NEVADA DOT
SAFE AND CONNECTED

RESIDENT ENGINEER TRAINING ACADEMY

2018

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ROLE OF THE RESIDENT ENGINEER

100057585_201710_AD

The Role of the RE

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2018

The Role of the RE

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2018

Objectives

After this module participants will be able to:

- Understand RE Responsibilities
- Identify Types and Appropriate Communication Styles
- Identify Managerial Roles and Responsibilities
- Understand the Documentation Process
- Skills to efficiently Manage Time

Responsibilities

Contract Administration

- Responsible for the successful completion of the construction work
- Party to the Contract
- Responsible for the administration and supervision of your construction crew staff
- Direct representative of the Director
- But not signature authority for the Director

Responsibilities

Contract Administration

- Protect the interests of the taxpayers
- Are taxpayers getting what they are paying for?
- Ensuring the safety of your staff, worker and traveling public.
- The Department's point of contact with the contractor
- Everything related to the contract goes through the RE

Responsibilities

Contract Administration

- Knowledgeable of plans, specifications, estimate
- Interpretation / clarification
- Authority to reject defective materials
- Authority to suspend/reject work improperly performed
- Authority to request additional work necessary for the contract
- Do not direct contractor operations

Responsibilities

Performs regular visits to project site

- Get out of the office
- Support your crew
- Ensure safety
- Know what construction activities are taking place

You are the face of NDOT

- Public perception: field, public meetings, on the phone
- Relationships: with Contractors, other entities, divisions
- Most challenging position at NDOT
- And the most fun!

Exercise

- Name/identify actions to correct
- What other safety and construction activities do you look for on your field visits?

Responsibilities

Contract Administration

- Determine conformance with Construction Details
- Conformance with materials Specifications
- Worker and Public Safety
- Safety Compliance (OSHA, MSHA, MUTCD)
- Conformance with environmental requirements
- Storm Water Regulations
- Labor Regulations (DBE, Prevailing Wage, Affirmative Action, etc…)

Responsibilities

Contract Administration:

- Ensure conformance with plans, spec's, estimate
- Assist Contractor in Understanding
- Address non-conforming work
- Identify items that need rework and notify Contractor
- Assess Demerits / LD's / Credit
- Authority to reject work
- Authority to grant/approve work suspensions
- Order extra work when needed

Exercise

- Contractor has completed grouting operations pre-stressed ducts on a new bridge structure
- 28 day strength report indicates grout only reached 50% of the ultimate strength
- **What do you do?**

Responsibilities

Project Documentation

- RE daily Diaries
- Construction Reports
- Testing Reports
- Correspondence
- Measure, compute, and record quantities
- Prepare and review pay estimates to the contractor
- Maintain accurate project records

Responsibilities

Manage the following in a crew

- Assistant to the Resident Engineer
- Professional engineers
- Administration (Office) staff
- Survey crew
- Inspectors
- Testers
- Service providers

Responsibilities

12:00am Driving new traffic shift with ARE. Not yet open to traffic.
2:00am Off job.
2:30am Pull into driveway at home. Cell phone rings. ARE says plans don't work. Won't be open by 5:00am.
3:00am Back on job (again). Work with ARE to fix traffic control problem.
4:00am Off Job (again).
4:30am Pull into driveway at home (again). Cell phone not ringing. May get some sleep hopefully.
6:15am Contractor calls. Wants to discuss yesterdays failing PBS sieves.

Responsibilities

7:00am Back in office. Meet with Contractor to discuss failing sieves. Sieves still in broadband. Contractor doesn't think it's a big deal. Requests acceptance and JMF revision. Just revised JMF last week on similar issue.
7:30am Rebar Sub calling to complain Inspector is making them tie rebar per the Specifications. Informed that is not the way CALTRANS does it.
8:00am Construction Office calls. CCO 7 is being held up due to cost calculation issues. CCO shows estimated cost of $525,200.00. The Cover letter indicates cost of $525,200.05. Need to address.

Responsibilities

8:15am Construction Office calls. Problem with numbering on Test reports. Test numbers are off between day / night shift Testers.

8:30am District calls. Need to send everyone to BMP training next week. Attendance is mandatory. Sorry about short notice.

9:00am FHWA calls. Don't understand CCO 3. Why was the work not included in the original Contract? Suggested FHWA ask the Designer.

9:15am AG's office calls. Being deposed as Most Knowledgeable Person on a job completed 3 years ago. Not sure I remember what I did 3 weeks ago.

Responsibilities

9:30am Fire up computer to approve timesheets and check email

9:45am Construction Office calls. New form developed to track material failures. One more thing we have to worry about.

10:00am Contractor calls. Inspector says we have to paint portable concrete barrier. Claims no other RE makes them do that.

And it just goes and on and on and on and on and on and on and on…..

Exercise

- **Is this an RE responsibility?**

Responsibilities

Common themes of the RE in a crew

- Show/display leadership
- Effective communication
- Manage staff
- Documentation of the project
- Manage Time
- Prioritize job activities/duties

Communicate, exchange information, express opinion, call, talk, broadcast, speak, ask advice. When complete, repeat the process.

RE Communication

Effective communication with whom?

- Crew members
- Contractor
- District Engineer / Assistant District Engineer
- District Maintenance
- Contract Compliance
- Other REs
- Construction Office
- Various Technical Divisions
- Other Agencies
- Public / Media

Communication

Effective Communication

- Know your audience
- Solicit input from staff, experience, technical experts
- Explain your decisions to your crew:
  - Helps them understand why the decision was made
  - Helps them perform better
- There's no such thing as over-communicating!!
- Follow up communication with documentation
- Don't forget to LISTEN!!!

Communication

Effective Communication

- Communication is a two-way process
- Don't rely solely on email or text messages
- Choose words carefully with: staff, contractor, public, other Divisions
  - Angry? Frustrated? Count to 10 first
  - Suggestion or Directive?
  - Everything we say costs someone money somewhere.
  - Refer to the Contract Documents

Exercise

- Oversize load entering your work zone

Management

Leadership

People are different

- Different techniques motivate different people
- How do we help people perform their job?

Energize, Empower, Support, & Communicate

- Tell them
- Show them
- Involve them
- Respect their opinion
- Listen to their experience
- Care about their opinions

Management

What qualities make a great manager?
Think of current or former supervisors or coaches you played for…

- What made them effective?
- What made them Ineffective?
- What works best in the situation?
- What does not work well?
- It's OK to experiment
- Leadership skills are critical to being a successful manager

Management

Leadership

- Commitment to your staff, taxpayers, and contractor
- Commitment to the task
- Support and serve the "team" as well as lead them
- Demonstrate enthusiasm, energy, inspiration and expertise. You are being watched by your co-workers
- Shoulder responsibility, don't pass the buck
- The team can achieve more than individuals
- Following through is critical to your credibility

Management

Leadership

- Make time for those you supervise
- Help your crew succeed
- Be a good role model, lead by example
- You have a great supporting cast, USE THEM! - But YOU are still the one responsible

Management

Leadership

- Know your crew's strengths and weaknesses
- Delegate: but don't over-delegate
- Challenge: provide great learning opportunities
- Train them: mandatory and development
- Improve every aspect of what your crew does on a daily basis
- Provide them with challenging projects.

Management

Leadership

- Make decisions. That's what we pay you for.
  - Consult the technical experts, District, Construction, Materials. They are here to support you
  - YOU make the final decision
  - YOU have the final responsibility
- Be firm, yet fair (be assertive)
- Don't waive contractual requirements
- Remember your decisions may set precedence
  - Decisions may impact other Contracts, RE's & NDOT

Management

Leadership

- **Honesty:** be truthful with your words
- **Integrity:** be consistent with your actions and do what you say you are going to do
- **Sincerity:** admit mistakes, everyone makes them
- Don't be afraid to see what you see. Address an issue and move on

Exercise

Which duties you think are appropriate to delegate:

- To Assistant to RE?
- To Supervisor 1?
- To Office Staff?
- To an Engineering Tech?

Which duties you think are *not* appropriate to delegate?

Documentation

Everyone loves Documentation!

Reality Check:

- Documentation is one of the most important tasks.

Why is documentation so important?

- Provides a historical record of the project
- Evidence that payment is justified, or not justified
- Protects the taxpayers
- Records Contractor instructions
- Keeps other Divisions within informed

RE Documentation

Everyone loves Documentation!

- Required by Code of Federal Regulations 23 CFR 635
- Provides a public record of what took place
  - Be careful what you put into writing
- Vitally important to resolve a disagreement, conflict or claim
- Used as verification for acceptance by FHWA
  - If the project has one federal-aid dollar in it, it is a federal-aid project
  - FHWA regularly audits inspection and test reports for compliance

Documentation

RE Primary Documents

- Construction Inspection Reports
- Field Books or Electronic Documentation
- Progress Payments
- Stakeout Books or Stakeout Spreadsheets
- Testing Forms and Testing Books or Spreadsheets
- Daily diaries are to be completed DAILY

Documentation

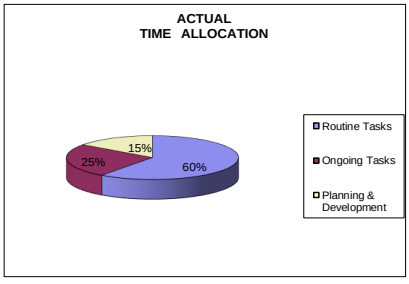
RE Primary Documents

- Contract Modifications
- Work Specific Forms (Pile Driving Record, Stormwater Runoff, etc.)
- Correspondence:
  - Internal Memos, Emails, Letters to Contractor
- Material Submittals / Shop Drawings / Submittals / RFIs
- As-Built Plans / Contract Modification Plans

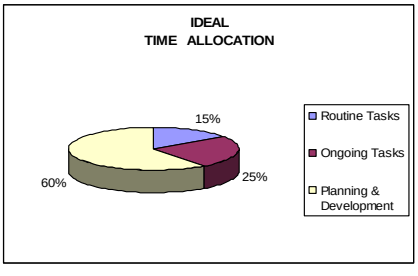
Exercise

- Local attorney calls you on behalf of his client who suffered an injury for accident that occurred in your project work zone
- Attorney wants to discuss details of accident, work zone signs, etc. Over the phone with you and will be coming by your office today to make copies of your diaries and traffic control plans
- You are excellent at documenting and have everything available.
- ***What do you do?***

Time Management



Time Management



Time Management

Questions to ask yourself:

- Are there tasks I perform that should be done by someone else?
- Are there tasks or patterns that repeat themselves?
- Am I always involved with Routine Tasks?
- Have I kept staff informed of assignments?

Time Management

Questions to ask yourself:

- Do tasks typically take longer than I expect them to?
- Do I currently have enough time to plan and train my staff?
- Do I make a list of things to do each day?
- How far in advance do I plan events?
- Have I kept up with contract documentation?

Time Management

Time Management Strategies

- Mentally classify each task as:
  - A -- Urgent AND Important
  - B – Either Important OR Urgent, not both
  - C – Neither Important nor Urgent
- Make 3 Separate lists; one for each task above
- Start with the A tasks
- Decide which tasks require input from others, which ones you can do, and which ones can be delegated
- Ask yourself, am I being efficient and effective?

Exercise

Please provide examples of the following project related tasks:

- A – urgent and important
- B – either important or urgent (not both)
- C – neither important nor urgent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PROJECT EXECUTION, MANAGEMENT AND SAFETY

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Project Execution, Management & Safety

Construction Office

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Project Execution

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Objectives

After this module participants will be able to understand the Construction Phase of a project including:

- Specifications
- Shop Drawings and Submittals
- Inspection and Testing
- Safety
- Traffic Control
- Environmental
- Non Conforming Work
- Closeouts

Project Execution

Contract Documents

In order or precedence:

1. Supplemental Notices
2. Special Provisions
3. Construction Plans
4. Standard Specifications
5. Standard Plans

Project Execution

RE Responsibilities

- RE ultimately responsible for successful completion of a construction contract
  - Enforcing the contract documents
  - Determining compliance with contract documents
  - Addressing non-compliant work
  - Provide accurate as-builts for future projects

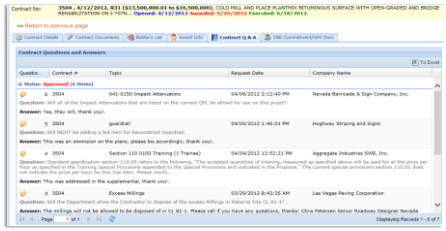
Project Execution

Advertise Phase

- Utilize information during advertise through RFC's to be aware of contractor's issues

http://www.nevadadot.com/Doing_Business/Contractors/ListContracts.aspx

Project Execution



Project Execution

Construction

Preconstruction activities (after award)

- Preconstruction conference
- Partnering meeting
- Pre activity meetings
- Face time with contractor to establish communication and relationship
  - Schedule, submittals, subcontract agreements, service provider agreements, DBE plan, traffic control plan

Project Execution

Construction Shop Drawings and Submittals

- Be familiar with submittal requirements as defined in the Specifications – Contract specific
- Contractor provides details on how they intend to build certain items of work
- Submitted to RE for distribution to the appropriate divisions

Project Execution

Construction Shop Drawings and Submittals

- Division provides review comments to RE
- Timeliness as required in the Specifications
  - Starts when contractor submits to RE
  - Time frames addressed in Contract for major required submittals
  - Projects involving railroad: 90 days is typical

Project Execution

Construction Shop Drawings and Submittals

Expected submittals

- Try to accommodate for the good of the project
- When contractor thinks every submittal needs to be expedited:
  - Talk with contractor about planning ahead
  - Bottom line: review times are in the contract, the schedule is the contractor's responsibility

Project Execution

Construction Shop Drawings and Submittals

- You may need to remind the contractor to the timely submission of their submittals
- Three ways to respond to a submittal:
  - Approved / Accepted
  - Approved as Noted / Accepted as Noted
  - Rejected / Revise and resubmit

Project Execution

Who approves the contractor's shop drawings and material submittals?

- Dept. approves submittals, contractor is ultimately responsible for their submittals

  See Section 105.02, Plans and Working Drawings, of the Standard Specifications

Project Execution

Construction Inspection

Contractor gives proper notice before commencing work:

- Contractor's schedule
- Inspector communicate with foreman regularly
- RE communicate with contractor PM regularly
- Pour Notices
- A quality control plan may be requested prior to beginning work by the RE

Project Execution

Construction Inspection

- Inspector authorized to:
  - Inspect/Document all work done and materials furnished
  - Reject (no payment) work and material until a final decision by the RE
- Inspector NOT authorized to
  - Ignore or waive provisions in the Contract
  - Issue instructions contrary to the Contract
  - Direct contractor's work

Project Execution

Construction Inspection

Inspector Responsibility:

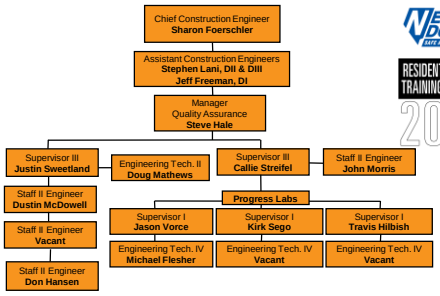
- Be familiar with the Contract Documents
- Document Construction Progress
  - Inspector Daily Reports (IDR's)
  - Work specific reports (BMP inspections, calc sheets, flagger sheets, Uniform Traffic Control Officer, etc)
- Be factual and accurate
- Disagreements or conflicts should be communicated to RE or ARE as soon as possible

Project Execution

Construction Inspection

Construction Division QA Inspection Staff

- One QA Inspector in each District
  - Justin Sweetland Supervisor (775-888-7117)
  - Vacant– District I, (702-888-6607)
  - Dusty McDowell– District II, (775-888-7112)
  - Donnie Hansen – District III, (775-888-2734)



Project Execution

Construction Inspection

Construction Division QA Inspection Staff

- Responsibilities
  - In-House Inspection Training
  - Periodic site visits
  - Be familiar with the Contract Documents
  - Third party independent assessment

They are there to help you

Project Execution

Construction Materials Testing

Quality Control vs. Acceptance Testing vs. Independent Assurance

- Quality Control is the contractors responsibility
- Acceptance testing for materials is the RE's responsibility
- Independent Assurance is performed by Construction Office Progress Testers

Project Execution

Construction Materials Testing

Do not do process control (QC) testing for the contractor

- But give them the results timely of the NDOT acceptance testing

Project Execution

Construction Materials Testing

Materials Sampling and Testing Checklist

- Prepared by Materials Division
- General guide on required tests & documents for acceptance
- Some materials may only require a certificate of compliance
- Will note "Buy America" requirements
- Still must follow testing frequencies in Construction Manual reporting

Project Execution

Construction Materials Testing

Acceptance Testing Summary Sheet (ATSS)

- Prepared by Construction Division
- Number of tests to be performed are based upon bid item quantities
- Should be continually updated as project progresses
- Must follow testing frequencies in Construction Manual reporting

Project Execution

Construction Materials Testing

NDOT Tester Responsibility

- Be familiar with the Contract Documents
- Be familiar with the testing procedures
- Document sampling and testing
  - Test reports
  - Tester Log Books
- Keep RE informed immediately of testing failures
- Communicate with Inspectors and Supervisors regularly

Project Execution

Construction Materials Testing

Construction Division Independent Assurance (IA) Testing Staff

- Progress Testers
  - Callie Streifel Supervisor 775-888-7114
  - Jason Vorce and Michael Flesher – District I 702-385-6590
  - Kirk Sego and Vacant– District II 775-834-8338
  - Travis Hilbish and Vacant– District III 775-623-8075

Project Execution

Construction Materials Testing

Construction Division IA Testing Staff

- Responsibility
  - In-House Testing Training Program
  - Periodic site visits
  - Be familiar with the Contract Documents
  - Third party independent assessment

They are there to help you

Project Execution

Construction Safety

Safety
- Safety of the traveling public
- Safety of construction staff

Contractor's safety plan
- Are they following it?
- Is NDOT?

OSHA requirements

NDOT Safety Inspection Checklist
- Obtained from Quality Assurance Section
- Filled out at the beginning of every project

Project Execution

Construction Safety

- Site visits, get out of the office
- Assign safety inspection duties to your staff
- Hold safety meetings with staff
- Personnel protective equipment (PPE)
- Encourage staff to attend Contractor weekly safety meetings – document meetings in your records!
- Document safety meetings
  - Meeting notes
  - IDR's
  - RE diaries
  - Pictures

Project Execution

Construction Safety Test

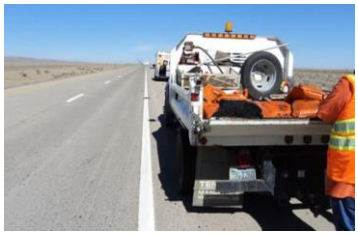
What are the hazards that you can think of in a heavy highway construction project?

Project Execution

- Public Traffic
- Angry Public
- Crime
- Animal, Snakes, Spiders
- Slips, trips, and falls
- Extreme Heat or cold
- High winds
- Construction Traffic
- Confined spaces
- Elevated work areas
- Heavy equipment
- Hot asphalt
- Chemicals
- Cements
- Open Trenches
- Headwalls
- Aggregate mines
- Power lines overhead or underground
- High pressure gas
- Remote locations
- Nuke gauges
- Conveyor belts
- Hotplant
- Batchplant
- Testing equipment
- Heavy lifting
- Wildfire
- Long hour / exhaustion
- Night work

I-80 Sparks, NV

Work Zone Crashes



Work Zone Statistics

- In 2015:
- A work zone crash occurred once every **5.4** minutes.
- Every day, **70** work zone crashes occurred that resulted in at least one injury.
- Every week, **12** work zone crashes occurred that resulted in at least one fatality

- 73.0% (70,499) of work zone crashes were Property Damage Only (PDO)
- 26.4% (25,485) of work zone crashes involved at least one injured party
- 0.7% (642) of work zone crashes involved at least one fatality

Project Execution

Construction Traffic Control

Why so Important?

- Safety of the traveling public
- Safety of construction staff

Contract requires Traffic Control Supervisor (TCS) to perform:

- Supervise installations
- Daily inspections
  - Work Zone Traffic Control Checklist – submitted daily

Project Execution

Construction Traffic Control

Inspection of traffic control

- TCS certified? – Certificate must be supplied
- Interact with contractor's TCS
- Document quantities

Uniformed Traffic Control Officer (NHP usually)

- Bid item in Contract, if not don't hesitate to ask for it
- Rolling closures
- Shut down of signalized intersections
- Traffic not slowing down / not following traffic control
- Don't hesitate to use for safety concerns

Project Execution

Construction Environmental

All Permits / Plans in order?

- Dust Control
- Notice of Intent (NOI)
- Water well waiver
- SWPPP

Avoidance areas delineated

BMP's installed and operating properly

Project Execution

Construction Environmental

Storage and disposal of material outside Right-of-Way

- Property owner permission
  - Need indemnification letter from property owner to hold NDOT harmless

Project Execution

Construction Environmental

Documentation

- Daily Biological Field Report (Tortoise)
- Construction Site Discharge Inspection Checklist

If there are changes in work

- Consider the impacts on environmental commitments

Responsibility for enforcement of environmental requirements

- Resident Engineer

Project Execution

Construction Non-Conforming Work

Addressing non-conforming work

- Options
  - Rework
  - Demerits / LD's / Credit
  - Rejection
  - Work suspension

Keep your Assistant District Engineer in the loop on rejections and potential work suspensions.

Project Execution

Closeouts

Why so Important?

- Organize all documentation for archiving
- As-Built Plans
- Auditing - Final check of all documentation
- Documentation justifies payments
  - Protects taxpayers
- Contractors hold the Department responsible for timeliness
- Necessary to make the final payment
  - Release of Retention

PRE-CONSTRUCTION REQUIREMENTS/MEETING

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PreConstruction Meeting

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Preconstruction Meeting

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Objectives

After this module participants will be able to:

- Understand the importance of the pre-con;
- Identify key players;
- Plan and conduct a successful pre-con and;
- Prepare an agenda.

Preconstruction Meeting

Why so Important?

- In the Contract (Standard Specifications Subsection 108.07)
- First Status meeting
- Set the tone for the project
- Discuss significant elements of the project
- Ask questions
- Key players are present

Preconstruction Meeting

Who are the key players?

- Resident Engineer: Lead the conference
- Contractor, Subcontractors and Suppliers
- District
- Construction
- Contract Compliance
- Technical Divisions, Design, Bridge, Materials
- Utilities
- FHWA
- Other agencies/local government

Preconstruction Meeting

Planning

- Starts with Award – call contractor
- Coordinate with Contractor, District and Construction (1 week min. notice)
- Set date, time and location (video-conf)
- Invitations
  - Construction Division: HQ and FHWA
  - Resident Engineer: Contractor, District staff and local stakeholders

Preconstruction Meeting

Planning
- Resident Engineer
  - Be familiar with contract documents
  - Prepare the agenda – be project specific
  - Record the meeting
  - Be prepared to address Contractor questions
- (Advise) Contractor
  - Be familiar with Contract Documents
  - Provide Initial submittals
  - Identify Superintendent / Key Players
  - Be prepared to address NDOT questions

Preconstruction Meeting

Planning
- Initial Submittals – Project Specific
  - Preliminary Progress Schedule
  - Designated PM (Contract Modification authority)
  - Traffic Control Supervisor
  - Traffic Control Plans
  - Stormwater Prevention Plan (SWPPP/WPCM)
  - Environmental Permits / Plans
  - Disadvantaged Business Enterprise Plan (DBE)
  - SSPR - Requests to Sublet / Subcontracts
  - Safety Plans
  - Affirmative Action Plan
  - Contract Compliance - Memorandum of Record

Preconstruction Meeting

Agenda (duration 1 hour +/-)
- Welcome / Introductions
- Administration
- Contract Compliance
- Public Outreach
- Standards
- Utilities and Municipalities
- Traffic Control
- Specifications and Special Provisions
- Conflict Resolution
- Open Discussion / Closing

Preconstruction Meeting

Agenda (continued)

- Welcome / Introductions
  - Project description
  - Meeting is being recorded
    - Offer copies
  - Introductions
  - List out the Key project members
  - Attendance roster (available upon request)

Preconstruction Meeting

Agenda (continued)

- Administration
  - Mailing addresses and phone numbers
  - All correspondence to RE
  - Contractor's representatives
    - Authorized to sign Contract Modifications
    - 24-hour contacts
    - Traffic control supervisor - ATSSA certified
    - Water Pollution Control Manger - certified

Preconstruction Meeting

Agenda (continued)

- Contract Compliance
  - Memorandum of Record- Have the contractor complete with initials and signature prior to meeting
    - This contains all the info for civil rights
  - Contract compliance will read the recap memo so that the meeting and information is recorded.
  - Send CC a copy of the Attendance roster

Preconstruction Meeting

EXTERNAL CIVIL RIGHTS/ CONTRACT COMPLIANCE DIVISION

PRECONSTRUCTION CONFERENCE – Memorandum of Record

Contract No. __________Project No. ________________

Meeting Location: ____________________
Meeting Date: ____________________
Prime Contractor: ____________________
Contract Amount: ____________________
Contract Fully Executed:__________ Date: __________
Certificate of PL & PD Insurance submitted: Date: __________
Railroad Protective Insurance Required?__________

NDOT

Resident Engineer: ____________________
Assistant Resident Engineer:____________________

LCP Contact:	Katie Tiearney	775-888-7484
B2GNow Contact	Krae Waller	775-888-7947
DBE Contact	Teri Lewis	702-730-3305
DBE Officer:	Sonnie Braih	702-730-3301
Contract Compliance Manager	Nancy Ficco	775-888-7229

CONTRACTOR

Prime Contractor PM:__________E-Mail:__________
Contractor DBE Officer:__________E-Mail __________
Contractor EEO Officer:__________E-Mail:__________
Certified Payroll Officer:__________E-Mail:__________
Project DBE Officer:__________E-Mail:__________
Project EEO Officer: __________E-Mail:__________
B2GNow Administrator: __________E-Mail: __________

SUBCONTRACTORS

In accordance with section 108 of the Standard Specifications without exception and before performance of any work by a subcontractor, a request to sublet and 2 certified copies of a fully executed subcontract between the Contractor and the subcontractor must be submitted and approved by NDOT. This also applies to lower Tier subcontracts.

Requests to Sublet must be submitted to the Resident Engineer for approval. Once the RTS and Sub Contract Agreements are approved by NDOT, Contract Compliance will authorize payroll submittals through LCP Tracker (LCP). **No payrolls can be processed until the authorization of the RTS, Sub Contract Agreement, and Fringe Benefit Statement through LCP**.

Preconstruction Meeting

Agenda (continued)

- Public Outreach
  - As Needed
- Standards
  - As defined in the contract documents
    - Standard Plans - 2017
    - Standard Specifications - 2014
    - QPL – Dated ??/??/2018

Preconstruction Meeting

Agenda (continued)

Utilities and Municipalities (Specifications Section 107)

- Relations with Railroads
  - Flaggers – Contractor provided - FA +5%
  - Safety Training
- Utility Contacts
  - Coordination
  - Notification
  - Submittal requirements

Preconstruction Meeting

Agenda (continued)

Traffic Control

- Traffic Control Plans part of Contract
- Contractor designed traffic control
- Traffic Control Supervisor Reports
- Local permits
- Time restrictions (Subsec.108.04)
- Accommodations for Public Traffic (Sec. 624 & 625)
  - Initial setups
  - Notification to emergency services

Preconstruction Meeting

Agenda (continued)

Specifications and Special Provisions

- Supplemental Notices
  - Everyone have copies?
- Review all Spec. Sections for revisions
  - Don't recite specs, highlight important ones
- Control of Material (Section 106)
  - Local materials
  - NAQTC / WAQTC requirements
- Storage and staging areas outside R/W
- Permission, Permits and Clearances

Preconstruction Meeting

Agenda (continued)

- Specifications and Special Provisions
  - Legal Relations (Section 107)
  - Disposal outside R/W
    - Permission, Permits and Clearances
  - Prosecution and Progress (Section 108.02)
    - Subletting of Contract
    - NTP Date
    - Working Days

Preconstruction Meeting

Agenda (continued)

- Specifications and Special Provisions
  - Prosecution and Progress (Section 108)
    - Progress Schedules (108.03)
    - Progress Meetings - schedule
    - Limitations of Operations (108.04)
    - Liquidated Damages (108.09)

Preconstruction Meeting

Agenda (continued)

- Specifications and Special Provisions
  - Measurement and Payment (Section 109)
    - Escalation Clauses
    - Payments to subcontractors (109.08)
  - Division II Construction Details
  - Division III Materials Details
  - Bid Items – have contractor complete prior to meeting

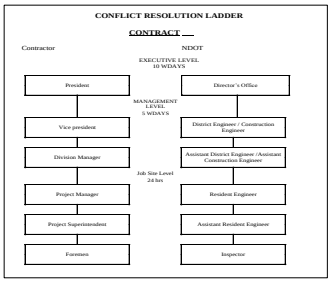
Preconstruction Meeting

Agenda (continued)

- Partnering Session - schedule
- Dispute Resolution Team if applicable
- Conflict Resolution
  - Conflict Resolution Ladder
  - Conflict Resolution Escalation Form

Preconstruction Meeting

Conflict Resolution


CONFLICT RESOLUTION LADDER

CONTRACT __

Contractor — NDOT

EXECUTIVE LEVEL
10 WDAYS

President — Director's Office

MANAGEMENT LEVEL
5 WDAYS

Vice president — District Engineer / Construction Engineer

Division Manager — Assistant District Engineer /Assistant Construction Engineer

Job Site Level
24 hrs

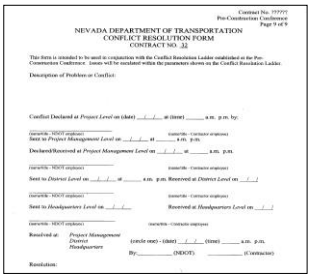
Project Manager — Resident Engineer

Project Superintendent — Assistant Resident Engineer

Foreman — Inspector

Preconstruction Meeting

Conflict Resolution


Contract No. ?????
Pre-Construction Conference
Page 9 of 9

NEVADA DEPARTMENT OF TRANSPORTATION
CONFLICT RESOLUTION FORM
CONTRACT NO. XI

This form is intended to be used in conjunction with the Conflict Resolution Ladder established at the Pre-Construction Conference. Issues will be escalated within the parameters shown on the Conflict Resolution Ladder.

Description of Problem or Conflict:

Conflict Declared at *Project Level* on (date) __/__/__ at (time) _____ a.m. p.m. by:

(name/title - NDOT employee) (name/title - Contractor employee)

Sent to *Project Management Level* on __/__/__ at _____ a.m. p.m.

Declared/Received at *Project Management Level* on __/__/__ at _____ a.m. p.m.

(name/title - NDOT employee) (name/title - Contractor employee)

Sent to *District Level* on __/__/__ at _____ a.m. p.m. Received at *District Level* on __/__/__

(name/title - NDOT employee) (name/title - Contractor employee)

Sent to *Headquarters Level* on __/__/__ Received at *Headquarters Level* on __/__/__

(name/title - NDOT employee) (name/title - Contractor employee)

Resolved at: *Project Management* *District* *Headquarters* (circle one) - (date) __/__/__ (time) _____ a.m. p.m.

By:_____ (NDOT). _____ (Contractor)

Resolution:

Preconstruction Meeting

Agenda (continued)

- Open Discussion / Closing
  - Turn the recorder off
  - Contractor Questions / Proposals
    - Need to be familiar with the contract documents
    - Not obligated to give an answer immediately
    - Ask for any proposals in writing

Preconstruction Meeting

- How long? Approximately one hour.
  - Encourage contractor communication early
  - Start working issues / questions ASAP
    - Don't wait for the conference to address them

STAFF MANAGEMENT

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Staff Management

Rick Bosch, P.E.
Assistant District Engineer
(775) 434-4810
rbosch@dot.nv.gov

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Staff Management

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Objectives

After this module participants will be able to:

- Understand crew makeup;
- Identify challenges in staff management;
- Understand management tools;
- Apply techniques to motivate staff;
- Improve communication among staff

Staff Management

Construction Crew Make Up

- Resident Engineer (Mgr I, P.E.)
- Assistant Resident Engineer(s) (Sup III)
- Professional Engineer
- Survey Crew Chief(s) (Sup I)
- Office Engineer / Office Staff (ET 3-4)
- Inspectors (ET 1-4)
- Testers (ET 1-4)
- Augmented Staff

Staff Management

Challenges of Managing a Const. Crew

- Staff has varied levels of experience, education, expertise, understanding
- Project complexity
- Work location
- Day / Night / Weekend / Holiday shifts
- Contractor's schedule
- Public / Political environment

Staff Management

Management Tools

- Training
  - Internal / External
  - On-the-job
- Contractor's schedule
- Contractor's advance notices
  - Survey request / pour schedule
- Communication
- Lead by example

Staff Management

Crew Motivation
- Leadership by example
- Red head competitions
- Breakfast / Lunch meetings
- Challenging work assignments

Expectations
- Work Performance Standards
- Project goals & objectives
- Communication

Staff Management

Site Visits
- Project visits (daily, as much as possible)
- Morale support (talk to others)

Staff Assignments
- Cross training / Rotate assignments

Augmented Staff
- Treat individuals equally

Staff Management

Staff Communication
- Pre-activity meetings (pre-pour/pave)
- Regular crew “meetings”
  - Formal or Informal
  - Update on contractor’s operations
  - Problems and issues
  - Project Safety
  - Open door policy
- Dry Erase Board
  - Daily activities and assignments
  - Notices (expected pour times)


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RE DIARY

The RE Diary

Stephen Lani
Assistant Construction Engineer, D2 & D3
(775) 888-7065
slani@dot.nv.gov

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The RE Diary

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Objectives

After this module participants will be able to:

- **Understand the Importance of the RE Diary**
- **Understand Contents of RE Diary**

The RE "Daily" Diary

- Professional
- Unbiased
- Factual
- Timely
  - "**DAILY**"

The RE Daily Diary

Contextually Accurate OR Context Sensitive

- From RE's Perspective
- Conversations / Discussions w/ Contractor
- Issues / Disagreements / Resolutions
- Delays / Schedule Impacts
- Job Site Accidents

The RE Daily Diary

"Flavor Your Writing"

- What you write you WILL have to defend!
- It's never the projects going well that get the attention.
- Publish your words in a public context:
  - Paper
  - 5:00 News
  - Twitter / Facebook
  - Deposition or DRT

The RE Daily Diary

What should **NOT** be in a Diary:

"Once again the contractor struggled with paving operations. Their hot plant shorted out and stopped twice today, it's a piece of junk and should be scrapped. The truckers they have hauling mix are the worst I've ever seen on a paving job. The paver is older than most of my crew and just needs to be replaced. This contractor sucks at paving!!"

The RE Daily Diary

What could be in a Dairy:

"Contractor continues to have problems with their paving operations, issues at the plant as well as trucking and with paver are contributing to low production days and quality issues."

The RE Daily Diary

What should **NOT** be in a Diary:

"Concrete pour today was a disaster. The superintendent is a hard headed, jackass and refused to stop the pour. They should have never started it, iron workers can't pull their heads out to install the steel correctly, batch plant operator is a real jerk and hasn't batched a load right yet."

The RE Daily Diary

What could be in a Diary:

"As a result of multiple issues with today's concrete pour, letter was written to the contractor, requesting a corrective action plan and another pre-pour meeting before any concrete operations continue. Discussions with superintendent were heated, and he continued at this own risk. No payment will be made on concrete today pending resolution."

The RE Daily Diary

Why is the RE Diary Important?

- Working Days Assessed based on RE Diary "Site Times"
- Incorporates Inspector Daily Reports
- Provides Administrative perspective of contract
- Fair, Accurate, Timely accounting of job's progress
- Can be used to support your decisions
- Can refresh your memory months/years later
  - Contract Closeout, Quantity Disputes, Accidents, Perspective
- Can and WILL be used in a court of law
- It's a requirement of your job

The RE Daily Diary

Important Elements in the Diary:

- Conversations with the Contractor
  - Agreements / Disagreements with the contractor
  - Work schedule
  - Work methods
  - Materials or Payment
- Orders & Directives
- References to Significant Letters / Meetings / Reports
- Do NOT type and Attach Separate Documents!!

The RE Daily Diary

Important Elements in the Diary (cont.):

- Reasons for disagreements or rejected material
- Delays / Difficulties
- Utility conflicts/delays
- Major Factors impacting contractor's work / schedule
- Suspensions or Resumptions of work
- Accidents @ Job site
- Significant visits: FHWA, OSHA, NDOT, NDEP, Utilities, Local Officials, Property Owners

The RE Daily Diary

- Professional
- Unbiased
- Factual
- Timely
  - **"DAILY"**

ADMIN SERVICES

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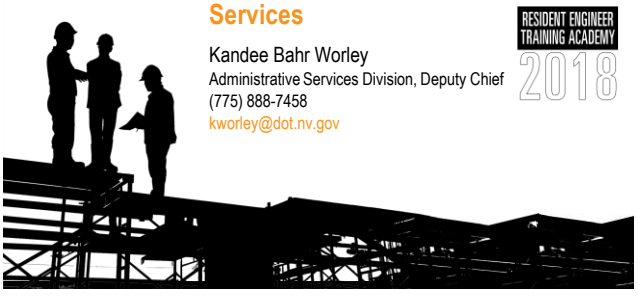

Administrative Services

Kandee Bahr Worley
Administrative Services Division, Deputy Chief
(775) 888-7458
kworley@dot.nv.gov

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Admin Services Division

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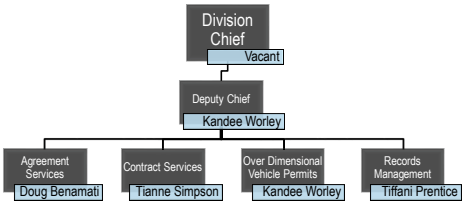


Section Overview

- ***Agreement Services*** - oversees our service procurements. Vendors are selected based on qualifications.
- ***Contract Services*** - oversees our low-bid highway construction procurements.
- ***Over Dimensional Vehicle Permits*** - issues permits to truckers for loads moving on or through Nevada roads. They interact with the trucking association, and Highway Patrol.
- ***Records Management*** - NDOT has its own Records repository, unlike other state agencies who must work through the Nevada State Library and Archives to keep their records. In addition, Reprographics and the Mailroom report through to Records.

Agreement Services

Doug Benamati
Agreements Manager
(775) 888-7070 x2260
dbenamati@dot.nv.gov

Agreement Services

Qualifications based procurements for services (not low bid)

- Request for Proposals (includes prequalification/MQ)
- PE Requirement (Cost cannot be a factor)
- We do not request or require NDOT experience
- Top Ranked proposal is selected
- Sole Source – specialized/when only one firm can do the work

Procured via an NDOT Project Manager

- Typically Construction Division for NDOT Construction Contracts
  - Crew Augmentation
  - Full Administration
  - On-Call (aka IDIQ - Indefinite Delivery/Indefinite Quantity)

EPATS – Electronic Procurement & Tracking

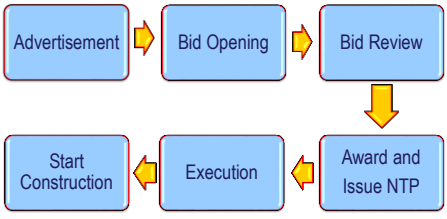
Contract Services

Tianne Simpson
Contract Services Manager
(775) 888-7070 x2021
tsimpson@dot.nv.gov

Contract Services

- Low Bid Procurements which are $250,000 or greater (some federal aid construction less than $250,000)
  - 53% Roadway Construction
  - 0% Vertical Construction
  - 47% Other Specialty Construction (Emergency 43%)

Contract Services



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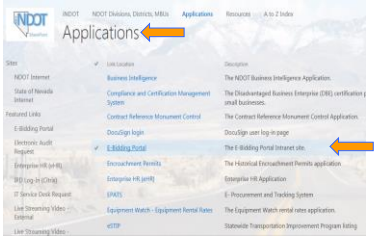
Contract Services



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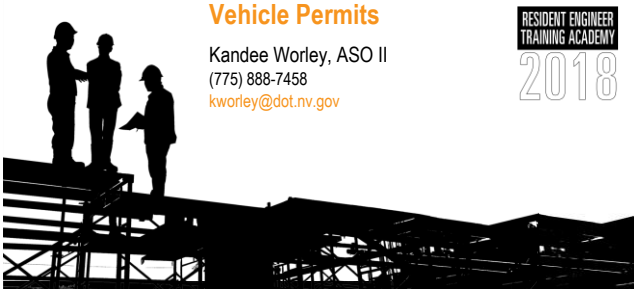

Over-Dimensional Vehicle Permits

Kandee Worley, ASO II
(775) 888-7458
kworley@dot.nv.gov

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Over Dimensional Permits

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Did You Know?

- 29,113 permits were issued in 2017
  - 3,762 of the permits were annual permits issued up to 12' wide
  - 1,510 of the permits were annual permits issued up to 14' wide

Annual permit holders are allowed to travel on the majority of the Nevada roads with out routing assistance, calling the office, or getting permission from NDOT.

The annual permits are valid for the entire year, and can be used for movement 365 days a year, unless the limits do not allow for night, weekend or holiday travel.

Highway Restriction Reports

Help us…help you.

- Trip permits are issued up to five days in advance and are valid for five consecutive days.

Notice, Notice, Notice

- One Week Advance Notice
- All areas of the form filled out
- Let us know any changes to the restriction report:
  - Completed/Extended

Contract/Permit #	
Contractor Name	
Contractor Contact & Phone #	
NDOT contact & Phone #	
COMMENTS:	

What We Need From You

- Highway Restriction Report, one week prior to closures or reductions would help mishaps between the NDOT departments.
- Remember that there are several hundred annual permits issued for up to 14 feet wide.

Records Management

Tiffani Prentice
Program Officer II
(775) 888-7978
tprentice@dot.nv.gov

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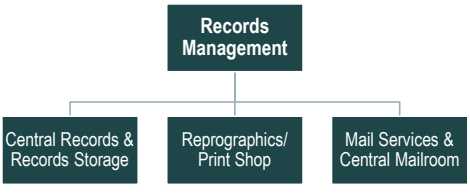
Records Management Section



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Role of Records Management

- Custodian of NDOT's Official Records
  - Maintain permanent records and long-term storage
  - Process records requests and subpoenas for documents
- Manage NDOT Records Management Program
  - Program oversight and compliance
    - State laws and regulations (NV Public Records Act, NRS/NAC 239)
    - Internal policies and procedures
  - Support for Division Records Coordinators
    - Records Assessments and staff training

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Records Retention & Disposition Schedule

***NRS 239.080**: "An official state record may be disposed of **only** in accordance with a schedule for retention and disposition…"*

- Purpose: to ensure timely destruction of our public records
  - No records shall be destroyed before retention period is reached
  - No records shall be retained beyond their retention period
- Official records = Reports, maps, photographs, financial statements, databases, and other materials created in the course of official state business (NAC 239.705(1))
  - Refer to the Records Retention & Disposition Schedule before discarding
- **What is not a record?** Copies, draft documents, working documents, informal notes, transitory files, routing slips or emails that contain nothing pertinent, reference materials not relating to a specific project, and any other material that does not serve as evidence of official state business (NAC 239.705(2))
  - **When no longer useful, get rid of it!**

Public Records Requests & Subpoenas

- *Send to Records Management!*
  - https://www.nevadadot.com/doing-business/contact-us/public-records-request
  - Recordsmgmtrequests@dot.nv.gov
  - (775) 888-7437
- NDOT's single point of contact for public records requests
  - Designated Custodian of Records for the Department (NRS/NAC 239)
    - Properly log and close out all requests (NRS/NAC 239)
    - Coordinate with Legal and Information Services

Division Records Coordinators

- Appointed by Division Head to serve as local records liaison
- Coordinate & oversee local records management practices:
  - Ensure compliance with NDOT records retention schedule, policies and procedures
    - **Coordinate and communicate with Records Management** – retention needs, assessments, and staff training
    - Keep management informed of RM policies, and any compliance issues
  - Assist with records retrieval for public requests and subpoenas
  - Represent division/section on the Records Management Advisory Committee (RMAC)

Records Management SharePoint

070 - Records Management
https://nevadadot.sharepoint.com/sites/070/SitePages/Records%20Management.aspx

NDOT Records Retention and Disposition Schedule

- Contact information for public records requests
- Records Management procedures, guidelines and forms:
  - Records retention
  - Records destruction
  - Requests for records
  - Transfers to Central Records

NDOT Records Management Procedures Overview

➢ RECORDS REQUESTS

Staff Records Requests

- NDOT staff should fill out the Staff Records Request Form and send it to: "Records Mgmt & Requests" RecordsMgmtRequests@dot.state.nv.us (email in the outlook global address list)

Public Records Requests

- **Customers requesting public records must be directed to Records Management.** Advise customers to:

  Please submit a request for public records on NDOT's Public Records Requests webpage: www.nevadadot.com/Contact_Us/Public_Records_Requests.aspx.

  Or submit your written request to:

  NDOT Records Management
  Email: PublicRecordsRequests@dot.state.nv.us
  Mail: 1263 S. Stewart Street, Carson City, NV 89712
  Phone: 775-888-7437
  Fax: 775-888-7131

For more information see: Public Records Request Guidelines

➢ RECORDS RETENTION & DISPOSITION

Retention Guidelines

- NDOT's Records Retention and Disposition Schedule identifies the minimum time period specific records must be retained in accordance with NRS 239, meaning records must not be destroyed before their retention time period expires. When the minimum retention period has been met, the disposition of the records, such as destruction or transfer to Central Records, may be initiated. All staff are responsible for implementing regular, routine disposition procedures in accordance with the NDOT Retention Schedule.

- Note that certain events called "disposition holds" may occur that will require a stop to the regular destruction or recycling of records. Check the current Legal Holds List for any records currently affected by litigation holds. All destruction of records pertaining to litigation, investigations or audits must be stopped until the action is resolved.

Destroying Records

- First, ensure record destruction is the appropriate disposition for the records per the NDOT Retention Schedule.

- Before destroying the official record copy of any state record, complete the Record Destruction Form and submit it to Records Management for approval. **This form must be submitted to and approved by Records Management prior to records destruction.**

  NOTE: This does not apply to non-records – courtesy copies, draft documents, working documents and transitory files, which may be destroyed/deleted when no longer useful.

Transferring Records to NDOT Central Records

- The Central Records Transmittal Form was created to help ensure all Department records that are transferred to Central Records upon disposition are correctly filed and readily retrievable.
  NOTE: Documents submitted electronically must be in PDF or PDF/A file format.

  - Email the completed transmittal form with your electronic records to: RecordsMgmtSubmittal@dot.state.nv.us.

  - A shared folder has been created to accommodate files too large to submit via email. The "Division Records to be Filed" folder is located on \\DATSRV1\075DocMgmt\ -- see instructions on Records Management SharePoint page.

QUESTIONS?

Contact Records Management at **x7437** or
RecordsMgmtRequests@dot.state.nv.us

SharePoint: http://shptsrv1/070/records/default.aspx

EXTERNAL CIVIL RIGHTS

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External Civil Rights

- ADA
- DBE/Title VI
- Contract Compliance

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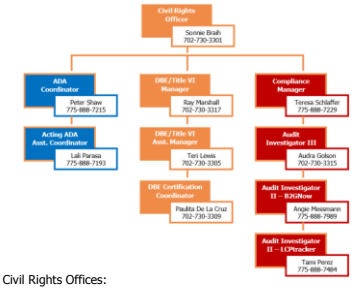

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External Civil Rights Offices:

- NDOT HQ, 1263 South Stewart Street, Suite 108, Carson City, NV 89712
- RTC Building, 600 South Grand Central Parkway, Las Vegas, NV 89106

NDOT's American with Disabilities Act

Peter R. Shaw
Chief Investigator/ADA Coordinator
(775) 888-7215

Lali Parasa
Acting Assistant ADA Coordinator
(775) 888-7193

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According to the 2010 Census, what percent of the U.S. population over the age of 15 has a disability?

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21 percent (or approximately 52 million) of the U.S. population over the age of 15 has a disability (2010 Census)

7.5 million Americans have hearing disabilities (2010 Census)

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How many Americans would you guess have vision disabilities?

- 8 million Americans have vision disability (2010 Census)
- Visual disability can range from total blindness to low vision.
- The National Council on Disabilities estimates that 70 percent of our country's population will eventually have a temporary or permanent disability that makes climbing stairs impossible.

Regulations

- Section 504 of the Rehabilitation Act (1973)
  - Requires any government agency to ensure equal access to any program, service or activity receiving federal funding including employment to individuals with disabilities
- Americans with Disabilities Act (1990)
  - Ensures equal rights and opportunities for people with disabilities as able-bodied people. It is comprised of five titles:
    - Title I (Employment)
    - Title II (State and Local Government)
    - Title III (Public Accommodations)
    - Title IV (Telecommunications)
    - Title V (Miscellaneous Provisions)

New Construction 28 CFR 35.151

- New construction (and altered facilities) must be designed and constructed to be accessible to and usable by persons with disabilities.

Alterations – 28 CFR 35.151

- DOJ and court decisions consider roadway resurfacing an alteration (1993)
- Roadway resurfacing triggers requirement for curb ramp installations/retrofits (to current standards)

Joint Technical Assistance

Distinguishes alterations from maintenance based on the type of road treatment

- **Maintenance**

Chip Seals	Fog Seals	Scrub Sealing
Crack Filling and Sealing	Joint Crack Seals	Slurry Seals
Diamond Grinding	Joint repairs	Spot High-Friction Treatments
Dowel Bar Retrofit	Pavement Patching	Surface Sealing

- **Alteration**

Addition of New Layer of Asphalt	Mill & Fill / Mill & Overlay
Cape Seals	New Construction
Hot In-Place Recycling	Open-graded Surface Course
Microsurfacing / Thin-Lift Overlay	Rehabilitation and Reconstruction

Resources

- Draft Public Rights-of-Way Accessibility Guidelines (ROWAG)
- 2009 Manual on Uniform Traffic Control Devices (MUTCD)
- Standard Specifications for Road and Bridge Construction (Silver Book)
- 2017 Standard Plans for Road and Bridge Construction
- https://www.nevadadot.com/doing-business/external-civil-rights/ada-program
  (Many useful links)
- Or when all else fails, call us.

DBE/Title VI Program

Ray Marshall
Title VI/DBE Manager
702-730-3317
wmarshall2@dot.nv.gov

DBE/Title VI Program

- What is DBE?
- What is Title VI?

The DBE/Title VI Office and the RE

- Setting of Project DBE Goals
- Review of Good Faith Effort for DBE Goal Attainment
- Referrals
- Mentor/Protégé Program
  - DBE and Title VI program administered through Contract Compliance during construction phase of a project.

Contract Compliance

Teresa Schlaffer
Contract Compliance Manager
775-888-7229
tschlaffer@dot.nv.gov

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Death by PowerPoint?

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No! Activity Pause…

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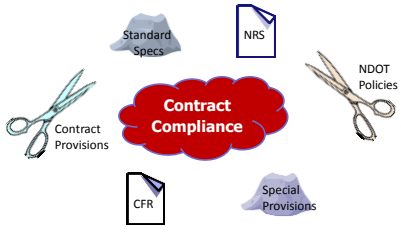

Pre-Construction

1. Sub-Agreement Packets
2. Memorandum of Record
3. Pre-Con Meeting

Sub-Contractors & Service Providers

1. SSPR
2. Prime Self-Performance
3. Sub-Agreements

DBE

1. Commitment to DBEs
2. Overall Commitment
3. Monitoring Attainment
4. Good Faith Effort (GFE)
5. CUF Review

Davis-Bacon, Prevailing Wage & Certified Payroll Reports

1. Timely Submittal – Federal vs. State Monitoring
2. Late Payroll Notification
3. Employee Interviews
   - Classification
   - Paid Weekly
4. Liquidated Damages

OFFICE SETUP TO PROJECT CLOSEOUT

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Office Setup to Project Closeout

Cecilia Whited
Construction Administration Supervisor
(775) 888-7729
cwhited@dot.nv.gov

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Beginning of a Contract

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Resident Engineer will receive:

- Notification that the contract has been loaded in FieldManager™.
- EDOC Contract Files directory template ZIP file
- Asphalt Escalation spreadsheet (when applicable)
- Fuel Escalation spreadsheet

Beginning of a Contract

- Record of Delivery spreadsheets (when applicable)
- Liquid/Emulsified Asphalt Application and Payment spreadsheet (when applicable)
- Materials Sampling and Testing Checklist (Materials Division)
- Acceptance Testing Summary Sheet (ATSS) (Construction Quality Assurance Section)

Beginning of a Contract

Other information required for contract startup includes:

- Agreement Estimate Breakout (AEB) report (E-Bidding Portal)
- Estimate of Quantities report (E-Bidding Portal)

Each of the above items are explained in detail in the appropriate chapter of the Documentation Manual.

FieldManager

- Enter the following information in FieldManager at the start of a contract.
  - Construction Started Date
  - Time Charges Start Date
  - Users (Mobile Inspector users)
- Refer to Chapter 3, Working with Contracts, in the FieldManager User Guide for details.

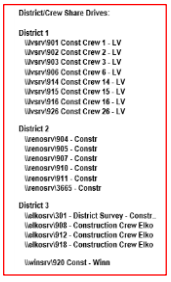
Electronic Organization of Contract Documentation

Establish electronic file folders for all Contract Administrative documents on the District server

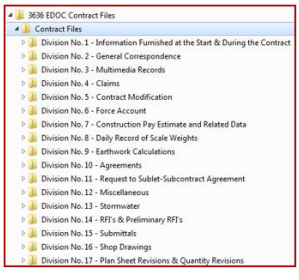
- Contract Files
- Materials and Testing Files

* Separate file structure for each contract

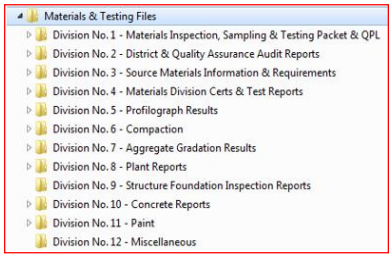
District/Crew Share Drives



Contract File Set Up

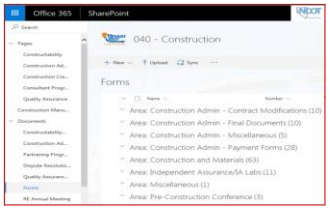


Material and Testing File Structure



Forms on Sharepoint

- All 040 forms are found on SharePoint under Construction Division



Contractor Payment

- Bi-weekly Contractor Payments based on the:
  - ***Inspector Daily Report (IDR) – posted quantities during billing period***
  - Resident Engineer's Daily Diary – assess days
  - Approved Materials Certifications – can't pay on unapproved items
- Cut-off date for contractor payments is every other Friday

Please, please, please submit payments on time!!

Pay Estimate Calendar

February 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Field office creates & generates	2	3
4	5 Bi-Weekly Nightly Run (7:00am)	6	7	8	9 Crews cut-off	10
11	12	13	14	15 Field office creates & generates	16	17
18	19 Bi-Weekly Nightly Run (7:00am)	20	21	22	23 Crews cut-off	24
25	26	27	28	1 Field office creates & generates	2	

Agreement Estimate Breakout (AEB)

Breakout = Category

- The Agreement Estimate Breakout:
  - Identifies various funding sources, associated description and location.
  - Is required by FHWA as a way to track our Assets
  - Allows NDOT to bill FHWA and third parties (local entities, utilities, etc.) accurately

CONSTRUCTION TYPE CODE: Y102 FENCING
BREAKOUT DESCRIPTION: INSTALL TORTOISE FENCING AND PLANT SALVAGING

BREAKOUT NO: 01 C2C 1490 CONTR COUNTY: CLARK
FROM STATION: 'WF' 27+00 TO STATION: 'F' 209+00
GASB34: NEW

UNIT OF WORK	QUANTITY	UNIT MEAS	DESCRIPTION	* UNIT PRICE	ITEM COST
2010100	1.000	LS	CLEARING AND GRUBBING	80,000.00	80,000.00
2020585	5260.000	LINFT	REMOVAL OF FENCE	1.65	8,712.00

Important to make payments against correct category!!

Force Account

- A method to track and pay for unforeseen labor, equipment and/or materials.
- Specification 109.03 – Force Account Work
- Use when unable to come to an agreed price.
- Tracked on a daily basis.
- Force account sheet is filled out by inspector and signed by the contractor acknowledging the force account sheet is accurate.
- This is the source document for payment.
- Included as a posting in Office Person's IDR.

Liquidated Damages

Justifiable damage to the Department or general public.

- TIME: Failure to Complete the Work on Time.
  - Contract Modification Type 35
  - Item: 9991000 – Liquidated Damage (Time)
- ENVIRONMENTAL: Temporary Pollution Control & Dust Control.
  - Contract Modification Type 31
  - Item: 9992000 – Liquidated Damage (Environmental)
- MATERIAL: Failing Material
  - Contract Modification Type 34
  - Item: 9999000 – Liquidated Damage (Environmental)

Included as a posting in Office Person's IDR.

Incentive / Disincentive

- Percent within Limits (PWL) – adjust the progress payment based on testing results of dense-grade plantmix bituminous surfaces.
  - Item 7360030 – PWL Incentive / Disincentive
  - Contract Modification Type 25 (If adjustment is needed)
- Used on Contracts with 25,000 tons or greater.
- Payment is in addition to material placed.
- Included as a posting in Office Person's IDR.

Incentive / Disincentive

- Ride Pay Adjustment – adjust the progress payment based on ride quality.
  - Specification 403.05.02 (Pull Sheet) Ride Pay Adjustment (Hotmix Asphalt); or
  - Specification 409.05.02 (Pull Sheet) Ride Pay Adjustment (Concrete)
  - Item 7360033 – Ride Incentive / Disincentive
- Only for Interstate contracts.
- Payment is in addition to Material placed.
- Included as a posting in Office Person's IDR.

Incentive

- Early Completion Incentive – based upon completion of all pay items, prior to the number of working days.
  - $ per eligible working day up to a total maximum amount can be earned. Based on final number of working days assessed to the contract.
    - Item 7360043 – Incentive Payment
- Contract Special Provisions 108.02
- Included as a posting in Office Person's IDR.

Penalties

- Labor Compliance – a penalty may be determined if contractor isn't meeting requirements in NRS 338.010 to 338.090.
  - Late Payroll
  - Prevailing Wage
  - Contract Modification Type 33
  - Item: 9992500 Penalty (Labor Compliance)
- Included as a posting in Office Person's IDR.

Partial Payments

- Specification 109.06 – Partial Payment
  - Fence
  - Guardrail and Bridge Rail
  - Signal Systems and/or Highway Lighting Systems
  - Cattle Guards
  - Trenching for Irrigation Systems
- Refer to specification for outlined procedures for each item
- Inspectors need to be aware of specification to ensure proper posting is made in their IDR

Stockpile Payments

- Manufactured materials which have been purchased by the contractor and stockpiled for use on contract.
  - Specification 109.06 Partial Payment - outlines allowable percentages of various materials for stockpile payment
  - Contractor completes Request for Payment for Materials on Hand form.
  - Payment for stockpile materials can not be made without all the supporting documentation
    - Request for Payment for Materials on Hand form (040-015)
    - Invoice
    - Material Certification/Test Reports

Percentage Items

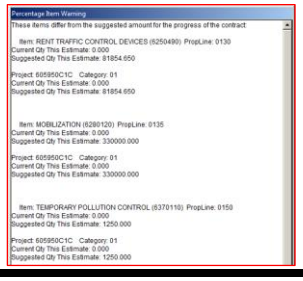
- Percentage Items is based on the percent of work paid to date
  - Rent Traffic Control Devices – Specification 109.06
  - Construction Signs - Specification 109.06
  - Dust Control – Specification 637.05.01
  - Temporary Pollution Control – Specification 637.05.01
- FieldManager provides suggested amount based on percent of work complete.
  - RE makes determination of percentage to be paid
- Included as a posting in Office Person's IDR.

Mobilization

- Partial Payment is based on the amount of work completed.
  - When 5% of original contract amount is earned, 50% of item will be paid, or 5% of original contract amount (whichever is less)
  - When 10% of original contract amount is earned, 100% of item will be paid, or 10% of original contract amount (whichever is less)
  - Upon completion of all work, payment of item in excess of 10% original contract amount.
  - Included as a posting in Office Person's IDR.

FieldManager will provide calculated payment amount based on amount earned

FieldManager Suggested Amount Paid For Percentage Items



Partnering

To maintain cooperative communication and mutually resolve conflicts at the lowest responsible management level.

- Specification 105.05 - Partnering
  - Item: 7360020 Partnering
- Required on all contracts greater than $10M
- Contractor shall pay all initial costs incurred
- Department will reimburse the Contractor all of the costs as evidenced by copies of invoices from the:
  - Facilitator
  - Trainer
  - Workshop Site
- Markup or profit will NOT be allowed.

Fuel Escalation

Price adjustment to minimize impact of fluctuations in fuel prices

- Specification 109.05 Fuel Escalation – outlines calculation
  - Item 7360016 – Fuel Escalation
- Fuel Factor Percentage in Contract Special Provisions
- Included on contracts where Fuel Factor Percentage > 1%
- Enacted by request of contractor
- Included as a posting in Office Person's IDR.

Asphalt Escalation

Adjustment to minimize impact of price uncertainty to the Contractor and the Department for "Asphalt Cement" used in the construction contracts

- Specification 109.04 Asphalt Escalation – outlines calculation
  - Item 7360013 – Asphalt Escalation
- Used when planned quantity is >7,500 tons
- Included as a posting in Office Person's IDR.

Time Related Overhead (TRO)

Includes field and home office overhead for time required to complete work.

- Specification 629 – Time Related Overhead
  - Item 6290100 – Time Related Overhead
- Determined on a project by project basis
- One day shall be applied to each working day assessed on bi-weekly payment.
- TRO will not be measured for payment during suspensions of work
- TRO will be paid to 100% on your Semi-Final Estimate
- Included as a posting in Office Person's IDR.

Retainage

- Specification 109.06 - Partial Payment
- Once 85% of adjusted contract amount has been paid Department withholds 5% of contract amount or $50,000, whichever is greater
- Upon final acceptance, retainage plus interest is release to the Contractor
- Released by HQ Construction Admin Section during final payment

Item Overage

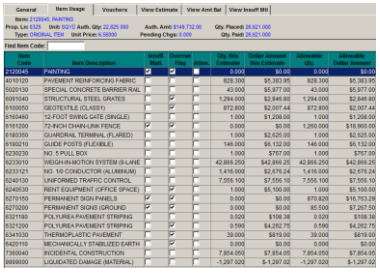
- Any ***major item ($50,000 or greater)*** can be overran up to $100,000 or 100%.

Contract Modification Type 27 is required to be executed before payment can be made for any quantity exceeding this threshold.

Reviewing Contractors Payments

- Review ***Item Usage*** tab:
  - **Insufficient Material** - This means that the item has material usage recorded that puts it over its approved material quantity.
  - **Overrun Flag** - This will be checked, if the quantity placed is greater than the authorized quantity.
  - **Attention** - The item has been marked in the inspectors IDR for the Resident Engineer attention.
- Review the Construction Pay Estimate Report
- Review the Construction Pay Estimate Amount Balance Report

Item Usage



Contract Closeout

Why is contract closeout important?

- Federal requirement **23 CFR 635.123** requires NDOT to follow our documentation procedures
- Release of retention and limits contractor's ability for claims/lawsuits
- Contractor bonds can't be released until project is closed out.
- Report on Construction Division's Performance Measures
- Best to work through closeout while information is fresh in mind and employees who performed work are still available.

Want Closeout to go Smoothly?

- Start Closeout when Contract is awarded:
  - Proper contract setup
  - Materials Sampling and Testing Checklist
    - Material Division samples and testing
    - Field samples and testing
    - Certificates of Compliance - submit to Material Division when received
- Request a mid-point audit from HQ Construction Admin Section

Want Closeout to go Smoothly? (Cont.)

- Review pay estimates with Contractors bi-weekly
  - Business Intelligence (BI) Report – Item Posting Tracking
- Create As-Builts as contract progresses
- Completes the FieldManager Semi-Final process
  - (FieldManager User Guide Chapter 13)
- Work with HQ Construction Admin Section on job pickup

Closeout Steps

- Items that MUST be completed before final payment:
  - Contract Compliance Clearance
  - Materials Clearance
  - Acceptance Test Summary Sheet (ATSS)
  - As-Builts
  - Closeout Contract Modification
  - Contractor Past Performance Report (CPPR)
  - District Acceptance
  - Director Acceptance
  - Pit Release, if needed
  - Material Deposit Usage Report, if needed
  - Guardrail Inventory, if needed
  - Pit/Property Owner Release, if needed

Contract Compliance Clearance

- Required to ensure meeting Federal Equal Employment Opportunity (EEO) requirements and NRS 338.010 to 338.090
- Contractor submits final payrolls to RE for all work performed on contract, including subcontractors
- RE submits Final Payroll letter to Contract Compliance
- Contract Compliance provides final EEO Clearance Memo

Materials Clearance

Lab Clearance:

- All certifications and samples approved by Materials Division *(ongoing during construction)*
- Any failing or omitted samples must be explained in a memo to the Materials Division
- Material Deposit Usage Report – required for all materials sources (Commercial and NDOT).
- Materials Division generates Lab Clearance Report

As-Built Plans

- Critical for reference during design on future projects
- Should include:
  - Any physical changes that occur during construction
  - Stationing changes
  - Supplemental Notice revisions
  - Any work added or deleted to the plans
- Changes must be made in blue ink.
- If no field changes were made, label "AS-BUILT PLANS: NO FIELD CHANGES WERE MADE" on Coversheet – *does this ever happen??*

As-Built Plans (Cont.)

- Do not put copies of the Contract Modification in the As-builts, make the changes to the plans themselves
- Complete two sets of As-builts:
  - One set is given to District
  - One set is submitted with Contract Closeout Package
- As-built will be collected during contract pickup by HQ Construction Admin Section

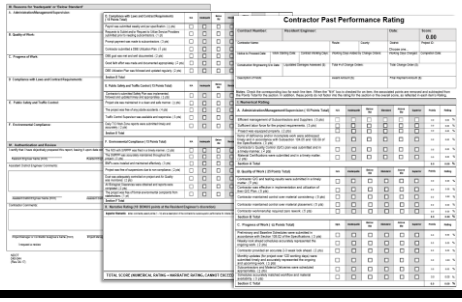
Closeout Contract Modification

- Closeout Contract Modification Type 26. It is completed in the FieldManager software.
  - Same criteria as defined in the Construction Manual is required
    - Contract Bid Item/Contract Modification Item: Changes resulting in an overrun/underrun of $50,000 or greater will require an explanation entered in the item Reason field.
  - Keep it in DRAFT, Construction Admin Section will review and approve.

Contractor Past Performance Report (CPPR)

- Is generated to rate the prime contractor in 6 categories:
  - Administration/Management/Supervision
  - Quality of Work
  - Progress of Work
  - Compliance with Laws and Contract Requirements
  - Public Safety and Traffic Control
  - Environmental Compliance
- Signed by the RE, Asst. District Engineer and Contractor

Contractor Past Performance Report (CPPR)



Contractor Past Performance Rating

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Other Documents

- Acceptance Test Summary Sheet - Refer to the ATSS Processing Memo dated March 15, 2016
- Guardrail Inventory Sheet – RE completes and send to Safety Division (if needed)
- Contractor Survey Data – include Survey Data with closeout package, if performed by contractor
- Test Field Books
- Pit/Property Owner Release – if material is obtained from private source owner must write letter stating condition is satisfactory upon completion

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District & Director Acceptance

- District Acceptance:
  - RE and District Engineer perform final field review
  - Upon approval, District Engineer completes District Acceptance Letter to Contractor and HQ Construction Admin Section
- Director Acceptance:
  - HQ Construction Admin Section processes Director Acceptance Memo
  - Notice to Creditors is published by HQ Contract Services
  - HQ Contract Services issues Final Pay Notice.

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CONTRACTOR'S SCHEDULE

100057585_201710_AD

Contractor's Schedule

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Stephen Lani, PE
Assistant Construction Engineer – D2 & D3

Scheduling

Why should an RE care about a schedule?

- Required by NDOT Specifications (108.03).
- Identifies the overall approach by the contractor.
- Monitors the contractor's progress.
- Justifies the use or denial of additional time through a Time Impact Analysis (TIA).

Scheduling

1) Required by NDOT Specifications (108.03)
   - Pull Sheet included in the Special Provisions of all current contracts.
   - Level of schedule detail is up to the contractor.
   - Updates are required monthly on schedules of 120 working days or greater.
   - Every contract is required to provide an Oracle Compatible form of a schedule.

Scheduling

2) Identifies the overall approach by the contractor.
   - Shows the contractor's plan for construction.
   - Allows the RE to verify durations for reasonableness.
   - Shows the contractor is following limitations of operations.
   - Allows the RE to plan resources.

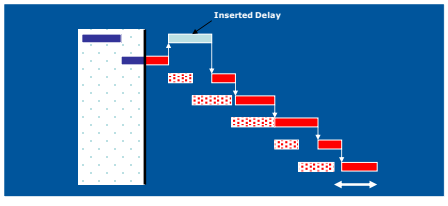
Scheduling

3) Monitors the contractor's progress.
   - Baselines are the beginning metric to reference progress.
   - Changes in construction are able to be tracked:
     - Ahead of, Behind, or On Time.
   - Monitoring done at the RE level, or the Construction Division is able to assist.

Scheduling

4) Justifying the use or denial of additional time through the use of a Time Impact Analysis.
   - Provide Notice of Potential Time Impact if impact interferes with a milestone date or contract time within 24 hours of identifying such impact.
   - Time extensions only considered for events beyond the contractor's control and impacting a milestone date or completion time.
   - Provide a description of the impact and the status of the project prior to impact taking effect.

Scheduling



Updated Schedule showing a delay on the critical path which impacts the rest of the schedule. The Time Impact Analysis (TIA) is to be submitted within 24 hours of discovering the delay. It is then up to the RE to determine the authenticity.

Scheduling

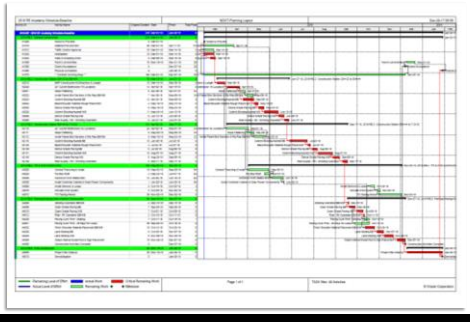
Schedule Exercise – Baseline with Late Update

- **Schedule Facts**
  - Baseline schedule has been accepted by the Resident Engineer.
  - Calendar is an accepted 5- day work week, 8 hours per day with State and Federal Holidays.
  - Work is not subject to a winter shutdown.
  - Indicates substantial completion in one season.
  - Contract working days are 200 which requires monthly updates.
    - **Monthly updates are required with 120 working days or greater.**
  - Critical path is calculated as Total Float = 0.

Scheduling

Accepted Baseline Schedule:

- Aggressive
- 1 Season



Scheduling

August Update: (Late)

- What has changed?

Scheduling

Update Observations…

- Working Days haven't changed, how is this possible?
- Substantial Completion Date nearly a month later?
- Activity A2131 still shows the same 15 day duration although it clearly extends past original date.
- Paving & painting activities are now pushed into a risky October/November/December time frame; likely to be pushed into a second season.
- An event occurred on the schedule although not clearly identified or explained.
  - Daily Diaries indicates a significant storm event (exceeding BMP Design) during Activity A2131.
  - Temporary and permanent construction is damaged.
  - BMP's were not adequately protected.
- What is the next step?
- Where does responsibility fall regarding BMP repair and replacement?

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CONTRACTOR COMMUNICATION

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Contractor Communication

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Contractor Communication

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Objectives

After this module participants will be able to:

- Identify types of communication
- Understand the basic assumptions of contractor communication
- Understand the RE role
- Conduct effective meetings

Contractor Communication

Types of Communication:

Verbal
- Explicit – verbal instructions
- Implied – body gestures

Written
- Official documentation
- Email correspondence - sometimes intent can be misread
- Important communication should be documented

Contractor Communication

RE Role in communication
- Facilitator
- Help contractor understand expectations
- Know what the contractor doesn't know
- Help the contractor do a good job
- Provide accurate answers
- Know when to seek assistance

Contractor Communication

Facilitate how?
- Communicate as often as possible
- Say what you mean, mean what you say
- Be true to your word
- Watch for the warning signs
  - Contractor not returning phone calls
  - Communicates through voicemails and/or emails

Contractor Communication

Facilitate how?

- Conduct regular, weekly meetings as necessary
- Conduct pre-activity meetings as necessary or required
- Encourage staff to attend weekly contractor safety meetings
- Be proactive with the contractor, don't wait for the contractor to come to you

Contractor Communication

Verbal Communications:

- Retention
  - Difficult to recall conversations
- Document the conversations
  - Diaries and construction reports
  - Meeting agendas, attendance rosters and notes
  - Follow up conversations with an email
  - Instruct staff to document their conversations as well

Contractor Communication

Written communications:

Informal

- Internal NDOT memos
- Email (internal and external)
- Submittal responses
- RFI responses

Formal

- Directives
- Change Orders

Contractor Communication

Email

Pros

- Easy to use
- Allows mass communication
- Fast
- Effective to document conversations

Cons

- Not a substitute for face-to-face or verbal communication
- Allows mass communication
- No control once sent
- Can be easily misinterpreted
- Not time sensitive / urgent matters
- Disposable

Contractor Communication

Remember your audience in all communication.

- "Will FHWA understand what I am telling the contractor to do?"
- "… or why this is necessary?"
- "Will my response escalate the issue?"
  - If unsure, have someone review a draft before you send it
- Construction Office can help too
- "What will the lawyers think?"

Contractor Communication

Angry? Frustrated with the Contractor?

- Will be readily apparent
- Take your emotions out of it
- Don't take it personally, remember contractor is in business for money
- Count to 10 first or higher if needed
- Sleep on it, don't react right away

Contractor Communication

Rejecting a contractor's proposal / submittal?

- Tell them why
- Let them know when you expect resubmittal
- Provide guidance on what may be needed

Refer to the Contract Documents

- That's why we have them

Contractor Communication

Distribution of documents is important to:

- Provide the history of the project
- Keep everyone informed
- Put the contractor on notice
- Outline your expectations

Always remember your audience

Contractor Communication

Effective Meetings

- Quality, not quantity
  - Don't have a meeting just to say you had a meeting
  - Even if it is required by the Contract
  - Keep the meeting on time
- Structure
  - Have an agenda
  - Helps keep everyone focused

Contractor Communication

Effective Meetings (cont.)

- Take Ownership
- You're in charge
- Keep everyone pointed in the same direction
- Stick to the project issues
- Action Items
  - Assigned to proper staff with timelines
- Follow through
  - Provide timely meeting minutes
  - Provide updates to progress from action items

Contractor Communication

Effective Meetings (cont.)

Suggested agenda topics

- Introductions (as needed)
- Old/new business
- Schedule (two week look ahead)
- Traffic Control / Safety
- Submittal status
- RFI status
- Change Order status
- Partnering
- Open discussion
- Next meeting

CHANGES TO THE CONTRACT

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Contract Modifications

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Chief Construction Engineer
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Objectives

After the module participants will be able to:

- Understand the importance of a contract adjustment
- Identify different contract adjustment methods
- Prepare an LOA, “prior” approval and contract modification

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Contract Adjustment Types

- Contract Modifications
- "Prior" Contract Modifications
- Over-run Bid Items & Closeout Contract Modifications
- Letters of Authorization (LOA)
- Supplemental Agreements

Contract Adjustments

- When you write incomplete or inadequate contract modifications, they get returned for correction and everyone gets frustrated, especially you.

Contract Adjustment Types

- **Contract Modifications**
- "Prior" Contract Modifications
- Over-run Bid Items & Closeout Contract Modifications
- Letters of Authorization (LOA)
- Supplemental Agreements

Contract Modifications

Per section 104.02 of the standard specifications NDOT has the right to modify the contract.

- A contract modification as defined by the specifications is "A written order to the contractor, covering changes in the plans, specifications or quantities, within the scope of the contract, and establishing the basis of payment and time adjustments for the work affected by the changes."

Contract Modifications

Guidelines in the Construction Manual (Page 2-43) outlining conditions that require a contract modification:

- Revision of geometric design or structural section
- Revisions involving major structures
- Any change in planned access provisions
- Any change altering the scope of the contract (including deletion or addition of contract pay items)

Contract Modifications

Guidelines in the Construction Manual (Page 2-43) outlining conditions that require a contract modification:

- Any change to type or quality of materials
- Changes in specifications or specified construction techniques
- Changes resulting in adjustment of bid unit prices or to establish an agreed unit price for non bid pay items

Contract Modifications

Guidelines in the Construction Manual (Page 2-43) outlining conditions that require a contract modification:

- Design changes
- Payment for materials stockpiled out of state
- Acceptance of material or work not conforming to the specifications (not required for demerits)

Contract Modifications

In addition, the following criteria defines when quantities and/or costs dictate a contract modification must be written: (*EDOC LIMITATION/INTERNAL CM)*

- Any major bid item ($50,000 or greater) quantity change in excess of 100% (original bid quantity) AND an overrun exceeding $100,000 requires a Contract Modification

Contract Modifications

- After the Director's Office executes (signs) the contract modification, it becomes part of the construction contract between the contractor and NDOT
- A contract modification is a formal agreement describing the conditions of work, time allotted to complete the work and how it is paid for
- Contract Modifications are legally binding documents and must be prepared with care

Contract Modifications

The required elements of a contract modification must be clear, concise and unambiguous.

- A contract modification must be prepared so that a person not familiar with the work can readily interpret the scope, terms and conditions of the work
- A vague document requiring a verbal explanation is no better than a verbal agreement
- Write as though your audience is an auditor

Contract Modifications

- NO changes to Contract Plans, Special Provisions, or Standard Specifications without consulting District, Construction and NDOT Designer
- All contract modifications requested from any Divisions must be requested through and endorsed by the Chief Construction Engineer
  - Except if requested by the Contractor, Resident Engineer or District Engineer (See Construction Manual, Page 2-44 for limitations on commitment authority)
    - Notify Construction Office

Contract Modifications

- Work shall not begin until the contract modification is signed (executed) by the Director's Office
  - If approval in writing is not obtained in advance of the start of work the contractor risks receiving no payment for the work

Contract Modifications

Contract Modifications involving R/W are required to have:

- A proper executed agreement from the utility or property owner with the Department
- An indemnification letter from the property owner to the Contractor is required prior to any work or equipment being allowed on that property.

Contract Modifications

- FHWA approval is required on Projects of Division Interest (PODI's)
- Contract Modifications on PODI's require Pre-Authorization approval from FHWA
  - This means you must submit Form FHWA-1365 for signature by FHWA prior to generating any contract modification
  - *Form can be found on Construction Division Sharepoint (Forms – Contract Modifications)*

Contract Modifications

Specification changes on federal aid projects require the following criteria be met (and stated on the cover letter):

- The specifications, as written, are impossible or impractical to comply with
- A product equal in all respects to the one specified can be furnished at a savings to the contract
- A product superior to the one specified can be furnished at no increase in cost

Contract Modifications

Process:

- Contract Modification Requests
  - NDOT Division, Contractor, RE or District may request a contract modification
  - Headquarters requests must be made through and endorsed by the Chief Construction Engineer
- RE drafts contract modification with all supporting documentation and submits the draft to the Construction Office
- The contract modification is reviewed by Construction Administration and the appropriate Assistant Construction Engineer and returned for correction if necessary

Contract Modifications

Process:

- Once the contract modification review is completed, the RE uses the appropriate Docusign Cont Mod template and uploads the entire package (envelope)
- RE enters his/her email and the contractors email and sends the envelope for signature (Construction Admin email is in the template)
- The contract modification is forwarded to the appropriate Divisions by Construction Admin for their review and initials
  - ***The Director's Officer will not sign the contract modification until review is complete***

Writing Contract Modifications

- Refer to Chapter 3 of Documentation Manual for guidance and details on writing contract modifications, Chapter 2 of the Construction Manuals (Pages 2-42 to 2-46) and Chapter 10 of the Field Manager Users Guide

Cover Letter

The cover letter serves as the narrative explaining the contract modification shall include:

- Contract # and Description
- Describe the "What", "Why", "How", "Where" and "Who"
  - "What" is the work to be performed?
  - "Why" is the work needed?
  - "How" is the work to be performed and paid for?
  - "Where" is the work to be performed?
  - "Who" requested the work?
  - ***Be specific***

Cover Letter

In addition to the "What", "Why", "How", "Where" and "Who", the Cover Letter shall also include:

- The contract modification "Type" – errors/omissions, drainage, traffic control, specification change, prior, etc.
  - The time to complete the work and the effect on the project schedule – are additional working days included? If not, state no additional days are granted
- State "WHO" will be funding the change and AEB #

Cover Letter

In addition to the "What", "Why", "How", "Where" and "Who", the Cover Letter shall also include:

- If a "prior" type contract modification was issued, explain any changes to the scope and quantities
- Name the individuals, their titles and Division who participated in the contract modification request and discussion – Do not name people who weren't part of the discussion
- ***The cover letter gives complete details, explains reasoning for extra work and provides justification for the change.***

Contract Modification Signature Sheet

The contract modification form for signature should contain:

- The contractual changes the contract modification is addressing – think plans, specs, days and dollars
  - ***It should not be a narrative on why the contract mod is needed nor a regurgitation of the cover letter***

Contract Modification Signature Sheet

The contract modification form for signature should contain:

- The number of pages attached for the contract modification (Sheet 1 of 5 for example)
- Plan sheets for the changes shall be part of contract modification and attached/referenced via the sheet #'s

Contract Modification Signature Sheet

The contract modification signature form should:

- Clearly define the scope of the change including location and limits
- Include the method of payment and dollar amount
- Identify the specifications by which the additional work is to be completed
- Identify any changes working days –addition or deletion
  - If no changes to working days, state so
  - ***Only contain the contractual changes***

Contract Modification Signature Sheet

The contract modification signature form should always contain the following language:

> "Acceptance of this Contract Modification constitutes an accord of satisfaction, and represents payment in full (both time and money) for all costs, present and future, impact effect, and/or delays arising out of, or incidental to, the work as herein revised."

Estimate Of Costs

Independent Cost Estimates must be included for every contract modification and include:

- Payment items:
  - Contract bid items
  - Agreed unit prices
  - Force Accounts
  - Or a combination of the above
- List and define each pay item separately
- Include AEB numbers

Estimate Of Costs

For Daily Force Account:

- Use when you cannot agree with contractor on the payment method
- Use when you cannot accurately estimate the cost of the work
- Not the same as Analysis of Agreed Price
- Must be able to clearly separate the extra work from other portions of work

Estimate Of Costs

For Daily Force Account:

- If possible, suggest converting FA to an Agreed Price to reduce administrative effort
- The FA methodology defined in the specifications cannot be modified
- The Documentation required for tracking by FA is the Daily Costs of FA (Form No. 040-008

Estimate Of Costs

Follow guidelines in the Standard Specifications, Sections 104.03 Extra Work and 109.06 Force Account

For Agreed Unit Price:

- Use when both parties can agree on reasonable estimated unit prices

For Agreed Lump Sum Payment:

- When unit prices are not applicable to items of work

Cost Justification

For Cost Justification in general:

- Explain how you arrived at your conclusion that the price is reasonable or justified
  - Reference the historical bid price found on IPD
  - Similar scope of work on other contracts
  - Invoices
  - Independent cost analysis

Cost Justification

For Cost Justification in general:

- Because a NDOT Representative said so doesn't establish reasonableness
- Be honest – reviewers often know when you are stretching the truth
- A major reason for not recommending approval for contract mods is lack of ***independent*** analysis to support your costs

Cost Justification

For Cost Justification in general:

- Provide adequate backup to support your calculations (invoices, cost analysis, etc.)
- Third Party Agreements
- Ensure adequate and appropriate funding is available
- Must be in writing from an authorized individual

Contract Adjustment Types

- Contract Modifications
- **"Prior" Contract Modifications**
- Over-run Bid Items & Closeout Contract Modifications
- Letters of Authorization (LOA)
- Supplemental Agreements

Contract Modifications

"Prior" Contract Modifications:

- Need to include specifications, estimated cost, time changes and a cover letter
- Must be followed up with a "closing" contract mod
  - Your prior contract mod should immediately be followed by a draft of your closing contract mod (numbered sequentially immediately after your prior)

Contract Modifications

"Prior" Contract Modifications:

- Prior Approvals are no longer a separate document, they are a contract mod "type"
- Should be used when the actual work can not be fully estimated and should be used sparingly
- Follow the spending and commitment authorities according the Construction Manual (Page 2-44)

Contract Modifications

Prior contract mods must include the following language:

- "This Contract Modification is being processed as a Prior Approval in order to authorize the commencement of work and provide an estimate of quantities (and associated payment) to be performed as outlined above and per the direction of the Resident Engineer. The actual quantities required to complete the work per this Prior Approval shall be finalized and paid for accordingly upon completion of the work. Contract Modification #__will be generated to complete and finalize the quantities and associated payment performed under this Contract Modification/Prior Approval."

Contract Adjustment Types

- Contract Modifications
- "Prior" Contract Modifications
- **Over-run Bid Items & Closeout Contract Modifications**
- Letters of Authorization (LOA)
- Supplemental Agreements

Closeout Contract Modification

Overrun Bid Items (Administrative CM)

- Any major item ($50,000 or greater)
  - with a quantity change in excess of 100% (original bid quantity)
  - overrun exceeding $100,000
- Contract Modification is required to be executed before payment can be made for any quantity exceeding this threshold

Closeout Contract Modification

Final Closeout Contract Modification

- Previous Letter of Explanation is replaced with the final Closeout Contract Mod
- Field Manager requires all items be adjusted to actual quantities
  - Criteria for quantities requiring explanations is defined in the Construction Manual:

    Contract Bid Item and Change Order Item: changes resulting in an increase or decrease of over 10% and $25,000 (must exceed both)

Contract Adjustment Types

- Contract Modifications
- "Prior" Contract Modifications
- Over-run Bid Items & Closeout Contract Modifications
- **Letters of Authorization (LOA)**
- Supplemental Agreements

Letters of Authorization

A Letter of Authorization is a means to compensate the contractor for incidental construction items for which no bid item is included in the plans and specifications. An LOA must contain the following information (See Chapter 2 of Construction Manual, Page 2-46 and Chapter 3 of Documentation Manual):

- Contract and project number
- Letter of authorization number
- Date of approval
- Reason for work
- Description of work
- Cost of work

Letters of Authorization

An Letter of Authorization is a means to compensate the contractor for incidental construction items for which no bid item is included in the plans and specifications. An LOA must contain the following information:

- Cost justification for work
- Cumulative total of incidental funds used on project (dollar amount)
- Cumulative amount of incidental funds used compared to incidental budget (%)
- Signature of Resident Engineer and Contractor

Letters of Authorization

LOA limitations:

- The spending limit per incident is set at $10,000
- The cumulative total of incidental construction items cannot exceed item 736-0050 Incidental Construction
- An LOA cannot grant time extensions
- Doesn't require Director's Approval

Letters of Authorization

LOA's cannot be used when:

- Plans or specifications clearly state that work is incidental to other items of work
- No direct payment for certain work is clearly stated
- Bid items are provided to perform the work
- Guardrail improvements on state-funded minimum overlay projects
- Substantial geometric or structural section revisions
- Significant changes on major structures
- Changes in material specifications on a major item
- Changes involving right-of-way or access control

Letters of Authorization

LOA's cannot be used when:

- Changes that would abolish or nullify a right-of-way agreement
- Changes allowing work outside the contract limits or outside of right-of-way not covered by agreement
- Changes involving an agreement with a government agency
- Changes affecting property drainage or other property owner rights
- Changes to payment method to the contractor (measurement and adjustment of unit prices)
- Changes that involve settlement of a contractor's claim or request for equitable adjustment (REA)

Contract Adjustment Types

- Contract Modifications
- "Prior" Contract Modifications
- Over-run Bid Items & Closeout Contract Modifications
- Letters of Authorization (LOA)
- **Supplemental Agreements**

Supplemental Agreements

See Chapter 2 of Construction Manual, Page 2-41

- A written agreement between the contractor and NDOT for work not included in the current project scope or limits
  - Where a contract modification is for work that NDOT has the right, under the specifications, to order performed;
  - In contrast, a supplemental agreement addresses work that NDOT cannot order the contractor to perform under the original contract

Supplemental Agreements

- Supplemental agreements can be considered an independent or additional contract attached to the original construction contract
- You will rarely encounter these on your contract
- ***Supplemental Agreements must be signed by the Governor***


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CONSTRUCTABILITY

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Constructability

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Construction
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Construction Division

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Construction Administration
- Business process analyst
- Contract administration

Constructability
- Manager – Judy Tortelli
  - Supervisor – Vacant
    - Staff – Jamie Fuller-Dunn, Shawn Hilbert, & Mike West
- Post Construction/Scheduling – Mark Caffaratti

Quality Assurance

Define Constructability

- Constructability (biddability):
  Technique to review the construction process from start to finish during the pre-construction phase
  Identify obstacles, prevent errors, delays and cost over-runs
  - Department Knowledge
  - Discipline Relationships
  - Industry Standards
  - Standards, Statutes, Policy and Procedure
  - Understanding Discipline
  - Contractor Means and Methods

Who We Work With

Department Disciplines
- Roadway Design
- Hydraulics
- Structures
- Specifications
- Environmental
- Traffic Operations
- Signals and Lighting
- Right of Way Utilities
- Safety
- Landscape and Aesthetics
- Maintenance

Management and Field
- Front Office
- Division Chiefs
- District Engineers
- Resident Engineers
- Field Crew Personnel

Non-Departmental
- Consultants
- Stakeholders
- State Agencies
- Local Agencies

What We Do?

- Calculate Liquidated Damages
- Calculate Fuel Factor
- Develop Limitations of Operations
- Determine Completion Date or Develop Working Days
- During plan and specification review provide input to eliminate contradiction, **create clear intent, maintain buildability and biddability**

Liquidated Damages

- Calculating liquidated damages: Assigns a dollar amount to the cost of services provided by the Department or costs incurred by delay to the public
- Failure to complete within the assigned working days: Damage = salary of the crew members + their vehicles
  Per diem may also be applicable. Additional costs are factored in with consultants.
- Hourly restrictions: Damage = delay of traffic volume.
  FHWA provides the average cost of vehicle and public used for this calculation.

Provided in Subsection 108.09 of the special provisions

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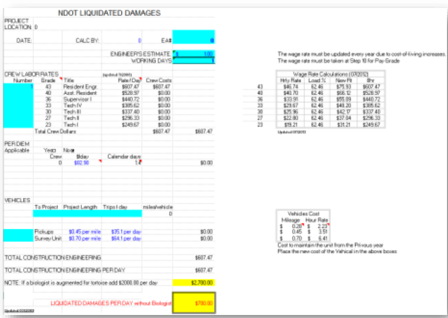

NDOT LIQUIDATED DAMAGES

PROJECT LOCATION: 0

DATE: | CALC BY: 0 | EA# 0

ENGINEER'S ESTIMATE: $ 1.00
WORKING DAYS 1

CREW LABOR RATES

Number	Grade	Title	Rate / Day	Crew Costs	
1	43	Resident Engr.	$607.47	$607.47	
	40	Asst. Resident	$528.97	$0.00	
	36	Supervisor I	$440.72	$0.00	
	33	Tech IV	$385.62	$0.00	
	30	Tech III	$337.40	$0.00	
	27	Tech II	$296.33	$0.00	
	23	Tech I	$249.67	$0.00	
	Total Crew Dollars			$607.47	$607.47

PER DIEM Applicable: Yes/No: No

Crew	$/day	Calendar days	
0	$82.90	14	$0.00

VEHICLES

	To Project	Project Length	Trips / day	miles/vehicle	
				0	
	Pickups	$0.45 per mile	$35.1 per day		$0.00
	Survey Unit	$0.70 per mile	$64.1 per day		$0.00

TOTAL CONSTRUCTION ENGINEERING $607.47

TOTAL CONSTRUCTION ENGINEERING PER DAY $607.47

NOTE: If a biologist is augmented for tortoise add $2000.00 per day $2,700.00

LIQUIDATED DAMAGES PER DAY without Biologist $700.00

The wage rate must be updated every year due to cost-of-living increases.
The wage rate must be taken at Step 10 for Pay Grade

Wage Rate Calculations (07/2012)

	Hrly Rate	Load %	New Rt	8hr
43	$46.74	62.46	$75.93	$607.47
40	$40.70	62.46	$66.12	$528.97
36	$33.91	62.46	$55.09	$440.72
33	$29.67	62.46	$48.20	$385.62
30	$25.96	62.46	$42.17	$337.40
27	$22.80	62.46	$37.04	$296.33
23	$19.21	62.46	$31.21	$249.67

Vehicles Cost

Mileage	Hour Rate
$ 0.28	$ 2.23
$ 0.45	$ 3.51
$ 0.70	$ 6.41

Cost to maintain the unit from the Privous year
Place the new cost of the Vehical in the above boxes

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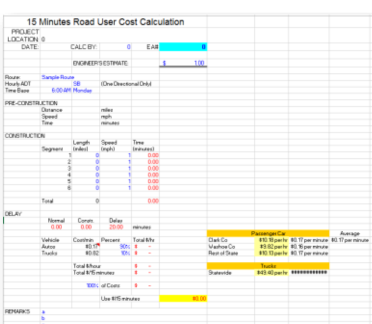

15 Minutes Road User Cost Calculation

PROJECT LOCATION: 0

DATE: | CALC BY: 0 | EA# 0

ENGINEER'S ESTIMATE: $ 1.00

Route: Sample Route
Hourly ADT: SB (One Directional Only)
Time Base: 6:00 AM Monday

PRE-CONSTRUCTION
Distance — miles
Speed — mph
Time — minutes

CONSTRUCTION

Segment	Length (miles)	Speed (mph)	Time (minutes)
1	0	1	0.00
2	0	1	0.00
3	0	1	0.00
4	0	1	0.00
5	0	1	0.00
6	0	1	0.00
Total	0		0.00

DELAY

Normal	Constr.	Delay	
0.00	0.00	20.00	minutes

Vehicle	Cost/min	Percent	Total $/hr
Autos	$0.17	90%	$ -
Trucks	$0.82	10%	$ -

Total $/hour $ -
Total $/15 minutes $ -
100% of Costs $ -
Use $/15 minutes $0.00

Passenger Car			Average
Clark Co	$10.18 per hr	$0.17 per minute	$0.17 per minute
Washoe Co	$9.82 per hr	$0.16 per minute	
Rest of State	$10.13 per hr	$0.17 per minute	
Trucks			
Statewide	$49.40 per hr	############	

REMARKS a b c d

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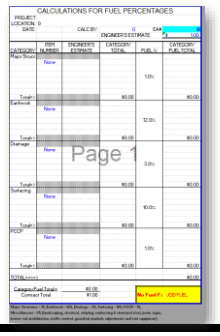
Fuel Factor

- Calculating Fuel Factor – Establishes % of dollar value assigned for specific types of work. Items are entered with the estimated value and the spreadsheet calculates total %. The fuel factor percentage is used in the fuel escalation calculation for adjustment in cost based on market value fluctuations.
- If Fuel Factor Percentage is less than 1%, the subsection will be deleted along with escalation item.

Provided in Subsection 109.05 of the Special Provisions



Limitations of Operations

- What the contractor can and can't do
- How would you go about establishing the 108.04's?
  - Know the intent of the project
  - Know the location and the stakeholders impacted
  - Know the Department's policies and procedures
  - Know traffic volumes, traffic control, and construction impact
  - Understand reasonable sequencing and discipline needs

Requires strong communication with every person involved with the project

Limitations of Operations

- Communication with all disciplines is vital to providing clear intent within Subsection 108.04
- A clear understanding of the intent of the limitations is necessary when addressing the bidding community
- Limitations can address Special Events, Traffic Control, Materials, Hours of Operations or Sequencing

Construction Duration

Determine Completion Date or Develop Working Days

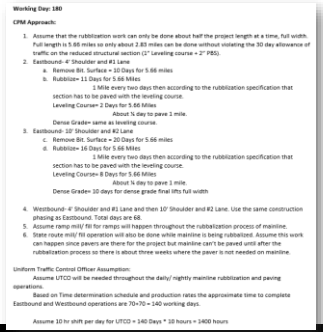
- Completion Date
  - Rarely use a completion date for a project
  - These projects are usually tied to a requirement established for the interest of an outside entity (EPA, TRPA, School District, Emergency)
  - We determine if the project can be completed within a necessary time frame

Construction Duration

- Working Days – Develop a time determination schedule that provides a duration to reasonably complete the project. This work requires a total understanding of multiple components.
  - Work to be performed
  - Production rates
  - Quantities
  - Reasonable sequencing
  - Resource assumption

Assumptions

- The development of construction schedules requires some assumptions. Constructability documents the assumptions used in order to provide a narrative relative to time.
- Attending the Post Construction review meetings to discuss the means and methods used by contractor, provides an opportunity to evaluate these assumptions and modify approaches used on future projects for the determination of contract time.



Working Day: 180

CPM Approach:

1. Assume that the rubblization work can only be done about half the project length at a time, full width. Full length is 5.66 miles so only about 2.83 miles can be done without violating the 30 day allowance of traffic on the reduced structural section (1" Leveling course + 2" PBS).
2. Eastbound- 4' Shoulder and #1 Lane
   a. Remove Bit. Surface = 10 Days for 5.66 miles
   b. Rubblize= 11 Days for 5.66 Miles
      1 Mile every two days then according to the rubblization specification that section has to be paved with the leveling course.
      Leveling Course= 2 Days for 5.66 Miles
      About ¼ day to pave 1 mile.
      Dense Grade= same as leveling course.
3. Eastbound- 10' Shoulder and #2 Lane
   c. Remove Bit. Surface = 20 Days for 5.66 miles
   d. Rubblize= 16 Days for 5.66 Miles
      1 Mile every two days then according to the rubblization specification that section has to be paved with the leveling course.
      Leveling Course= 8 Days for 5.66 Miles
      About ¼ day to pave 1 mile.
      Dense Grade= 10 days for dense grade final lifts full width
4. Westbound- 4' Shoulder and #1 Lane and then 10' Shoulder and #2 Lane. Use the same construction phasing as Eastbound. Total days are 68.
5. Assume ramp mill/ fill for ramps will happen throughout the rubbalization process of mainline.
6. State route mill/ fill operation will also be done while mainline is being rubbalized. Assume this work can happen since pavers are there for the project but mainline can't be paved until after the rubbalization process so there is about three weeks where the paver is not needed on mainline.

Uniform Traffic Control Officer Assumption:

Assume UTCO will be needed throughout the daily/ nightly mainline rubblization and paving operations.

Based on Time determination schedule and production rates the approximate time to complete Eastbound and Westbound operations are 70+70 = 140 working days.

Assume 10 hr shift per day for UTCO = 140 Days * 10 hours = 1400 hours

Plan and Specification Review

- Review of a project starts at the PDFS (preliminary design field study)
  - Field meeting to finalize the scope of the project
- After the PDFS report is generated, Design will start developing the plans. We stay involved through 100% development of the project.
- Communication is vital. We correct issues through this timeframe which can take months or years to complete.

Plan and Specification Review

- Constructability is the only Section within the Department that provides this type of cradle to grave service
  - PDFS, Bidding through Post Construction
  - Communicating with all disciplines including the field
  - Multiple meetings and reviews
  - Communication is key…

Constructability

- Constructability assists through the advertising period by providing recommendations on Request For Information (**RFI**) responses, and writing supplemental requests
- We provide input to the Bid Review Analysis Team (**BRAT**)
  - Mathematically unbalanced bids
  - Materially unbalanced bids
- Post Construction Reviews (**PCR**) for lessons learned
- Communication with the project team is on-going regardless of what phase the contract may be in

Programmatic Effort

- Constructability is continually assisting in the development and implementation of changes within the Department
  - Specification Pullsheets
  - Development of Procedures
  - Research
  - Manuals
  - Innovation

Summary

- Your ideas and concerns are valued and will be address…as long as they are communicated
- Constructability ensures that the plans and specifications provide a clear intent, are buildable and biddable, using industry standards
- **It is the Goal of Constructability to Support Resident Engineers**
- Use the Constructability Section to assist you with addressing and implementing your ideas, concerns and suggested changes through the channels necessary to develop successful projects
- **Communication is key!**

DESIGN/BRAT

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Design

Paul Frost, P.E.
Chief Road Design Engineer
(775) 888-7797
pfrost@dot.nv.gov

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NDOT Design Division Is:

- Roadway Design
- Specifications
- Scoping
- Local Public Agency Program
- Standards and Manuals
- Cadd Support
- Schedule and Estimating
- Landscape Architecture

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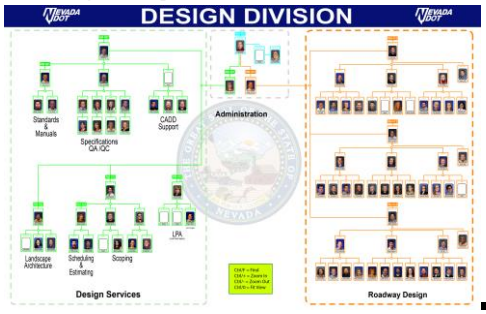
On Design Sharepoint site:



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4th Floor Layout

Sharepoint: *Design/ Division Links/org charts*

The Ivory Tower "Penthouse"

Roadway Design is responsible for:

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- Acting as as Project Coordinators / Managers
- Coordinating with all divisions and stakeholders
- Assembling plans
- Producing most of NDOT's four digit contracts
- Confusing Construction Crews

Divisional Coordination:

- Structures
- Environmental
- R/W
- R/W Utilities
- Safety
- Traffic Operations
- Hydraulics
- Location
- HQ Construction
- **District Construction**
- District Maintenance
- Maint/Asset Mgmt
- Stormwater

What Really Happens In Roadway…

Hydraulic Section Responsibilities

- Drainage Design
- Flood Complaints
- Permits
- Assess Flood Damage
- Tahoe Program
- Erosion Control Program

SR 446

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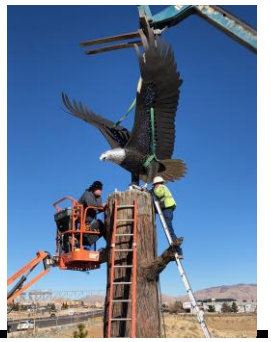
Landscape and Aesthetics Section Responsibilities:

- Manage L&A Program
- L&A Plans and Contracts
- Permits
- Consultant/in house designs

L&A Focus Areas:

- Are plans biddable and buildable?
- Clear special provisions
- Correct bid items
- Everything covered in measurement and payment
- No non-repeating form liners
- No items to be "determined by engineer in the field"
- Discuss construction inspection



L&A – Now with revegetation!

- Reveg Design officially in L&A
- Landscape Architect is the Primary Contact

Plant Establishment:

- Containerized Planting (typical)
- 1 year replacement
- Flexibility to RE when to start the 1 year clock (at your DE direction)
- Reveg is covered under NDEP permit (70% of original)

Specifications Section Responsible for:

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2018

- Standard Specifications
  - Contract Special Provisions
  - QA/QC
- CADD Support
  - CADD Standards
  - CADD Software
- Standards and Manuals
  - Road Design Guide
  - Standard Plans

Scheduling and Estimating Responsible for:

- Manage Project Scheduling and Management System (PSAMS)
- Track Performance Measures (Performance Measure 13)
- Track Performance Indicators
- Project Estimates

PSAMS Replacement Update

- Karen Liebherr, Design Scheduling and Estimating 775-888-7248
  - Offering PSAMS Training – at Next District RE meeting?
  - RE assignment coordination
  - Monte Lowe – New Staff II in Section, will be updating PSAMS info
- PSAMS replacement project has been started
- Probably 1-2 years to implement
- Keep using PSAMS – New version will be similar

Scoping Section Responsibilities:

- Project scoping
- Determine true problem, then evaluate correct solutions with input from many Divisions)
- All things weird (Political, Front Office, etc.)
- Project priority/need
- 5-Year plan and 5-Year Map

Project Needs Assessment

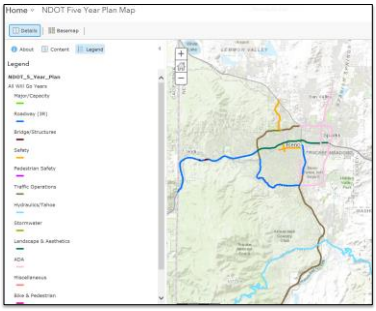
- Preserve Assets
- Improve Mobility
- Improve Safety
- Promote Economic Development
- Promote Livability

5-Year Plan

- Project Development Committee (PDC)
- PDC is Most Divisions, Districts, Front Office
- Prioritized list
- On Sharepoint

5-Year Map

- Sortable
  - Year
  - County
  - Project type
  - Etc.
- Linked to PSAMS



Visualizations and Simulations

What Tonopah may look like

Mesquite Roundabout on SR 372 Visualization

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US 50 / US 95A Roundabout Visualization

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I-15 Ramp Metering – two cars per green

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Local Public Agency (LPA) Program

- **FHWA delegated authority/responsibility to NDOT**
- LPA's use federal dollars for projects
- Usually off system roadways
- Ensures compliance with federal requirements
- NDOT is ultimately responsible for $$$$

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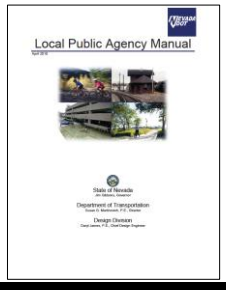
LPA Manual



- New Edition is officially approved
- On Design Division SharePoint
- If you have questions, please call!

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LPA - NDOT'S RE Responsibilities:

- Monitor LPA compliance with federal requirements
- Participate in project meetings:
- Collect federal reporting documents (FHWA form 1391)
- Conduct site visits with spot checks
  - Quantities
  - Contract documentation

LPA - NDOT'S RE Responsibilities, con't:

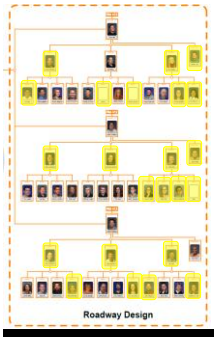
- Review and recommend approval of construction invoices
  - Review construction bid items and quantities for reasonableness
  - Needs to be done in a timely manner
- Participate in final walk through
- Generate project acceptance
- Complete/Collect final Documentation

LPA - Final Documentation

- NDOT's RE completes:
  - Inspection Reports
  - Acceptance Form
  - Acceptance Letter
  - Review and Recommend Approval of Final Invoice
- LPA Section completes:
  - Contract Compliance Checklist
  - Final Material Acceptance Letter
  - Final Quantity Report

Where Design Needs Your Help:

- Communication Often and Early
- **Use Project Scheduling and Management System (PSAMS) – This is the tool NDOT uses to communicate project status**
- Who do you need to talk to?
  - PSAMS team members



FNG's

- Newer (or soon to be new) Staff
- 45% of Roadway

PSAMS Tour

- Look at some key functions
  - Sort by Role/Name
  - Milestone Dates
  - GIS Grouping (only partially functioning)

Areas to Improve:
RE Assignments About 50% Assigned

RE Participation in Design

- Traffic Management Plan development
- Phasing
- Drop offs, cross overs, etc.
- Speed Reductions – Be Adamant!!!
- Limitations of Operations
- Contractor Supplied Surveying

RE Participation in Design

- Earthwork understanding
- Plan Review – Is it buildable?
- Constructability Section schedules a 60% Constructability Review with RE, Designer will attend also
- Early requests are more easily accommodated – Later requests, not so much

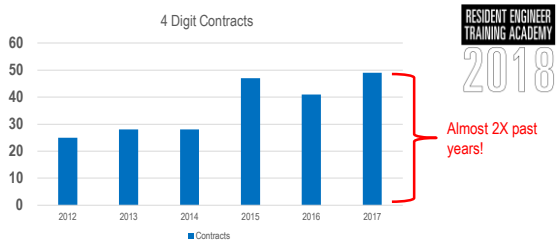
FHWA Performance Indicators

- Over 2 is a FAIL

RE Coordination

- RE Schedules Pre-Construction Meeting
- RE Schedules Guardrail Meeting / Implementation Field Review
- All of Design uses MS Outlook
- Schedule as early as possible
- Contact Project Manager/Coordinator for invite list
- Look at PSAMS Project Teams

What's ahead? More projects!



What's Ahead, con't?

- Many, Many contracts
- Betterment Contracts
- Director's Allocation to program areas (see 5 year plan)
- Fuel Revenue Index (FRI) Tax
  - 2017 – 4 Million
  - 2018 – 12 million
  - 2019 and beyond…. 100 million/year?
- Expect more contracts with higher values
- 5 year plan Tour

Changes in the Field

- Possible question? Contact the Designer
- ADA Changes – very sensitive
- Consultant designed plans are P.E. stamped – if we alter them, we accept liability
- Our plans, based on numerous design standards and policies

Changes in the Field

- Disposal of excess excavation – per plan, or check with designer (floodplains, environmentally sensitive areas, clear zone)
- Minor changes may have large impacts, especially culvert profiles

Additional Coordination

- Post Construction Review
  - Good communication, constructive criticism
  - We want to learn what went right wrong
  - How to avoid the same problem
  - Be specific, avoid general statements
  - But be gentle – Engineers have poor social skills…

Additional Coordination

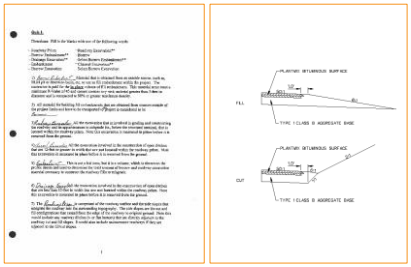
- Design-Construction Meeting
  - Bi-Monthly chance to discuss issues
  - At HQ and video conferenced
  - Recurring problems
  - Trying to incorporate how Construction wants it
  - Trying to build consistency

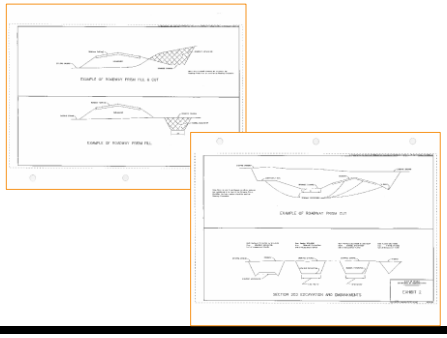
Upcoming Training

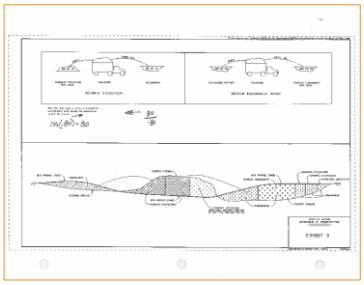
- Design Plan Reading 101
  - Yearly class (scheduled for early 2018)
  - Offered to construction crew, inspectors, new staff
  - General plan overview
  - Structure, sheet content, where to find info
  - Quantities – how to do basics and how Design goes about it

Upcoming Training : Earthwork Class

- Definitions, e.g., Borrow vs Embankment
- Quantity calcs
- Measurement, payment
- Coordinated with Constructability and RE's
- Class has been presented to most of Design
- Included in yearly Design Plan 101 class mentioned earlier
- Design can present this at your next District RE gathering (2 hours max)! No charge!!







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NDOT Bid Review and Analysis Team (BRAT)

Paul Frost, P.E.
Chief Road Design Engineer

Sharon Foerschler, P.E.
Chief Construction Engineer

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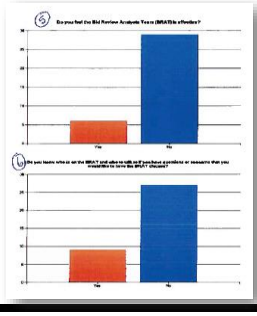
2013 RE Survey

- Is the BRAT effective?
- Do you know who the BRAT is?



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Why is the BRAT Needed?

- Title 23 Code of Federal Regulations (CFR) § 635.114 requires that State Transportation Departments examine unit bid prices submitted to determine reasonable conformance to the engineer's estimated prices and to thoroughly evaluate bids with extreme variations from the engineer's estimate or where obvious unbalancing of unit prices have occurred.

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Reasons for Unbalancing

- Bad quantities (there are no bad quantities, only bad designers..)
- Known differences in theoretical application rate
- Known differences in aggregate specific gravities
- Front loading
- Balanced profit over entire job
- High unit costs on known quantities
- Who knows what?

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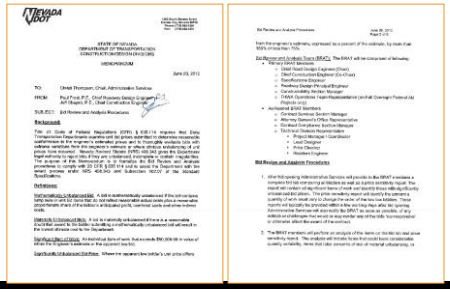
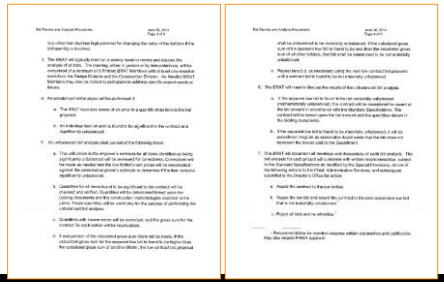
Effects of Unbalanced Bids

- NDOT may pay higher prices
- Contractor may try to place more or less of desired material
- Can reduce RE's effectiveness to enforce proper quantity application
- Can reduce RE's ability to negotiate

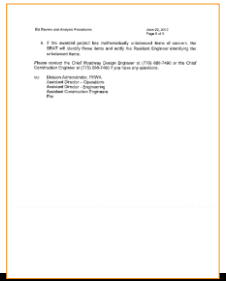
BRAT Procedures



BRAT Procedures



BRAT Procedures



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BRAT - Typical Team Members

- Chief Road Design Engineer (Co-Chair)
- Chief Construction Engineer (Co-Chair)
- Resident Engineer
- Roadway Design Principal Engineer
- Constructability
- FHWA (on Full Oversight)
- Technical Representatives as needed
- Administrative Services

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Unbalanced Bids

- **Mathematically Unbalanced Bid:** lump sum or unit bid items do not reflect reasonable costs
- **Materially Unbalanced Bids:** A bid is materially unbalanced if there is a reasonable doubt that award to the bidder submitting a mathematically unbalanced bid will result in the lowest ultimate cost to the Department, e.g. **a revised quantity would change low bid order**

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Sensitivity Report

- Significant Items
  - Over $50,000 and
- Significantly Unbalanced
  - Under 75% or over 150% of EE
- % change that would change apparent low bidder

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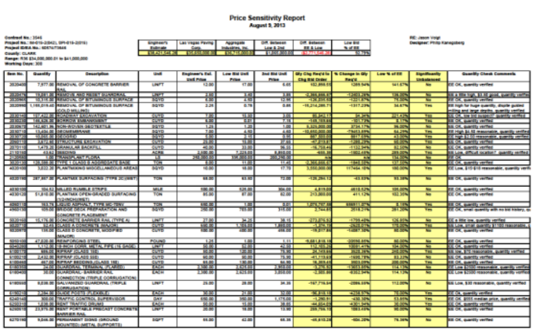

Price Sensitivity Report
August 9, 2013

Item No.	Quantity	Description	Unit	Engineer's Est. Unit Price	Low Bid Unit Price	2nd Bid Unit Price	Qty Chg Req'd to Chg Bid Order	% Change in Qty Req'd	Low % of EE	Significantly Unbalanced	Quantity Check Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Typical BRAT Discussions

- Are the contract quantities good?
- What items are sensitive?
- Is the Engineers Estimate reasonable?
- What will the impacts be in the field?
- Can the RE manage the unbalanced items?
- Recommend to Award or Reject

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Recent BRAT History

- 2010 BRAT was reformed at request of FO
- 2012 BRAT Procedures were officially revised
- Through Front Office guidance and direction, mathematically unbalanced bids were continued to be accepted
- 2013 New FO Administration - BRAT approached FO with concerns about mathematically unbalanced bids.
- FO brought forth concerns to AGC, who fairly quickly dismissed there was a problem

Recent BRAT History

- FO asked for examples of where we have problems
- Collectively, we have not been able to produce a documented significant number or situational problems caused by unbalanced bidding
- Have rejected bids citing unbalanced bidding as a factor

BRAT Update Since Last Year (Same As Last Year….)

- Some good discussion and suggestions
- Seems we have seen less unbalancing
- We still need actual examples of bid problems
  - Did you have to allocate Additional Resources?
  - Trouble with Contractor putting down correct material quantity?
  - Change Orders that cost the Department unfairly
  - Personal vendettas? That's okay, too.

Parting BRAT thoughts:

- Stay involved in the BRAT
- Great RE attendance at the BRAT meetings
- The team appreciates your input!

Thank You, and Good Luck!!!

FHWA

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Federal Highway Administration (FHWA)

Jake Waclaw
Field Operations Team Leader
(775) 687-5320
jacob.waclaw@dot.gov

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Outline

- FHWA Organization
- Stewardship and Oversight Program
- Local Public Agency (LPA) Oversight
- Other Construction Topics

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2018

FHWA Organization

- 2700 Employees
  - Headquarters – National leadership and strategic direction, regulation, policies
  - Resource Center – National technical experts
  - Turner-Fairbank Research Center – National research program
  - Federal Lands Division Offices – Planning, design, construction for transportation systems accessing Federal and Tribal lands (Central Federal Lands)
  - Federal-aid Division Offices (52 offices with D.C. and Puerto Rico)
- Transportation Bills (Contract Authority)
  - Fixing America's Surface Transportation (FAST) Act, 2015 – 2020
  - Moving Ahead for Program in the 21st Century Act (MAP-21), 2013-2015
  - Federal Gas Tax – 18.4 cents

FHWA Headquarters

- Freight/Goods Movement
- Connected/Autonomous Vehicles
- Climate Change
- Innovative Finance
- Tribal Transportation
- MUTCD
- Research and Technology
- Speed Management
- Border Crossings
- Real Time Traveler Information
- Asset Management
- Performance Management
- Motorcycle, Bike and Ped Safety
- Work Zone management
- Operations and ITS
- Coordinate with OST

FHWA Organization

- Federal-aid Division Offices
  - Federal-aid Program – Federally-assisted, State-administered program
  - Oversight – Ensure compliance with Federal requirements
  - Stewardship – Provide technical support and resources to assist in delivering the Federal-aid program

FHWA Nevada Division Office

- Leadership
  - Sue Klekar, Division Administrator
  - Greg Novak, Acting Assistant Division Administrator/Major Project Manager
  - Pam Angelo, Administrative Assistant
- Planning and Research
  - Christina Leach
- Environment
  - Abdelmoez (Del) Abdalla
- Civil Rights/Right-of-Way
  - Daniel Hawk
- Finance
  - Steve Bragorgos and Tylor Finley (makes sure NDOT gets paid)

FHWA Nevada Division Office: Field Operations Team

- Jacob Waclaw (775-687-5320)
  - Field Operations Team Leader
- Iyad Alattar (775-687-1206)
  - Transportation Engineer District 1
- Juan Balbuena (775-687-8582)
  - Safety and ITS/Operations Engineer
  - Acting Transportation Engineer District 2 and 3
- Dale Wegner (775-687-5323)
  - Construction/Bridge Engineer
- Vacant
  - LPA Program and Transportation Engineer for District 2 and 3

Transportation Engineers Project Delivery

Follow State and Local Public Agency projects "Cradle to Grave"

- Preplanning
- Corridor Studies
- Planning Process (STIP)
- Environmental actions, commitments and mitigation
- Right-of-Way and Utilities
- Federal programs and funding eligibility
- Design Exceptions and Interstate Access
- PS&E
- Consultant Selection
- Construction and Operations
- Maintenance

Transportation Engineers Program Delivery

- Safety
- ITS/Operations
- Structures
- Asset Management/Pavements and Materials
- Construction
- Design
- Local Public Agency (LPA) Program
- Emergency Relief
- Everyday Counts (EDC) Initiatives
- Etc.

Stewardship and Oversight

- In enacting Title 23 U.S.C., Section 106(c), Congress recognized the benefit of giving the State DOTs more authority to carry out project responsibilities traditional handled by FHWA. [Map-21, July 2012)
- Congress also recognized the importance of a risk-based approach to FHWA oversight of the Federal-aid Highway Program (FAHP), establishing requirements in Section 106(g) of Title 23

23 U.S.C. 106(c) Delegation to States

- **National Highway System (NHS) projects** – The State **may** assume the responsibilities of FHWA for design, plans, specifications, estimates, contract awards and inspections
- **Non-NHS Project** – The State **shall** assume the FHWA responsibilities

23 U.S.C. 106(c) Delegation to States

- Agreement – FHWA and the State shall enter into an agreement relating to the extent to which the State assumes the responsibilities of FHWA
- NDOT and FHWA signed a Stewardship and Oversight Agreement in May 2015 that fulfills this congressional law, which makes it a legal, binding document.
  - Attachment A illustrates standard, default delegation of FHWA actions to NDOT
  - This doesn't mean FHWA will no longer be present on such actions.

23 U.S.C. 106(G) Oversight Program

- Project Delivery – FHWA shall perform annual reviews that address elements of the project delivery system of a State, which elements include one or more activities that are involved in the life cycle of a project from conception to completion of the project.

23 U.S.C. 106(G) Oversight Program

FHWA Activities to "Perform Annual Reviews."

- Divisions perform a risk analysis to identify Projects of Division Interest (PoDIs).
- PoDI: FHWA assumes some actions normally delegated to the State, such as:
  - PS&E Approvals
  - Change Order/Modification Approval
  - Concur in settlement of claims
  - Final inspection/acceptance of completed work
- PoDI Projects include:
  - Project Neon
  - Boulder City Bypass
  - Reno Spaghetti Bowl
  - Pequops Animal Crossing
  - And More

23 U.S.C. 106(G) Oversight Program

- Compliance Assessment Program (CAP) Reviews
  - Nationally led reviews
  - Reviews based on a statistical sampling of projects
  - Standardized review guides
  - Compliance with basic requirements
- Program Reviews
  - Select numerous projects to determine compliance with specific regulations
    - DBE Review
    - Consultant Selection

23 U.S.C. 106(G) Oversight Program

- Example of a CAP questions:
  - Based on a minimum review of one contract change order or extra work order, did the State perform and adequately document a cost analysis for each negotiated change or extra work order?
  - Based on a minimum review of one applicable contract pay item paid in one progress payment, did the State provide adequate assurance that completed work quantities were determined accurately?

23 U.S.C. 106(G) Oversight Program

- The States shall be responsible for determining that sub-recipients (i.e. Local Public Agency Program) of Federal funds under this title have:
  - Adequate project delivery systems for projects approved under this sections; and
  - Sufficient accounting controls to properly manage such Federal funds.
  - Ensure that Local Pubic Agency have a staff member in “responsible charge”

LPA Oversight

FHWA and NDOT LPA department improving LPA oversight

- Nationally has been considered a High-Risk program
- Annual NDOT LPA Oversight Reports to FHWA
- Hire consultants to assist with pre-construction and construction oversight activities
- Updated LPA Manual
- NDOT RE assigned to every construction project – improve guidance for RE's

Other Construction Topics

- Contract Change Orders (PoDI Projects)
  - ". . . All major changes in the plans and contract provisions and all major extra work shall have formal approval by the Division Administrator in advance of their effective dates." 23 CFR635.120(a)
  - Execute change order before work begins
  - Signed FHWA Form 1365 – "Record of Authorization to Proceed with Major Contract Revision. (a.k.a Federal Prior Approval)
  - FHWA determines participation of Federal-aid Funds

Other Construction Topics Environment

- Environmental Commitments (i.e. Desert Tortoise Fence)
- Staging areas, material site, disposal sites, wetlands, and historic/archeological sites
- Remember, an area can be within NDOT ROW and still need to be environmentally cleared (i.e. RSB Governors Bowl Park)

Other Construction Topics Right-of-Way, Railroads, Utilities

- Interstate Access (includes located gates)
- Coordinate with railroad early and often
- Utilities are certified before construction
  - Can occur during construction in Design-Build (still needs a Utility Agreement)
- FHWA does not participate in utility delays due to conflicts

Other Construction Topics Civil Rights

- Disadvantage Business Enterprise (DBE)
- Commercially Useful Function (CUF)
- Americans with Disabilities Act (ADA)
- Contractor Compliance Reviews

Other Construction Topics Miscellaneous

- Low bid – front line steward of public money
- No local bidder's preference
- Buy America and material certifications
- Proprietary products (specs and/or CCO's)

Other Construction Topics Miscellaneous

Non-traditional procurements

- Design-Build
- Construction Manager At Risk (CMAR)
- Public Private Partnerships (P3)

Federal Audit Agencies

- Office of Inspector General (OIG)
- Government Accountability Office (GAO)
- FHWA Program Management Improvement Team (PMIT)
- FHWA Division Internal Audits

TRAFFIC CONTROL

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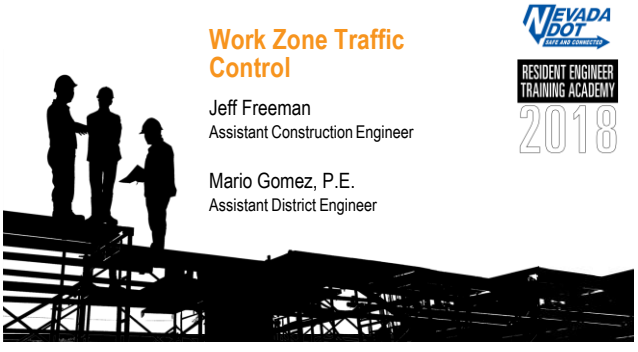

Work Zone Traffic Control

Jeff Freeman
Assistant Construction Engineer

Mario Gomez, P.E.
Assistant District Engineer

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Objectives

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- Roles and Responsibilities
- Understand your resources
- Learn the methods NDOT implements TC on a contract
- Speed reductions
- Identify potential Traffic Control issues and hazards.
- Smart Work zones
- Devices

History

- 1911 First centerline painted, Michigan
- 1915 First Stop Sign, Detroit
- 1918 First state route sign, Wisconsin for maintenance. Auto clubs had been placing markers prior
- 1935 First MUTCD published
- 1942 MUTCD describes TC during blackout conditions for WW2, reflective beads required. Also pavement marking in lieu of illuminated signs
- 1961 MUTCD update includes section for construction
- 1971 MUTCD update orange was designated for construction
- 1978 MUTCD revisions addressing the fundamental safety principals concerning work zones, the need for traffic control plans, and an upgraded section on barricades and channelizing devices

Exercise

Roles & Responsibilities

- Safety: public and workers
- Enforce NDOT plans and specs, and MUTCD guidelines.
- Provide guidance to the contractor
- Approve TC Plans
- Take appropriate action to identify and correct any deviations.
- Review reports from the contractor's Traffic Control Supervisor.
- Authorize Uniformed Traffic Control Office usage.

References

- Contract Special Provisions and Plan
- NDOT Standard Specification for Road and Bridge Construction (Silver Book)
- NDOT Standard Plans for Road and Bridge Construction
- MUTCD and NDOT sign supplement
- Transportation Management Plan (TMP)
- Standard Highway Signs and NV Sign Supplement
- Work Zone Safety and Mobility Implementation Guide (Red Book)
- QPL

Exercise

Work Zone Safety and Mobility Implementation Guide

The Red Book

- Use on all Federal-Aid highway projects
- Use on all State maintained roadways
- Used during planning, design, construction, permitting, inspecting or maintenance of work zones

Traffic Management Plan (TMP)

- Developed for every project
- Living document, if it is not working it can be changed.
- Documents the thought process to develop the TC plans.
- It is not a Contract Document, but is a reference document

Exercise

Traffic Control Plans

- NDOT currently has three method for Contract TC
  - Contract Provided – Bid Items
  - Contractor Provided – Lump Sum
  - Hybrid - lump sum job, but with conceptual phasing and plans provided

Traffic Control Plans

Contract Provided

- Anticipated phases of work for entire project
- Bid Items & quantities provided for anticipated plan
- Limitations specified
- Not all work has plan sheets
- Plans can be changed to adapt to situations

Exercise

Traffic Control Plans

Contractor Provided

- Lump sum price
- Limitations specified
- Generally standard plan TC, straight forward
- Contractor to submit plan for approval per 625.03.05
  - Plans for initial phase must be submitted 7 days prior to Pre-Con
  - Submitted plans may be forwarded to HQ at discretion of RE

Traffic Control Plans

Contractor Provided

- Considerations
  - Experience with similar projects
  - Traffic Volumes
  - Special Events
  - Business Access
  - Availability of detours and alternate routes
  - Day or Night work

Traffic Control Plans

Hybrid Method Contractor Provided

- Used on complex multiple phased project in District 1
  - Conceptual phasing and associated conceptual traffic control plans provided to contractor.
  - Contractor can adjust phasing and submit traffic control to reflect work means and methods
- Lump Sum
- 108.04 Limitations

Traffic Control Supervisor

- Paid for by Working Day
- Daily reports Required
  - Form # 040-056B
- ATSSA certified
- Qualifications must be submitted prior to Pre-Con Meeting

Exercise

Exercise

Uniformed Traffic Control Officer

- Uniformed traffic control officer (UTC)
  - On all contracts
  - Contractor enters into an agreement with NHP or local agency
  - Force Account, invoice plus 10%
  - RE to direct need – Safety
    - Work with your District
  - Not for use as security or ease of contractor operations.
  - Use for enforcement and closures
  - Coordination is key between the NHP, Contractor, and you. Don't assume they know what to do.

Flaggers

- Group discussion
  - When do you use flaggers?
  - When do you pay for flaggers?
  - What Certification does a flagger need?
  - What equipment does a flagger need?
  - What safety considerations should be considered when stationing a flagger?

  - Hint section 625

Exercise

Reduced Speeds in Work Zone

- Projects with an existing speed limit greater than 55MPH may be temporarily reduced by 10 MPH or to 55 MPH, with Front Office Approval
- Any temporary reductions to a speed lower than 55 mph may be reduced with Front Office Approval
- Involve Traffic Ops, District and Construction Division.

Reduced Speeds in Work Zone

- Reasons to reduce speed:
  - Roadway Factors:
    - Surface condition
    - Travel lane <11' or shoulder width <4'
    - Barrier within 2'
  - Operational Factors:
    - Sight distance
    - Unprotected work activities
    - Work zone detour design speeds

Smart Work Zones

- EDC 3 has introduced Smart Work Zones
  - Think ITS meets TC
- Technologies
  - Queue warnings
  - Zipper merges
  - Real time Traveler information
  - Variable speed limits
  - Incident Management
  - Enter / Exit Construction Vehicle Notification

Traffic Control Devices

- Fulfill a specific need
- Command the attention of the road user
- Convey a clear, simple meaning
- Command respect from the road user
- Give adequate time for proper response
- When not in use they need to be removed or covered

End Treatments

Options:

- Sand Barrels
- Water Barrier
- Low Profile Attenuators
- Flare to outside clear zone

- Use devices from QPL
- Follow product specification

Changeable Message Sign -- CMS

- Message = 1 or 2 pages
- Phase = 3 lines, 8 characters per line
- Display = 3 seconds per page
  - Should be able to read message twice at posted speed
- Each phase to convey a single thought
- Be as brief as possible and focus on:
  - Problem
  - Distance
  - Action
- Standard abbreviations: (See MUTCD pg.1A-15)

Exercise

Temporary Striping

- Needs to comply with Standard Plans, Specifications and MUTCD
- Striping removal must not leave a confusing pattern
  - Grinding
  - Water blast
  - Wire Brushing
  - Other approved methods

Exercise

Signalized Intersection

- Per Silver Book - turn signals off control with uniformed traffic control officer or flagger until suitable replacement (temporary or permanent)
- Notify and coordinate with local agency that operates signal and local law enforcement agency.
- New Signals – coordinate with local agency to activate.

Detours

- Sign detoured traffic only on approved routes
  - Need an agreement with the agency who owns route
- Detour for specific type of traffic, specific amount of time
- Detour of freeway traffic using ramps

Exercise

Double Penalty

- In effect for most work zones
- Generally signs are installed on mainline
- Per NRS, Sign package includes Double Penalty, Begin and End

Closures

Freeway

- Rolling stop in coordination with NHP

Ramps

- Short term (overnight) - CMS will generally suffice
- Long term (in place 24/7) - Static signs, trailblazers, cover panels

Lane Width

- Maintain 12' lanes with 2' shoulders
- Consider Over dimensional vehicles
- Contractor provided traffic control plans need lane widths shown

Exercise


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RIGHT OF WAY

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Right-of-Way

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What Does Right-of-Way Do?

- Primary responsibility is to ensure that all projects having R/W or Utility involvement can be certified in accordance with Federal and Department requirements.
- All R/W necessary for this project has been acquired in accordance with the Uniform Act. All residential and business relocations and all clearances have been performed.
- Utility conflicts have been addressed.
- All necessary utility and/or 3rd party agreements have been executed.

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Right-of-Way & Utility Certifications

- R/W certification is required for all highway projects regardless of funding
- In some cases, R/W will "conditionally" certify R/W when project is advertised
  - If issues arise with conditionally certified R/W
    - Department is responsible
    - FHWA will not participate in costs associated such as Utility conflicts and/or delays

Right-of-Way & Easements

- R/W will acquire Permanent and/or Temporary easements
  - Permanent easements allow the Department to occupy the property until such easement is relinquished
  - Temporary easements allow the Department to occupy the property for construction purposes with a predetermined termination date
  - Easements are identified in the R/W plans

Resident Engineer's Responsibility

Know the limits of the R/W and stay within the R/W

- Identify R/W based on information in plans
- Don't rely on fencing to determine R/W Limits
- Don't perform work outside project and/or R/W limits
- Contact R/W Engineering if you have questions

Resident Engineer's Responsibility

- Review R/W Agreements
  - Be familiar and enforce terms and conditions within the agreements
  - Direct any questions with R/W agreements to R/W
  - If initiating a contract modification related to R/W and/or agreements ensure R/W is notified and terms/conditions are followed
    - If additional work is performed outside the terms/conditions, ensure concurrence from utility/entity is granted to Department in writing

Resident Engineer Responsibility

If utility conflicts arise:

- Know who to contact per the agreement and within R/W
- Track work performed by contractor in case delays are encountered (Use Cost Analysis Form NOT Daily Costs of Force Account)
- Understand effect of potential delayed work on overall schedule
- Notify Assistant District Engineer of conflict and implications

Resident Engineer Responsibility

Adjusting utility valves and manholes:

- Ensure adjustment is covered in R/W agreement, if not contact R/W
- Quantity and location are identified in R/W agreement, in Plans on Structure List and agreement estimate
- Notify R/W of any discrepancies between agreement, plans and/or field conditions
- If additional valves and/or manholes are discovered in field, notify utility and R/W
  - Get written approval from utility to perform additional adjustments and their agreement to pay for them (simple email)

Resident Engineer Responsibility

Railroad Flaggers

- Procured through agreement with Department R/W
- Scheduled by Contractor
- Hourly rates determined by RR
- Contractor submits invoice to payment
- Payment made by Force Account
- Markup is limited to 5%

ENVIRONMENTAL SERVICES

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Environmental Services

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Environmental Services

- 1 of 6 Divisions under the Engineering Branch of NDOT
- Staff of 23 individuals with a focus on:
  - Environmental Engineering
  - Cultural Resources
  - Natural and Social Sciences

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Environmental Services

Environmental Engineering
- Air Quality
- Hazardous Waste
- Noise



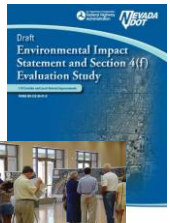
Environmental Services

Cultural Resources
- Archaeology
- Historic Architecture
- Native American Consultation



Environmental Services

Natural and Social Sciences
- Biology (Plants and Animals)
- National Environmental Policy Act (NEPA)

Environmental Services

What do we do?

- "Hold Up Projects"
- Responsible for all the Environmental Related Aspects Associated with the Department's Operations From Start to Finish
  - Planning
  - Design
  - NEPA Documents (CE, EA or EIS)
  - Permits/Mitigation Measures
- Our Goal: Follow the Laws, Regulations, and Guidelines in Order to Keep Both Projects and the Department Out of Trouble

Environmental Services

What does all this mean to you?

- **Environmental Commitments and Permit Conditions**
  - NEPA Mitigation Measures
  - Threatened and Endangered Species- USFWS Biological Opinion/Migratory Bird Treaty Act (MBTA)
  - Archaeology- SHPO Concurrence

Environmental Services

Examples

- Threatened Endangered Species
- Hazardous Materials
- Archaeology Features
- Staging Areas
- Construction Noise

Environmental Services

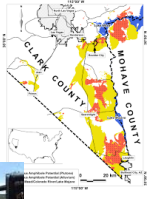
Threatened/Endangered Species

- Southwestern Willow Flycatcher (MBTA)
- Desert Tortoise (Fencing)
- Lahontan Cutthroat Trout (Construction Seasonality)
- Steamboat Buckwheat (Monitoring)
- Railroad Pupfish (Avoidance)

Environmental Services

Hazardous Materials

- Asbestos (Commercial and Naturally Occurring)
- Lead – Paint Coatings
- Underground Chemical/Fuel Storage Tanks
- Previously Contaminated Construction Sites



Environmental Services

Archaeology Features

- Buried Artifacts
- Human Remains
- Restrictions
  - Based on Existing Records and What's Observed at the Surface and Surveyed During Project Development/Planning Phase
  - Permit Requirements

Environmental Services

Staging-Storage Areas

- Ask Contractor about this at NTP
- Becomes Part of Project-Permitting Process:
  - Approved Project Limit Now Expands, Expect Delays as Permits need to be Modified/Renegotiated
- Need to Look At What and Where the Disturbance is Going to Be
  - More Detailed Information Helps to Expedite Approvals



Environmental Services

Construction Noise and Vibration

- Nearly Always a Significant Issue with the Public
- Concerns Become Elevated During Night Construction
- Difficult to Resolve Once Complaints are Voiced
  - If complaints are anticipated, meet in advance with impacted parties letting them know what to expect. Noise levels can be determined and recorded if needed.


PUBLIC ENGAGEMENT

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Putting the Public in Your Public Works Project

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Scared to Share?

- How much time will this take?
- Will my project be portrayed as I wish?
- Will I be able to provide all information asked?
- I don't like being put on the spot.
- I don't like being on camera.
- I don't think the public will understand the complexities of this project.

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Why Provide Information to the Public/Media?

- Inform
- Kill rumors
- Improve image
- Motivate
- Build public trust
- Build employee confidence

Working with the Public

- Take public complaints seriously
- Be courteous and cooperative
- A timely and accurate response is critical
- Follow your chain of command
- *Remember the public is funding your project*

Working With The Media: Your 15-Minute Media Training

- **Rule #1**

There is nothing written down anywhere that says ***you*** have to talk to the media. However, ***someone*** must. If you wish not to talk, redirect the inquiry to appropriate NDOT staff or the public information office.

A Fast-Paced Medium

- A print reporter has about 500 words.
- TV reporters have under two minutes to tell the story.
- Average length of a radio/TV soundbite is 8 seconds.

Media Do's

1. Do return calls from reporters...Immediately.
2. Do say "I don't know" if you don't know.
   - Connect them with someone who can answer their question.
3. Do develop messages and stick with them (safety and mobility are always good messages).
4. Do end each answer positively.
   - Stick to what the reporter asks and what you want to say.
   - Supply facts, figures and background if helpful in supporting your message.
5. Do supply facts, figures and background.
6. Do try to be prepared for the most controversial or negative issues that could surround a story.

A Good Soundbite Is:

- Simple and concise
- Descriptive
- PEOPLE-ORIENTED
- Memorable
- Relevant
- Honest

Develop Three Main Messages

- Message 1 _____
- Message 2 _____
- Message 3 _____

Highlighting the public benefits of safety and mobility is always positive!

You Know It, So Show It!

- What you say = 7%
- How you say it = 38%
- How you look when you're saying it = 55%

What do you think about this project?

What do you think about this project?

- http://www.kolotv.com/home/headlines/I-580-Reconstruction-Project-70-Complete-328966871.html

Time to Get Behind the Camera!

Remember...

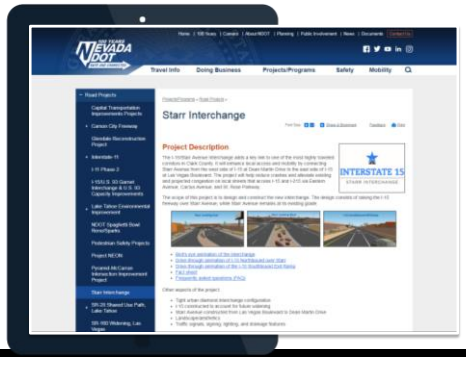
1. Be approachable
2. Be sincere
3. Be concise
4. Be people-oriented

Interview Example

- http://www.lasvegasnow.com/news/day-1-of-project-neons-big-squeeze-had-pretty-smooth-flow/677621438

Let NDOT Communications Help

- Media and Public Relations
- NDOT Website
- Social Media
- Informational Videos and Brochures
- Employee E-News Articles
- Board Meeting Awards Write-Up



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STORMWATER

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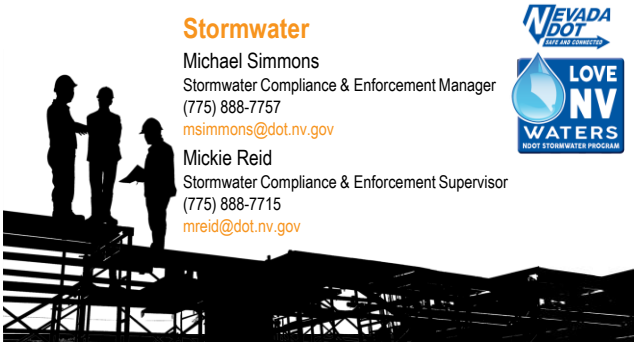

Stormwater

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Overview

- The temporary pollution control specifications include:
  - A requirement to use the NDOT SWPPP Template
  - SWPPP and Project Stormwater checklists
  - The Construction Site BMPs Manual
  - Construction Site Stormwater Inspection Forms
  - The Stormwater Division has developed plug and play templated letters/correspondence and forms

What Does this Mean for You?

- We will need everyone to do their part and work together as a team in order to achieve the programmatic success that is required to satisfy the various permit requirements and help our business partners preserve Nevada's waters.

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

1. Section 637.01.01 General
   - Regardless of permit procurement requirements a SWPPP is required. The SWPPP shall be submitted using the Department furnished Stormwater Pollution Prevention Plan (SWPPP) Template for Construction Activities. (Form 018-002SWPPP)

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

- The initial SWPPP is required to be submitted at the pre-construction conference and reviewed for completeness by the R.E. using the SWPPP checklist provided by the Stormwater Division. (Form 018-003)

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

2. 637.02.02 Water Pollution Control Manager
   - The WPCM shall have complete authority to direct the contractor's personnel and equipment for stormwater related duties.
   - The WPCM shall document and record an independent record of each stormwater inspection using the Department Furnished form (Form 018-001WPCM) and submit it to the R.E. within 24 hours of the inspection.

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

- The WPCM shall be available for contact by phone 24 hours a day and shall be capable of being on site within 24 hours upon notification of a deficiency.

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

3. 637.01.03 Permits
   - The Contractor is required to contact the Stormwater Division prior to submitting the Notice Of Intent (NOI). The Stormwater Division will issue correspondence summarizing NOI requirements.
   - If the Contractor indicates that a permit is not required and has not contacted the Stormwater Division, the R.E. is required to verify permitting requirements with the Stormwater Division.

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

- Date/Time stamped photo documentation is required for both pre- and post-construction site conditions. These shall be submitted with the request for relief of maintenance
- A final simultaneous inspection of the sediment and erosion control measures must be completed prior to any request for relief of maintenance
- A copy of the Notice of Termination or request to transfer permit responsibilities to NDOT must be included with the request for relief of maintenance

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

4. 637.02.01 General (Materials)
   - There is a requirement for the placement of 1 rain gauge for every 10 miles or portion thereof within the project limits
   - Before and after storm inspections of the rain gauges are required for anticipated storm events
   - If multiple rain gauges are utilized the highest recorded total will be used to determine the storm event total

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

5. 637.03.01 General
   - Inspection of the BMPs is required prior to the commencement of earth disturbing activities
   - Regardless of permit requirements stormwater inspections are required every 7 days and within 24 hours of storm events 0.25 inch or greater. There is a provision for the WPCM to request a reduced inspection frequency using the Department furnished form

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

- If deficiencies are noted during an inspection a re-inspection is required. The re-inspection will not supersede or replace the regularly scheduled inspections
- Repairs to deficient BMPs shall begin within 24 hours of notification of a deficiency
- Repairs shall be completed within 7 days or prior to the next anticipated storm event
  - On the 8th day Liquidated Damages begin to accrue
  - On the 11th day cease all operations not related to achieving compliance and maintaining public safety

Standard Specifications for Road and Bridge Construction Section 637 Temporary Pollution Control

- Failure to achieve compliance within 10 days of the date of the documented deficiency may result in termination of the contract in accordance with Subsection 108.10.
- Conduct a simultaneous inspection of the sediment and erosion control measures prior to submitting the Notice of Termination request
- Submit a copy of the final SWPPP with the request for relief of maintenance

Temporary Pollution Control Procedures and Process

- The Stormwater Division has created a an additional internal procedural document that outlines the expectation of the R.E. and the Contractor from the award of the contract through the relief of maintenance.
- This document contains narrative discussion and provides quick and easy access to all of the required documentation associated with temporary pollution control for construction projects.

Temporary Pollution Control Procedures and Process

- Pre-construction conference
- Prior to the commencement of earth disturbing activities
- During construction activities
- Post construction

Temporary Pollution Control Escalation Policy

- Section 637.03.01 of the standard specifications addresses the timelines for the repair and/or placement of temporary sediment and erosion control measures
- Plug and play sample letterhead /correspondence for each step of the process

Temporary Pollution Control Escalation Policy

- This policy outlines the documentation process and provides direction to the R.E. When deficiencies are identified during the course of stormwater inspections
- The R.E. is encouraged to resolve deficiencies at the field level whenever possible
- When deficiencies are noted the R.E. shall be notified on the same day

Temporary Pollution Control Escalation Policy

- Within 24 hours the R.E. must contact the Prime Contractor's Project Manager (PM) to discuss the deficiencies and inform the contractor that official correspondence regarding the deficiencies will be forthcoming

Temporary Pollution Control Escalation Policy

- The R.E. shall generate correspondence utilizing the sample letterhead provided with the escalation policy summarizing the conversation and identifying the date the deficiencies were documented and email it to the contractor
- This correspondence shall include time/date stamped photo documentation of the noted deficiencies as well as a copy of the Construction Site Stormwater Inspection Form noting the deficiencies

Temporary Pollution Control Escalation Policy

- The deficiencies shall be corrected within 7 days from the date of the deficiencies were documented or prior to the next anticipated storm event whichever occurs first and if the deficiencies are not corrected within the timeframe the Department may begin assessing Liquidated Damages of $4,500/day
- This correspondence requires the PM to respond to the R.E. within 24 hours of the initial contact and begin working to correct the deficiencies

Temporary Pollution Control Escalation Policy

- If the contractor fails to implement remediation and correct the deficiencies as outlined in the initial correspondence Liquidated Damages of $4,500/day begin to accrue on the 8th day
- The R.E. shall generate correspondence utilizing the sample letterhead provided with the escalation policy notifying the PM of the following:

Temporary Pollution Control Escalation Policy

- Liquidated Damages are being assessed and will continue to be assessed until full compliance has been achieved. All work not required to achieve full compliance and public safety will cease if compliance has not been achieved within three (3) calendar days of the date of this correspondence
- Working days shall continue to be counted

Temporary Pollution Control Escalation Policy

- The Department has the right to remove any worker who does not perform their respective duties in a satisfactory manner in accordance with Subsection 108.05 of the Standard Specifications.
- A mandatory meeting shall be attended by the RE, PM and Water Pollution Control Manager (WPCM) not later than the day following this correspondence. The RE shall also invite the Assistant District Engineer and Stormwater Compliance and Enforcement Manager.

Temporary Pollution Control Escalation Policy

- If the contractor fails to implement remediation and correct the deficiencies as outlined in the second correspondence Liquidated Damages $4,500/day will continue to be assessed
- On the 11th day the R.E. shall generate correspondence utilizing the sample letterhead provided with the escalation policy notifying the PM of the following:

Temporary Pollution Control Escalation Policy

- All operations with the exception of activities associated with public safety (Maintenance of Traffic) or stormwater management, are suspended until such time that the Contractor has brought the previously noted discrepancies into compliance.
- During the suspension, working days shall continue to be counted.

Temporary Pollution Control Escalation Policy

- Liquidated Damages shall continue to be assessed.
- Furthermore the Department, at the discretion of the Director, may terminate the contract for non-compliance.
- A mandatory meeting shall be scheduled for no later than the following day of this correspondence with the Contractor's PM, WPCM, and the position the PM reports to. The RE shall also invite the Assistant District Engineer, District Engineer, and the Stormwater Compliance and Enforcement Manager.

Temporary Pollution Control Escalation Policy

- Based on internal discussions the Department may choose to exercise Section 108.10 and terminate the contract
- Based on internal discussions the Department may choose to initiate additional Compliance and Enforcement under the guidelines of Nevada Revised Statute Section 408.441

Feedback

- No matter how hard we try it is unlikely we will account for all of the possible contingencies.
- We are all in this together and your feedback is important to the ongoing success of our program development and implementation.

Closing Comments

- In order to succeed, we must all change, grow and adapt.
- **Developing and maintaining good communication between the Stormwater Division and Districts helps us succeed by ensuring new policies and procedures are implemented as required.**
- You will have the tools and support needed to effectively perform the tasks you have been charged with.

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LOVE NV WATERS
NDOT STORMWATER PROGRAM

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MATERIALS DIVISION

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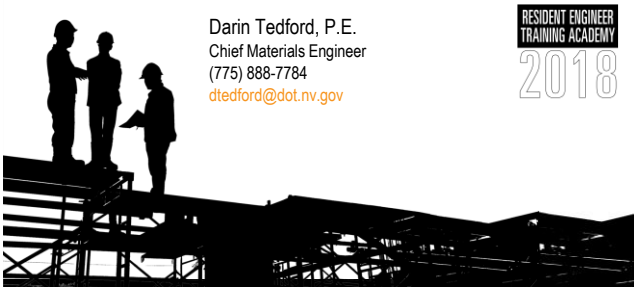

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Materials Division

- 84 Employees in three locations:
  - In Carson City: 63 Employees, 7 Labs, Pavement Analysis, Roadbed Design, Geotechnical Engineering, Lab Services, Field Crew, Material Sites, etc.
  - In Las Vegas: 19 Employees, 3 ½ Labs, Lab Services, Field Crew, etc.
  - In Reno: 2 Employees, Bituminous Research Lab at UNR

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What? Before the Contract

- Monitoring the condition of all state roads and generating lists of 3R projects
- Searching for new material sites (Pits)
- Researching new materials
- Designing Structural Sections
- Reviewing Specifications

What? During the Contract

- Approving submittals
- Testing materials
- Consulting on contract issues and failures
- Project specific training

Materials Sampling and Testing Checklist

- This list is created using the bid items shown in the special provisions.
- The checklist is created to assist the Resident Engineer in obtaining the required samples and certificates of compliance for each contract. The checklist may not be complete due to change orders or other changes.

Certificates of Compliance (Certs)

- The Certs are a way of accepting materials without testing, as allowed in the Sampling Frequencies and the Standard Specifications.
- Certs cannot be Product Information Sheets. Each Cert should list the type of material, the manufacturer, the required specification(s), all required tests (listing the applicable specifications where needed), a signature of the individual responsible for the accuracy of the results and a date.

Transmittal of Samples

- Transmittal form No. 020-018, should be used for submittal of most materials for acceptance testing. The only exception to this requirement is for Portland Cement Concrete Cylinders, use form No. 020-017, and Asphalt Samples, use form No. 020-016.

General Approval Requests

- When applicable, include the following information with requests for approval:
  - Contract Number
  - The intended application of the material
  - Location of the use of the material
- Only one copy of the submittal is necessary for the Materials Division.
- Items on the QPL do not need to be submitted for approval.

Previously Approved Plantmix Bituminous Mix Designs

- When requesting a previously approved mix design for use on a contract other than the one it was originally performed for, use the included form.
- An electronic version of the form may also be obtained by emailing Darin Tedford.
- Include as much information as possible on the form.
- Talk to the RE who has used the mix design.
- Use the most current JMF with your new contract.
- It is not necessary to fax a copy of the mix design with the completed request form if it is an NDOT mix design.
- Mix Designs from previous calendar years will not be approved and should not be used.

Submittal of Materials for a Plantmix Bituminous Mix Design

- The requirements for submitting materials for a Plantmix Bituminous Mix Design are listed in Section 401 and the Construction Manual.
- Prior to submitting aggregates and asphalt for a mix design, complete informational/field testing of aggregates and submit copies of the results to the Materials Division with aggregate samples.
- Mix design samples should be submitted by the RE, not the Contractor. If necessary, refinery samples of asphalt may be sent directly to the Materials Division from the Supplier, with notification from the RE to the Asphalt Lab.
- Samples of hydrated lime do not need to be submitted.

Timeline for Plantmix Bituminous Mix Design

- Aggregates are sampled and tested to confirm conformance to specifications. Informational/Field test results are submitted to Materials Division with aggregate samples and asphalt.
- Materials Division tests aggregates and compares with informational/field results and specifications. Failure to meet specifications will result in a call to the RE and option to adjust bin percentages or resample.
- Mix design is performed and reported to RE. RE is responsible to send mix design to Contractor or it may be sent by Materials Division if email address of Contractor has been provided.

Timeline for Plantmix Bituminous Mix Design (Continued)

- Job-mix formula is proposed by Contractor, then reviewed, approved and re-typed by the RE. On the first JMF the bitumen ratio, single points and job mix ranges for individual sieves must be based on the mix design. Hot plant and ignition oven calibration is then performed.
- One trial mixture (at the mix design target bitumen ratio) is placed and tested. Three days shut down required by the Specifications. Nuclear gage is calibrated. Results of the ignition oven test (form 040-050) must be sent to the Materials Division before a recommendation can be made.

Timeline for Plantmix Bituminous Mix Design (Continued)

- A memo will be sent to the RE recommending a bitumen ratio target for paving. An additional trial mixture may be required or paving may commence with short term increased sampling requirements. At this time the acceptance of the bitumen ratio changes from the mix design target to the results of the ignition oven. The plant setting is not an acceptance criteria.

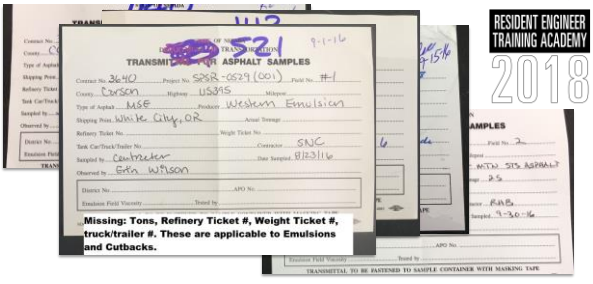
Aggregates

- No “yearly source” is performed on base, borrow or any material that requires R-value testing. This material is tested when it is stockpiled and acceptance of that material expires when the stockpile is depleted. MSE and Granular backfill have special requirements also.
- There are no source tests for sand blotter and shoulder material.
- Aggregates for concrete plants are tested on a yearly basis by representatives of the Materials Division.

Asphalt

- On all transmittals, write the field number in the correct location.
- Do not list the location of the hot plant as the shipping point of the asphalt. The shipping point should be the location of the refinery or asphalt terminal.
- Refinery Ticket No., Tank Car/Truck/Trailer No. and Weight Ticket No. do not apply to samples of asphalt cement taken at the hot plant. These spaces should be left blank.

Asphalt Examples



Bituminous Mix (Plantmix)

- "Source of Sample" for mix design transmittals should be where the aggregate is produced, not "stockpile" or stockpile location.
- When sampling plantmix behind the paver, the location of the sample should be a single station where the sample was taken, not "behind the paver".
- Mix design transmittals should be checked for accuracy and signed by the RE at the time of submittal.
- Do not allow the testers to sign transmittals for the RE.
- Do not sign the whole book of blank transmittals to "save time".

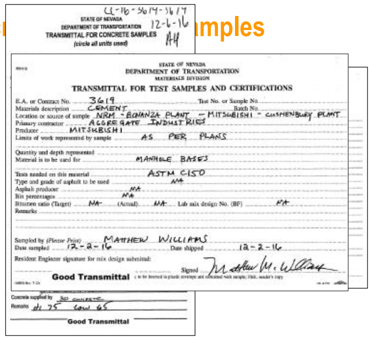
Material Sites (Pits)

- If a Contractor wishes to use a material site that was not certified for use in the original awarded contract, it must be added by change order. The Contractor is then responsible for obtaining permits, etc.
- Contact the Construction Office for direction.
- The Department has information about material sites, but does not guarantee the quantity or quality of material in any material site.

Concrete and Steel

- Aggregates from commercial suppliers are sampled by the Materials Division on a yearly basis.
- For project produced aggregates, contact the Materials Division for testing.
- Submit mix designs for approval by the Materials Division
- Self Consolidating Concrete has special tests and requirements.
- High Performance Concrete has special tests and requirements.
- Submit reinforcing steel and strand for testing according to sampling frequencies and specifications.

Conc… …mples


CL-16-3614-3619
STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION 12-6-16
TRANSMITTAL FOR CONCRETE SAMPLES AH
(circle all units used)

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION
TRANSMITTAL FOR TEST SAMPLES AND CERTIFICATIONS

E.A. or Contract No. 3619 Test No. or Sample No.
Materials description CEMENT Batch No.
Location or source of sample NRM - BONANZA PLANT - MITSUBISHI - CUSHENBURY PLANT
Primary contractor AGGREGATE INDUSTRIES
Producer MITSUBISHI
Limits of work represented by sample AS PER PLANS
Quantity and depth represented
Material is to be used for MANHOLE BASES
Tests needed on this material ASTM C150
Type and grade of asphalt to be used NA
Asphalt producer NA
Bin percentages NA
Bitumen ratio (Target) NA (Actual) NA Lab mix design No. (BF) NA
Remarks

Sampled by (Please Print) MATTHEW WILLIAMS
Date sampled 12-2-16 Date shipped 12-2-16
Resident Engineer signature for mix design submittal:
Signed Matthew M. Williams
Good Transmittal

Concrete supplied by
Remarks
Good Transmittal

Miscellaneous

- Burner Fuel Certifications required. Must meet something in 401.03.01.
- Sampling Frequencies: Recently updated. Main difference is number of bags of material to submit for each type of material.
- Attach explanation for submitting sample of material that is not a bid item in your contract.
- Coldmillings: May be used as borrow, shoulder material, base (as specified), in plantmix under concrete, or in temporary paving, and other uses if they meet specifications.
- Open Grade yields may be calculated. Issues with contract vs. field quantities mainly due to gravity in theoretical application rates (plans) compared to actual gravity of mix.

Materials Division

- Percent Within Limits on Plantmix
- New Plantmix mix designs due every year
- Emulsion and Asphalt sampling
- MSE and Granular Backfill testing
- Transmittals (with examples)

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

M E M O R A N D U M

Date:

To: Clifford Lawson, Principal Bituminous Engineer

From: _____, Resident Engineer/Permit Coordinator

Subject: Request for Bituminous Mix Design Approval

I would like to request a previously approved mix design for use on a current project.

Current Project Specifications:

Contract/Permit No.: _____

Plantmix Type: _____ Asphalt Grade: _____

Stabilometer Value, Min.: _____ Percent Air Voids, Min./Max.: _____

Marinated, Yes/No: _____

County: _____ Route: _____ Milepost: _____

Job Description and Description of Work: _____

_____

Quantity (tons): _____

Previously Approved Mix Design Specifications:

Contract/Permit No.: _____ Mix Design No.: _____

Plantmix Type: _____ Asphalt Grade: _____

Stabilometer Value, Min.: _____ Percent Air Voids, Min./Max.: _____

Marinated, Yes/No: _____ Mix Design Report Date: _____

Submitted By: _____

MATERIALS DIVISION PHONE LIST

DARIN TEDFORD	**7784**
Cell phone	220-8994
CHARLIE PAN	**7789**
Cell phone	315-1473
MIKE GRISWOLD	**7781**
Cell phone	720-4740
JEFF PALMER	**7873**
Cell phone	291-0465
MICHELE MAHER	**7737**
Cell Phone	881-8416
JESSE RUZICKA	**7821**
Cell phone	
CLIFF LAWSON	**7785**
Cell phone	315-2560
JILL SIMS (LV)	**6589**

SECRETARIES

Becky Meadows	**7528**
Mandy Carvin	7520
Materials Conference Room	7513

LAB SERVICES (020) Rm 5A

Wes Clyde	**7792**
Cell phone	720-1063
Don Gillespie	7503

CHEM LAB (025)

Ron Burke	**7718**
Doug Yezek	7138
Lab	2519

CONCRETE OPERATIONS (025)

Kelly Yokotake	7139

STRUCTURAL LAB (025) Rm 3

Vacant	**7871**
Aaron Holmes	**7890**
Mike Jones	2289
Joel Potter	2294

SPECIAL PROJECTS (026)

Gayle Maurer	7252

PAVEMENT ANALYSIS (026) Rm 5B

Jessica Schmalzer	**7253**
Mike Janas	**7272**
Jason Crosby	7263
Roger Zink	7261
Willie Keith	7260
Jarod Williams	7173
Zach Davis	7174

ROADBED DESIGN (026) Rm 5C

Christine Chia	7788
Yathi Yatheepan	7875
Roshelle Olson	7790

AGGREGATES (027) Rm 14

Mel Rodela	**7787**
David Griboski	**7716**
Joe Buskee, Gary Blake, David Geiger, Larry Brown	7719
Joe Reeves	

MATERIAL SITES (027) Rm 14

Lou Groffman	**7791**
Cell phone	721-9242
Maynard Hinton	7822
Cell phone	315-7714
Vacant	7262
Cell phone	720-4398

ASPHALT (027) Rm 6

Wayne Brinkmeyer	**7879**
Dave Swirczek	**7881**
Jen Harris, Scott Rains, Corey Thompson	7016

BITUMINOUS (027) Rm 7

Ryan Polish	**7872**
Gil Rhoades, Ross Jensen, Brandon Noble, Kelly Walsh	7421

BITUMINOUS OPERATIONS (027) UNR

Nathan Morian	**784-6858**
Jason Gardner	7650

GEOTECH/R-VALUE LAB (028) Rm 10

Bill Blake	**7869**
Vacant	**7896**
Danny Sommers	7012

GEOTECHNICAL ENG. (028) Roop St. Annex

Abbas Bafghi	7876
Dana Boomhower	7870
Vacant	7332
Carol Callaghan	7877
Keith Conrad	7529

FIELD CREW (028) CARSONITE BUILDING

Kevin Marshall	**7824**
Cell phone	720-4397
Ray Dragoo	**7874**
Cell phone	350-0475
Jim Rigsby	7834
Cell phone	720-1879
Guillermo Prada-Ponce	7874
Cell phone	
Orlando Altamirano	7823
Cell phone	720-1828

FIELD CREW (028) Las Vegas Materials

Vacant, B. Williams, E. Grayson, Vacant	385-6597
Vacant cell phone	720-6227
Robert Neusel cell phone	721-4238
Eric Grayson cell phone	683-3619

LAS VEGAS FACILITY

Elise Goldman	671-6605
Lab cell phone	630-0537
LV Lab Conference Room	385-6593

ASPHALT LAB

Jesse Oakley	**671-6664**
Aaron Collins, Ron Scott, Simon Limho	385-6579

BITUMINOUS/AGGREGATES LAB

Louis Kalling	**671-6648**
Joseph White	**671-6628**
Mike Pypkowski, Vacant	671-6645
Aggregates Lab	671-6647

CONCRETE/STEEL LAB

James Kastner	**671-6646**
Ben Hernandez, Jeff Chomes, Vacant	671-6606

LAB SERVICES

Cory Holm	671-6609

CARSON CITY LAB FAX	888-7501
BITUMINOUS LAB FAX	888-7323
HALLWAY FAX	888-7186
FIELD CREW FAX	888-7825
LAS VEGAS LAB FAX	385-6518
LAS VEGAS FIELD CREW FAX	385-6518
CARSON MOTOR POOL	888-7577
RENO MOTOR POOL	834-8450
LAS VEGAS MOTOR POOL	486-7050
CARSON HANGAR	687-5429
LAS VEGAS HANGAR	486-7029

Revised - January 11, 2017

STRUCTURES DIVISION

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Structures Division

Jessen Mortensen
State Bridge Engineer
(775) 888-7543
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Objectives

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At the completion of this module participants will be able to understand:

- Structures Division organization & functions
- Primary constructions support activities
- Shop drawing review process
- Benefits of communication

Construction Support Design

- Respond to RFI's during advertisement & construction
- Attend project meetings
- Respond to Crew questions and address structural issues
- Shop drawing review and approval

Shop Drawing Review

- Standard Specifications:
  - Section 105.02 provides general description of shop drawings review procedure and timeframes
- Typical review time is 30 days
- 90 days for submittals within railroad ROW
- Stamps used by NDOT Bridge

Falsework

Common/Standard Shop Drawings

- 502 Concrete Structures. Falsework addressed in 502.03.03.
- Critical temporary works. Must be designed and built in accordance with the contractor developed plans.
- Designed (in accordance with specifications) and stamped by a registered PE - NV. Falsework designer must certify completed falsework. Quality materials and construction must be used.
- Additional requirements apply to falsework built over travelways and railroads. Clearances, sheathing, barrier rail, overheight vehicle protection/detection system.

Post-tensioning

Common/Standard Shop Drawings

- 503 Prestressing. Post-tensioning and prestressing (precast girders) are covered in 503.03.01
- Includes stressing (tensioning), detensioning and grouting procedures.
- Only general details of the post-tensioning requirements are shown on the plans.
- Post-tensioning systems are proprietary.

Prestressing Shop Drawings

- Contractor must provide the additional details in their shop drawings with supportive calculations.
- A PE stamp is not required for this work.

Structural Steel

Common/Standard Shop Drawings

- 506 Steel Structures. Structural steel working drawings are covered in 506.03.01.
- Details how the contractor proposes to fabricate, paint and erect structural steel.
- Fabrication is usually out-of-state. Nevada NDOT inspector (or consultant) is assigned to the job.
- Paint must be protected during erection and repaired as needed.

Structural Steel Shop Drawings

- Field installation of shear studs required by Nevada OSHA (late 2008).
- Any proposed field welding not shown on the shop drawings must be discussed with, and reviewed/approved by the Bridge Division.

Earth Retaining Systems

MSE, Soil Nail, Tieback Wall Shop Drawings

- 642 Mechanically Stabilized Earth Walls. MSE wall shop drawings covered in 624.01.04
- 643 Ground Anchors. Ground anchor shop drawings covered in 643.01.03
- 644 Soil Nail Retaining Walls. Soil nail shop drawings covered in 644.01.03
- Proprietary retaining wall systems that require design and detailing.

These all require approval by both the Materials (Geotechnical) and Structures Divisions.

Common/Standard Shop Drawings

Joint review with other Divisions

- 206. Shoring, cribbing (Geotech) or cofferdams (Geotech, Hydraulics). 206.01.01. NV PE required.
- 623. Signals, Lighting and ITS. Special signal poles, high mast lighting and ITS signs (Traffic). 623.01.04. Note 15 day requirement from award for procurement of electrical and signal components.
- 627. Permanent Signs. Overhead signs. (Traffic). 627.01.02.

Other Items of Special Interest

- Bridge is normally involved with many other reviews (bearings, structural steel grates, etc.) and may also be involved with QA/QC plan review for concrete placement in decks.
- 505. Reinforcing steel. Bending diagrams are not reviewed by Bridge. Review is performed by field personnel.
- Issues associated with structural specifications should be discussed with the Bridge representative.

Common Challenges with Shop Drawing Reviews

- Schedule - incomplete, late submittals or excessive review times potentially impact construction operations. Contractors frequently expect reduced review times.
- Communication - tracking and status is critical.
- Falsework - designer needs to perform on-site visit to approve falsework construction.
- Performing work without current approved shop drawings may result in rework.

Design Support Functions

Questions regarding shop drawing reviews?

Construction Support Activities Inventory/Inspection

Provide NDOT Inspection services/support during construction including:

- Structural steel inspection
  - Fabrication, painting and erection inspection
- Post-tensioning inspection
  - Monitoring stressing and grouting
- Precast pre-stressed girder fabrication inspection
  - Monitoring girder fabrication/production and prestressing operations
- Ground Anchors/Soil Nail inspection
  - Monitoring performance/proof testing and grouting

Construction Support Activities Inventory/Inspection

- Structures Division monitors the post-tensioning and grouting operations.
- 503.03.01 requires 2 weeks notice by the contractor in advance of prestressing operations.
- **Contact Charlie Ceccarelli at: 775-888-7731 (cell 775-720-2624)**

Construction Support Activities Inventory/Inspection

Bridge maintenance services/support during construction including:

- Complete Inventory (initial) inspection of structure prior to opening to public traffic. Contact Lisa Green at (775) 888-7553
- Assist with final inspection of structure for punch list items and areas difficult to access.
- Can also assist in quantifying areas of damaged concrete, deck cracking, etc.
- Particularly important for Design/Build.

NDOT Support Functions

Questions regarding NDOT or maintenance/inspection operations?

Communication

Communication

Communication

National Transportation News & NV Structures:

- Big Dig ceiling failure July 10,2006. (Epoxy anchors.)
- I-35W collapse August 1, 2007. (Possible design QA/QC and inspection impacts.)
- Falsework and equipment failures – cranes. Reported nationally and in trade publications. (Developed engineer certification requirement.)
- National infrastructure funding issues.

Communication

Why?

- Develop, update and maintain current contract documents (plans, specs and special provisions).
- Consistently deliver high quality, cost effective and durable products and projects.
- Provide standard/uniform application of specifications.
- Minimize administrative issues.

Communication

- Address new technology.
- Clarify plan documents.
- Insure products are built in accordance with design requirements.
- Improve statewide consistency.
- Minimize disputes and potential claims.
- Improve plan detailing.
- Prevent surprises!!

Communication

New Technology

- Accelerated Bridge Construction
  - Every Day Counts Initiative – FHWA
  - Prefabricated Bridge Elements & Systems (PBES)
    - Precast Elements: girders, arches, headwalls, wingwalls, deck panels (future – columns)
    - QA/QC, Casting tolerances, fit-up, backfilling
    - Coordination between contractor, manufacturer
  - Bridge Moves – Mesquite slide, I-15 D/B SPMT
  - Wildlife Crossings

Communication

- Design/Build. Structural element details, types may vary.
- Architectural Details. Limited review. Structural impacts, connections addressed after development.
- Construction Joints. New general notes in bridge plans defining construction joints and mandatory joints.
- Falsework shop drawings. Use of proprietary systems (scaffolding type systems). Problems associated with a lack of foundation design, camber/profile requirements and failure to use horizontal/vertical loads required by specifications.


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QA/TESTING AND INSPECTION

100057585_201710_AD

Quality Assurance:
How to Put the Q in Quality

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Quality Assurance

Objectives
After this module participants will be able to answer the following:

- What is Quality Assurance (QA)?
- Why the need for QA?
- Who makes up the QA Section?
- What is the role of the QA Section?

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Quality Assurance

Objectives

- What are the roles of the QA Inspectors?
- What are the roles of the Independent Assurance (IA) Testers?
- What is the role of the Corporate Radiation Safety Officer (CRSO)?

Quality Assurance

What is Quality Assurance?

- Webster's Dictionary defines Quality Assurance as the following:

  Quality Assurance: *n.* A program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met

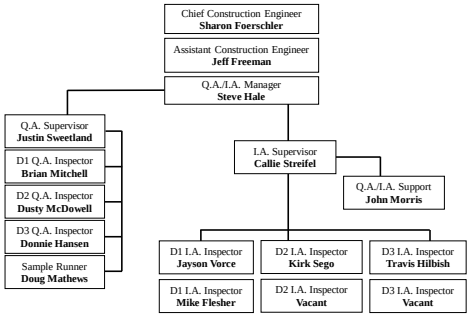
Quality Assurance

Why QA?

- FHWA requirement under 23 CFR 637B to have an Independent Assurance Program
- NDOT, as a public agency, has the responsibility to the public to provide the best quality for the tax dollar.
- Contracts awarded based on "Low Bid"

Quality Assurance

Quality Assurance



Quality Assurance

Lack of Quality Assurance

Quality Assurance

Quality Assurance

Quality Assurance

Quality Assurance

What is the QA Role?

- QA Section provides guidance/oversight to NDOT construction crews ensuring specifications are being enforced in a consistent manner across the state.
- QA Section provides guidance/oversight to NDOT construction crews ensuring sampling and testing is being performed, based on the applicable test methods, in a consistent and proper manner across the state.

Quality Assurance

What is the QA Role?

- QA Section continually updates specifications and construction procedures to coincide with industry changes.
- QA Section reviews crew documentation for completeness and accuracy.
- QA Section oversees Nuclear Density Program.

Quality Assurance

Most Important Role…

SUPPORT, SUPPORT, SUPPORT

Quality Assurance

Support of NDOT Crews

- Provide assistance in troubleshooting construction field problems.
- Provide hands-on assistance, when requested.
- Ensure that each crew across the state is well equipped to perform their duties efficiently and accurately.
- Liaison
- Training

Quality Assurance

Training/Proctoring

- General Inspection & Asphalt Inspection
- Concrete Inspection
- Nevada Field Sampling and Testing Qualification Program (NFSTQP)

Quality Assurance

Training/Proctoring

- Nevada Concrete Qualification Program (NCQP)
- Nuclear Density Safety and Training
- Special workshops

Quality Assurance

Role of QA Inspectors

- Perform on-site project reviews on all phases of NDOT construction projects.
- Observe and approve the calibrations of hot-plants and CIR trains.
- Perform verification testing for pavement smoothness using high speed profiling equipment (10% min).

Quality Assurance

Role of QA Inspectors

- Coordinate and provide training classes for crew personnel.
- Monitor and report the quality of work being performed by the crews and contractors.
- Assist the crews in troubleshooting construction related problems.

Quality Assurance

Role of IA Testers

- Conduct field audits on crew testers.
- Assist crew testers and Resident Engineers with test methods and procedures.
- Instruct testing school for Maintenance crews.
- Provide training/proctoring for NFSTQP and NCQP.

Quality Assurance

Role of IA Testers

- Review test reports for completeness and accuracy.
- Equipment inventories
- Lab safety inspections
- Equipment repair
- Research testing

Quality Assurance

Role of the CRSO

- Maintain the Nuclear Density Gauge Program to ensure State and Federal compliance
  - Inspection, calibration, and maintenance of nuclear density gauges
  - Coordinates with independent contractors to monitor and document radiation exposure levels of personnel working with the nuclear density gauges

Quality Assurance

Role of the CRSO

- Maintain the Nuclear Density Gauge Program to ensure State and Federal compliance
  - Procure new or replacement equipment for nuclear density gauges
  - Coordinate, prepare, and present required training materials for the nuclear and inspection training programs

Quality Assurance

Role of the CRSO

- Maintain the Nuclear Density Gauge Program to ensure State and Federal compliance
  - Develop and maintain site plans regarding storage, calibration, and maintenance facilities for nuclear density gauges

Quality Assurance

Having Quality Assurance

Quality Assurance

Quality Assurance

Quality Assurance

Construction

Quality Assurance

Updates since the 2017 RE Academy

- Development of inertial profiler certification program
- Filling vacant IA Engineering Technician position in District 2 and District 3
- New supervisor over QA inspections
- Implementation of electronic documentation for both field and IA testers possibly in 2019

Quality Assurance

Updates since the 2017 RE Academy

- QA inspectors to perform smoothness testing of bridge decks for acceptance
  - Crew personnel is required to be present for assistance
- Potential replacement for nuclear density gauges
- Training for IRI specifications
- Training for PWL specifications

Quality Assurance

- Workshop

RE Responsibilities for Materials Testing & Inspection

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Objectives

At the completion of this module participants will understand:

- Policies and Procedures regarding Materials Sampling and Testing
- Responsibilities of RE for Contractor Quality Control Testing
- Responsibilities of RE for Project Acceptance Testing
- Responsibilities of RE for Project Inspection
- Responsibilities of RE for Project Quality Assurance
- Recurring Problems

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Objectives

At the completion of this module participants will understand:

- Things to Remember
- Guidelines, Memos, & Agendas

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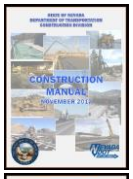
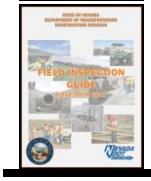
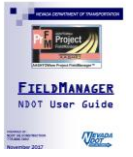
Link to Manuals

Construction

- Construction Manual
- Construction Survey Manual
- Documentation Manual
- Field Inspection Guide
- Field Testing Guide
- Materials Sampling and Testing Frequencies
- Synopsis of Materials Division Testing Manual for Field Testing
- Standard Specifications and Plans
- Partnering Guide
- FieldManager User Guide
- FieldManager Read-Only User Guide
- Contract Escalation Clauses
- Labor Surcharge Rates
- NDOT Certified Inertial Profiler Operators and Equipment
- Construction Site Best Management Practices
- Material Site Map Atlas







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Responsibilities of RE for Contractor Quality Control Testing

- Ensure the contractor performs project (Quality Control) tests using NDOT Test Methods as outlined in Section 106.04 and 501.02.01 of the Standard Specifications and/or Special Provisions and required frequencies are met. Test results or summary submitted to your District IA Lab.
- Withhold stockpile payments on material that has not been tested as outlined above.

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Example of Frequencies

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Policies and Procedures Regarding Materials Sampling & Testing

- Verify contractor's aggregates meet appropriate specified material properties prior to submitting material for mix design, including any other materials requiring source acceptance.
- Ensure qualified contractor personnel samples and performs moisture tests on concrete aggregate just prior to scheduled pour for SSD condition.
  - Crew testers should also perform tests for informational purposes.
- Tests need to be performed in a timely manner.

Responsibilities of RE for Project Acceptance Testing

- Locate field testing lab in a convenient location to the project (possibly at the pit).
  - RE is to coordinate the move, establishment of utilities, and any repairs
- Schedule material sampling in advance of the work requiring the specified material.
- (Service Providers) Review work items for the contract and ensure all required testing equipment is available and calibrated.

Example of ATSS

Policies and Procedures Regarding Materials Sampling & Testing

- Material testing must conform to the applicable test methods described in the NDOT "Synopsis of Materials Division Testing Manual for Field Testing".
- All NDOT personnel performing sampling and testing are required to have NFSTQP qualifications and NCQP for concrete testing. All non-NDOT personnel performing sampling and testing are required to have NAQTC or WAQTC qualifications for the appropriate test methods being performed and ACI for concrete testing.
- All materials are required to be inspected and tested for acceptance prior to incorporation into the work.

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Policies and Procedures Regarding Materials Sampling & Testing

- Results need to be communicated to the Contractor within 24 hours or sooner.
- Test Reports are required to be checked, processed and forwarded to the IA Lab within seven days of the "Tested Date" per the Construction Manual.
- Communicate the contractor's weekly work schedule to local IA Lab personnel.

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Policies and Procedures Regarding Materials Sampling & Testing

- Coordinate with IA Lab personnel to insure two-way splits can be obtained at the required testing frequencies.
  - IA testing frequencies are a Federal Requirement.
  - Also recorded on the Acceptance Testing Summary Sheet

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Policies and Procedures Regarding Materials Sampling & Testing

- The minimum sampling and testing frequencies are required to be met (Field Testing Guide).
  - Continually update ATSS (Acceptance Testing Summary Sheet). **DO NOT WAIT UNTIL PROJECT CLOSEOUT!**
  - ATSS developed by QA Section
  - If have not received ATSS by NTP date, contact the QA Section.
  - ATSS is reviewed by FHWA as part of their yearly audits.

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Policies and Procedures Regarding Materials Sampling & Testing

- All Service Providers with an agreement to test on NDOT projects with Nuclear Gauges must submit a copy of the following to the NDOT CRSO:
  - Nevada Radioactive Materials License
  - nuclear safety and HazMat certificates for all employees in control of nuclear gauges on the project
  - leak tests and inventory inspections for each gauge being used on an NDOT project
  - where gauges are being stored for NDOT projects
  - latest calibrations for nuclear gauges being used on an NDOT project

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Policies and Procedures Regarding Materials Sampling & Testing

- (Service Providers) Keep a Radiation Safety Officer on staff for nuclear gauge issues.
- All employees in control of nuclear density gauges must:
  - be monitored by TLD or OSL badges
  - have their TLD or OSL badge on while operating, transporting, or working in the vicinity of the gauges
  - have in their possession a current nuclear certification card

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Policies and Procedures Regarding Materials Sampling & Testing

- Service Providers gauges are not to be stored in NDOT facilities or used by NDOT personnel, and NDOT gauges are not to be stored in Service Providers facilities or used by Service Provider personnel.
- Direct questions on testing procedures/reports to IA/QA personnel.

Policies And Procedures Regarding Materials Sampling & Testing

- Thin Lift Gauge (4640B and 3450)
  - Correlate gauge prior to using.
  - Use forms 040-017, 040-017A and 040-017B.
- Moisture Density Gauge (3440 & 3450)
  - Take 3 gauge shots and dig 3 "ratholes" for the gauge correlation.
  - Perform 2 check tests (gauge/"rathole") to verify correlation.
  - Use forms 040-003, 040-007, 040-026, and 040-069.

Responsibilities of RE for Project Acceptance Testing

- Keep summaries of all project acceptance tests in field testing books.
  - Informational Tests can be placed in field books (separate from the acceptance tests).
- Track all failing tests and ensure proper corrective actions are taken.
  - Circle all failures in red, make sure that retests are performed or RE comments are made as to why the failing results were accepted (report on ATSS).

Responsibilities of RE for Project Acceptance Testing

- Keep copies of all field test worksheets and daily test reports on file in field laboratory and in the field office.
  - Files must match orange books.
- Blank testing forms are found on SharePoint and the Field Testing Guide.
  - (Service Providers) contact the QA Section to obtain forms.

Responsibilities of RE for Project Inspection

- Adequate knowledge level by inspector
- Inspectors must be familiar with test frequencies so that they can communicate with the testers.
- Communication of "Contractor's Schedule"
- Clear instruction given on acceptable quality of work.
- Proper documentation of work is recorded.
- Necessary training as required

Responsibilities of RE for Project Inspection

- Perform on-the-job training whenever possible with field inspectors.
  - QA Inspectors will assist, if needed.
- Review Inspector Daily Report (IDR).
- Communicate the contractor's weekly work schedule to your District QA Inspector.
  - Especially if major items are being constructed

Responsibilities of RE for Project Inspection

- Sign and return the "Quality Assurance Inspection Report" within seven days of receipt.
  - Keep in mind that this report is an FHWA requirement, and they will receive a copy.
- Direct any questions regarding field inspection to your District Quality Assurance Inspector.
- Supervise the inspectors to ensure their duties are performed well.

Responsibilities of RE for Project Inspection

- Ensure the inspectors have all necessary documents and equipment to carry out their assigned duties.
- Ensure marination, hotplant, and concrete batch plant inspectors keep accurate IDRs.

Responsibilities of RE for Project Quality Assurance

- Once the contractor's proposed Job-Mix Formula (JMF) is received, prepare the approved JMF.
  - Submit to QA for review and then submit to the Contractor, Construction Division and Materials Division.
- Before writing a JMF, refer to the Construction Division Memo (labeled "Revised Job-Mix Formula Process and Examples"), dated August 11, 2016.
  - This memo can be found on SharePoint.
  - Send draft to Justin Sweetland of QA Section for his review.

Responsibilities of RE for Project Quality Assurance

- When requesting to use a mix design from another project, submit request to M&T.
  - Ensure your JMF matches the most current one from the other project exactly, except it will be "JMF # 1" for your project.
- Contact your District QA Inspector at a minimum of 48 hours prior to the scheduled marination and/or hotplant calibration.
  - To be observed and approved by QA
  - Crew personnel is required to be present for assistance.

Responsibilities of RE for Project Quality Assurance

- After hotplant calibration (and approval) and prior to plantmix paving, direct the contractor to supply material by performing a "Hot Drop" (if required) and a cold feed sample (including sample of asphalt cement) to calibrate the Ignition Oven.
- Direct the contractor to perform plantmix coring A.S.A.P. on the first day of paving to correlate the nuclear density gauge.
- Ensure a trained concrete batch plant inspector is present during concrete production for all structural items.

Responsibilities of RE for Project Quality Assurance

- Schedule pre-pour/pre-pave meeting with contractor approximately one week prior to start of major work item, i.e., Asphalt Paving, Concrete Paving, Concrete Bridge Deck
- Notify NDOT Materials and Construction Divisions to send a representative to this meeting.
  - At a minimum, notify the appropriate Assistant Construction Engineer and QA/IA staff.

Responsibilities of RE for Project Quality Assurance

- Obtain recent copy of pre-pour/pre-pave agenda from Construction Division's QA Section or SharePoint and direct contractor to fill in as much information as possible prior to the meeting.

Recurring Problems

- RetroReflectivity & Thickness Measurements not performed on permanent and/or temporary striping
- Pull-Off tests not performed on Pavement Marking Film
- Concrete Aggregate Gradation Failures / Multiple Re-tests
- Informational Project Quality Control Tests not performed by the Contractor or results not submitted in a timely manner, as required in Section 106.04 and 501.02.01 (Specifications/ Special Provisions)

Recurring Problems

- Lack of hotplant/batch plant inspectors
- Lack of pre-pour/pre-pave meetings
- Not providing QA/IA staff with weekly updates

Things to Remember

- For commercial pits, separate and designate Concrete Aggs for NDOT usage.
- Before use, all aggregate stockpiles must be fully saturated.
  - Moisture conditioning of the concrete agg stockpiles should begin at least 15 hours prior.
- Produce specified quantity of material for hotplant calibration.
- Produce 5,000 tons of virgin material prior to mix design submittal.

Things to Remember

- Produce 5,000 tons of marinated material prior to full production.
- PBS mix designs must be renewed yearly, unless approved by the Materials Division.
- Calibrate hotplants yearly or more frequently as required. (contact your District QA Inspector when calibrations are scheduled)
  - Check SharePoint for the most current calibration data.

Things to Remember

- Perform hotplant calibration “checks” at medium speed as required.
- Hotplant “oiler” must be NAQTC T40 qualified.
- Concrete batch plants must be NRMCA certified.
- Contractor must perform QC testing per 106 and 501. (When Concrete Quality Control Plan Specified)
- **Continually** update the ATSS over the life of the contract.

Guidelines, Memos & Agendas

New manuals as of Nov. 2017

- Materials Testing Filing System Setup (Doc. Manual)
- Materials Testing Soil Coding (Field Testing Guide)
- Project Testing Frequencies (Field Testing Guide, SharePoint, and/or Internet)
- Plantmix Paving Checklist
- Revised Job-Mix Formula Process Memo (August 11, 2016)
- Amended ATSS Process Memo (June 15, 2016)

Guidelines, Memos & Agendas

- Cold Recycling Checklist
- Bridge Deck & Structural Concrete Guidelines
- Construction Division Memos to R.E.'s
- Pre-pave, Pre-pour Meeting Agendas (SharePoint)

TEST YOUR KNOWLEDGE

2018 RESIDENT ENGINEER ACADEMY

Question #1:

Per Subsection 106.04 of the 2014 Standard Specifications, the contractor is responsible for performing informational process control sampling and testing on aggregates used in base, plantmix, and concrete. What is the required frequency of the sampling and testing?

Question #2:

Continuing off of Question #1, what happens to these tests once received by the Resident Engineer?

Question #3:

(True/False) Contractor personnel performing process control sampling and testing are not required to have NAQTC or WAQTC qualifications.

Question #4:

During non-working hours, vehicles and equipment should be parked a minimum of _____ ft from the pavement edge of the travelled way over which public traffic is directed unless separated by _____ or _____.

Question #5:

All personnel within the Department's right of way shall wear vests meeting _____ or coveralls/jumpsuits meeting _____ requirements set forth in ANSI/ISEA 107-2004 "American National Standard for High-Visibility Safety Apparel and Headwear."

Question #6:

Who submits the "proposed" job-mix formula (JMF)?

Question #7:

Prior to sending out “Final” JMF memo, “Draft” JMF memo should be sent to who for review?

Question #8:

If using a previously approved asphalt mix design from a different contract, the first JMF should match what?

Question #9:

The Engineer has the authority to allow up to a _____% total change from the original bin percentages on the mix design?

Question #10:

Who is responsible for the observation and approval pertaining to the calibrations of hotplants and marination plants?

Question #11:

(True/False) A hot-drop is required for all plants?

Question #12:

Prior to the first day of paving, who should the Resident Engineer contact from the Construction Division?

Question #13:

When placing dense-graded asphalt pavement, construct the longitudinal joints so that they are within _____ in. of the final traffic lane lines. Is the specification the same for Interstates?

Question #14:

The tip of the tremie used to place concrete in the drilled shaft must be kept at least _____ft below the surface of the concrete at all times during placement.

Question #15:

The contract and specifications call for an AA mix in a sidewalk placement site. The contractor wants to use a DA mix for the placement. Is this an acceptable modification?

Question #16:

(True/False) Once an admixture is added to a batch of concrete either at the plant or onsite, no additional water can be added.

Question #17:

Reinforcing steel, placed at 12 in. spacing in either direction, should be tied at _____

Question #18:

Public traffic should be protected from longitudinal drop-offs greater than _____ in. with an approved barrier or construct and maintain approved 1:6 maximum safety slopes.

Question #19:

Who is responsible for the reflectivity testing of permanent striping?

Question #20:

Can consultant nuclear density gauges be stored in NDOT lab trailers?

Question #21:

(True/False) If only transporting a nuclear density gauge, the TDL/OSL badge is not required to be worn.

Question #22:

Who is ultimately responsible for verifying that test reports are complete and accurate?

Question #23:

Test reports are required to be submitted to your local IA Lab within _____ days.

Question #24:

Per the recommendation of the Construction Division, when should the ATSS be updated?

Question #25:

Who is ultimately responsible for ensuring that lab trailers are safe, clean, and in proper working condition?

CLAIMS AND DISPUTE RESOLUTION

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Dispute Resolution Teams

Construction Office

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Dispute Resolution Teams

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- What is a Dispute Review Team (DRT)
  - It is a Dispute Resolution Board (DRB)
  - Three person panel of industry experts assembled for a project to facilitate dispute resolution.
- Why are we using them?
  - Claims Avoidance
  - Project specific
  - Uses technically knowledgeable people

Dispute Resolution Teams

- Available NDOT materials
  - Specification 105.18
  - 3-Party Agreement
  - Sample Guidelines and procedure
  - DRT Candidate List
- The Dispute Resolution Board Foundation

Dispute Resolution Teams

- DRT member selection
  - Within 45 days of contract approval
- Both the Engineer and Contractor shall propose a list of three prospective DRT members. Each then selects one from the other's list.
- Contractor and the Engineer will mutually select a Chairperson from the remaining list or may elect to have the two selected DRT member nominate the third.
- Conflict of interest must be disclosed

Dispute Resolution Teams

- Payment for DRTs
  - Need third party agreement signed
  - Contractor will pay invoices of DRT members.
  - NDOT will reimbure100%, no mark up.
  - Contractor can not charge time for preparation or attendance of meeting.

Dispute Resolution Teams

- DRT Progress Meetings
  - Quarterly – members must be keep abreast of project
  - Round table format to discuss
    - Project status
    - Issue status
    - Possible issue
    - Partnering efforts
  - Field visit, need both contractor and owner present
  - In the guidelines and procedures

Dispute Resolution Teams

- Resolving a Dispute
  - Partnering First
    - Resolve Issues at the Lowest Level
    - Clearly Communicate and Listen
    - Use the Project Issue Resolution Ladder (IRL)
  - Do not refer issues to the DRT indiscriminately

Dispute Resolution Teams

- Dispute resolution meeting
  - Either Party can Refer an Issue to the DRT
  - Informal or Advisory Opinions if an option
  - Formal Dispute Hearings
    - Position Papers 14 day prior to both DRT and other party
    - Not recorded and not under oath
    - Each party presents
    - Rebuttal process

Dispute Resolution Teams

- Dispute recommendations
  - Within 21 days
  - DRT attempts for unanimous decision
    - Minority report if not possible
  - Recommendations are not Binding
  - DRT does not recommend on quantum
  - If Issue goes to litigation…
    - DRT Members cannot be called as witnesses
    - DRT Recommendations will be admissible in court

PARTNERING

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Partnering

Renee Hoekstra
Managing Partner – RHA, LLC.

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Program Outline

- Introduction and Expectations
- Team Styles
  - Understand the importance of style differences
    - Communication Impacts
      - Communication Approaches that Affect our Relationship
    - Problem Solving, Decision-making and Risk Impacts
      - Problem Solving and Issue Resolution
      - When a Problem/Issue becomes a Dispute/Conflict
  - Negotiation and Long Term Relationships – We're in this for the long haul

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Communication Style

- Each of us has a set of general behavior patterns.
- These patterns express themselves in the way we work and communicate with others.
- If we can identify how we communicate with others, it makes us aware of how we are perceived.
- We can then avoid unproductive behaviors and learn how to control our communication.

Communication Styles

Task

- Orderly, detailed and logical communications
- They function best when following procedures and rules, will express displeasure if things are different
- Very convergent thinkers; focuses on the details of the task
- Formal and to the point
- Note takers by nature
- Don't communicate with emotion and display less enthusiasm

Communication Style

Goal

- Much more general in communication without all of the details, more global in discussions
- Prefers to be able to verbally communicate rather than use letters and email
- They will often pick up the phone to respond to you rather than return an email in writing so they can get a better feel for the communication
- Communication can go in many directions it is unstructured in nature
- There is a much stronger focus on the bigger picture than the details and facts

Communication Style

Process

- Communications are warm & friendly with a focus on personal items
- Communicates with enthusiasm
- More comfortable if communication is informal in nature without a lot of structure
- Uses humor in communication to make people feel comfortable and the communication more enjoyable
- Wants to make sure that people are comfortable in their environment so communication if effective
- Are good listeners and can be empathetic to the speaker

Communication Styles

Questions

- Most often direct
- Conversations are short, open and to the point (candid) and sometimes can be blunt
- Sometimes likes to be combative because he/she likes challenges "stimulated" by the adventure of a "heated" discussion, which means they like meetings (face to face discussions)
- A divergent thinker, sometimes accursed of not listening
- Communication style reflects a need to be independent, free, practical and domineering

Effective Communication

What is so important about communication?

SUPPORTING | RESTRICTING

STATUS QUO

Communication

- Sending and listening skills are essential to good communication

Communication

- Open and honest lines of communication are required

Communication

- When communication with UNDERSTANDING occurs, we have:
  - Improved productivity
  - Better problem solving
  - A reduction in grievances
  - Ideas for methodology improvement
  - Greater personal satisfaction

Communication Approaches That Affect Our Relationships

- Direct Communicators
  - Ask questions to gain understanding
  - Often seen as confrontational
  - Use "You" statements

"You" Statements

- "You're wrong...."
- "You should do it this way...."
- "You always...."
- "Did you...."
- "You said...."
- "Why do you always...."
- "Why did you...."

"I" Statements

- "I'm not sure I understand your approach, can you explain it...."
- "I'm a little confused about the time we agreed to meet...."
- "I might have misunderstood...."
- "I thought...."

Communication Approaches That Affect Our Relationships

- Indirect Communicators
  - See questions as accusatory
  - Perceives questions as confrontational
  - Overly sensitive at times

Communication Approaches That Affect Our Relationships

- Are you indirect or direct?

Questioning Effectively

- The Power of Questions
  - Questions create a shared understanding of the issue or topic
  - It helps define the limits of a topic or situation

Questioning Effectively

A Question?

- Focuses attention
- Provides direction
- Tells people where to look for answers

Questioning Effectively

- When Asking Questions....
  - Focus on the situation, not the person
  - Be brief
  - Be direct and pointed, don't wander
  - Listen actively to the response
  - Try not to repeat yourself
  - Ask for clarifications, if necessary
  - Ask "Why" to gain better understanding

Questioning Effectively

- Open-Ended Questions
  - Cannot be answered in a few words
  - They encourage participation, varying viewpoints and different opinions
    - "What do you think?"
    - "What factors are necessary to complete this on time?"
    - What course of action should the team take?"

Questioning Effectively

- Closed-Ended Questions
  - Direct Questions that Produce Specific Answers
    - "Who is responsible for this work?"
    - "How many of you feel that closed-ended questions are better than open-ended?"
    - "Is the first step in problem solving to get the facts?"

Communication Behaviors vs Training

Behavior				
	9%	16%	30%	45%
Training	**Writing**	**Reading**	**Speaking**	**Listening**
	K-12 Grades and College	K-8 Grades and Special Training	First 3 years of life and special training	

Listening Tips

10 Key Elements

1. Honestly interact with the speaker during their floor time.
2. Suspend snap judgements about the message or the speaker.
3. Resist distractions, noise, other people, calls.
4. Listen to the whole comment, then pause for two seconds before responding.
5. Do not interrupt, resist the temptation to jump in with your ideas.

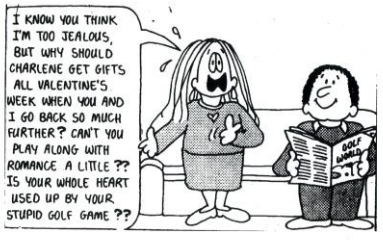
Listening Tips

6. Paraphrase, try to repeat the essence of the ideas to make sure the speaker knows you understand the message.
7. Watch for non-verbal cues such as anger, excitement, boredom, etc.
8. If in doubt, do not hesitate to ask the speaker to repeat.
9. Show continued interest in the speaker or terminate the conversation.
10. Really look at the speaker. Maintain solid eye contact to show you are truly listening.

Communication Gap

- Most people speak at a rate of 125-150 words per minute.

- Most listeners think at a rate of 400-500 words per minute.



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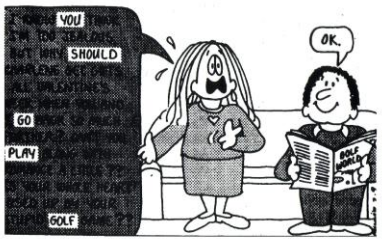

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Communication

Are you a good listener?

How Would You Express Yourself?

- The RE asked for you, the PM, to get something done on the job and for 2 months you have been telling him you'll get it done.
- Your are the RE how do you approach the PM and express your dissatisfaction with the current situation.

How Would You Express Yourself?

- Paperwork is a critical element on every project. The PM is extremely behind in providing paperwork on the job.
- You are the RE and have asked repeatedly, how do you get through to him?

Your Style & Solving Problems

Task

- When solving problems you will be conservative, you want to focus on methods that are tried and true, you are not a risk taker.
- You will want to work through each of the elements in an incremental manner, step by step.
- It is best for you to have time to plan and have time to solve problems. Not comfortable with shooting from the hip.
- Your decisions are logical and practical in nature.
- You will focus on decisions that are consistent and cost effective.

Your Style & Solving Problems

Goal

- You are open to all ideas and will look for options.
- As you solve problems you will focus on meeting the goals established.
- Risks during problem solving and decision making are accepted.
- You like to have the time to plan for solving problems versus shooting from the hip.
- Once decisions are made you are very interested in making sure commitments are made.
- You have no problem revisiting decisions that have been made to ensure they were the right decisions.
- You want to make sure that people are involved in the process.

Your Style & Solving Problems

Process

- In problem solving you favor having people involved.
- You want to have teams involved in helping to solve problems. Which also means you will resist leader control.
- You favor a consensus method of making decisions.
- Problem solving is a process and you will emphasize making sure that the processes are followed.
- During problem solving you are good at facilitating the efforts of working through conflicts.
- This style will discuss the consequences of taking risks and will provide feedback.

Your Style & Solving Problems

Question

- Problem solving is very unstructured, you spend resources on looking for the "real" problem.
- This style does exam the data and facts to aid in problem solving and will focus on costs versus benefits.
- Decisions are focused on legal and ethical decisions.
- You are willing to push for new ideas and risks are a part of the process, however you do not penalize team members for a "good try".
- You will also push for resistance in decisions made to make sure that there is agreement on implementing the decision made.

Problem Solving & Issue Resolution

- Communication is the KEY

Problem Solving

- Problems in Construction
  - Schedule
  - Money
  - Safety
  - Resources (Equipment, Manpower)
  - Quality
  - Personalities
  - Others?

Problem Solving

- **Barriers** to Problem Solving
  - Professional Distractions
  - Personal Distractions
  - Schedule Impacts
  - Personalities
  - Crisis Management
  - Others?

Problem Solving Scenario No. 3

The Resident Engineer watched with arms folded as the contractor's crew began a complicated concrete pour. He shook his head and said; "They'll never make their schedule with that equipment. The bucket is too small and they'll need another crane – they'll spend all their time filling buckets instead of pouring concrete." He turned and walked back to the management office, mentally preparing to deny the request for a time extension that he knew would be coming.

- **What should have been his approach?**

Problem Solving

What is the difference between solving a problem and resolving a conflict?

- Do we agree on what the issue really is?
- Do we have all of the data?
- Are we still trying to understand the issue?
- Do we have all of the answers/
- Have we considered other options?
- Have we included all of the right individuals?

If the answer to any of these questions is NO, we're still problem solving.

When a Problem Becomes a Dispute

- What is the difference between problem solving and conflict resolution?
  - Are we at impasse?
  - Do we disagree with one another?
  - Will the issue resolve itself if we ignore it?
- What is the definition of a dispute/conflict?

  "A disagreement between two or more people."

Dispute Resolution & Negotiation

- A dispute is an opportunity to negotiate.
- Negotiation is accomplished through communication.
- In order for negotiations to be successful, long term relationships must be considered.
  - How long have we worked together?
  - Are we going to be working together in the future?
  - Is it important to improve our relationships?

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

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Negotiation Trends

- The key demand of negotiation today is How to Create Value not how to split the existing pie.
- Negotiation is becoming more of a strategic thinking skills with the focus on crating options rather than outsmarting the other side – who is now more likely to be a partner.
- More attention is being paid to the internal processes that outline the strategic foundation of the agreement and build the relationships.

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

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Collaborative Negotiation

- For a negotiation to be collaborative, these standards must be met:
  - The long-term relationship must be maintained
  - The interests of both sides must be met
  - The outcome must be a robust and workable agreement

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

Long-Term Relationships

This is based on two qualities:

1. TRUST
   - How we use information
   - "Spin" – There is no absolute reality; it's your spin or theirs
   - Avoid judgmental behavior

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

2. RESPECT
   - How we use ideas and language
   - 3 things breakdown the long-term relationship:

     "Puffery" – The intention is overwhelming and diminishing the others' value. *"You are so lucky that you are dealing with me."*

     Use of Language – *"Obviously", "Let me be honest with you", "Let me tell you the inside scoop", "Can I be frank with you?", "Honestly".*

     Tell the other side how to do business – ASK don't tell each other about their ideas

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

Interests of Both Sides Met

Differentiate between positions and interests:

- POSITIONS
  - Things you say you want
  - Things you say you will or will not do
  - Affect: Draws the line in the sand; "*It's either "yes" or "no"*
- INTERESTS
  - Underlying motivation
  - Needs and concerns

  Affect: Afford you options and opportunities; *"This is what I'm trying to accomplish"; "These are the outcomes I need"*

Negotiation & Building Relationships

(Luis Aranda, JD & Eileen Keely Aranda, Ph.D)

To Build Good Agreements & Relationships

- Understand your primary interests
- Focus on the issues no the person
- Challenge your underlying assumptions
- Explore many options
- Build on the other person's ideas
- Mediate your own negotiation
- Trust and be trustworthy

Negotiator's Guide to Preparation

- Define Goals and Objectives
- Clarify the Issues
- Gather Information
- Humanize and Set the Climate
- Prepare for the Conflict
- Resolution if Issues
- Agreement and Confirmation

Negotiation Example No. 1

- A project was bid and was well under the engineer's estimate. The owner realized an opportunity to add in a few other project elements they initially had to remove from the project. They added a 2-mile access/utility road. This project has a very large earthwork element, well over 1 million cubic yards. The earthwork was bid at $.85 per cubic yard. When the owner asked for a proposal for the new access road, the contractor bid the earthwork element at $1.25 per cubic yard. In another item of work, the owner deleted 1000 feet of 16" waterline. The contractor bid the waterline with a 20% profit and an overall average of 8% on the entire project.

We Still Don't Agree

- How do we know we are at impasse?
  - "What part of no don't you understand"?
  - "Take it or leave it"!
  - The Golden Rule is applied "He who has the gold rules"
  - "I'm going to have to file a claim"
  - Someone has now take the issue personally (It's now about WINNING)
  - The issue begins to negatively impact our working relationship
  - An issue continues unresolved for too long of a period of time

Escalation Of Issues

- Use the escalation plan effectively and timely
- It does not mean you did not do your job
- It is not to be used to get your way
- Follow the rules established
- Maintain working relationships at all times
- Helps to avoid blame placing
- It's not personal
- Escalation starts at the lowest possible level
- You do not get to refuse to escalate
- Retaliation is not an option

Escalate Issues Effectively

- Inform you team member you would like to formally escalate the issue.
  - Just disagreeing is not a request for escalation
- Make sure you both agree on the issue
- Make sure you understand the other's position
- Make sure you have tried to resolve the issue fully, don't get lazy
- Schedule a separate face-to-face resolution meeting, timely

Escalate Issues Effectively

- Each level needs to keep the previous level informed as to the status
- Make sure you are not just escalating because you can
  - Pick your battles wisely

Implementation of Lessons Learned

- You have to be willing to work differently
- You must believe that Partnering relationships are more important than adversarial relationships
- You must be willing to embrace change
- You must have patience with your team members, change is difficult
- Apply the lessons you learned in your day to day work
- Help your fellow team members be a good partner

About Your Presenter

- **Renee L. Hoekstra** is the Managing Partner of RHA, LLC. Her recent experience includes providing training and facilitation services for value engineering, process improvement, partnering, team building and problem solving workshops for various public and private clients. This has included working with over 1900 teams nationwide. Renee has over 30 years of experience in the public sector. Renee brings a wealth of experience and flexibility to the facilitation process. She is able to work closely with teams and individuals to bring about effective communication which leads to effective problem solving.

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