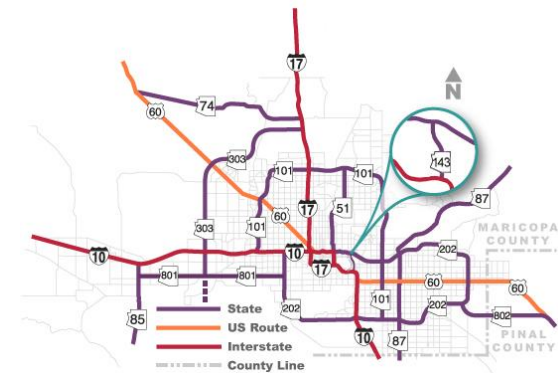


UTILITY AND RAILROAD ENGINEERING (URR)

Mohamed Ali Noun, PE
Statewide Utility Engineer
MNoun@azdot.gov
602-712-8689



URR Mission

URR is responsible for:

- clearing the right-of-way of utility conflicts in advance of highway construction projects; in a safe, efficient, and cost-effective manner.
- Also, improving safety of public railroad crossings in Arizona.

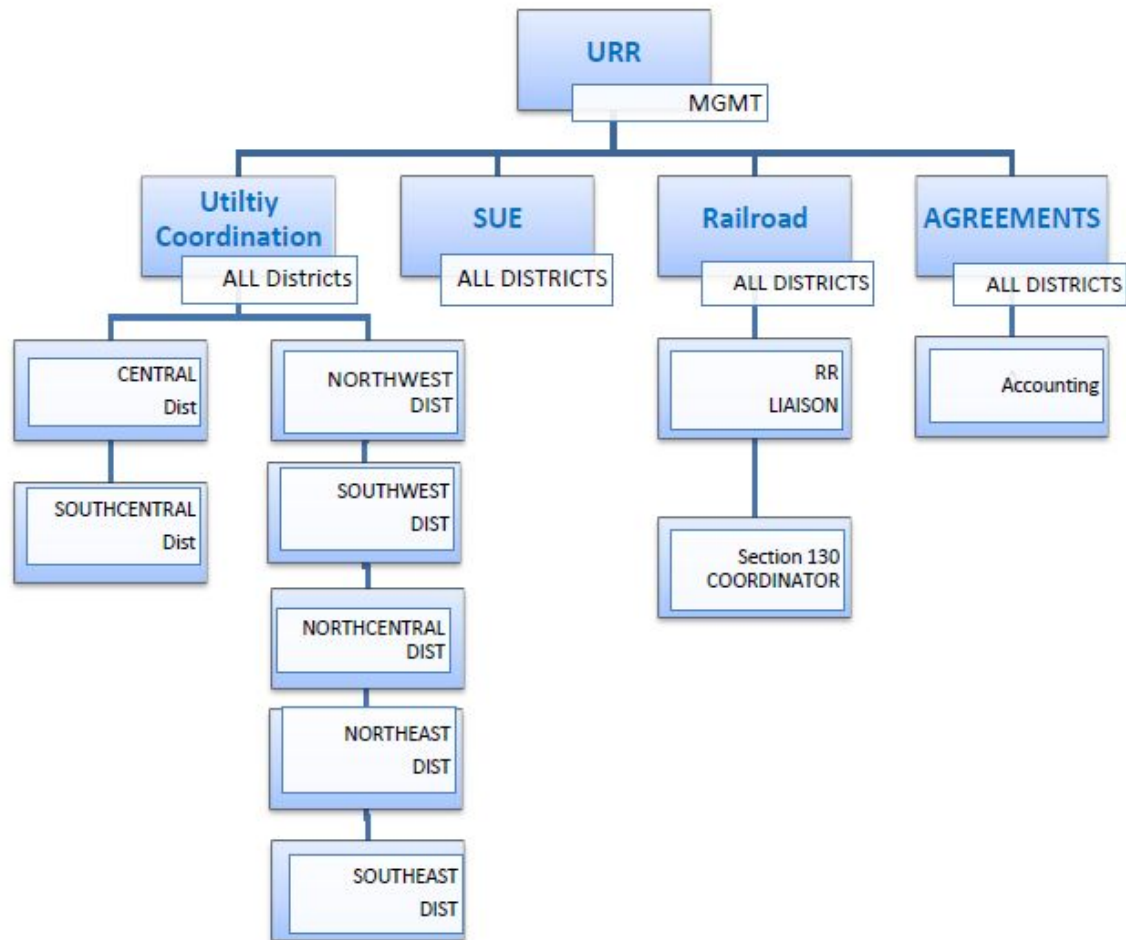


URR KEY OBJECTIVES

- **Public Safety:** Minimize / Eliminate liability on Hwy CONST projects & Improve safety at public railroad/highway crossings in Arizona
- **Project Schedule:** Support ADOT's Construction Schedule & Service Delivery
- **Project Budget:** Ensure Cost Effective Operations & avoid unnecessary costs



URR STRUCTURE





PRIMARY ROLE

URR Role is integral and critical
to
ADOT IDO Project Development & Construction

URR UTILITY CLEARANCE CERTIFICATION

is required PRIOR to

PROJECT ADVERTISEMENT

 Arizona Department of Transportation UTILITY & RAILROAD ENGINEERING SECTION 205 S. 17th AVE., Phoenix, AZ 85007	
MEMORANDUM	
To: Barry Crockett, PE Engineer - Manager Contracts and Specifications (211)	Date: September 3, 2008
From: Mohamed Al Hour, PE MAG Freeman Coordinator Utility and Railroad Engineering Section MAG UTILITIES MAG K&B	Subject: URR Clearance letter TRACS HQ: 010 MA 120 H211 01C PROJECT HQ: SECTION: Freeburg -Phoenix Hwy 0-10 FRANCIS LOCATION: I-10 VERBADO TO SARVAL
<small>The enclosed letter from "URS" certifies utility clearance for the subject project. In addition to your stated specifications under section 107.15, please include the attached information in the Project Special Provisions. We request to utility adjustments. This project may be released for bid.</small>	
 Mohamed Al Hour, PE	
<small>Encl: Clearance Letter cc: Stephanie Huang, ADOT VPM Arl Cottrill, URS Bill Jensen, ADOT Phoenix Construction D.E. Hal Evans, ADOT PMG, MD K&B Michael Serrano, TRCA Re: (TRCS H211)</small>	

Utility Clearance

- All Utility-related concerns have been addressed in the Utility Clearance Letter.
- The project Plans, Specifications, & Estimates (PS&E) contain all the information needed by State and contractor forces to prevent unforeseen problems involving utility facilities.

FEDERAL & STATE LAWS

- FHWA 23 CFR
 - Utility Relocations, Adjustments & Reimbursement
 - Accommodation of Utilities
 - Railway/Hwy Crossings (Sec 130)
- Arizona Revised Statutes (ARS):
 - ARS 28-7092: Land acquisition for utility relocation
 - ARS 28-7156: Utility Relocation & Reimbursement

Stakeholders

External

- Utility companies, Counties, Cities and Towns
- On-Call Consultants
- Design Consultants
- Railroad Companies
- AZ Corporation Commission
- AZ Attorney General
- FHWA

Internal

- Executive Mgmt
- PMG
- Contracts & Specifications
- Design & Construction Staff
- Environmental Group
- Right of Way Group
- Financial Services
- Audit & Analysis Office

Projects Handled by URR

■ PROJECTS:

- All Highway Projects Currently processed through IDO
- About 200 Projects Cleared in a Fiscal Year



What are Utilities?

Utilities are the Veins and Arteries of our Cities and Roads...



Utilities:

- Electric Power
- Gas - Oil - Product Lines
- Telecom./Cable TV
- Water
- Sanitary Sewer
- Reclaimed Water
- RR (treated as a Utility)

Utilities

Existing utilities
abound!

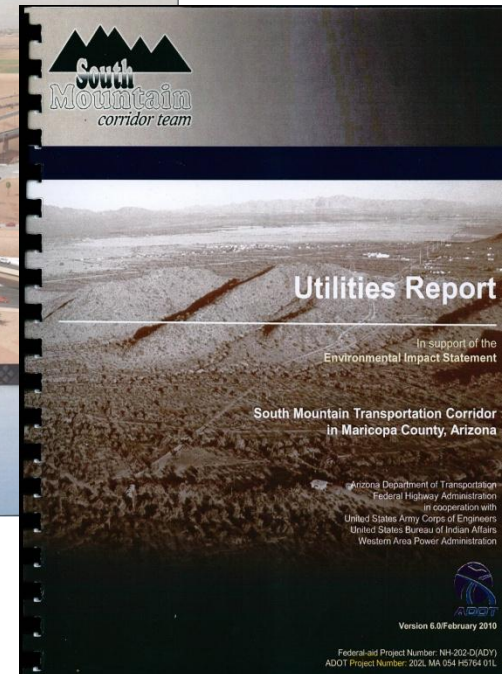
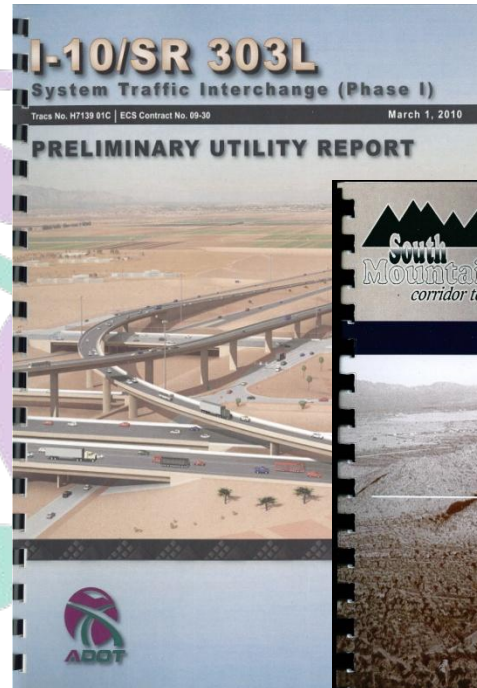
...and...

How do you
ever identify
and avoid these
facilities!!!



ADOT Utility & Railroad Engineering

Utility Coordination Process



Utility Coordination

Art
VS.
Engineering



Art vs. Engineering

Art...

Not this Art...

**A position with URR
if you know who this is!**



Art vs. Engineering

This kind of Art:

- Knowledge of the Utility Coordination Process
- Knowledge of State Statutes (ARS) and FHWA regulations (CFR)
- Effective Verbal & Written Communication Skills
- Negotiation & Organizational Skills
- Productive Relationships with Utility Owners
- Also, a personality helps!

Art vs. Engineering

Engineering:

- Plan Reading
- Field Reviews
- Utility Conflict Analysis
- General Utility Design Concepts & Alternatives
- Utility Construction and Inspection
- Principles and Practices of Civil Engineering
- ADOT Standards and Procedures



Why we need Utility Coordination!

Design in Progress

- Multiple Existing underground facilities.



Traffic Signal foundation
is designed right here!

Why we need Utility Coordination!

Construction
in
Progress!



Lack of Communication!

Why we need Utility Coordination!

Safety ... Safety ... Safety!!!



UNIFORM COLOR CODE FOR MARKING UNDERGROUND FACILITIES

- Proposed Excavation
- Temporary Survey
- Electric Power
- Gas, Oil, Dangerous Materials, Product Lines
- Communication, Cable Television, Fiber Optics (- letter F)
- Water Systems, Slurry Pipelines
- Reclaimed Water
- Sanitary Sewer Systems

Know what's below.
Call before you dig.

811

ARIZONA
Blue Stake, Inc.

Call **811**
602-263-1100
800-STAKE-IT
Outside of Maricopa County



Why we need Utility Coordination!

- 36" gas line explosion



Why we need Utility Coordination!

Construction Completed!



Not what we
expected!!!

Why we need Utility Coordination!

That's Why:

- Public Safety
- Project Schedule
- Project Budget



***No unexpected delays/expenses occur during construction as a result of conflicts with utility or railroad facilities.

Utility Coordination

The Process
in
Project Development

The logo for the Arizona Department of Transportation (ADOT) is centered behind the text. It features a stylized sun or globe with a green and purple color scheme, and the letters 'ADOT' in a bold, sans-serif font below it.

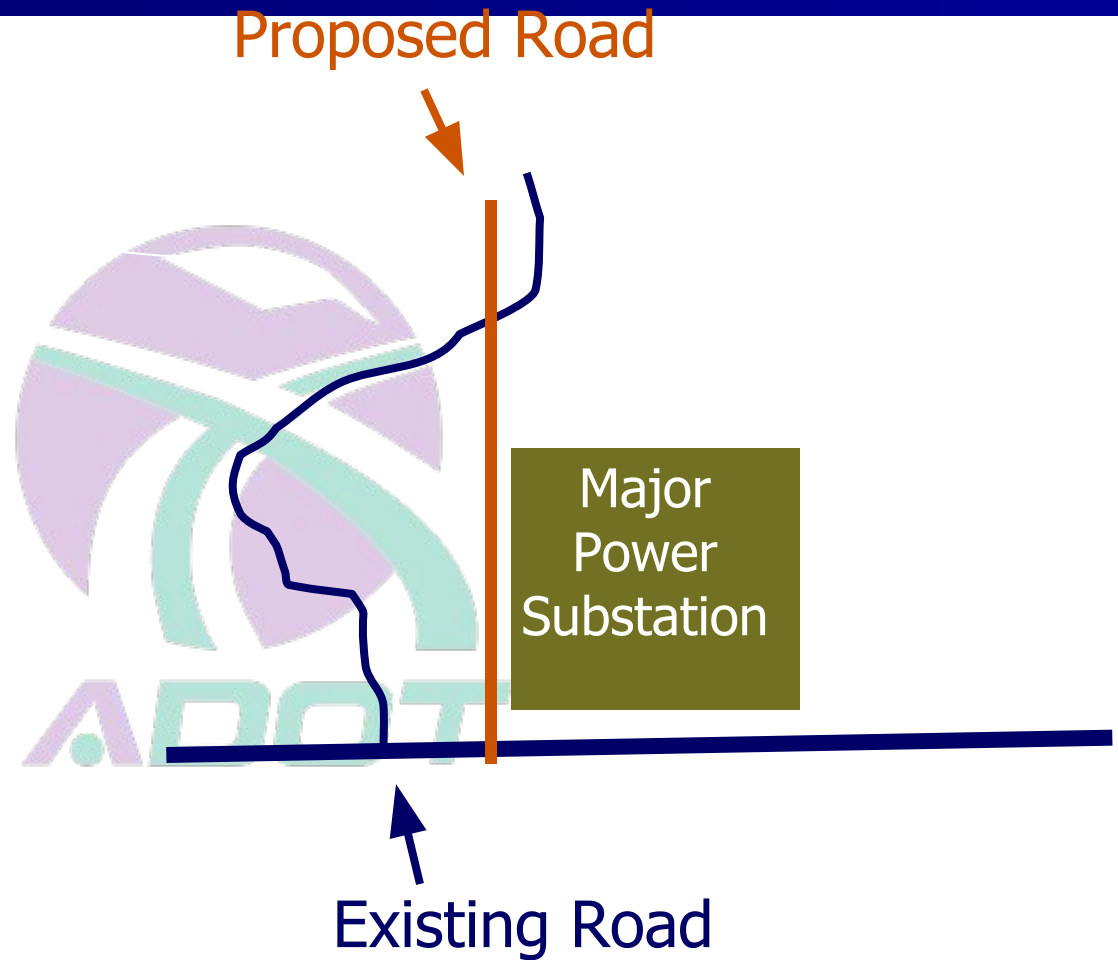
Project Develop. Phases

- Scoping Phase: SL / PA / L-DCR
- Design Phase:
 - Stage II: 30%
 - Stage III: 60%
 - Stage IV: 95%
 - Stage V: 100% (PS&E)
- Construction Phase



Initial Proposed Alignment

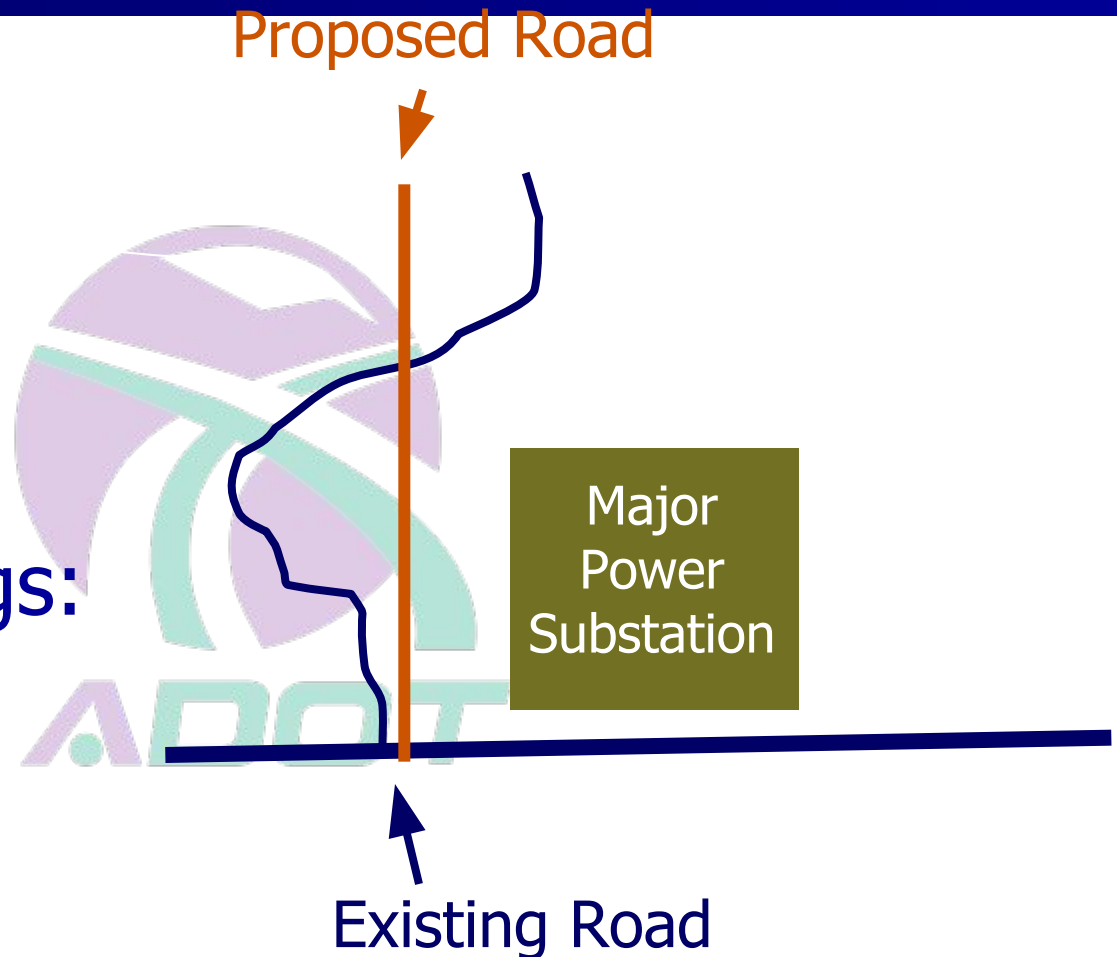
- Consider impact to utilities



Final Alignment

- Utility has Prior Rights (ADOT pays)

- ADOT Savings:
 - Time
 - Money



Avoid...Avoid...Avoid Utility Conflicts

- Suggest Alternatives:
 - Move alignment
 - Change grade
 - Widen only one side of highway
 - Move ramps
 - Other design modifications



***Team will re-align Freeway/ modify design to avoid & minimize impact to Utilities

Design Phase

URR Milestones:

1. Identify utilities within project limits
2. **S**ubsurface **U**tility **E**ngineering (**SUE** Phase I)
3. Utility Conflicts Analysis
4. **S**ubsurface **U**tility **E**ngineering (**SUE** Phase II)
5. Resolve utility conflicts
6. Agreements (Land Rights, Cost, Plans & Sch.)
7. Issue the Utility Clearance Letter



1. Identify Utilities (Data Collection)

- Contact AZ blue stake center
- Utility owners listing & Field Review
- Obtain As-Builts / Facility maps from Ut.
- Research ADOT Permit Log
(Existing & proposed Ut.)
- Review Existing R/W plans



2. SUE Phase I (Designate utilities)

Surveying/Mapping:

- Request utility designation (horizontal QL-B)
- Map designated utilities in CADD within Project limits



3. Utility Conflict Analysis

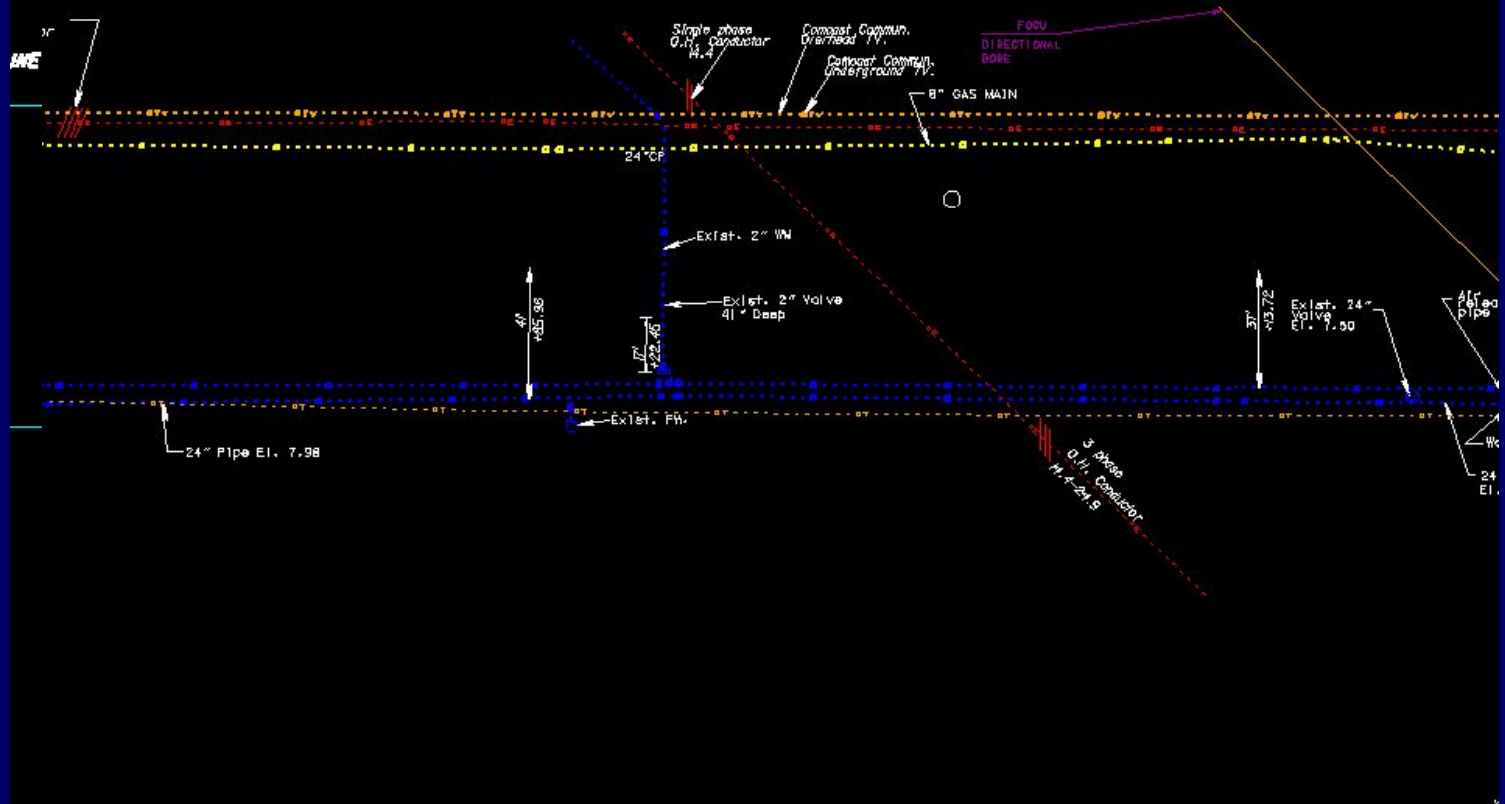
- Lay out horiz. Designated utilities on the design plans (Stage II)
- Determine potential utility conflicts:
 - Review plans
 - Engineering analysis



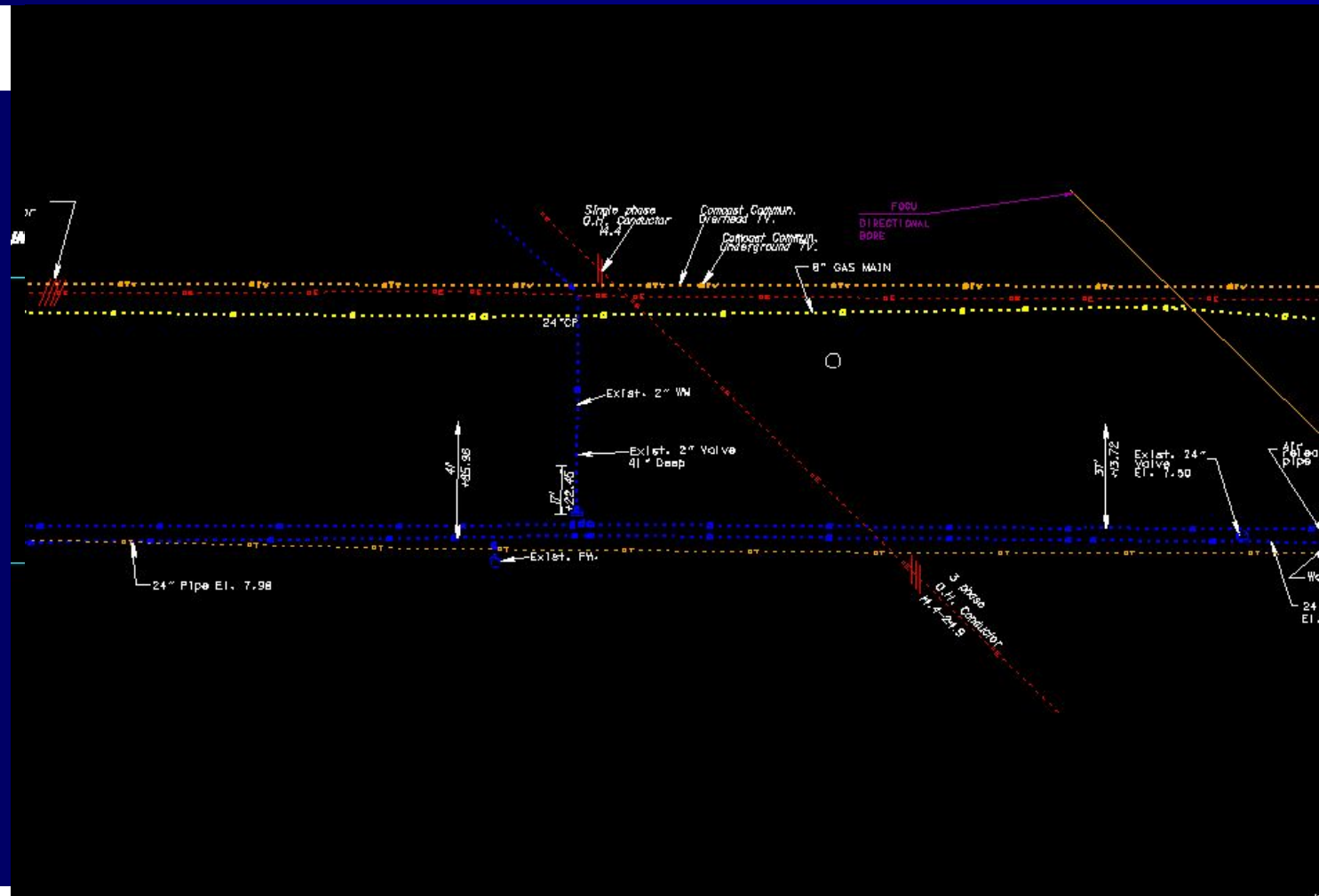
Start With the Topography

Add I

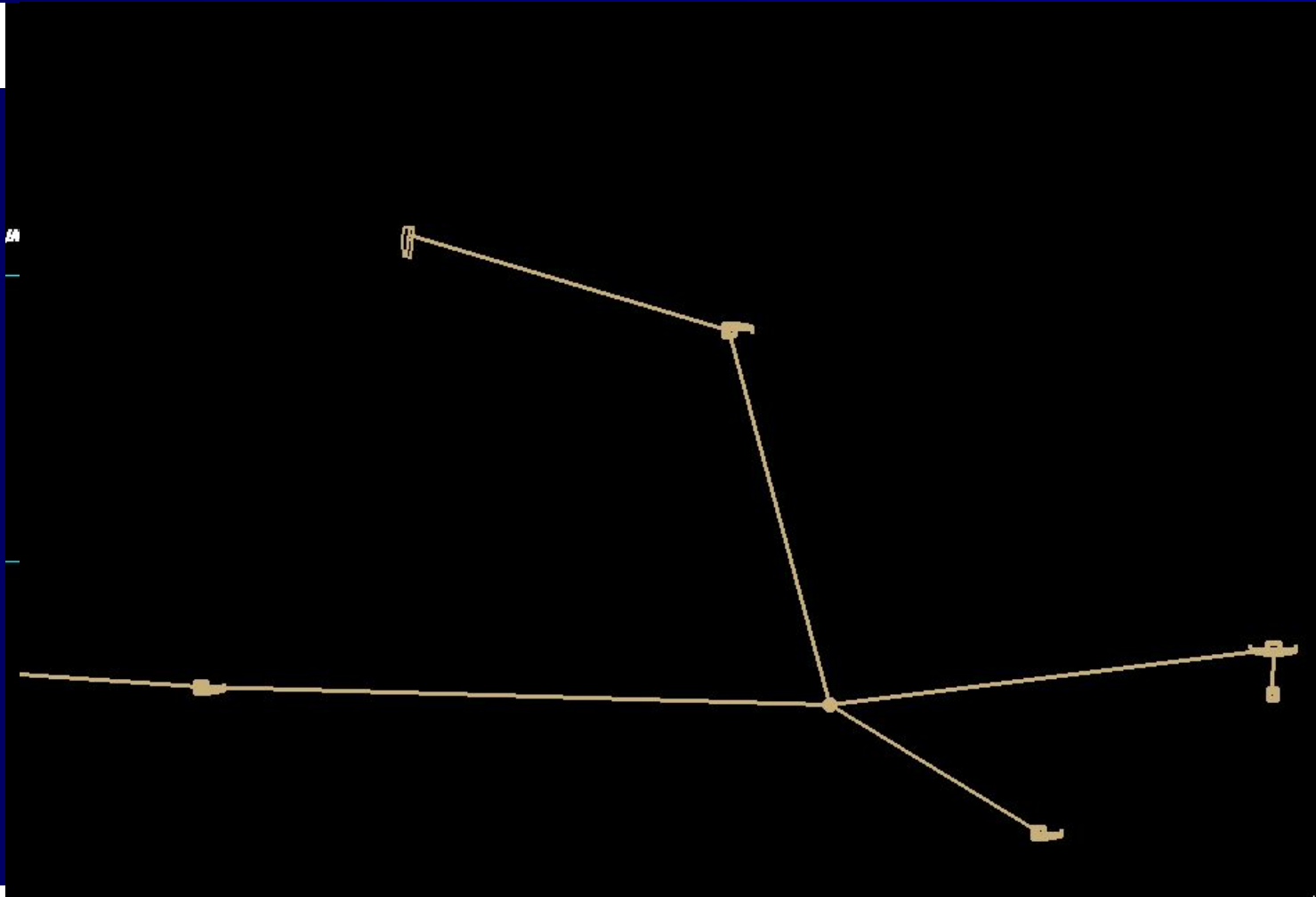
B)



Add Preliminary Roadway Design

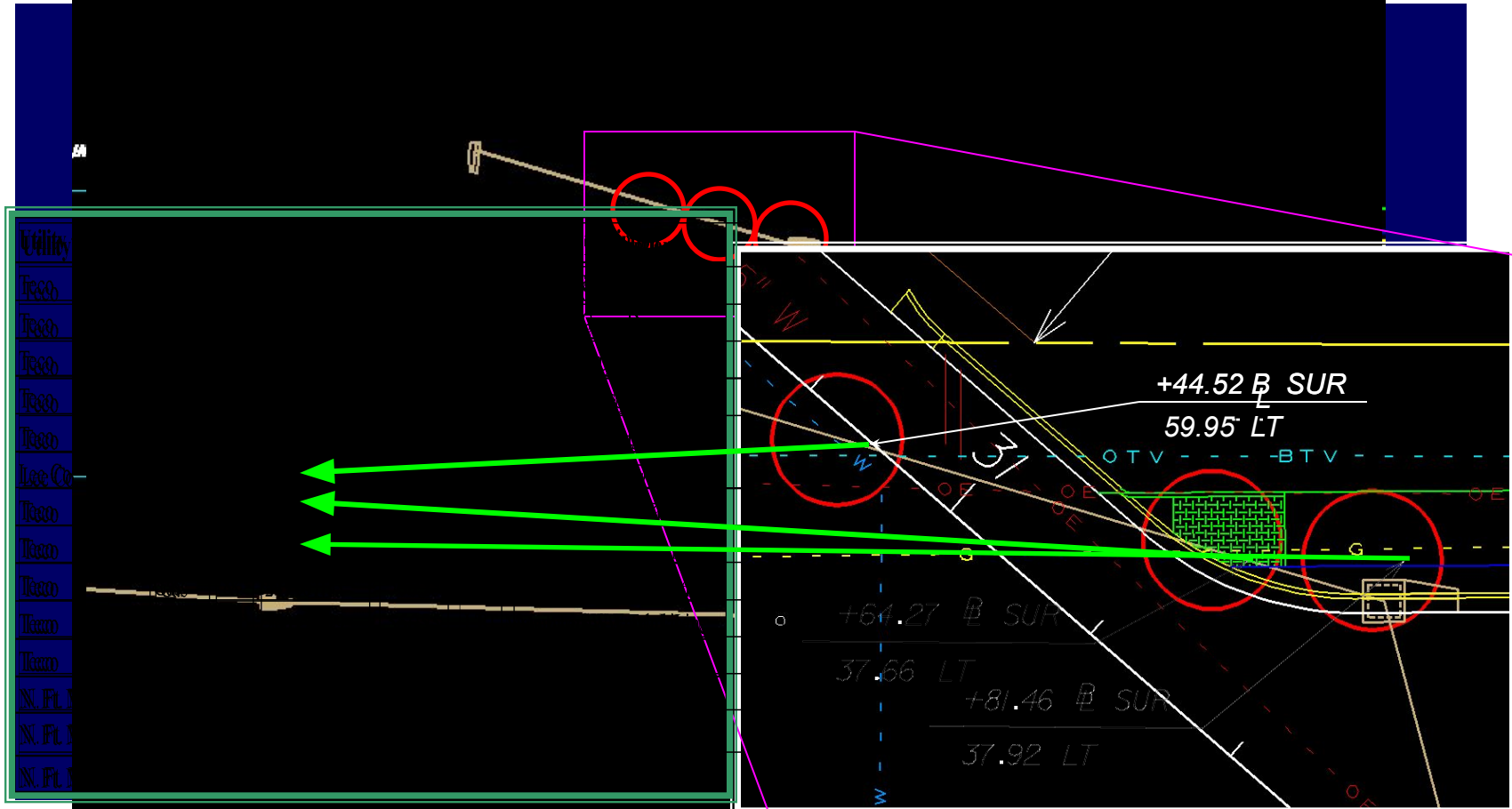


Add Preliminary Drainage Design



Analyze Conflicts

Identify potential Conflicts Build Conflict Matrix



4. SUE Phase II (Locate Utilities)

- Request utility vertical locating services (Potholing QL-A) to confirm/rule out potential conflicts.



5. Resolve Utility Conflicts

Provide technical guidance to the utility relocation design team:

- Safe option
- Cost effective
- R/W
- Environmental
- Permit
- Multiple Utility Relocations Schedule



6. Utility Agreements

Prepare, review and process legal Utility Agreement Contracts:

- Scope of work
- Utility Design Authorization
- Cost Estimates
- Utility Relocation plans
- Land Rights documents
- Schedule of work
- Utility Construction Authorization
- Payments Approval



A & CONTRACT NO. P001-2010-00242

ARIZONA DEPARTMENT OF TRANSPORTATION
UTILITY AND RAILROAD ENGINEERING SECTION

UTILITY AGREEMENT
Between

THE STATE OF ARIZONA
and
AT&T CORP.

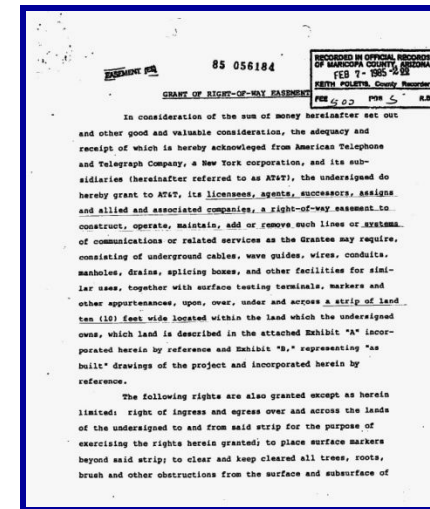
Agreement No. 3130-08-ATT
TRACS No. 303 MA 104 H7139 01U
PROJECT NO. 303-A0200N
HIGHWAY: Estrella Freeway
LOCATION: SR-303L and I-10(PAPAGO)

THIS AGREEMENT is made between the STATE OF ARIZONA, acting through its DEPARTMENT OF TRANSPORTATION, and AT&T CORP. All lettered exhibits are incorporated and made a part of this agreement by reference and attachment regardless of designation or alphabetical order.

***** All components in compliance with ADOT Standards & Policies; and with Federal Requirements.**

Land Rights

- Evaluate land rights documentation
 - County maps, title reports, Easements, R/W plans, ADOT permit log and other property plans and legal descriptions
- Determine prior rights status
- Validate financial responsibilities for relocations as appropriate.




Approve Relocation Plans

- Utility relocation plans and specifications are in compliance with ADOT applicable standards, policies and regulations




PROJECT NO. 6661372
SPECIFICATION NG 98661
CABLE CLL- PHXKZUBS17



WESTERN REGION
MAINTENANCE PROJECTS

PHOENIX POP
TO
BUCKEYE OA

REROUTE FTA CABLE INTO NEXGEN
LINK 13 CONDUIT ALONG THE ROOSEVELT
CANAL FROM Mc DOWELL ROAD TO
WEST OF COTTON LANE
IN GOODYEAR, AZ


 CONSTRUCTION ISSUE
MAY, 2010

ROOSEVELT IRRIGATION DISTRICT APPROVAL
THE DISTRICT APPROVES THESE PLANS FOR CONCRETE ONLY AND
ACCEPTS NO LIABILITY FOR ERRORS OR OMISSIONS.
13 June 2010
12:36
ROOSEVELT IRRIGATION DISTRICT

FORKERT ENGINEERING &
SURVEYING, INC.
2231 BROOKDALE ST., STE. 203
HUNTINGTON BEACH, CALIFORNIA 92646
PHONE (714) 862-8793
MAY, 2010 JL 6661372

7. Utility Clearance

- Write the Utility Clearance Letter with Special Provisions language to include in the Project Specifications
- State clearly the status of each utility facilities within the project limits.
- Issue the utility clearance letter authorizing project construction

Arizona Department of Transportation UTILITY & RAILROAD ENGINEERING SECTION 265 S. 17th AVE., Phoenix, AZ 85007	
MEMORANDUM	
To: Barry Crockett, PE Engineer - Manager Contracts and Specifications (217)	Date: September 3, 2008
From: Mohamed Al Hour, PE MAG Reentry Coordinator Utility and Railroad Engineering Section MAG UTILITIES MAG K8BE	Subject: Utility Clearance letter TRACS M21-010 MA 120 H211 01C PROJECT NO. SECTION: Freeburg - Phoenix Hwy 0-10 FRANCE LOCATION: I-10 VERBADO TO SARVAL
<small>The attached letter from "URS" certifies utility clearance for the subject project. In addition to your stated specifications under section 107.15, please include the attached information in the Project Special Provisions. We respect to utility adjustments. This project may be released for bid.</small>	
 Mohamed Al Hour, PE	
<small>Enc'd Clearance Letter: 001: Stephanie Huang, ADOE/VRM AV Engineer, OES 002: Bob Jensen, ADOE/Phoenix Construction D.E. Rail Division, ADOE/PHX, MD 035E Regional Services, TRM PH (RACS H211)</small>	

Construction Phase

- Attend Partnering/Pre-construction Meetings
- Alert Utilities & Contractor to comply with project CNST schedule
- Ensure minimal interruptions to Utility Services during construction
- Resolve any arising utility issues during project construction



ADOT Utility and Railroad Engineering

Thank you!
Questions?

The ADOT logo is a watermark in the background, featuring a stylized globe with purple and green segments and the letters 'ADOT' in a green, blocky font below it.

For more info:

ADOT
UTILITY AND RAILROAD ENGINEERING

205 S 17TH AVE, RM 357
PHOENIX, AZ 85007
www.azdot.gov
602 712-7541