5.0 Cumulative Impacts

Cumulative impacts are defined in the CEQ regulations 40 CFR 1508.7 as "…the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency…or person undertakes such other actions." These actions include current and projected area development (e.g., oil and gas); management activities and authorizations on public lands (e.g., range conversion and forestry programs); land use trends; and applicable industrial/infrastructure components (e.g., utility corridors).

Foreseeable construction projects were screened to determine whether they will overlap in time and space with the Project and thus could interact to cause cumulative impacts. Cumulative construction projects primarily include locations where the Project would be co-located with existing utility corridors and locations associated with new power line construction. **Figure 5.0-1** depicts construction disturbance and permanent easements in locations that are adjacent to existing pipelines or utilities.

5.1 Power Lines

The construction of the electrical transmission and distribution power lines to pump stations necessary for the Project would occur during the same timeframe and in the same general area as the Project. Construction activities would be of short duration in any single location. Where possible, power lines will be co-located with other ROWs (i.e., roadways, pipeline corridors, and existing power lines) or located along field edges or section lines to reduce the overall amount of habitat fragmentation and interference with agricultural operations. The amount of land associated with the power line ROWs represent a small fraction of available native vegetation in the region. As a consequence, these power lines do not represent a substantial cumulative disturbance to the environment. Additional information about the electrical power lines to pump stations is located in Section 7.

5.2 Steele City Segment

5.2.1 Northern Border Pipeline

The Northern Border Pipeline is a natural gas pipeline that has been in service since 1982, and the existing permanent ROW has been reclaimed. Routine maintenance and refurbishment activities along the existing Northern Border Pipeline ROW would have minimal cumulative impacts on resources when combined with adjacent, new pipeline construction. The Project will be adjacent to the Northern Border Pipeline for approximately 19 miles within the US, starting at MP 0. In this area, any sites required for work on the Northern Border pipeline would be relatively infrequent, isolated, located in small, discrete areas, and work would involve small crews for short-time periods. Consequently, cumulative impacts from maintenance activities along the existing Northern Border Pipeline system are considered to be negligible.

5.2.2 Bison Pipeline

Northern Border Company is proposing an approximate 302 mile 30-inch natural gas pipeline from Dead Horse in Campbell County, Wyoming to their existing compressor station no. 6 in Morton County, North Dakota. This proposed natural gas pipeline will cross through Fallon County, Montana, which is also crossed by the proposed Project. The Bison Project is proposed to be constructed in 2010, pending Federal Energy Regulatory Commission (FERC) licensing and federal and state permitting. The Bison project would be built before the Project avoiding a conflict of resources at the time of construction for the Project. However, where the two projects cross in Fallon County, Montana, there will be sequential impacts to the resources at the crossing point of both projects. In the context of the regional impacts, however, the impact will be minor.

5.2.3 Keystone Pipeline Project

Keystone is currently constructing a crude oil pipeline and related facilities from an oil supply hub near Hardisty, Alberta, Canada, to Wood River and Patoka, Illinois, and Cushing, Oklahoma. The project known as the Keystone Pipeline Project will have the capacity to transport 591,000 barrels per day (bpd) of crude.

In 2010, Keystone will build the Keystone Cushing Extension from Steele City, Nebraska to Cushing, Oklahoma. The Gulf Coast Segment of the proposed Project will be built from Cushing, Oklahoma to southern Texas starting in the fourth quarter of 2010. Because there is no overlap of construction footprint or even locality, cumulative impacts would be avoided. The only location where cumulative impacts may be realized would be at Cushing, Oklahoma where the Keystone Cushing Extension ends and the Gulf Coast Segment begins, and at two Project pump stations constructed along the Cushing Extension. However, since the projects do not overlap, only construction work force personnel in that county would add cumulative impacts to the roads and service industries.

5.3 Gulf Coast Segment and Houston Lateral

5.3.1 Green Pipeline

Denbury Resources announced their plans to construct the Green Pipeline. This Project calls for building a 24-inch in diameter pipeline from Donaldsville, Louisiana to the Hastings Field, south of Houston, Texas. The pipe would be 320 miles long and is designed to carry carbon dioxide to be used at oil reservoirs to allow additional recovery. The line is designed to transport up to 800 million standard cubic feet of carbon dioxide per day. The pipeline would be designed and operated under the rules and regulations of the USDOT.

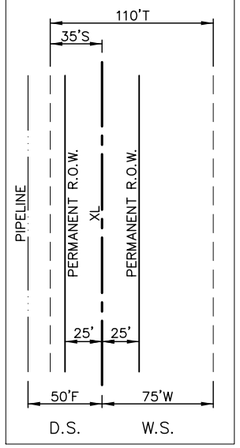
The Green Pipeline and the Gulf Coast Segment and the Houston Lateral of the proposed Project would be roughly parallel from the Beaumont area to the Houston area. Construction of the Green Pipeline is scheduled for 2009 and 2010 with a phased in-service date of fourth quarter 2009 and fourth quarter 2010. Keystone plans to commence construction of the Gulf Coast Segment of the Project in late 2010 and would commence construction of the Houston Lateral in 2012. As a result, many cumulative impacts due to construction in the same year would be avoided (e.g., construction traffic and work forces). For some resources (e.g., soils, vegetation, water, cultural resources), successive construction would result in additive impacts.

5.3.2 Golden Pass Pipeline

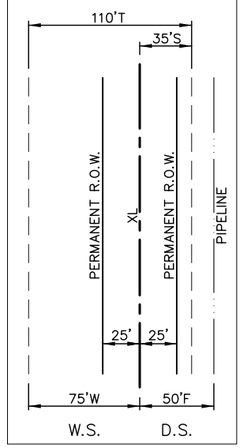
Golden Pass LNG Terminal LP and Golden Pass Pipeline LP, affiliates of ExxonMobil Corporation, are planning the development of a liquefied natural gas (LNG) receiving terminal approximately two miles northwest of Sabine Pass, Texas, and an associated natural gas pipeline system. The 42-inch natural gas pipeline has a capacity of 2.5 billion cubic feet per day and transports natural gas approximately 69 miles from the outlet of the LNG receiving terminal to existing natural gas pipelines and related infrastructure. The projects were approved by FERC in 2005 and the pipeline will be completed in 2009. The project is expected to be operational in 2010.

The Golden Pass Pipeline and the proposed Project will parallel each other in the Beaumont area. Construction of the Golden Pass Pipeline in that area is complete. Therefore, many cumulative impacts due to construction of the Golden Pass Pipeline and the Project in the same year would be avoided (e.g., construction traffic and work forces). For some resources (e.g., soils, vegetation, water, cultural resources), successive construction will result in additive impacts.

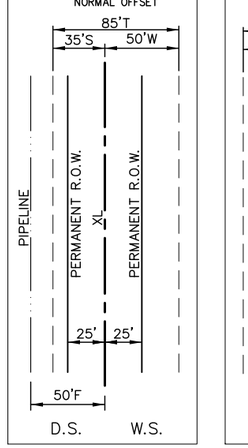
GULF COAST SEGMENT
CONFIGURATION 1 –
75'W/35'S/110'T/50'F
PROFILE – LOOKING SOUTH/DOWNSTREAM
PASSING LANE – NORMAL OFFSET



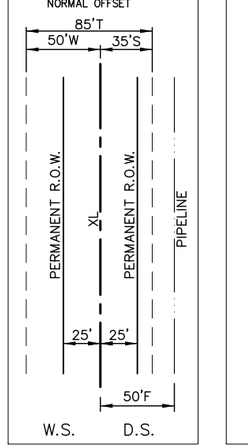
GULF COAST SEGMENT
CONFIGURATION 2 –
75'W/35'S/110'T/50'F
PROFILE – LOOKING SOUTH/DOWNSTREAM
PASSING LANE – NORMAL OFFSET



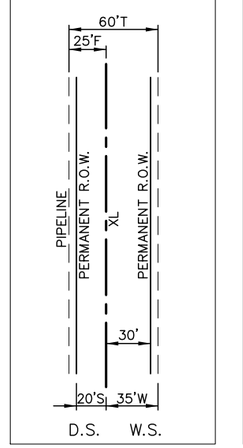
GULF COAST SEGMENT
CONFIGURATION 3 –
50'W/35'S/85'T/50'F
PROFILE –
LOOKING SOUTH/DOWNSTREAM
FORESTED WETLAND –
NORMAL OFFSET



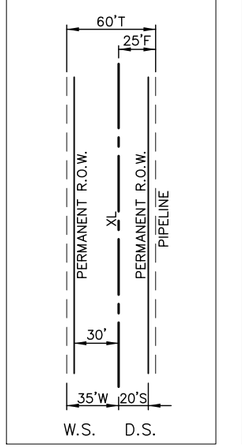
GULF COAST SEGMENT
CONFIGURATION 4 –
50'W/35'S/85'T/50'F
PROFILE –
LOOKING SOUTH/DOWNSTREAM
FORESTED WETLAND –
NORMAL OFFSET



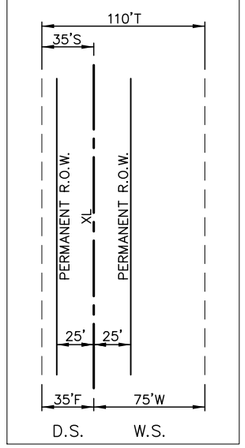
GULF COAST SEGMENT
CONFIGURATION 5 –
35'W/20'S/60'T/25'F
PROFILE –
LOOKING SOUTH/DOWNSTREAM
NO PASSING LANE – MINIMUM OFFSET



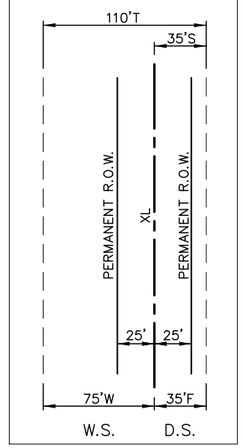
GULF COAST SEGMENT
CONFIGURATION 6 –
35'W/20'S/60'T/25'F
PROFILE –
LOOKING SOUTH/DOWNSTREAM
NO PASSING LANE – MINIMUM OFFSET



GULF COAST SEGMENT
CONFIGURATION 7 –
75'W/35'S/110'T/35'F
PROFILE – LOOKING SOUTH/DOWNSTREAM
PASSING LANE – NORMAL OFFSET



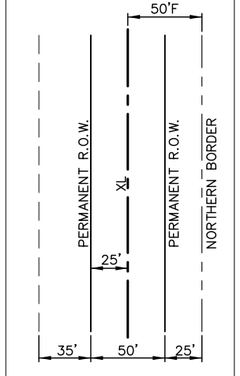
GULF COAST SEGMENT
CONFIGURATION 8 –
75'W/35'S/110'T/35'F
PROFILE – LOOKING SOUTH/DOWNSTREAM
PASSING LANE – NORMAL OFFSET



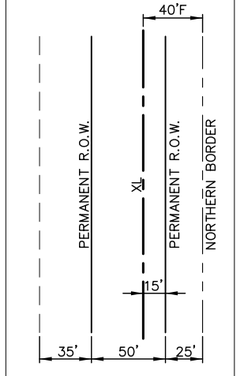
LEGEND

W.S.	WORKING SIDE
D.S.	DITCH SIDE
R.O.W.	RIGHT–OF–WAY
ATWS	ADDITIONAL TEMPORARY WORKING SPACE
T	TEMPORARY EASEMENT
F	DISTANCE FROM MAINLINE TO FOREIGN PIPELINE
S	DISTANCE FROM MAINLINE TO TEMPORARY EASEMENT (DITCH SIDE)
W	DISTANCE FROM MAINLINE TO TEMPORARY EASEMENT (WORKING SIDE)

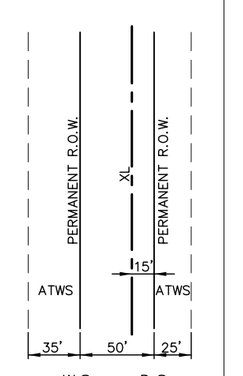
STEELE CITY SEGMENT
CONFIGURATION 1
CONCEPTUAL R.O.W. FOR PARALLELING
NORTHERN BORDER ON WEST SIDE



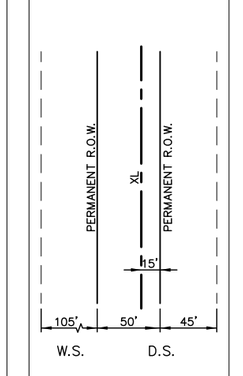
STEELE CITY SEGMENT
CONFIGURATION 2
CONCEPTUAL R.O.W. FOR PARALLELING
NORTHERN BORDER ON WEST SIDE
PIPELINE REV



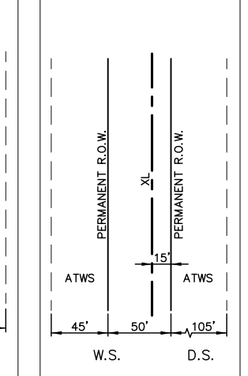
STEELE CITY SEGMENT
CONFIGURATION 3
CONCEPTUAL GREENFIELD R.O.W.
PIPELINE REV



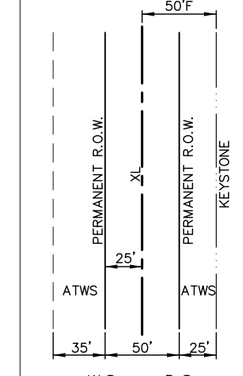
STEELE CITY SEGMENT
CONFIGURATION 4
CONCEPTUAL R.O.W. FOR TERRAIN
FEATURES AND SANDHILLS IN MT,
SD & NE



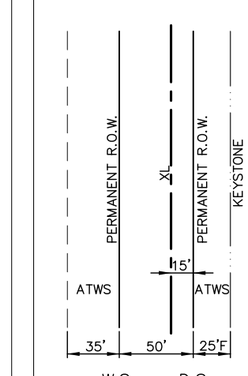
STEELE CITY SEGMENT
CONFIGURATION 5
CONCEPTUAL R.O.W. FOR TERRAIN
FEATURES AND SANDHILLS IN MT,
SD & NE



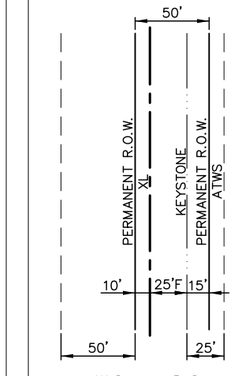
STEELE CITY SEGMENT
CONFIGURATION 6
CONCEPTUAL R.O.W. FOR PARALLELING
KEYSTONE (TRANSCANADA)
ON WEST SIDE
(SEPARATE R.O.W.)



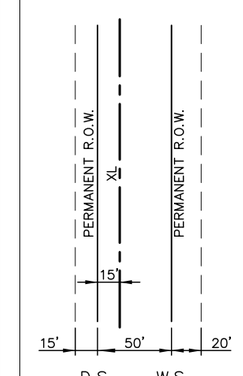
STEELE CITY SEGMENT
CONFIGURATION 7
CONCEPTUAL R.O.W. FOR PARALLELING
KEYSTONE (TRANSCANADA)
ON WEST SIDE
PIPELINE REV (SEPERATE R.O.W.)



STEELE CITY SEGMENT
CONFIGURATION 8
CONCEPTUAL R.O.W. FOR PARALLELING
KEYSTONE (TRANSCANADA)
ON WEST SIDE
(MULTIPLE LINES R.O.W.)



STEELE CITY SEGMENT
CONFIGURATION 9
CONCEPTUAL R.O.W.
FOR WETLAND CROSSING



REFERENCE DRAWINGS

DRAWING No	TITLE

REV No	DATE	REVISION	PROJECT CODE	DRAFT BY	DRAFT CHK	DESIGN BY	DESIGN CHK	PROJ MGR
1		REVISED CONFIGURATION 8 FROM 35' W.S. TO A 50' W.S.		J.A.N.				
2		CHANGED FIG NUM FROM 001 TO FIG 5.0–1 – REMOVED KXL FROM DETAIL TITLE						
3	06.12.09	REVISED TEXT AND LEGEND; CHANGED DRAWING NUMBER; ADDED CONFIG. 9		CB	TW			

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL
	DATE

REV. NO.	DATE	PERMIT NUMBER:

PREPARED BY:
TROW ENGINEERING CONSULTANTS, INC.
7505 NW Tiffany Springs Pkwy., Suite 400
Kansas City, Missouri 64153
Phone: 1-816-801-7063
Fax: 1-816-801-7048

TransCanada
In business to deliver

Trow

FIGURE 5.0–1

FIA #	CHAINAGE:	DISCIPLINE #
1399		03

KEYSTONE XL PROJECT
TYPICAL R.O.W. DETAILS
GULF COAST AND STEELE CITY SEGMENTS

MONTANA, SOUTH DAKOTA, NEBRASKA, KANSAS, OKLAHOMA, TEXAS

SCALE	DRAWING No	REV
N.T.S.	1399–03–ML–03–453	3

G:\2000Drafting and GIS\CADFiles\Drawings\ER\ROW_Details_REV3.dwg 6/12/2009 12:01:59 PM CDT

LAST PLOT DATE:
Fri, 12 Jun 2009 – 12:02pm

CADD DRAWING: DO NOT MAKE MANUAL REVISIONS

PLOTTED SIZE: ANSI B (11x17)

5.3.3 Air Liquide Specialty Gas

Air Liquide operates specialty gas facilities along the Texas Gulf Coast. Their facilities located in Galveston, Chambers, and Jefferson counties are situated near the Project. These facilities include O_2/N_2 plants near Westlake, Beaumont, Channelview and Bayport, cogeneration plants near Bayport, Port Neches, and Lake Charles. Additionally, Air Liquide has O_2, N_2, and H_2 transmission plants throughout the Texas/Louisiana Gulf Coast Region.

5.3.4 Gulf Crossing - Boardwalk

Boardwalk constructed a new interstate natural gas pipeline that begins near Sherman, Texas, and proceeds to the Perryville Louisiana, area. The project is owned by Gulf Crossing Pipeline Company LLC (Gulf Crossing) and consists of approximately 357 miles of 42-inch pipeline with approximately 1.7 billion cubic feet of transmission capacity each day and includes the addition of compression facilities. The pipeline is co-located with the proposed corridor of the Gulf Coast section of the Project in Lamar County, Texas through Bryan County, Oklahoma at which point it would turn southwest to Sherman, Texas.

Because Boardwalk completed construction on the Gulf Crossing Project in 2009, and the Project is now in service. there will be no cumulative impacts due to construction in the same year (e.g., construction traffic and work forces). For some resources (e.g., soils, vegetation, water, cultural resources), successive construction will result in additive impacts prior to ROW restoration.

5.3.5 Regency Natural Gas Project

Regency Energy is proposing a natural gas pipeline that would cross the Gulf Coast portion of the Project in the Lamar County, Texas area. If constructed on schedule (late 2009), the Regency and the proposed Project would be constructed in sequential years. As a result, many cumulative impacts due to construction in the same year would be avoided (e.g., construction traffic and work forces). For some resources (e.g., soils, vegetation, water, cultural resources), successive construction would result in additive impacts prior to ROW restoration of the first project built in the area of overlap.

5.3.6 Midcontinent Express Pipeline

The Midcontinent Express natural gas pipeline project is a joint venture between Kinder Morgan and Energy Transfer that will extend from Oklahoma to Alabama. The pipeline will have an initial capacity of 1.5 billion cubic feet per day and is slated to be 507 miles long with 266 miles of 42 inch pipe, 201 miles of 36-inch pipe and 40 miles of 30-inch pipe. The pipeline has been constructed and commenced service in early 2009. The Midcontinent Express project and the proposed Project will cross in the Lamar County, Texas, area. The Midcontinent Express Pipeline and the proposed Project will be constructed in different years. As a result, many cumulative impacts due to construction in the same year will be avoided (e.g., construction traffic and work forces). For some resources (e.g., soils, vegetation, water, cultural resources), successive construction will result in additive impacts.

5.3.7 TOPS Crude Unloading Station/Pipeline

Oiltanking Holding Americas, Inc. has proposed to construct, own, and operate a new Texas offshore crude oil port and pipeline system to facilitate delivery of waterborne crude oil to refining centers along the upper Texas Gulf Coast. The Texas Offshore Port System (TOPS) project would include an offshore port, two onshore storage facilities with approximately 5.1 million barrels of total crude oil storage capacity, and an associated 160-mile pipeline system with the capacity to deliver up to 1.8 million bpd of crude oil. System capacity could be expanded with construction of additional offshore facilities. Development of the offshore port system and onshore infrastructure is supported by long-term contracts with Motiva Enterprises LLC and an affiliate of ExxonMobil Corporation, which together have committed a total volume of approximately 725,000 bpd.

The TOPS project involves construction of a deepwater port located approximately 36 miles offshore from Freeport, Texas, and an onshore distribution and storage system. A subsea pipeline will connect the buoys to the onshore distribution system near Freeport. Utilizing directional drilling techniques to minimize beach impact, the TOPS pipeline system would run from the offshore port shore crossing to Freeport and extend along the Texas Gulf Coast to Texas City, Texas, connecting to a 3.9 million barrel crude oil storage facility. From there, the pipeline would connect to existing crude oil pipeline systems currently serving the Texas City and Houston Ship Channel refineries. A separate but complementary component of TOPS would involve construction of a 75-mile pipeline extending from Texas City to its terminus at a planned storage facility with 1.2 million barrels of crude oil capacity near Port Arthur, Texas.

The TOPS project and the proposed Project would cross in Chambers and Jefferson counties, Texas,. Construction of the Project is anticipated in 2012 in this county. If the TOPS pipeline is constructed on schedule (starting early 2010 through 2011), the Project would not cumulatively impact the same resources at the same time.