

Preliminary Utility Report
I-77 Widening Design-Build Preparation
Percival Road to Killian Road, Richland County SC
March 30, 2015



Prepared By:

<p>The Subsurface Utility Engineering Company</p>	The logo for SO-DEEP Inc. features the text "SO-DEEP" in a large, white, bold, sans-serif font, with "Inc." in a smaller font below it. The entire logo is set against a red rectangular background.	<p>Performing Out-of-sight work... <i>with vision</i></p>
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Project Overview

This design-build project is for the widening of I-77 with an additional lane in each direction. The widening will begin between SC 12 (Percival Road) and I-20, and terminate at the Killian Road interchange. All of the mainline bridges will be widened to include:

- I-77 northbound/southbound bridges over I-20 mainline and CD
- I-77 northbound/southbound bridges over I-20 westbound ramp to I-77 southbound
- I-77 northbound/southbound bridges over Windsor Lake Boulevard
- I-77 northbound/southbound bridges over Windsor Lake and Jackson Creek
- I-77 northbound/southbound bridges over Edgewater Drive and Little Jackson Creek.

The project also includes the pavement rehabilitation and cross slope verification/correction of the existing lanes of I-77 from just north of US 1 (MM 17.47 +/-) to Blythewood Road (MM 27 +/-). The pavement for the project will consist of both concrete and asphalt.

The additional northbound and southbound lanes may trigger improvements to the drainage system. Additional drainage cuts, increased capacity for existing drainage pipes and/or new drainage piping could all impact existing underground utilities and therefore make relocations or adjustments necessary.

A sound study has been performed and concludes that no noise walls will be necessary for this project.

Pre-Bid Project Team

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Utility Conflict Analysis

General

This road widening takes place from a point between Percival Road and I-20 interchange to Killian Road. There are multiple utility crossings throughout the project area, both aerial and underground.

There may be additional utility conflict concerns caused by adding the northbound and southbound lanes. The lane additions will likely cause adjustments to drainage pipes and ditches that may interfere with existing utility lines. There appears to be many underground utility lines on the project that were in place prior to the original I-77 construction; these should be examined carefully.

It is recommended that additional SUE work be performed to further identify utility locations. Early acquisition of Quality Level "B" mapping is recommended for all utility lines crossing through the I-77 corridor. Quality Level "A" test holes are also recommended at these locations: 1) where proposed drainage crosses existing utility lines, 2) at locations where utility lines may pre-date I-77 (and therefore may not be at proper depths), and 3) any other locations where conflict seems possible. Note that gravity sanitary system elevations can likely be verified by obtaining inverts; helping to minimize the overall number of Quality Level "A" test holes.

The following utility information is the result of the review of available utility records combined with field observations of utility structures, aerial lines and SC811 marks. This report also identifies the approximate locations of known utility lines crossing through the I-77 corridor.

Water:

City Of Columbia

The City of Columbia owns seven water lines that cross directly through the I-77 corridor. Refer to the attached Utility Exhibits for additional information. The City of Columbia water line crossings can be found at these locations:

- South side of Windsor Lake Blvd., 16" water line located between the edge of pavement and the I-77 bridge abutments.
- South side of Two Notch Road, 24" water line crossing under I-77.
- Between Two Notch Road and Windsor Lake Blvd., 12" water line running under I-77.
- South of the I-77 and SC 277 interchange, 12" water line running under I-77.
- South side of Farrow Road and south of Norfolk Southern RR, 16" water line running under I-77.
- South side of Hardscrabble Road, 12" water line running under I-77.
- South side of Killian Road, unknown size water line running under I-77.

Additional water lines are located nearby, but remain outside of the I-77 SCDOT R/W. Particularly noteworthy is a 24" water line running just outside the westernmost I-77 SCDOT R/W (in private easement) from Killian Road to Hardscrabble Road. This main continues south from Hardscrabble Road as an 18" water line, again just outside the westernmost I-77 SCDOT R/W (in private easement) to a point south of Farrow Road.

Gas:

South Carolina Electric and Gas (SCE&G)-Gas Distribution

There are four SCE&G gas lines that cross directly through the I-77 corridor. Additional gas lines are nearby, but remain outside of the I-77 SCDOT R/W. Refer to the attached Utility Exhibits for additional information. The SCEG gas lines passing through the I-77 corridor can be found at these locations:

- Just north of Faraway Road, 6" steel (in casing pipe.)
- Just south of Two Notch Road, 6" steel gas line (in casing pipe.)
- South of Farrow Road (located where the original Legrand Road existed prior to I-77), 4" steel gas line (not in casing pipe.)
- North side of Hardscrabble Road, 6" steel gas line (in casing pipe) crossing under I-77.

Dixie Pipeline

Dixie Pipeline owns an 8” propane pipeline that crosses the I-77 Corridor. This line runs in a private easement and crosses the I-77 corridor between Killian and Hardscrabble Roads. Refer to the attached Utility Exhibits for additional information.

Power:

SCE&G - Transmission Electric

There are three aerial SCE&G Transmission Electric crossings located within the project limits. Refer to the attached Utility Exhibits for additional information. The SCE&G Transmission aerial crossings are found at these locations:

- Between Farrow Road and the SC 277/I-77 interchange there is an 115kV aerial crossing attached to poles on either side of the I-77 corridor along with two poles located within the I-77 R/W.
- Between Killian Drive and Hard Scrabble Road, two Transmission Electric crossings occur at this location, 230kV and 115kV lines are attached to a single set of towers located on either side of the I-77 corridor.

SCE&G - Distribution Electric

There are nine SCE&G distribution primary electric aerial crossings on this project. Refer to the attached Utility Exhibits for additional information. The SCE&G aerial crossings can be found at these locations:

- Between Percival Rd. and Faraway Dr., single phase aerial electric crossing.
- Just south of Faraway Dr., three Phase aerial electric crossings with TW Telecom FO attached.
- Ramp crossings at I-77 and I-20 interchange, single phase aerial electric.
- Between Windsor Lake Boulevard and Trenholm Road, three Phase aerial electric crossings.
- Just south of Two Notch Road, Three Phase aerial electric crossings with TW Telecom FO and Level 3 FO cables attached.
- South of Farrow Road, three Phase aerial electric crossings with TW Telecom FO and Level 3 FO cables attached.
- South of Hardscrabble Road, Single Phase aerial electric crossing with FO cable attached.

- North side of Hardscrabble Road, Three Phase aerial electric crossings.
- Between Killian Dr. and Hardscrabble Rd., Single Phase aerial crossing. This distribution primary crosses the I-77 corridor along with the SCE&G Transmission lines.

Sewer

City of Columbia Sewer

The City of Columbia owns several gravity sanitary sewer lines that cross directly through the I-77 corridor. Refer to the attached Utility Exhibits for additional information. Note: additional City of Columbia sanitary sewer lines may be present in the I-77 corridor as the records received as of the date of this report appear to be incomplete. The City of Columbia sewer lines can be found at these locations:

- North of Two Notch Road, unknown size sanitary sewer line crossing.
- Between Hardscrabble Road and Farrow Road, 12" sanitary sewer line crossing.
- Between Killian Road and Hardscrabble Road, 27" sanitary line crossing I-77 inside an 8' X 6' box culvert for Cumbass Creek.

East Richland County Public Service District (ERCPSD)

ERCPSD owns eight gravity sanitary sewer lines that cross directly through I-77 corridor. Refer to the attached Utility Exhibits for additional information. The ERCPSD sewer line crossings are found at these locations.

- 12" unknown type line crossing north of Percival Road, near Drexel Lake Dr.
- Unknown size and type line crossing north of Percival Road, near Fieldwood Dr.
- 21" unknown type line crossing south of Windsor Lake Boulevard.
- 16" DI crossing north of Windsor Lake Boulevard (north of the I-77 Windsor Lake bridges.)
- 10" DI crossing at Oakcrest Road.
- Unknown size and type line crossing north of Two Notch Road.
- Unknown size and type line crossing south of Edgewater Drive.
- 8" DI crossing south of Farrow Road (located where the old Legrand Road existed prior to I-77.)

Telecommunications:

AT&T

AT&T owns both aerial and underground facilities that cross through the I-77 Corridor. Refer to the attached Utility Exhibits for additional information. The AT&T facilities are found at these four locations:

- South side of Windsor Lake Boulevard, underground conventional copper cables located along Windsor Lake Blvd.
- South side of Two Notch Road, underground duct bank(s) crossing the I-77 corridor.
- South side of Edgewater Drive, underground conventional copper cables along Edgewater Dr.
- South side of Killian Road, underground FO line.

CenturyLink (Qwest)

CenturyLink owns one (Qwest) Fiber Optic cable that passes through the I-77 corridor. The Qwest line is located in the Norfolk and Southern Railroad R/W and crosses under I-77 just south of Farrow Rd. Refer to the attached Utility Exhibits for additional information.

Level 3

Level 3 owns two fiber optic lines that cross the I-77 corridor aerially. Refer to the attached Utility Exhibits for additional information. The Level 3 facilities are found at these locations:

- Just south of Two Notch Road, attached to SCE&G distribution electric poles.
- Just south of Farrow Road, attached to SCE&G distribution electric poles.

Time Warner Cable

Time Warner Cable owns four Fiber Optic lines that cross through the I-77 corridor. Refer to the attached Utility Exhibits for additional information. The Time Warner Cable FO lines are found at these locations:

- Just south of Faraway Road, one FO line is attached to SCE&G distribution electric poles.

- Just south of Two Notch Road, one FO line is attached to SCE&G distribution electric poles.
- Just south of Hard Scrabble Road, two FO lines are attached to SCE&G distribution electric poles.

Time Warner Telecom

Time Warner Telecom owns one Fiber Optic line that cross through the I-77 corridor. The Fiber Optic line is attached to SCE&G distribution electric poles at the aerial crossing south of Farrow road. Refer to the attached Utility Exhibits for additional information.

Verizon Business

Verizon Business owns an underground Fiber Optic cable that crosses the I-77 corridor. The Verizon Business line is located in the CSX Railroad R/W and crosses the I-77 corridor just south of Two Notch Road.

Traffic Control

SCDOT

The SCDOT owns Traffic Control facilities at various locations throughout the project. Refer to the Utility Exhibits for additional information. The following locations were observed as having aerial and underground traffic control systems:

- The SCDOT FO line continues along the western side of I-77 south bound lanes until it follows the exit ramp for Percival Road.
- The I-77 and I-20 interchange has underground SCDOT FO and Electric cables running along I-20 and connecting to an underground SCDOT FO line heading south along the western most side of I-77. The SCDOT FO and Electric system running along I-20 also connects to a pole mounted camera located at the I-77 southbound bridge over I-20 Eastbound.
- Two Notch Road has aerial traffic control lines connecting the signalized I-77 entrance and exit ramp intersections with Two Notch Road. There is a camera pole integrated into the system.
- Killian Road has aerial traffic control lines connecting the signalized I-77 entrance and exit ramp intersections with Killian Road. There are also two pole mounted cameras at the overpass that are integrated into the aerial system.

Preliminary Prior Rights Evaluation

Final Prior Rights determinations will be made after each utility owner provides documentation supporting their prior rights claims. This summary constitutes the initial determination by way of observation and discussions with utility owners.

AT&T

AT&T facilities are located within the SCDOT R/W. AT&T has not claimed prior rights to date and therefore relocation costs will likely be borne by AT&T.

City of Columbia

The City of Columbia intends to claim prior rights for their water and sewer lines not found directly in SCDOT R/W and/or where the water or sewer line placement predates the R/W established for the I-77 corridor and crossroads. With valid documentation, relocation costs for the City-owned water and sewer lines may be shared or at the expense of the SCDOT.

CenturyLink (Qwest)

CenturyLink owns one (Qwest) Fiber Optic cable that crosses through the SCDOT I-77 corridor. This line is located within the Norfolk and Southern Railroad R/W and therefore Qwest will likely have prior rights for this line. Costs associated with the relocation of this line will likely be borne by the SCDOT.

Dixie Pipeline

Dixie Pipeline intends to claim prior rights. The owner has indicated that this line has been in service since before the I-77 corridor was established. The line is in private easement on both sides of the I-77 R/W. With valid documentation, relocation costs, if any, would be borne by the SCDOT.

East Richland County Public Service District

ERCPSD intends to claim prior rights. The majority of the ERCPSD sanitary sewer lines appear to be crossing the I-77 corridor in private easement. With valid documentation, relocation costs could be shared or be borne by the SCDOT.

Level 3

Level 3 lines are all attached to SCE&G distribution electric poles within the project limits and therefore do not qualify for prior rights.

SCE&G (Gas) - Distribution

All SCE&G gas lines within the project limits are present within existing or previously established roadway easements ostensibly by valid encroachment. Therefore it appears that no prior rights exist and all relocation costs will be borne by SCE&G Gas.

SCE&G (Electric)

SCE&G owns both Transmission and Distribution electric lines within the I-77 corridor. Although SCE&G has not completed their prior rights research as of the date of this report, it seems likely that at least partial prior rights exist.

The SCE&G Transmission Electric lines crossing the I-77 corridor are all aerial. The poles carrying the lines across the SCDOT R/W for the I-77 corridor are located on both private easement and, in a few cases, within the SCDOT R/W. Therefore, it appears that at least partial prior rights exist for the SCE&G Transmission Electric lines. Costs associated with the relocation of certain SCE&G Transmission Electric lines may be shared by SCE&G and the SCDOT.

The SCE&G Distribution Electric lines crossing the I-77 are all aerial. The SCE&G poles appear to be located mostly within the SCDOT R/W with some poles located in private easement. Therefore, costs for relocation of SCE&G Distribution Electric lines may also be shared by the SCDOT and SCE&G.

Time Warner Cable

Time Warner Cable owns aerial facilities that cross through the SCDOT I-77 R/W. All crossings are by way of attachment to SCE&G poles; therefore no prior rights are apparent and costs associated with relocation should be borne by Time Warner Cable.

Time Warner Telecom

Time Warner Telecom owns aerial facilities that cross through the SCDOT I-77 corridor. All crossing are by way of attachment to SCE&G poles; therefore no prior rights are apparent and costs associated with relocation should be borne by Time Warner Telecom.

Verizon Business

Verizon Business owns one Fiber Optic cable that crosses through the SCDOT I-77 corridor. This line is located within the CSX Railroad R/W and therefore Verizon Business will likely have prior rights for this line. Costs associated with the relocation of this line will likely be borne by the SCDOT.

Preliminary Relocation Recommendations

The current status of plans does not point to any specific utility conflicts. However, additional SUE investigation at both QL-B and QL-A will be necessary to determine the extent of utility impacts.

Drainage design could create conflicts with the underground utility line. Although the existing drainage system and current underground utilities do co-exist, improvements such as increased drainage pipe sizes and/or relocated and adjusted ditch lines could create clearance problems.

Preliminary Estimate of Cost

Utility relocations and costs will be determined as the design develops. The design elements discussed in the Preliminary Relocation Recommendations section will directly determine what relocations might become necessary. The following matrix indicates costs that may be incurred if certain conflicts are proven to exist. As the roadway design is further developed additional utility relocations may be revealed. Note: the sheet numbers referred to in the chart below correspond to the Utility Exhibits included at the end of this report.

Sheet #	Anticipated Conflict	Cost
1	None	0
3	Refer to Note 1 *	0
4	Aerial crossing (Elec, cable)	\$20,000
5	None	0
6	Refer to Note 2 *	0

Sheet #	Anticipated Conflict	Cost
7	4" gas	(\$72,000)
8	None	0
9	UG tele	(\$20,000)
10	None	0
11	12" water/ 2 Elec poles	\$57,500

Sheet #	Anticipated Conflict	Cost
12	8" sewer	\$22,500
13	None	0
14	Camera Pole	\$4,000
15	None	0
16	None	0
17	None	0
Total		\$196,000 (\$92,000)

(non-reimbursable)

The following figures were used as a basis for the matrix above.

- Distribution electric pole relocation: \$10,000 per pole
- 230kV Transmission tower relocation: \$500,000+ per tower
- 8"-12" Water main: \$125 per foot
- 4" – 10" Gas main: \$120 per foot
- Directional boring (4"-12"): \$70 per foot
- Sewer line relocation: 12" D.I. \$75 per foot; 18" D.I. \$103 per foot
- Telephone cable (buried) \$25 per foot

*Note 1-There are multiple utility crossings found on Utility Exhibit sheet (#3). SCE&G owns both Transmission (230kV and 115kV) and Distribution (Single Phase Primary) aerial crossings. Adjacent to the SCE&G lines is a Dixie Pipeline propane line crossing under I-77. These lines all appear to be in private easement and anticipated relocation costs are very high. Every effort should be made to allow these lines to remain in place.

*Note 2- CenturyLink has identified the Qwest line found on Utility Exhibit Sheets (#6 and #7) to be a "Backbone" Fiber line. CenturyLink has expressed that this line would be very expensive to relocate.

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Time Warner Telecom

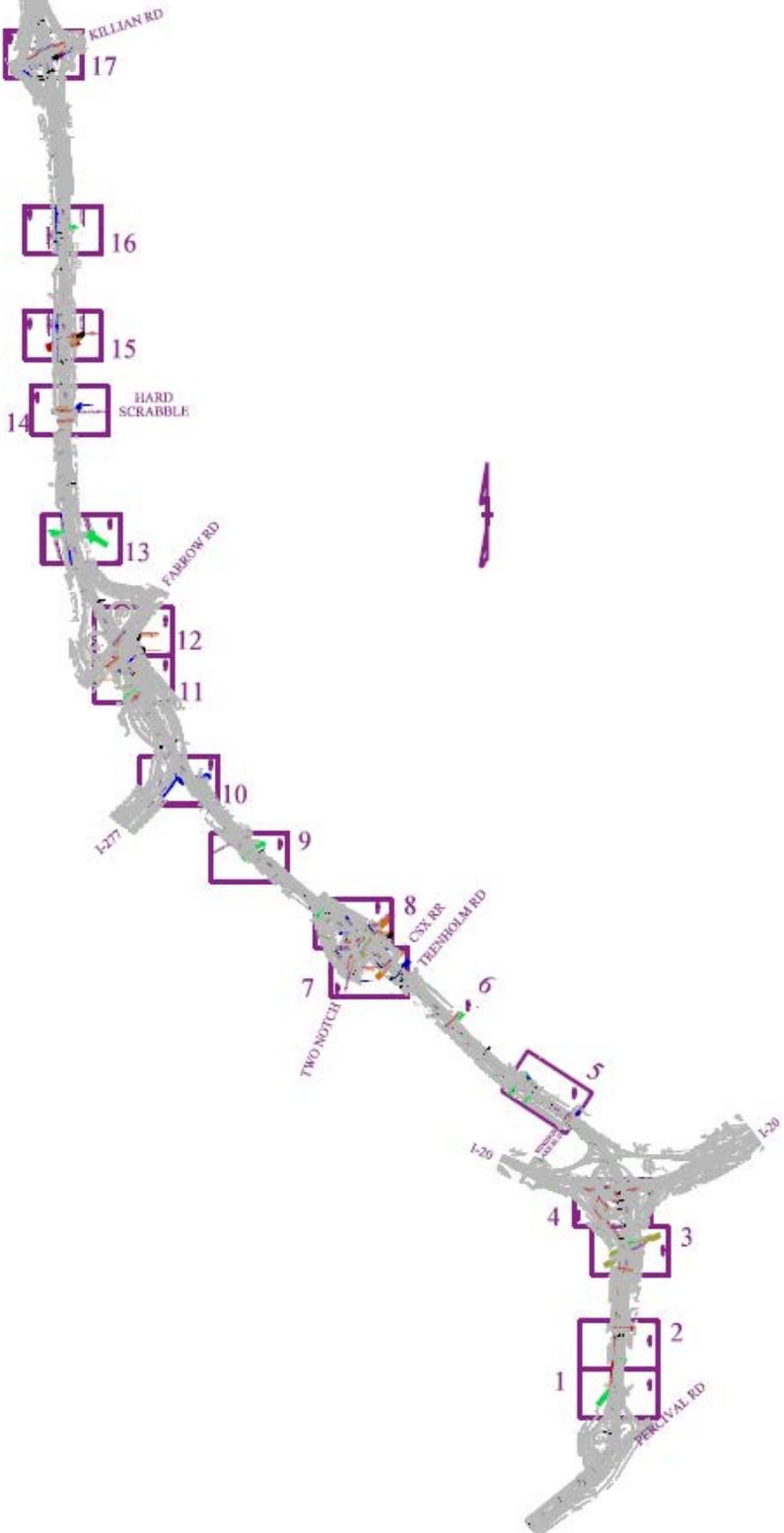
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Verizon Business

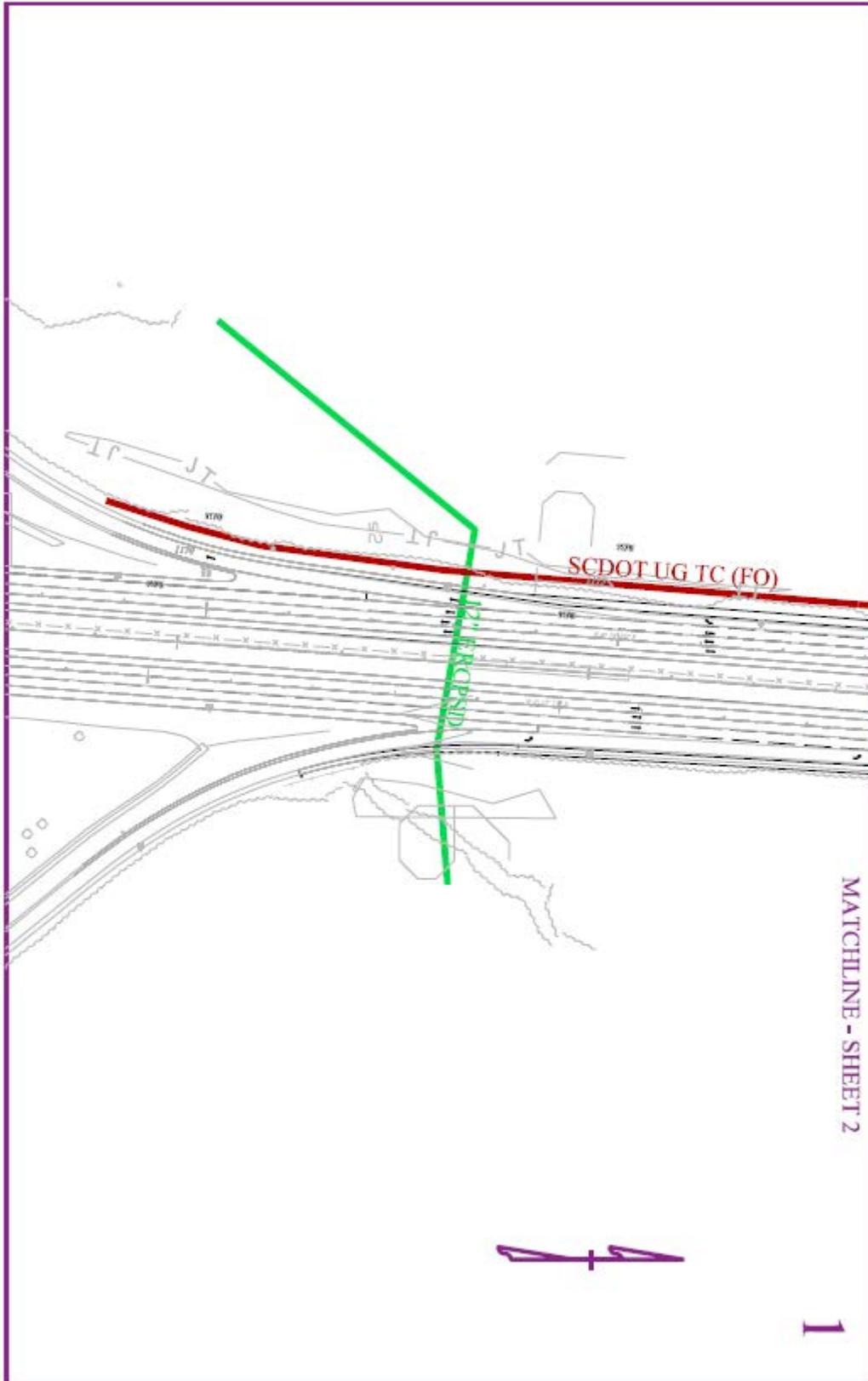
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UTILITY EXHIBITS

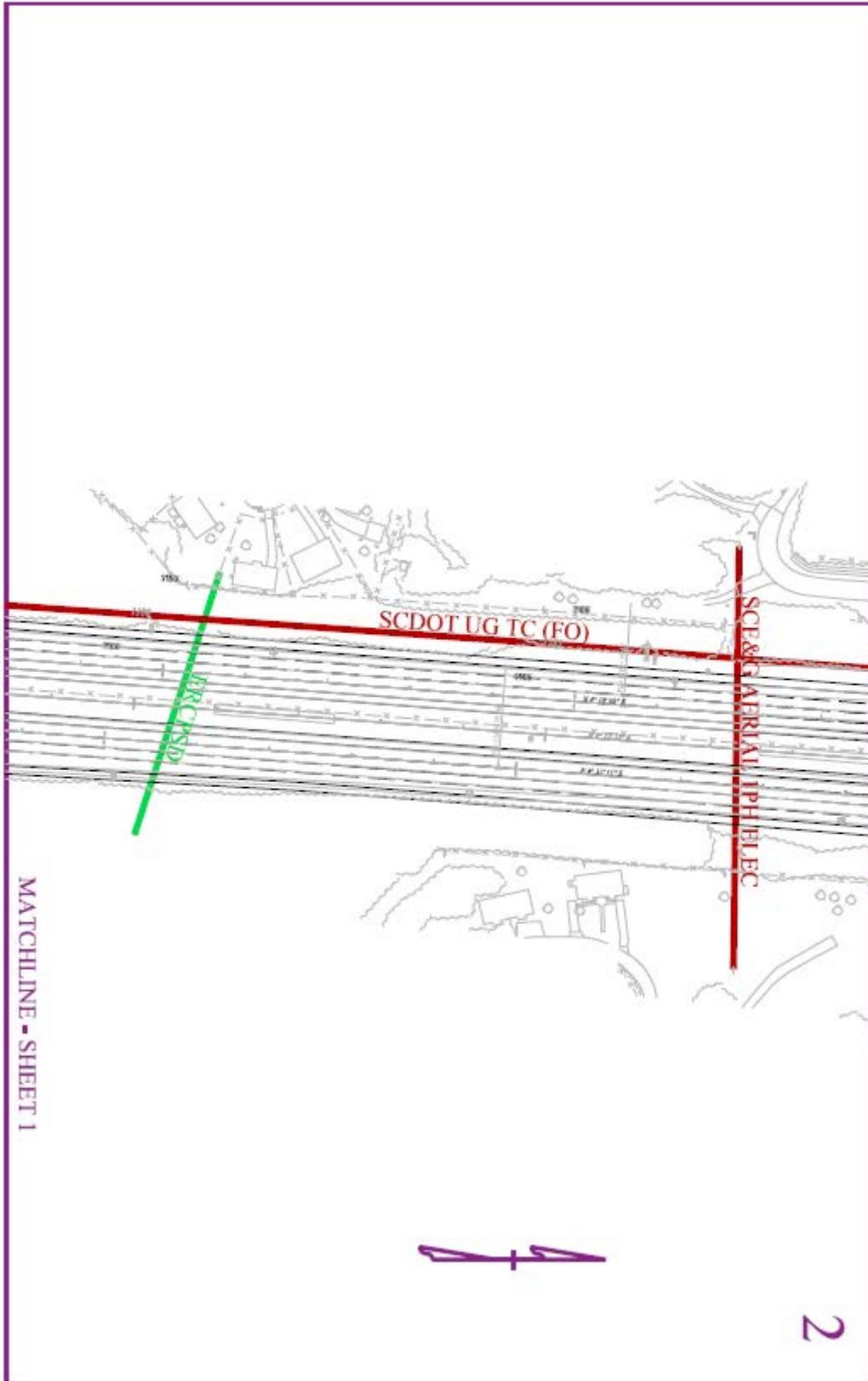
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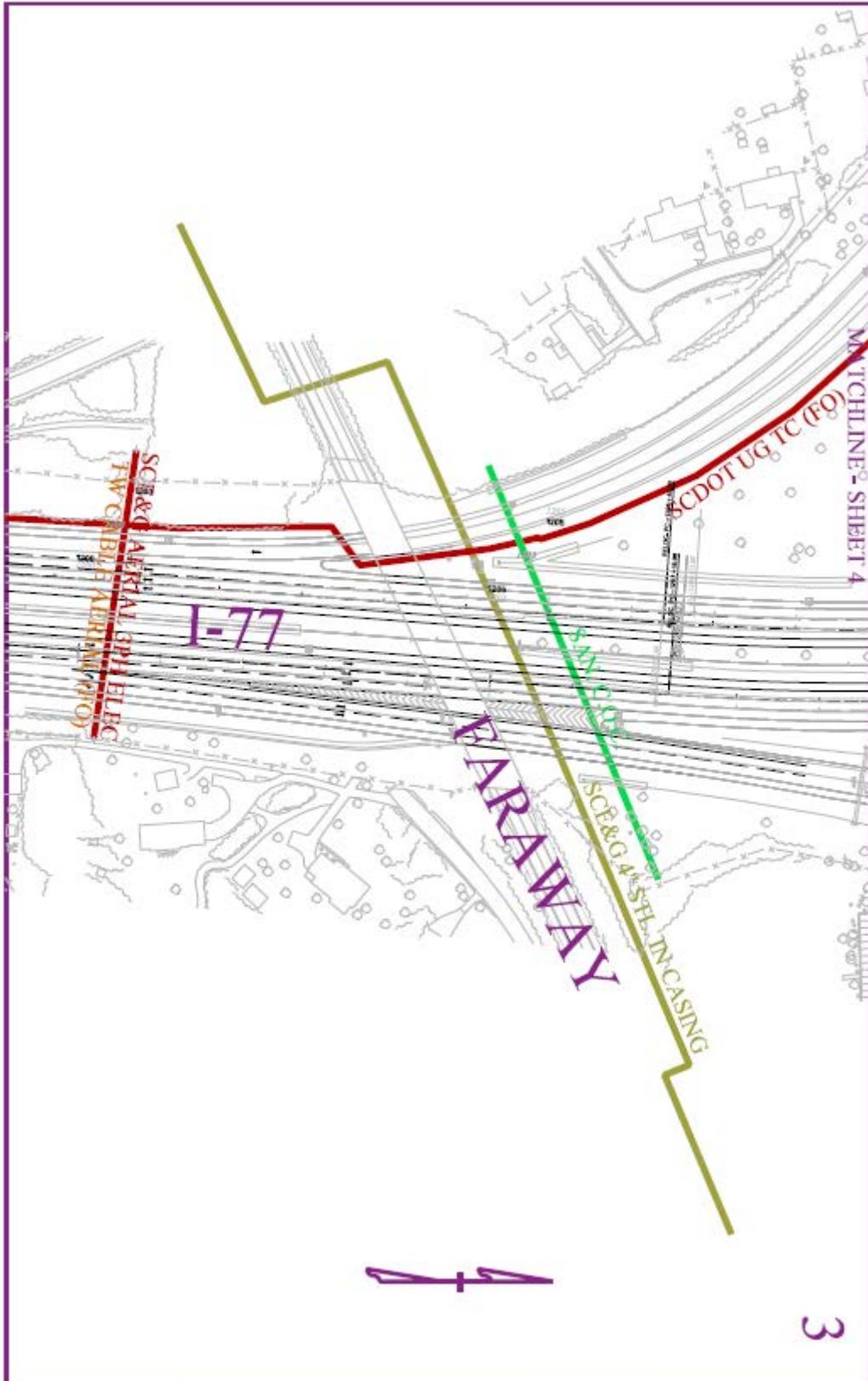
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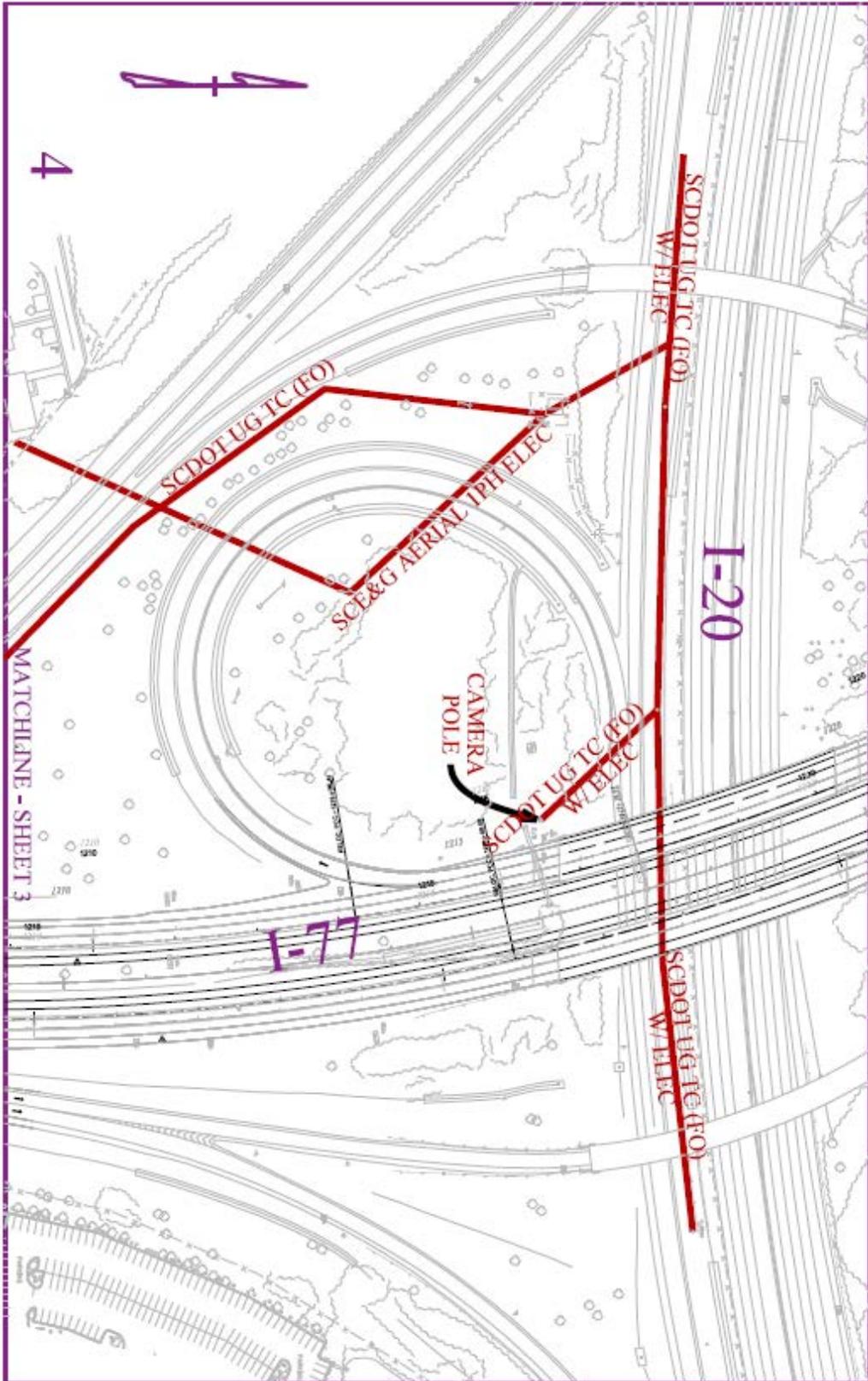


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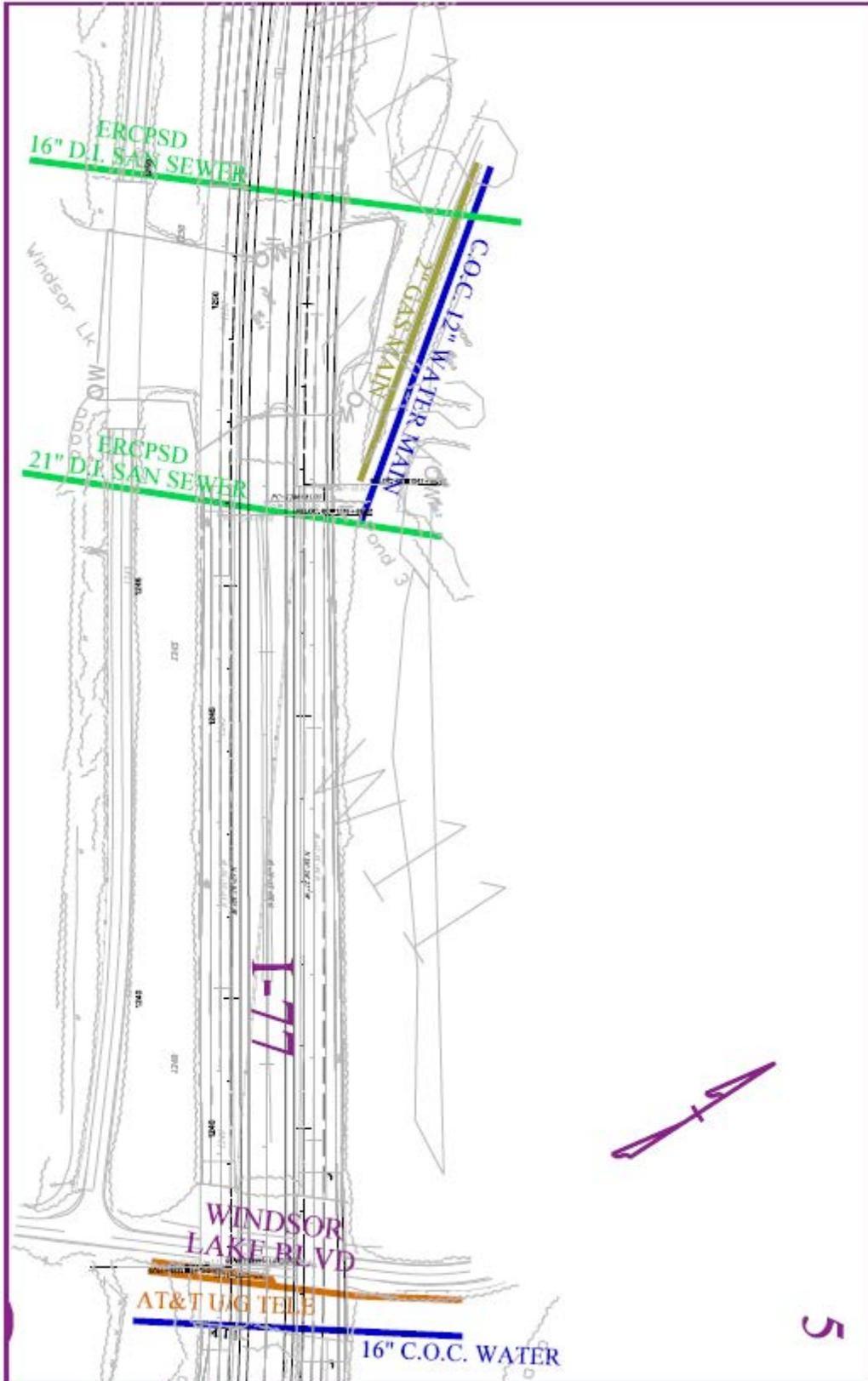


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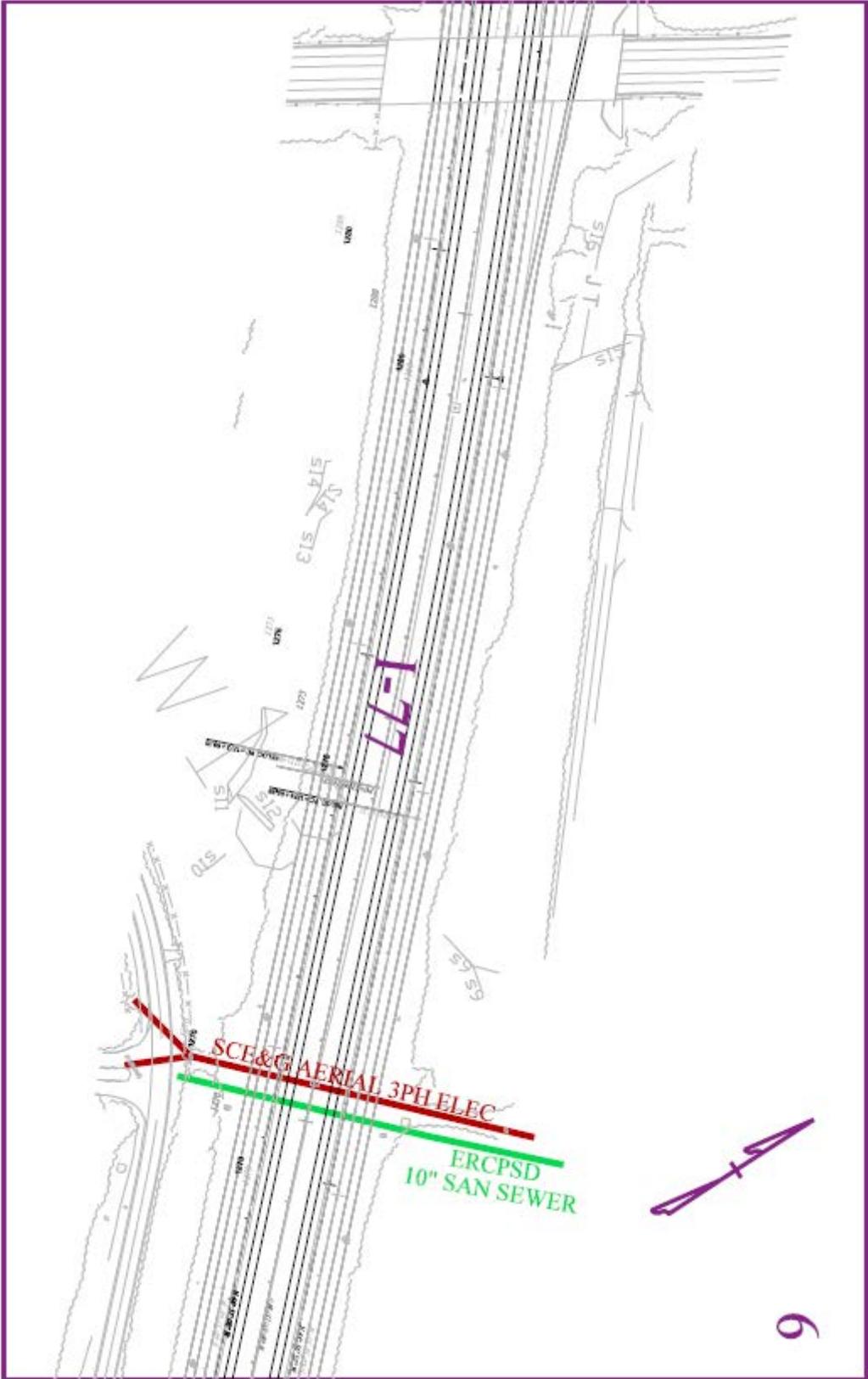


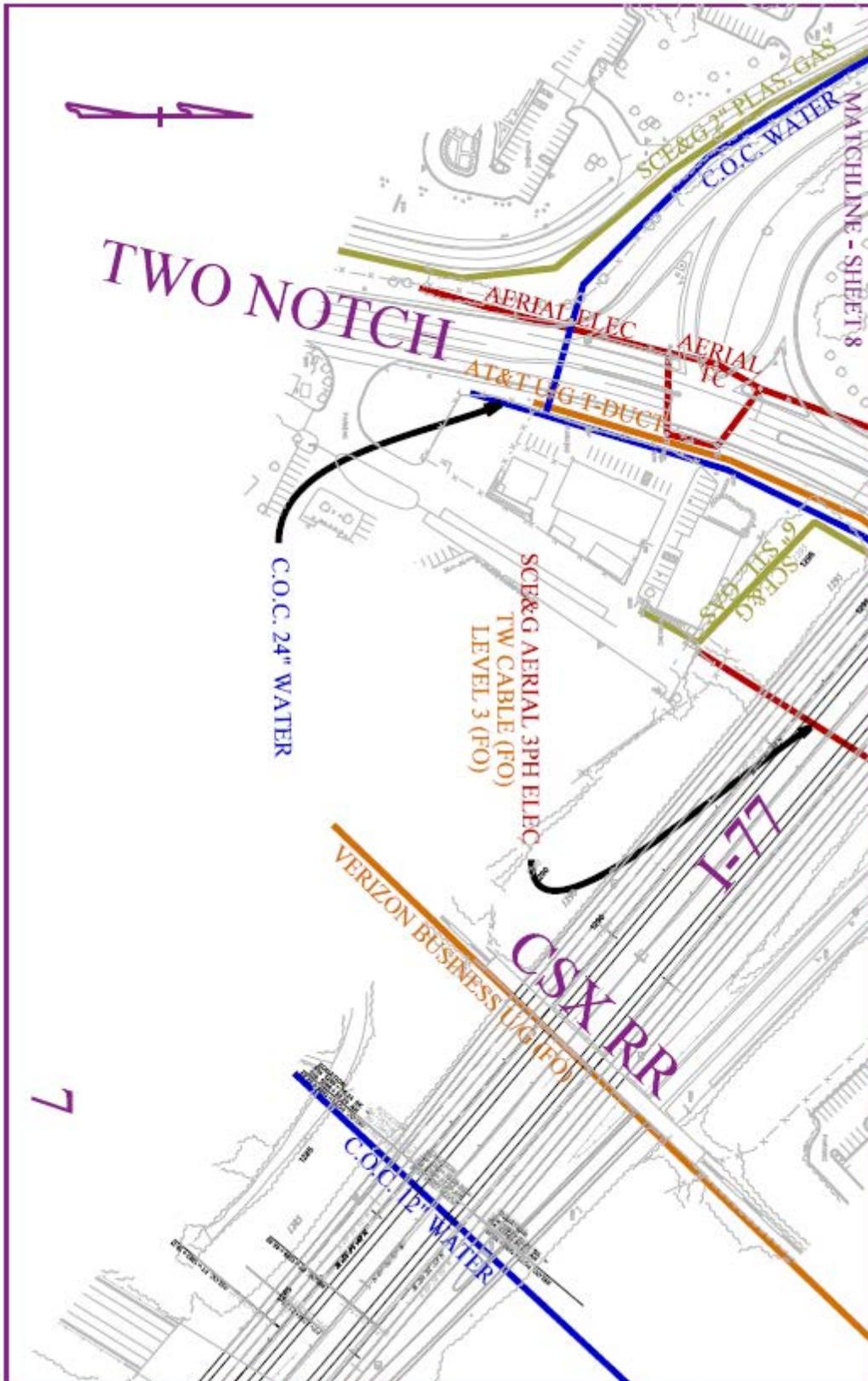


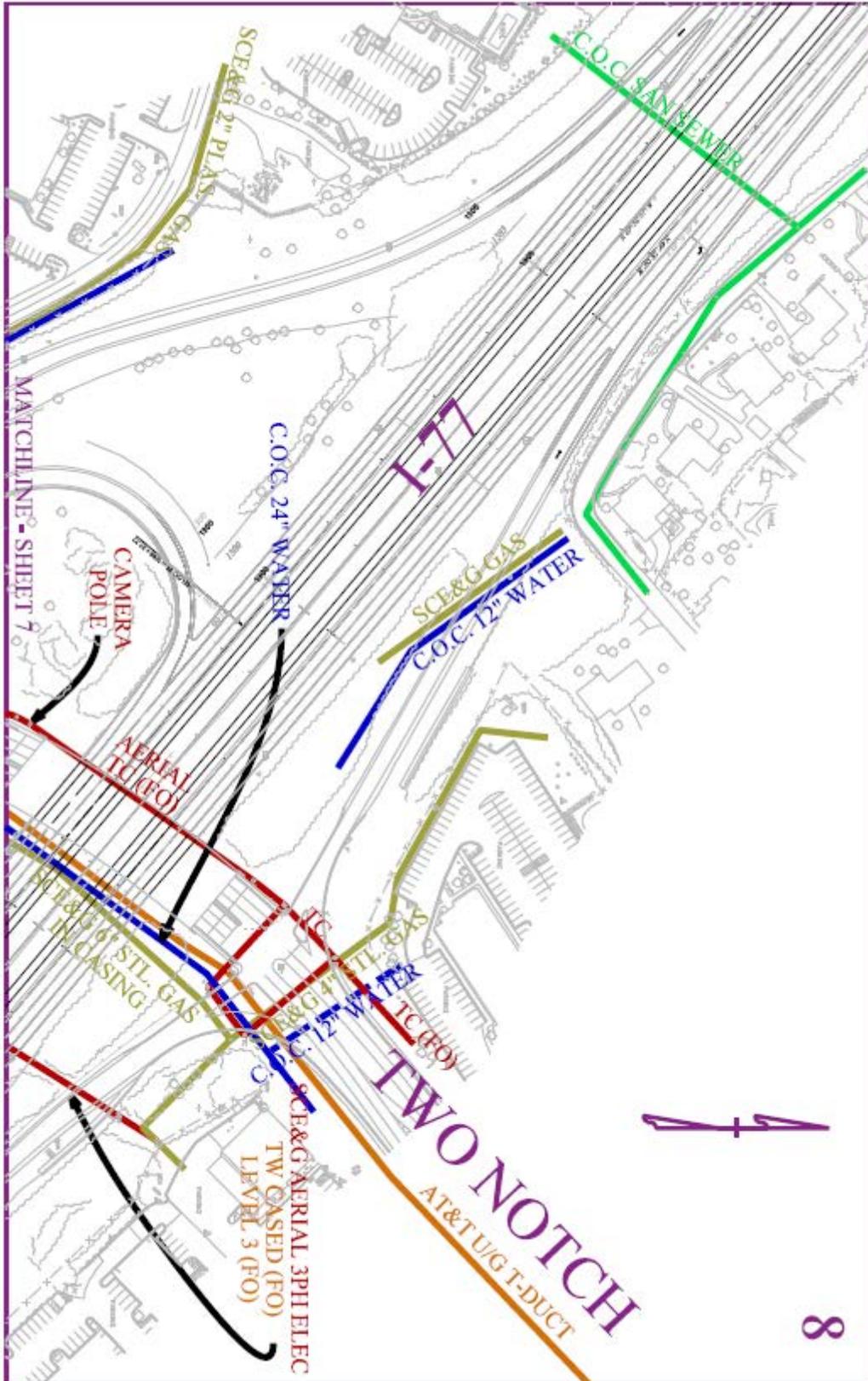
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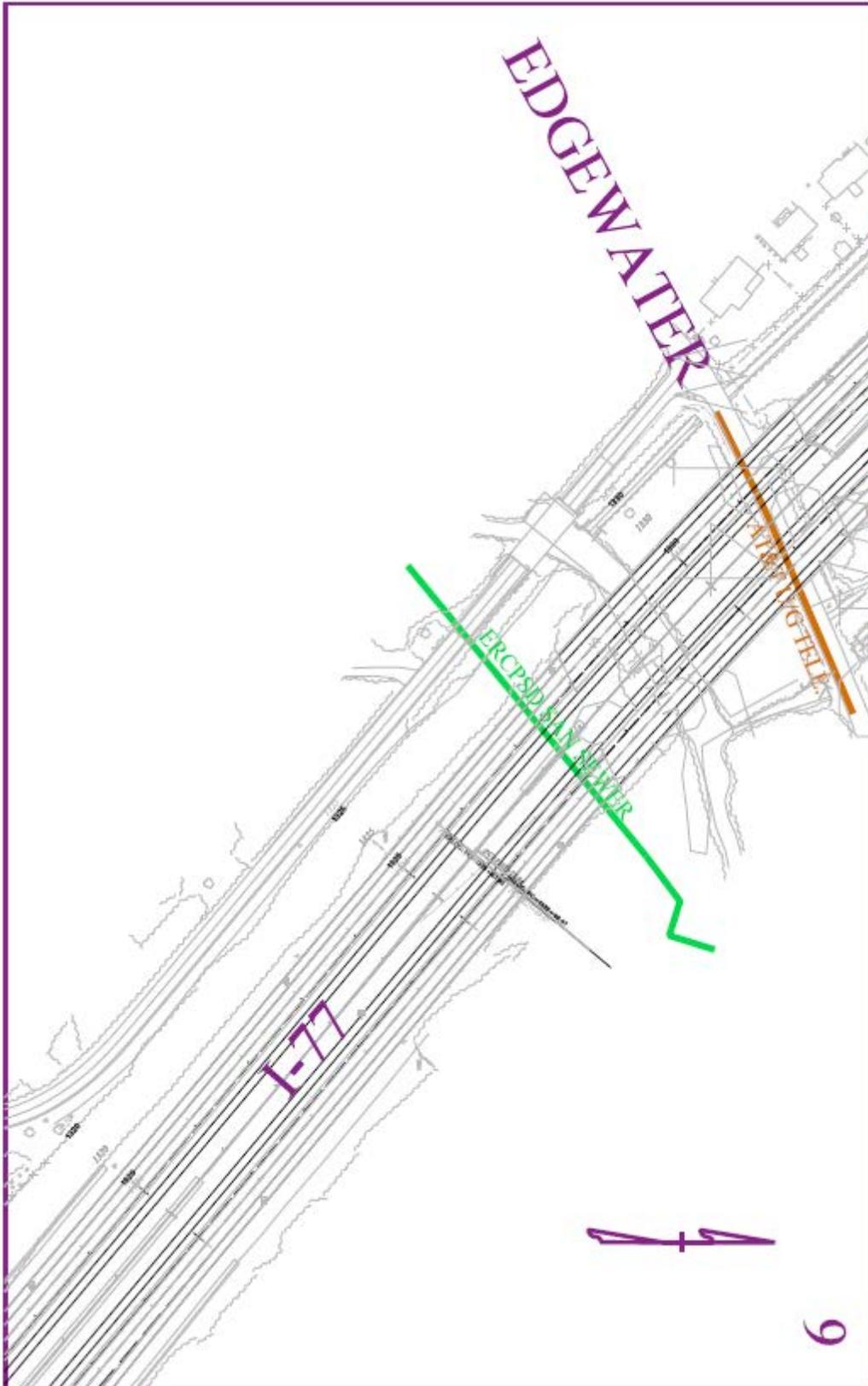


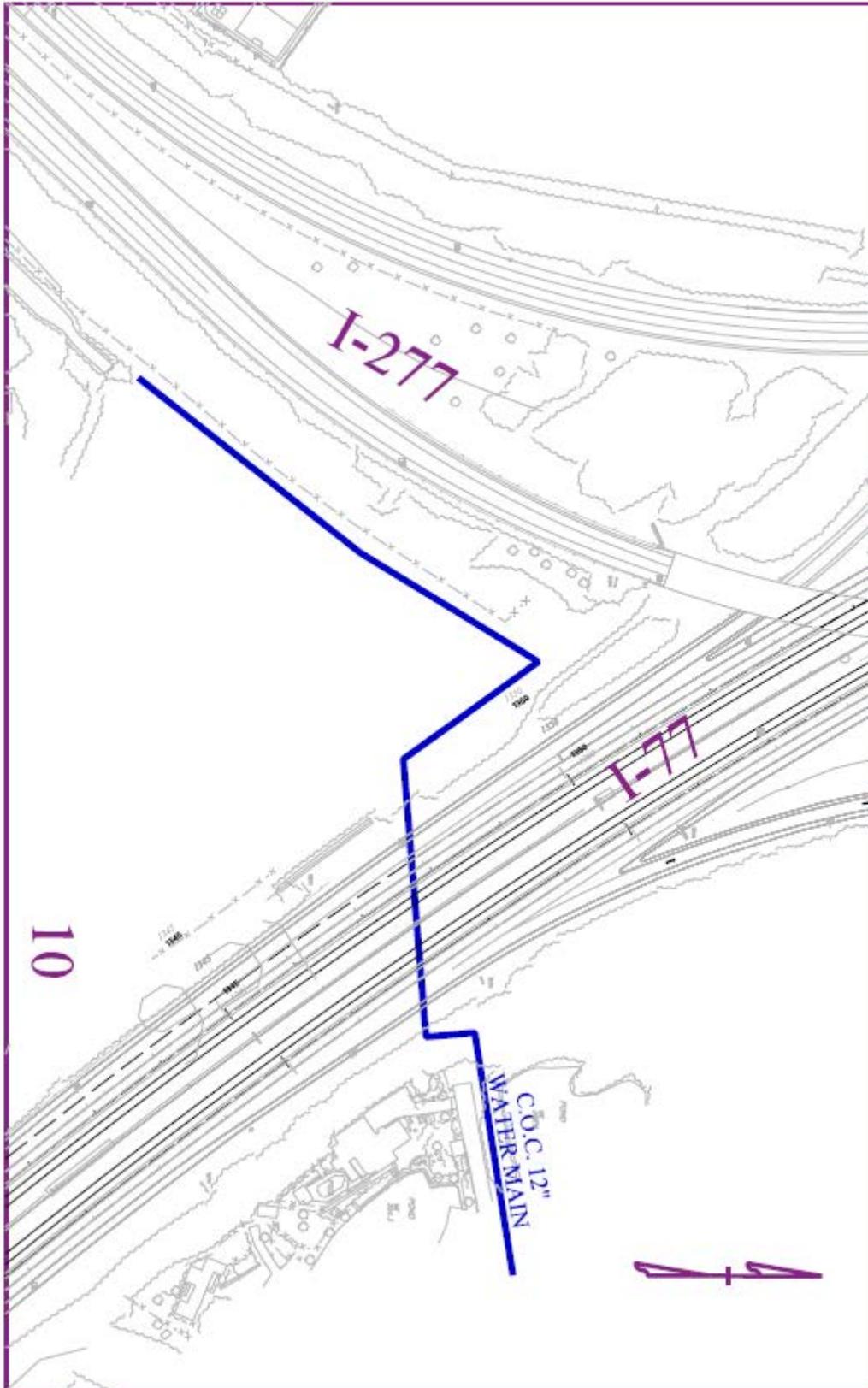
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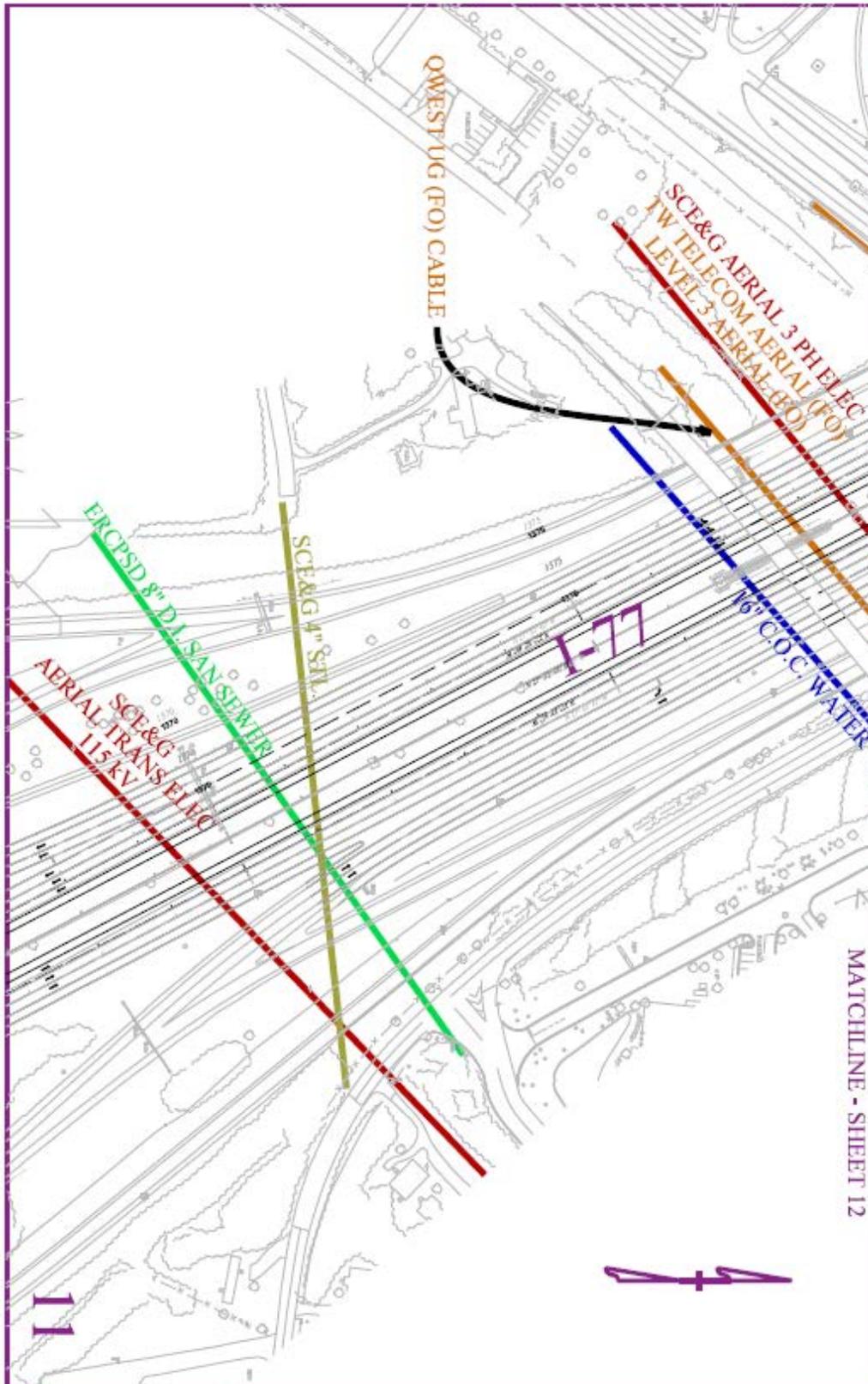


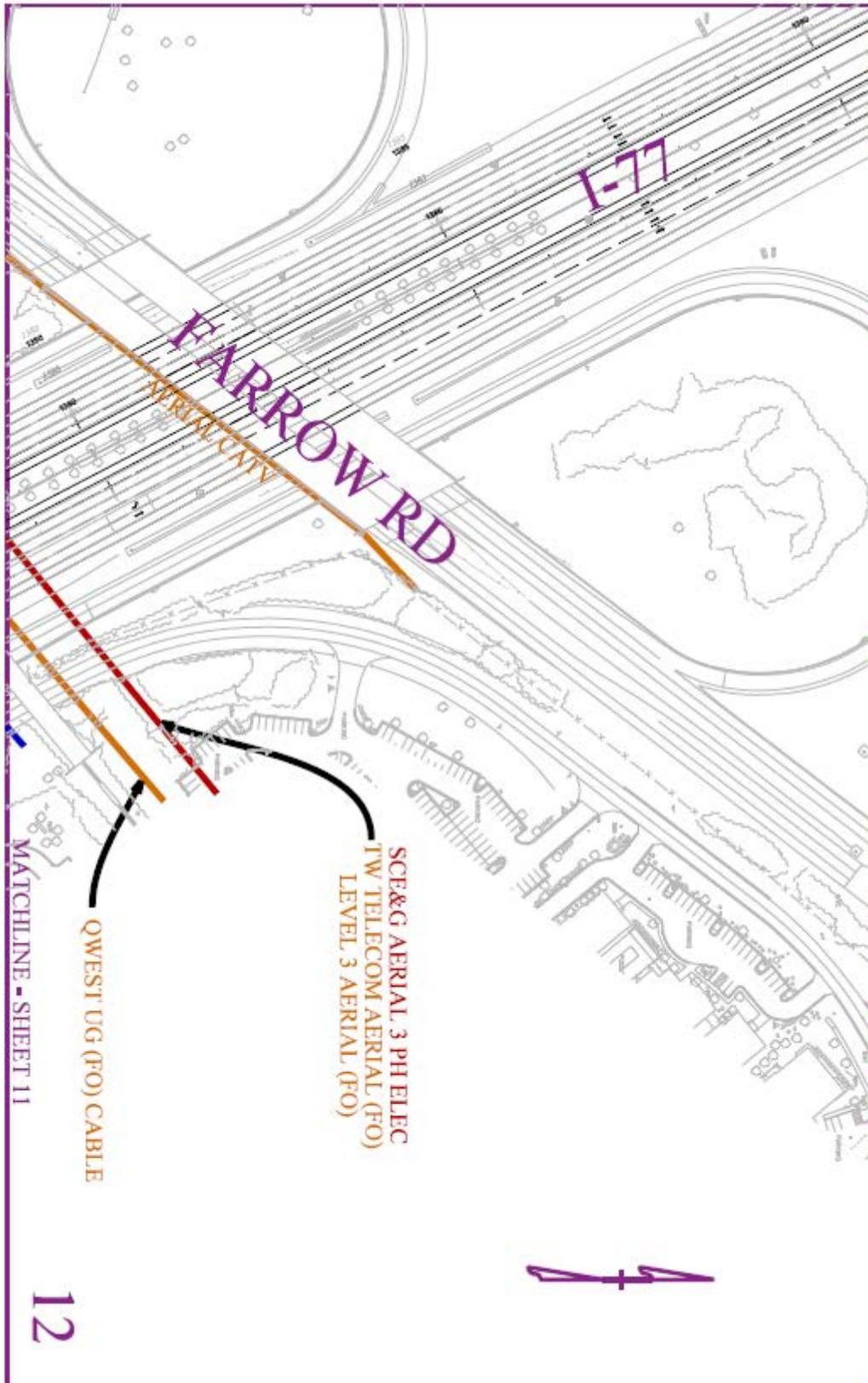


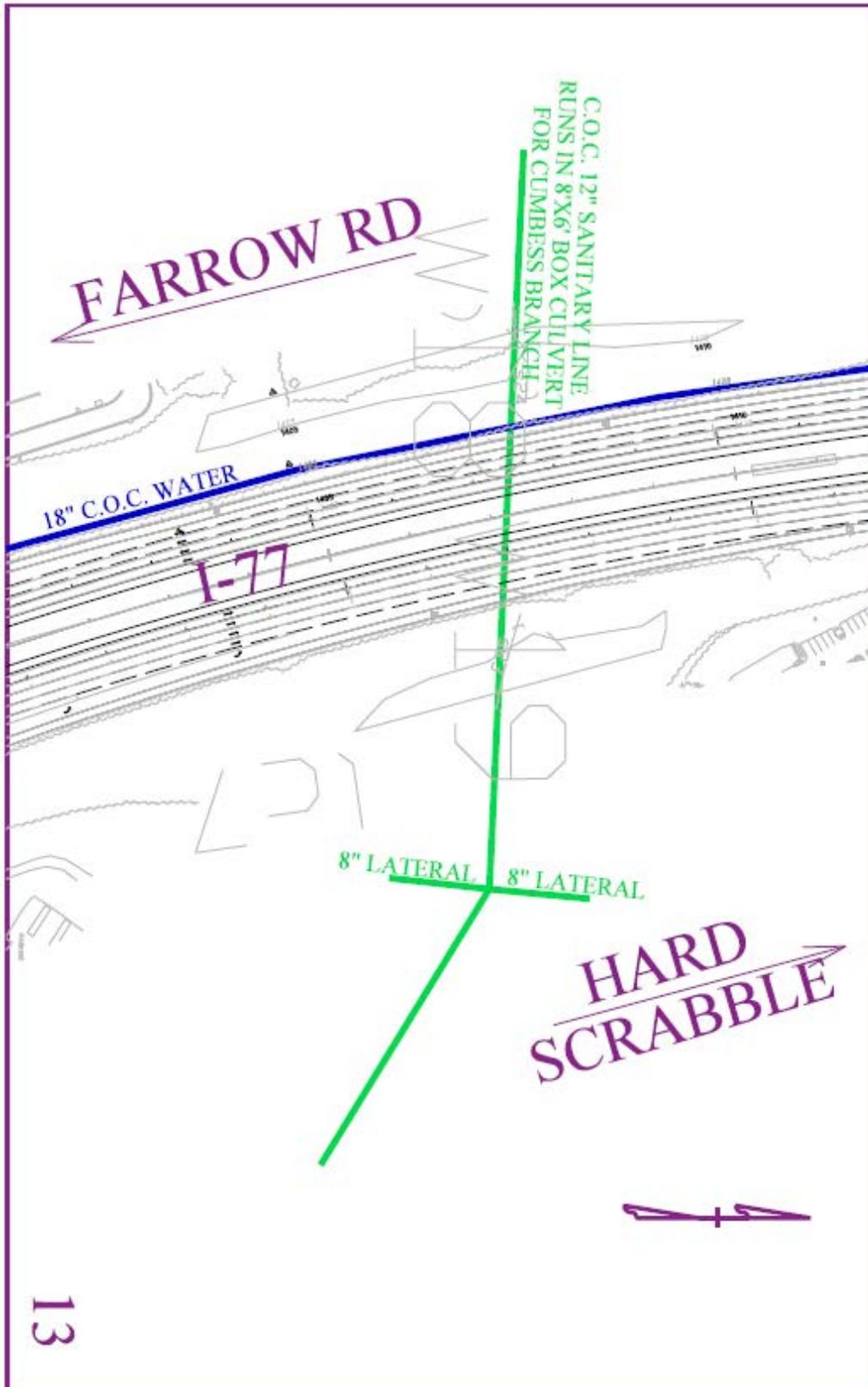




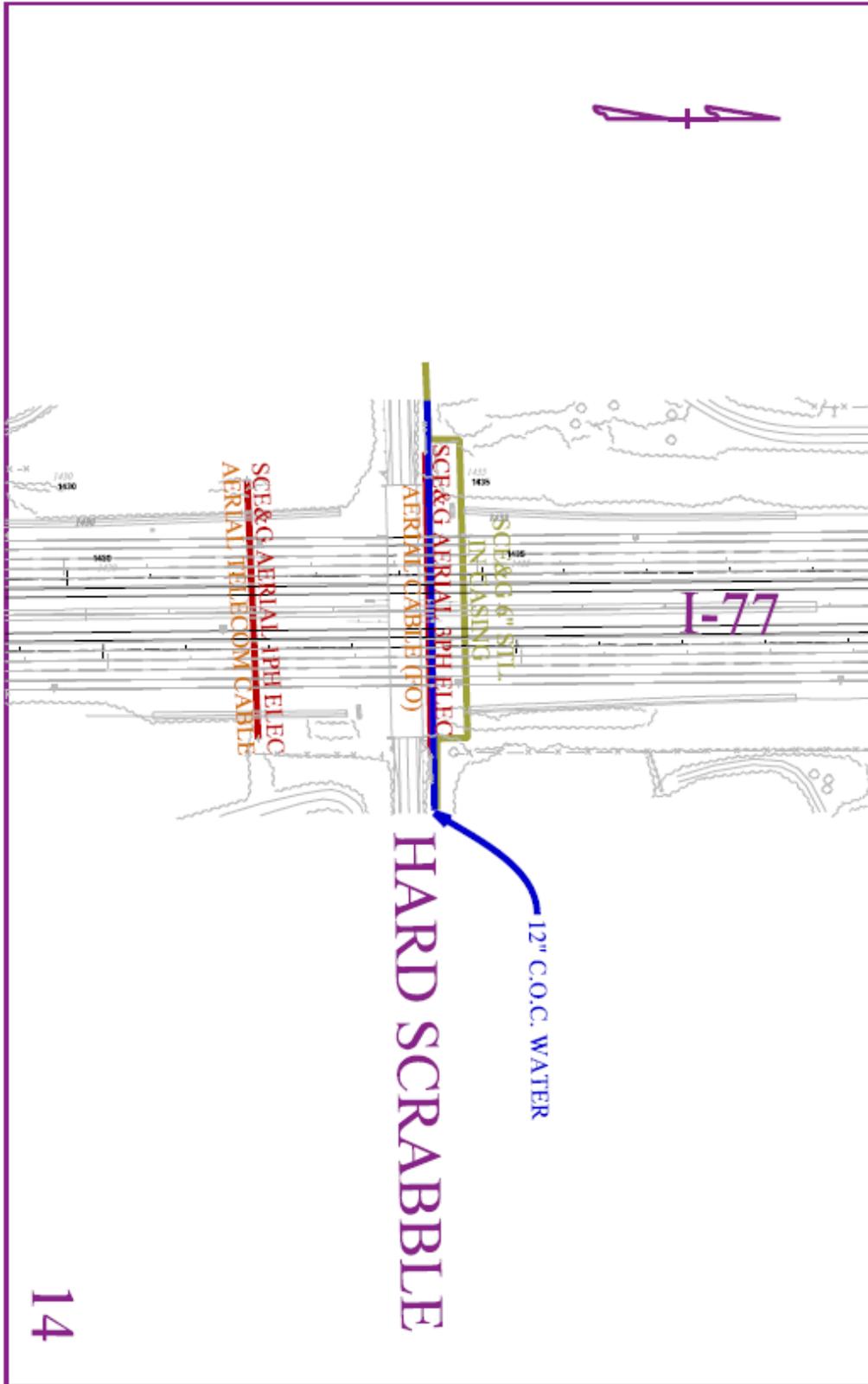


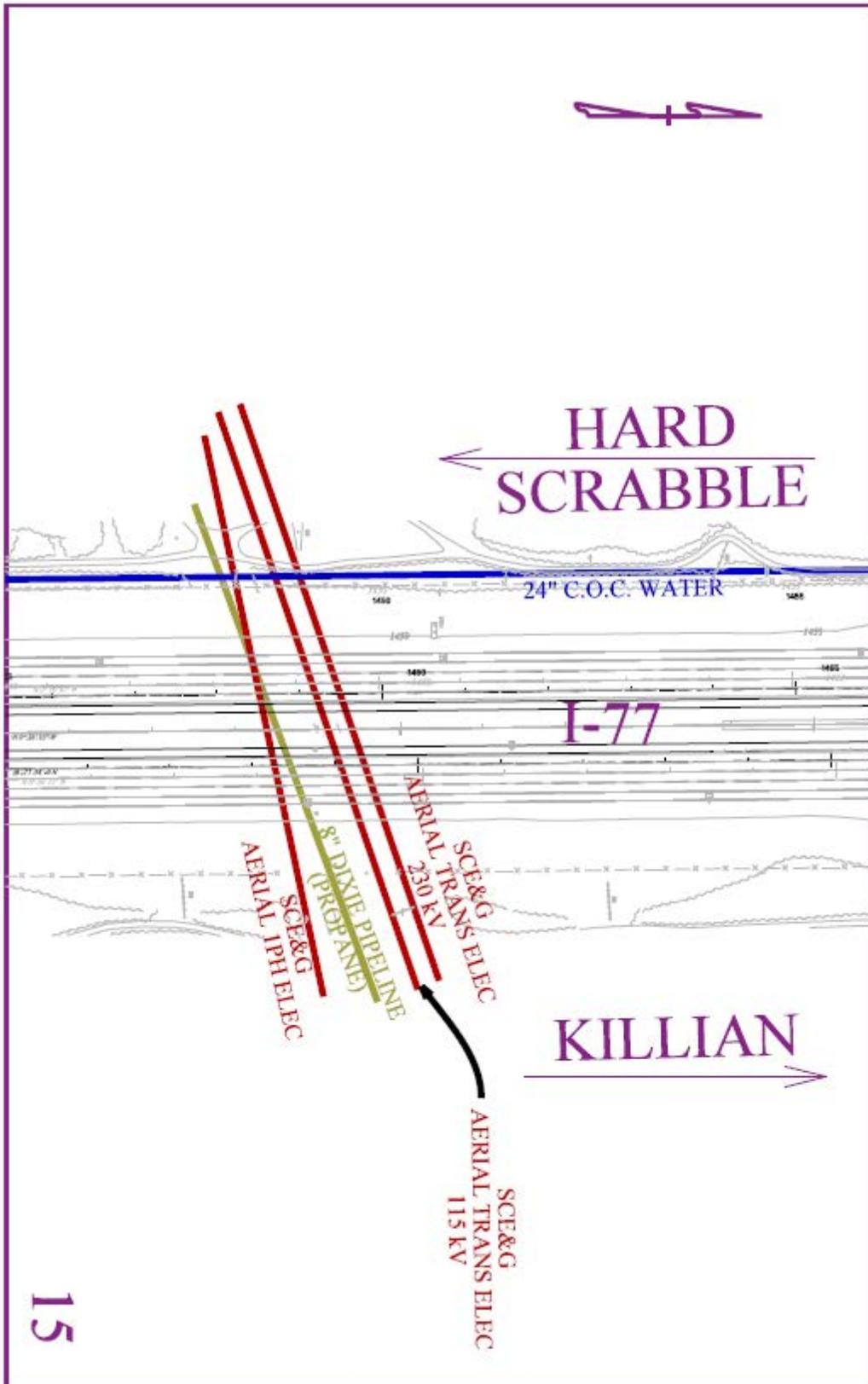


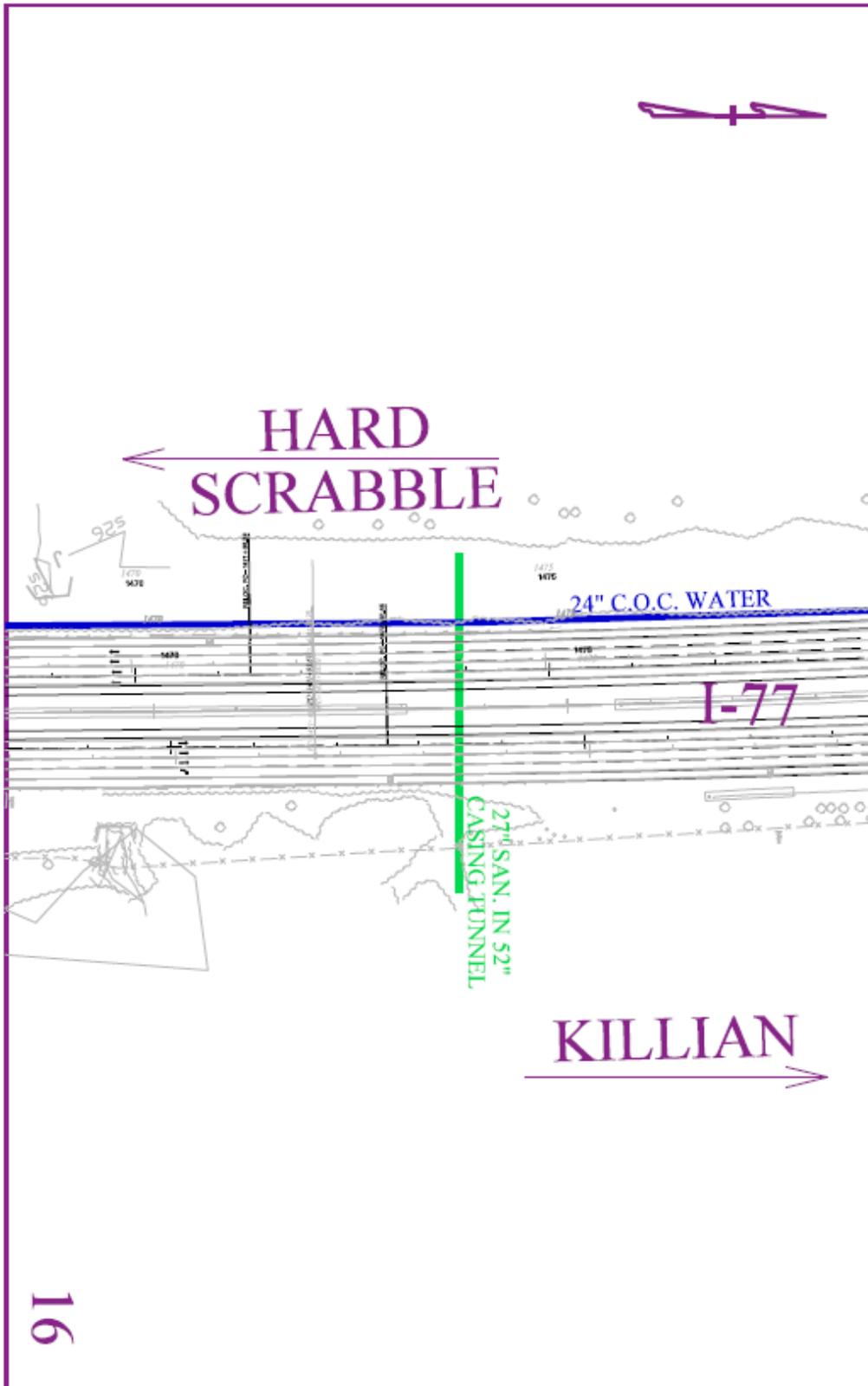




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