



Monthly Developer/Consultant Process Training

TPW Construction Services

Session 12

February 13, 2019

# CONSTRUCTION SERVICES

Surveying



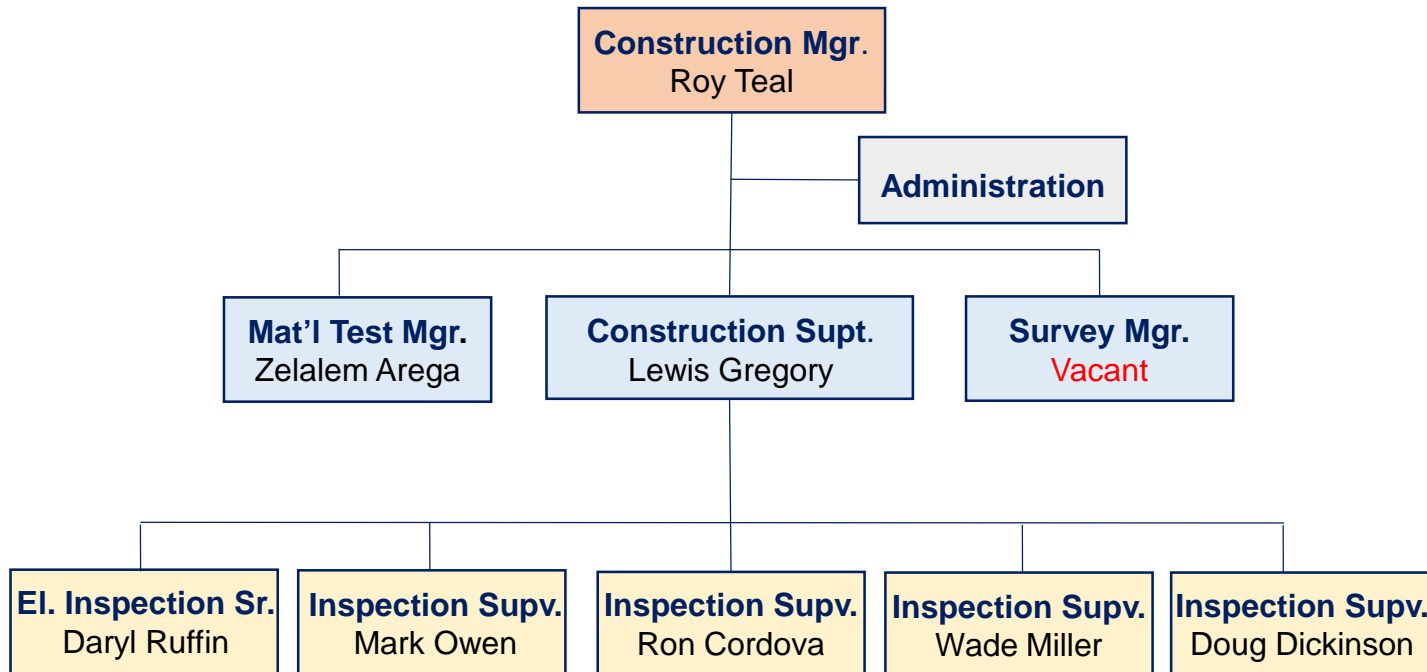
Material Testing



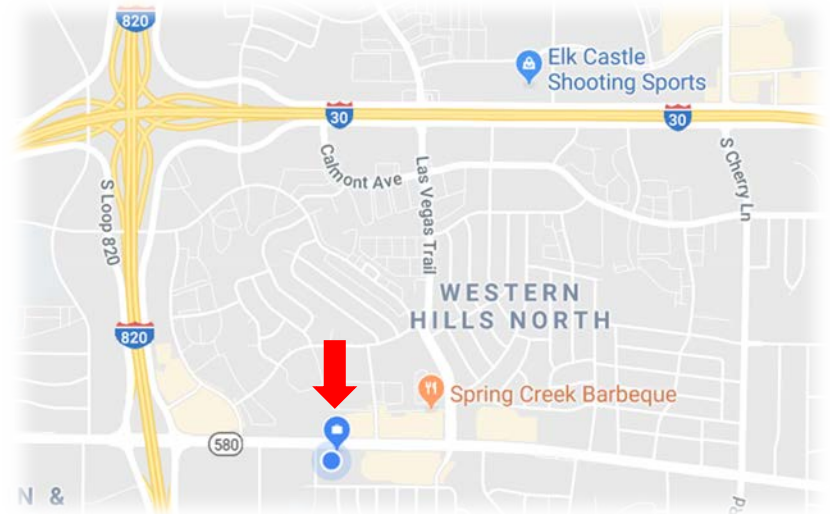
Inspection



# Construction Services Organization



# Construction Office



8851 Camp Bowie Blvd. West

## TPW Capital Delivery Division

- Internal service fund division
- Funding generated by fees assessed to City Departments and Developers
- No direct funding by City taxpayers

## Customer Departments

- Aviation
- Legal
- Neighborhood Services
- Park & Recreation
- Stormwater
- Transportation & Public Works
- Water
- Planning & Development



# Survey



# Survey Team

- 1 Survey Superintendent
- 1 Sr. Engineering Tech
- 1 Sr. Survey Tech
- 1 Survey Tech
- 1 Administrative Asst





## **Surveying Services provided in-house.....**

- Topographical Surveys
- Platting and Title Research
- Right-of-Way Surveys
- Boundary Surveys
- Easement Descriptions  
and Exhibits

# Surveying Services provides.....

- Construction Staking



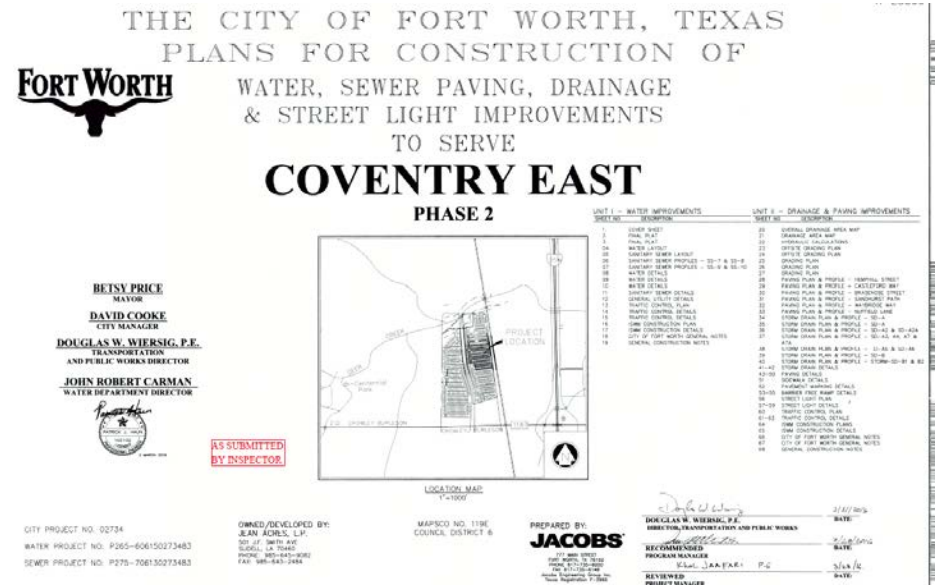
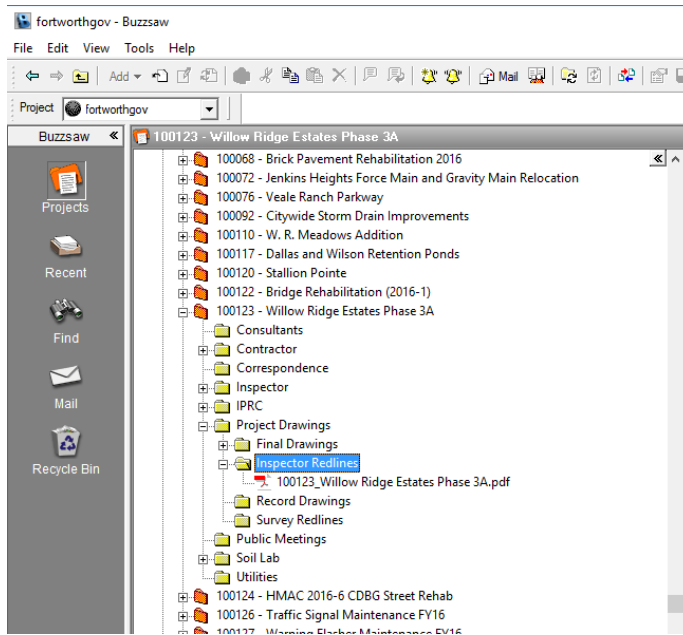
# Survey provides support to inspection team by ....

- Maintaining Project Location System



# Survey provides support to inspection team by ....

- Management of redline construction drawings





## Survey provides support to inspection team by ....

- Performing as-built construction QA/QC



Manage five professional services agreements with professional firms to augment survey capacity



Gorrondona &  
Associates, Inc.



# Material Testing



## Material Testing Team

- 1 Lab Manager
- 2 Sr. Engineering Tech
- 1 Administrative Asst





# Material Testing Lab



5000 Martin Luther King Frwy

## A few of the tests we do...



Pavement Coring



Thickness  
Measurement  
of Asphalt



Concrete Strength  
Test

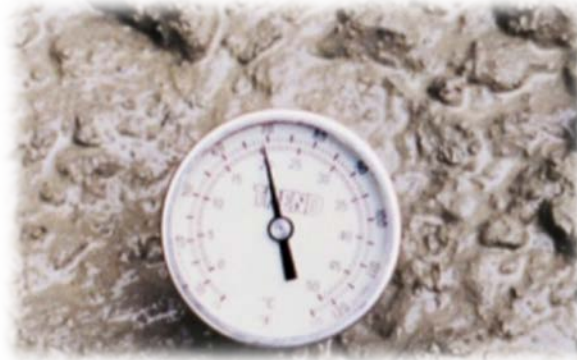


Subgrade Soil  
Property Test

### Coring Existing pavement:

- Measure thickness of the asphalt/concrete pavement
- Measure compressive strength of concrete pavement
- Determine base/subgrade material properties

## A few of the tests we do...



### Testing fresh and hardened concrete:

- Slump Test – ASTM C 143
- Temperature Test – ASTM C 106
- Air Content Test – ASTM C 173
- Compressive Strength Test – ASTM C 31
- Thickness of the pavement – using coring



## A few of the tests we do...



In-place density & moisture content – compacted Soil



In-place density –  
Compacted asphalt



Thickness check –  
HMAC pavement core

Bacteriological water sampling prior to connecting new mains into the existing water distribution system





# Approve mix designs

Date: August 19, 2016

Mix Design #: 250

4 Contractor: Conatser Construction, Inc.

Project: Job #21569 Lasater Rnch Ph 1 DOE 7507

Specific Use: Sidewalks, Ramps

MIX DESIGN PARAMETERS	
1 Minimum Compressive Strength: 3000 psi @ 28 Days	Sack Content: 5.00
Air Content: 4.5% +/- 1.5%	Fly Ash Content: 20%
2 Slump Range (inches): 4 +/- 1" (After the addition of WR Admixtures)	
W/Cm Ratio (lb/lb): 0.51 (5.81 gal/sk)	Theoretical Plastic Unit Weight: 145 pcf

One Cubic Yard Mix Proportions				
Materials	ASTM Standards		Weights per Cubic Yard, SSD	Absolute Volume
Cement	ASTM C 150 Type III Cemex		376 lbs.	1.91 cu.ft.
Fly Ash	ASTM C 618 Class F Boral		94 lbs.	0.61 cu.ft.
Coarse Aggregate	ASTM C 33 Size #57 Limestone		1850 lbs.	11.15 cu.ft.
Fine Aggregate	ASTM C 33 Bristol Sand		342 lbs.	2.06 cu.ft.
Fine Aggregate	ASTM C 33 Bridgeport Sand		1019 lbs.	6.19 cu.ft.
Admixture 1	ASTM C 494 Type A (Sika 686)	5.0 oz./cwt.	23.5 oz.	
Admixture AEA	ASTM C 260 Sika Air	0.5 oz./cwt.	2.4 oz.	
City Water	ASTM C1602	29.1 gal.	242 lbs.	3.88 cu.ft.
			Air Void	1.22 cu.ft.
				27.00 cu.ft.

## Concrete Mix Design

HMACP MIXTURE DESIGN - SUMMARY SHEET											
SAMPLE ID:					SAMPLE DATE: 9/13/16						
LOT NUMBER:					LETTING DATE:						
SAMPLE STATUS:					CONTROLLING CSI:						
COUNTY: Tarrant					SPEC YEAR: 2004						
SAMPLED BY: Daniel Billingsley					SPEC ITEM: 3267						
SAMPLE LOCATION: Cold Springs					SPECIAL PROVISION: 3267						
MATERIAL CODE: 1657					MKX TYPE: SS3267_D_Fine_Surface						
MATERIAL NAME: Type D Virgin											
PRODUCER: APAC											
AREA ENGINEER:					PROJECT MANAGER:						
COURSE/LFT: Surface					STATION:						
DIST. FROM CL:					CONTRACTOR DESIGN #: 42-1857-16						
Target Density, %: 96.0											
Number of Gyration: 50											
TEST SPECIMENS							Mixture Evaluation @ Optimum Asphalt Content				
Asphalt Content (%)	Binder Ratio (%)	Specific Gravity (G <sub>s</sub> )	Maximum Specific Gravity (G <sub>m</sub> )	Effective Gravity (G <sub>e</sub> )	Theo. Max. Specific Gravity (G <sub>s</sub> )	Density from G <sub>s</sub> (Percent)	VMA (Percent)	Indirect Tensile Strength (psi)	Number of cycles	Flur depth (mm)	Overlay Tester Min. Number of Cycles
1 4.0	0.0	2.375	2.503	2.685	2.527	94.0	15.3	122.4	10,000	-3.23	
2 4.5	0.0	2.389	2.503	2.685	2.508	95.3	15.2				
3 5.0	0.0	2.398	2.487	2.688	2.493	95.3	15.3				
4 5.5	0.0	2.412	2.477	2.693	2.470	97.6	15.3				
5 6.0	0.0	2.419	2.419	2.693	2.452	98.6	15.5				
Effective Specific Gravity:			2.631	Estimated Percent of Retention, %:		0					
Optimum Asphalt Content:			4.8								
Binder Ratio @ OAC:			0.0								
VMA @ Optimum AC:			15.3								
Interpolated Values											
Specific Gravity (G <sub>s</sub> ):			2.395								
Max. Specific Gravity (G <sub>m</sub> ):			2.492								
Theo. Max. Specific Gravity (G <sub>s</sub> ):			2.495								
Mixture Temp. °F: 250											
Holding Temp. °F: 250											
Additional Mixture Evaluation											
Test	AC:	Number of cycles:	Flur depth (mm)								
Hamburg Wheel											
Overlay Test											
Remarks:											

## Asphalt Mix Design

## Forensic Investigations



**Function** - We perform tests to ensure quality, prevent failure, and make informed choices in using materials

### Causes of pre-mature Failures

- Material
- Construction
- Design



Manage 11 professional services agreements with consulting firms for geotechnical and material testing



EWI - Ellerbee-Walczak, Inc



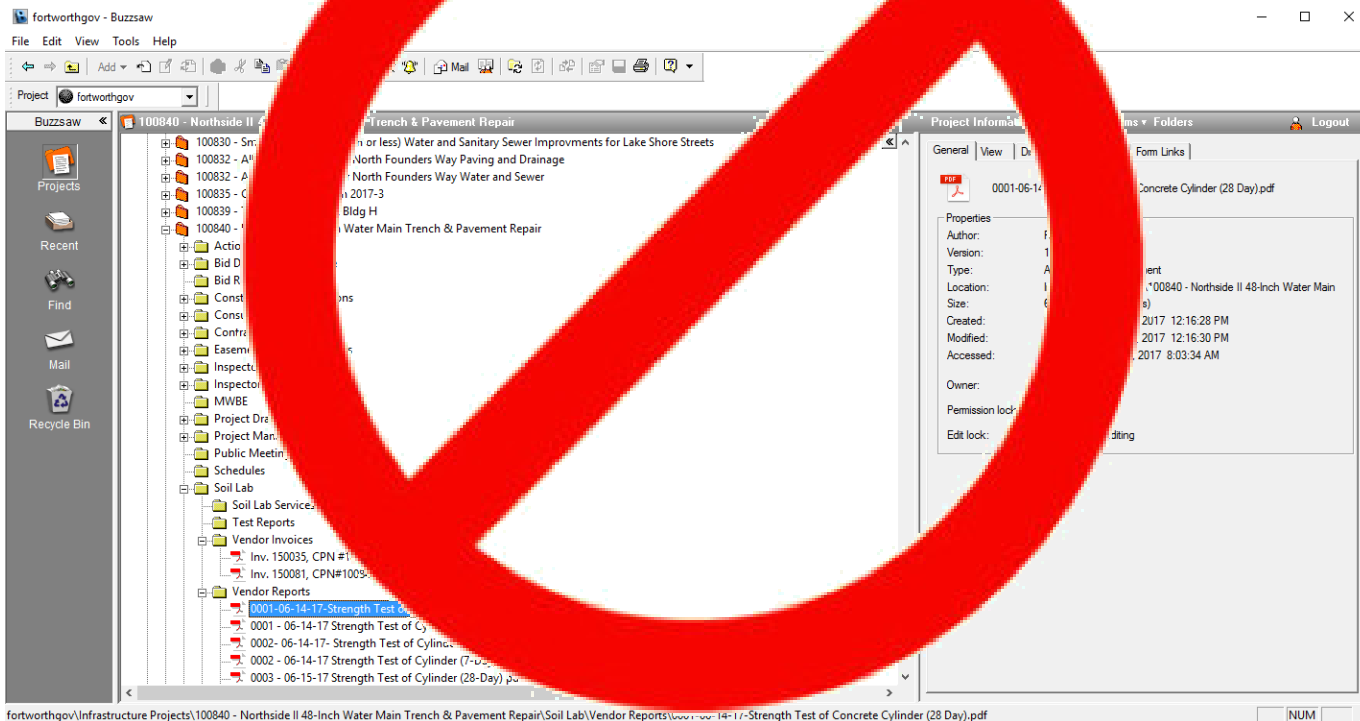
GLOBE ENGINEERS, INC.

Terracon



## A FEW CHANGES.....

**Test reports and invoices for material testing  
uploaded into Buzzsaw**



**Test reports and invoices for material testing  
uploaded into .....**

**For City Projects**



**For Developer Projects**



## A CHANGE TO DEVELOPER PROJECTS.....

- City contracts Geotechnical Labs
- Developer pay material testing fee to City
- City pays Geotechnical Labs

## **A CHANGE TO DEVELOPER PROJECTS.....**

- City provides a select list of geotechnical labs for developer to choose for project.
- Developer contracts directly with the geotechnical lab and pays for services.
- Developer pays City an administrative fee for quality assurance.

# Construction Inspection



# Inspection Team

- 1 Superintendent
- 4 Supervisors
- 9 Senior Inspectors
- 36 City Inspectors
- 25 Contract Inspectors



## Infrastructure Inspected



Street Lights/Signals

## Asphalt Paving





## Infrastructure Inspected

### Concrete Pavement



### Stormwater Lines & Structures



Infrastructure Inspected



Sanitary Sewer Mains

Water Mains



## Infrastructure Inspected

### Parks



### Sidewalk/Streetscapes



## CONSTRUCTION PROJECT TIMELINE

Approved Plans  
Received

Obtain POs & Verify  
Staff Accounts Active

Pre-Construction  
Meeting

Construction Start



Construction Complete

Final Inspection

Clearances &  
Close-Out Docs

Greensheet, Service  
Reports & Acceptance  
Letter Issued

## Water and Sewer Services Reports

- Identifies the physical location of a sanitary sewer line or water line providing service to a property.
- The only connection between a CFA construction project and building permit.

WATER SERVICE REPORT					
DATE:	12/2/2014	ADDITION:	Presidio West		
DOE NUMBER:	7162	PROJECT NAME:	Presidio West, Phase IV		
WORK ORDER #:		PROJECT #:	P265-607150220983		
ZIP CODE:	76177	CONTRACTOR:	Gileo Contracting, Inc.		
MAPSCO:	FW20V	INSPECTOR:	Mark Owen		
TAD MAP:	2048452	INSPECTOR PHONE:	817.223.2267		
STREET:	Amananth Drive				
ADDRESS	LOT	BLOCK	TAP SIZE	TAP TYPE: DOM,IRR,FL	LOCATION
	7	6	1"	DOM	2' NW of SPL
	6	6	1"	DOM	2' SE of NPL
	5	6	1"	DOM	2' NW of SPL
	4	6	1"	DOM	2' SE of NPL
	3	6	1"	DOM	2' NW of SPL
	2	6	1"	DOM	2' SE of NPL
	1	6	1"	DOM	2' SE of NPL
	14	20	1"	DOM	2' NW of SPL
	15	20	1"	DOM	2' SE of NPL
	16	20	1"	DOM	2' NW of SPL
	17	20	1"	DOM	2' NW of SPL
	18	20	1"	DOM	2' SE of NPL
	19	20	1"	DOM	2' NW of SPL
	20	20	1"	DOM	2' SE of NPL
	21	20	1"	DOM	2' NW of EPL
	22	20	1"	DOM	2' E of WPL
	23	20	1"	DOM	2' NE of WPL
	24	20	1"	DOM	2' SW of EPL
	25	20	1"	DOM	2' NE of WPL
	26	20	1"	DOM	2' SW of EPL
	27	20	1"	DOM	2' NE of WPL
	28	20	1"	DOM	2' SW of EPL
	29	20	1"	DOM	2' NE of WPL
	30	20	1"	DOM	2' NE of WPL

## WHAT IS THE GREENSHEET?

- Notice of Project Completion form that provides the completed infrastructure cost of project.
- Utilized to capitalize the infrastructure as City assets as well as reconciliation of fees by CFA Office.
- Executed by City staff including the Asst. City Manager.
- The greensheet is accompanied by other close-out documents and is referred to as the greensheet package.

It really is green.

**FORT WORTH**<sup>®</sup>

TRANSPORTATION AND PUBLIC WORKS  
NOTICE OF PROJECT COMPLETION  
(Developer Projects)

City Project No: 100035

Regarding contract 100035 for HUFFINES BLVD as required by the WATER DEPARTMENT as approved by City Council on N/A through M&C N/A the director of the WATER DEPARTMENT upon the recommendation of the Assistant Director of the Transportation & Public Works Department has accepted the project as complete.

Original Contract Price:	\$94,730.00
Amount of Approved Change Orders:	\$0
Revised Contract Amount:	
Total Cost Work Completed:	\$94,730.00

Recommended for Acceptance Asst. Director, TPW - Infrastructure Design and Construction	Date
Accepted Asst. Director, WATER DEPARTMENT	Date
Asst. City Manager	Date

Comments:

Rev. 9/22/16

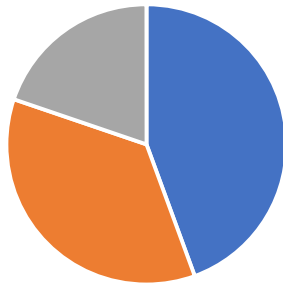
# Inspection Workload

**Active Projects: 255**

**Construction Cost: \$372 mil**

**Franchise Utility**

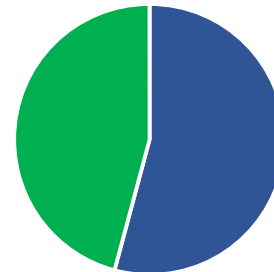
**46**



**City  
93**

**Developer  
116**

**City  
\$ 183 mil**



**Developer  
\$ 189 mil**

Manage nine professional services agreements with consulting firms for infrastructure construction inspection



TEI Program/Construction Management, Inc



## A CHANGE TO DEVELOPER PROJECTS.....

Developer pays inspection fees based on percentage of construction costs.



## **A CHANGE TO DEVELOPER PROJECTS.....**

Developer inspection cost at a daily rate corresponding to the length of construction.

# Public Engagement for Developer Projects



[Home](#) > [News](#)

## Carroll Street intersection improvements to be discussed with the community

Posted Feb. 11, 2019

The city will meet with residents at **6 p.m. Feb. 28** at the University of North Texas Health Science Center, Carl E. Everitt Education & Administration Building, located at 3500 Camp Bowie Blvd, room 506, to discuss proposed intersection improvements along Carroll Street.

Make plans to attend the meeting to provide comments on the proposed project.

To learn more, contact Project Manager [Brian Jahn](#) at 817-392-7978.

## UTILITY INTERRUPTION NOTICE

Utility improvements are underway in your neighborhood. Due to these improvements, the following service will be temporarily interrupted on:

Between the hours of \_\_\_\_\_ and \_\_\_\_\_.

WATER     WASTEWATER

We apologize for this inconvenience and will make this interruption as short as possible.

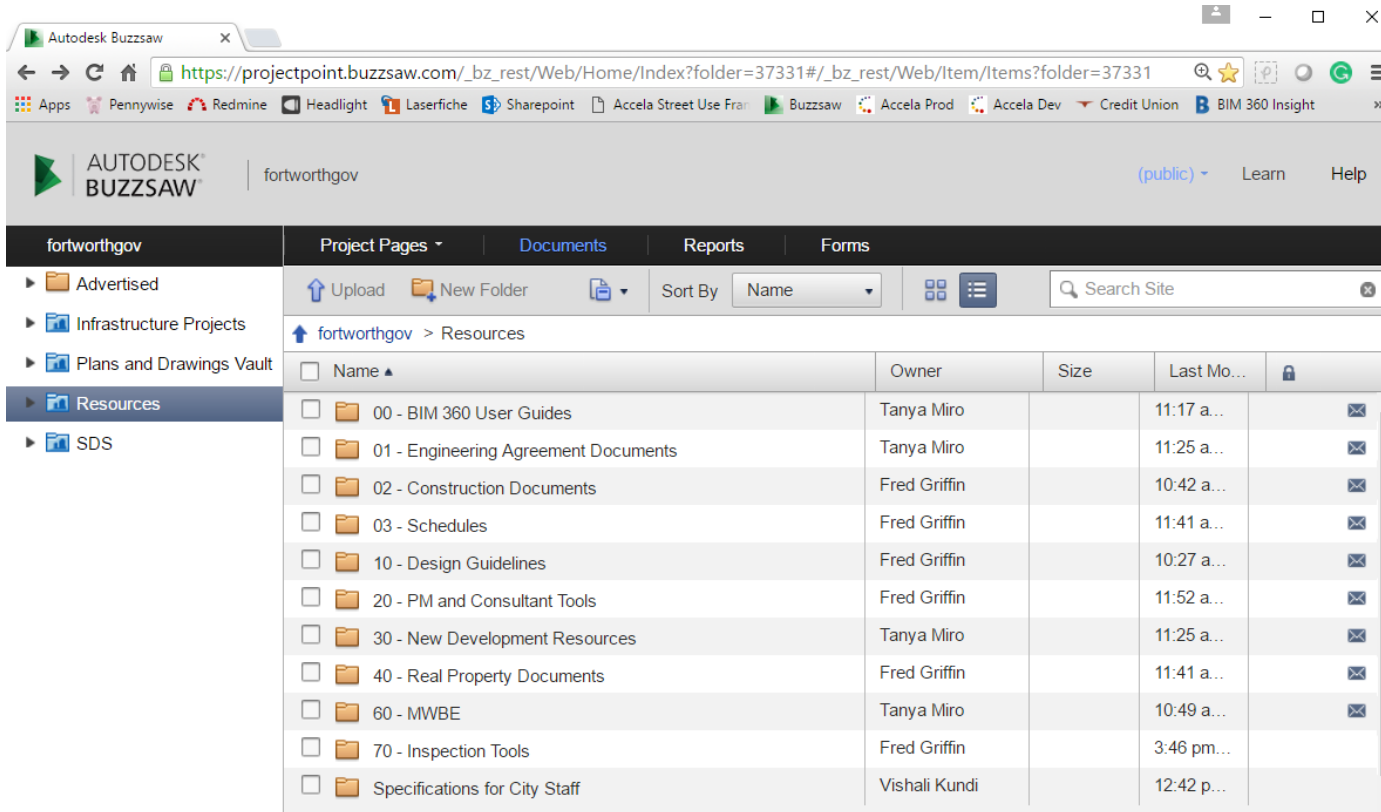
*For questions, please call 817-392-8306.*



Improvements funded by your water and wastewater rates and fees. For more information on capital projects, visit [FortWorthTexas.Gov/projects](http://FortWorthTexas.Gov/projects)



# City of Fort Worth Specifications



The screenshot shows the Autodesk Buzzsaw web interface for the City of Fort Worth. The browser address bar displays the URL: [https://projectpoint.buzzsaw.com/\\_bz\\_rest/Web/Home/Index?folder=37331#/\\_bz\\_rest/Web/Item/Items?folder=37331](https://projectpoint.buzzsaw.com/_bz_rest/Web/Home/Index?folder=37331#/_bz_rest/Web/Item/Items?folder=37331). The interface includes a navigation menu on the left with categories like 'Advertised', 'Infrastructure Projects', 'Plans and Drawings Vault', 'Resources', and 'SDS'. The main content area shows a file directory for 'fortworthgov' with a table of folders and their owners.

Name	Owner	Size	Last Mo...	
<input type="checkbox"/> 00 - BIM 360 User Guides	Tanya Miro		11:17 a...	
<input type="checkbox"/> 01 - Engineering Agreement Documents	Tanya Miro		11:25 a...	
<input type="checkbox"/> 02 - Construction Documents	Fred Griffin		10:42 a...	
<input type="checkbox"/> 03 - Schedules	Fred Griffin		11:41 a...	
<input type="checkbox"/> 10 - Design Guidelines	Fred Griffin		10:27 a...	
<input type="checkbox"/> 20 - PM and Consultant Tools	Fred Griffin		11:52 a...	
<input type="checkbox"/> 30 - New Development Resources	Tanya Miro		11:25 a...	
<input type="checkbox"/> 40 - Real Property Documents	Fred Griffin		11:41 a...	
<input type="checkbox"/> 60 - MWBE	Tanya Miro		10:49 a...	
<input type="checkbox"/> 70 - Inspection Tools	Fred Griffin		3:46 pm...	
<input type="checkbox"/> Specifications for City Staff	Vishali Kundi		12:42 p...	

<https://projectpoint.buzzsaw.com/fortworthgov/Resources?public>

# CONSTRUCTION HAPPENS



Construction Office  
817-392-8306



# Q & A



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