibility for initial installation of a temporary facility, the primary Installer of the corresponding permanent facility shall assume responsibility for its operation, maintenance and protection during use as a temporary facility prior to the Owner's acceptance and assumed operation of the facility.

Conditions of Use:

Operate, maintain, control and protect temporary facilities in a manner which will prevent fire, hazardous exposures, health problems, unsanitary conditions, pollution, contamination, discomfort to users, flooding, freeze-up, interference with the construction work, public nuisances and similar deleterious effects.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT:

Provide either new or used materials and equipment for temporary facilities, which are in substantially undamaged and serviceable condition. Provide types and qualities which are recognized in the construction industry as suitable for the intended use in each application. Comply with the Utility Company requirements as applicable.

PART 3 - EXECUTION

3.1 GENERAL:

Use qualified workers for the installation of temporary facilities. Locate facilities where they will serve the total project construction work adequately, and result in minimum interference with performance of the work. Locate field offices for easy access to and observation of the construction work.

3.2 TEMPORARY FACILITIES BY CONTRACTOR:

Use of Site:

The Contractor shall limit his use of the premises to the work areas indicated, so as to allow for Owner occupancy and use by the public and to protect existing site improvements and plant life.

Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

SECTION 01500
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Minimum requirements for temporary services, utilities and facilities. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Architect that such temporary activity is not required for successful completion of the work. The use of alternative facilities equivalent to those specified is the Contractor's option, subject to Architect's acceptance.

Except as otherwise indicated, the costs of providing and using temporary utility services are included in the Contract Sum.

1.2 QUALITY ASSURANCE:

Standards:

Comply with governing regulations and utility company regulations and recommendations for the construction of temporary facilities including, but not necessarily limited to, code compliances, permits, inspections, testing and health, safety, pollution and environmental compliances.

Comply with NFPA Code 241 "Building Construction and Demolition Operations," ANSI A10 Series and NECA NJG-6.

Definitions:

Cold Weather Protection: Is defined as all heating required during construction period prior to enclosure of the buildings.

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1.3 PROJECT CONDITIONS:

Scheduled Uses:

Provide temporary facilities and services at the time first needed at the site; and maintain, expand and modify the facilities as needed throughout the construction period and do not remove until no longer needed. At the earliest feasible time, and when acceptable to the Owner and Architect or Engineer, change over from the use of temporary utility service to permanent service.

Field Offices:

Provide suitable facilities for the Contractor's operations, subject to Architect's approval.

Storage and Fabrication Facilities: (For work not subcontracted)

Install individual trailers or sheds as required to accommodate the work; sized, furnished and equipped properly.

Quantities, sizes and locations are under control of the Contractor.

Sanitary Facilities:

Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities, but provide not less than the specified requirements. Install sanitary facilities in available locations which will best serve the needs of personnel at the project site.

Provide temporary toilets as required.

Supply and maintain toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each sanitary facility, and provide appropriate waste paper containers for used materials.

Wash Facilities: Install potable-water-supplied wash facilities at locations convenient to construction personnel involved in the handling of compounds and materials where wash-up is necessary to maintain a healthy and sanitary condition. Drain and dispose of drainage properly. Supply soap and other cleaning compounds appropriate for each condition of exposure.

Drinking Water Fixtures: Supply drinking water for construction personnel by either water-system-connected drinking fountains or by containerized tap-dispensers with paper cups (or both), at Contractor's option.

Project Identification and Temporary Signs:

Prepare and install a project identification sign at location indicated or as directed. Support signs on suitable posts and framing of treated wood or steel. Maintain signs throughout the construction period. Do not allow the installation of other unauthorized signs which are made visible to persons outside the project site.

Project Identification Signs: Engage an experienced sign painter to apply the required graphics, in a neat and professional manner.

Provide project identification sign of approximately 40 square foot area, colors and lettering as later detailed, indicating name of Project, Owner, Architect and Contractor.

Temporary Telephones:

Engage the local telephone company to install temporary telephones at Contractor's field office, and to maintain service until notified by the Contractor to terminate service and remove instruments and lines. Pay for service except for toll calls which will be paid for by party making such calls.

Temporary Power:

Engage local power company to provide temporary electrical power to a temporary pole and meter; location as required. Electrical installer will provide service from this point as specified.

Walks:

Install and maintain temporary walkways around the construction work and to offices, toilets and similar places at the site.

Temporary Enclosure:

Where required, provide temporary enclosure of materials, equipment, work in progress and completed portions of work, so as to afford protection for both the work and employees.

Provide temporary enclosure wherever temporary heat is needed and permanent building enclosure is not yet completed nor adequate for the containment of temporary heat.

Coordinate temporary enclosures with ventilating and drying-of-the-work requirements, so as to avoid dangerous conditions and deleterious effects.

Hoists and Temporary Elevator Use:

Provide adequate hoisting facilities for materials, and do not allow workers to ride hoists which comply with only the requirements for materials hoisting. Except as otherwise indicated, the selection of type, size and number of hoisting facilities for temporary use at the project site is the Contractor's option.

Barricades, Warning Signs and Lights: (For work not subcontracted)

Comply with recognized standards and code requirements for the erection of adequate barricades wherever needed to prevent accidents and losses. Paint and provide illumination and flashing lights as appropriate to conditions.

Protection Fence:

Prior to the time excavating or other substantial elements of work begin at the project site, install a protection fence with suitable entrance gates as on the plans.

Provide fencing as acceptable to Architect to prevent damage to existing paving, landscaping and other features throughout the construction period.

Heating During Construction:

Cold Weather Protection: Provide such heat and fuel, heating units, equipment as necessary to protect the work from damage due to cold. Maintain equipment and surroundings in a clean, safe condition.

Provide temporary heat as necessary to heat enclosed spaces to the temperatures described below:

Except as otherwise specified, maintain a minimum temperature of 50°, and a maximum temperature of 78°. At all times during the placing, setting and curing of plaster, drywall and ceramic tile, provide sufficient heat to produce a uniform temperature in the spaces involved of not less than 55°. Before, during and through the placing of wood finish and the application of other interior finishing, varnishing, painting, etc., and until final acceptance of the work, provide sufficient heat to product a temperature of not less than 60°.

Include power and operating costs.

Heating Facilities: Install approved heating systems for general use, except where the permanent heating system of the project is available and authorized for use. Do not use permanent system unless approved in writing by the Architect subject to stipulations of usage by Mechanical Consultant.

Heating Units: provide temporary heating units which have been tested and labeled by UL, FM or a recognized trade association related to the fuel being consumed (AGA, NEMA or other).

Limitations: In any case, do not use open burning or salamander type temporary heating units. For liquid or gaseous fueled units, located outside of building or provide vents to the exterior. Take special precautions to avoid carbon dioxide build-up and damage especially to cementitious materials.

Ventilation: Provide such temporary ventilation as may be required to prevent hazardous accumulation of fumes, remove excess humidity, ventilate sanitary facilities and storage spaces for volatile and hazardous materials.

Miscellaneous Facilities:

Provide ladders, ramps, temporary stairs, for access to all levels of the construction for general access by all trades. Individual contractors and subcontractors will furnish their own stepladders, scaffold, staging, work platforms and other facilities for use of their workers and as necessary to the expeditious completion of their work. Provide waste chutes as required by applicable laws and regulations. Do not leave unattended ladders on site.

Fire Extinguishers:

Except as otherwise indicated or required, comply with the applicable recommendations of NFPA No. 10 "Portable Fire Extinguishers" for each area of each construction activity whenever combustible materials, flammable liquids and similar exposures to possible fires are present.

Locate extinguishers where most convenient and effective for the intended purposes, but locate not less than one on each floor at or near each usable stairwell. Store combustible materials in recognized fire-safe locations and containers.

Protection of Installed Work:

Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.

Provide protective coverings at walls, projections, jambs, sills and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects and storage.

Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.

Always protect excavation, trenches and building from damage from rain water, spring water, ground water, backing up of drains or sewers. Provide pumps, equipment, enclosures, to provide this protection.

3.3 TEMPORARY FACILITIES BY APPROPRIATE SUBCONTRACTOR:

Water Service: (By Mechanical)

Install potable water service and distribution piping, of sizes adequate for temporary construction purposes; including construction processes, fire protection, drinking, sanitary facilities, cleaning and plant/lawn watering required during the construction period until permanent service is in use. Users will provide their own hoses at valved outlet points.

Obtain water services from nearby City water main or existing building water service, as applicable.

3.4 FACILITIES BY SUBCONTRACTORS REQUIRING THEM:

Storage and Fabrication Facilities:

Install individual trailers or sheds as required to accommodate the work; sized, furnished and equipped properly.

Sizes, quantities and locations are under control of the Contractor.

Barricades, Warning Signs and Lights:

Comply with recognized standards and code requirements for the erection of adequate barricades wherever needed to prevent accidents and losses. Paint and provide illumination and flashing as appropriate to conditions.

Cold Weather Protection:

Provide such heat and fuel, heating units, equipment as necessary to protect the work from damage due to cold. Maintain equipment and surroundings in a clean, safe condition.

3.5 OPERATIONS AND TERMINATIONS:

Supervision:

Enforce strict discipline in the use of temporary facilities at the project site. Limit availability of facilities to essential and intended uses, so as to minimize waste and possibility of abuses, unsanitary and hazardous or dangerous conditions.

Do not allow temporary offices and similar temporary or permanent spaces to be used as living quarters, or for other unintended occupancies or uses.

Janitorial Services:

Provide periodic janitorial services for temporary offices, toilets, wash facilities and similar areas at the project site. Require users of other temporary facilities to maintain clean and orderly premises.

Maintenance:

Installing entity shall maintain temporary facilities in good operating condition through time of use, and until removal is authorized. Protect from damage by freezing temperatures and similar elements at the site.

Termination and Removal:

At the time the need has ended for each temporary facility, or when it has been replaced by authorized use of a permanent facility, or at the time of Substantial Completion, promptly remove the facility unless requested by the Architect to be retained for a longer period of time.

Complete or restore permanent work which may have been delayed or otherwise affected by the temporary facility. Replace work which cannot be satisfactorily restored.

Except as otherwise indicated, the materials and equipment of temporary facilities remain the property of the installing entity.

END OF SECTION 01500

SECTION 01561
CONSTRUCTION CLEANING

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Facilities, equipment and labor for cleaning and waste disposal during construction. Refer to Section 01710 for final cleaning.

1.2 RESPONSIBILITIES:

General:

Provide all facilities and equipment as necessary to keep the work and site clean and safe as set forth in the General Conditions, and as specified herein.

Contractor and each Subcontractor and Installer is responsible for specific cleaning operations of his work to the extent specified in the appropriate specification sections.

Pollution Control:

Conduct clean-up and disposal operations to comply with applicable anti-pollution laws and local ordinances.

Burning or burying of waste materials on the project site is not permitted.

Disposal of volatile fluids and wastes in storm or sanitary sewers, or into streams or waterways is not permitted.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS:

Use only cleaning materials recommended by manufacturer of surface to be cleaned.

Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION:

3.1 WASTE DISPOSAL:

Collection and Disposal of Wastes:

Establish and enforce a daily system for collecting and disposing of waste materials from construction areas and elsewhere at the project site. Provide suitable trash containers at a central collection point on the site. Provide chutes or other suitable means for removing trash safely and cleanly from elevated portions of the work.

Contractor and each Subcontractor and Installer is responsible for cleaning and removal of his trash and debris to this collection point.

Do not hold collected materials at the site for periods of more than seven (7) days. Handle hazardous, dangerous, unsanitary, contaminating, polluting and similar harmful wastes separately from inert materials, by containerizing in an appropriate manner. Dispose of each category of waste material in a lawful manner. Do not bury or burn waste materials on the Owner's property.

Enforce strict prohibition against the washing of waste materials down sewers or into waterways.

Waste concrete and masonry shall be removed from the site and legally disposed of by masonry and concrete installers.

3.2 CLEANING UP:

Cleaning and Protection of Work:

At the time each unit of work or element of the construction is completed substantially in each area of the Project, clean the unit or element to a condition suitable for occupancy and use as intended, and restore minor or superficial damage. Replace units and elements which are damaged beyond successful restoration.

Clean and restore adjoining surfaces and other work which was soiled or damaged superficially during the installation; replace other work damaged beyond successful restoration. Where the performance of subsequent work could possibly result in damage to the complete unit or element, provide protective covering or other provisions to minimize possible damage.

Repeat cleaning and protection operations during remainder of construction period wherever work might otherwise be damaged by sustained soiling or exposure.

During Construction:

Oversee cleaning and ensure that building, grounds and public properties are maintained free from accumulation of waste materials and rubbish.

Take measures to prevent spread of trash, debris, cartons, packaging or other waste materials on or off the Project Site by wind.

Sprinkle dusty debris with water.

At reasonable intervals during progress of work, clean up site and access and dispose of waste materials, rubbish and debris.

Remove snow and ice from public sidewalks adjacent to site and from access ways to the building and construction.

Clean adjacent and nearby streets of dirt occasioned by construction operations; frequency and methods as required by governing authority.

Vacuum clean interior building areas when ready to receive finish painting.

Contaminated Earth:

Remove contaminated earth and dispose of off site. Replace with clean soils, as approved, in accordance with Section 02200 using materials appropriate to the location on the site and methods specified for fills and backfills.

Contaminated earth includes, but is not limited to, waste concrete, mortar and plaster; debris and waste materials; areas used for cleaning tools, washing mixers and concrete trucks; and areas containing oils, solvents, paints and similar liquids or their residues.

END OF SECTION 01561

SECTION 01630
SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Requirements and procedures for products used and for substitutions of products not specified.

1.2 PRODUCT LISTING:

Not later than 30 days from the Contract date, the Contractor shall provide a list in duplicate of all products and equipment proposed for installation, including the name of the manufacturer of each, model, type or other identification, for action by the Architect.

The list shall be tabulated by, and be complete for, each specification section. Include all information required to fully identify each product. Where applicable, subcontractor's names shall be included in list.

Indicate clearly on the list if the product is not the first named or only named product in the specifications, whether or not approved as a Bidder's Alternate.

Refer to Divisions 15 and 16 General Provisions sections for special (separate) listing of products required for the mechanical and electrical work.

Within two (2) weeks of receipt of product-listing schedule, Architect will respond to Contractor in writing, indicating unacceptable selections (if any) together with explanation thereof, and requesting additional data (if any) as may be needed for his review (or the Owner's review) and acceptance of other products and manufacturers as listed.

No response by the Architect will be recognized as no objection to the listed product/manufacturer, but will not constitute waiver of requirements for the product to comply with the requirements of the Contract Documents.

1.3 PRODUCT SELECTION:

When products are specified by ASTM or other reference standards, furnish products conforming to such reference standards.

When products are specified by trade name or manufacturer's name and model number, whether or not reference standards are also specified, furnish those specific proprietary products. Where more than one manufacturer is specified, the Contractor has the option as to which manufacturer's products are to be used.

Where manufacturers are listed as acceptable for specific proprietary products but precise identification by model, series or trade names is not specified, submit detailed product information for such products for Architect's acceptance prior to ordering. Include specific requirements for modifications to other construction, as specified for substitutions, including power and utility requirements, characteristics, capacities and locations.

See Section 01078 regarding "Contractor's options."

When terms "or equal," "equal to," "or approved equivalent" and other similar terms are used, provide only products approved in writing by the Architect.

Refer to the Bidders' Instructions for bidding Bidder's Alternates. Do not furnish products of manufacturers not specified or not approved in writing except where such products have been specified solely by reference standards. Substitute products proposed must be equivalent in quality, performance and appearance and such equivalence is solely the judgement of the Architect. There is no obligation for the Architect to prove non-equivalence.

Approved substitutions may, because of different size, weight, configuration, power requirements, utility connections or other characteristics, require modifications to other elements of the work. If such substitutions are used, all such modifications to other elements of the work must be shown by shop drawings or other submittals as appropriate, and approved. The cost of such modifications are solely the Contractor's.

Mechanical and electrical equipment design and its space requirements are based on the first named item of the section in which specified. If other than the first named item is used, the above requirements for substitutions will apply.

Compatibility of Options:

Compatibility of products is a basic requirement of product selection. When the Contractor is given the option of selecting between two or more products for use on the project, the product selected must be compatible with other products previously selected, even if the products previously selected were also Contractor options. The complete compatibility between the various choices available to the Contractor is not assured by the various requirements of the Contract Documents, but must be provided by the Contractor.

1.4 GENERAL PRODUCT REQUIREMENTS:

Provide products, materials and equipment which comply with the requirements, and which are undamaged and unused (except where used items are specifically required or permitted) at the time of installation, and which are complete with accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

It is the responsibility of the Contractor and his Installers, as experts, to notify the Architect of any specified product that to his knowledge will not meet the requirements or is unsuited to the application indicated or specified.

The use of manufacturer's and trade names is intended only to establish standards of quality and performance and not to limit competition.

1.5 SUBSTITUTIONS:

Basis:

After execution of the Contract, the Owner and the Architect will consider substitutions of products in place of those specified or approved prior to Contract award only under the following conditions:

The specified product or products, through no fault of the Contractor or his Subcontractors, cannot be delivered in time to meet the construction schedule.

A formal request is made for the substitution documenting fully the above reason. Include complete data on the proposed substitution substantiating compliance with the Contract Documents including product identification and description, performance and test data, references and samples where applicable, and an itemized comparison of the proposed substitution with the products specified or otherwise approved, with data relating to Contract time schedule, design and artistic effect where applicable, and its relationship to separate contracts.

Accompany the request by accurate installed cost data on the proposed substitution in comparison with the product specified.

Consideration:

Such submittal is a representation by the Contractor that:

He has personally investigated the proposed substitution and determined that it is equal or superior in all respects to that specified;

He will provide the same warranty for the substitution that he would for that specified;

The cost data presented are complete and include all related costs under this Contract but excludes costs under separate contracts and excludes Architect's re-design costs, and that he waives all claims for additional costs related to the substitution which subsequently become apparent;

He will coordinate the installation of the accepted substitute, making such changes as may be required for the work to be complete in all respects.

When approved by the Owner and Architect, such substitution will be documented by Change Order modifying the Specifications. The Contract Price will be changed only if the substitution results in a cost savings to the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01630

SECTION 01701
CONTRACT CLOSEOUT PROCEDURE

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Closeout procedures for the project near the end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Divisions 2 through 16.

Time of closeout is directly related to "Substantial Completion," and it, therefore, may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates.

That time variation (if any) shall be applicable to other provisions of this section, regardless of whether resulting from "phased completion" originally specified by the Contract Documents or subsequently agreed upon by Owner and Contractor.

It is the Contractor's responsibility to complete the project in accordance with the Contract Documents and to enforce requirements of the Contract Documents on his employees, suppliers and Subcontractors.

1.2 SUBSTANTIAL COMPLETION: (See General Conditions)

Contractor will notify Architect of his claim for substantial completion in accordance with the General Conditions.

In order to act upon the Contractor's claim of Substantial Completion, the Architect and his Engineers, as appropriate, will inspect the Project, provided specified prerequisites are met. If they find it substantially complete, Architect will issue a Certificate of Substantial Completion, AIA Document G704 and, if necessary, a "punch list" inspection report indicating items, in addition to the Contractor's list, required for completion and acceptance. If work is not substantially complete, Contractor will be advised of general reasons for this judgement.

The "punch list" inspection will not be made until Project Record Documents, test and balance reports and operating and maintenance manuals have been delivered to the Architect and found by him to be substantially complete.

The Contractor will proceed immediately to complete all items and will transmit to the Architect weekly a report of the progress on or completion of each item on the "punch list" and the Contractor's list. Any non-conforming or incomplete work coming to the Architect's attention during this period will be added to the list.

In the progress payment request that coincides with, or is the first request following the date substantial completion is claimed, show either 100% completion for the portion of the work claimed as "substantially complete," or list incomplete items, the value of incomplete work, and reasons for the work being incomplete.

Prerequisite to Substantial Completion:

Submit statement showing accounting of changes to the Contract Sum.

Advise Owner of pending insurance change-over requirements.

Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including occupancy permits, operating certificates and similar releases.

Submit Record Drawings, maintenance manuals and similar final record information. Refer to Sections 01720 and 01730.

Deliver tools, spare parts, extra stocks of materials and similar physical items to Owner.

Make final change-over of locks and transmit keys to Owner, and advise Owner's personnel of change-over in security provisions.

Complete start-up and testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue or change over and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.

Complete final clean-up requirements.

Touch-up and otherwise repair and restore marred exposed finishes.

1.3 FINAL ACCEPTANCE:

Final Inspection:

Upon completion of all items, upon written notice from the Contractor Certifying that the work is complete, the Architect will, within seven (7) days, make the final inspection.

Should Architect consider that work is finally complete in accordance with requirements of Contract Documents, Contractor will be requested to submit Project Closeout Documents not previously received and approved. Architect will issue a certificate of final acceptance.

Should Architect consider that Work is not finally complete, Contractor will be notified, in writing, stating reasons. Contractor shall take immediate steps to remedy the stated deficiencies, and send second written notice to Architect certifying that work is complete.

Architect will re-inspect work.

Should Architect be required to perform second inspections because of failure of work to comply with original certifications of Contractor, Owner will compensate Architect for additional services, and deduct amount paid from final payment to Contractor.

Prerequisites to Final Acceptance:

Prior to requesting Architect's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:

Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit updated final statement, accounting for additional (final) changes to the Contract Sum.

Submit copy of Architect's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect.

Submit final meter readings for utilities and similar data at time of Substantial Completion or when Owner took possession of and responsibility for corresponding elements of the work.

Submit consent of surety.

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.4 CLOSEOUT DOCUMENTS:

In order to complete the Project, provide the following documents:

Project Record Documents as set forth in General and Supplementary Conditions and Section 01720.

Operating and Maintenance Manuals for Mechanical and Electrical Systems as specified in Section 01730 and Divisions 15 and 16.

Test and Balance Reports for the Mechanical Systems as specified in Division 15.

Printed Warranties and instructions for use or maintenance as specified in the appropriate sections.

Parts and Maintenance materials as specified in the appropriate sections.

1.5 START UP AND INSTRUCTIONS:

Test and start up all systems as specified in the appropriate sections. Where so specified, provide instructions to the Owner or his employees in the operations of such systems as specified. Notify both the Architect and the Owner, in writing, at least seven (7) days in advance of such start-ups, tests and demonstrations.

Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities.

For operational equipment, demonstrate start-up, shut-down, seasonal changeovers, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds and similar continuing commitments.

1.6 REPLACEMENT MATERIALS:

Assemble and deliver to Owner all specified extra or replacement materials as specified in Division 2 through 16 sections. Accompany with written list, in triplicate, itemizing each material, pattern, color, quantity, specification section. Obtain Owner's signature on list acknowledging receipt of materials and transmit signed copy to Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01701

SECTION 01710
FINAL CLEANING

PART 1 - GENERAL

1.1 SUMMARY:

Requirements for facilities, equipment and labor to perform final cleaning. Refer to Section 01561 for cleaning during construction.

Pollution Control: Conduct clean-up and disposal operations to comply with applicable anti-pollution laws and local ordinances.

Burning or burying of waste materials on the project site is not permitted.

Disposal of volatile fluids and wastes in storm or sanitary sewers, or into streams or waterways is not permitted.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS:

Use only cleaning materials recommended by manufacturer of surface to be cleaned.

Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 FINAL CLEANING:

Use experienced workers or professional cleaners for final cleaning.

At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.

Remove labels which are not required as permanent labels.

Remove grease, dust, dirt, stains, films, fingerprints and other noticeable distracting substances from interior and exterior surfaces. Include washing of glass and metal storefront framing, inside and outside. Wash glass following glass manufacturer's recommendations.

Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.

Wipe surfaces of mechanical and electrical equipment clean, including elevator equipment and similar equipment, in addition to that specified in Division 15 and 16; remove excess lubrication and other substances.

Remove debris and surface dust from limited-access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attic and similar spaces.

Clean concrete floors in non-occupied spaces broom clean.

Vacuum clean carpeted surfaces and similar soft surfaces.

Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.

Power scrub and power buff resilient flooring surfaces, tile, terrazzo and fluid applied flooring.

Repair, patch and touch-up marred surfaces to match adjacent finishes.

Broom clean paved surfaces; rake clean other surfaces of grounds.

Clean food service equipment to a condition of sanitation ready and acceptable for intended food service use, by food service equipment Installer.

Clean light fixtures and lamps so as to function with full efficiency, by electrical Installer.

Replace air supply unit filters if units were operated during construction, by mechanical Installer.

Clean ducts, blowers and coils if air supply units were operated without filters during construction, by mechanical Installer.

Maintain cleaning until the building, or portion thereof, is occupied or accepted by the Owner.

END OF SECTION 01710

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

The recording, maintenance, preparation and submittal of Project Record Documents as defined in the General Conditions.

1.2 DOCUMENTS:

Maintain at job site, one copy of:

Contract Drawings
Specifications
Addenda
Reviewed Shop Drawings and Product Data
Change Orders
Other Modifications to Contract
Field Test Records

Store documents in temporary field office apart from documents used for construction.

Provide files and racks for storage of documents.

Maintain documents in clean, dry, legible condition.

Do not use record documents for construction purposes.

Make documents available at all times for inspection by Architect, his professional consultants and Owner.

Label each document "PROJECT RECORD" in one (1) inch or larger printed letters.

1.3 RECORDING:

Drawings:

Record drawing information in colored pencil or felt tip pens with different colors for the various systems and defined by color legend.

Record drawing information with opaque lines and symbols conforming to Contract Drawings. Note where positions of elements have been changed. Follow methods directed by Architect.

Keep Record Documents current. Update at least weekly.

Do not permanently conceal any work, including lay-in ceiling panels, until required information has been recorded.

Contract Drawings: Legibly mark to record actual construction.

Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.

Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.

Location of concealed valves, dampers, controls, balancing devices, junction boxes, cleanouts, other items requiring access or maintenance.

Field changes of dimension and detail.

Changes made by Change Order or Field Order.

Details not on original Contract Drawings.

Specifications: Legibly mark up each section to record:

Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.

Changes made by Change Order or Field Order.

Other matters not originally specified.

Other Documents: Maintain manufacturer's certifications, field test records and other field data as required by individual specification sections. Submit copies of permits, licenses, certifications, inspection reports, releases, notices, receipts for fee payments and similar documents, correspondence and records established in compliance with standards and regulations bearing on the work.

1.4 SUBMITTAL:

Complete this work and submit as specified in Section 01701.

Submit marked-up drawing prints as part of Substantial Completion Documents.

Submit revised and corrected mark-ups if initial submittal is unsatisfactory as part of Final Completion Documents.

Deliver record documents to Architect including all items listed above under "Documents."

Accompany submittal with transmittal letter, in duplicate, containing:

Date
Project title and number
Contractor's name and address
Title and number of each Record Document

Certification that each document, as submitted, is complete and accurate.
Signature of Contractor or his authorized representative.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01720

SECTION 01730
OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Operating and maintenance instructions and manuals for mechanical, electrical and other equipment where required in Divisions 2 through 16 sections.

Instruct Owner's personnel in maintenance of products and in operations of equipment and systems.

Related Sections

Submittals: Section 01300
Contract Closeout Procedures: Section 01701
Project Record Documents: Section 01720

1.2 FORM OF SUBMITTALS:

Prepare data in form of an instructional manual for use by Owner's personnel. Submit separate sets of manuals for each building.

Format:

Size: 8.5" x 11", 20 lb. minimum weight white paper for typed pages, either manufacturer's printed data, or neatly typewritten.

Drawings: Provide reinforced, punched binder tab, bind in with text. Fold larger drawings to size of text pages.

Provide indexed tabs and fly-leaf for each separate product, or each piece of operating equipment. Include typed description of product and major component parts of equipment.

Cover:

Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS." List:

Title of Project and Building;
Identity of separate structures as applicable; and
Identity of general subject matter covered in the manual.

Binders:

Commercial quality three-ring binders with durable and cleanable plastic covers; one-inch minimum, two inches maximum ring size.

When multiple binders are used, correlate the data into related, consistent groupings.

1.3 CONTENT OF MANUALS:

Neatly typewritten table of contents for each volume, arranged in systematic order.

Contractor, name of responsible principal, address and telephone number.

A list of each product required to be included, indexed to content of the volume.

List, with each product, name, address and telephone number of:

Subcontractor or Installer;
Maintenance contractor, as appropriate;
Identify area of responsibility of each; and
Local source of supply for parts and replacement.

Identify each product by product name and other identifying symbols as set forth in Contract Document.

Product Data:

Include only those sheets which are pertinent to the specific product. Annotate each sheet to clearly identify specific product or part installed, data applicable to installation. Delete references to inapplicable information.

Drawings:

Supplement product data with drawings as necessary to clearly illustrate:

Relations of component parts of equipment and systems.
Control and flow diagrams.

Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.

Do not use Project Record Documents as maintenance drawings.

Written Text:

As required to supplement product data for the particular installation organized into consistent format under separate headings for different procedures. Provide logical sequence of instructions for each procedure.

Other Date:

Copy of each warranty, bond and service contract issued.

Provide information sheet for Owner's personnel; give:

Proper procedures in event of failure.
Instances which might affect validity of warranties or bonds.

1.4 MANUALS FOR EQUIPMENT AND SYSTEMS:

Submit complete manuals with complete data as required, including the following as applicable.

Description of Unit and Component Parts:

Function, normal operating characteristics and limiting conditions.

Performance curves, engineering data and tests.

Complete nomenclature and commercial number of replaceable parts.

Operating Procedures:

Start-up, break-in, routine and normal operating instructions.

Regulation, control, stopping, shut-down and emergency instructions.

Summer and winter operating instructions.

Special operating instructions.

Maintenance Procedures:

Routine operations.

Guide to "trouble-shooting."

Disassembly, repair and re-assembly.

Alignment, adjusting and checking.

Boiler water treatment procedures.

Servicing and Lubrication Schedule:

List of lubricants required and lubrication schedule.

Filter cleaning or replacement schedule.

Instructions:

Manufacturer's printed operating and maintenance instructions.

Description of sequence of operation (by control manufacturer for HVAC systems).

Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.

Predicted life of parts subject to wear.
Items recommended to be stocked as spare parts.

Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.

Additional requirements for operating and maintenance data as specified in respective sections.

Diagrams, Charts:

As-installed control diagrams by controls manufacturer.

Each Subcontractor's coordination drawings.

As-installed color coded piping diagrams.

Charts of valve tag numbers with location and function of each valve.

List of original manufacturer's spare parts, manufacturer's current prices and recommended quantities to be maintained in storage.

Other data as required under pertinent sections of specifications.

Content for each electric and electronic system, as appropriate.

Circuit directories of panelboards.

Electrical service and distribution.

Controls.

Communication systems with as-installed color coded wiring diagrams.

Equipment and Systems:

Provide complete information for products specified in:

Heating, ventilating and air-conditioning equipment and systems: Division 15 sections
Plumbing equipment and systems: 15400 series sections
Electrical distribution system: 16400 series sections
Communication systems: 16700 series sections
Fire alarm and detection system: Section 16720
Food service equipment: Section 11400
Elevators: Section 14215
Other equipment, special construction, conveying systems where specified in the individual sections

1.5 SUBMITTAL SCHEDULE:

Submit two copies of preliminary draft of proposed formats and outlines of contents within 45 days after start of construction.

Architect will review draft and return one copy with comments.

Submit one copy of completed data in final form 15 days prior to substantial completion inspection.

Copy will be returned after substantial completion inspection with comments.

Submit two (2) copies in final corrected form ten (10) days prior to final inspection or acceptance.

1.6 INSTRUCTION OF OWNER'S PERSONNEL:

Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in operation, adjustment and maintenance of products, equipment and systems.

Operating and maintenance manual shall constitute the basis of instruction.

Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01730

SECTION 02072
DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Demolition work as shown on the drawings for removal of portions of existing construction as required to accommodate remodeling and new construction.

1.2 SUBMITTALS:

Schedule:

For information only, submit schedule for demolition work by areas, location and types prior to start of work. Include relationship to remodeling and new construction scheduling and the cut-off or interruption of utilities.

Provide a detailed sequence of demolition work to ensure the uninterrupted use of areas to remain occupied and in use by the Owner.

1.3 PROJECT/SITE CONDITIONS:

Occupancy:

Notify Owner not less than 72 hours in advance of any demolition activities which will significantly impact Owner's normal operations.

Condition of Structure:

The Owner assumes no responsibility for the actual condition of constructions to be demolished.

Conditions existing at the time of bidding will be maintained by the Owner insofar as practicable, although variations may occur due to Owner's salvage operations.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION:

Protection:

Maintain safe and convenient access to and egress from existing occupied structures during normal operational days and times. Erect temporary walks and barricades as required by authorities having jurisdiction.

Protect from damage, existing finish work that is to remain in place and becomes exposed during demolition operations.

Carry out demolition work to cause as little inconvenience to adjacent occupied building areas as possible.

Damages:

Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

Traffic:

Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.

Hazardous Materials:

Remove, handle and dispose of hazardous materials in a safe manner and as required by authorities having jurisdiction.

> The Owner attests that, to his knowledge, there is no friable asbestos in existing materials.

Should materials containing or likely to contain asbestos be discovered, notify Owner and conform to EPA, State and local Health Department regulations including notification, records, handling and disposal methods.

3.2 DEMOLITION:

General:

Prevent movement or settlement of structure(s). Provide and place bracing or shoring and be responsible for safety and support of structure. Assume liability for such movement, settlement, damage or injury.

Cease operations and notify the Architect immediately if safety of structure appears to be endangered. Take precautions to properly support structure. Do not resume operations until safety is restored.

Provide, erect and maintain barricades, lighting and guard rails as required by applicable regulatory requirements to protect occupants of building and workers.

Arrange and pay for disconnecting, removing and capping utility services within areas of demolition. Disconnect and stub off.

Do not disrupt services to occupied areas except as scheduled in advance and agreed to by Owner. Give 48 hours advance notice of such disruptions.

Place markers to indicate location of disconnected services. Identify service lines and capping locations on Project Record Documents.

The use of explosives will not be permitted.

Control dust resulting from demolition operations. Sprinkle with water to extent necessary but limit water use to avoid damage to remaining construction or its accumulation at low points.

Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations, as directed by the Architect or governing authorities. Return adjacent areas to condition existing prior to the start of the work.

Removal:

Demolish in an orderly and careful manner as required to accommodate new work, including that required for connection to the existing building.

Perform demolition in accordance with applicable authorities having jurisdiction.

Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools. Do not use power-driven impact tools.

Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors or framing.

If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Owner's Representative in written, accurate detail. Pending receipt of directive from Owner's representative, rearrange selective demolition schedule as necessary to continue overall job progress without delay.

Repair all demolition performed in excess of that required and all damage to remaining elements due to demolition at no cost to the Owner.

Remove and dispose of all materials, equipment and construction indicated as not to remain. Use methods and sequencing which will protect and minimize damage to existing work to remain. Provide temporary shoring, bracing, underpinning and/or other devices, as required, to support existing construction until such new construction is in place.

Before removing existing conduit, wiring, and/or piping, be sure all lines are disconnected and shut off or capped.

3.3 SALVAGE:

Items for Reuse:

Use skilled workers to carefully remove, clean, store and protect existing items scheduled or indicated on drawings for reuse in remodeling or new construction.

Contractor's Salvage:

All materials and equipment to be removed and not indicated for reuse or Owner's salvage becomes the property of the Contractor.

Items of salvable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the site as they are removed.

Storage or sale of removed items on the site will not be permitted.

3.4 DISPOSAL:

Burning of materials on site is not permitted.

Remove from site, contaminated, vermin infested or dangerous materials encountered and dispose of legally off-site by safe means so as not to endanger health of workers and public.

Remove demolished materials, tools and equipment from site upon completion of the work. Leave site in a condition acceptable to the Architect.

END OF SECTION 02072

SECTION 02200
EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Earthwork as shown on the drawings as follows:

General site grading, cut, fill and finish.
Preparation of subgrade for concrete slabs, walks and pavements.
Distribution of stockpiled topsoil.

Related Sections:

Concrete: Division 3 sections

1.2 SUBMITTALS:

Test Reports-Excavating, Filling and Grading:

The following tests will be performed by the Owner's testing laboratory with a copy of test reports furnished to the Contractor.

Agency will submit two (2) copies of the following reports directly to the Architect from the testing services, with copy to the Contractor:

Field density report for fills and backfills.
One optimum moisture-maximum density curve for each type of soil encountered.

1.3 QUALITY ASSURANCE:

Codes and Standards:

Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

Testing and Inspection Service:

Owner will engage soil testing and inspection service for quality control testing during earthwork operations.

1.4 PROJECT/SITE CONDITIONS:

Existing Utilities:

Locate existing underground utilities in the areas of work as specified in Sections 01105. If utilities are to remain in place, provide adequate means of protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with Owner and utility companies in keeping utilities to satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others, except when permitted in writing by Architect and then only after acceptable temporary utility services have been provided.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS:

For structural fills supporting slabs, provide free draining gravels of type and gradation approved by the Architect.

Drainage Fill:

Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, reasonably uniform size, with maximum size of 1.5 inches and not more than 5% passing a No. 200 sieve, as acceptable to the Architect.

Backfill and Fill Materials:

Satisfactory off-site materials or on-site materials acceptable to Architect, free of rock or gravel larger than two (2) inches in any dimension, debris, waste, frozen materials, vegetable and other deleterious matter.

Unsuitable Materials:

Expansive materials or materials that contain debris, roots, organic or frozen materials, stone or concrete having maximum dimension larger than 1/2 the specified loose layer thickness, or materials that are determined by the Architect as unsuitable for providing stable slopes, fill, backfill, foundation or subgrade materials for structure of pavements. Otherwise suitable materials which is unsuitable due to excess moisture content will not be classified as unsuitable unless it cannot be dried by manipulation aeration, or blending with other materials satisfactorily as determined by the Architect.

PART 3 - EXECUTION

3.1 PREPARATION:

Protection of Persons and Property:

Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.

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

3.2 EXCAVATION, GENERAL:

Definition:

Excavation consists of removal and disposal of material encountered when establishing required grade elevations.

Use of Explosives:

The use of explosives is not permitted.

Excavation Classifications:

All excavation is to be considered as "unclassified."

Unauthorized Excavation:

Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.

Backfill and compact unauthorized excavations as specified for authorized excavation of same classification, unless otherwise directed by Architect.

Under footings, foundation bases or retaining walls, fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect.

Additional Excavation:

When excavation has reached required subgrade elevations, notify the Architect who will make an inspection of conditions.

If unsuitable bearing materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the Architect.

Stability of Excavations:

Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

Shoring and Bracing:

Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Provide shoring as required for safety and by governing authorities.

Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

Dewatering:

Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding areas.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations.

Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Convey water removed from excavations and rain water to collecting or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure.

Do not use footing or foundation trench excavations as temporary drainage ditches.

Cold Weather Protection:

Protect excavation bottoms against freezing when atmospheric temperature is less than 35° F.

Material Storage:

Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.

Locate and retain soil materials away from edge of excavation.

3.3 EXCAVATION FOR STRUCTURES:

Conform to elevations and dimensions shown within a tolerance of +/-0.10 foot, and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction and for inspection.

Foundations:

In excavating for footings and foundation, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive concrete.

Excavation for Pavements:

Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

Leave subgrades at elevations required for topsoiling, paving and base courses shown on drawings.

3.4 EXCAVATION FOR TRENCHES:

Dig trenches to the uniform width required for the particular item to be installed, sufficiently wide to provide ample working room but not less than nine (9) inches on either side of pipe.

Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.

Where rock is encountered, carry the excavation six (6) inches below the required elevation and backfill with a six (6) inch layer of crushed stone or gravel prior to installing pipe.

Grade bottoms of trenches as indicated. Notch under pipe bells or fittings to provide solid bearing for entire body of pipe, except where pipe bedding or filtering materials are indicated.

Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.

Concrete is specified in Division 3 sections.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect. Use care in backfilling to avoid damage or displacement of pipe systems.

3.5 COMPACTION:

Control soil compaction during construction providing minimum percentage of density specified for each area classification. Follow methods, use materials as directed by Soil Engineer.

Percentage of Maximum Density Requirements:

Compact soil to not less than the following percentage of maximum dry density determined in accordance with ASTM D698.

Structural Fills (Interior Slabs): Compact top nine (9) inches of subgrade and each layer of backfill or fill material to 95% Standard Proctor density.

Foundation and Retaining Wall Backfill: Compact each layer of backfill material to 95% Standard Proctor Density.

Exterior Slabs, Steps, Walkways, Pavements: Compact top of subgrade and each layer of backfill and fill material at 95% Standard Proctor density.

Lawn or Unpaved Areas: Compact top six (6) inches of subgrade and each layer of backfill or fill material at 90% maximum dry density.

Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

Maintain moisture content of fill or backfill material to within +/-2% of optimum as determined by ASTM D698.

3.6 BACKFILL AND FILL:

Ground Surface Preparation:

Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from ground surface and scarify prior to placement of fills.

When existing ground surface has a density less than that specified under "Compaction" for the particular area classification, break up the ground surface, pulverize, moisture-condition to the optimum moisture content and compact to required depth and percentage of maximum density.

Placement and Compaction:

Place acceptable soil material in layers to required subgrade elevations, following Soils Engineer's instructions as to materials, moisture content, methods.

In excavations, use satisfactory excavated or borrow material.

Under grassed areas, use satisfactory excavated or borrow material with top six (6) inches being topsoil stockpiled on site.

Under walks, steps and pavements, use drainage fill material, for upper four (4) inches to eight (8) inches and satisfactory excavated or borrow material where additional fill is required.

Under building slabs, use satisfactory excavated or borrow material. For upper six (6) inches, use drainage fill material.

Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance by Architect of construction below finish grade including, where applicable, dampproofing, waterproofing, perimeter insulation and first floor slabs unless foundations are braced to prevent damage and movement.

Inspection, testing, approval and recording locations of underground utilities.

Removal of concrete forms, temporary shoring, trash and debris.

Place backfill and fill materials in layers not more than eight (8) inches in loose depth for material compacted by heavy compaction equipment, and not more than four (4) inches in loose depth for material compacted by hand-operated tampers.

Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content (+/-2%). Compact each layer to required percentage of maximum dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

3.7 GRADING:

Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between such points and existing grades.

Round top and bottom of slopes and feather into undisturbed natural terrain. Avoid abrupt grade changes making smooth transitions from slopes to more level areas.

Grading Outside Building Lines:

Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and within 0.10 feet of required sub or finish grade elevations. Make minor modifications as may be necessary to provide adequate drainage.

Spread stockpiled topsoil and compact to minimum six (6) inch depth at all areas not designated for walks, paving or structures.

Compaction:

After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area of classification.

Drainage Fill:

Place drainage fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness.

Place under all on-grade concrete slabs inside of building to compacted thickness of not less than six (6) inches.

Provide continuity with perimeter drain system gravel.

3.8 FIELD QUALITY CONTROL:

Quality Control Testing During Construction:

Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed. Notify testing service not less than eight (8) working hours in advance.

Testing agency will test as follows: Field density tests in accordance with ASTM D2922 or D1556. If ASTM D2922 is used, at least one test in ten must be sand cone method, D1556 to verify readings of nuclear method.

Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect.

Field technician to observe footing excavation and, if substantially different from soils and foundation investigation, notify Architect.

Paved Areas: Make at least one field density test on top 12 inches of subgrade for every 2,000 square feet of paved area or building slab, but in no case less than three (3) tests.

Provide additional tests in each compacted fill layer, fills over 30 inches deep consisting of one field density test for every 5,000 square feet of overlaying building slab or paved area, but in no case less than three (3) tests.

Test Evaluation:

If in opinion of Architect, based on testing service reports and inspections, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional cost to Owner.

3.9 MAINTENANCE:

Protection of Graded Areas:

Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

Repair and re-establish grades in settled, eroded and rutted areas to specified tolerance.

Reconditioning Compacted Areas:

Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape and compact to required density to further construction.

Settling:

Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact and replace surface treatment. Restore appearance, quality and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS:

Transport acceptable excess excavated material to designated soil storage areas on the Owner's property located east of Seventh Street.

Spread over areas directed by Architect.

Transport waste material, trash and debris and dispose of off the Owner's property.

END OF SECTION 02200

SECTION 02513
ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Asphaltic concrete paving work as shown on the drawings covering:

Asphaltic concrete base course, full depth asphalt.
Asphaltic concrete wearing surface.
Paint Striping.

Related Sections:

Earthwork: Section 02200
Exterior Concrete Flatwork: Section 02520

1.2 SUBMITTALS:

Material Certificates:

Provide two (2) copies of materials certificates signed by the material producer and the Contractor, certifying that each material item complies with, or exceeds, specified requirements.

If requested, provide independent testing laboratory reports on aggregates and asphalt for sieve analysis, wear abrasions and other characteristics.

Record of Work:

Maintain record of time and date of placement, temperature and weather conditions. Retain until completion and furnish copy to Architect.

Design Mix:

Submit proposed mix design based on laboratory tested mix to determine optimum asphalt content and other properties as specified, using 50 blow Marshall method.

1.3 QUALITY ASSURANCE:

Standards:

Conform materials and installation to applicable portions of Sections 300, 400, 700, Colorado Department of Highways, "Standard Specifications for Road and Bridge Construction."

1.4 DELIVERY, STORAGE AND HANDLING:

Transport mixtures from mixing plant in trucks having tight, clean, non-sticking compartments. When transporting, provide covers to protect from weather and prevent loss of heat when

temperature is below 50°F. During temperatures below 50°F on long distance deliveries, provide insulation around entire truck bed surfaces.

1.5 PROJECT/SITE CONDITIONS:

Weather Limitations:

Apply prime and tack coats only when ambient temperature is above 50°F and when temperature has not been below 35°F for 12 hours immediately prior to application. Do not apply when subgrade or base is wet or contains an excess of moisture.

Construct asphaltic concrete surface course only when atmospheric temperature is above 40°F, and when base is dry. In addition, comply with Section 401.07, State and Highway specifications.

Asphaltic base course may be placed when air temperature is above 30°F and rising.

Grade Control:

Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS:

Soil Sterilization Agent:

A compound of sodium chlorate and sodium borate, applied at the rate of one pound of sodium chlorate to two pounds of sodium borate to one gallon of water, uniformly sprayed over the entire area to be paved at the rate of one gallon of solution per 100 square feet.

Base Courses:

Sub-Base: Six (6) inch layer, standard density, class six (6) granular materials composed of sand, gravel and crushed rock of 1-1/2 inch maximum size. Materials shall be free from clay and organic matter. Binder material for sub-base shall be soil or dust from crushed rock. When tested with laboratory sieves, the materials shall meet the following requirements:

Sieve Designation	% By Weight Passing Laboratory Sieves
3/4"	100%
#4	44% - 72%
#8	30% - 58%
#200	3% - 12%

Sub-base shall be placed six (6) inches thick and be compacted to 95% density.

2.2 PLANT MIX PAVEMENT:

Grading E, State of Colorado, bituminous mixture, graded fine, three (3) inch mat.

Bitumen viscosity grade shall be AC10.

Bitumen-Asphalt penetration grade shall be 60 to 150.

Place with approved machines equipped with strike-off blades.

Temperatures of mix shall be not less than 235 degrees when placed.

Mineral aggregates shall be broken stone, broken clay, crushed gravel or rock. Not less than 50% of the materials shall show at least one crushed face.

Mineral aggregates shall be 5/8 inch maximum.

Sieve Designation	% By Weight Passing Laboratory Sieves
3/4"	100%
#4	44% - 72%
#8	30% - 58%
#200	3% - 12%

Asphaltic binder and mineral aggregate shall be combined in proper proportions for the specific type and viscosity index of the binder being used. Mixing shall be done in a twin pug mill until a uniform mixture results, and all particles are coated.

Roll mat immediately after placing until surface is true in cross-section, and until 85% laboratory density is achieved.

Sections of surfacing showing pools of water or "bird baths" shall be removed and replaced at the expense of the Contractor.

Contractor shall insure that all junctions of new bituminous paving with existing paving provide a smooth transition from surface to surface.

PART 3 - EXECUTION

3.1 EXAMINATION:

Refer to Section 01040 for examination of substrate and job conditions.

Verify grading, drainage and subsoil conditions.

Start of this work constitutes acceptance of substrates as suitable for satisfactory performance of work of this section.

3.2 PREPARATION:

Proof Rolling:

Operate heavy, rubber-tired, front loader over subgrade of paved areas. Where soft spots occur, remove loose materials and replace with road base aggregate compacted to level of subgrade.

Staking:

Provide grade and location stakes under this section as required for asphaltic concrete paving work.

Fine Grading:

Receive site graded to elevations as indicated. For areas covered by this Section, finish fine grade to accurate levels so that specified minimum thickness of base course and paving can be maintained with accurate and uniform finish levels as indicated.

Scarify top six (6) inches of subgrade and compact to 95% of maximum density per ASTM D698.

Include refinements and modifications to indicated grades as may be necessary for proper drainage, safety and appearance.

Coordination:

Cooperate with other trades; arrange timing to avoid damage to other work including exterior concrete, grading, piping and utilities, landscaping and lawn sprinklers. Before starting paving, ascertain that utility lines, lighting, wiring, piping, curb and gutter work, general grading and heavy trucking is complete so that such operations will not damage paving work.

Mask off and protect exposed building surfaces and abutting concrete from damage or staining by tack coat, prime coat or paving application.

Weed Control:

If vegetation exists on subgrade, remove surface vegetation within three (3) days prior to application of Casoron or apply "Roundup" at rates following manufacturer's instruction.

Apply Casoron weed control at rate per 100 square yards of 2.4 pounds for G-10 or 4.0 pounds for W-50 and by methods recommended by manufacturer.

Exercise care and be responsible for damage to vegetation outside area to be treated due to careless or improper handling or use of weed control. Conform to State and local requirements for use of agricultural chemicals.

3.3 BASE COURSE:

Gravel Base Course:

Mix aggregate base course and water in approved mixer. After mixing, transport to job site with proper moisture content and place on roadbed by suitable aggregate spreader.

Prime Coat:

Apply at the rate of 0.20 to 0.50 gallons per square yard over compacted base course. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile material.

No prime coat required on compacted aggregate base if asphalt surfacing is placed within 24 hours of final shaping, wetting and compacting.

Tack Coat:

Apply to contact surfaces of previously constructed asphalt or Portland Cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gallons per square yard of surface.

Allow to dry until at proper condition to receive paving.

3.4 PLACING THE MIX:

Mixing:

Comply with ASTM D995 for materials storage, control, mixing and for plant equipment and operation.

Aggregates: Keep each component of various sized combined aggregates in separate stockpiles. Maintain so separate aggregate sizes will not be intermixed and to prevent segregation. Heat-dry aggregates to reduce moisture content to not more than 2%. Deliver dry aggregate to mixer at recommended temperature to suit penetration grade and viscosity characteristics of asphaltic cement, ambient temperature and workability of mixture.

Asphaltic Cement: Heat bitumen to viscosity at which it can be uniformly distributed throughout the mixture. Select temperature range of 275°F to 350°F to suit temperature - viscosity characteristics of asphalts. Do not exceed 350°f.

Mixing: Accurately weigh or measure dry aggregates and weigh or meter asphaltic cement to comply with the job mix formula requirements. Mix aggregate and asphaltic cement to achieve 90% to 95% coated particles for base mixtures and 85% to 90% coated particles for surface coated mixtures when tested in accordance with ASTM D2489.

Placing:

Place asphalt concrete mixture on prepared gravel base surface, spread and strike-off. Spread mixture at minimum temperature of 280°F and maximum of 350°F. With ambient temperatures below 50°F maintain minimum temperature of 300°F in the truck just prior to laydown.

Place inaccessible and small areas by hand.

Place to required grade, cross-section and compacted thickness as follows:

First Course	Top Course	Location
2" Gradation E	1" Gradation EX	Elementary
2.5" Gradation E	1.5" Gradation EX	High School

Paver Placing: Place in strips not less than 10 feet wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.

Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

For two (2) course work, stagger joints in both directions not less that 12 inches from course to course.

3.5 ROLLING:

Begin rolling when mixture will bear roller weight without excessive displacement.

Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.

Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.

Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until all roller marks are eliminated and the course has attained maximum density.

Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

Erect barricades to protect paving from traffic until mixture has cooled and attained its maximum degree of hardness.

3.6 PATCHING DEFECTIVE PAVING:

Cut out and fill with fresh, hot asphaltic concrete. Remove deficient areas for full depth of surface and base course. Cut side vertically, perpendicular and parallel to direction of traffic for extent of failure. Apply tack coat to exposed surfaces before placing new pavement. Compact and finish to specification.

3.7 JOINING TO EXISTING WORK:

Cut sides vertically and apply tack coat to exposed asphalt surfaces before placing new pavement, meeting existing thickness of surface and base courses, but not less than specified for new work.

Where new work joins existing asphaltic concrete paving on public right-of-way, comply with the requirements of local authorities for surface and base course thickness.

3.8 OTHER WORK:

Traffic and Lane Markings:

Paint all pavement parking striping and symbols as indicated on the drawings in accordance with Standard Specifications of the Department of Highways, State of Colorado. Paint parking stripes approximately four (4) inches wide, use templates as necessary for uniform line width and for all painting of Handicap parking symbols.

Cleaning: Sweep and clean surface to eliminate loose material and dust.

Striping: Use a chlorinated, rubber base, traffic lane-marking paint, factory-mixed, quick-drying and non-bleeding.

Handicap Parking: Provide international symbol for handicap parking painted in white and blue colors at locations indicated.

Apply paint with mechanical equipment to produce uniform straight edges. Apply at manufacturer's recommended rates.

3.9 FIELD QUALITY CONTROL:

Test the in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by the Architect.

Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.

Base Course: +\- 0.5 inches
Surface Course: +\- 0.25 inches

Check compaction and compliance with design mix by cutting test plugs where directed in accordance with ASTM D1559. Patch core holes. Test for compaction minimum of 95% of Marshall Design, aggregate gradation, voids and percent asphalt.

Remove and replace non-conforming work as directed by Architect.

Surface Smoothness: Test finished surface of each asphaltic concrete course for smoothness, using 10 foot straightedge applied parallel with, and at right angles to, center line of paved area. Surfaces will not be acceptable if exceeding the following tolerance for smoothness.

Wearing Course Surface: 0.1875 inches

Check surfaced areas at intervals as directed by the Architect.

END OF SECTION 02513

SECTION 02520
EXTERIOR CONCRETE FLATWORK

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Exterior concrete flatwork as shown on the drawings for the following:

Curbs	Gutters
Cross Pans	Sidewalks
Paving	

Related Sections:

Concrete reinforcing and related materials: Sections 03200, 03305 and 03310
Interior concrete flatwork: Section 03347

1.2 SUBMITTALS:

Submit concrete test reports as specified in Sections 01410 and 03310.

1.3 QUALITY ASSURANCE:

Codes and Standards:

For work on public rights-of-way, conform to requirements of authorities having jurisdiction to the extent that they are more stringent than specified herein. Obtain required permits and inspections for work on rights-of-way.

Except as otherwise specified or required by authorities having jurisdiction, conform to requirements of ACI 301.

1.4 PROJECT/SITE CONDITIONS:

Cold Weather Protection:

Protect all concrete work from physical damage or reduced strength which could be caused by frost, freezing actions or low temperatures in compliance with the requirements of ACI 306.

Hot Weather Placing:

When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305.

PART 2 - PRODUCTS

2.1 MATERIALS:

Forms:

Steel, wood or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.

Use flexible spring steel forms or laminated boards to form radius of bends as required.

Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

Portland Cement Concrete:

Conform to requirements of Section 03305.

Reinforcing Steel:

Conform to requirements of Section 03200.

Curing Materials:

Conform to requirements of Section 03310.

Expansion Joint Material:

Bituminous non-extruding fiber type conforming to ASTM D1751, 0.5 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION:

Verify subgrades to ensure adequacy of compaction and suitability to receive exterior concrete flatwork. Start of work under this Section constitutes acceptance of subgrade as suitable for exterior concrete flatwork.

3.2 PREPARATION:

Staking of Lines and Grades:

Provide line and grade stakes for exterior flatwork for alignment and levels.

Excavation:

Excavate to the required depth and to a width that will permit the installation and bracing of the forms. Shape and compact subgrade to a firm, even surface. Remove and replace all soft and yielding material with acceptable material.

Proof-roll prepared subbase surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

3.3 FORMING:

Forms:

Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

Check completed formwork for grade and alignment to following tolerances:

Top of forms not more than 0.125 inch in 10 feet.

Vertical face on longitudinal axis, not more than 0.25 inch in 10 feet.

Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

3.4 REINFORCEMENT:

Locate, place and support reinforcement as specified in Division 3 sections, unless otherwise indicated.

3.5 MIXING AND PLACING CONCRETE:

Follow requirements of Section 03310 and 03347.

Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase if required to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

Curb Sections:

Construct curbs in sections having a uniform length of 10 feet, unless otherwise noted. Separate sections by open joints 0.125 inch wide except at expansion joints.

Curbs and Gutters:

Automatic machine may be used for curb and gutter placement at Contractor's option. If machine placement is to be used, submit revised mix design and laboratory test results which meet or exceed minimums specified. Machine placement must produce curbs and gutters to required cross-section, lines, grades, finish and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete as specified.

3.6 FINISHING:

After striking-off and consolidating concrete, smooth surface by screeding and floating. Use hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.

After floating, test surface for trueness with a 10 foot straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.

Finish surfaces with a wooden or magnesium float. Plastering of surfaces is not permitted.

Immediately after float finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use fine hair fiber-bristle broom unless otherwise directed. Coordinate the required final finish with the Architect before application.

On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.

Edge all outside edges of the slab and all joints with a 0.25 inch radius edging tool.

Work edges of gutters, back top edge of curb and formed joints with an edging tool, and round to 0.5 inch radius, unless otherwise indicated. Eliminate tool marks on concrete surface.

Form Removal:

Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.

3.7 JOINTS:

Curb and Gutter Expansion Joints:

Form expansion joints at intervals shown on the plans, or if not shown, at 30 foot center to center, using a preformed expansion joint filler having a thickness of 0.5 inch. When the curb is constructed adjacent to or on concrete pavement, locate expansion joints opposite or at expansion joints in the pavement.

Install expansion joints between concrete curb and any fixed structure or sidewalk. Extend expansion joint material for full depth of contact surface. Where joint sealer is indicated, stop expansion joint material not less than 0.5 inch and no more than one (1) inch below finished surface.

Sidewalk Joints:

Divide the sidewalk into sections by dummy joints formed by a jointing tool or other acceptable means as directed. Extend these dummy joints into the concrete for at least 1/3 of the depth and make approximately 0.125 inch wide. Provide expansion joints where indicated or if not shown, at 30 inches center to center.

Provide construction joints around all appurtenances such as manholes, utility poles and other penetrations, extending into and through sidewalks. Install 0.375 inch thick preformed expansion in these joints. Install expansion joint filler between concrete sidewalks and any fixed structure such as a building. Extend expansion joint material for full depth of concrete and stop top of expansion joint material, 0.5 inch below finish surface. Protect top edge of joint filler with removable material or metal cap.

Paving Joints:

Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to al least 1/4 concrete thickness, as follows:

Sawed Joints: Form weakened-plane joints using powered saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut joints into hardened concrete as soon as surface will not be torn, abraded or otherwise damaged by cutting action.

3.8 CURING:

Immediately upon completion of the finishing, moisten concrete and keep moist for three (3) days, or cure concrete by use of membrane forming curing compounds as specified in Section 03310.

During the curing period, exclude all traffic, both pedestrian and vehicular.

Apply protective coating specified in Section 03310 to exterior surfaces. Apply after concrete is cured and surfaces are clean and dry. Apply in two coats at rates of 450 square feet or less per gallon for first coat and 600 square feet or less per gallon second coat. Apply proprietary materials in accordance with manufacturer's recommendations. Protect surfaces from vehicular or pedestrian traffic until dry.

3.9 CLEANING:

Sweep concrete paving and wash free of stains, discolorations, dirt or other foreign material prior to final inspection.

END OF SECTION 02520

SECTION 03200
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Concrete reinforcement as shown on the drawings and in schedules for fabrication and delivery of reinforcement for cast-in-place concrete, including bars, welded wire fabric, ties and supports.

Related Sections:

Reinforcing steel placement: Section 03310

1.2 SUBMITTALS:

Shop Drawings:

Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures."

Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement. Provide 0.25 inch = 1.0 foot wall elevations showing reinforcement placement.

1.3 QUALITY ASSURANCE:

Codes and Standards:

Comply with requirements of the following codes and standards, except as herein modified.

AWS D1.4 "Structural Welding Code - Reinforcing Steel"
CRSI "Manual of Standard Practice"
ACI 301 "Specifications for Structural Concrete for Buildings," Chapter 5
ACI 318 "Building Code Requirements for Reinforced Concrete" and ACI 301

1.4 DELIVERY, STORAGE AND HANDLING:

Deliver reinforcement to the project site bundled, tagged and marked. Use tags indicating bar size, lengths and other information corresponding to markings shown on placement diagrams.

Store concrete reinforcement materials at the site to prevent damage and accumulation of dirt or excessive rust.

PART 2 - PRODUCTS

2.1 MATERIALS:

Reinforcing Bars (ReBar):

ASTM A615, and Supplement 1, deformed and as follows:

Provide Grade 40 for No. 3 bars, for ties and stirrups, and for dowels which will be subject to bending after placement.

Provide Grade 60 for all bars not otherwise indicated.

Bars for Welded Splices: ASTM A706, and Supplement 1, low-alloy steel, grades as specified above.

Steel Wire:

ASTM A82, 16 gage minimum.

Welded Wire Fabric (WWF):

ASTM A185, furnish in rolls.

Supports for Reinforcement:

Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.

For structural slabs, use wire bar type supports complying with CRSI recommendations, unless otherwise indicated. Do not use wood, brick or other unacceptable materials.

For slabs on grade and footings, use brick or CMU bats.

2.2 FABRICATION:

Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI "Manual of Standard Practice." In case of fabricating errors, do not re-bend or straighten reinforcement in a manner that will injure or weaken the material.

Unacceptable Materials: Reinforcement with any of the following defects will not be permitted in the work:

Bar lengths, depths and bends exceeding specified fabrication tolerances.

Bends or kinks not indicated on drawings or final shop drawings.

Bars with reduced cross-sections due to excessive rusting or other cause.

Bars with dirt or oil on them.

PART 3 - EXECUTION

3.1 INSTALLATION:

Included in Sections 03310 and 03347.

END OF SECTION 03200

SECTION 03305
CONCRETE MATERIALS

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

General criteria for materials, mixes and evaluation of concrete as required for other related sections of this Division and applies to the work specified in the following sections:

02520 Exterior Concrete Flatwork
03310 Structural Concrete
03347 Concrete Flatwork

Related Sections:

Exterior Concrete Flatwork: Section 02520
Concrete Reinforcement: Section 03200
Concrete Formwork: Section 03310
Structural Concrete: Section 03310
Concrete Flatwork: Section 03347

1.2 REFERENCES:

Standards:

Conform to applicable ACI and ASTM Standards including but not limited to:

ACI 301 Specifications for Structural Concrete for Buildings
ACI 304 Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
ACI 305 Hot Weather Concreting
ACI 306 Cold Weather Concreting
ASTM C94 Specifications for Ready-Mixed Concrete

1.3 SUBMITTALS:

Furnish proposed design mix for each class of concrete specified.

Submit to Architect not less than six (6) weeks prior to first use of concrete.

Prepare per ACI 301, Article 3.9.

Include proportions of ingredients, aggregate analysis, cement brand and type, slump, water/cement ratio and strength test reports from qualified testing lab for 7- and 28-day strengths.

Adjust, modify, retest proposed mixes if required to obtain written acceptance by the Architect.

Certification:

Submit manufacturer's written certification, for each admixture required or proposed, that it contains no thiocyanates nor more than 0.05% chloride ions.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS:

Portland Cement:

Conform to ASTM C150, Type I.

Use only one brand of cement for each required type throughout the project.

Fly Ash:

ASTM C618, Class F or C. Limit fly ash to not more than 25% of cement content by weight.

Aggregates:

Conform to ASTM C33.

Course Aggregate: Graded, washed, crushed gravel free of deleterious substances, maximum size for members, except columns, with minimum dimension as set forth in the schedule of mixes or as acceptable to the Architect.

Fine Aggregate: Graded, sharp, hard, clean sand free of deleterious substances.

Water: Clean, fresh, drinkable.

2.2 CONCRETE ADMIXTURES:

General:

Do not use admixtures containing more than 0.05% chloride ions. Use the following admixtures where indicated or scheduled or accepted in writing as part of design mix submittal.

Air Entrainment:

ASTM C260, use where indicated. Use for concrete exposed to freeze-thaw temperature ranges.

Water-Reducing and Set Control Admixtures:

ASTM C494, use in mixes where scheduled.

Type A, water-reducing. Do not use to reduce minimum cement content.
Type B, Set retarding. Use during hot weather concreting.
Type C, Accelerating.

Type D, Water reducing and retarding. Do not use to reduce cement content.
Type E, Water reducing and accelerating. Do not use to reduce cement content.
Type F, Water reducing, high range (superplasticizer).
Type G, Water reducing, high range and retarding (superplasticizer).

Calcium Chloride: Use is prohibited.

2.3 MIXES:

Conform to schedule of concrete mixes at end of this Section.

PART 3 - EXECUTION

3.1 MIXING AND DELIVERY:

Furnish ready-mixed concrete mixed and delivered per ASTM C94. When concrete is mixed in truck mixer, do not load over NRMCA rated capacity, mix at mixing speed for not less than 70 nor more than 100 revolutions of drum or blades.

Deliver concrete to job and discharge entire contents within 1.5 hours, or before drum has turned 300 revolutions, whichever occurs first, after introduction of mixing water. In hot weather, or under conditions contributing to quick set of concrete, shorter times may be required by Architect.

Add no water at job except when authorized by Contractor's Superintendent. If such be permitted, record amount added on delivery ticket; provide additional mixing of 30 revolutions.

Add water in accordance with ACI 641, add at one time only, not more than two (2) gallons per cubic yard of concrete and provided the increase of slump does not exceed one (1) inch.

During cold weather (below 45°F), to maintain concrete temperature within 60° and 90°F, use heated water and, if necessary, aggregates to meet this requirement.

3.2 SCHEDULE OF CONCRETE MIXES:

TYPE	USE	STRENGTH (1)	CEMENT CONTENT (2)	WATER (3)	SLUMP (4)	ADMIX-TURES (5)	MAX. AGGR. SIZE	AIR (6)
A	Exterior flatwork	4000	6.0	0.46	2-4	WRA	.75"	5-7

1. 28-day compressive strength, psi.
2. Minimum sacks per cubic yard.
3. Water/Cement Ratio per ACI.
4. Range in inches.
5. WRA = water reducing admixture.
   SP = superplasticizer

F = fly ash

6. Entrained air, percentage range. Change to 5-7 if exposed to freezing temperatures.

END OF SECTION 03305

SECTION 03310
STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Cast-in-place concrete work as shown on the drawings and covers forming, placing reinforcing, placing, consolidation, curing, stripping and finishing concrete and testing and logging of pours. Finishing of slab is specified in Section 03347.

Related Sections:

Exterior Concrete Flatwork: Section 02520
Concrete Reinforcement: Section 03200
Concrete Materials: Section 03305
Concrete Flatwork: Section 03347

Special Requirements:

Concrete work shall conform to all applicable requirements of ACI 301-84, Specifications for Structural Concrete for Buildings (Revised 1984), except as modified by specific references to numbered sections listed in Supplemental Requirements hereinafter.

The Contractor shall keep at least one copy of the referenced ACI 301-84 (Revised 1984) in the project field office at all times.

(Section 1.3 - Definitions)

(Section 5.1 - Shop Drawings) Add: "Submit shop drawings for bar schedules, bending diagrams and placing diagrams. Denote grade of steel for all bars. Refer to Section 1.5.2.

(Sections 7.6, 8.4, 12.3) Environmental Conditions - Also comply with the requirements of ACI 305, "Recommended Practice for Hot Weather Concreting."

(Chapter 3 - Design Mixes) Existing mix designs meeting all requirements specified for each concrete mix, and used successfully on previous projects under conditions similar to those anticipated on this project, may be used providing that the following are submitted to the Architect for approval for each class of concrete:

Reports of concrete mix design and test results.

Reports of at least five (5) consecutive sets of 7- and 28-day concrete strength tests made during the last six (6) months.

Reports of compliance tests of fine and coarse aggregates made during the last six (6) months.

Mix design and strength tests shall be based on four (4) inch slump with air entrainment as specified in 3.1.2.1.

1.2 SUBMITTALS:

Curing Compounds:

Manufacturer's test data and certifications demonstrating that water retention specified will be met at manufacturer's recommended application rate.

Product Data:

Submit data for proprietary materials and items including accessories, patching and bonding compounds, joint systems, waterstops and other items requested by Architect.

1.3 QUALITY ASSURANCE:

Field Reference Manual: Have available, at the project field office, a copy of ACI SP-15, "Specifications for Structural Concrete for Buildings with Selected ACI and ASTM References."

Conform to applicable ACI and ASTM standards unless otherwise specified, including ACI 347 for formwork and tolerances.

Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

Conform to ACI 301 to the extent that it is more restrictive or more detailed than specified herein. Chapter 14 is not applicable.

PART 2 - PRODUCTS

2.1 CONCRETE:

For concrete materials, see Section 03305.

2.2 CONCRETE REINFORCEMENT:

For reinforcing steel materials, see Section 03200.

(Section 2.3 - Water)

(Section 2.5 - Storage of Materials)

(Section 3.2 - Strength) All concrete shall develop 3,000 psi strength at 28 days unless otherwise specified.

(Section 3.4 - Durability) Air entrainment shall conform to ASTM C260.

(Section 3.5 - Slump) Maximum slump shall be four (4) inches for all concrete.

SECTION 03310
STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 SUMMARY:

Section Includes:

Cast-in-place concrete work as shown on the drawings and covers forming, placing reinforcing, placing, consolidation, curing, stripping and finishing concrete and testing and logging of pours. Finishing of slab is specified in Section 03347.

Related Sections:

Exterior Concrete Flatwork: Section 02520
Concrete Reinforcement: Section 03200
Concrete Materials: Section 03305
Concrete Flatwork: Section 03347

Special Requirements:

Concrete work shall conform to all applicable requirements of ACI 301-84, Specifications for Structural Concrete for Buildings (Revised 1984), except as modified by specific references to numbered sections listed in Supplemental Requirements hereinafter.

The Contractor shall keep at least one copy of the referenced ACI 301-84 (Revised 1984) in the project field office at all times.

(Section 1.3 - Definitions)

(Section 5.1 - Shop Drawings) Add: "Submit shop drawings for bar schedules, bending diagrams and placing diagrams. Denote grade of steel for all bars. Refer to Section 1.5.2.

(Sections 7.6, 8.4, 12.3) Environmental Conditions - Also comply with the requirements of ACI 305, "Recommended Practice for Hot Weather Concreting."

(Chapter 3 - Design Mixes) Existing mix designs meeting all requirements specified for each concrete mix, and used successfully on previous projects under conditions similar to those anticipated on this project, may be used providing that the following are submitted to the Architect for approval for each class of concrete:

Reports of concrete mix design and test results.

Reports of at least five (5) consecutive sets of 7- and 28-day concrete strength tests made during the last six (6) months.

Reports of compliance tests of fine and coarse aggregates made during the last six (6) months.

Mix design and strength tests shall be based on four (4) inch slump with air entrainment as specified in 3.1.2.1.

1.2 SUBMITTALS:

Curing Compounds:

Manufacturer's test data and certifications demonstrating that water retention specified will be met at manufacturer's recommended application rate.

Product Data:

Submit data for proprietary materials and items including accessories, patching and bonding compounds, joint systems, waterstops and other items requested by Architect.

1.3 QUALITY ASSURANCE:

Field Reference Manual: Have available, at the project field office, a copy of ACI SP-15, "Specifications for Structural Concrete for Buildings with Selected ACI and ASTM References."

Conform to applicable ACI and ASTM standards unless otherwise specified, including ACI 347 for formwork and tolerances.

Maintain records of poured concrete items. Record date, location of pour, quantity, air temperature and test samples taken.

Conform to ACI 301 to the extent that it is more restrictive or more detailed than specified herein. Chapter 14 is not applicable.

PART 2 - PRODUCTS

2.1 CONCRETE:

For concrete materials, see Section 03305.

2.2 CONCRETE REINFORCEMENT:

For reinforcing steel materials, see Section 03200.

(Section 2.3 - Water)

(Section 2.5 - Storage of Materials)

(Section 3.2 - Strength) All concrete shall develop 3,000 psi strength at 28 days unless otherwise specified.

(Section 3.4 - Durability) Air entrainment shall conform to ASTM C260.

(Section 3.5 - Slump) Maximum slump shall be four (4) inches for all concrete.

2.3 FORM MATERIALS:

(Sections 4.1, 4.2, 4.3 - Formwork) Form materials shall be of wood, plywood or steel as per Chapter 4. Earth cuts shall not be used as forms for vertical surfaces except for strip footings, and only with written approval by the Architect. Shop drawings shall not be required for formwork.

Chamfer exposed corners and edges, using wood, metal PVC or rubber chamfer strips fabricated to reproduce uniform smooth lines and tight edge joints. Form ties shall be factory fabricated, snap off form ties, such that the portion remaining is 3/4 inch inside the finished face of concrete.

Conform to the tolerance limits listed in Table 4.3.1 for all concrete formwork.

2.4 MISCELLANEOUS ITEMS:

(Section 6.2 - Expansion Joint Materials) Expansion joint materials shall conform to ASTM D1752, and shall be 3/8 inch unless otherwise noted. Where "break bond" or "isolation joint" is indicated between slabs or between slabs and vertical surfaces, form joint with 30 pound asphalt saturated felt extending full depth of the slab, unless noted otherwise.

(Section 6.4 - Embedded Items) Metal accessories and embedded items shall conform to the CRSI "Manual of Standard Practice for Reinforced Concrete Construction." Accessories in exposed concrete surfaces shall be plastic coated.

(Chapter 12 - Exterior Flatwork Sealer) Boiled linseed oil mixed 50-50 with mineral spirits or proprietary non-emulsified linseed oil formulation for protecting concrete from de-icing salt damage. Use for exterior flatwork.

(Miscellaneous - Grout) Non-shrink, non-metallic, flowable grout or dry pack U.S. Grout '5-Star', Protex 'Propak', Master Builders 'Masterflow 713', Castle Chemical 'Imperial Grout', or approved equal.

(Miscellaneous - Mixing) As per Chapter 7, regular grout shall consist of equal parts of sand and cement with water added to create dry mix. Redi-Mix concrete shall be as per Section 7.1. Add: With each load of concrete delivered to the job, there shall be furnished by the concrete supplier, two (2) copies of the delivery ticket (one for the Contractor and one for the Architect giving the following information):

1. Date
2. Supplier Name
3. Job name and location
4. Contractor and Concrete Subcontractor
5. Type and brand of cement
6. Cement content and water/cement ratio
7. Truck number
8. Time dispatched
9. Amount of concrete on load

10. Admixtures
11. Amount of water added on job
12. Slump

2.5 CONCRETE CURING MATERIALS:

Moisture-Retaining Cover:

One of the following, complying with ASTM C171:

Waterproof paper
Polyethylene film

Membrane Forming Types:

Liquid Membrane-Forming Curing Compound: Protex Promulsion 100, L&M Cure, Sonneborn Hydrocide Curing Compound or approved equal, complying with ASTM C309, Type 1, Class B.

For Exterior Flatwork: Protex Promulsion 60, L&M Super Seal 35, Sonneborn Deepguard or approved equal.

Liquid Curing-Hardening Compound:

Chlorinated rubber type, Protex Triple Seal, conforming to ASTM C309, or approved equal.

Liquid Curing-Hardening Compound: Protex Acryseal, L&M Dress & Seal, Sonneborn Kure-N-Seal 0800 or approved equal, conforming to ASTM C309.

2.6 FORM MATERIALS:

Forms for Exposed Finish Concrete:

Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed, plywood-faced or other panel type materials acceptable to Architect, to provide continuous, straight, smooth as-cast surfaces.

Use overlaid plywood complying with U.S. Product Standards PS-1, "B-B Medium Density Overlaid Concrete Form," Class 1.

Forms for Exposed Finish Concrete:

Form concrete surfaces which will be exposed in the finished structure with plywood, lumber, metal or other acceptable material. Provide lumber that is dressed on at least two (2) edges and one (1) side for tight fit.

Formwork Accessories:

Form Ties: Breakback type as approved. For exposed work, provide plastic cones of size approved by Architect.

Form Coatings: Commercial formulation as approved. For work to receive paints, coatings, plaster, tile or applied texturing, use

chemical type free of oils or wax; Protex "Pro-Cote," Sonneborn "Cast Off," L&M "Debond" or approved equal.

Inserts: Suitable for intended use as approved.

Provide metal inserts for anchorage of materials or equipment to concrete construction, not supplied by other trades and as required for the work.

Provide dovetail slots formed of 24 gage galvanized steel with void filled and face covered, for anchorage of masonry veneer to concrete. Locate and space as specified in Section 04200.

Form Voids: Moisture resistant treated paper faces, biodegradable, capable of supporting weight of wet concrete until initial set, four (4) inch height by grade beam width.

2.7 DESIGN OF FORMWORK:

Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete surface.

Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.

Side forms of footings may be omitted and concrete placed directly against excavation only when requested by Contractor and accepted by Architect. When omission of forms is accepted, provide additional concrete required beyond the minimum design profiles and dimensions of the footings as detailed.

PART 3 - EXECUTION

3.1 FORM CONSTRUCTION:

Construct forms complying with ACI 347, to the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, level and plumb work in finished structures.

Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required.

Use selected and specified materials to obtain required finishes. Clean re-used forms of concrete and residues, repair and patch as required.

Fabricate forms for easy removal without hammering or prying against concrete surfaces.

Form intersecting planes to provide true, clean-cut corners, with edge grain of plywood not exposed as form for concrete. Chamfered corners may be provided for concealed external corners.

Provide openings in forms to accommodate other work, including mechanical and electrical work. Accurately place and securely support items required to be built into forms.

Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.

Control and Construction Joints:

Provide at locations indicated and as detailed. Where additional control and construction joints are desired, submit layout and details for approval; locate only where so approved.

Construction joints must be vertical unless otherwise indicated.

Cleaning and Tightening:

Thoroughly clean forms and adjacent surface to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is to be placed. Re-tighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.2 FORM COATINGS:

Coat form contact surfaces with form-coating compound before reinforcement is placed.

3.3 INSTALLATIONS OF EMBEDDED ITEMS:

Set and build into the work, anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Notify other trades sufficiently in advance to permit fabrication, delivery and installation of embedded items.

3.4 REMOVAL OF FORMS:

Formwork not supporting concrete, such as sides of beams, walls, columns and similar parts of the work, may be removed after cumulatively curing at not less than 50°F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided that curing and protection operations are maintained.

Formwork supporting weight of concrete must remain in place not less than 14 days and until it has reached 75% of its specified 28-day compressive strength.

3.5 RE-USE OF FORMS:

Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated or otherwise damaged form facing

material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.

3.6 PLACING STEEL:

Comply with the specified codes and standards, CRSI "Manual of Standard Practice," ACI 301 and ACI 315 for details and methods of reinforcement placement and supports, and as herein specified.

Position, support and secure reinforcement against displacement by formwork construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.

Place reinforcement to obtain the minimum coverage for concrete protection. Arrange, space and securely tie bars and bar supports together with 16 gage wire to hold reinforcement accurately in position during concrete placement operations. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.

Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with 16 gage wire. Do not make end laps midway between supporting beams, or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps.

Splices: Provide standard reinforcement splices by lapping ends, placing bars in contact, and lightly wire typing. Comply with requirements of ACI 318 for minimum lap of spliced bars.

3.7 CONCRETE PLACEMENT:

General:

Place concrete in compliance with the practices and recommendations of ACI 304, and as herein specified.

Notify Architect and Engineer not less that 16 working hours in advance of any pour and as soon as formwork and reinforcing are substantially complete.

Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section.

If a section cannot be placed continuously, provide construction joints as herein specified. Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure which will cause segregation.

Screed concrete which is to receive other construction to the proper level to avoid excessive skimming or grouting.

Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the project site and dispose of legally off site.

Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.

Consolidation:

Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suite the type of concrete and project conditions. Vibration of forms and reinforcing will not be permitted, unless otherwise accepted by the Architect.

Use vibrators having frequency greater than 12,000 cycles. Keep spare units in working order at all times during concrete placement.

Bring slab surface to the correct level with a straightedge and strike off. Use bull floats or darbies to smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the surfaces prior to beginning finishing operations.

Maintain reinforcing steel in the proper position continuously during concrete placement operations.

Bonding:

Roughen surfaces of set concrete at all joints, except where bonding is obtained by use of a concrete bonding agent, and clean surfaces of laitance, coatings, looser particles and foreign matter. Roughen surfaces in a manner to expose bonded aggregate or damaged concrete at the surface.

Prepare for bonding of fresh concrete to fully-cured hardened concrete or existing concrete by using specified bonding compound or adhesive in compliance with the manufacturer's printed instructions, including safety precautions.

Cold Weather Protection:

Protect all concrete work from physical damage or reduced strength which could be caused by frost, freezing actions or low temperatures in compliance with the requirements of ACI 306.

Hot Weather Placing:

When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305.

3.8 FINISHING:

Rough Form Finish:

Standard Rough Form Finish: Concrete surface having the texture imparted by the form facing material used, with tie holes filled and defective areas repaired and patched and all fins and other projections exceeding 0.25" in height rubbed down or chipped off.

Smooth Form Finish:

Produce smooth form finish by selecting form material to impart a smooth, hard, uniform texture and arranging form panels in an orderly and symmetrical pattern with a minimum of seams. Repair and patch defective areas with all fins or other projections completely removed and smoothed.

Related Unformed Surfaces:

At top of walls, horizontal offsets and similar unformed surfaces, occurring adjacent to formed surfaces, strike off smooth and finish with a texture matching the adjacent formed surfaces. Continue the final surface treatment of formed surfaces uniformly across the adjacent unformed surfaces, unless otherwise shown.

Reference Paragraph 3.10 - Flat work.

3.9 CONCRETE CURING AND PROTECTION:

General:

Protect freshly placed concrete from premature drying and excessive cold and hot temperature, and maintain, without drying, at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.

Start curing as soon as free moisture has disappeared from the concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 72 hours. Continue curing for at least seven (7) days and in accordance with ACI 301 procedures. Avoid rapid drying at the end of the curing period.

Curing Method:

Provide moisture curing by keeping surfaces continuously wet or by covering with specified moisture-retaining cover.

Provide liquid membrane curing as follows:

Apply the specified membrane-forming curing compound to the damp concrete surfaces as soon as the water film has disappeared. Apply uniformly in a two-coat continuous operation by power spray equipment in accordance with the manufacturer's directions. Re-coat areas which are subjected to heavy rainfall within three (3) hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period.

Apply at rates and number of coats which will restrict loss of water to not more than 0.40 kg/m2, ASTM C156.

Apply to vertical surfaces within 24 hours after forms are stripped and where form coating other than oils have been used, in accordance with manufacturer's directions.

Do not use membrane curing compounds on surfaces which are to be covered with additional concrete, ceramic tile or fluid applied membranes. Verify compatibility with other finishes or their adhesives.

3.10 FLATWORK:

(Chapter 11 - Flatwork) Unless otherwise specified, control joints in slabs on grade shall form bays not exceeding 200 square feet in area and maximum dimension of 20 feet along bearing walls and partitions. At Contractor's option, control joints may be saw cut. Prior to pouring of any slabs on grade requiring control joints, the Contractor shall submit shop drawings indicating locations and methods to be used. Control joints in sidewalks shall be as shown on the drawings and shall be one inch deep with both edges tooled. Expansion joints in sidewalks shall be as shown and in no case shall exceed 30 feet center to center.

Final troweled finishes shall be accomplished with a steel trowel. For all broom finishes, broom shall be drawn perpendicular to the line of travel, or as indicated by the Architect.

Selection of Finishes:

Broom Finish: For exterior concrete flatwork, unless specified as "exposed aggregate" finish. Direction of broom pull shall be perpendicular to length of concrete walk or as directed by the Architect.

Exposed Aggregate Finish: Match existing exposed aggregate finish of adjacent concrete walks.

3.11 MISCELLANEOUS:

Equipment Bases and Foundations:

Provide machine and equipment bases, inertia blocks and foundations, as shown on the drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of the manufacturer furnishing the machines and equipment.

Filling-In:

Fill in holes and openings left in concrete structures for the passage of work by other trades, unless otherwise shown or directed, after the work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide all other miscellaneous concrete filling shown or required to complete the work.

Refer to Section 07900 for fire-rate in-fills.

Repairs:

Repair defective areas as directed by Architect using methods meeting his approval, and generally in accordance with ACI 301.

3.12 TESTING:

Owner will employ and pay for the services of a qualified testing laboratory to perform tests.

For caisson concrete, one test for each 50 cubic yards but not less than one test per caisson requiring more than one truckload and one test per truckload when used in more than one caisson.

For each 100 cubic yards of concrete of each type poured in any one day, provide:

Sampling: ASTM C172, slump modified per ASTM C94. ASTM C31 for compressive test specimens. For concrete placed by pumping, take test specimens and concrete at the point of placement of concrete into the forms.

Making, Curing and Handling of Cylinders: ASTM C31.

Transporting and storing of all specimens involved in testing and inspection: Test cylinders are to be transported to laboratory no later than 24 hours after casting, nor earlier than 16 hours after casting.

Slump: ASTM C143. Reject concrete where tests exceed specified limits. Additional slump tests may be required by Architect to be provided by Contractor at no additional cost.

Air-Content: ASTM C231, pressure method.

Concrete Temperature: For each test and in addition, hourly when air temperature is below 40°F or above 80°F.

Compressive Strength Tests: ASTM C39, four (4) specimens per test, one test at seven (7) days, two at 28 days and one reserved for later testing if required.

When the frequency of testing will provide less than five (5) strength tests for a given mix design, conduct testing from at least five (5) randomly selected batches or from each batch if fewer than five (5) are used.

Report test results in writing to Architect on same day tests are made and include above information, job identification, supplier, truck number, location of concrete in structure, design mix and strength and other relevant information.

Additional tests, at Contractor's expense, may be required by Architect when test results indicate concrete is below specifications.

Reinforcing Steel Inspection: Concrete reinforcing shall be inspected prior to closing of concrete formwork or placing of concrete. Inspect all reinforcing for conformance with contract requirements. Submit written reports of all inspections as specified herein on a weekly basis. Such reports shall include a description of each area inspected, deficiencies noted and corrective action undertaken to resolve such deficiencies. Deficiencies observed shall immediately be brought to the attention of the Contractor's field superintendent and reinforcing placer's foreman. In the event deficiencies are not corrected, or if an interpretation of the Contract Documents is required, the Structural Engineering shall be immediately notified.

Batch Plant Inspection: Concrete batching plant shall be inspected for conformance with contract requirements at the start of concrete work and thereafter as directed by the Structural Engineer. Such inspections shall include:

A. Condition of equipment.
B. Method of measurement of material quantities.
C. Adequacy of methods for protection of stored materials.
D. Verification of proper design mix proportions.
E. Batching time.
F. Type of materials used.

Written reports of such inspections shall be submitted as specified herein within one week.

Concrete not conforming to specified standards will be removed and replaced or remedied as directed by the Architect at no additional cost to the Owner.

3.13 TOLERANCES:

Concrete must conform to ACI 301 and 117 requirements. Where visual qualities are important, such as in exposed, specially finished or architectural concrete or where direct application of thin or rigid materials is required, surfaces must be such that appearance or application of other materials will not be adversely affected as judged by the Architect.

Correct deficiencies by grinding, filling or other methods as approved.

END OF SECTION 03310

SECTION 11990
MISCELLANEOUS EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY:

All equipment items not elsewhere specified or as indicated on the drawings.

Install according to manufacturer's recommendations and as detailed on the drawings.

PART 2 - PRODUCTS

2.1 Bicycle Racks

Provide and install two (2) bicycle racks: RIBBON RACK by Brandir International, Inc., 1-212-505-6500.
a. One each: Model RB07 (7 bicycles)
b. One each: Model RB09 (9 bicycles)
Color selection by Architect from manufacturer's standard colors.

END OF SECTION 11990

REVIEW COMMENTS

FILE #176-94

TITLE HEADING: Site Plan Review - Parking Lot Expansion

LOCATION: 4th Street & Colorado Avenue

PETITIONER: Norwest Bank - Downtown

PETITIONER'S ADDRESS/TELEPHONE: 359 Main Street
Grand Junction, CO 81501
242-8822

PETITIONER'S REPRESENTATIVE: Rob Jenkins

STAFF REPRESENTATIVE: Michael Drollinger

NOTE: WRITTEN RESPONSE BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED. A PLANNING CLEARANCE WILL NOT BE ISSUED UNTIL ALL ISSUES HAVE BEEN RESOLVED.

CITY DEVELOPMENT ENGINEER **10/28/94**
Jody Kliska **244-1591**

1. Drainage Fee - please provide the square footage of the decrease in landscaping so I can calculate the fee.
2. Curb Cuts - the two curb cuts which will not be used must be removed and replaced with sidewalk. A permit from City Engineering is required for all concrete work done in the public right-of-way.

COMMUNITY DEVELOPMENT DEPARTMENT **10/28/94**
Michael Drollinger **244-1439**

No comments.

ROBERT D. JENKINS/AIA
ARCHITECT

November 2, 1994

NORWEST BANK DOWNTOWN
Parking and landscape Remodel

Response - Staff Comments

A. Drainage Fee: $218.88, based upon a net reduction of 1,035 SF of landscaped surface area (surface area converted from landscaping to hard surface).

B. Existing Curb Cuts. Curb cuts exist on 3rd Street, Colorado Avenue, and 4th Street. Only the curb cuts on Colorado Avenue and 4th Street are affected by this project. The curb cut on 3rd Street is chained off and is not used daily for access to the parking lot, but it is used by the Bank, however infrequently. The Bank originally proposed to leave the curb cuts in place on 4th Street and Colorado Avenue. They both represent natural drainage routes for the hard surfaced parking areas and could be chained in a manner similar to the curb cut on 3rd Street. Both of the curb cuts provide for gentle slopes and easy access at the sidewalks and the walks are nearly 10 feet wide. Removal and replacement of concrete at these loactions would be expensive for very little change in function and appearance of the walks, and parking lot drainage would be more difficult. The Bank requests that the existing depressions in the sidewalks be left as existing.

Respectfully Submitted,

Robert D. Jenkins/AIA

1000 N. 9TH STREET / SUITE 35 / GRAND JUNCTION, COLORADO 81501
(303) 256-1980 FAX (303) 256-1953

ROBERT D. JENKINS/AIA
ARCHITECT

November 7, 1994

NORWEST BANK DOWNTOWN
Parking and landscape Remodel

Staff Comments
Response No. 2

A. Drainage Fee: $218.88, based upon a net reduction of 1,035 SF of landscaped surface area (surface area converted from landscaping to hard surface).

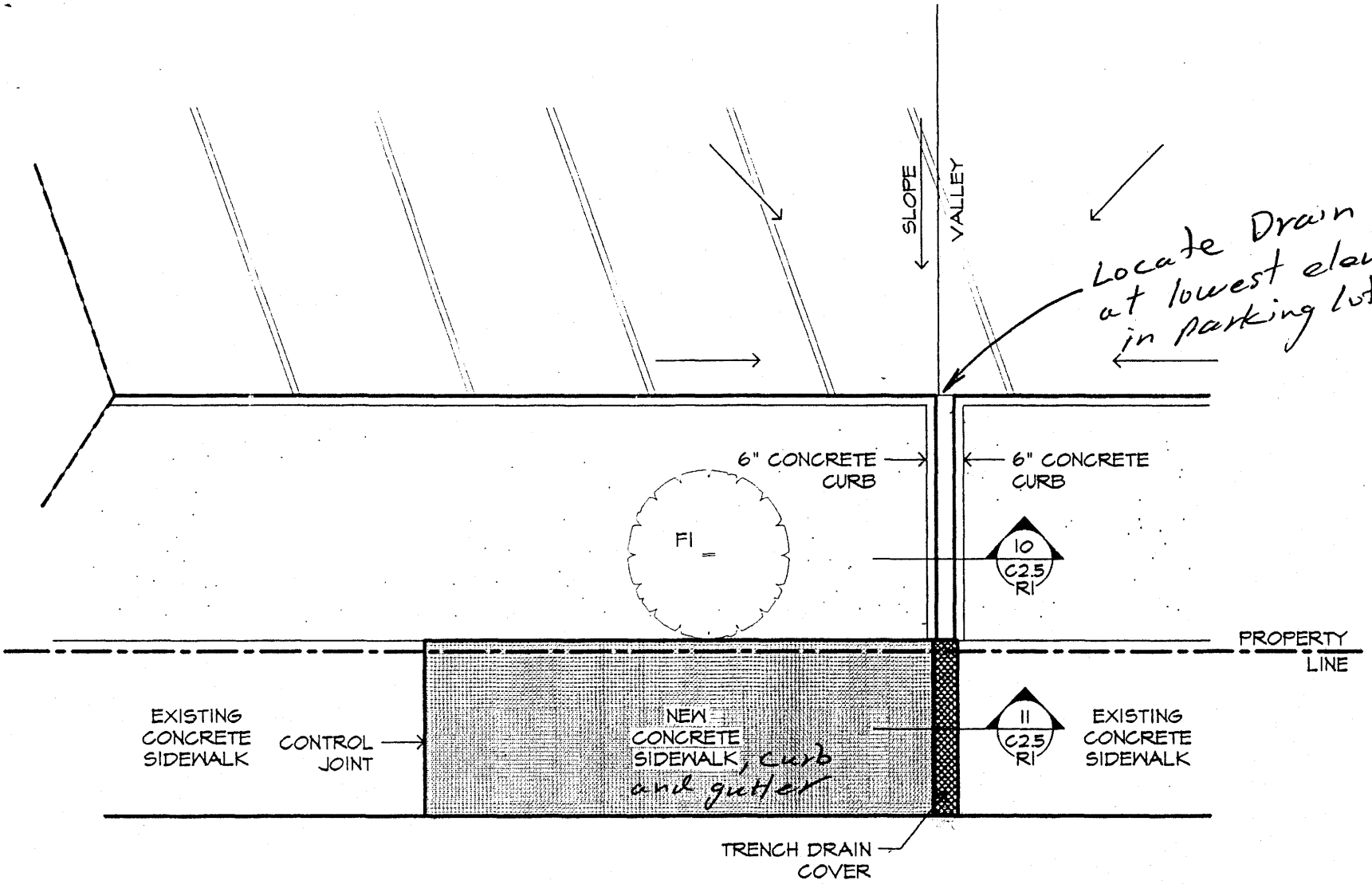
B. Existing Curb Cuts. The curb cuts on Colorado Avenue and 4th Street are the only curb cuts affected by this project. The existing curb cuts shall be removed and shall be replaced with monolithic concrete sidewalks and curbs in conformance with City of Grand Junction specifications, and shall match adjacent walks in appearance. As required for drainage of adjacent parking areas, sidewalk trench drains shall be incorporated and shall be constructed in conformance with City of Grand Junction specifications.

C. Directional Arrows. Arrows shall be painted on asphalt parking surfaces to designate the direction of traffic circulation.

Respectfully submitted,

Robert D. Jenkins/AIA

1000 N. 9TH STREET / SUITE 35 / GRAND JUNCTION, COLORADO 81501
(303) 256-1980 FAX (303) 256-1953



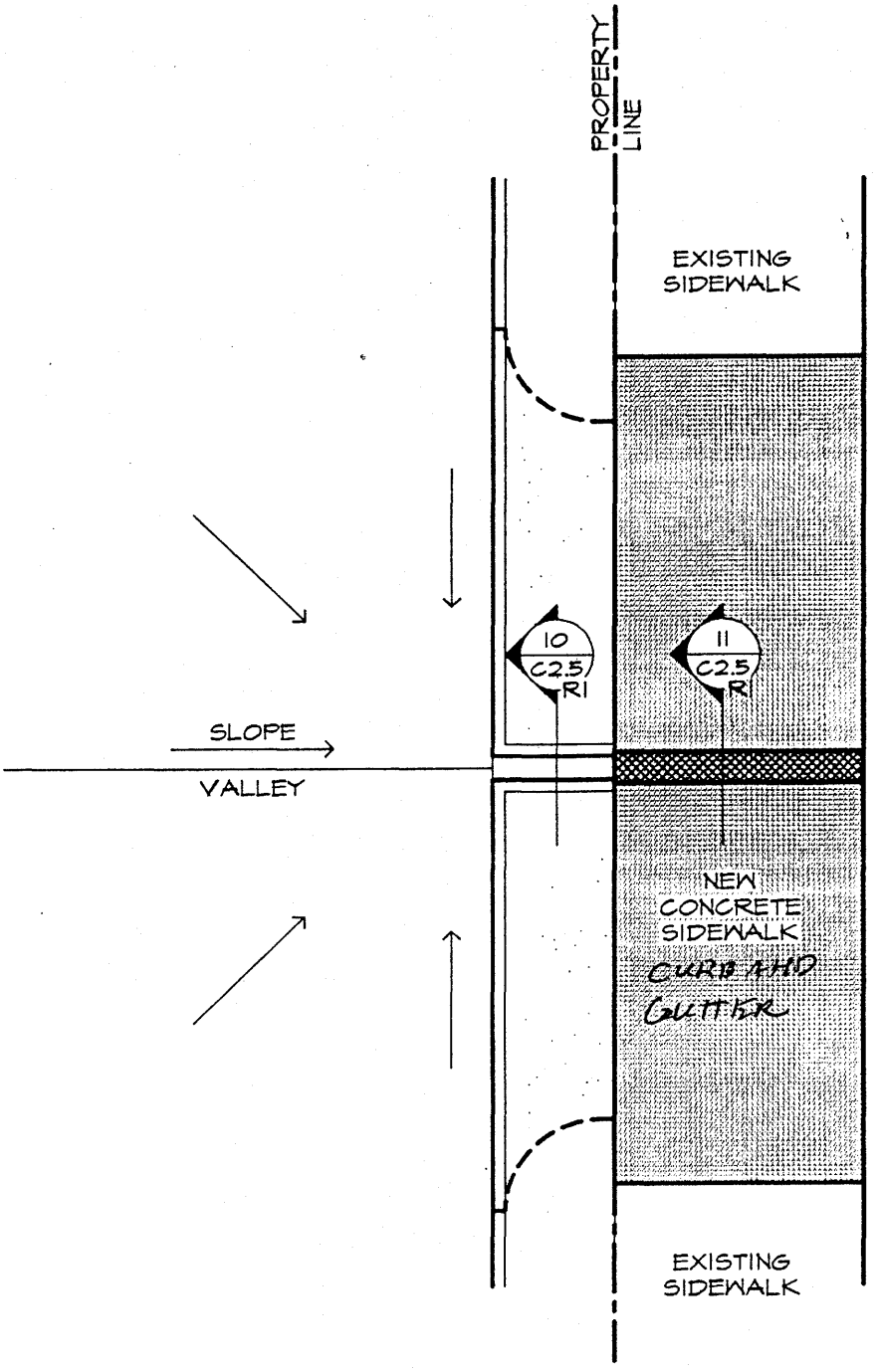
5 / C2.3 R

PARTIAL PLAN - NEW

1/8" = 1'-0"

ROBERT D. JENKINS/AIA
ARCHITECT

1000 North 9th Suite 35 (303) 256-1980
Grand Junction, Co 81501 11/08/94

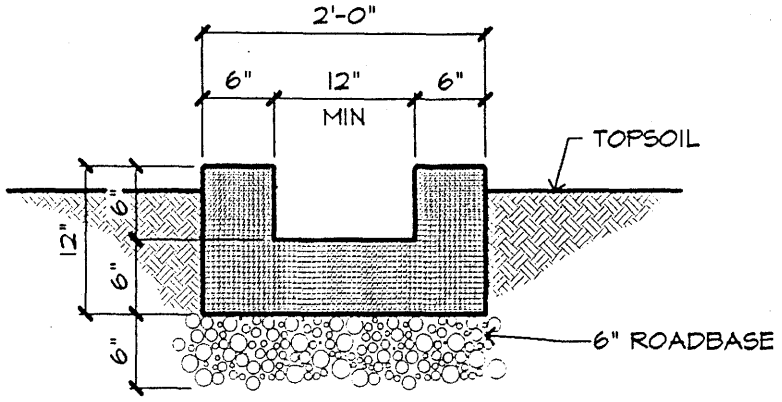


8 / C2.3 R1 PARTIAL PLAN - NEW

1/8" = 1'-0"

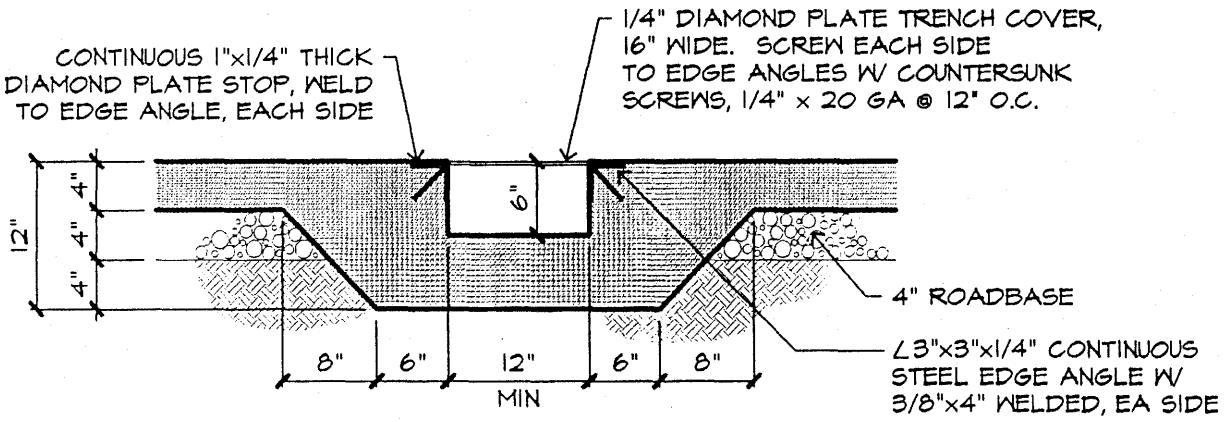
ROBERT D. JENKINS/AIA
ARCHITECT

1000 North 9th Suite 35 (303) 256-1980
Grand Junction, Co 81501 11/08/94



10 / C2.5 / R1 TRENCH DRAIN DETAIL

3/4" = 1'-0"

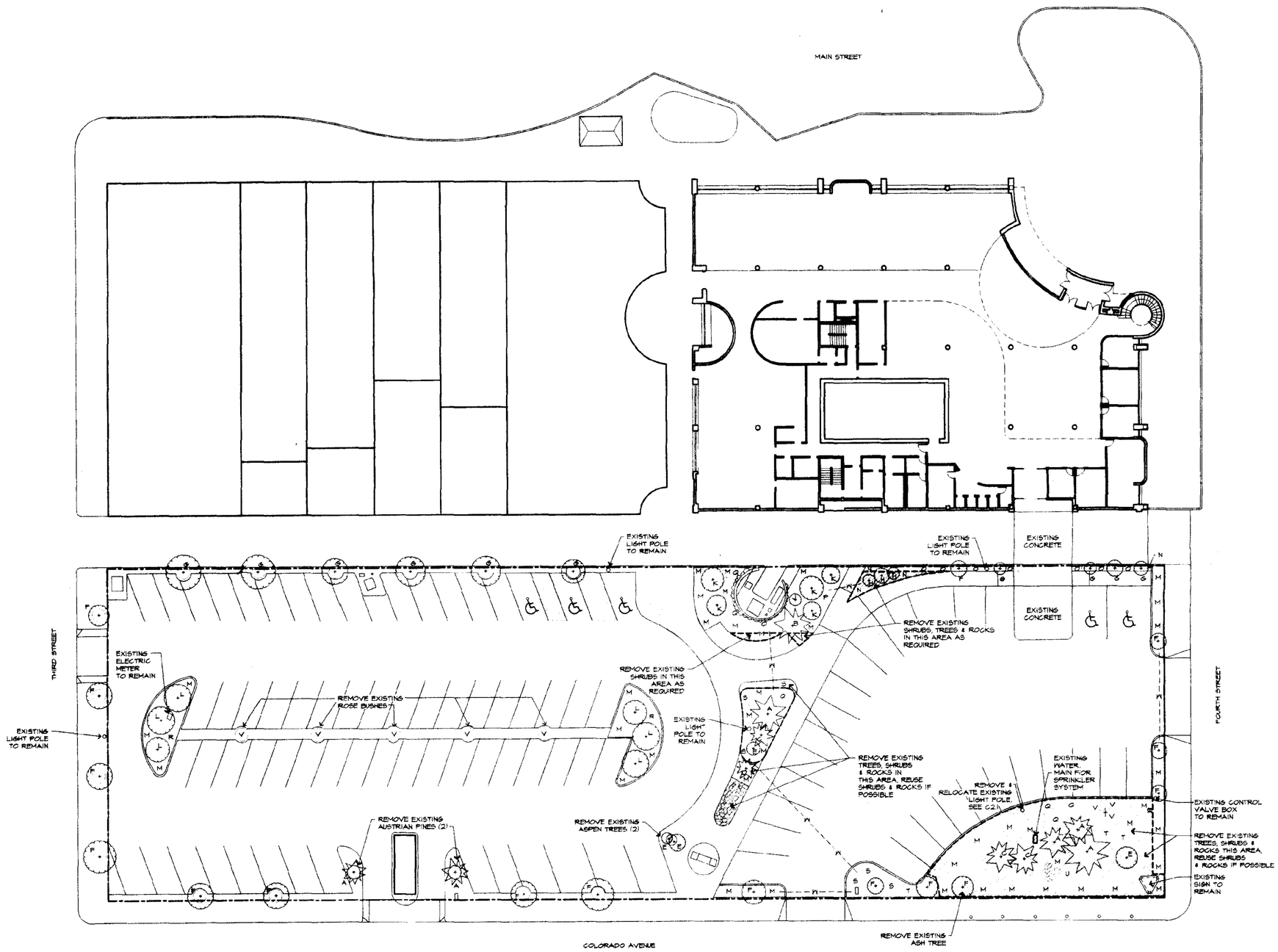


11 / C2.5 / R1 TRENCH DRAIN DETAIL

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

ROBERT D. JENKINS/AIA
ARCHITECT

1000 North 9th Suite 35 (303) 256-1980
Grand Junction, Co 81501 11/08/94



LANDSCAPE LEGEND

CONIFEROUS TREES:

- A EXISTING AUSTRIAN PINE
- B EXISTING BLUE SPRUCE
- C EXISTING PINYON
- D EXISTING EVERGREEN

DECIDUOUS TREES:

- E EXISTING ASPEN
- F EXISTING ASH
- G EXISTING LOCUST
- H EXISTING MOUNTAIN ASH
- J EXISTING DOGWOOD
- K EXISTING BIRCH
- L EXISTING FLOWERING CRAB

SHRUBS:

- M EXISTING JUNIPER
- N EXISTING BARBERRY
- O EXISTING GOLDEN VICKORY
- P EXISTING OREGON GRAPE
- Q EXISTING PYRACANTHA
- R EXISTING SPIREA
- S EXISTING MUGHO PINE
- T EXISTING COTTONEASTER
- U EXISTING YUCCA
- V EXISTING ROSE BUSHES

C1.2

LANDSCAPE PLAN - EXISTING/DEMOLITION

1" = 20'-0"

LANDSCAPED AREA:	6368	SF
TOTAL AREA:	25,084	SF
PERCENT LANDSCAPED:	25.4	%

REMOVE EXISTING TREES, SHRUBS, & ROCKS AS REQUIRED. REUSE SHRUBS & ROCKS IF POSSIBLE

EXISTING SPRINKLER PIPING: REMOVE & CAP SPRINKLER HEADS AS REQUIRED AND REROUTE OR CAP ANY SPRINKLER PIPING AS REQUIRED IN AREAS WHERE LANDSCAPE CHANGES.

ROBERT D. JENKINS/AIA
ARCHITECT
1500 North 9th Suite 35
GRAND JUNCTION, CO 81501
(303) 256-1980

NORWEST BANK – DOWNTOWN

Grand Junction, Colorado

PROJECT NUMBER: 9446

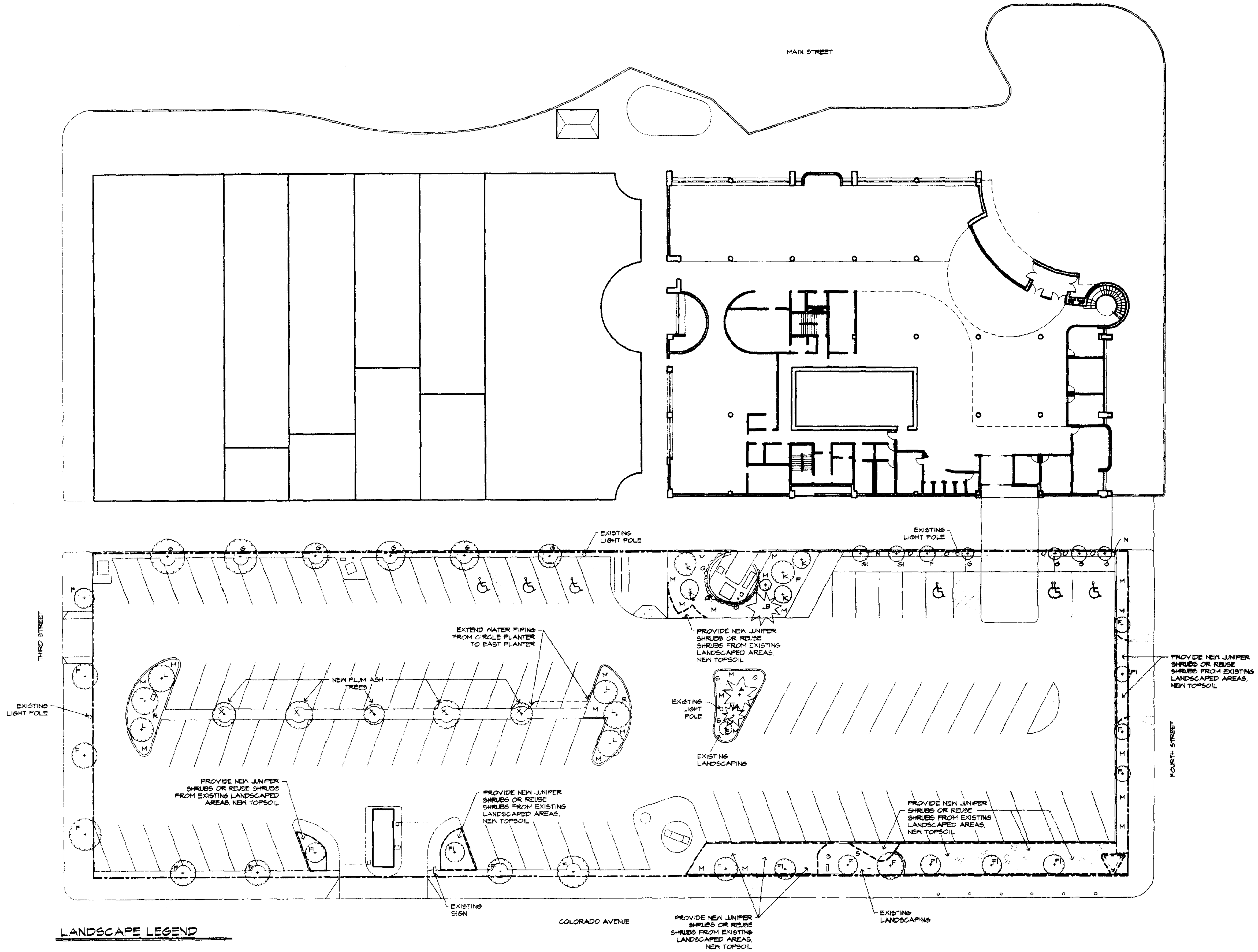
DATE: 10/14/94

DRAWN BY: RDJ/SLM

REVISIONS:

DRAWING NUMBER C1.2

NOR\C12



LANDSCAPE LEGEND

CONIFEROUS TREES:

- A EXISTING AUSTRIAN PINE
- B EXISTING BLUE SPRUCE
- C EXISTING PINYON
- D EXISTING EVERGREEN

DECIDUOUS TREES:

- E EXISTING ASPEN
- F EXISTING ASH
- G EXISTING LOCUST
- H EXISTING MOUNTAIN ASH
- J EXISTING DOGWOOD
- K EXISTING BIRCH
- L EXISTING FLOWERING CRAB
- FI NEW ASH
- GI NEW LOCUST
- KI NEW BIRCH
- X NEW PLUM ASH

SHRUBS:

- M EXISTING JUNIPER
- N EXISTING BARBERRY
- O EXISTING GOLDEN VICKORY
- P EXISTING OREGON GRAPE
- Q EXISTING PYRACANTHA
- R EXISTING SPIREA
- S EXISTING MUGHO PINE
- T EXISTING COTTONEASTER
- U EXISTING YUCCA
- V EXISTING ROSE BUSHES

LANDSCAPE PLAN - NEW

1 / C2.2

1" = 20'-0"

LANDSCAPED AREA:	4382 SF
TOTAL AREA:	25,069 SF
PERCENT LANDSCAPED:	17.5 %

[dashed box] NEW LANDSCAPING

NOR\C22

(303) 256-1980
ROBERT D. JENKINS/AIA
ARCHITECT
1000 North 9th Suite 35
GRAND JUNCTION, CO 81501

NORWEST BANK - DOWNTOWN

Grand Junction, Colorado

PROJECT NUMBER: 9446

DATE: 10/14/94

DRAWN BY: RDJ/SLM

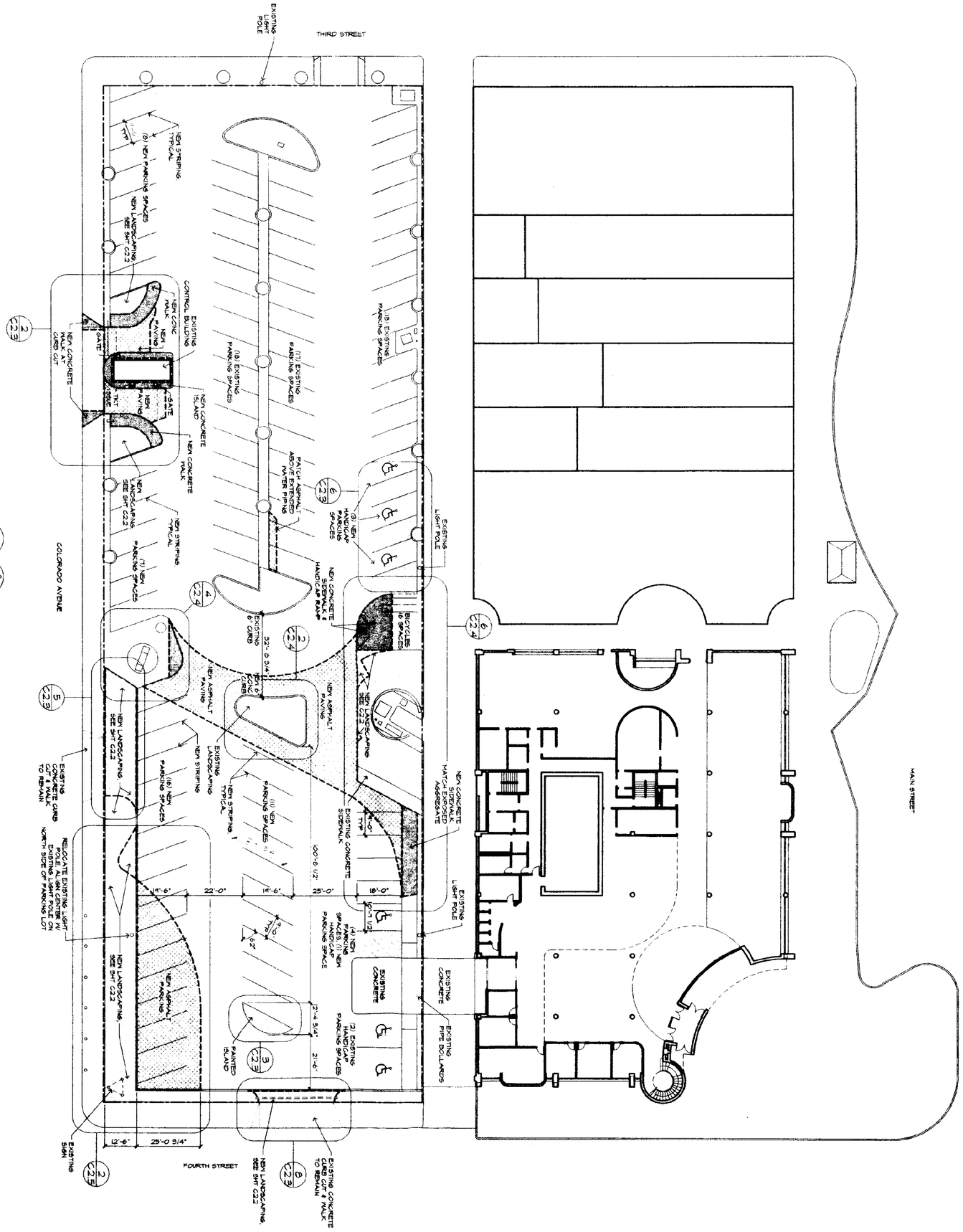
REVISIONS:

DRAWING NUMBER

C2.2

1994-174

NOR\C21



SITE PLAN - NEW

1" = 20'-0"

REFERENCE NEW LANDSCAPING PLAN FOR NEW LANDSCAPED AREAS

PARKING SPACES: 100
BICYCLES: 16

NEW CONCRETE SIDEWALK & CURB

NEW ASPHALT PAVING, STRIPE ALL NEW PARKING SPACES

NEW LANDSCAPED AREA

NORWEST BANK – DOWNTOWN

Grand Junction, Colorado

PROJECT NUMBER: 4446
DATE: 10/14/94
DRAWN BY: RDJ/SLM
REVISIONS:

DRAWING NUMBER: C2.1

(303) 256-1980

ROBERT D. JENKINS/AIA
ARCHITECT

1000 North 9th Suite 35
GRAND JUNCTION, CO 81501

1 / C1.1 SITE PLAN - EXISTING/DEMOLITION

1" = 20'-0"

REFERENCE EXISTING LANDSCAPING PLAN FOR LANDSCAPING DEMOLITION

EXISTING PARKING SPACES: 93

REMOVE EXISTING CONCRETE SIDEWALK, CONCRETE CURB, AND/OR ASPHALT PAVING

REMOVE EXISTING LANDSCAPING

ACCEPTED 11-14-94

ANY CHANGE OF SETBACKS MUST BE APPROVED BY THE CITY PLANNING DEPT. IT IS THE APPLICANTS RESPONSIBILITY TO PROPERLY LOCATE AND IDENTIFY EASEMENTS AND PROPERTY LINES.

ROBERT D. JENKINS/AIA
ARCHITECT
1000 North 9th Suite 35
GRAND JUNCTION, CO 81501
(303) 256-1980

NORWEST BANK - DOWNTOWN

Grand Junction, Colorado

PROJECT NUMBER: 9446

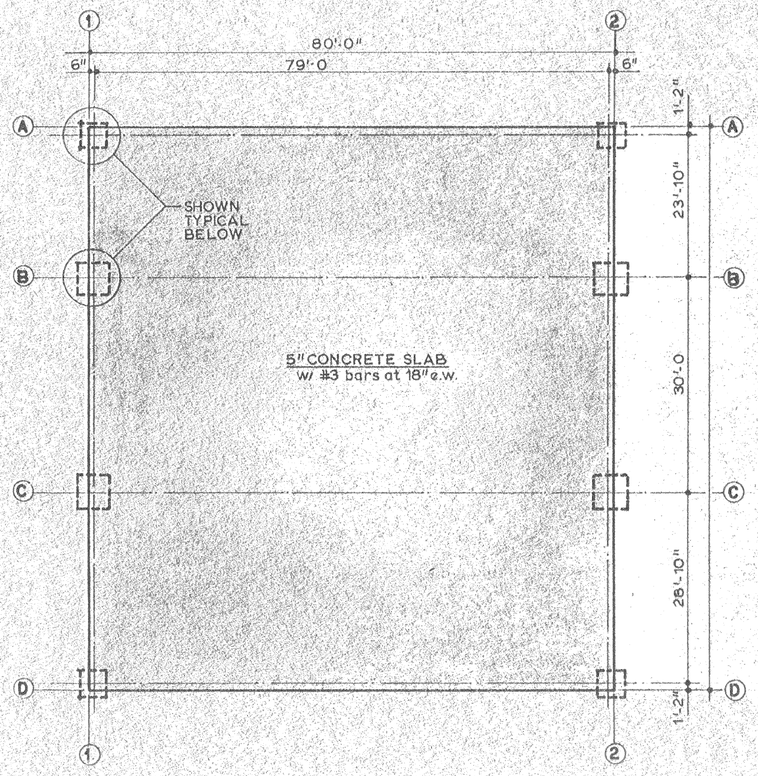
DATE: 10/14/94

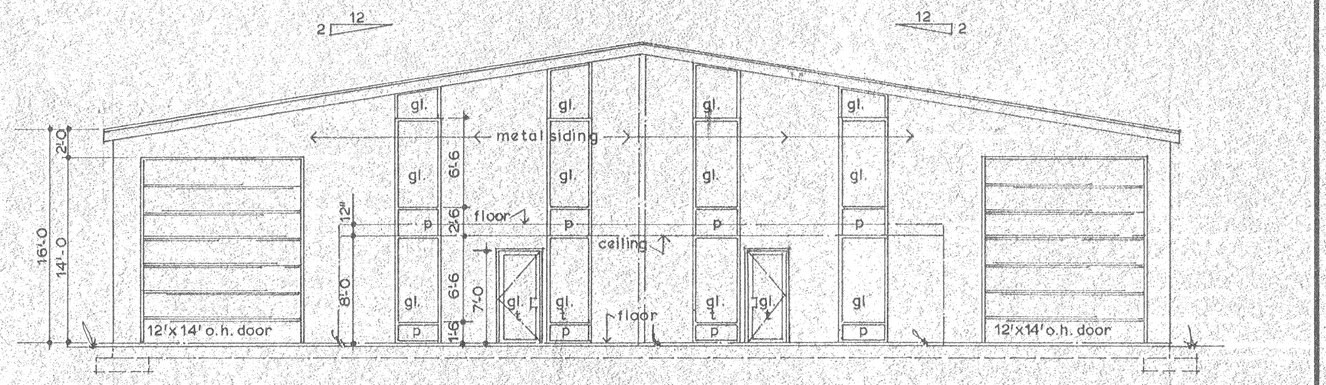
DRAWN BY: RDJ&LM

REVISIONS:

DRAWING NUMBER C1.1

NORVC11

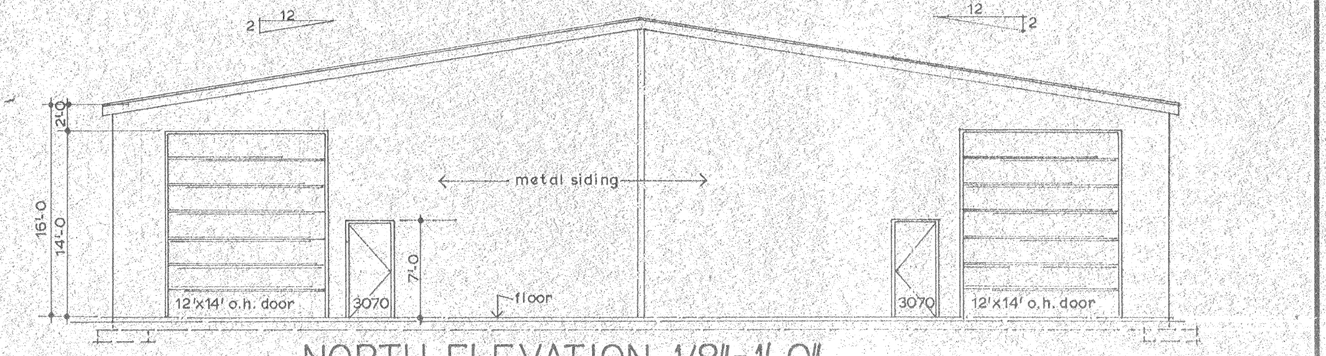




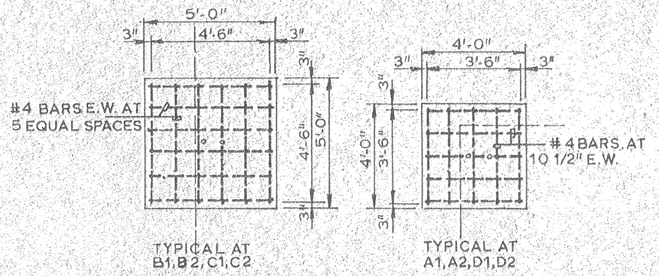
SOUTH ELEVATION 1/8"=1'-0"

gl. -glass per code
gl.t- tempered glass per code
p. -panel insert or obscure gl.

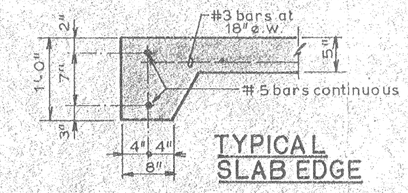
(PATIO DOOR TEMPERED INSUL. GLASS 28"x76")

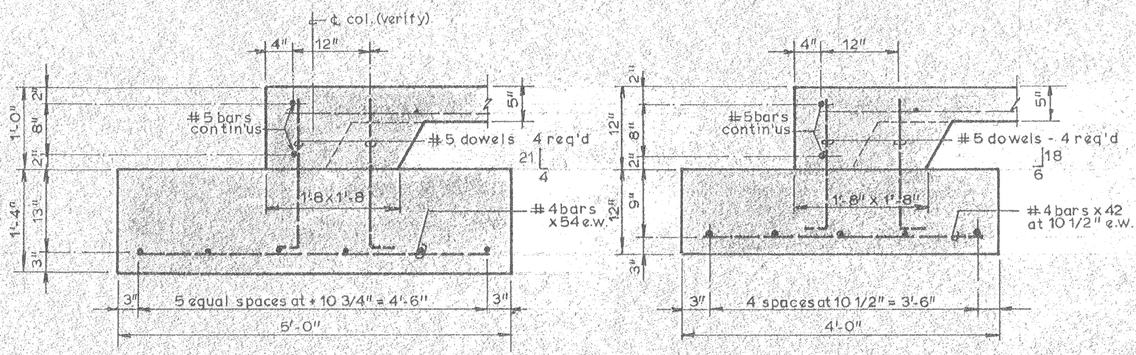


NORTH ELEVATION 1/8"=1'-0"



FOOTING PAD PLAN 1/4"=1'-0"





TYPICAL AT B-1, B-2, C-1, C-2

TYPICAL AT A-1, A-2, D-1, D-2

SECTIONS 3/4"=1'-0"

WALID BUILDING

LOT 5, BLOCK 1
INTERSTATE COMMERCIAL PARK
GRAND JUNCTION, COLORADO
ALCO BUILDING CO. 242-1423

DATE: 9/29/94 | DRN: | CHKD:

SHEET 2 OF 2