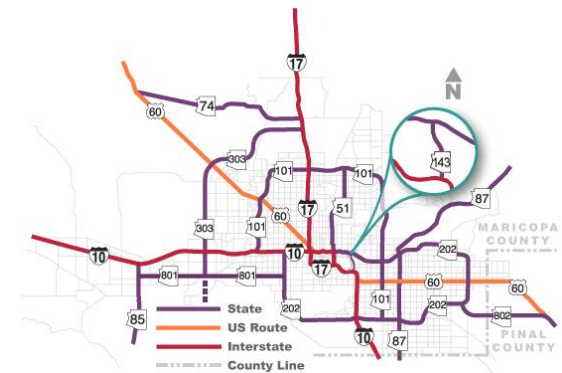


UTILITY AND RAILROAD ENGINEERING (URR)

URR_Billing@azdot.gov
602 712-8161



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, in addition to at grade crossings.

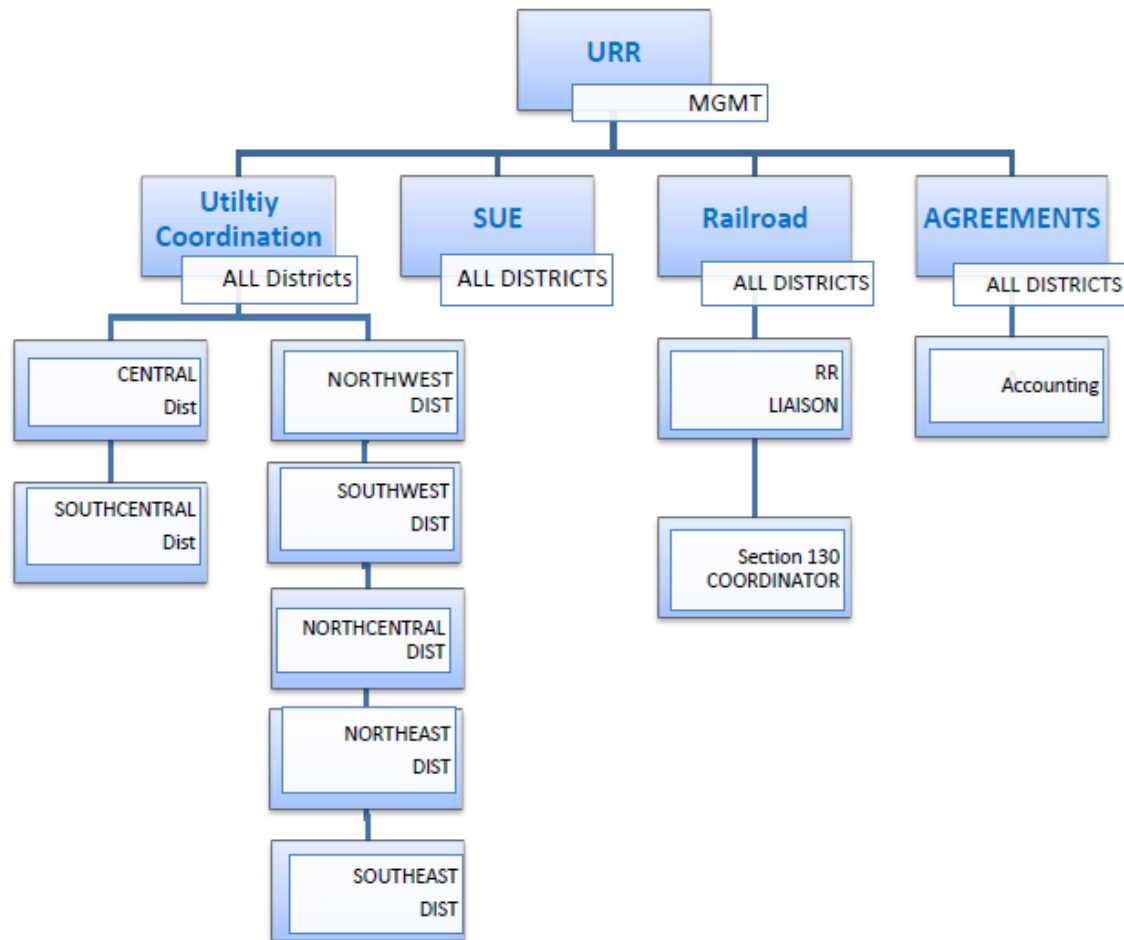


URR KEY OBJECTIVES

- **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 Measures, avoiding unnecessary costs



URR STRUCTURE



PRIMARY ROLE

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

URR UTILITY CLEARANCE CERTIFICATION

is required PRIOR to
PROJECT ADVERTISEMENT

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 (21F)	Date: September 3, 2018
From: Mohamed Al Hour, PE SAG Inventory Coordinator URR & Railroad Engineering Section SAG UTILITIES MD 438E	Subject: Utility Clearance letter TRACS MD: 618 MA 138 H211 61C PROJECT NO. SECTION: Bessburg - Phoenix Hwy 8-10 TRACCS LOCATION: 1-10 VERBADO TO SARVAL
<small>The enclosed letter from "URS" certifies utility clearance for the subject project. In addition to your stated specifications under section 107.05, please include the attached information in the Project Special Provisions. With respect to utility adjustments, this project may be released for bids.</small>	
 Mohamed Al Hour, PE	
<small>Enclosure Letter: cc: Stephanie Huang, ADOT VPM Jill Schmeier, UEG Rita Samra, ADOT Phoenix Construction D.E. Rob Thomas, ADOT PM&E, MD 438E Rob McConkey, R&E File (TRACS H211)</small>	

Utility Clearance

- All Utility-related concerns and mitigations have been addressed in the Utility Clearance Letter.
- The project Plans, Specifications, & Estimates (PS&E) contain all the information needed 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 PDO
- 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/Broadband
- Water
- Sanitary Sewer
- Reclaimed Water
- RR (treated as a Utility)

Utilities

Existing utilities
abound!

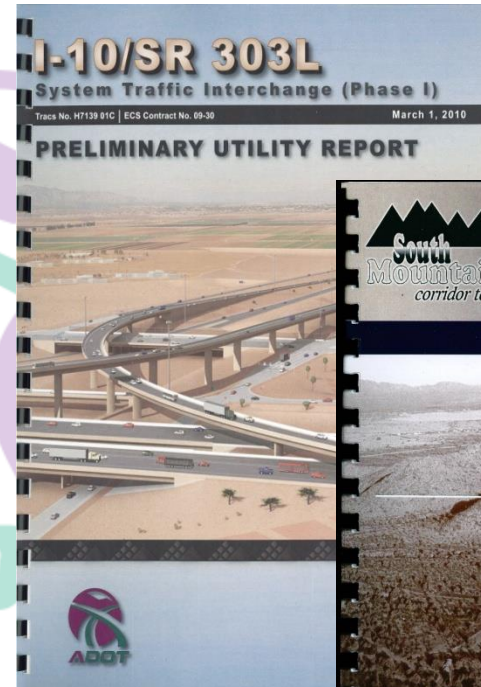
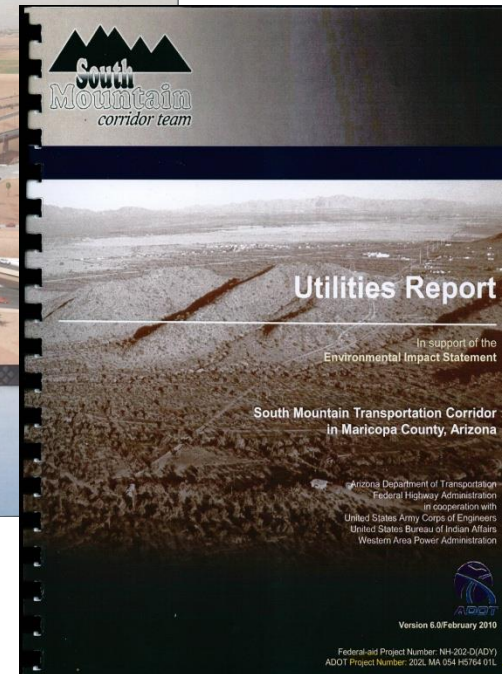
...and...

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



ADOT Utility & Railroad Engineering

Utility Coordination Process



Utility Coordination

***Art
vs.
Engineering***



Art vs. Engineering

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!!!



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 Abbot is centered behind the text. It features a stylized circular emblem composed of several overlapping segments in shades of purple and green. Below the emblem, the word "Abbot" is written in a green, sans-serif font, with the first letter 'A' being larger and more prominent.

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





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. Subsurface Utility Engineering (SUE Phase I)
3. Utility Conflicts Analysis
4. Subsurface Utility Engineering (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

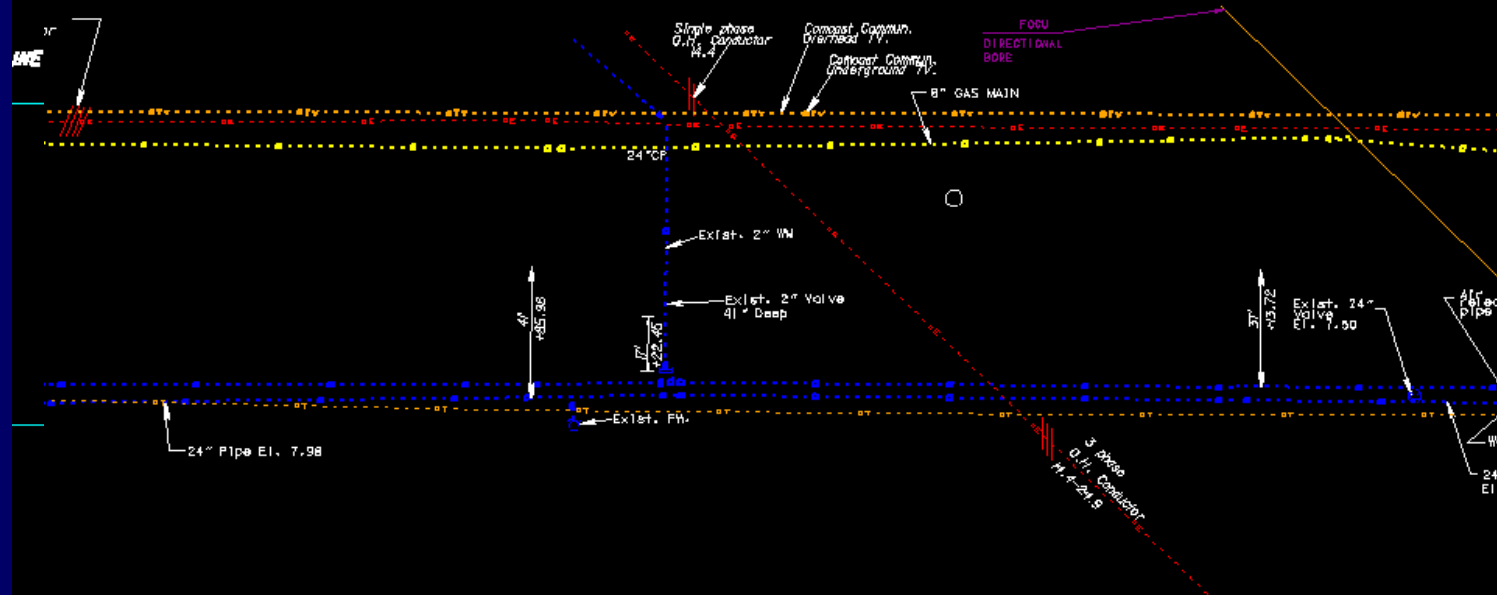
- Lay out horiz. Designated utilities on the design plans (Stage II)
- Determine potential utility conflicts:
 - Review plans
 - Engineering analysis



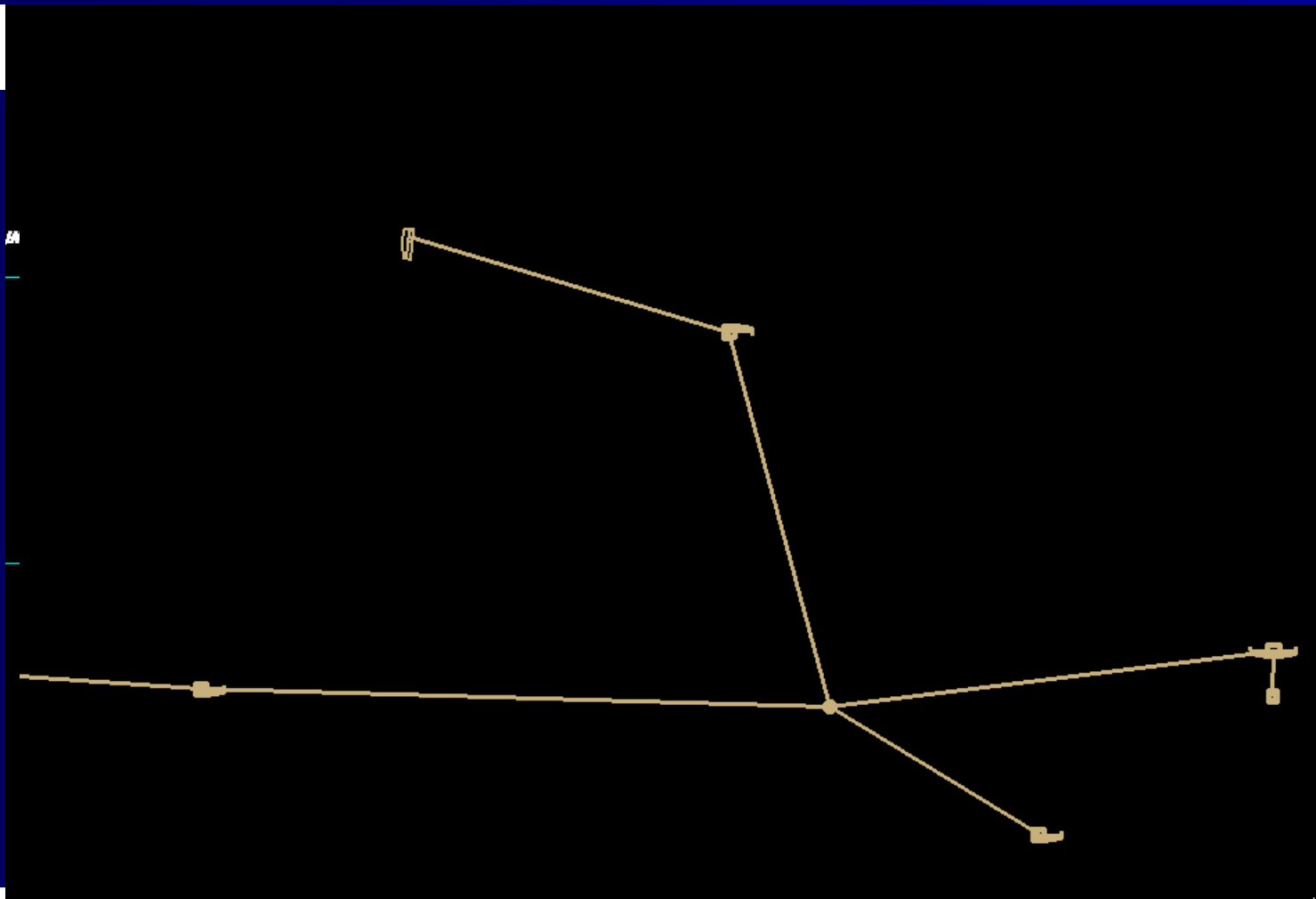
Start With the Topography

Add I

B)

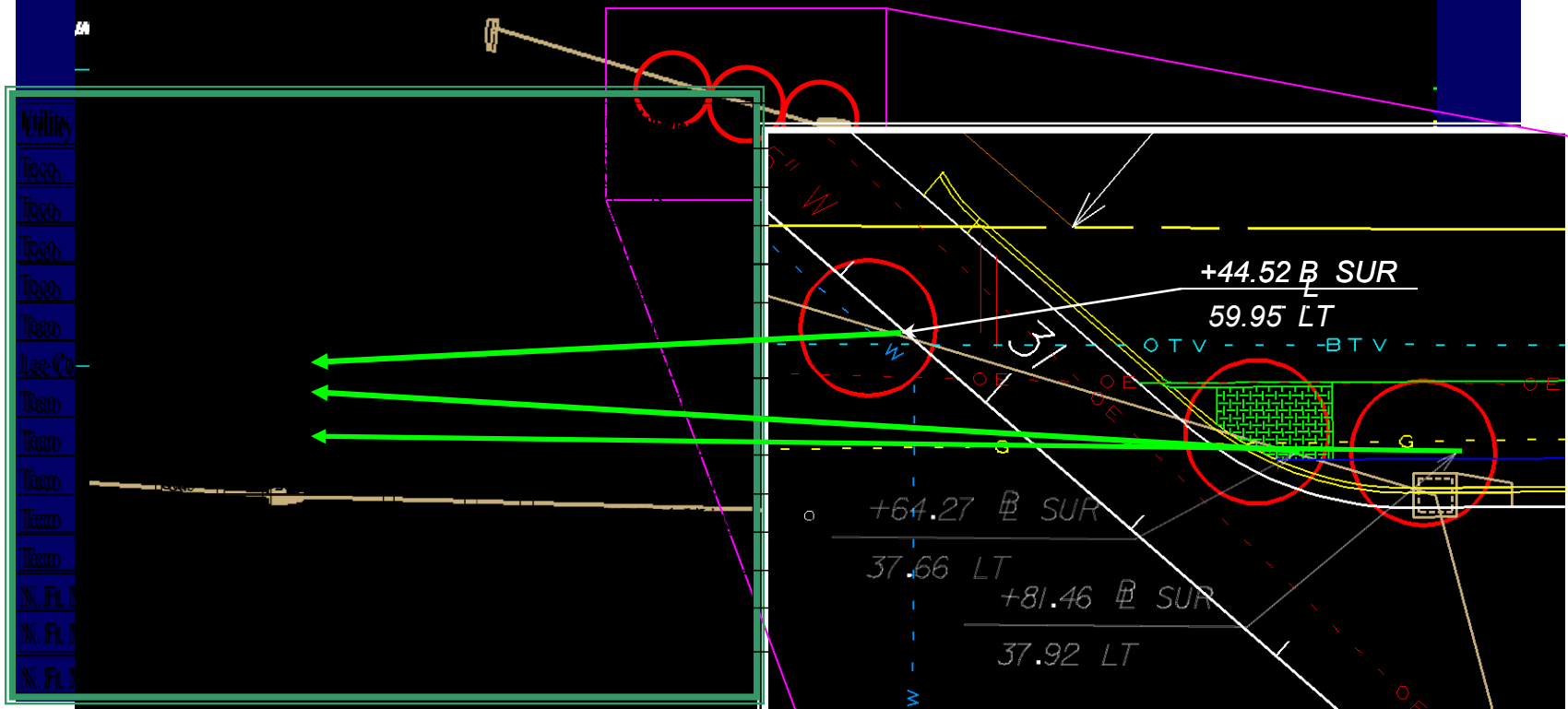


Add Preliminary Drainage Design



Analyze Conflicts

Identify potential Conflicts Build Conflict Matrix



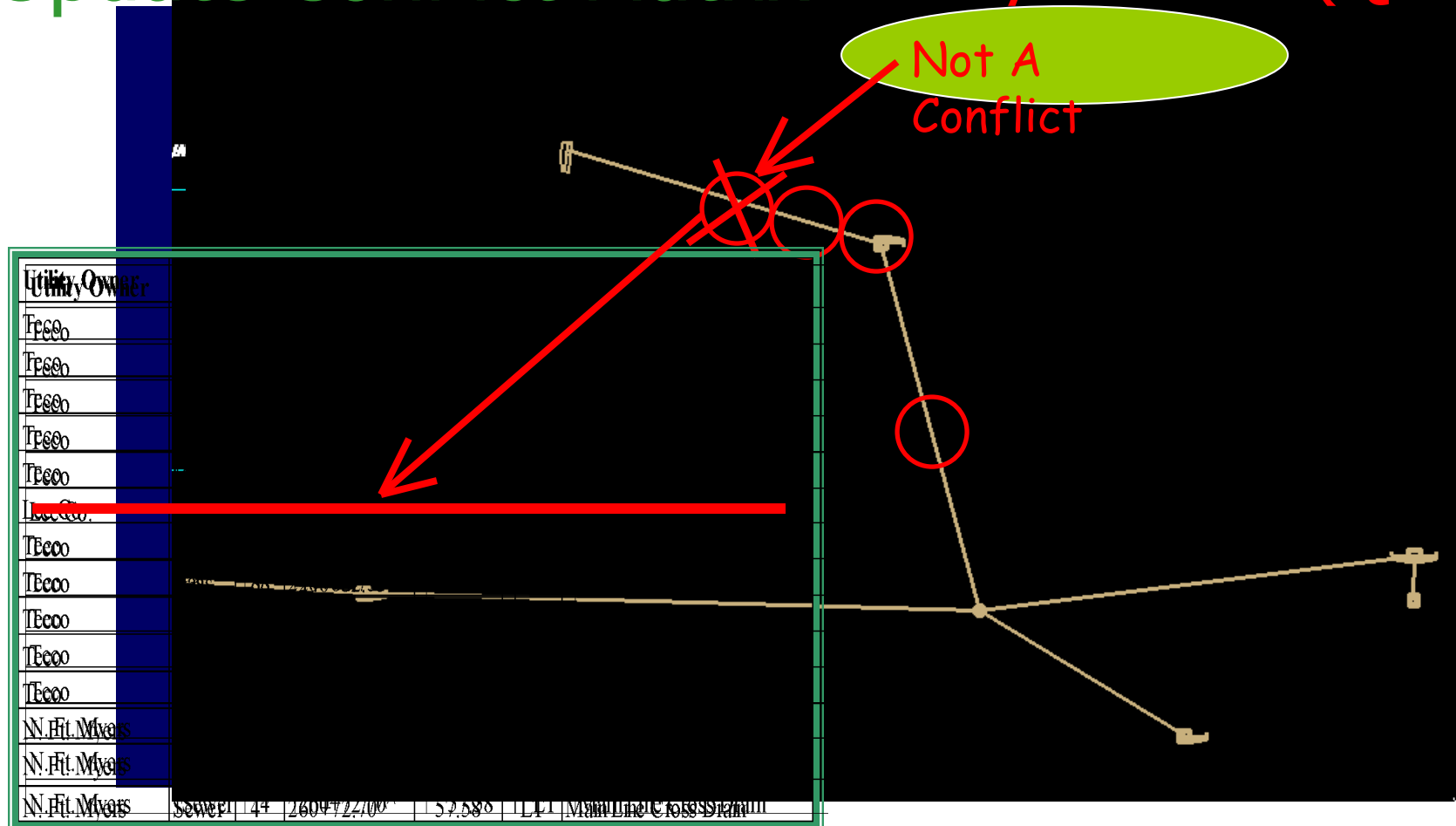
4. SUE Phase II (Locate Utilities)

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



Identify Actual Conflicts

Update Conflict Matrix Analyze Data (QL-A)

Utility Owner

Teeo

The 660

Febo

Free

Treco

Inc.

Teco

Teco

leco

1600

LEGO

NN.HLL.WINGS
 N.F.M

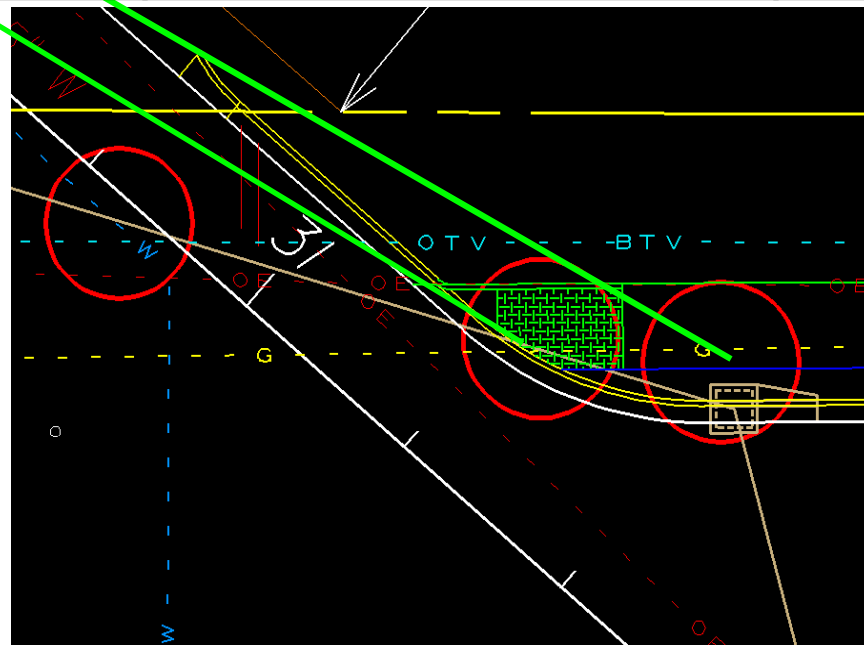
NY.FILM.138

ANNALS

Serial	44	760472700	52588	LL	Main Line C to SS Dam
--------	----	-----------	-------	----	-----------------------

Actual Conflict Matrix

Station & Offset	Utility	Comments	Action Required
246+64.27, 37.66 LT (x&y)	Teco	Proposed main line drain in close proximity to 8" gas line	Confirmed 8" gas line at z= 2.67 ft. CONFLICT
246+82.75; 56.25 Lt (x&y)	Teco	Proposed Side street Cross drain on top of 8" gas line	Confirmed 8' gas line at z= 2.65 ft. CONFLICT



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 & S 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.

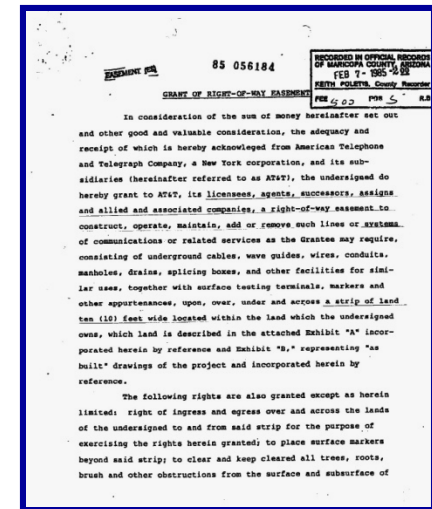
Agreement No. 3130-08-ATT
TRACS No. 303 MA 104 H7139 01U
PROJECT NO. 303-A000N
HIGHWAY: Estrella Freeway
LOCATION: SR-303L and I-10(PAPAGO)

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 96661
CABLE CLL- PHXKZUB517

**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

 **at&t**

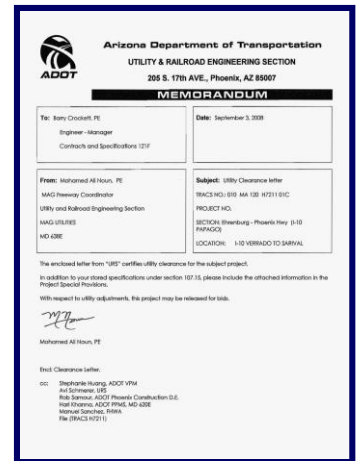
CONSTRUCTION ISSUE
MAY, 2010

ROOSEVELT SEPARATION DISTRICT APPROVAL
THE DISTRICT APPROVES THIS PLAN FOR CONSTRUCTION ONLY AND
ACCEPTS NO LIABILITY FOR ERRORS OR OMISSIONS.

FORREST ENGINEERING &
SURVEYING, INC.
22811 BROOKDALE ST., STE. 205
HUNTINGTON BEACH, CALIFORNIA 92646
PHONE 714 865-4765
MAY, 2010 JN 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



The image shows a sample memorandum from the Arizona Department of Transportation (ADOT) titled "UTILITY & RAILROAD ENGINEERING SECTION". The memorandum is dated September 3, 2008, and is addressed to Barry Crockett, PE, Engineer - Manager, Contracts and Specifications (207). The subject is "Utility Clearance letter". The memorandum is from Mohamed Al Hour, PE, MAG Freeway Coordinator, Utility and Railroad Engineering Section, MAG UTILITIES, MD 4306. The subject is "Utility Clearance letter". The memorandum includes the following information: TRACS NO: 610 MA 120 H211 61C, PROJECT NO: 2007024, LOCATION: 1-10 VERMADO TO SARAVI. The memorandum also includes a signature of Mohamed Al Hour, PE, and a list of distribution: Stephanie Huang, ADOT VPM, and Bill Berman, ADOT Phoenix Construction Unit, ADOT PMU, MD 4306, File (H211).

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 (207)	Date: September 3, 2008
From: Mohamed Al Hour, PE MAG Freeway Coordinator Utility and Railroad Engineering Section MAG UTILITIES MD 4306	Subject: Utility Clearance letter TRACS NO: 610 MA 120 H211 61C PROJECT NO: 2007024 LOCATION: 1-10 VERMADO TO SARAVI
<p>The enclosed letter from "URS" certifies utility clearance for the subject project.</p> <p>In addition to your stated specifications under section 107.05, please include the attached information in the Project Special Provisions.</p> <p>With respect to utility adjustments, this project may be released for bids.</p> <p><i>M. Al Hour</i> Mohamed Al Hour, PE</p> <p>Enclosure Letter</p> <p>cc: Stephanie Huang, ADOT VPM Bill Berman, ADOT Phoenix Construction Unit, ADOT PMU, MD 4306 File (H211)</p>	

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?

A large, faded watermark of the ADOT logo is centered in the background. It features a stylized circular emblem with purple and green segments, and the letters 'ADOT' in a bold, sans-serif font below it.