Concrete Quality Control Plan

Concrete Paving/Flatwork Contractor Contact Information

Concrete Contractor:	**Company Name** **Address**
Phone:	
Fax:	

Contact Name	Title	Mobile Phone Number

Concrete Producer Contact Information

Concrete Producer:	**Company Name** **Address**
Phone:	
Fax:	

Contact Name	Title	Mobile Phone Number

Quality Control Personnel

(if mix designs and/or testing is to be done by a 3rd party include company's info below. If all quality control testing/mix designs, etc is done in house fill out the contact, title, and contact info below. Also include contact information for concrete producer's quality personnel).

Testing Company (if 3rd party):	**Company Name** **Address**
Phone:	
Fax:	

Contact Name	Title	Mobile Phone Number

(Include name, title, and contact info for all process control and quality control technicians. Include copies of all applicable certifications with this document)		

Quality Plan Revision and Approval

Revision Number and Date:		

Plan reviewed and approved by	Title	Date

This Construction Quality Control Plan (CQCP) will be implemented to ensure remedial and construction procedures are performed in compliance with the plans and specifications under this contract. This CQCP will provide a means to maintain effective quality control at the above referenced project. The plan's primary purpose is to provide for the level of construction quality required by strict accordance with the Contract Documents.

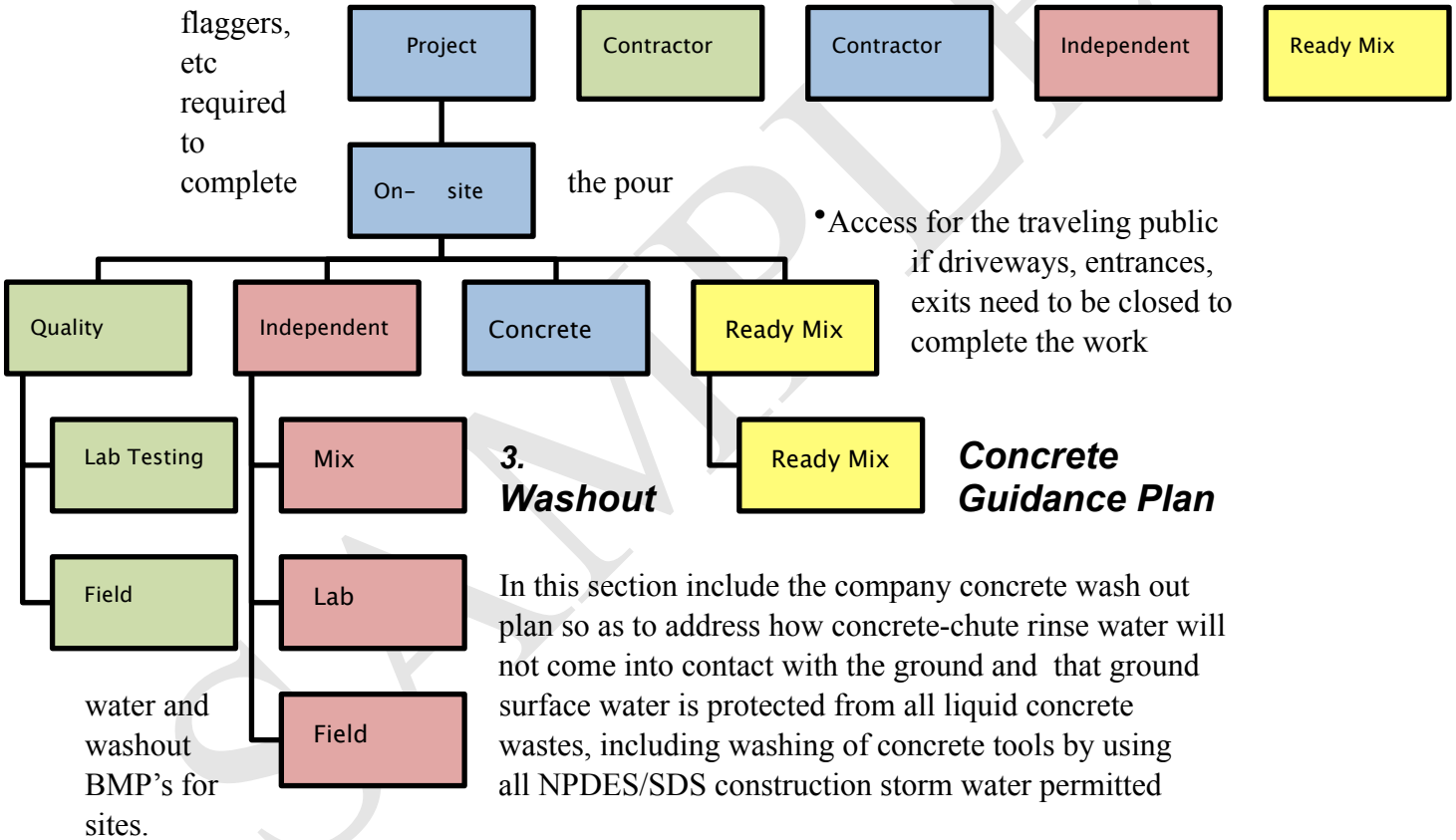
1. Organization Chart

(Insert company organization chart listing all names and phone numbers of individuals and alternate responsible for mix design, quality control administration and inspection.

2. Traffic Control

In this section the follow items should be addressed at a minimum:

- Jobsite (Placement) Location:
- Loaded Truck Route
- Empty Truck Route
- Traffic control needs: will there be intersection closures, lane closures, full closures, flaggers, etc required to complete the pour



- Access for the traveling public if driveways, entrances, exits need to be closed to complete the work

3. Washout Concrete Guidance Plan

In this section include the company concrete wash out plan so as to address how concrete-chute rinse water will not come into contact with the ground and that ground surface water is protected from all liquid concrete wastes, including washing of concrete tools by using all NPDES/SDS construction storm water permitted water and washout BMP's for sites.

It is also to be noted that in addition to state requirements there may be city, county or watershed management organization requirements that may be more stringent than those found in the NPDES/SDS Construction storm water permit.

4. Pre-Pour Meetings

Pre-pour meetings are to be performed prior to the start of each concrete pour in excess of 500 cy or prior to the start of a significant change in the activity.

The purpose of the pre-activity meeting is to communicate the plan for the work, ensuring that all requirements are to be fulfilled, the proper materials are on hand, and the individuals performing the work are competent and knowledgeable.

Pre-activity meetings should be scheduled at least two days in advance. Attendees at the pre-activity meetings should include responsible management and supervision from the prime contractor (if applicable) and the concrete contractor, quality control personnel, ready-mix supplier (if applicable) and the appropriate owner representatives.

Pre-activity meetings shall be performed following a prepared agenda. Meeting minutes shall document the items discussed.

The following is a list anticipated pre-pour meetings and approximate dates to occur:

	Operation	Date
1		
2		
3		
4		
5		

4. Concrete Placement Plan

The concrete placement plan should address at the minimum:

- Placement procedures:
  (a slip-form paving machine will be used to place the curb and gutter, followed by finishing operations and curing as described in the concrete curing plan.)
- Production rates including total quantity to be placed and hourly production rates:

(1,000 LF of curb and gutter to be placed with an expected production rate of 300 lf/hr)

- Labor force:
  (One foreman to be present at all times while concrete is being placed, two operators, two finishers, and one laborer
- Equipment:
  (GOMACO Commander III)
- Work hours:
  (curb and gutter place to take place Mon-Wed, during the hours of 7 am and 5 pm)

5. Concrete Curing Plan

The concrete curing plan should address at the minimum:

- Equipment to be used for curing operations
- Type of curing compound to be applied
- Application rate of curing compound

6. Rain Protection Plan

All care should be taken by the contractor to protect any freshly poured concrete for damage due to rain. The rain protection plan shall include procedures on how the contractor will protect the concrete from such damage should a rain event occur.

Include in this plan materials to be used for protection of the edges and surfaces of the concrete and where these materials will be stored on site.

7. Cold Weather Protection Plan

Cold weather as defined in the Minnesota Concrete Flatwork Specification is:
When the National Weather Service forecast for the construction area predicts air temperature of 36degrees F or less within the next 24 hours and the contractor wishes to place concrete.

If during the construction schedule there is a potential for cold weather a Cold Weather Protection Plan should be prepared and submitted to the owner for acceptance and shall include at a minimum the following:

- Submittal and approval of a concrete mix design developed for placement at cooler temperatures if there is one

- Procedures on how the concrete will be covered
- Materials to be used for cold weather protection and where they will be stored onsite for ease of access.
- Plans for sawing operations as they may have to be delayed to allow the concrete to set
- Plans to verify in-place strength of the concrete before opening to traffic

MnDOT has put together Cold Weather Concrete Pavement Protection Guidelines which can be used to determine what curing or covering requirements are necessary for newly constructed concrete pavement. These are only guidelines; the contractor must use proper judgment in assuring that the concrete pavement does not freeze. These guidelines are considered to be the minimum protections against frost, use of these guidelines does not guarantee concrete won't freeze or sustain other cold weather damage.

All of the materials listed below should be used in conjunction with regular membrane curing compound or extreme service membrane curing compound, depending on the date and location of the project as stipulated in specification 2301.3M. Placement of blankets and plastic shall be in conformance with 2301 and all other applicable specifications.

MnDOT Guidelines are and should be incorporated into the Cold Weather Protection Plan for all MnDOT projects at a minimum

- One sheet of plastic: If overnight low temperature is expected to be from approximately 3 to 6 degrees Fahrenheit below freezing.

- Two sheets of plastic: If overnight low temperature is expected to be from approximately 7 to 10 degrees Fahrenheit below freezing.

- Straw or similar insulating material: If overnight low temperature is expected to be approximately 10 degrees or more below freezing

8. Hot Weather Protection Plan

Hot weather as defined in the Minnesota Concrete Flatwork Specification is:
When the National Weather Service forecast for the construction area during concrete placement is such that the combined factors of temperature, wind, and humidity are detrimental to concrete placement.

The definition of hot weather conditions is defined in the PCA Design and Control of Concrete Mixtures as when the rate of evaporation of bleed water per hour exceeds 0.2 lbs of water per square foot per hour.

If during the construction schedule there is a potential for Hot weather a Hot Weather Protection Plan should be prepared and submitted to the owner for acceptance and shall include at a minimum the following:

- Submittal and approval of a concrete mix design developed for placement at hotter temperatures if there is one. (Changes in admixtures, cement content, fly ash content, etc.)
- Procedures on how the concrete will be adequately protected during placement and curing operations
- Proposed concrete placement schedule (timeline). Pours may need to be schedule during night time hours)
- Procedures to monitor the rate of evaporation and steps to be taken to reduce the rate of evaporation from newly placed concrete during hot weather and/or to stop paving operations until weather conditions improve (Charts published by ACI and PCA can be used to calculate the rate of evaporation. Fog spraying or use of approved evaporation retarders may be appropriate for use upon approval from the engineer.)